Formerly Utilized Sites Remedial Action Program (FUSRAP)

INFORMATION REPOSITORY

for the St. Louis Site, Missouri

US Army Corps of Engineers®

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FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP) INFORMATION REPOSITORY FOR THE ST. LOUIS SITES, MISSOURI

CONTENTS

Section	Description	Date
A	Introduction	04/02/98
B	Fact Sheets	Misc. dates
C	Laws and Regulations	07/16/93
D	Public Notices and Press Releases	09/08/94
E	New Articles	Misc. dates

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP) INFORMATION REPOSITORY FOR THE ST. LOUIS SITES, MISSOURI

A - INTRODUCTION

This information repository consists of this binder and the administrative record for this site. Following this introduction, successive sections in this binder contain fact sheets (Section B), the full text of applicable laws and regulations (Section C), public notices and press releases (Section D), and new articles (Section E). The first pages of Sections B, C, and D list the documents included there. The administrative record consists of an administration record binder and a collection of separately bound documents which are listed in the index in that binder.

The comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Section 117, requires public participation in the decision-making process for cleaning up contaminated sites covered by the act. Environmental Protection Agency (EPA) regulations implementing CERCLA are included in the National Oil and Hazardous Substances Pollution Contingency Plan--usually called National Contingency Plan (NCP)--Code of Federal Regulations, Title 400, Part 300 (40 CFR 300). The NCP requires that information repositories be established to implement CERCLA public participation provisions. (See Section C of this binder for the full text of these documents.)

Executive Order 12580, "Superfund Implementation", gives the Army Corps of Engineers (COE) responsibility for information repositories for sites controlled by COE.

This information repository has been compiled in accordance with the NCP and EPA's booklet EPA/540/R-92/009, "Community Relations in Superfund: A Handbook".

The information repository will be updated approximately once each quarter. As it is updated, the binder will be inventoried to ensure its completeness.

Please forward any other questions or requests for additional information to:

Louis A. Dell'Orco, Deputy Project Manager
U.S. Corps of Engineers
St. Louis District FUSRAP Office
9170 Latty Ave.
Berkeley, MO 63134

FACT SHEETS

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)
INFORMATION REPOSITORY FOR THE ST. LOUIS SITES, MISSOURI

B - FACT SHEETS

1. FUSRAP - The St. Louis Site, St. Louis, Missouri

2. Administrative Record Requirements for FUSRAP

3. FUSRAP - Formerly Utilized Sites Remedial Action Program

4. Principal Laws and Regulations Affecting the FUSRAP Cleanup Program

5. DOE FUSRAP Fact Sheet - St. Louis Sites, January 1990

6. DOE FUSRAP Fact Sheet - St. Louis Sites, July 1990

7. DOE FUSRAP Fact Sheet - St. Louis Sites, August 1990

8. DOE FUSRAP Fact Sheet - St. Louis Sites, September 1990

9. DOE FUSRAP Fact Sheet - St. Louis Sites, October 1990

10. DOE FUSRAP Fact Sheet - St. Louis Sites, November 1990

11. BACKGROUNDER - ST. Louis Contamination begins with atomic age, August 1992

12. FUSRAP UPDATE - The St. Louis Sites, St. Louis, Missouri, August 1992

13. FUSRAP - St. Louis Information Update, Feburary 1993

14. FUSRAP - St. Louis Site, St. Louis, Missouri, May 1993

15. EPA Superfund Technical Assistance Grants Factsheet, January 1990

16. FUSRAP UPDATE, THE ST LOUIS SITE, July 1993

17. FUSRAP Formerly Utilized Sites Remedial Action Program



FUSRAP
The St. Louis Site
St. Louis, Missouri

U.S. DEPARTMENT OF ENERGY
Formerly Utilized Sites Remedial Action Program

This fact sheet has been prepared to address community outreach requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA). Fact sheets are one part of an effort to provide public information on environmental restoration and waste management.

The Department of Energy (DOE) is implementing a comprehensive cleanup program for three groups of properties in the St. Louis area under the DOE Formerly Utilized Sites Remedial Action Program (FUSRAP). The properties are (1) the St. Louis Downtown Site (SLDS), (2) the St. Louis Airport Site (SLAPS) and its vicinity properties, and (3) the Latty Avenue Properties, which includes the Hazelwood Interim Storage Site (HISS). The three groups of properties, collectively referred to as the St. Louis site, were placed under FUSRAP at various times from 1981 to 1984. DOE established FUSRAP in 1974 to cleanup or control sites where radioactive contamination exceeding DOE guidelines remains from early years of the nation's atomic energy program.

During World War II, a chemical plant operated by Mallinckrodt in downtown St. Louis (near the McKinley Bridge) processed and produced various forms of uranium compounds and recovered uranium metals for the Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC). Residue from that processing and from the cleanup of buildings at the plant was stored at an AEC-owned, 21-acre parcel of land on McDonald Boulevard, just north of the Lambert-St. Louis International Airport.

In 1966, a private firm purchased some of the residue for its commercial value and hauled it in trucks about one-half mile to a site on Latty Avenue, just north of SLAPS. As a result of transporting this residue, the three properties referred to as the St. Louis site became radioactively contaminated at levels exceeding DOE guidelines and require some type of remedial action. These properties are now under FUSRAP. DOE has identified additional residential and commercial properties, as well as more than 70 properties along roads in the airport area that may be contaminated as a result of hauling the residue.

The primary radioactive contaminant at the site is thorium-230. Analyses have also identified the presence of uranium-238 and radium-226. Given present land use at the site, the low-level radioactivity found at these properties pose no threat to public health or the environment. Performing remedial action and achieving cleanup standards will ensure that the properties pose no significant risk if land use changes in the future.

Under FUSRAP, DOE has analyzed core samples from the properties to determine the nature of the contamination, a process called **characterization**. Characterization has been completed at SLDS, HISS, and SLAPS and its vicinity properties.

Much of the characterization work was performed on soil and sediment samples taken along the haul roads and from a section of Coldwater Creek between Banshee Road and Old Halls Ferry Road. Work along the haul roads indicated some contamination on road shoulders and adjacent properties. In general, any contamination found along the haul roads has been low-level and at depths of less than one foot. Although the characterization is essentially complete, some additional investigation will be needed in these two areas.

DOE recently completed a radiological characterization report for properties located in Berkeley, Hazelwood, and St. Louis. DOE sent notification to owners of those properties detailing results of the surveys. DOE has also called and met with some owners whose properties have contamination exceeding DOE guidelines to discuss the nature of the contamination and the cleanup process. Data from this characterization and other surveys will be used to design a cleanup program for long-term management of these wastes.

In October 1989, the Environmental Protection Agency (EPA) placed SLAPS and the Latty Avenue Properties on the National Priorities List (NPL). Placement on the NPL requires cleanup to proceed under

the authority of EPA and the guidelines of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Comprehensive cleanup measures will be preceded by a complete environmental review process as required by CERCLA and the National Environmental Policy Act (NEPA).

In 1990, DOE and EPA signed an agreement that outlines the environmental review process, referred to as the remedial investigation/feasibility study (RI/FS) process. The RI/FS process is used to determine the ultimate disposition of radioactive materials from the St. Louis site. The goal of the RI/FS process is to reach a formal record of decision (ROD), which describes the selected cleanup alternative. A range of alternatives, including off-site and on-site disposal, will be evaluated. Opportunities will be provided for the public to comment on and participate in the environmental review process. Selection of a disposal site will not be made until completion of a full environmental review, currently scheduled for 1994. DOE will design and begin the cleanup after a ROD has been reached.

If funding is available, DOE may perform an interim cleanup of some of the residential and commercial properties while this review process is being conducted to prevent further spread of contamination.

In response to requests by St. Louis residents to make site information more readily available, DOE opened its Public Information Office at 9200 Latty Avenue in Hazelwood, Missouri. In addition to offering site information, the office provides opportunities for the public to comment on and participate in the environmental review process. The public will be asked to review and comment on any remedial action plan proposed by DOE.

DOE has also opened for public review an administrative record containing documents related to the St. Louis site. Decisions about the cleanup of the site will be based on these documents. This record and general information repositories are available for review during normal business hours at:

St. Louis Public Library —
Government Information Section
1301 Olive Street
St. Louis, Missouri, 63103

St. Louis County Library —
Prairie Commons Branch
915 Utz Lane
Hazelwood, Missouri, 63042

and

DOE Public Information Office
9200 Latty Avenue
Hazelwood, Missouri, 63042
(314) 524-4083

For more information or to be included on the site mailing list, write or call the DOE Public Information Office or:

David G. Adler, St. Louis Site Manager
U.S. Department of Energy
Former Sites Restoration Division
P.O. Box 2001
Oak Ridge, Tennessee 37831-8723
(615) 576-0948

ACRONYMS USED

AEC	Atomic Energy Commission
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	Department of Energy
EPA	Environmental Protection Agency
FUSRAP	Formerly Utilized Sites Remedial Action Program
HISS	Hazelwood Interim Storage Site
MED	Manhattan Engineer District
NPL	National Priorities List
NEPA	National Environmental Policy Act
RI/FS	remedial investigation/feasibility study
ROD	record of decision
SLAPS	St. Louis Airport Site
SLDS	St. Louis Downtown Site

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Administrative Record Requirements for FUSRAP

U.S. DEPARTMENT OF ENERGY
Formerly Utilized Sites Remedial Action Program

The Formerly Utilized Sites Remedial Action Program (FUSRAP) is one of several Department of Energy (DOE) programs created to address radioactive contamination exceeding guidelines at sites throughout the U.S. FUSRAP is responsible for 33 sites in 13 states—some of the FUSRAP sites are Superfund sites. This fact sheet has been prepared to address community outreach requirements set by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA). Fact sheets are one part of an effort to provide public information on environmental restoration and waste management.

An administrative record is a collection of documents that forms the basis for selecting a response action at a Superfund site. Under Section 113(k) of CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA), the Environmental Protection Agency (EPA) requires the establishment of an administrative record for every Superfund response action and that a copy of the record be made available for public review at or near the site. DOE is committed to performing response actions at all FUSRAP sites in compliance with CERCLA, whether they are Superfund or non-Superfund sites.

CERCLA requires that the administrative record be reasonably available for public review during normal business hours. The record should be treated as a noncirculated reference document (i.e., it may not be removed from the repository), thus allowing the public greater access to the record and minimizing the risk of loss or damage. Documents will be added to the record as the site work progresses. People may photocopy documents contained in the record according to the photocopying procedures at the local repository.

If the documents in the administrative record become damaged or lost, the local repository manager may request replacement documents from the DOE site manager. Periodically DOE may send relevant supplemental documents and indexes directly to the local repository to be placed with the initial record.

The administrative record will be maintained at the local repository until further notice. Questions about maintenance of the record should be directed to the DOE site manager. DOE welcomes comments on documents in the administrative record.

DOE may hold formal public comment periods at certain planning stages of response actions. The public is encouraged to use these formal review periods to submit comments. Send any such comments or site-related questions (please indicate the site location) to the following address:

Formerly Utilized Sites Remedial Action Program
U.S. Department of Energy
Former Sites Restoration Division
P.O. Box 2001
Oak Ridge, Tennessee 37831-8723

For more information, please call:

(615) 576-9048



FUSRAP
Formerly Utilized Sites Remedial Action Program

U.S. DEPARTMENT OF ENERGY
Formerly Utilized Sites Remedial Action Program

This fact sheet has been prepared to address community outreach requirements set by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA). Fact sheets are one part of an effort to provide public information on environmental restoration and waste management.

The Formerly Utilized Sites Remedial Action Program (FUSRAP) is one of several U.S. Department of Energy (DOE) programs created to address radiological contamination in excess of guidelines at a number of sites throughout the United States. DOE and its predecessor agencies, the Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC), used many of these sites for processing and storing uranium and thorium ores during the 1940s, 1950s, and 1960s. Some of these sites were owned by the federal government; others were owned by universities or other institutions; and still others were privately owned.

Generally, sites that became contaminated through the uranium and thorium operations during the early period of the nation's nuclear program were decontaminated and released for use under the regulations in effect at the time. Since radiological guidelines were not as strict then as today, trace amounts of radioactive materials remained at some of the sites. Erosion and building demolition and construction resulted in some of the radioactive residues mixing with large volumes of soil and rubble, thereby spreading the contamination.

To further assess these sites and take appropriate remedial action, the federal government initiated FUSRAP in 1974. Initial site activities focus on reviewing old records and surveying sites to determine if contamination exists and if remedial action is required. If this survey determines that the site requires remedial action, it is authorized under FUSRAP. Limited remedial action began at some sites in 1979, and major remedial action has been under way since 1981. Currently, FUSRAP includes 33 sites in 13 states (see map). Remedial action has been completed at nine of the sites, and partial remedial action has been completed at nine others.

Objectives

The objectives of FUSRAP are to:

- Identify and evaluate all sites formerly used to support early MED/AEC nuclear work and determine whether the sites need decontamination and/or control.
- Decontaminate and/or apply controls to these sites so that they conform to current applicable guidelines.
- Dispose of and/or stabilize all generated residues in a radiologically and environmentally acceptable manner.
- Accomplish all work according to appropriate federal laws and regulations, local and state environmental and land-use requirements to the extent permitted by federal law, and applicable DOE orders, regulations, standards, policies, and procedures.
- Certify the sites for appropriate future use.

Organization

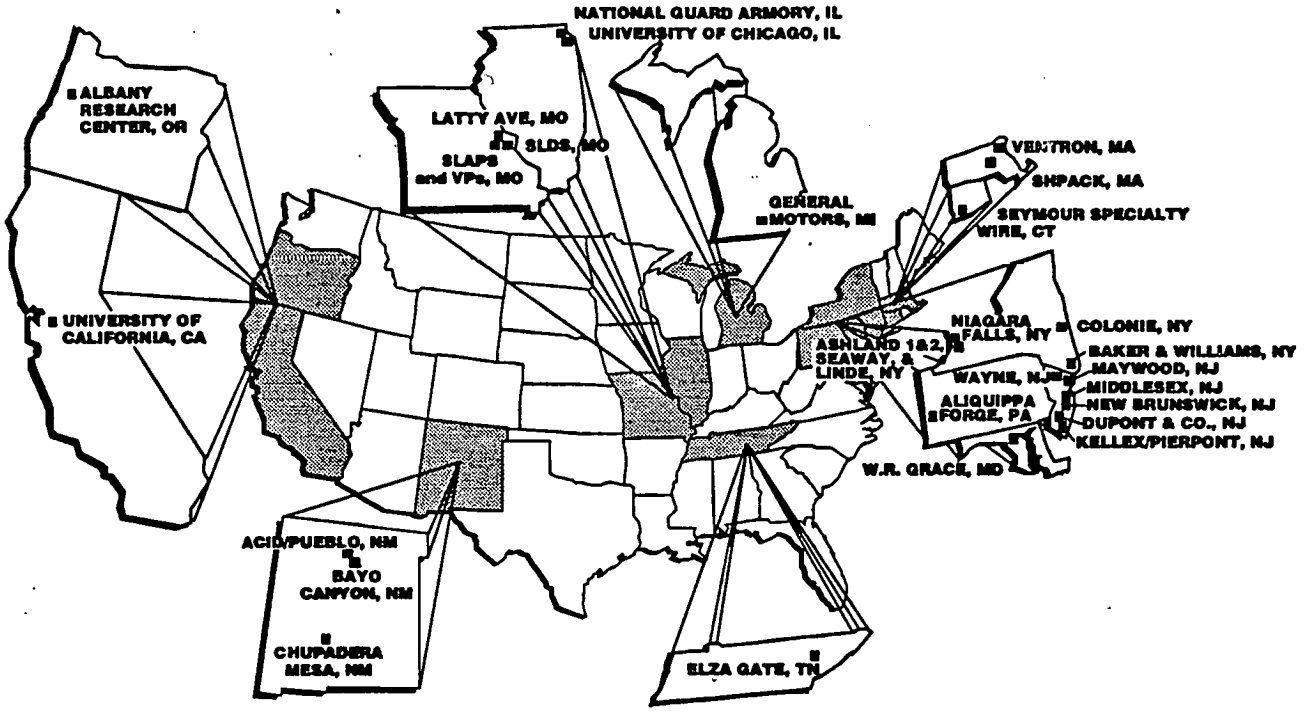
At DOE Headquarters, FUSRAP falls under the responsibility of the Director, Office of Environmental Restoration and Waste Management.

Technical, administrative, and financial management of FUSRAP field activities are the responsibility of the Former Sites Restoration Division (FSRD) of the DOE Oak Ridge Operations Office (ORO). Bechtel National, Inc., (BNI) the FUSRAP project management contractor, is responsible to FSRD for planning and implementing FUSRAP activities. BNI analyzes site conditions and evaluates and implements appropriate remedial actions; it also conducts environmental monitoring before, during, and after remedial action. BNI also administers subcontracts, coordinates the sequence of operations, controls the relationships among subcontractors, and ensures execution and documentation of project work in accordance with DOE guidance.

Argonne National Laboratory participates in preparing environmental compliance documentation required by NEPA and CERCLA to ensure that all feasible remedial action alternatives for a site have been evaluated and that the approach chosen is environmentally acceptable.

The radioactivity at FUSRAP sites does not present an immediate health hazard under current land use because the materials have very low concentrations and people are not exposed to them for prolonged periods of time. Although these materials are not a hazard, they will remain radioactive for thousands of years, and could cause a potential for increased health risks if the use of the land were to change.

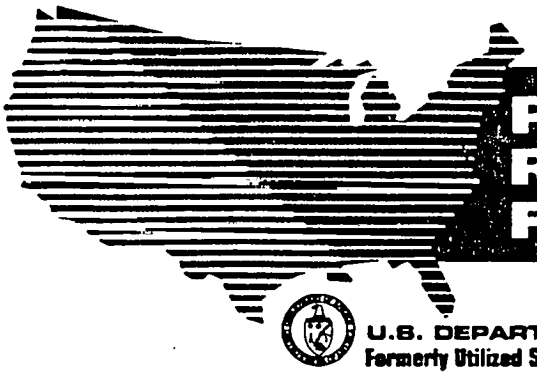
Under the guidelines established for FUSRAP, the sites will be remediated to a very conservative standard that takes into consideration possible future land uses, such as residential development, crop production, and the installation of drinking water wells.



FUSRAP Sites

Acronyms Used

AEC	Atomic Energy Commission
BNI	Bechtel National, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	Department of Energy
FSRD	Former Sites Restoration Division
FUSRAP	Formerly Utilized Sites Remedial Action Program
MED	Manhattan Engineer District
NEPA	National Environmental Policy Act
ORO	Oak Ridge Operations Office



Principal Laws and Regulations Affecting the FUSRAP Cleanup Program

U.S. DEPARTMENT OF ENERGY
Formerly Utilized Sites Remedial Action Program

This fact sheet has been prepared to address community outreach requirements set by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA). Fact sheets are one part of an effort to provide public information on environmental restoration and waste management on the FUSRAP project.

Several federal laws guide environmental restoration in the United States. Each has a different emphasis, but together, they target the most pressing hazardous waste sites in the nation. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980—also known as Superfund—provides for the funding, study, and implementation of cleanup efforts. Another applicable law is the National Environmental Policy Act (NEPA) of 1969, which requires federal agencies to consider possible environmental effects when making decisions. Both laws require public involvement under a well-defined set of activities and schedules. It is the policy of the Department of Energy (DOE) that community relations requirements be combined under the more comprehensive CERCLA umbrella. Investigations, analyses, and documentation for these two laws will also be combined and integrated to streamline regulatory review and reduce paperwork.

The Environmental Protection Agency (EPA) emphasizes that the cleanup process is dynamic and flexible, and is tailored to the specific circumstances of each site. A phased approach of study is used to help maximize efforts. Researchers first collect available data to learn about the general conditions at a site. As a basic understanding is reached, they begin to identify possible cleanup alternatives. To fill in gaps of information and to test potential cleanup methods, they collect additional data, which is used to focus researchers' understanding and to refine alternatives. This interactive progression of study goes back and forth between data collection and testing, and the development and refinement of alternatives, until enough information has been collected to identify sound alternatives. The goal of gathering this information is not to remove all uncertainty (an impossible task), but to gather enough information to make and support an informed decision on which remedy appears to be the most appropriate for a given site.

Descriptions of the principal federal laws under which FUSRAP operates are provided in this fact sheet. While provisions vary in detail, the end goal remains constant—to protect the safety of human health and the environment.

CERCLA: Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amened by the Superfund Amendments and Reauthorization Act (SARA) of 1986

CERCLA is a 1980 federal law that was extensively amended in 1986. The act created a special tax that goes into a trust fund, commonly known as Superfund, to investigate and to perform remediation of abandoned or uncontrolled hazardous waste sites. CERCLA consists of three phases: (1) a preliminary assessment, (2) a thorough study of the site, exploration of alternatives, and selection of a remedial action plan, and (3) design and implementation of the chosen plan.

1) The CERCLA preliminary assessment/site inspection (PA/SI) is used to determine which sites should be placed on the National Priorities List (NPL). The NPL identifies the most serious uncontrolled or abandoned hazardous waste sites. The assessment focuses on the potential for contamination. If the assessment determines that further action is needed, a site inspection is performed to assess the threat to the public and the environment. The site is scored using a brief, on-site investigation. Sites that exceed a certain score are added to the NPL.

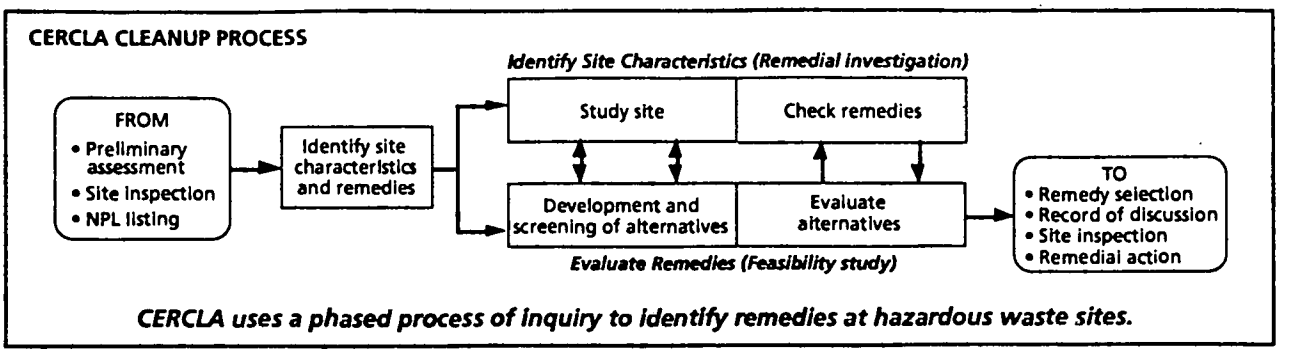
   The NPL may also list hazardous sites named by states as their top priority sites and sites determined to pose a significant threat to public health, welfare, or the environment.

2) A remedial investigation/feasibility study (RI/FS) is conducted for sites placed on the NPL. The RI/FS has several components.

The first stage involves planning. All work performed during the RI/FS follows general principles developed during a scoping, or planning, phase. Existing data on a hazardous waste site is evaluated to develop a cleanup strategy, identify likely objectives, and prepare a work plan. A sampling analysis plan is developed so that any decisions made are developed using the most accurate and best documented data possible.

The next step is the remedial investigation portion of the cleanup, during which extensive sampling and analysis activities are performed. The feasibility study, which is performed simultaneously, uses the data to develop a range of alternatives for remediation. One alternative is selected, and entered into the record of decision (ROD), which records the preferred method and manner of remediation. The record also considers public comments and community concerns.

3) A remedial design/remedial action (RD/RA) is conducted to implement the decision, and to monitor the performance of the environmental restoration.



CERCLA uses a phased process of inquiry to identify remedies at hazardous waste sites.

NEPA: National Environmental Policy Act (NEPA) of 1969

NEPA is the federal law that sets basic policy on protection of the environment. The principal purpose of NEPA is to determine if a major federal action has significant environmental effects. NEPA requires federal agencies to evaluate all environmental impacts before implementing actions.

If an action clearly has no significant impact, a categorical exclusion fulfills the obligation. If an action may have environmental consequences, an environmental assessment (EA) or an environmental impact statement (EIS) may be necessary. In preparing an EA, data are collected and analyzed to determine whether impacts are sufficient to justify the preparation of the more complete EIS study, or whether a "finding of no significant impact" is found.

If an EIS is required, NEPA requires public participation early in the process of identifying conditions at the site and in the assessment of alternatives. Public involvement, or "scoping," ensures that real problems are identified early, concentrates energies and effort on those areas requiring resolution, and provides for a balanced and thorough EIS. The NEPA scoping process is different from that of CERCLA. NEPA scoping focuses on public participation, while CERCLA scoping concentrates on planning.

As part of the CERCLA/NEPA process, DOE establishes an administrative record containing all documents that form the basis for the selection of a response action. A copy of the administrative record is made available to the public at a location near the site, usually a library. Availability and location of the administrative record are announced in newspaper advertisements and fact sheets.

Other Laws and Standards

A variety of other laws or standards may also apply to specific sites. Brief summaries follow:

- The Toxic Substances Control Act regulates certain classes of chemicals, including polychlorinated biphenyls (PCBs).
- The Resource Conservation and Recovery Act created a management system for hazardous wastes, requiring that safe and secure procedures be used in treating, transporting, storing, and disposing of hazardous wastes. Facilities must hold permits to handle these wastes and are required to operate within specific guidelines.
- The Clean Air Act is a federal law that controls emissions of waste into the air. Special protective equipment and permits are required.
- The Clean Water Act is a similar federal law that controls the amount of waste that can be released into surface water bodies or publicly owned treatment systems.
- The Safe Drinking Water Act is designed to protect drinking water resources. This law is incorporated into CERCLA provisions dealing with groundwater protection.
- National Emission Standards for Hazardous Air Pollutants limit air emissions of pollutants.

Cleanup activities are regulated by a federal facilities agreement (FFA) between DOE, EPA, and the state. The agreement prioritizes cleanup activities, assigns agency roles and responsibilities, and establishes procedures for document review and interaction among the agency officials.

Combined Investigations

Many laws and regulations have been enacted to ensure the protection of human health and the environment. Often, they are written to regulate particular discharges under particular circumstances, such as chemical releases into groundwater. At any one waste site, one or more laws may apply, or none, depending on the extent of contamination and the types of contaminants. The regulations and standards that pertain to a particular site are determined early to ensure that all applicable and/or appropriate requirements are met.

On FUSRAP, it is not unusual for a site to require environmental restoration under multiple regulations. DOE plans to integrate technical and community relations activities under provisions of CERCLA, making adjustments to incorporate special requirements of NEPA where necessary.

Acronyms Used

CERCLA	Comprehensive Environmental Response, Compensation, and Liabilities Act
DOE	Department of Energy
EA	environmental assessment
EIS	environmental impact statement
EPA	Environmental Protection Agency
FFA	federal facilities agreement
NEPA	National Environmental Policy Act
NPL	National Priorities List
PA/SI	preliminary assessment/site investigation
PCBs	polychlorinated biphenyls
RD/RA	remedial design/remedial action
RI/FS	remedial investigation/feasibility study
ROD	record of decision

The U.S. Department of Energy Formerly Utilized Sites Remedial Action Program

DOE

FUSRAP Fact Sheet St. Louis Sites

January 1990

DOE evaluating three sites in St. Louis area

Summary

- DOE is responsible for cleanup of residual radioactivity at the St. Louis Downtown Site, the St. Louis Airport Site and the Latty Avenue properties
- Given the type of radioactive contamination and the current use of the site there is no foreseeable hazard.
- DOE is developing an agreement with EPA, in conjunction with the State of Missouri, to outline the environmental review process, set roles and responsibilities, and establish a schedule
- While the environmental review is in process, DOE plans to conduct interim action on selected properties to prevent further spread of contamination

The U. S. Department of Energy (DOE) is responsible for cleaning up residual radioactive contamination at several locations in the St. Louis area as part of DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP). The objectives of FUSRAP are to identify sites that were used by the government or its contractors in the early years of the nation's atomic energy programs and ensure that those sites meet current environmental standards. FUSRAP presently includes 31 sites in 13 states.

This fact sheet gives a brief history of the St. Louis sites and describes the process that will be used by DOE, in conjunction with the Environmental Protection Agency and the State of Missouri, to identify and carry out the appropriate cleanup measures.

BACKGROUND

During World War II, uranium was processed at a chemical plant operated by Mallinckrodt in downtown St. Louis. Residues from that processing and from the cleanup of buildings at the plant were stored at a 21-acre parcel of land that was owned by the Atomic Energy Commission on McDonnell Boulevard just north of the Lambert-St. Louis International Airport.

In 1966, some of the residues were purchased by a private firm for their commercial value and trucked to a site on Latty Avenue, about a half-mile north of the airport site. The residues were then sent by rail to a plant in Colorado for processing. The City of St. Louis acquired the property from the Atomic Energy Commission, a predecessor agency to DOE, in 1973.

DOE has also identified more than 60 "haul route" properties in the general area north of the airport that may be contaminated as a result of hauling materials from the airport site to Latty Avenue.

As a result of these activities, there are three FUSRAP sites in the Greater St. Louis area which contain levels of radioactivity above current standards and, therefore, require some type of remedial action. They are (1) the St. Louis Downtown Site (SLDS); (2) the St. Louis Airport Site (SLAPS) and its contaminated vicinity properties, and (3) the Latty Avenue Properties.

There are two other similar sites in the St. Louis area that are not part of FUSRAP. One is the Weldon Spring site in St. Charles County, which is being managed by a separate DOE program. The other is the West Lake Landfill in St. Louis County, where residues from the Latty Avenue facility were disposed of by a commercial firm. The West Lake Landfill has been proposed by EPA for inclusion on the National Priorities List (Superfund). The Nuclear Regulatory Commission is presently responsible for regulating the contamination at the landfill.

AUTHORIZING LEGISLATION

Several different laws provide DOE with authority and responsibility for remedial action at these sites. The basic authority for the Downtown and SLAPS properties comes from the Atomic Energy Act of 1954, as amended. The conference report accompanying the Energy and Water Development Appropriations Act of 1984 provided DOE authority for the Latty Avenue Properties. Public Law 98-360, passed in 1985, directed DOE to reacquire the airport property from the City of St. Louis and develop it as a disposal site, in a manner acceptable to the City. This legislation does not mean that the site will automatically become a disposal cell upon transfer of the land to DOE. Selection of a disposal site will not be made until completion of a full environmental review, including review of alternative disposal sites. Selection of a preferred site will be based upon site suitability and all applicable laws.

In October of 1989, EPA placed the airport site and the Latty Avenue Properties on the National Priorities List (Superfund). This Superfund listing will mean that cleanup can proceed under Superfund authority, that certain time schedules must be met, and that EPA and the State of Missouri will have a greater role in oversight of DOE activities.

WORK TO DATE

In the past several years DOE has accomplished a great deal of work at the St. Louis sites. This has consisted primarily of characterization (sampling and analysis to determine the nature and extent of contamination). Characterization has been completed at SLAPS, the Hazelwood Interim Storage Site (HISS) and at the St. Louis Downtown Site. Recently completed work focused on Coldwater Creek and about 70 "haul route" properties. Work on Coldwater Creek, a portion of which was funded by the Corps of Engineers, involved collection and analysis of soil samples from the creek between Pershall Road and Old Halls Ferry Road, a distance of almost 7 miles. Contamination, at low levels, was found at some sampling locations. Work along the haul routes indicated some contamination on road shoulders and adjacent properties. In general, where contamination was found the levels were low and at shallow depths (less than 1 foot). While the characterization is essentially complete, some additional investigation in the creek and along the haul routes will be needed.

In addition to characterization, DOE has performed some interim cleanup activity to prevent the spread of contamination or remove contamination from the route of utility construction. Contamination from the Latty Avenue Properties and from the Latty Avenue right-of-way has been cleaned. This material is in interim storage at the HISS on Latty Avenue. DOE also repaired erosion along the west end of the airport site and installed a gabion wall to prevent further erosion of soil into Coldwater Creek. (Gabions are rock-filled wire baskets used to control erosion.)

DOE conducts environmental monitoring around the airport site and HISS, testing the air, groundwater, surface water, and direct radiation on a quarterly basis. Annual site environmental monitoring reports are published and made available to the public.

FUTURE ACTIVITIES

With the placement of sites on Superfund DOE began discussions that will lead to an agreement with EPA, with input from the

State of Missouri. This agreement will outline the environmental review process to be used in making a decision on the ultimate disposition of radioactive materials from the St. Louis sites. The agreement will list responsibilities of the various parties and set out a schedule for accomplishing the work.

The environmental review process will comply with all applicable laws and regulations. The two primary laws involved are the National Environmental Policy Act (NEPA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA). The environmental documentation accomplished under NEPA is called an Environmental Impact Statement (EIS). Documentation done under CERCLA/SARA is called a Remedial Investigation/Feasibility Study (RI/FS). DOE will combine these two processes and produce a joint RI/FS-EIS.

The goal of this process is to reach a "Record of Decision" describing the cleanup to be done. The process starts with scoping and planning, which includes an opportunity for the public to comment on alternatives that should be considered in the study. A range of alternatives including offsite disposal and onsite disposal will be evaluated.

After scoping and planning have been completed, a remedial investigation will be conducted, followed by a remedial investigation report. A feasibility study will be conducted to evaluate various alternatives, and a proposed plan will be issued for public review and comment. DOE will then issue a Record of Decision, which will include responses to comments received from the public. After a Record of Decision has been reached, DOE will design and implement the cleanup.

In the interim, while this review process is being conducted, DOE is planning to clean up some of the residential and commercial properties in order to prevent further spread of the contamination. The contaminated material from this cleanup would be placed with other material already in storage at HISS.

SUMMARY

The low levels of residual radioactivity identified by FUSRAP pose no significant health hazards given current land use activities. This conclusion is supported by results from extensive characterization activity and an ongoing environmental monitoring program at the SLAPS and HISS sites.

A great deal of work has been accomplished by DOE to identify the extent of residual radioactive contamination in the Greater St. Louis area. DOE is committed to fully evaluating alternatives for cleaning up these sites, in cooperation with EPA, the State of Missouri, and local officials. During this process, there will be numerous opportunities for public participation. While this environmental review process is being conducted, DOE is planning interim action to prevent further spread of contamination.

In the meantime, DOE has established an Administrative Record containing the body of information upon which decisions about the cleanup will be based. The record is available for review, during normal business hours, in the Government Information Section at the St. Louis Public Library, 1301 Olive Street, St. Louis, MO 63103, and at the St. Louis County Library, Prairie Commons Branch, 915 Utz Lane, Hazelwood, MO 63042.

For more information or to be included on the mailing list for updates about the site; call or write:

David Adler
Technical Services Division
Department of Energy
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(615) 576-0948

The U.S. Department of Energy Formerly Utilized Sites Remedial Action Program

DOE FUSRAP Fact Sheet St. Louis Sites

July 1990

DOE, EPA sign agreement to coordinate St. Louis cleanup activities

Summary

- DOE has established a program to cleanup residual radioactivity at the St. Louis Downtown Site, the St. Louis Airport Site and the Latty Avenue Properties
- Results of extensive sampling studies conducted at the St. Louis Sites demonstrate that existing contamination poses no health hazard under current land use conditions
- DOE has signed an agreement with EPA outlining the environmental review process, setting roles and responsibilities, and establishing a schedule
- In August, St. Louis site information will be available at the FUSRAP Information Trailer located at 9200 Latty Avenue

The Department of Energy (DOE) and the U. S. Environmental Protection Agency (EPA) signed an agreement in July that outlines the environmental review process to be used in making a decision on the ultimate disposition of radioactive materials from the St. Louis Airport Superfund Site, and associated contaminated propeties. The goal of this process is to reach a Record of Decision which describes the selected cleanup alternative. As a key element of the process, the public is provided opportunities to comment on and participate in the decision-making process.

A range of alternatives, including offsite disposal and onsite disposal will be evaluated. Selection of a disposal site will not be made until completion of a full environmental review, currently scheduled for 1994. DOE will design and implement the cleanup after a Record of Decision has been reached.

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History

During World War II, uranium was processed at a chemical plant operated by Mallinckrodt in downtown St. Louis. Residues from that processing and from the cleanup of buildings at the plant were stored at a 21-acre parcel of land that was owned by the Atomic Energy Commission on McDonnell Boulevard just north of the Lambert-St. Louis International Airport. In 1966, some of the residues were purchased by a private firm for their commercial value and trucked to a site on Latty Avenue, about a half-mile north of the airport site.

As a result of these activities, three FUSRAP sites in the Greater St. Louis area contain levels of radioactivity above current standards and require some type of remedial action. DOE has also identified more than 70 "haul route" properties in the general airport area that may be contaminated as a result of hauling materials from the airport site to Latty Avenue. The low- level radioactivity found at these sites poses no threat to public health or the environment, given current land use.

Work to Date

In the past several years DOE has accomplished a great deal of work at the St. Louis sites. This work consisted primarily of characterization (sampling and analysis to determine the nature and extent of contamination). Characterization has been completed at SLAPS, the Hazelwood Interim Storage Site (HISS) and at the St. Louis Downtown Site. Recently completed work focused on Coldwater Creek and about 70 "haul route" properties. Work on Coldwater Creek involved collection and analysis of soil samples from the creek between Pershall Road and Old Halls Ferry Road. Contamination, at low levels, was found at some sampling locations. Work along the haul routes indicated some contamination on road shoulders and adjacent properties. In general, where contamination was found the levels were low and at shallow depths (less than one foot). While the characterization is essentially complete, some additional investigation in the creek and along the haul routes will be needed.

Site Information

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September 1990

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October. 1990

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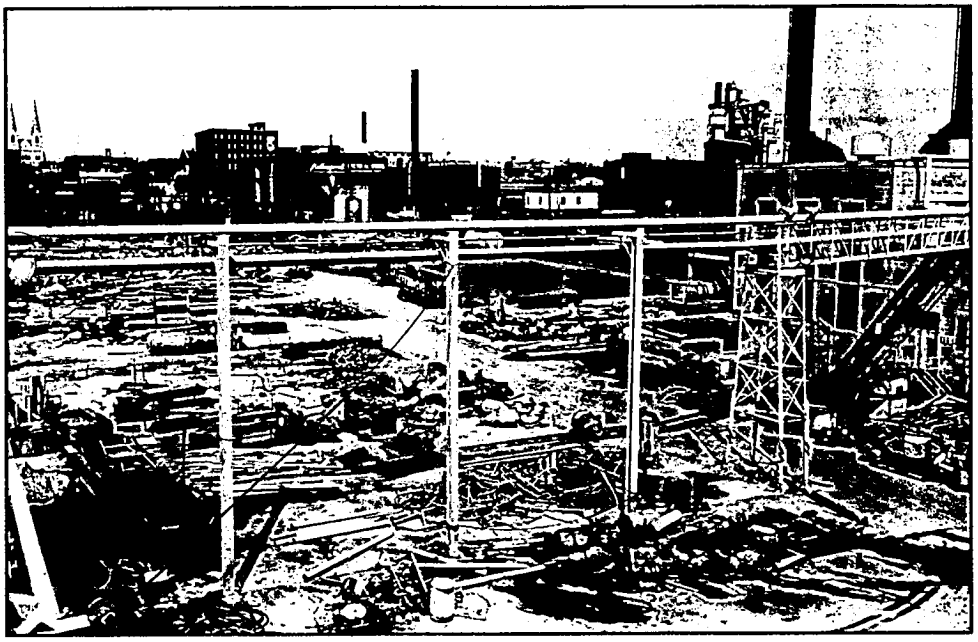
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BACKGROUNDER
This is the first in a series of background articles on the St. Louis FUSRAP sites. This summarizes the history of the contamination on the sites.

St. Louis contamination begins with atomic age



▲
Uranium processing for government nuclear projects began during World War II at this site in downtown St. Louis.

The four sites in St. Louis that are slated for cleanup under the Department of Energy's Formerly Utilized Sites Remedial Action Program (FUSRAP) were contaminated as a result of activities conducted in the 1940s and 50s as part of the nations's defense program.

In those early years, most uranium, the principal source of nuclear fuel, was extracted from foreign ores. Uranium is an element that occurs naturally, usually in combination with other elements. In its raw form, uranium ore cannot be used as a fuel. The uranium must be separated from all other elements, and the part that is used as fuel, called fissionable uranium, must be concentrated.

Much of the government-sponsored research and development in the 1940s was conducted at national laboratories and universities, with commercial firms producing the needed raw and finished material.

One of these commercial firms was the Mallinckrodt Chemical Works that had already been operating in downtown St. Louis for more than 50 years.

MCW processes uranium

From 1942 to 1957, the Manhattan Engineer District/Atomic Energy Commission contracted with Mallinckrodt to perform several operations, including processing and producing various forms of uranium compounds and pure uranium metal. As a result of these activities, materials, equipment, buildings, and parts of the property became contaminated with naturally occurring radioactive materials.

At completion of the MED/AEC operations, the facilities were cleaned up and decontaminated according to the standards and survey methods in effect at the time. However, later radiological surveys showed that portions of the facility retain levels of radioactivity in excess of current, more stringent, federal guidelines.

DOE to clean up

The Department of Energy, which is the successor agency of the AEC, has taken the lead for cleanup of contamination that occurred as a result of government operations on that site and on the other sites that became contaminated as a result of transporting and storing the contaminated materials from the downtown site.

The portion of the Mallickrodt property included in DOE's cleanup operation is referred to as the St. Louis Downtown Site. Six vicinity

properties also exhibit residual areas of contamination.

Residues taken to North County

In 1946, the MED acquired a 21-acre site just north of the St. Louis Airport for storage of residues from uranium processing conducted at SLDS. Residue from uranium processing and from cleanup of buildings at the plant was taken to the St. Louis Airport Site for storage. The property was fenced to prevent public access.

No permanent buildings or facilities remain at SLAPS. They were demolished and buried on site under 1-3 feet of clean material in 1969.

SLAPS is sometimes mentioned as a possible permanent disposal cell location for the St. Louis sites. This is because Congress directed DOE to acquire SLAPS for this purpose in the 1985 Energy and Water Development Appropriations Act. However, under the comprehensive process required by federal law prior to cleanup and disposal, DOE is directed to consider other options in addition to the directions of Congress.

Residues reach Latty Ave.

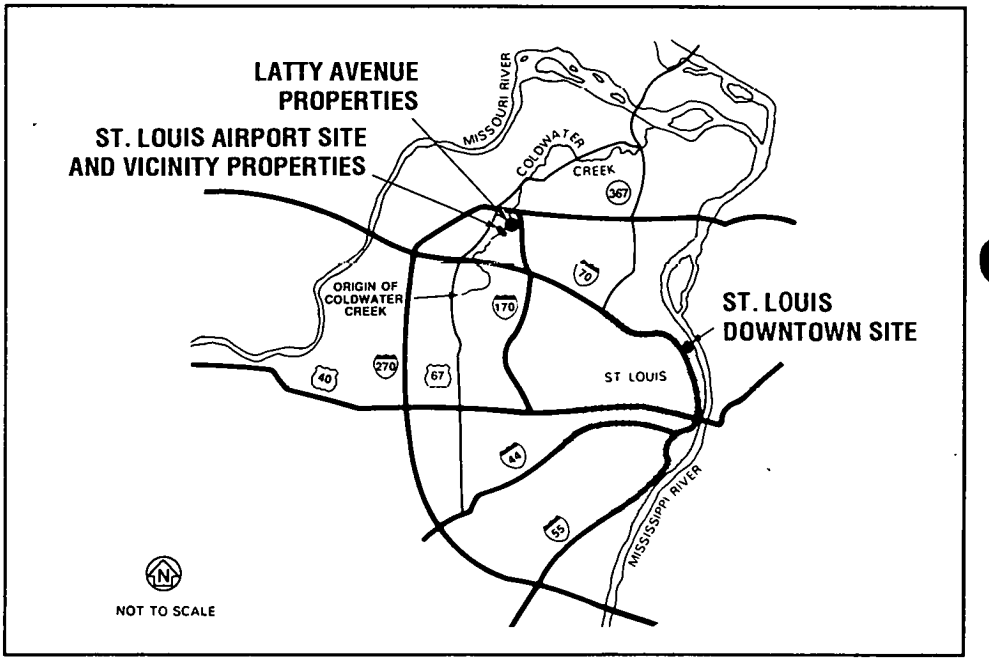
In 1966, Continental Mining and Milling of Chicago, Illinois, purchased process residues at SLAPS for its commercial value and hauled it in trucks about one-half mile to a site on Latty Avenue, just north of the airport site. These residues contained valuable metals in addition to the uranium.

As a result of hauling practices that would not be allowed today, some of these residues blew off the trucks and randomly contaminated vicinity properties such as highway rights-of-way and portions of private properties along the haul routes. Continental stored the residues at the Latty Avenue properties during 1966-67. A successor firm, Commercial Discount Corporation, dried and shipped the material to a new owner, the Cotter Corporation in Colorado.

Later, Cotter purchased the remaining materials at Latty Avenue and continued shipments to their property in Colorado.

Surveys and a renovation were conducted at the Latty Avenue properties in the late 1970s. The contaminated soil and debris from these decontamination efforts are currently stored at the portion of the Latty Avenue properties called the Hazelwood Interim Storage Site (HISS). The piles at HISS also contain material from a cleanup along Latty Avenue, some of which was in support of a storm sewer installation.

The primary radioactive contaminant on the St. Louis sites is thorium-230. Analyses have also identified the presence of uranium-238 and radium-226. Given present land use, the low-level radioactivity found on these properties poses no immediate threat to public health or the environment. However, performing remedial action and achieving cleanup standards will ensure that the contamination poses no significant risk if land use changes in the future.



Locations of FUSRAP properties in the St. Louis, Missouri, area.

Cleanup process underway

In October 1989, the Environmental Protection Agency placed SLAPS and the Latty Avenue properties on the National Priorities List. This action requires cleanup to proceed under the authority of EPA and the guidelines of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Comprehensive cleanup measures will be preceded by a complete environmental review process as required by CERCLA and the National Environmental Policy Act (NEPA).

In 1990, DOE and EPA signed an agreement that outlines the environmental review process, referred to as the remedial investigation/feasibility study (RI/FS), that leads to a decision on cleanup alternatives on the St. Louis sites.

DOE is well into the RI/FS process and anticipates release of the draft Feasibility Study-Environmental Impact Statement and the Proposed Plan in early 1994.

Selection of a final cleanup strategy will not be made until after public review of the RI/FS and the record of decision, which is currently scheduled for mid-1995. DOE will design and begin the cleanup after a record of decision has been reached.

The RI/FS process is lengthy, but it assures that when a decision is made on cleanup for the St. Louis sites that it will have been reached after consideration of all aspects of environmental, public health, and safety concerns.

FUSRAP Update
The St. Louis Sites
St. Louis, Missouri

Department of Energy
Field Office, Oak Ridge
Post Office Box 2001
Oak Ridge, Tennessee 37831-8723

August 1992

Dear St. Louis Resident:

The April issue of *FUSRAP Update* focused on the Department of Energy's proposal to conduct limited cleanup measures in the Hazelwood/Berkeley area. DOE continues to seriously pursue this proposal, but we are awaiting an opportunity to discuss technical issues with an oversight committee that is being appointed by St. Louis County before proceeding.

This decision allows time for DOE to respond to technical issues raised during the public comment period and in a hearing conducted by the St. Louis County Council. We are pleased that the County Council adopted a resolution calling for appointment of an oversight committee which will conduct an independent assessment of the issues. We look forward to meeting and working with the County's technical panel. See page 2 for more information.

Although we are not performing the interim cleanup on North County properties this summer, DOE is conducting a limited field sampling activity on all four of the St. Louis sites. The photo inset shows one of the field sampling crews. This field sampling will provide all data needed to complete the Feasibility Study for St. Louis. See page 2 for more information.

In response to an invitation from State Representative Louis H. Ford, DOE met on June 11 with community leaders in the neighborhood surrounding the St. Louis Downtown Site. The agenda included a discussion of what effect, if any, the SLDS contamination would have on the community. A preliminary decision was made by the community leaders to work more closely with DOE in following the characterization schedule leading to a decision on cleanup and tentatively to set up an oversight committee for the SLDS.



Thank you again for your interest in the FUSRAP environmental restoration projects in the St. Louis area. If you would like to meet or talk with me, you can reach me at either 524-4083 or (615) 576-9634.

Sincerely,

David G. Adler
FUSRAP Site Manager
St. Louis Sites

Issues raised by public comments

Technical experts to discuss interim cleanup

DOE's plan to pursue interim cleanup in the North County area is the main agenda item when discussions begin between DOE and a technical review committee appointed by St. Louis County.

The delay allows time for DOE and the County's oversight committee to resolve issues that were raised during a recent public comment period. The St. Louis County Executive is in the process of appointing a group of technical and public health professionals to work with DOE representatives.

The proposed interim removal action for the North County properties was detailed in a report called an engineering evaluation/ cost analysis-environmental assessment (EE/CA-EA). The document was released to the public this spring. A public comment period conducted from April 8-May 8 provided opportunity for residents and public officials to let DOE know their thoughts on the proposal.

The proposed interim removal action is part of the comprehensive environmental review of the St. Louis FUSRAP sites that DOE is conducting in accordance with federal, state, and local regulations.

Copies of the EE/CA-EA are still available and may be requested from the DOE Public Information Center in Hazelwood, telephone 524-4083.

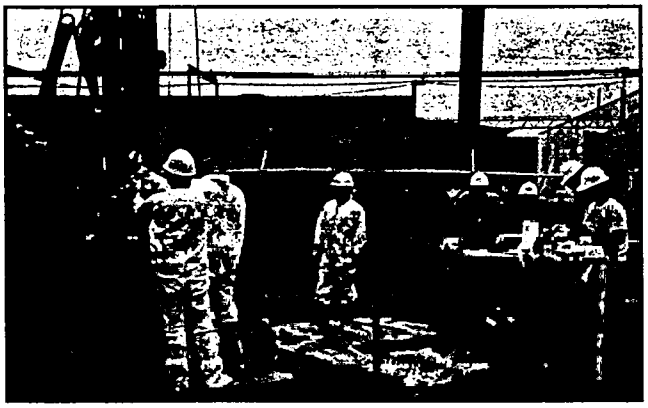
Field sampling underway at St. Louis FUSRAP sites

DOE is conducting a limited field sampling activity on and around the St. Louis FUSRAP sites. The work began in mid-July and will continue for about eight weeks.

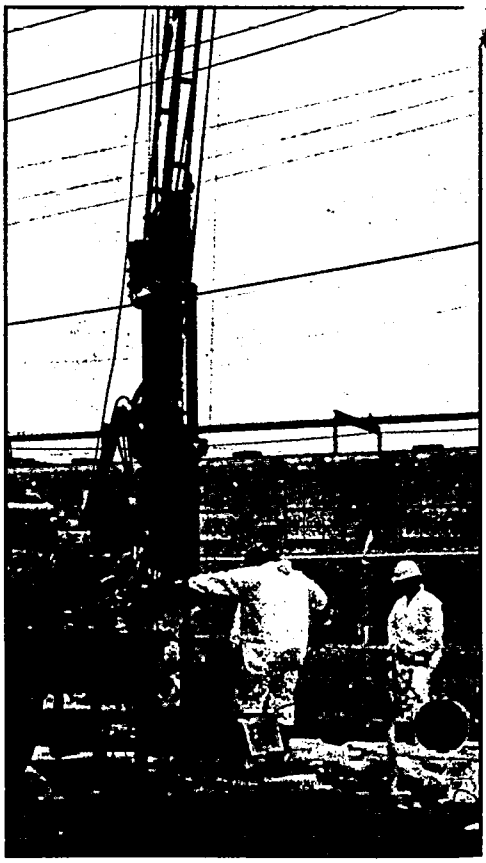
St. Louis residents may see workers taking soil samples on such locations as the ball fields across from the St. Louis Airport Site. Crews will also be taking samples on SLAPS, the Latty Avenue properties, and at the St. Louis Downtown Site.

The field sampling results supplement existing data to support the Feasibility Study (FS) for the St. Louis Site. Results from the current sampling activities are expected to provide all remaining information necessary to complete the FS.

The FS is the culmination of characterization activities that DOE has been conducting at the St. Louis sites under the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act and the National Environmental Policy Act. Site characterization is required under these laws prior to reaching a decision on cleanup of the properties.

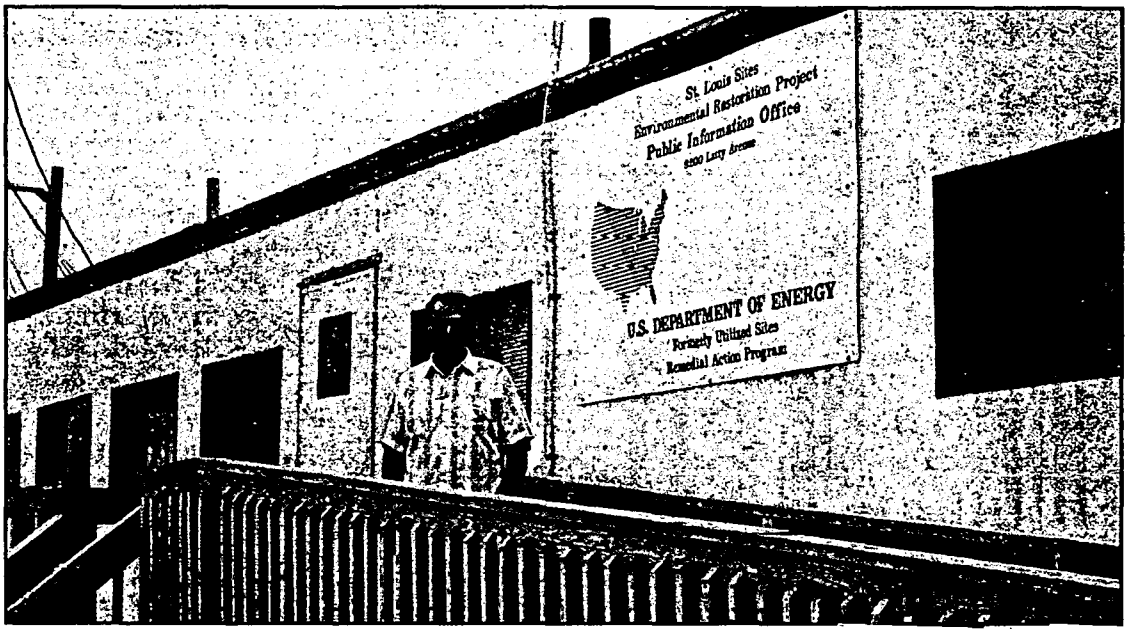


◀ *Sampling crews operate drill rig at St. Louis Downtown Site.* ▶



How to learn more about the St. Louis Sites

The resources available at the DOE Public Information Center, 9200 Latty Avenue, Hazelwood, provide everything from general to technical information about the St. Louis FUSRAP sites. The Center is located at the Hazelwood Interim Storage Site.



Visitors are welcome at the DOE Public Information Center on Latty Avenue. That's Bob Gebhardt, site superintendent, on the entrance ramp. ▶

Here are just a few of the resources:

- A 13-minute videotape, "FUSRAP Overview"
- Four Fact Sheets
  - "Formerly Utilized Sites Remedial Action Program"
  - "Principal Laws and Regulations Affecting the FUSRAP Cleanup Program"
  - "Administrative Record Requirements for FUSRAP"
  - "The St. Louis Site"
- Site Maps
- An observation deck with a view of the small storage pile
- Administrative Record containing all the documents that form the basis for selecting a response document at a Superfund Site.
- A large exhibit with a graphic display about FUSRAP and the St. Louis sites.

The public is welcome to visit the site at any time week days between the hours of 9 a.m.- 2 p.m. Some space limitations exist, so it is recommended that larger groups call ahead. To obtain directions or a map, please call the Center at 524-4083.

FUSRAP Update *is issued periodically to inform St. Louis residents about current activities on the contaminated sites in the St. Louis area that are slated for cleanup under the U.S. Department of Energy's Formerly Utilized Sites Remedial Action Program (FUSRAP). These sites were contaminated during the early days of the nation's atomic energy program.*

For more information about the FUSRAP sites in St. Louis, contact the DOE Public Information Center, 9200 Latty Avenue, Hazelwood, MO 63042. Telephone (314) 524-4083.

Student letters bring FUSRAP speaker to Clayton High

Twenty students studying ecology at Clayton High School wrote letters to DOE expressing their views on the proposed interim cleanup in the Hazelwood/Berkeley area. One student added this postscript, "A response would be appreciated."

This student's note prompted David Adler, DOE's site manager, to contact the teacher, Barbara Riley. Adler's idea was to respond to concerns expressed by the students while at the same time providing more information about the federal, state, and local requirements regulating environmental cleanup.



▲ *Joe Williams and other members of the St. Louis FUSRAP team will speak to area groups or organizations.*

On June 1, Joe Williams, a civil/environmental engineer and deputy project manager, addressed both of Ms. Riley's ecology classes. The students "asked many questions on their own and a few expressed an interest in visiting DOE's information center." he said. One of the sessions was quite lively, according to Williams, who enjoyed it all immensely.

These students are an important part of DOE's philosophy of public participation, Adler said. DOE views the public as a partner and a resource in the decision-making process in solving environmental problems.

Please contact the DOE Information Center, 524-4083, if you would like to schedule someone on DOE's St. Louis FUSRAP team to talk with your group or organization.

DOE Public Information Center
9200 Latty Avenue
Hazelwood, MO 63042

Your toll-free number to the DOE Public Information Center is **1-800-253-9759**

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	NO ACTION	INSTITUTIONAL CONTROLS AND SITE MAINTENANCE	CONSOLIDATION AND CAPPING	PARTIAL EXCAVATION	PHASED COMPLETE EXCAVATION
Description of Cleanup Option	Included to satisfy CERCLA and NEPA regulations and to provide a baseline with which to compare other alternatives.	Involves the use of deed restrictions and site security measures (e.g., fences), to restrict site access and prevent significant public exposure to the site contaminants.	Under this alternative, DOE would acquire the St. Louis Airport Site property and use it for consolidation of accessible soil and building debris from offsite areas. Waste would then be covered using natural materials that prevent water infiltration into the soil, and blocks radiation releases into the surface environment.	Accessible contaminated soil would be excavated for disposal using one of six disposal options Institutional controls would be used to prevent future exposure to access-restricted soils.	All contaminated soil would be excavated and disposed of. Excavation of restricted-access soils would be delayed until they are made accessible by property owners.
Implementation Costs	$2.7 Million	$16 Million	$115 Million	SLAPS Onsite $206 Million Hanford Ben. Reuse* $220 Million U.S. East $320 Million In-state $354 Million U.S. West $356 Million Comm. Disposal $542 Million Hanford Current* $889 Million	$217 Million $233 Million $340 Million $378 Million $382 Million $598 Million $994 Million
Implementation Time Frame	N/A	Establishes perpetual surveillance and maintenance requirements	14 years	14-36 years	14-40 years
Soil Volume Requiring Excavation	0	Less than 50,000 yd^3	490,000 yd^3	740,000 yd^3	840,000 yd^3
Special Considerations	• Not protective to human health or environment • Required by NEPA/CERCLA • Established to provide baseline for comparison to other alternatives	• Protective • Depends on institutional and legal controls vs. engineering controls on future exposure • Eliminates unrestricted-use option for affected properties; may cause burden on property owners • Low cost • Does not comply with relevant soil cleanup guidelines • Potentially difficult to enforce on privately owned vicinity properties • Minimal waste transportation requirements • Takings clause not costed	• Protective • Complies with Congressional directive • Requires restrictions of groundwater use beneath the site • Involves no engineered liner beneath waste; dependent on natural geology and groundwater monitoring to ensure protection of drinking water • EPA/DOE have successfully used this at other large sites • Restricts use of groundwater • Complies with soil cleanup guidelines • Moderate volume of waste to be transported	• Protective • Considered highly effective in reducing long-term exposure • Complies with soil cleanup guidelines • Minimizes disruption of businesses activities and transportation routes at affected properties • Significant volume of waste to be transported * "Not Tested" with State of Washington.	• Protective • Highest degree of permanence and effectiveness to reduce long- term exposure • Complies with soil cleanup guidelines • Dependent upon continuously accessible disposal capacity • Requires longest time to complete • Substantial volume of waste to be transported

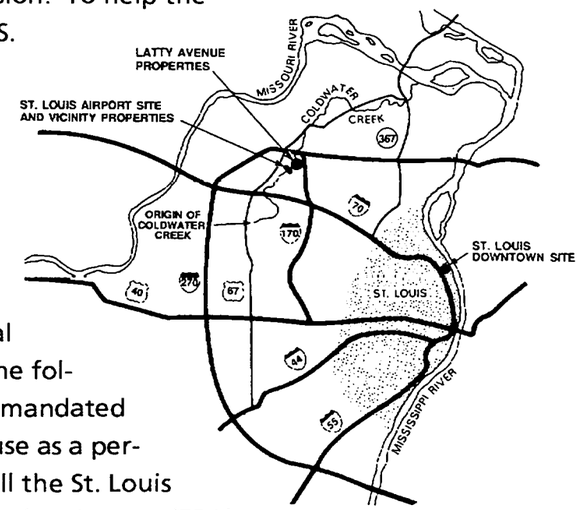
FUSRAP - St. Louis Information Update

U.S. DEPARTMENT OF ENERGY
Formerly Utilized Sites Remedial Action Program

February 1993

This Information Update has been prepared to address community outreach requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA). Information Updates are one part of an effort to provide public information on environmental restoration and waste management.

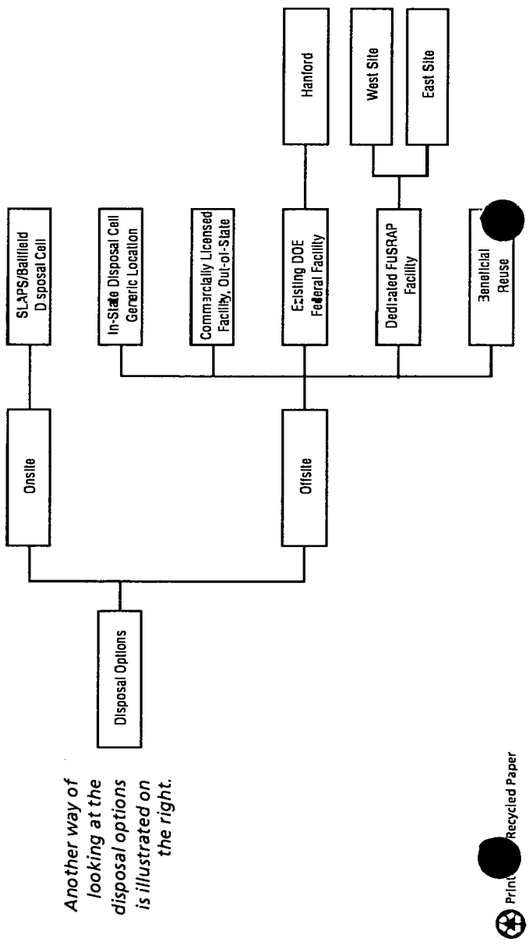
In 1995, a formal decision will be made regarding the long-term cleanup of the four FUSRAP sites in St. Louis. The public will be involved as we go about the lengthy and complex process of making that decision. To help the public develop informed opinions, the U.S. Department of Energy (DOE) is issuing preliminary information on the process, and will seek input from local residents and officials to ensure that the public's concerns are considered when the final cleanup alternative is selected.



The cleanup alternatives and disposal options being considered are shown on the following pages. In 1985, the U.S. Congress mandated one option, the acquisition of SLAPS for use as a permanent disposal cell for the waste from all the St. Louis sites. When the U.S. Environmental Protection Agency (EPA) placed a portion of the airport site on the National Priorities List, DOE was then allowed to consider a broader range of disposal options. DOE has decided to address all St. Louis sites as a single, large site, with a total volume of waste possibly as much as 730,000 cubic yards of contaminated soil.

All the alternatives (except for the no-action alternative) have as a common trait protectiveness of people and the environment. Also the reader should note that only alternatives 4 and 5 entail construction of a new waste disposal cell. In the discussion of waste excavation, the difference between partial and complete excavation has to do with how accessible the waste is. Finally, none of the options call for waste treatment. Currently no practical way exists of removing radiation from waste (the only advantage of which is reduction of waste volume), so this alternative was screened out early in the selection process.

	ONSITE DISPOSAL			OFFSITE DISPOSAL		
	CAPPING	ENCAPSULATION	IN-STATE	OUT-OF-STATE	OUT-OF-STATE AT DOE FACILITY	OUT-OF-STATE AT COMMERCIAL FACILITY	BENEFICIAL REUSE
Description	St. Louis waste consolidated at SLAPS and a barrier constructed over all waste.	SLAPS waste excavated and set aside; liner placed, and all St. Louis waste placed and covered at SLAPS.	Construction of a new disposal facility in Missouri on land acquired by DOE.	Construction of a new disposal facility on federal land in the eastern or western U.S.	Shipping waste to a DOE facility capable of accepting FUSRAP waste.	Shipping waste to an existing commercial facility.	Excavation of contaminated soil for use as backfill for roads, airport runway, or certain disposal facilities.
Relevant Comments	Requires use of ___ acres at SLAPS.	Requires use of ___ acres at SLAPS.	Needs site suitability study.	Needs site suitability study.	Hanford, WA, is such a facility.	Two such facilities are expected to be licensed.	Relatively low cost; dependent on identification of suitable end-use.
	Directed by Congress in 1985 Energy and Water Development Appropriations Act; CERCLA/NEPA now requires broader considerations.		Considerable delays would result from need to site a new facility.	Considerable delays would result from need to site a new facility.	Requires acceptance by receiving state.	Very high transportation and disposal costs.	Relatively low cost; dependent on identification of suitable end-use.



Another way of looking at the disposal options is illustrated on the right.

The DOE site manager would be pleased to receive your comments or questions about the proposed options for long-term cleanup of the St. Louis sites. You may write or call him at the DOE Public Information Center or through the toll-free public access line, 1-800-253-9759.

For more information or to request documents or other printed materials about the St. Louis sites, please call or visit the DOE Public Information Center at 9200 Latty Avenue, Hazelwood, Missouri 63042, telephone (314)524-4083.

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FUSRAP
The St. Louis Site
St. Louis, Missouri

U.S. DEPARTMENT OF ENERGY
Formerly Utilized Sites Remedial Actioo Program

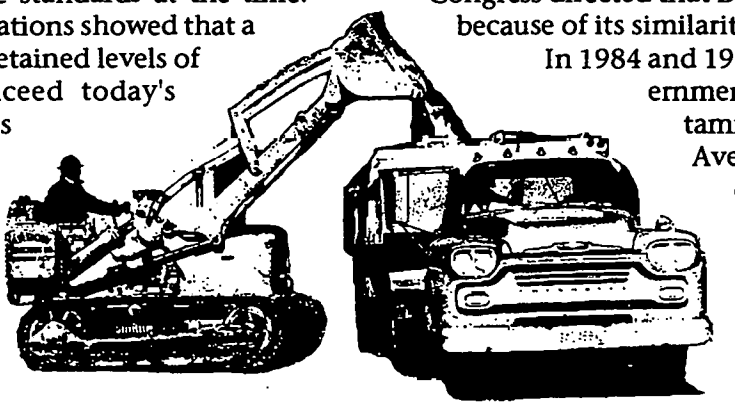
May 1993

The U.S. Department of Energy (DOE) is implementing a cleanup program for four groups of properties in the St. Louis area that are contaminated with low levels of radioactivity. The properties are 1) the St. Louis Downtown Site (SLDS), 2) the St. Louis Airport Site (SLAPS), 3), several nearby or "vicinity" properties associated with SLAPS, and 4) the Latty Avenue Properties, which include the Hazelwood Interim Storage Site (HISS).

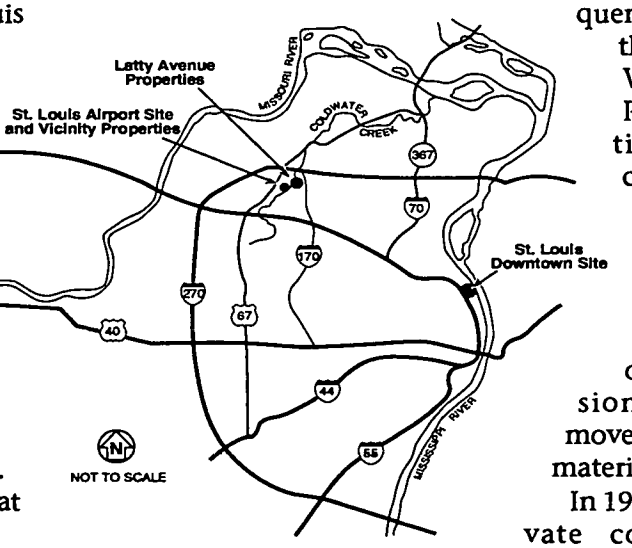
The properties, collectively referred to as the St. Louis Site, are among more than 40 sites throughout the U. S. that are being addressed under DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP). DOE began FUSRAP in 1974 to find, control, and clean up sites where radioactive contamination that exceeds current guidelines remains from the early years of our nation's atomic energy program. Other sites have been added to the program by Congress. The St. Louis properties were added to FUSRAP at various times between 1981 and 1984.

How did the sites become contaminated?

From 1942 to 1957, the Manhattan Engineer District (MED) and Atomic Energy Commission (AEC) contracted with the Mallinckrodt Chemical Works to process uranium compounds at a plant in St. Louis. As a result of these activities, parts of the property became contaminated. When MED/AEC operations stopped, the facilities were decontaminated according to the standards at the time. However, later investigations showed that a portion of the facility retained levels of radioactivity that exceed today's stricter guidelines. This portion of the Mallinckrodt property is called the St. Louis Downtown Site (SLDS). Six vicinity properties also contain areas of residual contamination.



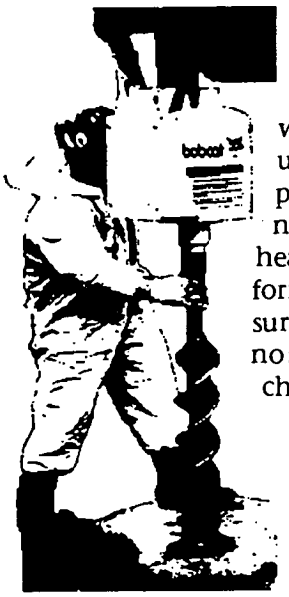
In 1946, MED acquired the St. Louis Airport Site (SLAPS), just north of the St. Louis airport, as a storage area for residues and other materials from SLDS. In subsequent years, the SLAPS Vicinity Properties became contaminated as the result of erosion and movements of materials.



In 1966, a private company purchased the residues and hauled them from SLAPS to a site about one-half mile north on Latty Avenue in Hazelwood. The residues were stored for several months, then were sold and shipped to another private company in Colorado. However, in 1977, surveys showed that the owner had left contamination on the property and that it had begun to spread offsite. Even though DOE was not responsible for this contamination, Congress directed that DOE add this site to FUSRAP because of its similarity to other FUSRAP sites.

In 1984 and 1986, DOE assisted local governments in the excavation of contaminated soil from along Latty Avenue to allow construction of stormwater and sewer lines. The contaminated soil was moved to an onsite storage pile. The site is now known as the Hazelwood Interim Storage Site (HISS).

Together, HISS and the remaining offsite contaminated properties are called the Latty Avenue Properties.



How hazardous are the sites?

The sites are contaminated with very low levels of thorium, uranium, and radium. Given present land uses, the sites pose no significant threat to public health or the environment. Performing remedial action will ensure that the properties will pose no significant risk should land uses change in the future.

At HISS, DOE carries out an environmental monitoring program to ensure that the contaminated material stored there is not a threat to the public or the environment. DOE publishes the monitoring results yearly in a report that is available to the public.

What is DOE doing to clean up the sites?

DOE is moving forward in a process that will lead to a decision for remediating the sites. The process complies with federal laws and follows steps outlined in an agreement with the Environmental Protection Agency (EPA).

In October 1989, EPA placed SLAPS and the Latty Avenue Properties on its National Priorities List, which means that EPA has authority over cleanups. In 1990, DOE and EPA signed a Federal Facilities Agreement that laid out the specific requirements and a schedule for the cleanup evaluation.

All work in connection with the sites will conform with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA). The CERCLA/NEPA process is lengthy, but it ensures that when a decision is made on cleanup for the St. Louis sites, that decision will reflect due consideration for environmental, public health, and safety concerns.

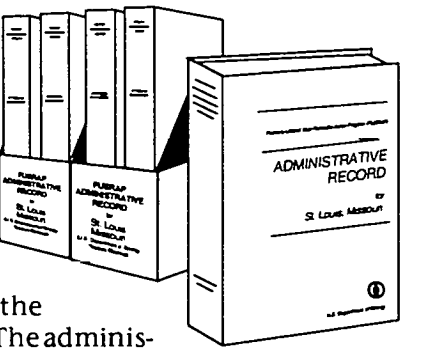
The process requires a remedial investigation/feasibility study and environmental impact statement. DOE has completed the remedial investigation phase. Each site has been investigated to determine the amounts and locations of contamination and the possible ways it could spread or pose a risk to the public. The feasibility study-environmental impact statement will present and assess various alternatives for remediating the properties. Data from the investigations will be used in evaluating the alternatives.

DOE expects to issue a draft of the feasibility study-environmental impact statement and a proposed plan in 1994. DOE will solicit public review and comment on this document before making a remediation decision.

The decision, which must be approved by EPA, will be published in a document called the Record of Decision, which DOE expects to issue in May 1995. After the Record of Decision, DOE will proceed with designing and implementing the selected remedy.

How can I obtain more information?

DOE maintains a Public Information Center to provide site information and offer opportunities for the public to participate in the review process. At the office, DOE maintains a publicly available administrative record of the documents that contain information that will be considered in the Record of Decision. The administrative record also is available at the St. Louis Public Library, 1301 Olive Street in St. Louis, and at the St. Louis County Library, 915 Utz Lane in Hazelwood.



For information, or to be added to the site mailing list, contact:

DOE Public Information Center
9200 Latty Avenue
Hazelwood, Missouri 63042
(314) 524-4083

DOE also maintains a 24-hour, toll-free telephone number. An answering machine records comments or questions, and all calls are returned. The number is 1-800-253-9759.

This fact sheet has been prepared to address community outreach requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA). Fact sheets are one part of an effort to provide public information on environmental restoration and waste management.

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United States Environmental Protection Agency | Office of Solid Waste and Emergency Response | Publication No. 9230.1-05/FS | January 1990

EPA Superfund Technical Assistance Grants

Office of Emergency and Remedial Response
Hazardous Site Control Division (OS-220)

Quick Reference Fact Sheet

WHAT ARE TECHNICAL ASSISTANCE GRANTS

Background of Program -- In 1980, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) -- otherwise known as "Superfund" -- established a trust fund for the cleanup of hazardous waste sites in the United States. CERCLA was amended and reauthorized when Congress passed the Superfund Amendments and Reauthorization Act (SARA) of 1986. The U.S. Environmental Protection Agency (EPA), working in concert with the States, is responsible for administering the Superfund program.

An important aspect of the Superfund program is citizen involvement at the local level in decision-making that relates to site-specific cleanup actions. For this reason, community outreach activities are underway at each of the 1,200 sites that are presently on, or proposed for listing on, the National Priorities List (NPL). The NPL is EPA's published list of the most serious abandoned or otherwise uncontrolled hazardous waste sites nationwide, which have been identified for possible remedial cleanup under Superfund.

Recognizing the importance of community involvement and the need for citizens living near NPL sites to be well-informed, Congress included provisions in SARA to establish a Technical Assistance Grant (TAG) Program intended to foster informed public involvement in decisions relating to site-specific cleanup strategies under Superfund.

In addition to regulatory and legal requirements, decisions concerning cleanup initiatives at NPL sites must take into account a range of technical considerations. These might include:

- Analytical profiles of conditions at the site;
- The nature of the wastes involved; and
- The kinds of technology available for performing the necessary cleanup actions.

The TAG Program provides funds for qualified citizens' groups to hire independent technical advisors to help them understand and comment on such technical factors in cleanup decisions affecting them.

Basic Provisions of the Technical Assistance Grants Program

- Grants of up to $50,000 are available to community groups for the purpose of hiring technical advisors to help citizens understand and interpret site-related technical information.
- The group must cover 20 percent of the total costs of the project to be supported by TAG funds.
- The group must budget the expenditure of grant funds to cover the entire cleanup period (which averages six years).
- There may be only one TAG award per NPL site; however, the grant may be renewed.

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USES OF TECHNICAL ASSISTANCE GRANTS

Citizen groups may use grant funds to hire technical advisors to help them understand information that already exists about the site or information developed during the Superfund cleanup process. Acceptable uses of these grant funds include payments to technical advisors for services such as:

- Reviewing site-related documents, whether produced by EPA or others;
- Meeting with the recipient group to explain technical information;
- Providing assistance to the grant recipient in communicating the group's site-related concerns;
- Disseminating interpretations of technical information to the community;
- Participating in site visits, when possible, to gain a better understanding of cleanup activities; and
- Traveling to meetings and hearings directly related to the situation at the site.

TAG funds may not be used to develop new information (for example, additional sampling) or to underwrite legal actions in any way, including the preparation of testimony or the hiring of expert witnesses.

You can obtain a complete list of eligible and ineligible uses of grant funds by contacting your EPA Regional Office or the Headquarters information number listed at the end of this pamphlet. In addition, this information is included in the EPA publication entitled *The Citizens' Guidance Manual for the Technical Assistance Grant Program* (OSWER Directive 9230.1-03), also available from your Regional EPA Office.

WHO MAY APPLY

As stated in the 1986 Superfund amendments, groups eligible to receive grants under the TAG program are those whose membership may be affected by a release or threatened release of toxic wastes at any facility listed on the NPL or proposed for listing, and where preliminary site work has begun. In general, eligible groups are groups of individuals who live near the site and whose health, economic well-being, or enjoyment of the environment are directly threatened. Any group applying for a TAG must be nonprofit and incorporated or working towards incorporation under applicable State laws. Applications are encouraged from:

- Groups that have a genuine interest in learning more about the technical aspects of a nearby hazardous waste site; and
- Groups that have, or intend to establish, an organization to manage a grant efficiently and effectively.

For example, such groups could be:

- Existing citizens' associations;
- Environmental or health advocacy groups; or
- Coalitions of such groups formed to deal with community concerns about the hazardous waste site and its impact on the surrounding area.

Groups that are not eligible for grant funds are:

- Potentially responsible parties: any individuals or companies (such as facility owners or operators, or transporters or generators of hazardous waste) potentially responsible for, or contributing to, the contamination problems at a Superfund site;
- Academic institutions;
- Political subdivisions; and
- Groups established and/or sustained by governmental entities (including emergency planning committees and some citizen advisory groups).

HOW TO APPLY FOR A GRANT

Requirements – When applying for a TAG, a group must provide information to EPA (or to the State, if the State is administering the TAG program) to determine if the group meets specific administrative and management requirements. The application also must include a description of the group's history, goals, and plans for using the technical assistance funds. Factors that are particularly important in this evaluation process include:

- The group's ability to manage the grant in compliance with EPA grant and procurement regulations;
- The degree to which the group members' health, economic well-being, and enjoyment of the environment are adversely affected by a hazardous waste site;
- The group's commitment and ability to share the information provided by the technical advisor with others in the community;
- Broad representation of affected groups and individuals in the community; and;
- Whether the applicant group is nonprofit and incorporated for TAG purposes. (Only incorporated groups may receive grants. Groups must either be incorporated specifically for the purpose of addressing site-related problems or incorporated for broader purposes if the group has a substantial history of involvement at the site.)

In general, a group must demonstrate that it is aware of the time commitment, resources, and dedication needed to successfully manage a TAG. Applicant groups should consult *The Citizens' Guidance Manual For The Technical Assistance Grant Program* for detailed instructions on how to present such information.

Notification Procedures and Evaluation Criteria – The 1986 Superfund amendments state that only one TAG may be awarded per site. To ensure that all eligible groups have equal access to technical assistance and an equal opportunity to compete for a single available grant (if a coalition of groups proves to be impossible), EPA has established a formal notification process, which includes the following steps:

- Groups wishing to apply for a technical assistance grant must first submit to EPA a short letter stating their group's desire to apply and naming the site(s) involved. If site project work is already underway or scheduled to begin, EPA will provide formal notice through mailings, meetings, or other public notices to other interested parties that a grant for the site soon may be awarded.
- Other potential applicants would then have 30 days to contact the original applicant to form a coalition.
- If potential applicants are unable to form a coalition, they will notify EPA within this time period and EPA will accept separate applications from all interested groups for an additional 30-day period.
- EPA would then award a grant to the application that best meets the requirements described above.

The maximum grant that can be awarded to any group is $50,000. The actual amount depends on what the group intends to accomplish. A group's minimum contribution of 20 percent of the total costs of the technical assistance project can be covered with cash and/or "in-kind" contributions, such as office supplies or services provided by the group. These services might include, for example, publication of a newsletter or the time an accountant donates to managing the group's finances. The value of donated professional services is determined based on rates charged for similar work in the area.

In special cases where an applicant group intends to apply for a single grant covering multiple sites in close proximity to each other, EPA can allow a waiver of the $50,000 grant limit. In such cases, however, the recipient cannot receive more than $50,000 for each site to which it intends to apply funds (example: 3 sites x $50,000 = maximum grant amount of $150,000).

CHOOSING A TECHNICAL ADVISOR

When choosing a technical advisor, a group should consider the kind of technical advice the group needs most and whether a prospective advisor has the variety of skills necessary to provide all of the advice needed. Each technical advisor must have:

- Knowledge of hazardous or toxic waste issues;
- Academic training in relevant fields such as those listed above; and
- The ability to translate technical information into terms understandable to lay persons.

In addition, a technical advisor should have:

- Experience working on hazardous waste or toxic waste problems;
- Experience in making technical presentations and working with community groups; and
- Good writing skills.

Technical advisors will need specific knowledge of one or more of these subjects:

Chemistry: Analysis of the chemical constituents and properties of wastes at the site;

Toxicology: Evaluation of the potential effects of site contaminants upon human health and the environment;

Epidemiology: Evaluation of the pattern of human health effects potentially associated with site contaminants;

Hydrology and Hydrogeology: Evaluation of potential contamination of area surface water and ground-water wells from wastes at the site;

Soil Science: Evaluation of potential and existing soil contamination;

Limnology: Evaluation of the impact of site runoff upon the plant and animal life of nearby streams, lakes, and other bodies of water;

Meteorology: Assessment of background atmospheric conditions and the potential spread of contaminants released into the air by the site; and/or

Engineering: Analysis of the development and evaluation of remedial alternatives and the design and construction of proposed cleanup actions.

A grant recipient may choose to hire more than one technical advisor to obtain the combination of skills required at a particular site. For example, a group may be unable to find a single advisor experienced in both hydrology and epidemiology, two of the skills most needed at its site. Another approach would be to hire a consulting firm that has experience in all the needed areas. *The Citizens' Guidance Manual for the Technical Assistance Grant Program* identifies other issues that citizens' groups may wish to consider in hiring a technical advisor.

ADDITIONAL INFORMATION

For further information on the application process or any other aspect of the TAG program, please contact your EPA Regional Office or call the national information number, both of which are listed below. An application package is available free by calling the EPA Regional Office for your State (see map on back cover). Each application package includes all the necessary application and certification forms as well as a copy of *The Citizen's Guidance Manual For The Technical Assistance Grant Program*. This manual contains sample forms with detailed instructions to assist you in preparing a TAG application.

EPA Superfund Offices

EPA Headquarters
Office of Emergency & Remedial Response
401 M Street, SW
Washington, DC 20460
(202) 382-2449

EPA Region 1
Emergency and Remedial Response Division
John F. Kennedy Building
Boston, MA 02203
(617) 573-5701
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

EPA Region 2
Superfund Branch
26 Federal Plaza
New York, NY 10278
(212) 264-4534
New Jersey, New York, Puerto Rico, Virgin Islands

EPA Region 3
Superfund Branch
841 Chestnut Building
Philadelphia, PA 19106
(215) 597-4081
Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia

EPA Region 4
Emergency and Remedial Response Branch
345 Courtland Street, NE
Atlanta, GA 30365
(404) 347-2234
Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee

EPA Region 5
Emergency and Remedial Response Branch
230 S. Dearborn Street
Chicago, IL 60604
(312) 886-1660
Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

EPA Region 6
Superfund Program Branch
Allied Bank Tower
1445 Ross Avenue
Dallas, TX 75202-2733
(214) 655-2200
Arkansas, Louisiana, New Mexico, Oklahoma, Texas

EPA Region 7
Superfund Branch
726 Minnesota Avenue
Kansas City, KS 66101
(913) 236-2803
Iowa, Kansas, Missouri, Nebraska

EPA Region 8
Waste Management Division
1 Denver Place
999 18th Street
Denver, CO 80202-2413
(303) 564-7040
Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

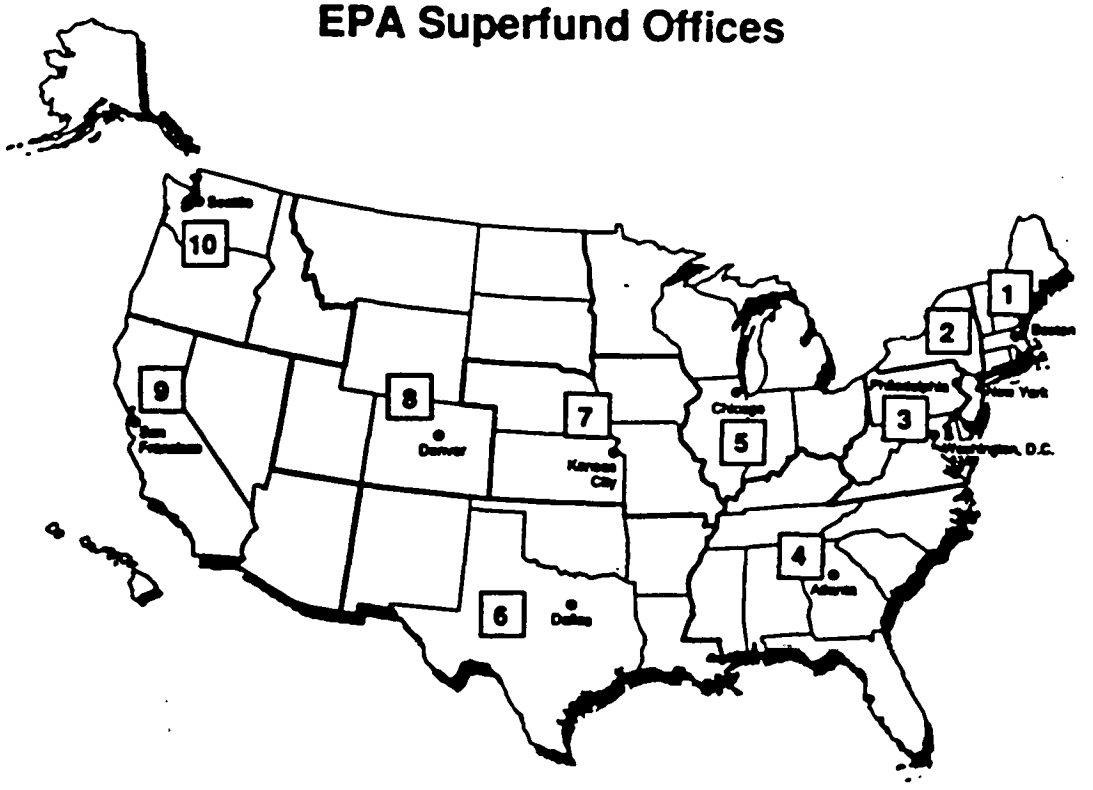
EPA Region 9
Superfund Programs Branch
215 Fremont Street
San Francisco, CA 94105
(415) 454-744-1766
Arizona, California, Guam, Hawaii, Nevada, American Samoa

EPA Region 10
Superfund Branch
1200 6th Avenue
Seattle, WA 98101
(206) 442-0603
Idaho, Oregon, Washington, Alaska

Superfund/RCRA Hotline
(800) 424-9346 or 382-3000
in the Washington, DC, metropolitan area (for information on programs)

National Response Center (800) 424-8802
(to report releases of oil and hazardous substances)

EPA Superfund Offices



FUSRAP Update
The St. Louis Site

U. S. Department of Energy • Formerly Utilized Sites Remedial Action Program • July 1993

Oversight commission hears DOE site manager

The St. Louis County Radioactive and Hazardous Waste Oversight Commission met on May 10 with David Adler, St. Louis FUSRAP site manager. Appointed by County Executive Buzz Westfall and chaired by Dr. Alpha Fowler Bryan, director of the St. Louis County Department of Health, the group's purpose is to provide input to DOE in selecting the best cleanup and disposal option for the St. Louis site.

Commissioners had the opportunity to discuss DOE's plans with the site manager, who answered questions and provided information on costs and time frames for implementation of alternative cleanup options. Group members were told that a recommended remedial action is being reviewed by the Environmental Protection Agency and the Missouri Department of Natural Resources, and that this proposal will be presented for public comment in February 1994. Adler also distributed copies of the environmental monitoring reports for the Hazelwood Interim Storage Site.

The commission membership includes a variety of local elected officials, educators, technical experts, and environmental activists. They are Karen Acker, project engineer for Environmental Science and Engineering; Kay Drey, citizen activist; David Farquharson, mayor of Hazelwood; Nancy Lubiewski, Florissant Environmental Quality Commission member; William Miller, mayor of Berkeley; Sally Price, registered nurse; Geri Rothman-Serot, county councilwoman from the 3rd District; Dr. Barry Siegel, professor of radiology and medicine and director of the Division of Nuclear Medicine at Washington University; and Dr. Lee Sobotka, professor of chemistry and physics at Washington University.

In their first meeting, held March 23, members were presented with a site history and an overview of what's been done so far. The commission met again in early July.

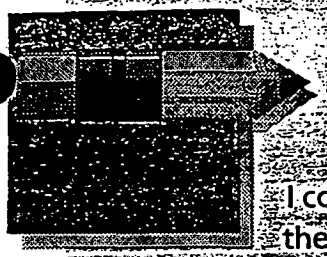
Dr. Bryan chairs Oversight Commission



Dr. Alpha Fowler Bryan, director of the St. Louis County Department of Health, has been named chair of the county's Radioactive and Hazardous Waste Oversight Commission.

Appointed by County Executive Buzz Westfall, Dr. Bryan assumes a challenging role as head of the commission. "My goal is to mediate parties from varied backgrounds with a multiplicity of ideas and ideals to some common ground of agreement in order to perfect our overall mission. No doubt, this goal may be as ambitious as the cleanup itself," Dr. Bryan said.

(continued next page)



From the Site Manager to You

I consider communicating with members of the St. Louis community to be one of the most important parts of my job. I recently met and had excellent discussions with several groups about the cleanup and disposal options for the St. Louis FUSRAP site.

In the coming months, my goal is to meet and talk with as many of you as I possibly can about the cleanup and disposal options for the FUSRAP St. Louis site. I am gathering as much input as I can prior to finalizing the drafts of the feasibility study and proposed plan, which will be available for public comment in early 1994.

We don't have to wait until 1994 to have a discussion about the options being considered. I look forward to having informal meetings with small or large groups in the St. Louis area to present information and answer your questions.

Please call Patti Hazel at DOE's Hazelwood Public Information Center to set up a date and time. (See related article elsewhere in this newsletter.)

The Department of Energy is also very much looking forward to working with the Oversight Commission appointed by the St. Louis County Executive. This group will serve as an effective interface between DOE and those who seek an independent review of our FUSRAP sites in St. Louis.

Now, we are close to decision-making time, and your participation is extremely important. Please call or come by the Information Center for information that will help you in this process.

David G. Adler
FUSRAP Site Manager
St. Louis Sites

Bryan

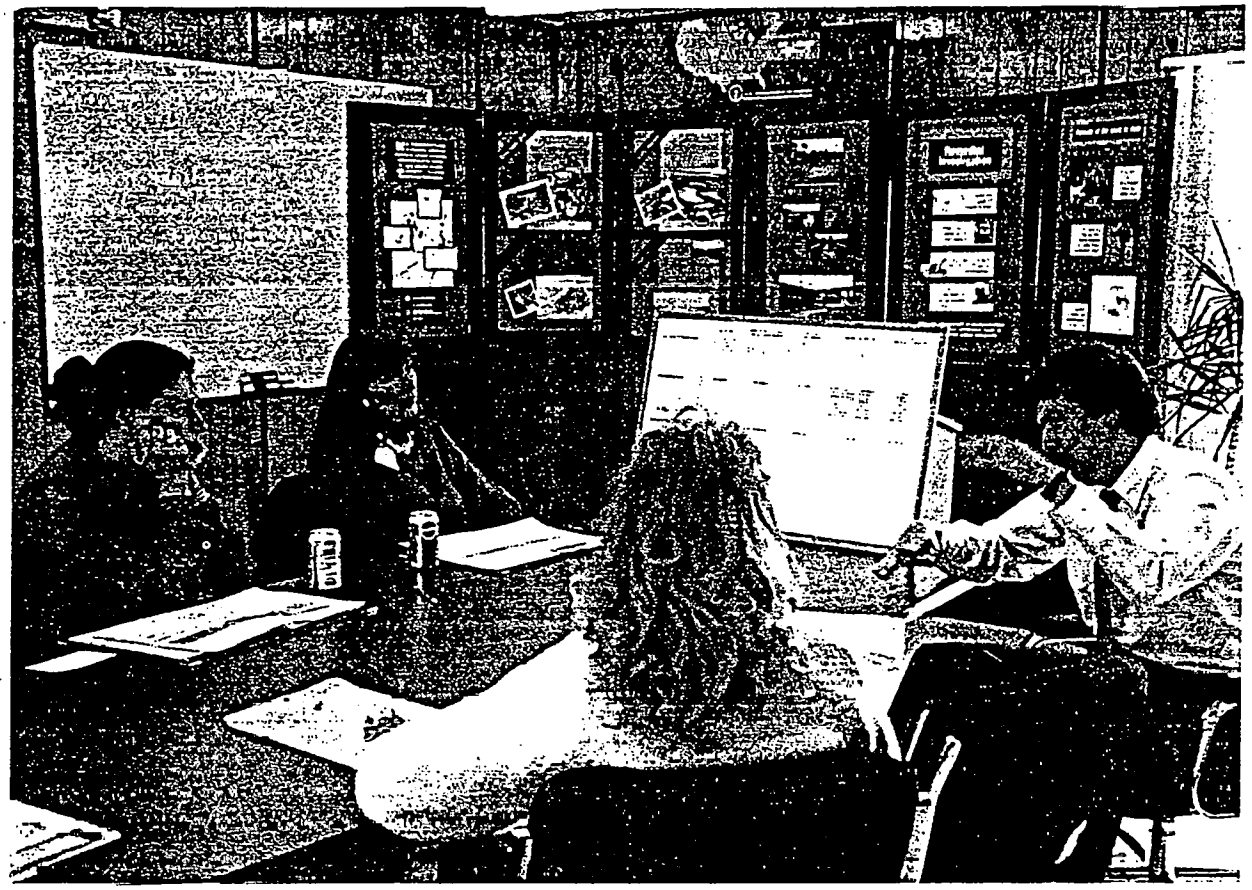
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In her 15 years as a health professional, Dr. Bryan has had a wide range of experience. After receiving her medical degree from Meharry Medical College in Nashville, Dr. Bryan spent two years as an opthalmology intern at Homer G. Phillips Hospital in St. Louis and later entered a residency in family practice at Lutheran Medical Center. In her affiliation with the Southern Illinois Healthcare Foundation from 1985 to 1991, she served as medical director of Centreville's Community Health Center. She was appointed to head St. Louis County's Department of Health in April 1991.

According to Dr. Bryan, "In the St. Louis Metropolitan area we all live with the legacy of the 'Manhattan Project.' Some would say that not only the St. Louis region, but the entire country in general, benefited from this operation. Others might disagree. Regardless of where one stands on the issue, it is an established fact that multiple radioactive and hazardous waste sites now exist in our region which must be remediated."

FUSRAP Update *is issued periodically to inform St. Louis residents about current activities on the contaminated sites in the St. Louis area that are slated for cleanup under the U. S. Department of Energy's Formerly Utilized Sites Remedial Action Program (FUSRAP). These sites were contaminated during the early days of the nation's atomic energy program.*

For more information about the FUSRAP site in St. Louis, contact the DOE Public Information Center, 9200 Latty Avenue, Hazelwood, MO 63042. Telephone (314) 524-4083.



Congressional field office staff members listen as DOE Site Manager David Adler explains cleanup alternatives.

Local officials, legislators attend DOE workshops

DOE recently held workshops at the Hazelwood Public Information Center for congressional field staff, members of the state legislature, and the mayors and city councils of Hazelwood and Berkeley.

The workshop for field staffers and legislators was attended by a number of state senators and representatives, as well as field staffers for two Missouri congressmen and both U.S. senators.

Mayors William Miller of Berkeley and David Farquharson of Hazelwood were among those who attended a February 8 workshop for Berkeley and Hazelwood city officials. Both city managers and a majority of council members also attended the session.

Attendees at both workshops received an update on site cleanup and disposal options that are outlined in the draft "Feasibility Study for the St. Louis FUSRAP Site." They also had the opportunity to ask questions of David Adler, DOE's St. Louis FUSRAP site manager.

City of Berkeley Public Relations Specialist Bob Shelton observed, "This workshop gave city officials one of the best opportunities they've had so far to see where DOE is going with the cleanup effort."

Those attending the legislative workshop included Jo-Ann Digman, representing U.S. Sen. Kit Bond; Brent Evans, representing U.S. Rep. Jim Talent; Linda Getz, representing Missouri State Sen. Frank Flotron; Wayne



Berkeley and Hazelwood city officials DOE Site Manager David Adler. From Steve Thieme, Berkeley City Councilma Gerry Palau, Adler, and Berkeley C

Recent studies address residents' safety

Residents of Nyflot Avenue and Heather Lane in Hazelwood have received more good news about health risks associated with living near sites contaminated with low levels of radiation. According to a recent study by the Missouri Department of Health, "the waste sites do not appear to pose a current threat to residents."

"'. . .the types of radiation found in the area and the most likely routes of exposure for the current residents are not likely to lead to the types of cancer found in the residents."

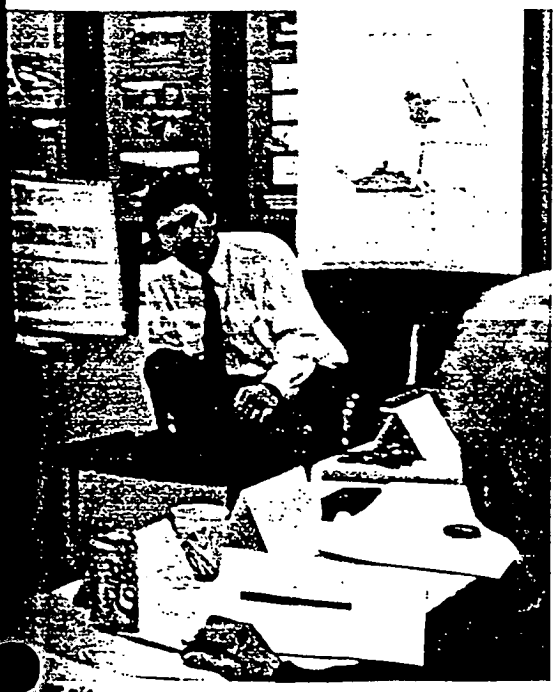
An inquiry from Nyflot Avenue residents concerned about the possibility of a high number of cancer cases in the area prompted the study, which was initiated in 1989.

Through interviews with current and former residents, examination of medical records, and a chronological construction of the deposition of radioactive materials, the Department's Division of Chronic Disease Prevention and Health Promotion was able to ascertain that "the types of radiation found in the area and the most likely routes of exposure for the current residents are not likely to lead to the types of cancer found in the residents."

This confirms the results obtained from two previous studies, which also concluded that the St. Louis area FUSRAP sites do not pose an unacceptable cancer risk to residents.

The Federal Agency for Toxic Substances and Disease Registry conducted an independent study released in 1991 that determined that a "cancer cluster" (a grouping of a number of cases of the same type of cancer) "did not exist in the area."

More recently, DOE's draft "Baseline Risk Assessment" indicated that "current radiation exposures fall well below DOE standards for the protection of human health." Janet Johnson, PhD., a health physicist acting as an independent consultant for the study conducted by MDOH, confirmed that "DOE's risk assessments are accurate and are based upon conservative assumptions."



site cleanup alternatives with ▲ right are Site Superintendent dore Hoskins, Project Manager ncilwoman Jean Montgomery.

Goode, Missouri state senator; David Hale, Missouri state representative; Ron Keeven, Missouri state representative; Mary Renick, representing U.S. Rep. Richard Gephardt; Karla Roeber, representing U.S. Sen. John Danforth; and John Shear, chairman of the St. Louis County Council.

Those attending the workshop for Berkeley and Hazelwood city officials included:

Norma Caldwell
Hazelwood city clerk

Edwin Carlstrom
Hazelwood city manager

Jeanette Eberlin
Hazelwood city council

David Farquharson
Mayor of Hazelwood

Arbon Hairston
City manager of Berkeley

Theodore Hoskins
Berkeley city council

Louvenia Mathison
Berkeley city council

William Miller
Mayor of Berkeley

Jean Montgomery
Berkeley city council

Mollie Rickey
Hazelwood city council

Judy Shaw
Berkeley city council

Bob Shelton
City of Berkeley public relations specialist

Carol Stroker
Hazelwood city council

To schedule a workshop for your group, call Patti Hazel at 524-4083, or write to her at the DOE Public Information Center.

FUSRAP Speakers Bureau Established for St. Louis

Now that a speakers bureau has been established to keep the public informed about the St. Louis FUSRAP site, it's easier than ever to get the word out regarding cleanup alternatives. Recent engagements have included everyone from curious third-graders, to civic groups, to Japanese legislators.

The following individuals represent just a few of the experts available to speak to your group. Each is part of the management team and well-qualified to address the issues related to the clean up of the St. Louis site:

David Adler is DOE's site manager for the St. Louis Site. He's responsible for overseeing the entire monitoring, characterization, cleanup, and restoration process. He earned a B.S. in environmental science from Rutgers University and a master's degree in environmental toxicology from the University of Michigan School of Public Health. Prior to joining DOE, Adler worked for the Michigan Department of Natural Resources in the area of Surface Water Quality. While working for the U.S. Environmental Protection Agency as a policy analyst, he was involved in the writing of environmental regulations.



Gerry Palau is project manager for Bechtel, DOE's project management contractor. His job includes overseeing field work, controlling cost and schedule, and coordinating activities with EPA, the Missouri Department of Natural Resources, and local officials. A nuclear engineer, Palau has a B.S. and an M.S. from Pennsylvannia State University. He has spent 14 years working in various areas of radioactive waste management, including research development of decontamination technology, and cleanup of contaminated facilities.

Joe Williams is Bechtel's deputy project manager. He provides technical oversight of engineering and design, directs field work, and is responsible for document preparation. He holds a B.S. degree in civil engineering from the University of Tennessee. Before coming to FUSRAP, Williams was decontamination superintendent and then civil field engineer at the Pilgrim Nuclear Power Station in Plymouth, Mass.; before that, he was a facilities engineer on the cleanup of Three Mile Island.

Tom Gangwer is project manager for Science Applications International Corporation, the FUSRAP environmental compliance contractor. His responsibilities include ensuring that all regulatory requirements are met for any proposed remedial action. He has a B.S. in chemistry from Lebanon Valley College, and a Ph.D. in physical chemistry from the University of Notre Dame. Dr. Gangwer's 21 years of experience span the areas of chemistry, radioactive waste management, project management, regulatory compliance/licensing, management with a nuclear utility and management with a national laboratory.

These folks, as well as a host of other team specialists such as geologists, engineers, and safety and health professionals, are ready, willing, and able to share their expertise and answer your questions. Your group is welcome to meet in the conference room at the Public Information Center on Latty Avenue, or, if you prefer, our speakers will come to you.

To schedule a speaker, call Patti Hazel at 524-4083, or write to her at the DOE Public Information Center, 9200 Latty Avenue, Hazelwood, MO 63033.

An ecology student tries on a Tyvek protective suit. FUSRAP Deputy Project Manager Joe Williams recently spoke to students at Clayton High School.

Berkeley resident promoted at DOE center

If you want general information on the St. Louis site, Patti Hazel is the person to see. Need a site map? Somebody to speak to your civic group? How about a tour of the information center?

As an administrative assistant with Bechtel for the past two years, Patti's had plenty of opportunities to respond to all kinds of requests for information.

With her recent promotion to site community relations coordinator, her responsibilities have expanded. With the overall goal of increasing community awareness of the the St. Louis Site, Patti's the front line of communication between FUSRAP personnel and area residents. From responding to requests for site background information to monitoring the local community for changes that may have an effect on the site, she really does it all. Patti is also available as a speaker, and does a good general overview presentation on the St. Louis FUSRAP site.

And because she's been a resident of this area for the past eight years, she's uniquely qualified to provide this kind of information from a home-town perspective. Patti and her family live in Berkeley and attend church in Hazelwood. She says she's really come to love this part of the country and especially enjoys taking advantage of the many cultural and recreational opportunities in the St. Louis metropolitan area.



Site Community Relations Coordinator Patti Hazel, pictured here with son Benjamin, says meeting people is her favorite part of the job.

DOE Public Information Center
9200 Latty Avenue
Hazelwood, MO 63042

Your toll-free number to the DOE Public Information Center is **1-800-253-9759**

This *Update* is printed on recycled paper.

FUSRAP Fact Sheet

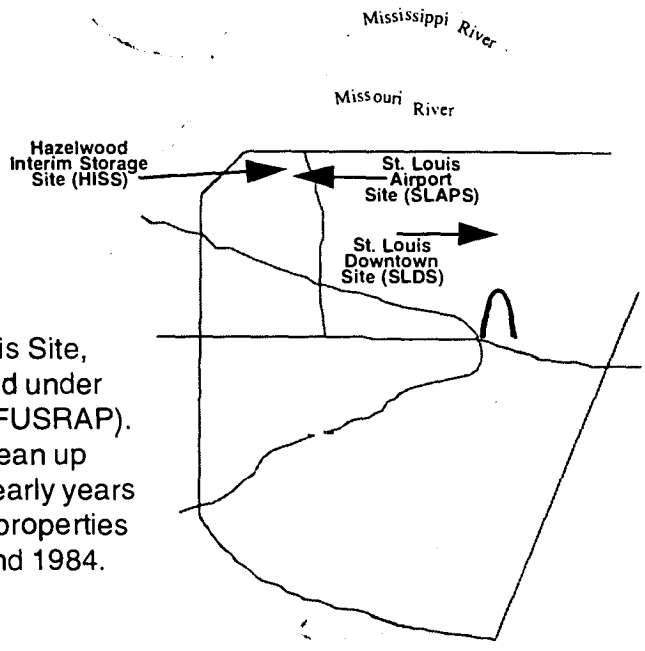
St. Louis Site
St. Louis, Missouri

U.S. Department of Energy • Formerly Utilized Sites Remedial Action Program • March 1997

This fact sheet has been prepared to address community outreach needs and is consistent with provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA). Fact sheets are one part of an effort to provide public information on environmental restoration and waste management.

The U.S. Department of Energy (DOE) is implementing a cleanup program for four groups of properties in the St. Louis area that are contaminated with low levels of radioactivity. The properties are:

- the St. Louis Downtown Site (SLDS);
- the St. Louis Airport Site (SLAPS);
- the Latty Avenue properties, which include the Hazelwood Interim Storage Site (HISS); and
- several nearby vicinity properties.



These properties, collectively referred to as the St. Louis Site, are among the 46 sites across the country being addressed under DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP). FUSRAP was founded in 1974 to identify, manage, and clean up sites where radioactive contamination remained from the early years of our nation's atomic energy program. The four St. Louis properties were added to FUSRAP at various times between 1982 and 1984.

Site history

From 1942 to 1957, the Manhattan Engineer District (MED) and Atomic Energy commission (AEC) contracted with the Mallinckrodt Chemical Works to process uranium compounds at a plant in St. Louis. As a result of these activities, parts of the property became contaminated. When MED/AEC operations ceased, the facilities were decontaminated in accordance with the standards of the day. Later investigations showed that portions of the facility retained levels of radioactivity exceeding today's stricter guidelines. Four vicinity properties also contain areas of residual contamination.

In 1946, MED acquired SLAPS, a 21-acre site just north of the St. Louis airport, for storage of residues and other materials from SLDS. (SLAPS is now owned by the city of St. Louis.) In subsequent years, adjacent areas became contaminated as a result of erosion from SLAPS.

In 1966, a private company purchased SLAPS residues, which contained valuable metals, and began hauling them to a site on Latty Avenue, about one-half mile north in Hazelwood. Later, the material was sold again and much of it shipped to Colorado. Surveys in 1977 showed that the former owners had left contamination on the Latty property.

In addition, transport of the material had spread contamination along the haul routes. Although DOE was not responsible for this contamination, Congress directed that DOE add these areas to FUSRAP because of their similarity to other FUSRAP sites.

Cleanup Successes to Date

DOE's first major cleanups at the St. Louis Site took place in 1984 and 1986, when areas along Latty Avenue in Berkeley and Hazelwood were excavated to allow construction of city stormwater and sewer

lines. The contaminated soils were moved to the HISS onsite storage pile at the end of Latty Avenue.

DOE accelerated its interim cleanup work in 1994. Haul routes that fronted residential properties in Hazelwood and Berkeley were cleaned up in late 1994. In 1995 and 1996, more than a dozen haul route commercial properties were cleaned up, as were two large sections of SLDS. A SLDS vicinity property, the city-owned riverfront area, was also cleaned and restored in 1996. This cleanup allowed for the completion of a significant portion of the Riverfront Trail. Continued cleanups of haul route properties and portions of SLDS are planned for 1997.

Action on much of the remainder of the St. Louis Site awaits a formal remedy determination, or Record of Decision. The process of reaching remedy decisions is mandated by federal law and follows steps outlined in an agreement between DOE and the U.S. Environmental Protection Agency.

Cleanup impacts

In addition to the environment, the local economy also benefits from the FUSRAP cleanup. Cleaned and restored residential and commercial properties are free to be bought, sold, or improved without concern for radiological restrictions.

The cleanup work itself provides a significant economic benefit. FUSRAP relies heavily on local subcontracts and purchasing to carry out cleanup activities. Cleanup-related subcontracting and purchasing amounted to more than $1.2 million in fiscal year 1995, and to more than $2.3 million in FY '96. Waste transportation and disposal accounted for an additional $8.9 million over both fiscal years. Projected subcontract expenditures for FY 1997 are significantly higher. (As a matter of policy, FUSRAP uses small, disadvantaged businesses to the maximum extent possible.)

Public involvement

Through public involvement opportunities, local residents have a significant voice in St. Louis Site decision-making. Community concerns over DOE cleanup plans in 1994 led to the creation of the St. Louis Site Remediation Task Force. Task Force membership represented a broad cross-section of interested and affected parties or "stakeholders." Its stated mission was to identify and evaluate feasible remedial action alternatives for the cleanup and disposal of radioactive wastes at the St. Louis Site and to petition the DOE to pursue a cleanup strategy that is environmentally acceptable and responsive to public health and safety concerns.

The Task Force submitted its final report to DOE in September 1996, and DOE agreed to accept many of the group's recommendations. DOE determined that some of the recommendations, including those related to SLAPS, would require further review. Resolution of these remaining issues is projected for late 1997.

DOE has offered to create a Site Specific Advisory Board as a successor to the Task Force to provide stakeholders a forum for assisting the department with environmental management issues at the site.

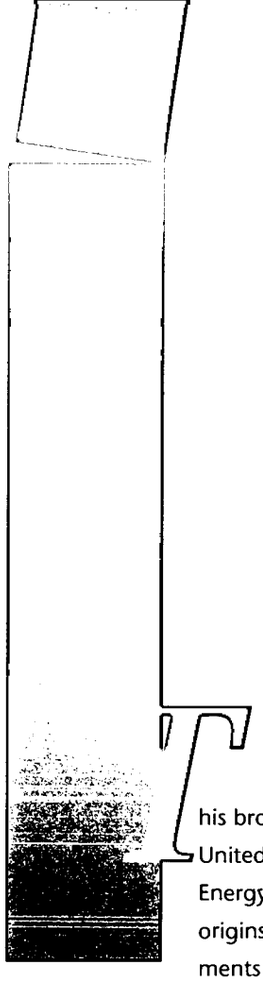
For more information...

DOE maintains a Public Information Center where visitors and callers may obtain site information, view project documents, and participate in public involvement activities. The center's reading room includes a complete copy of the site Administrative Record, a collection of studies and documents deemed to have an impact on the selection of a final remedy for the site. The St. Louis Public Library, 1301 Olive Street in St. Louis also has a site Information Repository, which also includes a copy of the Administrative Record.

For more information, or to be added to the site mailing list, contact:

DOE Public Information Center
9170 Latty Avenue
Berkeley, Missouri 63134
(314) 524-4083

DOE also maintains a 24-hour, toll-free telephone number. An answering machine will record your comments or questions, and your call will be returned promptly. The number is **1-800-253-9759**. Visit FUSRAP on the World Wide Web at www.fusrap.doe.gov.



This brochure is published by the United States Department of Energy (DOE). It explains the origins, goals, and accomplishments of the Department's Formerly Utilized Sites Remedial Action Program (FUSRAP), a major environmental effort to clean up sites contaminated from past activities involving radioactive materials. FUSRAP has made significant progress in cleaning up these sites and ensuring that they meet today's environmental standards. This brochure is intended to provide members of the public, government officials, and affected property owners with basic information about FUSRAP and to improve understanding of the program's goals and activities.



WHAT REMAINS TO BE DONE?

While FUSRAP has been successful in cleaning many sites and vicinity properties, much work remains. Many residential and commercial properties still require cleanup. Also the interim storage piles that have received the wastes removed from properties already cleaned are a source of local concern. Permanent disposal sites and methodologies are needed to permanently isolate the contamination from the environment.

Almost 2 million cubic yards of contaminated material eventually will need to be addressed. The majority of this material is in the states of Missouri, New Jersey, and New York. Selecting and developing appropriate permanent disposal sites and methodologies is the biggest challenge facing DOE, the states, and the people living in the affected communities.











FUSRAP

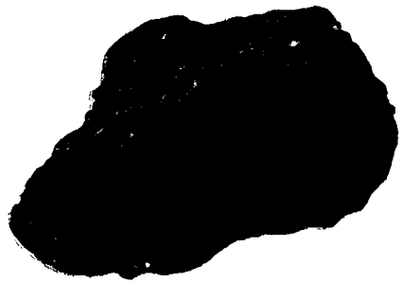
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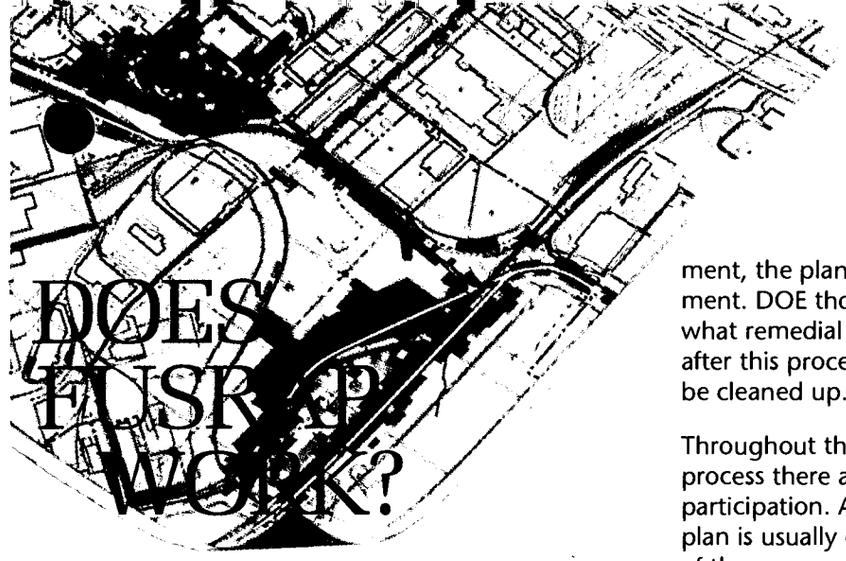
Sites Remedial

Action Program



If you have questions or comments regarding FUSRAP, call DOE's toll-free number: 1-800-253-9759. (Please leave a message on the answering machine, and a DOE representative will return your call.)





DOES FUSRAP WORK?

Because of the disposal methods and the subsequent demolition of buildings and earthmoving activities over the years, most of the radioactive wastes became dispersed throughout large volumes of soil and rubble. At some sites, wastes were spread by erosion or wind, and many offsite areas became contaminated. In addition, contamination remained on walls and building surfaces.

In the years since the war, as scientists have learned more about radiation, the waste disposal practices of the 1940s and 1950s are no longer acceptable. Consequently, those older sites—formerly used sites—must be cleaned up, and the cleanup is the responsibility of the Department of Energy, the agency that evolved from the Manhattan Project and the Atomic Energy Commission (AEC). To clean up the sites, the Formerly Utilized Sites Remedial Action Program, FUSRAP, was started in 1974.



In 1942, the University of Chicago was involved in the Manhattan Project. Needing more room, researchers used the nearby National Guard Armory for storage and processing of uranium metals. Later, the building reverted to the Illinois National Guard, but the site remained contaminated with wastes resulting from the uranium processing.

When remedial action began in 1988, the FUSRAP team cleaned up the armory, filling 32 drums with radioactive sludge. This waste was shipped to DOE's Hanford Reservation for disposal. However, another 16 drums of material contained both radioactive waste and volatile organic compounds (VOCs), which are highly flammable materials. Regulations required that as long as the drums were onsite, the property could not be released for unrestricted use. However, there were no federal or commercial disposal facilities licensed to receive such wastes.

FUSRAP solved the problem by "processing" the wastes at the armory. The project team developed an idea for heat-treating the waste to boil off the volatile chemicals. After pilot tests, the technique was implemented at the armory, and the treatment was completed in under 6 weeks. The resultant radioactive waste, minus VOCs, was disposed at the Hanford Reservation, and the site is now "clean" for use without radiological restrictions.

ment, the plan is issued for public comment. DOE then reaches a decision as to what remedial action will be taken. Only after this process is complete can the site be cleaned up.

Throughout the entire remedial action process there are opportunities for public participation. A community relations plan is usually developed at the beginning of the process, and the public is asked to provide information about the site, identify options, and comment on DOE's evaluation of the options. State and local governments and property owners also are key participants in this process. State governments help suggest appropriate and acceptable disposal sites that DOE should consider for the wastes and ensure compliance with applicable state regulations. Local governments help inform the public about remedial activities.

Program guidance for FUSRAP is provided by DOE Headquarters, and day-to-day FUSRAP activities are managed by the DOE operations office in Oak Ridge, Tennessee. A project management contractor engineers and manages the field activities and construction necessary for remedial action. An environmental studies contractor is responsible for analysis of the environmental issues and options for cleanup. Other contractors independently verify that each remedial action has, in fact, cleaned up the site or property.

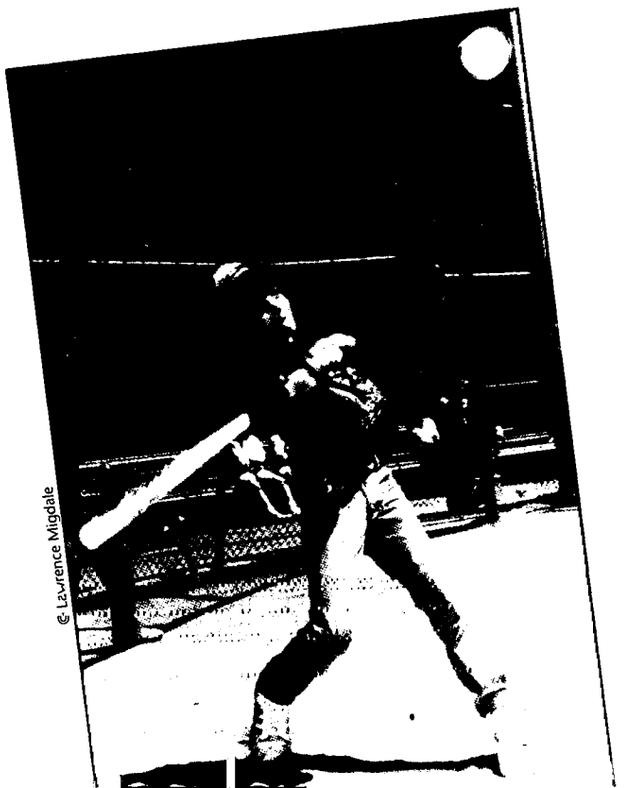




WHAT HAS FUSRAP DONE SO FAR?

Since it began in 1974, FUSRAP has made significant progress. Of the 44 sites identified as requiring remedial action, 14 have been completely cleaned up and partial remedial action has taken place at 16 others. Information about the nature and extent of contamination at the other 14 sites is being gathered as part of the environmental review process that will lead to remedial action. (This status is current as of early 1994.)

In addition, more that 173 other properties — residences, businesses, or public lands also contaminated over the years — have been cleaned up. Houses in Maywood, New Jersey; Colonie, New York; and elsewhere are now free of contamination.



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A commercial property in Rochelle Park, New Jersey, that couldn't be developed because of contamination is now the site of a nursing home that provides jobs and tax revenues to the community.

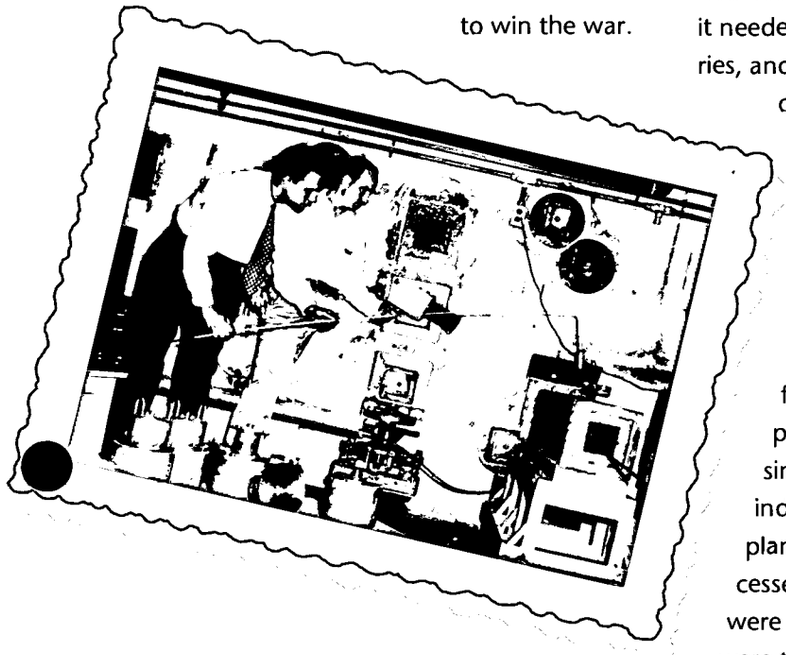
And a recreation field in Wayne, New Jersey, that sat idle for years is now back in use.

At the Niagara Falls Storage Site in Lewiston, New York, contamination has been consolidated from a 191-acre DOE-owned site and about 25 adjacent private properties. The wastes are now contained in a disposal cell designed to preclude any exposure to humans and prevent migration into groundwater.

More than 150,000 cubic yards of contaminated materials have been removed from residential and commerial properties and stored at DOE-controlled and monitored interim storage sites. These interim storage sites are in Maywood, Middlesex, and Wayne, New Jersey; Colonie, New York; and Hazelwood, Missouri.

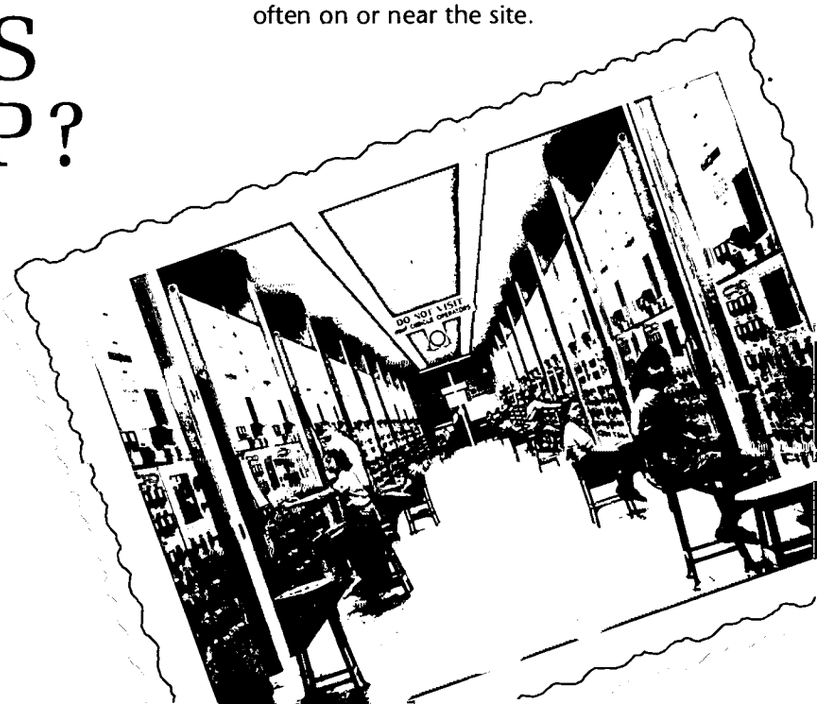
WHAT IS FUSRAP?

For most Americans, World War II is a distant memory or a lesson in a history book. But those who lived during that period remember the extraordinary efforts that Americans made to win the war.



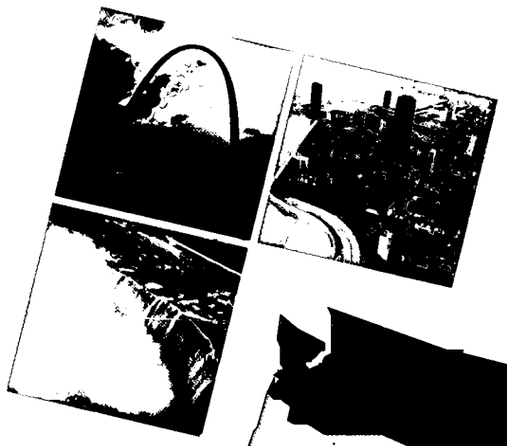
A major part of the war effort was the Manhattan Project, a secret program to develop an atomic weapon that would end the conflict. The Manhattan Project had access to virtually all the resources it needed. Chemical plants, laboratories, and production facilities throughout the country processed uranium ore and other radioactive materials as part of the urgent research and development efforts.

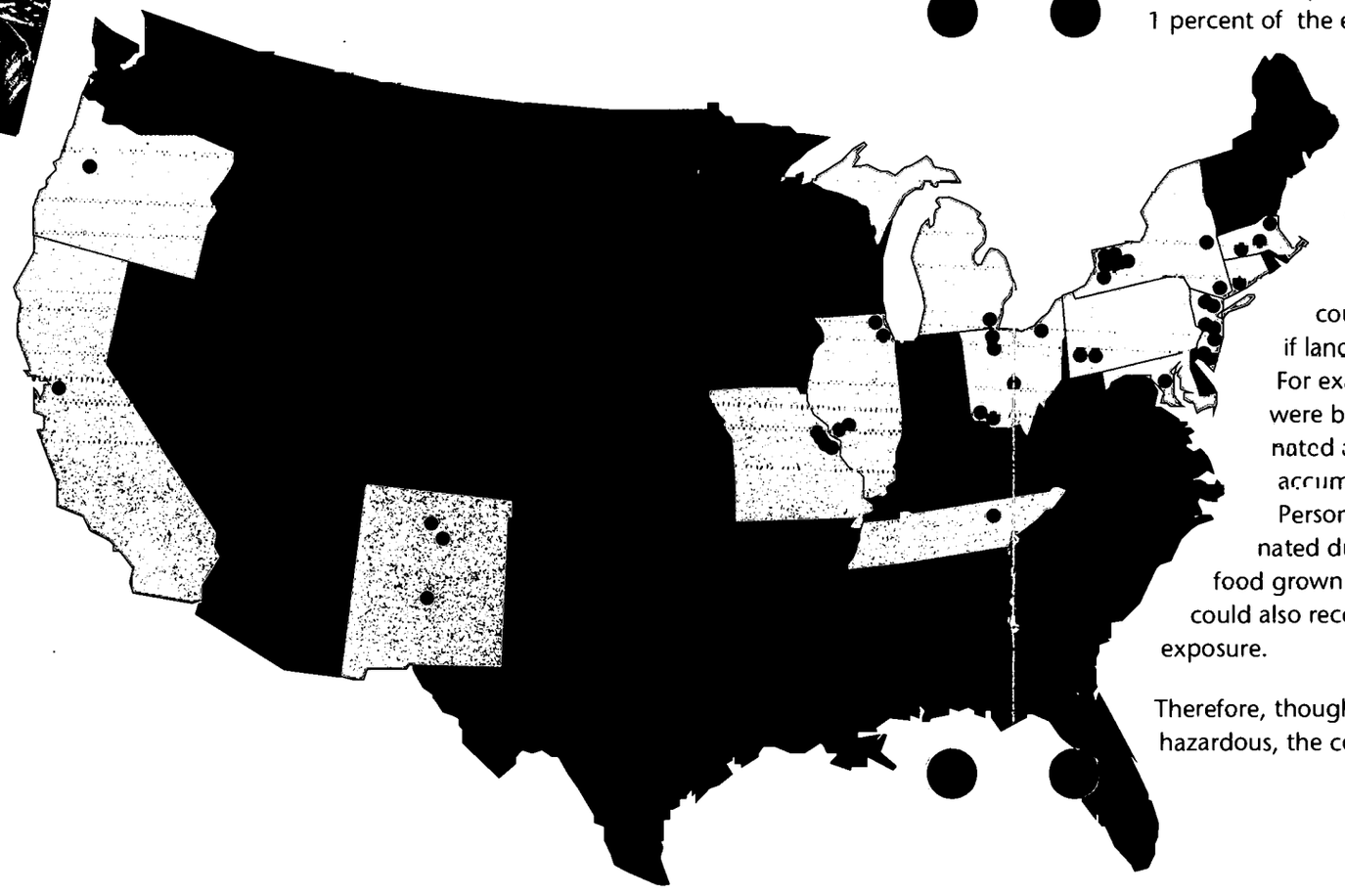
During those wartime years and the Cold War era that followed, wastes from uranium processing were handled in ways similar to wastes from other industrial processes. At the various plants or laboratories that processed uranium ore, waste materials were then disposed of in ways that were thought at the time to be safe—often on or near the site.



Early FUSRAP activities focused on combing through historical records just to identify sites involved in the Manhattan Project or early Atomic Energy Commission work. DOE has examined almost 400 such sites, reviewing old records and then performing radiological surveys. Most of these sites have been found to be clean, but by early 1994, 44 sites in 14 states had been identified as needing cleanup. Additional sites are added from time to time as DOE review continues.

Cleanup work (remedial action) has been under way since 1979, and 14 sites have been completely remediated.





WHY IS FUSRAP IMPORTANT?

For the most part, the radioactively contaminated materials at FUSRAP sites do not pose a threat to public health or the environment. In fact, under present conditions at most FUSRAP sites, concentrations of radioactivity are so low that the greatest annual exposure to a member of the public is about 1 or 2 millirems per year. This is less than 1 percent of the exposure we receive from other sources of radiation in our daily lives.

However, there are circumstances under which unacceptable radiation exposures could occur—particularly if land use were to change. For example, if a residence were built on a contaminated area, radon gas could accumulate in the house. Persons breathing contaminated dust particles or eating food grown in contaminated soil could also receive unacceptable exposure.

Therefore, though not immediately hazardous, the contaminated FUSRAP sites must be cleaned up. Highest priority is given to actions that reduce radiation exposure to the public. Cleaning up these areas not only eliminates potential health hazards, but often also allows previously unusable or restricted property to be returned to uses that benefit the community. When a site has been cleaned to DOE standards, people can live on the property, drink water from onsite wells, grow crops or livestock for food, and still not receive radiation exposures that exceed the health guidelines established by the International Commission on Radiological Protection.

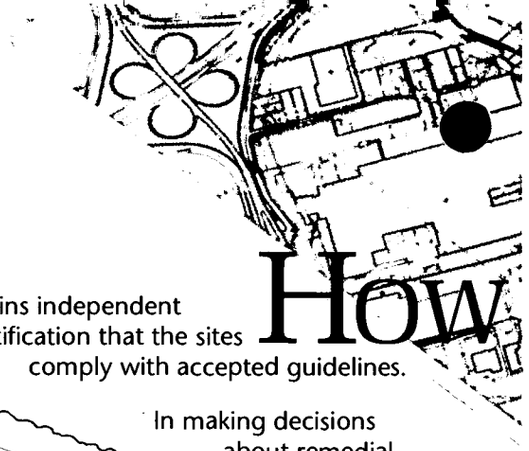


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On a pleasant, sprawling piece of land in Rochelle Park, New Jersey, several dozen retirees make their home. However, not too many years ago, this property was contaminated with thorium, and the land was not useable.

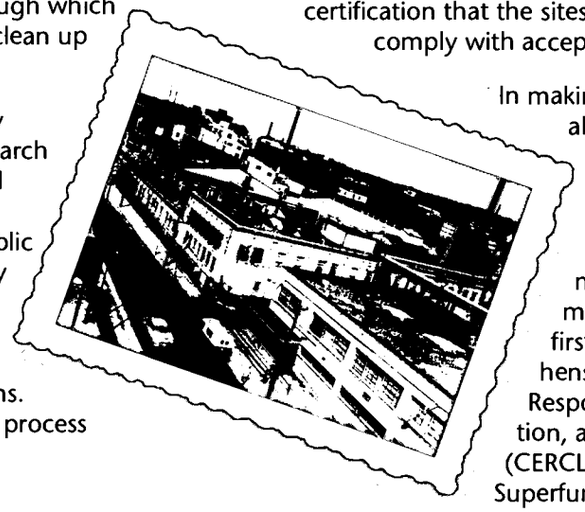
In 1983, Congress directed DOE to clean up the contamination resulting from commercial operations at the Maywood Chemical Works, which processed thorium ores from 1916 to the 1950s. Wastes from the operations were pumped to the nearby area, and over the years, the land became overgrown, and the wastes were largely forgotten. Private developers later purchased the property only to find they could not develop it after the thorium contamination was discovered in the late 1970s.

As part of its work at the Maywood site, FUSRAP cleaned up the property (and the backyards of several neighboring homes), allowing construction of the nursing home to begin.



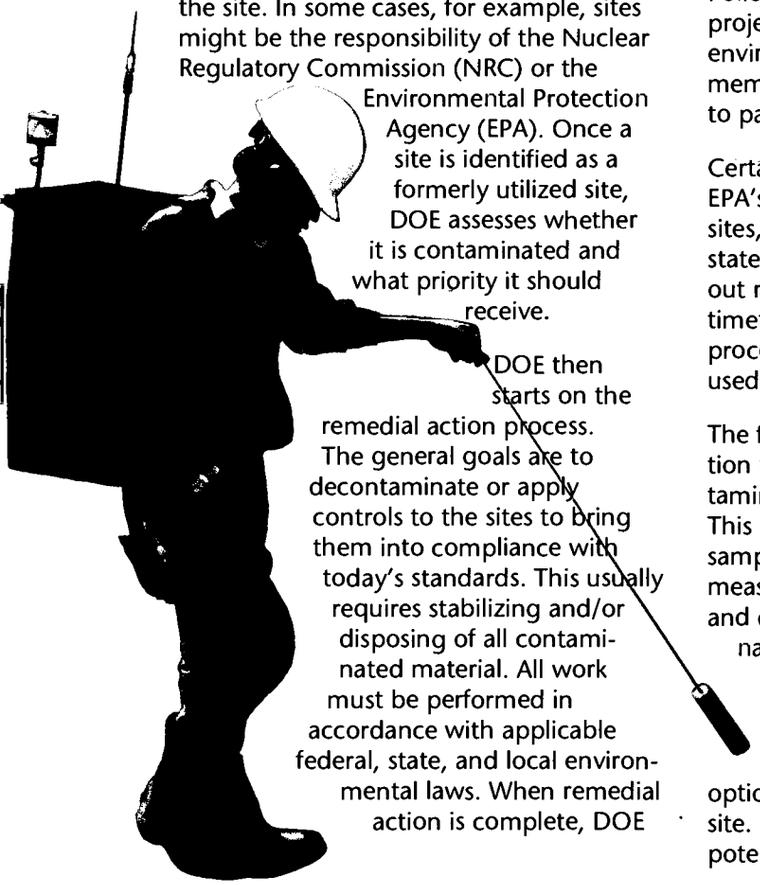
How

Although each site is different, there is a general sequence of events through which FUSRAP operates to clean up contaminated sites.



The first step, already mentioned, is to research historical records and review information submitted by the public or industry to identify sites used in the Manhattan Project and Atomic Energy ımission programs. ...is historical review process has almost been completed.

DOE must determine if it is responsible for the site. In some cases, for example, sites might be the responsibility of the Nuclear Regulatory Commission (NRC) or the Environmental Protection Agency (EPA). Once a site is identified as a formerly utilized site, DOE assesses whether it is contaminated and what priority it should receive.



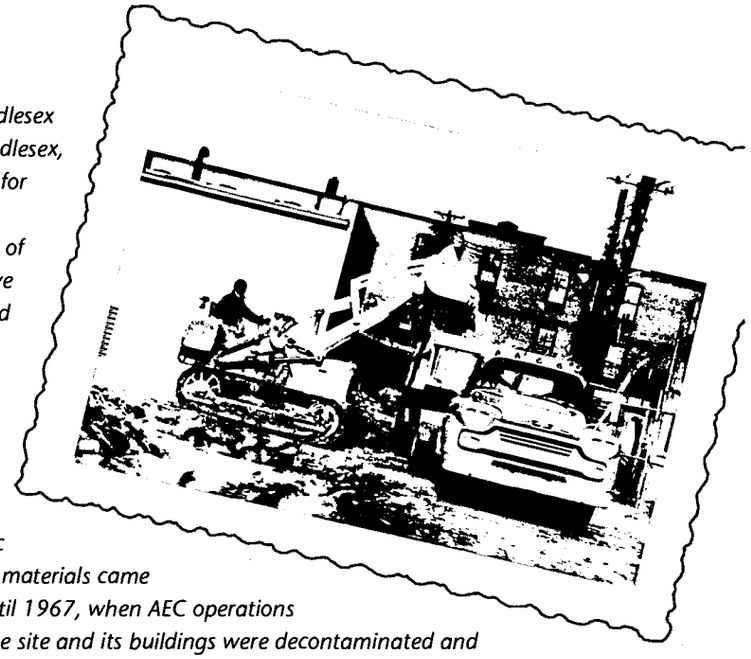
DOE then starts on the remedial action process. The general goals are to decontaminate or apply controls to the sites to bring them into compliance with today's standards. This usually requires stabilizing and/or disposing of all contaminated material. All work must be performed in accordance with applicable federal, state, and local environmental laws. When remedial action is complete, DOE obtains independent certification that the sites comply with accepted guidelines.

In making decisions about remedial action at FUSRAP sites, DOE's processes comply with two major environmental laws. The first is the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund. The second is the National Environmental Policy Act, or NEPA. These laws ensure that projects like FUSRAP are conducted in an environmentally sound manner and that members of the public have opportunities to participate.

Certain FUSRAP sites have been placed on EPA's National Priorities List (NPL). For those sites, DOE and EPA consult with affected states and enter into an agreement to spell out roles and responsibilities and establish timetables. The environmental cleanup process for FUSRAP is the same process used by EPA for all sites on the NPL.

The first part of the process is an investigation to obtain a clear picture of the contamination problems that exist at a site. This usually involves taking surface soil samples and/or drilling sampling holes to measure levels of contamination at a site and determine exactly where the contamination is located.

After data are collected and analyzed, options for cleaning up the site are evaluated. This evaluation of options leads to a plan for cleaning up the site. If the planned cleanup option has the potential to affect the public or the environ-



As early as 1943, the Middlesex Sampling Plant (MSP) in Middlesex, New Jersey, was a busy hub for Manhattan Project activities. The plant received shipments of uranium and other radioactive ores, which were sampled and assayed, then packaged and shipped to other facilities across the country for processing.

After the war, MSP continued similar activities as part of the nation's atomic energy program. Radioactive materials came and went from the facility until 1967, when AEC operations there ceased. At that time, the site and its buildings were decontaminated and certified for use with no radiological restrictions under the criteria in effect at that time.

Overlooked during the decontamination, however, was the fact that, over the years, traces of contaminated materials gradually had been carried offsite by wind and rain. The radioactive materials accumulated in the yards of neighboring homes. A close look at MSP records later revealed that some radioactive materials apparently were trucked from MSP to the Middlesex Municipal Landfill a half-mile down the road.

From 1969 to 1979, MSP was used as a training center by the Marine Corps. When it was returned to DOE in 1980, immediate action started under FUSRAP to clean up the residential properties. Radioactive materials were removed from yards and brought back to MSP, where they were stored on a specially constructed pad. By the end of 1981, the 31contaminated properties had been cleaned, and 35,000 cubic yards of contaminated materials had been placed in storage at MSP.

Meanwhile, at the Middlesex Municipal Landfill, radiological surveys had concluded that while there was no immediate danger, the level of contamination exceeds current guidelines. Therefore, in 1984 DOE began remedial action at the landfill. The contaminated material was excavated and returned to MSP from where it came. By 1986 the landfill was clean, and an additional 31,000 cubic yards of material had been stored at MSP.

Presently, MSP awaits final remedial action. The approximately 65,000 cubic yards of contaminated material removed from the residences and the landfill remain at the site in two carefully monitored storage piles. DOE publishes an annual environmental surveillance report on MSP (and similar sites around the country) to assure the public that the stored materials and the site itself pose no environmental threat. When a final remedy is selected for the low-level radioactive material, MSP will be cleaned up, and its story—after almost 50 years—will end. (See "What Remains to be Done.")

LAWS AND REGULATIONS

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)
INFORMATION REPOSITORY FOR THE ST. LOUIS SITES, MISSOURI

C - LAWS AND REGULATIONS

1. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as "Superfund")

2. Executive Order 12580, "Superfund Implementation"

3. National Oil and Hazardous Substances Pollution Contingency Plan (NCP)

4. National Environmental Policy Act (NEPA)

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT

(SUPERFUND)

as amended[1]

An Act to provide for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and the cleanup of inactive hazardous waste disposal sites.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled,

SHORT TITLE AND TABLE OF CONTENTS

This Act may be cited as the "Comprehensive Environmental Response, Compensation, and Liability Act of 1980".

TITLE I – HAZARDOUS SUBSTANCES RELEASES, LIABILITY, COMPENSATION

Sec. 101. Definitions
Sec. 102. Reportable Quantities and Additional Designation
Sec. 103. Notices, Penalties
Sec. 104. Response Authorities
Sec. 105. National Contingency Plan
Sec. 106. Abatement Action
Sec. 107. Liability
Sec. 108. Financial Responsibility
Sec. 109. Civil Penalities and Awards
Sec. 110. Employee Protection
Sec. 111. Uses of Fund
Sec. 112. Claims Procedure
Sec. 113. Litigation, Jurisdiction and Venue
Sec. 114. Relationship to Other Law
Sec. 115. Authority to Delegate, Issue Regulations
Sec. 116. Schedules
Sec. 117. Public Participation
Sec. 118. High Priority for Drinking Water Supplies
Sec. 119. Response Action Contractors
Sec. 120. Federal Facilities
Sec. 121. Cleanup Standards
Sec. 122. Settlement
Sec. 123. Reimbursement to Local Governments
Sec. 124. Methane Recovery
Sec. 125. Section 3001(b)(3)(a)(i) Waste
Sec. 126. Indian Tribes

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[1]Public Law 96-510, as amended by PL 97-216, July 18, 1982; PL 97-272, September 30, 1982; PL 98-45, July 12, 1983; PL 99-160, November 25, 1985; PL 99-499 (Superfund Amendments and Reauthorization Act), October 17, 1986; PL 100-202, December 22, 1987; and PL 100-707, November 23, 1988; PL 101-221. December 12, 1989; PL 101-239, December 19, 1989; PL 101-380, August 18, 1990; PL 101-508, November 5, 1990; PL 101-584, November 15, 1990.

TITLE II – HAZARDOUS SUBSTANCE RESPONSE REVENUE ACT OF 1980

Sec. 201. Short Title; Amendment of 1954 Code

SUBTITLE A – IMPOSITION OF TAXES ON PETROLEUM AND CERTAIN CHEMICALS

Sec. 211. Imposition of Taxes
Chapter 38 – Environmental Taxes
Subchapter A – Tax on Petroleum
Subchapter B – Tax on Certain Chemicals
Subchapter C – Tax on Certain Imported Substances

TITLE III – MISCELLANEOUS PROVISIONS

Sec. 301. Reports and Studies
Sec. 302. Effective Dates, Savings Provision
Sec. 303. Expiration, Sunset Provision – Repealed by PL 99-499
Sec. 304. Conforming Amendments
Sec. 305. Legislative Veto
Sec. 306. Transportation
Sec. 307. Assistant Administrator for Solid Waste
Sec. 308. Separability
Sec. 309. Actions under State Law for Damages from Exposure to Hazardous Substances
Sec. 310. Citizens Suits
Sec. 311. Research, Development and Demonstration
Sec. 312. Love Canal Property Acquisition

TITLE IV – POLLUTION INSURANCE

Sec. 401. Definitions
Sec. 402. State Laws; Scope of Title
Sec. 403. Risk Retention Groups
Sec. 404. Purchasing Groups
Sec. 405. Applicability of Securities Laws

TITLE I – HAZARDOUS SUBSTANCES RELEASES, LIABILITY, COMPENSATION

DEFINITIONS

[42 U.S.C. 9601]

Sec. 101. For purpose of this title –

(1) The term "act of God" means an unanticipated grave natural disaster or other natural phenomenon of an exceptional, inevitable, and irresistible character, the effects of which could not have been prevented or avoided by the exercise of due care or foresight.

(2) The term "Administrator" means the Administrator of the United States Environmental Protection Agency.

(3) The term "barrel" means forty-two United States gallons at sixty degrees Fahrenheit.

(4) The term "claim" means a demand in writing for a sum certain.

(5) The term "claimant" means any person who presents a claim for compensation under this Act.

(6) The term "damages" means damages for injury or loss of natural resources as set forth in section 107(a) or 111(b) of this Act.

(7) The term "drinking water supply" means any raw or finished water source that is or may be used by a public water system (as defined in the Safe Drinking Water Act [42 U.S.C. 300f et seq.]) or as drinking water by one or more individuals.

(8) The term "environment" means (A) the navigable waters, the waters of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Fishery Conservation and Management Act of 1976 [16 U.S.C. 1801 et seq.], and (B) any other surface water, ground water, drinking water supply, land surface or

subsurface strata, or ambient air within the United States or under the jurisdiction of the United States.

(9) The term "facility" means (A) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or (B) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

(10) The term "federally permitted release" means (A) discharges in compliance with a permit under section 402 of the Federal Water Pollution Control Act, (B) discharges resulting from circumstances identified and reviewed and made part of the public record with respect to a permit issued or modified under section 402 of the Federal Water Pollution Control Act and subject to a condition of such permit, (C) continuous or anticipated intermittent discharges from a point source, identified in a permit or permit application under section 402 of the Federal Water Pollution Control Act, which are caused by events occurring within the scope of relevant operating or treatment systems, (D) discharges in compliance with a legally enforceable permit under section 404 of the Federal Water Pollution Control Act, (E) releases in compliance with a legally enforceable final permit issued pursuant to section 3005(a) through (d) of the Solid Waste Disposal Act [42 U.S.C. 6925(a)-(d)] from a hazardous waste treatment, storage, or disposal facility when such permit specifically identifies the hazardous substances and makes such substances subject to a standard of practice, control procedure or bioassay limitation or condition, or other control on the hazardous substances in such releases, (F) any release in compliance with a legally enforceable permit issued under section 102 or section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972, (G) any injection of fluids authorized under Federal underground injection control programs or State programs submitted for Federal approval (and not disapproved by the Administrator of the Environmental Protection Agency) pursuant to part C of the Safe Drinking Water Act [42 U.S.C. 300h et seq.], (H) any emission into the air subject to a permit or control regulation under section 111 [42 U.S.C. 7411], section 112 [42 U.S.C. 7412], title I part C [42 U.S.C. 7470 et seq.], title I part D [42 U.S.C. 7501 et seq.], or State implementation plans submitted in accordance with section 110 of the Clean Air Act [42 U.S.C. 7410] (and not disapproved by the Administrator of the Environmental Protection Agency), including any schedule or waiver granted, promulgated, or approved under these sections, (I) any injection of fluids or other materials authorized under applicable State law (i) for the purpose of stimulating or treating wells for the production of crude oil, natural gas, or water, (ii) for the purpose of secondary, tertiary, or other enhanced recovery of crude oil or natural gas, or (iii) which are brought to the surface in conjunction with the production of crude oil or natural gas and which are reinjected, (J) the introduction of any pollutant into a publicly owned treatment works when such pollutant is specified in and in compliance with applicable pretreatment standards of section 307 (b) or (c) of the Clean Water Act and enforceable requirements in a pretreatment program submitted by a State or municipality for Federal approval under section 402 of such Act, and (K) any release of source, special nuclear, or byproduct material, as those terms are defined in the Atomic Energy Act of 1954 [42 U.S.C. 2011 et seq.], in compliance with a legally enforceable license, permit, regulation, or order issued pursuant to the Atomic Energy Act of 1954.

(11) The term "Fund" or "Trust Fund" means the Hazardous Substance Response Fund established by section 221 of this Act or, in the case of a hazardous waste disposal facility for which liability has been transferred under section 107(k) of this Act, the Post-closure Liability Fund established by section 232 of this Act.

(12) The term "ground water" means water in a saturated zone or stratum beneath the surface of land or water.

(13) The term "guarantor" means any person, other than the owner or operator, who provides evidence of financial responsibility for an owner or operator under this Act.

(14) The term "hazardous substance" means (A) any substance designated pursuant to section 311(b)(2)(A) of the Federal Water Pollution Control Act, (B) any element, compound, mixture, solution, or substance designated pursuant to section 102 of this Act, (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act [42 U.S.C. 6921] (but not including any waste the regulation of which under the Solid Waste

Disposal Act [42 U.S.C. 6901 et seq.] has been suspended by Act of Congress), (D) any toxic pollutant listed under section 307(a) of the Federal Water Pollution Control Act, (E) any hazardous air pollutant listed under section 112 of the Clean Air Act [42 U.S.C. 7412], and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

(15) The term "navigable waters" or "navigable waters of the United States" means the waters of the United States, including the territorial seas.

(16) The term "natural resources" means land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States (including the resources of the fishery conservation zone established by the Fishery Conservation and Management Act of 1976 [16 U.S.C. 1801 et seq.]), any State, local government, or any foreign government, any Indian tribe, or, if such resources are subject to a trust restriction or alienation, any member of an Indian tribe.

(17) The term "offshore facility" means any facility of any kind located in, on, or under, any of the navigable waters of the United States, and any facility of any kind which is subject to the jurisdiction of the United States and is located in, on, or under any other waters, other than a vessel or a public vessel.

(18) The term "onshore facility" means any facility (including, but not limited to, motor vehicles and rolling stock) of any kind located in, on, or under, any land or nonnavigable waters within the United States.

(19) The term "otherwise subject to the jurisdiction of the United States" means subject to the jurisdiction of the United States by virtue of United States citizenship, United States vessel documentation or numbering, or as provided by international agreement to which the United States is a party.

(20)(A) The term "owner or operator" means (i) in the case of a vessel, any person owning, operating, or chartering by demise, such vessel, (ii) in the case of an onshore facility or an offshore facility, any person owning or operating such facility, and (iii) in the case of any abandoned facility, title or control of which was conveyed due to bankruptcy, foreclosure, tax delinquency, abandonment, or similar means to a unit of State or local government, any person who owned, operated, or otherwise controlled activities at such facility immediately beforehand. Such term does not include a person, who, without participating in the management of a vessel or facility, holds indicia of ownership primarily to protect his security interest in the vessel or facility.

(B) In the case of a hazardous substance which has been accepted for transportation by a common or contract carrier and except as provided in section 107(a)(3) or (4) of this Act, (i) the term "owner or operator" shall mean such common carrier or other bona fide for hire carrier acting as an independent contractor during such transportation, (ii) the shipper of such hazardous substance shall not be considered to have caused or contributed to any release during such transportation which resulted solely from circumstances or conditions beyond his control.

(C) In the case of a hazardous substance which has been delivered by a common or contract carrier to a disposal or treatment facility and except as provided in section 107(a)(3) or (4) of this Act, (i) the term "owner or operator" shall not include such common or contract carrier, and (ii) such common or contract carrier shall not be considered to have caused or contributed to any release at such disposal or treatment facility resulting from circumstances or conditions beyond its control.

(D) The term "owner or operator" does not include a unit of State or local government which acquired ownership or control involuntarily through bankruptcy, tax delinquency, abandonment, or other circumstances in which the government involuntarily acquires title by virtue of its function as sovereign. The exclusion provided under this paragraph shall not apply to any State or local government which has caused or contributed to the release or threatened release of a hazardous substance from the facility, and such a State or local government shall be subject

to the provisions of this Act in the same manner and to the same extent, both procedurally and substantively, as any nongovernmental entity, including liability under section 107.

(21) The term "person" means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, United States Government, State, municipality, commission, political subdivision of a State, or any interstate body.

(22) The term "release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant), but excludes (A) any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons, (B) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine, (C) release of source, by-product, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954 [42 U.S.C. 2011 et seq.], if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act [42 U.S.C. 2210], or, for the purposes of section 104 of this title or any other response action, any release of source by-product, or special nuclear material from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978, and (D) the normal application of fertilizer.

(23) The terms "remove" or "removal" means the cleanup or removal of released hazardous substances from the environment, such actions as may be necessarily taken in the event of the threat of release of hazardous substances into the environment, such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, the disposal of removed material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under section 104(b) of this Act, and any emergency assistance which may be provided under the Disaster Relief and Emergency Assistance Act.

(24) The terms "remedy" or "remedial action" means those actions consistent with permanent remedy taken instead of or in addition to removal actions in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment. The term includes, but is not limited to, such actions at the location of the release as storage, confinement, perimeter protection using dikes, trenches, or ditches, clay cover, neutralization, cleanup of released hazardous substances and associated contaminated materials, recycling or reuse, diversion, destruction, segregation of reactive wastes, dredging or excavations, repair or replacement of leaking containers, collection of leachate and runoff, onsite treatment or incineration, provision of alternative water supplies, and any monitoring reasonably required to assure that such actions protect the public health and welfare and the environment. The term includes the costs of permanent relocation of residents and businesses and community facilities where the President determines that, alone or in combination with other measures, such relocation is more cost-effective than and environmentally preferable to the transportation, storage, treatment, destruction, or secure disposition offsite of hazardous substances, or may otherwise be necessary to protect the public health or welfare; the term includes offsite transport and offsite storage, treatment, destruction, or secure disposition of hazardous substances and associated contaminated materials.

(25) The terms "respond" or "response" means remove, removal, remedy, and remedial action, all such terms (including the terms "removal" and "remedial action") include enforcement activities related thereto.

(26) The terms "transport" or "transportation" means the movement of a hazardous substance by any mode, including pipeline (as defined in the Pipeline Safety Act), and in the case of a hazardous substance which has been accepted for transportation by a common or contract carrier, the term "transport" or "transportation" shall include any stoppage in transit which is temporary, incidental

to the transportation movement, and at the ordinary operating convenience of a common or contract carrier, and any such stoppage shall be considered as a continuity of movement and not as the storage of a hazardous substance.

(27) The terms "United States" and "State" include the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Commonwealth of the Northern Marianas, and any other territory or possession over which the United States has jurisdiction.

(28) The term "vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water.

(29) The terms "disposal", "hazardous waste", and "treatment" shall have the meaning provided in section 1004 of the Solid Waste Disposal Act [42 U.S.C. 6903].

(30) The terms "territorial sea" and "contiguous zone" shall have the meaning provided in section 502 of the Federal Water Pollution Control Act.

(31) The term "national contingency plan" means the national contingency plan published under section 311(c) of the Federal Water Pollution Control Act or revised pursuant to section 105 of this Act.

(32) The terms "liable" or "liability" under this title shall be construed to be the standard of liability which obtains under section 311 of the Federal Water Pollution Control Act.

(33) The term "pollutant or contaminant" shall include, but not be limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring; except that the term "pollutant or contaminant" shall not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of paragraph (14) and shall not include natural gas, liquefied natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas).

(34) The term "alternative water supplies" includes, but is not limited to, drinking water and household water supplies.

(35)(A) The term "contractual relationship", for the purpose of section 107(b)(3) includes, but is not limited to, land contracts, deeds or other instruments transferring title or possession, unless the real property on which the facility concerned is located was acquired by the defendant after the disposal or placement of the hazardous substance on, in, or at the facility, and one or more of the circumstances described in clause (i), (ii), or (iii) is also established by the defendant by a preponderance of the evidence:

(i) At the time the defendant acquired the facility the defendant did not know and had no reason to know that any hazardous substance which is the subject of the release or threatened release was disposed of on, in, or at the facility.

(ii) The defendant is a government entity which acquired the facility by escheat, or through any other involuntary transfer or acquisition, or through the exercise of eminent domain authority by purchase or condemnation.

(iii) The defendant acquired the facility by inheritance or bequest.

In addition to establishing the foregoing, the defendant must establish that he has satisfied the requirements of section 107(b)(3)(a) and (b).

(B) To establish that the defendant had no reason to know, as provided in clause (i) of subparagraph (A) of this paragraph, the defendant must have undertaken, at the time of acquisition, all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice in an effort to minimize liability. For purposes of the preceding sentence the court shall take into account any specialized knowledge or experience on the part of the defendant, the relationship of the purchase price to the value of the property if uncontaminated, commonly known or reasonably ascertainable information about the property, the obviousness of the presence or likely presence of contamination at the property, and the ability to detect such contamination by appropriate inspection.

(C) Nothing in this paragraph or in section 107(b)(3) shall diminish the liability of any previous owner or operator of such facility who would otherwise be liable under this Act. Notwithstanding this paragraph, if the defendant obtained actual knowledge of the release or threatened release of a hazardous substance at such facility when the defendant owned the real property and then subsequently transferred ownership of the property to another person without disclosing such knowledge, such defendant shall be treated as liable under section 107(a)(1) and no defense under section 107(b)(3) shall be available to such defendant.

(D) Nothing in this paragraph shall affect the liability under this Act of a defendant who, by any act or omission, caused or contributed to the release or threatened release of a hazardous substance which is the subject of the action relating to the facility.

(36) The term "Indian tribe" means any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village but not including any Alaska Native regional or village corporation, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

(37)(A) The term "service station dealer" means any person—

(i) who owns or operates a motor vehicle service station, filling station, garage, or similar retail establishment engaged in the business of selling, repairing, or servicing motor vehicles, where a significant percentage of the gross revenue of the establishment is derived from the fueling, repairing, or servicing of motor vehicles, and

(ii) who accepts for collection, accumulation, and delivery to an oil recycling facility, recycled oil that (I) has been removed from the engine of a light duty motor vehicle or household appliances by the owner of such vehicle or appliances, and (II) is presented, by such owner, to such person for collection, accumulation, and delivery to an oil recycling facility.

(B) For purposes of section 114(c), the term "service station dealer" shall, notwithstanding the provisions of subparagraph (A), include any government agency that establishes a facility solely for the purpose of accepting recycled oil that satisfies the criteria set forth in subclauses (I) and (II) of subparagraph (A)(ii), with respect to recycled oil that satisfies the criteria set forth in subclauses (I) and (II), owners or operators of refuse collection services who are compelled by State law to collect, accumulate, and deliver such oil to an oil recycling facility.

(C) The President shall promulgate regulations regarding the determination of what constitutes a significant percentage of the gross revenues of an establishment for purposes of this paragraph.

(38) The term "incineration vessel" means any vessel which carries hazardous substances for the purpose of incineration of such substances, so long as such substances or residues of such substances are on board.

REPORTABLE QUANTITIES AND ADDITIONAL DESIGNATIONS

[42 U.S.C. 9602]

SEC. 102. (a) The Administrator shall promulgate and revise as may be appropriate, regulations designating as hazardous substances, in addition to those referred to in section 101(14) of this title, such elements, compounds, mixtures, solutions, and substances which, when released into the environment may present substantial danger to the public health or welfare or the environment, and shall promulgate regulations establishing that quantity of any hazardous substance the release of which shall be reported pursuant to section 103 of this title. The Administrator may determine that one single quantity shall be the reportable quantity for any hazardous substance, regardless of the medium into which the hazardous substance is released.

For all hazardous substances for which proposed regulations establishing reportable quantities were published in the Federal Register under this subsection on or before March 1, 1986, the Administrator shall promulgate under this subsection final regulations establishing reportable quantities not later than December 31, 1986. For all hazardous substances for which proposed regulations establishing reportable quantities were not published in the Federal Register under this subsection on or before March 1, 1986, the Administrator shall publish under this subsection proposed regulations establishing reportable quantities not later than December 31, 1986, and promulgate final regulations under this subsection establishing reportable quantities not later than April 30, 1988.

(b) Unless and until superseded by regulations establishing a reportable quantity under subsection (a) of this section for any hazardous substance as defined in section 101(14) of this title, (1) a quantity of

one pound, or (2) for those hazardous substances for which reportable quantities have been established pursuant to section 311(b)(4) of the Federal Water Pollution Control Act, such reportable quantity, shall be deemed that quantity, the release of which requires notification pursuant to section 103(a) or (b) of this title.

NOTICES, PENALTIES

[42 U.S.C. 9603]

Sec. 103. (a) Any person in charge of a vessel or an offshore or an onshore facility shall, as soon as he has knowledge of any release (other than a federally permitted release) of a hazardous substance from such vessel or facility in quantities equal to or greater than those determined pursuant to section 102 of this title, immediately notify the National Response Center established under the Clean Water Act [33 U.S.C. 1251 et seq.] of such release. The National Response Center shall convey the notification expeditiously to all appropriate Government agencies, including the Governor of any affected State.

(b) Any person—

(1) in charge of a vessel from which a hazardous substance is released, other than a federally permitted release, into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone, or

(2) in charge of a vessel from which a hazardous substance is released, other than a federally permitted release, which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Fishery Conservation and Management Act of 1976 [16 U.S.C. 1801 et seq.]), and who is otherwise subject to the jurisdiction of the United States at the time of the release, or

(3) in charge of a facility from which a hazardous substance is released, other than a federally permitted release, in a quantity equal to or greater than that determined pursuant to section 102 of this title who fails to notify immediately the appropriate agency of the United States Government as soon as he has knowledge of such release or who submits in such a notification any information which he knows to be false or misleading shall, upon conviction, be fined in accordance with the applicable provisions of title 18 of the United States Code or imprisoned for not more than 3 years (or not more than 5 years in the case of a second or subsequent conviction), or both. Notification received pursuant to this subsection or information obtained by the exploitation of such notification shall not be used against any such person in any criminal case, except a prosecution for perjury or for giving a false statement.

(c) Within one hundred and eighty days after December 11, 1980, any person who owns or operates or who at the time of disposal owned or operated, or who accepted hazardous substances for transport and selected, a facility at which hazardous substances (as defined in section 101(14)(C) of this title) are or have been stored, treated, or disposed of shall, unless such facility has a permit issued under, or has been accorded interim status under, subtitle C of the Solid Waste Disposal Act [42 U.S.C. 6921 et seq.], notify the Administrator of the Environmental Protection Agency of the existence of such facility, specifying the amount and type of any hazardous substance to be found there, and any known, suspected, or likely releases of such substances from such facility. The Administrator may prescribe in greater detail the manner and form of the notice and the information included. The Administrator shall notify the affected State agency, or any department designated by the Governor to receive such notice, of the existence of such facility. Any person who knowingly fails to notify the Administrator of the existence of any such facility shall, upon conviction, be fined not more than $10,000, or imprisoned for not more than one year, or both. In addition, any such person who knowingly fails to provide the notice required by this subsection shall not be entitled to any limitation of liability or to any defenses to liability set out in section 107 of this Act: *Provided, however,* That notification under this subsection is not required for any facility which would be reportable hereunder solely as a result of any stoppage in transit which is temporary, incidental to the transportation movement, or at the ordinary operating convenience of a common or contract carrier, and such stoppage shall be considered as a continuity of movement and not as the storage of a hazardous substance. Notification received pursuant to this subsection or information obtained by the exploitation of such notification shall not be used against any such person in any criminal case, except a prosecution for perjury or for giving a false statement.

(d) (1) The Administrator of the Environmental Protection Agency is authorized to promulgate rules and regulations specifying, with respect to—

(A) the location, title, or condition of a facility, and

(B) the identity, characteristics, quantity, origin, or condition (including containerization and previous treatment) of any hazardous substances contained or deposited in a facility;

the records which shall be retained by any person required to provide the notification of a facility set out in subsection (c) of this section. Such specification shall be in accordance with the provisions of this subsection.

(2) Beginning with December 11, 1980, for fifty years thereafter or for fifty years after the date of establishment of a record (whichever is later), or at any such earlier time as a waiver if obtained under paragraph (3) of this subsection, it shall be unlawful for any such person knowingly to destroy, mutilate, erase, dispose of, conceal, or otherwise render unavailable or unreadable or falsify any records identified in paragraph (1) of this subsection. Any person who violates this paragraph shall, upon conviction, be fined in accordance with the applicable provisions of title 18 of the United States Code or imprisoned for not more than 3 years (or not more than 5 years in the case of a second or subsequent conviction), or both.

(3) At any time prior to the date which occurs fifty years after December 11, 1980, any person identified under paragraph (1) of this subsection may apply to the Administrator of the Environmental Protection Agency for a waiver of the provisions of the first sentence of paragraph (2) of this subsection. The Administrator is authorized to grant such waiver if, in his discretion, such waiver would not unreasonably interfere with the attainment of the purposes and provisions of this Act. The Administrator shall promulgate rules and regulations regarding such a waiver so as to inform parties of the proper application procedure and conditions for approval of such a waiver.

(4) Notwithstanding the provisions of this subsection, the Administrator of the Environmental Protection Agency may in his discretion require any such person to retain any record identified pursuant to paragraph (1) of this subsection for such a time period in excess of the period specified in paragraph (2) of this subsection as the Administrator determines to be necessary to protect the public health or welfare.

(e) This section shall not apply to the application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act [7 U.S.C. 136 et seq.] or to the handling and storage of such a pesticide product by an agricultural producer.

(f) No notification shall be required under subsection (a) or (b) of this section for any release of a hazardous substance—

(1) which is required to be reported (or specifically exempted from a requirement for reporting) under subtitle C of the Solid Waste Disposal Act [42 U.S.C. 6921 et seq.] or regulations thereunder and which has been reported to the National Response Center, or

(2) which is a continuous release, stable in quantity and rate, and is—

(A) from a facility for which notification has been given under subsection (c) of this section, or

(B) a release of which notification has been given under subsections (a) and (b) of this section for a period sufficient to establish the continuity, quantity, and regularity of such release;

Provided, That notification in accordance with subsections (a) and (b) of this paragraph shall be given for releases subject to this paragraph annually, or at such time as there is any statistically significant increase in the quantity of any hazardous substance or constituent thereof released, above that previously reported or occurring.

RESPONSE AUTHORITIES

[42 U.S.C. 9604]

Sec. 104.(a)(1) Whenever (A) any hazardous substance is released or there is a substantial threat of such a release into the environment, or (B) there is a release or substantial threat of release into the environment of any pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare, the President is authorized to act, consistent with the national contingency plan, to remove or arrange for the removal of, and provide for remedial action relating to such hazardous substance, pollutant, or contaminant at any time (including its removal from any contaminated natural resource), or take any other response measure consistent with the national contingency plan which the President deems necessary to protect the public health or welfare or the environment. When the President determines that such action will be done properly by the owner or operator of the facility or vessel or by any other responsible

party, the President may allow such person to carry out the action, conduct the remedial investigation, or conduct the feasibility study in accordance with section 122. No remedial investigation or feasibility study (RI/FS) shall be authorized except on a determination by the President that the party is qualified to conduct the RI/FS and only if the President contracts with or arranges for a qualified person to assist the President in overseeing and reviewing the conduct of such RI/FS and if the responsible party agrees to reimburse the Fund for any cost incurred by the President under, or in connection with, the oversight contract or arrangement. In no event shall a potentially responsible party be subject to a lesser standard of liability, receive preferential treatment, or in any other way, whether direct or indirect, benefit from any such arrangements as a response action contractor, or as a person hired or retained by such a response action contractor, with respect to the release or facility in question. The President shall give primary attention to those releases which the President deems may present a public health threat.

(2) Removal action.—Any removal action undertaken by the President under this subsection (or by any other person referred to in section 122) should, to the extent the President deems practicable, contribute to the efficient performance of any long term remedial action with respect to the release or threatened release concerned.

(3) Limitations on response.—The President shall not provide for a removal or remedial action under this section in response to a release or threat of release—

(A) of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found;

(B) from products which are part of the structure of, and result in exposure within, residential buildings or business or community structures; or

(C) into public or private drinking water supplies due to deterioration of the system through ordinary use.

(4) Exception to limitations.—Notwithstanding paragraph (3) of this subsection, to the extent authorized by this section, the President may respond to any release or threat of release if in the President's discretion, it constitutes a public health or environmental emergency and no other person with the authority and capability to respond to the emergency will do so in a timely manner.

(b) (1) Information; studies and investigations.—Whenever the President is authorized to act pursuant to subsection (a) of this section, or whenever the President has reason to believe that a release has occurred or is about to occur, or that illness, disease, or complaints thereof may be attributable to exposure to a hazardous substance, pollutant, or contaminant and that a release may have occurred or be occurring, he may undertake such investigations, monitoring, surveys, testing, and other information gathering as he may deem necessary or appropriate to identify the existence and extent of the release or threat thereof, the source and nature of the hazardous substances, pollutants or contaminants involved, and the extent of danger to the public health or welfare or to the environment. In addition, the President may undertake such planning, legal, fiscal, economic, engineering, architectural, and other studies or investigations as he may deem necessary or appropriate to plan and direct response actions, to recover the costs thereof, and to enforce the provisions of this Act.

(2) Coordination of investigations.—The President shall promptly notify the appropriate Federal and State natural resource trustees of potential damages to natural resources resulting from releases under investigation pursuant to this section and shall seek to coordinate the assessments, investigations, and planning under this section with such Federal and State trustees.

(c) (1) Unless (A) the President finds that (i) continued response actions are immediately required to prevent, limit, or mitigate an emergency, (ii) there is an immediate risk to public health or welfare or the environment, and (iii) such assistance will not otherwise be provided on a timely basis, or (B) the President has determined the appropriate remedial actions pursuant to paragraph (2) of this subsection and the State or States in which the source of the release is located have complied with the requirements of paragraph (3) of this subsection, or (C) continued response action is otherwise appropriate and consistent with the remedial action to be taken, obligations from the Fund, other than those authorized by subsection (b) of this section, shall not continue after $2,000,000 has been obligated for response actions or 12 months has elapsed from the date of initial response to a release or threatened release of hazardous substances.

(2) The President shall consult with the affected State or States before determining any appropriate remedial action to be taken pursuant to the authority granted under subsection (a) of this section.
(3) The President shall not provide any remedial actions pursuant to this section unless the State in which the release occurs first enters into a contract or cooperative agreement with the President providing assurances deemed adequate by the President that (A) the State will assure all future maintenance of the removal and remedial actions provided for the expected life of such actions as determined by the President; (B) the State will assure the availability of a hazardous waste disposal facility acceptable to the President and in compliance with the requirements of subtitle C of the Solid Waste Disposal Act [42 U.S.C. 6921 et seq.] for any necessary offsite storage, destruction, treatment, or secure disposition of the hazardous substances; and (C) the State will pay or assure payment of (i) 10 per centum of the costs of the remedial action, including all future maintenance, or (ii) at least 50 per cent (or such greater amount as the President may determine appropriate, taking into account the degree of responsibility of the State or political subdivision for the release) of any sums expended in response to a release at a facility, that was operated by the State or a political subdivision thereof, either directly or through a contractual relationship or otherwise, at the time of any disposal of hazardous substances therein. For the purpose of clause (ii) of this subparagraph, the term "facility" does not include navigable waters or the beds underlying those waters. The President shall grant the State a credit against the share of the costs for which it is responsible under this paragraph for any documented direct out-of-pocket non-Federal funds expended or obligated by the State or a political subdivision thereof after January 1, 1978, and before December 11, 1980, for cost-eligible response actions and claims for damages compensable under section 111 of this title relating to the specific release in question: *Provided, however,* That in no event shall the amount of the credit granted exceed the total response costs relating to the release. In the case of remedial action to be taken on land or water held by an Indian tribe, held by the United States in trust for Indians, held by a member of an Indian tribe (if such land or water is subject to a trust restriction on alienation), or otherwise within the borders of an Indian reservation, the requirements of this paragraph for assurances regarding future maintenance and cost-sharing shall not apply, and the President shall provide the assurance required by this paragraph regarding the availability of a hazardous waste disposal facility.
(4) Selection of remedial action.—The President shall select remedial actions to carry out this section in accordance with section 121 of this Act (relating to cleanup standards).
(5) State credits.—

(A) Granting of credit.—The President shall grant a State a credit against the share of the costs, for which it is responsible under paragraph (3) with respect to a facility listed on the National Priorities List under the National Contingency Plan, for amounts expended by a State for remedial action at such facility pursuant to a contract or cooperative agreement with the President. The credit under this paragraph shall be limited to those State expenses which the President determines to be reasonable, documented, direct out-of-pocket expenditures of non-Federal funds.

(B) Expenses before listing or agreement.—The credit under this paragraph shall include expenses for remedial action at a facility incurred before the listing of the facility on the National Priorities List or before a contract or cooperative agreement is entered into under subsection (d) for the facility if—

(i) after such expenses are incurred the facility is listed on such list and a contract or cooperative agreement is entered into for the facility, and

(ii) the President determines that such expenses would have been credited to the State under subparagraph (A) had the expenditures been made after listing of the facility on such list and after the date on which such contract or cooperative agreement is entered into.

(C) Response actions between 1978 and 1980.—The credit under this paragraph shall include funds expended or obligated by the State or a political subdivision thereof after January 1, 1978, and before December 11, 1980, for cost-eligible response actions and claims for damages compensable under section 111.

(D) State expenses after December 11, 1980, in excess of 10 percent of costs.—The credit under this paragraph shall include 90 percent of State expenses incurred at a facility owned, but not operated, by such State or by a political subdivision thereof. Such credit applies only to expenses

incurred pursuant to a contract or cooperative agreement under subsection (d) and only to expenses incurred after December 11, 1980, but before the date of the enactment of this paragraph.

(E) Item-by-item approval.—In the case of expenditures made after the date of the enactment of this paragraph, the President may require prior approval of each item of expenditure as a condition of granting a credit under this paragraph.

(F) Use of credits.—Credits granted under this paragraph for funds expended with respect to a facility may be used by the State to reduce all or part of the share of costs otherwise required to be paid by the State under paragraph (3) in connection with remedial actions at such facility. If the amount of funds for which credit is allowed under this paragraph exceeds such share of costs for such facility, the State may use the amount of such excess to reduce all or part of the share of such costs at other facilities in that State. A credit shall not entitle the State to any direct payment.

(6) Operation and maintenance.—For the purposes of paragraph (3) of this subsection, in the case of ground or surface water contamination, completed remedial action includes the completion of treatment or other measures, whether taken onsite or offsite, necessary to restore ground and surface water quality to a level that assures protection of human health and the environment. With respect to such measures, the operation of such measures for a period of up to 10 years after the construction or installation and commencement of operation shall be considered remedial action. Activities required to maintain the effectiveness of such measures following such period or the completion of remedial action, whichever is earlier, shall be considered operation or maintenance.

(7) Limitation on source of funds for O&M.—During any period after the availability of funds received by the Hazardous Substance Superfund established under subchapter A of chapter 98 of the Internal Revenue Code of 1954 from tax revenues or appropriations from general revenues, the Federal share of the payment of the cost of operation or maintenance pursuant to paragraph (3)(C)(i) or paragraph (6) of this subsection (relating to operation and maintenance) shall be from funds received by the Hazardous Substance Superfund from amounts recovered on behalf of such fund under this Act.

(8) Reconti acting. The President is authorized to undertake or continue whatever interim remedial actions the President determines to be appropriate to reduce risks to public health or the environment where the performance of a complete remedial action requires recontracting because of the discovery of sources, types, or quantities of hazardous substances not known at the time of entry into the original contract. The total cost of interim actions undertaken at a facility pursuant to this paragraph shall not exceed $2,000,000.

(9) Siting.—Effective 3 years after the enactment of the Superfund Amendments and Reauthorization Act of 1896, the President shall not provide any remedial actions pursuant to this section unless the State in which the release occurs first enters into a contract or cooperative agreement with the President providing assurances deemed adequate by the President that the State will assure the availability of hazardous waste treatment or disposal facilities which—

(A) have adequate capacity for the destruction, treatment, or secure disposition of all hazardous wastes that are reasonably expected to be generated within the State during the 20-year period following the date of such contract or cooperative agreement and to be disposed of, treated, or destroyed,

(B) are within the State or outside the State in accordance with an interstate agreement or regional agreement or authority,

(C) are acceptable to the President, and

(D) are in compliance with the requirements of subtitle C of the Solid Waste Disposal Act.

(d) (1) Cooperative agreements.—

(A) State applications.—A State or political subdivision thereof or Indian tribe may apply to the President to carry out actions authorized in this section. If the President determines that the State or political subdivision or Indian tribe has the capability to carry out any or all of such actions in accordance with the criteria and priorities established pursuant to section 105(a)(8) and to carry out related enforcement actions, the President may enter into a contract or cooperative agreement with the State or political subdivision or Indian tribe to carry out such

actions. The President shall make a determination regarding such an application within 90 days after the President receives the application.

(B) Terms and conditions. – A contract or cooperative agreement under this paragraph shall be subject to such terms and conditions as the President may prescribe. The contract or cooperative agreement may cover a specific facility or specific facilities.

(C) Reimbursements. – Any State which expended funds during the period beginning September 30, 1985, and ending on the date of the enactment of this subparagraph for response actions at any site included on the National Priorities List and subject to a cooperative agreement under this Act shall be reimbursed for the share of costs of such actions for which the Federal Government is responsible under this Act.

(2) If the President enters into a cost-sharing agreement pursuant to subsection (c) of this section or a contract or cooperative agreement pursuant to this subsection, and the State or political subdivision thereof fails to comply with any requirements of the contract, the President may, after providing sixty days notice, seek in the appropriate Federal district court to enforce the contract or to recover any funds advanced or any costs incurred because of the breach of the contract by the State or political subdivision.

(3) Where a State or a political subdivision thereof is acting in behalf of the President, the President is authorized to provide technical and legal assistance in the administration and enforcement of any contract or subcontract in connection with response actions assisted under this title, and to intervene in any civil action involving the enforcement of such contract or subcontract.

(4) Where two or more noncontiguous facilities are reasonably related on the basis of geography, or on the basis of the threat, or potential threat to the public health or welfare or the environment, the President may, in his discretion, treat these related facilities as one for purposes of this section.

(e) Information gathering and access. –

(1) Action authorized. – Any officer, employee, or representative of the President, duly designated by the President, is authorized to take action under paragraph (2), (3), or (4) (or any combination thereof) at a vessel, facility, establishment, place, property, or location or, in the case of paragraph (3) or (4), at any vessel, facility, establishment, place, property, or location which is adjacent to the vessel, facility, establishment, place, property, or location referred to in such paragraph (3) or (4). Any duly designated officer, employee, or representative of a State or political subdivision under a contract or cooperative agreement under subsection (d)(1) is also authorized to take such action. The authority of paragraphs (3) and (4) may be exercised only if there is a reasonable basis to believe there may be a release or threat of release of a hazardous substance or pollutant or contaminant. The authority of this subsection may be exercised only for the purposes of determining the need for response, or choosing or taking any response action under this title, or otherwise enforcing the provisions of this title.

(2) Access to information. – Any officer, employee, or representative described in paragraph (1) may require any person who has or may have information relevant to any of the following to furnish, upon reasonable notice, information or documents relating to such matter:

(A) The identification, nature, and quantity of materials which have been or are generated, treated, stored, or disposed of at a vessel or facility or transported to a vessel or facility.

(B) The nature or extent of a release or threatened release of a hazardous substance or pollutant or contaminant at or from a vessel or facility.

(C) Information relating to the ability of a person to pay for or to perform a cleanup.

In addition, upon reasonable notice, such person either (i) shall grant any such officer, employee, or representative access at all reasonable times to any vessel, facility, establishment, place, property, or location to inspect and copy all documents or records relating to such matters or (ii) shall copy and furnish to the officer, employee, or representative all such documents or records, at the option and expense of such person.

(3) Entry. – Any officer, employee, or representative described in paragraph (1) is authorized to enter at reasonable times any of the following:

(A) Any vessel, facility, establishment, or other place or property where any hazardous substance or pollutant or contaminant may be or has been generated, stored, treated, disposed of, or transported from.

(B) Any vessel, facility, establishment, or other place or property from which or to which a hazardous substance or pollutant or contaminant has been or may have been released.

(C) Any vessel, facility, establishment, or other place or property where such release is or may be threatened.

(D) Any vessel, facility, establishment, or other place or property where entry is needed to determine the need for response or the appropriate response or to effectuate a response action under this title.

(4) Inspection and samples.—

(A) Authority.—Any officer, employee or representative described in paragraph (1) is authorized to inspect and obtain samples from any vessel, facility, establishment, or other place or property referred to in paragraph (3) or from any location of any suspected hazardous substance or pollutant or contaminant. Any such officer, employee, or representative is authorized to inspect and obtain samples of any containers or labeling for suspected hazardous substances or pollutants or contaminants. Each such inspection shall be completed with reasonable promptness.

(B) Samples.—If the officer, employee, or representative obtains any samples, before leaving the premises he shall give to the owner, operator, tenant, or other person in charge of the place from which the samples were obtained a receipt describing the sample obtained and, if requested, a portion of each such sample. A copy of the results of any analysis made of such samples shall be furnished promptly to the owner, operator, tenant, or other person in charge, if such person can be located.

(5) Compliance orders.—

(A) Issuance.—If consent is not granted regarding any request made by an officer, employee, or representative under paragraph (2), (3), (4), the President may issue an order directing compliance with the request. The order may be issued after such notice and opportunity for consultation as is reasonably appropriate under the circumstances.

(B) Compliance.—The President may ask the Attorney General to commence a civil action to compel compliance with a request or order referred to in subparagraph (A). Where there is a reasonable basis to believe there may be a release or threat of a release of a hazardous substance or pollutant or contaminant, the court shall take the following actions:

(i) In the case of interference with entry or inspection, the court shall enjoin such interference or direct compliance with orders to prohibit interference with entry or inspection unless under the circumstances of the case the demand for entry or inspection is arbitrary and capricious, an abuse of discretion, or otherwise not in accordance with law.

(ii) In the case of information or document requests or orders, the court shall enjoin interference with such information or document requests or orders or direct compliance with the requests or orders to provide such information or documents unless under the circumstances of the case the demand for information or documents is arbitrary and capricious, an abuse of discretion, or otherwise not in accordance with law.

The court may assess a civil penalty not to exceed $25,000 for each day of noncompliance against any person who unreasonable fails to comply with the provisions of paragraph (2), (3), or (4) or an order issued pursuant to subparagraph (A) of this paragraph.

(6) Other authority.—Nothing in this subsection shall preclude the President from securing access or obtaining information in any other lawful manner.

(7) Confidentiality of information.—

(A) Any records, reports, or information obtained from any person under this section (including records, reports, or information obtained by representatives of the President) shall be available to the public, except that upon a showing satisfactory to the President (or the State, as the case may be) by any person that records, reports, or information, or particular part thereof (other than health or safety effects data), to which the President (or the State, as the case may be) or any officer, employee, or representative has access under this section if made public would divulge information entitled to protection under section 1905 of title 18 of the United States Code, such information or particular portion thereof shall be considered confidential in accordance with the purposes of that section, except that such record, report, document or information may be disclosed to other officers, employees, or authorized representatives of the

United States concerned with carrying out this Act, or when relevant in any proceeding under this Act.

(B) Any person not subject to the provisions of section 1905 of title 18 of the United States Code who knowingly and willfully divulges or discloses any information entitled to protection under this subsection shall, upon conviction, be subject to a fine of not more than $5,000 or to imprisonment not to exceed one year, or both.

(C) In submitting data under this Act, a person required to provide such data may (i) designate the data which such person believes is entitled to protection under this subsection and (ii) submit such designated data separately from other data submitted under this Act. A designation under this paragraph shall be made in writing and in such manner as the President may prescribe by regulation.

(D) Notwithstanding any limitation contained in this section or any other provision of law, all information reported to or otherwise obtained by the President (or any representative of the President) under this Act shall be made available, upon written request of any duly authorized committee of the Congress, to such committee.

(E) No person required to provide information under this Act may claim that the information is entitled to protection under this paragraph unless such person shows each of the following:

(i) Such person has not disclosed the information to any other person, other than a member of a local emergency planning committee established under title III of the Amendments and Reauthorization Act of 1986, an officer or employee of the United States or a State or local government, an employee of such person, or a person who is bound by a confidentiality agreement, and such person has taken reasonable measures to protect the confidentiality of such information and intends to continue to take such measures.

(ii) The information is not required to be disclosed, or otherwise made available, to the public under any other Federal or State law.

(iii) Disclosure of the information is likely to cause substantial harm to the competitive position of such person.

(iv) The specific chemical identity, if sought to be protected, is not readily discoverable through reverse engineering.

(F) The following information with respect to any hazardous substance at the facility or vessel shall not be entitled to protection under this paragraph:

(i) The trade name, common name, or generic class or category of the hazardous substance.

(ii) The physical properties of the substance, including its boiling point, melting point, flash point, specific gravity, vapor density, solubility in water, and vapor pressure at 20 degrees celsius.

(iii) The hazards to health and the environment posed by the substance, including physical hazards (such as explosion) and potential acute and chronic health hazards.

(iv) The potential routes of human exposure to the substance at the facility, establishment, place, or property being investigated, entered, or inspected under this subsection.

(v) The location of disposal of any waste stream.

(vi) Any monitoring data or analysis of monitoring data pertaining to disposal activities.

(vii) Any hydrogeologic or geologic data.

(viii) Any groundwater monitoring data.

(f) In awarding contracts to any person engaged in response actions, the President or the State, in any case where it is awarding contracts pursuant to a contract entered into under subsection (d) of this section, shall require compliance with Federal health and safety standards established under section 301(f) of this Act by contractors and subcontractors as a condition of such contracts.

(g) (1) All laborers and mechanics employed by contractors or subcontractors in the performance of construction, repair, or alteration work funded in whole or in part under this section shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with the Davis-Bacon Act. The President shall not approve any such funding without first obtaining adequate assurance that required labor standards will be maintained upon the construction work.

(2) The Secretary of Labor shall have, with respect to the labor standards specified in paragraph (1), the authority and functions set forth in Reorganization Plan Numbered 14 of 1950 (15 FR 3176; 64 Stat. 1267) and section 276c of title 40 of the United States Code.

(h) Notwithstanding any other provision of law, subject to the provisions of section 111 of this Act, the President may authorize the use of such emergency procurement powers as he deems necessary to effect the purpose of this Act. Upon determination that such procedures are necessary, the President shall promulgate regulations prescribing the circumstances under which such authority shall be used and the procedures governing the use of such authority.

(i) (1) There is hereby established within the Public Health Service an agency, to be known as the Agency for Toxic Substances and Disease Registry, which shall report directly to the Surgeon General of the United States. The Administrator of said Agency shall, with the cooperation of the Administrator of the Environmental Protection Agency, the Commissioner of the Food and Drug Administration, the Directors of the National Institute of Medicine, National Institute of Environmental Health Sciences, National Institute of Occupational Safety and Health, Centers for Disease Control, the Administrator of the Occupational Safety and Health Administration, the Administrator of the Social Security Administration, the Secretary of Transportation, and appropriate State and local health officials, effectuate and implement the health related authorities of this Act. In addition, said Administrator shall –

(A) in cooperation with the States, establish and maintain a national registry of serious diseases and illnesses and a national registry of persons exposed to toxic substances;

(B) establish and maintain inventory of literature, research, and studies on the health effects of toxic substances;

(C) in cooperation with the States, and other agencies of the Federal Government, establish and maintain a complete listing of areas closed to the public or otherwise restricted in use because of toxic substance contamination;

(D) in cases of public health emergencies caused or believed to be caused by exposure to toxic substances, provide medical care and testing to exposed individuals, including but not limited to tissue sampling, chromosomal testing where appropriate, epidemiological studies, or any other assistance appropriate under the circumstances; and

(E) either independently or as part of other health status survey, conduct periodic survey and screening programs to determine relationships between exposure to toxic substances and illness. In cases of public health emergencies, exposed persons shall be eligible for admission to hospitals and other facilities and services operated or provided by the Public Health Service.

(2) (A) Within 6 months after the enactment of the Superfund Amendments and Reauthorization Act of 1986, the Administrator of the Agency for Toxic Substances and Disease Registry (ATSDR) and the Administrator of the Environmental Protection Agency ("EPA") shall prepare a list, in order of priority, of at least 100 hazardous substances which are most commonly found at facilities on the National Priorities List and which, in their sole discretion, they determine are posing the most significant potential threat to human health due to their known or suspected toxicity to humans and the potential for human exposure to such substances at facilities on the National Priorities List or at facilities to which a response to a release or a threatened release under this section is under consideration.

(B) Within 24 months after the enactment of the Superfund Amendments and Reauthorization Act of 1986, the Administrator of ATSDR and the Administrator of EPA shall revise the list prepared under subparagraph (A). Such revision shall include, in order of priority, the addition of 100 or more such hazardous substances. In each of the 3 consecutive 12-month periods that follow, the Administrator of ATSDR and the Administrator of EPA shall revise, in the same manner as provided in the 2 preceding sentences, such list to include not fewer than 25 additional hazardous substances per revision. The Administrator of ATSDR and the Administrator of EPA shall not less often than once every year thereafter revise such list to include additional hazardous substances in accordance with the criteria in subparagraph (A).

(3) Based on all available information, including information maintained under paragraph (1)(B) and data developed and collected on the health effects of hazardous substances under this paragraph, the Administrator of ATSDR shall prepare toxicological profiles of each of the substances listed pursuant to paragraph (2). The toxicological profiles shall be prepared in accordance

with guidelines developed by the Administrator of ATSDR and the Administrator of EPA. Such profiles shall include, but not be limited to each of the following:

(A) An examination, summary, and interpretation of available toxicological information and epidemiologic evaluations on a hazardous substance in order to ascertain the levels of significant human exposure for the substance and the associated acute, subacute, and chronic health effects.

(B) A determination of whether adequate information on the health effects of each substance is available or in the process of development to determine levels of exposure which present a significant risk to human health of acute, subacute, and chronic health effects.

(C) Where appropriate, an identification of toxicological testing needed to identify the types or levels of exposure that may present significant risk of adverse health effects in humans.

Any toxicological profile or revision thereof shall reflect the Administrator of ATSDR's assessment of all relevant toxicological testing which has been peer reviewed. The profiles required to be prepared under this paragraph for those hazardous substances listed under subparagraph (A) of paragraph (2) shall be completed, at a rate of no fewer than 25 per year, within 4 years after the enactment of the Superfund Amendments and Reauthorization Act of 1986. A profile required on a substance listed pursuant to subparagraph (B) of paragraph (2) shall be completed within 3 years after addition to the list. The profiles prepared under this paragraph shall be of those substances highest on the list of priorities under paragraph (2) for which profiles have not previously been prepared. Profiles required under this paragraph shall be revised and republished as necessary, but no less often than once every 3 years. Such profiles shall be provided to the States and made available to other interested parties.

(4) The Administrator of the ATSDR shall provide consultations upon request on health issues relating to exposure to hazardous or toxic substances, on the basis of available information, to the Administrator of EPA, State officials, and local officials. Such consultations to individuals may be provided by States under cooperative agreements established under this Act.

(5) (A) For each hazardous substance listed pursuant to paragraph (2), the Administrator of ATSDR (in consultation with the Administrator of EPA and other agencies and programs of the Public Health Service) shall assess whether adequate information on the health effects of such substance is available. For any such substance for which adequate information is not available (or under development), the Administrator of ATSDR, in cooperation with the Director of the National Toxicology Program, shall assure the initiation of a program of research designed to determine the health effects (and techniques for development of methods to determine such health effects) of such substance. Where feasible, such program shall seek to develop methods to determine the health effects of such substance in combination with other substances with which it is commonly found. Before assuring the initiation of such program, the Administrator of ATSDR shall consider recommendations of the Interagency Testing Committee established under section 4(e) of the Toxic Substances Control Act on the types of research that should be done. Such program shall include, to the extent necessary to supplement existing information, but shall not be limited to –

(i) laboratory and other studies to determine short, intermediate, and long-term health effects;

(ii) laboratory and other studies to determine organ-specific, site-specific, and system-specific acute and chronic toxicity;

(iii) laboratory and other studies to determine the manner in which such substances are metabolized or to otherwise develop an understanding of the biokinetics of such substances; and

(iv) where there is a possibility of obtaining human data, the collection of such information.

(B) In assessing the need to perform laboratory and other studies, as required by subparagraph (A), the Administrator of ATSDR shall consider –

(i) the availability and quality of existing test data concerning the substance on the suspected health effect in question;

(ii) the extent to which testing already in progress will, in a timely fashion, provide data that will be adequate to support the preparation of toxicological profiles as required by paragraph (3); and

(iii) such other scientific and technical factors as the Administrator of ATSDR may determine are necessary for the effective implementation of this subsection.

(C) In the development and implementation of any research program under this paragraph, the Administrator of ATSDR and the Administrator of EPA shall coordinate such research program implemented under this paragraph with the National Toxicology Program and with programs of toxicological testing established under the Toxic Substances Control Act and the Federal Insecticide, Fungicide, and Rodenticide Act. The purpose of such coordination shall be to avoid duplication of effort and to assure that the hazardous substances listed pursuant to this subsection are tested thoroughly at the earliest practicable date. Where appropriate, consistent with such purpose, a research program under this paragraph may be carried out using such programs of toxicological testing.

(D) It is the sense of the Congress that the costs of research programs under this paragraph be borne by the manufacturers and processors of the hazardous substance in question, as required in programs of toxicological testing under the Toxic Substances Control Act. Within one year after the enactment of the Superfund Amendments and Reauthorization Act of 1986, the Administrator of EPA shall promulgate regulations which provide, where appropriate, for payment of such costs by manufacturers and processors under the Toxic Substances Control Act, and registrants under the Federal Insecticide, Fungicide, and Rodenticide Act, and recovery of such costs from responsible parties under this Act.

(6) (A) The Administrator of ATSDR shall perform a health assessment for each facility on the National Priorities List established under section 105. Such health assessment shall be completed not later than December 10, 1988, for each facility proposed for inclusion on such list prior to the date of the enactment of the Superfund Amendments and Reauthorization Act if 1986 or not later than one year after the date of proposal for inclusion on such list for each facility proposed for inclusion on such list after such date of enactment.

(B) The Administrator of ATSDR may perform health assessments for releases or facilities where individual persons or licensed physicians provide information that individuals have been exposed to a hazardous substance, for which the probable source of such exposure is a release. In addition to other methods (formal or informal) of providing such information, such individual persons or licensed physicians may submit a petition to the Administrator of ATSDR providing such information and requesting a health assessment. If such a petition is submitted and the Administrator of ATSDR does not initiate a health assessment, the Administrator of ATSDR shall provide a written explanation of why a health assessment is not appropriate.

(C) In determining the priority in which to conduct health assessments under this subsection, the Administrator of ATSDR, in consultation with the Administrator of EPA, shall give priority to those facilities at which there is documented evidence of the release of hazardous substances, at which the potential risk to human health appears highest, and for which in the judgment of the Administrator of ATSDR existing health assessment data are inadequate to assess the potential risk to human health as provided in subparagraph (F). In determining the priorities for conducting health assessments under this subsection, the Administrator of ATSDR shall consider the National Priorities List schedules and the needs of the Environmental Protection Agency and other Federal agencies pursuant to schedules for remedial investigation and feasibility studies.

(D) Where a health assessment is done at a site on the National Priorities List, the Administrator of ATSDR shall complete such assessment promptly and, to the maximum extent practicable, before the completion of the remedial investigation and feasibility study at the facility concerned.

(E) Any State or political subdivision carrying out a health assessment for a facility shall report the results of the assessment to the Administrator of ATSDR and the Administrator of EPA and shall include recommendations with respect to further activities which need to be carried out under this section. The Administrator of ATSDR shall state such recommendation in any report on the results of any assessment carried out directly by the Administrator of ATSDR for such facility and shall issue periodic reports which include the results of all the assessments carried out under this subsection.

(F) For the purposes of this subsection and section 111(c)(4), the term "health assessments" shall include preliminary assessments of the potential risk to human health posed by individual sites and facilities, based on such factors as the nature and extent of contamination, the existence of potential pathways of human exposure (including ground or surface water contamination, air emissions, and food chain contamination), the size and potential susceptibility of the community within the likely pathways of exposure, the comparison of expected human exposure levels to the short-term and long-term health effects associated with identified hazardous substances and any available recommended exposure or tolerance limits for such hazardous substances, and the comparison of existing morbidity and mortality data on diseases that may be associated with the observed levels of exposure. The Administrator of ATSDR shall use appropriate data, risk assessments, risk evaluations and studies available from the Administrator of EPA.

(G) The purpose of health assessments under this subsection shall be to assist in determining whether actions under paragraph (11) of this subsection should be taken to reduce human exposure to hazardous substances from a facility and whether additional information on human exposure and associated health risks is needed and should be acquired by conducting epidemiological studies under paragraph (7), establishing a registry under paragraph (8), establishing a health surveillance program under paragraph (9), or through other means. In using the results of health assessments for determining additional actions to be taken under this section, the Administrator of ATSDR may consider additional information on the risks to the potentially affected population from all sources of such hazardous substances including known point or nonpoint sources other than those from the facility in question.

(H) At the completion of each health assessment, the Administrator of ATSDR shall provide the Administrator of EPA and each affected State with the results of such assessment, together with any recommendations for further actions under this subsection or otherwise under this Act. In addition, if the health assessment indicates that the release or threatened release concerned may pose a serious threat to human health or the environment, the Administrator of ATSDR shall so notify the Administrator of EPA who shall promptly evaluate such release or threatened release in accordance with the hazard ranking system referred to in section 105(a)(8)(A) to determine whether the site shall be placed on the National Priorities List or, if the site is already on the list, the Administrator of ATSDR may recommend to the Administrator of EPA that the site be accorded a higher priority.

(7) (A) Whenever in the judgment of the Administrator of ATSDR it is appropriate on the basis of the results of a health assessment, the Administrator of ATSDR shall conduct a pilot study of health effects for selected groups of exposed individuals in order to determine the desirability of conducting full scale epidemiological or other health studies of the entire exposed population.

(B) Whenever in the judgment of the Administrator of ATSDR it is appropriate on the basis of the results of such pilot study or other study or health assessment, the Administrator of ATSDR shall conduct such full scale epidemiological or other health studies as may be necessary to determine the health effects on the population exposed to hazardous substances from a release or threatened release. If a significant excess of disease in a population is identified, the letter of transmittal of such study shall include an assessment of other risk factors, other than a release, that may, in the judgment of the peer review group, be associated with such disease, if such risk factors were not taken into account in the design or conduct of the study.

(8) In any case in which the results of a health assessment indicate a potential significant risk to human health, the Administrator of ATSDR shall consider whether the establishment of a registry of exposed persons would contribute to accomplishing the purposes of this subsection, taking into account circumstances bearing on the usefulness of such a registry, including the seriousness or unique character of identified diseases or the likelihood of population migration from the affected area.

(9) Where the Administrator of ATSDR has determined that there is a significant increased risk of adverse health effects in humans from exposure to hazardous substances based on the results of a health assessment conducted under paragraph (6), an epidemiologic study conducted under paragraph (7), or an exposure registry that has been established under paragraph (8), and the Administrator of ATSDR has determined that such exposure is the result of a release from a facility,

the Administrator of ATSDR shall initiate a health surveillance program for such population. This program shall include but not be limited to–

(A) periodic medical testing where appropriate of population subgroups to screen for diseases for which the population or subgroup is at significant increased risk; and

(B) a mechanism to refer for treatment those individuals within such population who are screened positive for such diseases.

(10) Two years after the date of the enactment of the Superfund Amendments and Reauthorization Act of 1986, and every 2 years thereafter, the Administrator of ATSDR shall prepare and submit to the Administrator of EPA and to the Congress a report on the results of the activities of ATSDR regarding–

(A) health assessments and pilot health effects studies conducted;

(B) epidemiologic studies conducted;

(C) hazardous substances which have been listed under paragraph (2), toxicological profiles which have been developed, and toxicologic testing which has been conducted or which is being conducted under this subsection;

(D) registries established under paragraph (8); and

(E) an overall assessment, based on the results of activities conducted by the Administrator of ATSDR of the linkage between human exposure to individual or combinations of hazardous substances due to releases from facilities covered by this Act or the Solid Waste Disposal Act and any increased incidence or prevalence of adverse health effects in humans.

(11) If a health assessment or other study carried out under this subsection contains a finding that the exposure concerned presents a significant risk to human health, the President shall take such steps as may be necessary to reduce such exposure and eliminate or substantially mitigate the significant risk to human health. Such steps may include the use of any authority under this Act, including, but not limited to–

(A) provision of alternative water supplies, and

(B) permanent or temporary relocation of individuals.

In any case in which information is insufficient, in the judgment of the Administrator of ATSDR or the President to determine a significant human exposure level with respect to a hazardous substance, the President may take such steps as may be necessary to reduce the exposure of any person to such hazardous substance to such level as the President deems necessary to protect human health.

(12) In any case which is the subject of a petition, a health assessment or study, or a research program under this subsection, nothing in this subsection shall be construed to delay or otherwise affect or impair the authority of the President, the Administrator of ATSDR or the Administrator of EPA to exercise any authority vested in the President, the Administrator of ATSDR or the Administrator of EPA under any other provision of law (including, but not limited to, the imminent hazard authority of section 7003 of the Solid Waste Disposal Act) or the response and abatement authorities of this Act.

(13) All studies and results of research conducted under this subsection (other than health assessments) shall be reported or adopted only after appropriate peer review. Such peer review shall be completed, to the maximum extent practicable, within a period of 60 days. In the case of research conducted under the National Toxicology Program, such peer review may be conducted by the Board of Scientific Counselors. In the case of other research, such peer review shall be conducted by panels consisting of no less than three nor more than seven members, who shall be disinterested scientific experts selected for such purpose by the Administrator of ATSDR or the Administrator of EPA, as appropriate, on the basis of their reputation for scientific objectivity and the lack of institutional ties with any person involved in the conduct of the study or research under review. Support services for such panels shall be provided by the Agency for Toxic Substances and Disease Registry, or by the Environmental Protection Agency, as appropriate.

(14) In the implementation of this subsection and other health-related authorities of this Act, the Administrator of ATSDR shall assemble, develop as necessary, and distribute to the States, and upon request to medical colleges, physicians, and other health professionals, appropriate educational materials (including short courses) on the medical surveillance, screening, and methods of diagnosis and treatment of injury or disease related to exposure to hazardous substances [giving

priority to those listed in paragraph (2)], through such means as the Administrator of ATSDR deems appropriate.

(15) The activities of the Administrator of ATSDR described in the subsection and section 111(c)(4) shall be carried out by the Administrator of ATSDR, either directly or through cooperative agreements with States (or political subdivisions thereof) which the Administrator of ATSDR determines are capable of carrying out such activities. Such activities shall include provision of consultations on health information, the conduct of health assessments, including those required under section 3019(b) of the Solid Waste Disposal Act, health studies, registries, and health surveillance.

(16) The President shall provide adequate personnel for ATSDR, which shall not be fewer than 100 employees. For purposes of determining the number of employees under this subsection, an employee employed by ATSDR on a part-time career employment basis shall be counted as a fraction which is determined by dividing 40 hours into the average number of hours of such employee's regularly scheduled workweek.

(17) In accordance with section 120 (relating to Federal facilities), the Administrator of ATSDR shall have the same authorities under this section with respect to facilities owned or operated by a department, agency, or instrumentality of the United States as the Administrator of ATSDR has with respect to any nongovernmental entity.

(18) If the Administrator of ATSDR determines that it is appropriate for purposes of this section to treat a pollutant or contaminant as a hazardous substance, such pollutant or contaminant shall be treated as a hazardous substance for such purpose.

(j) Acquisition of property.–

(1) Authority.–The President of authorized to acquire, by purchase, lease, condemnation, donation, or otherwise, any real property or any interest in real property that the President is his discretion determines is needed to conduct a remedial action under this Act. There shall be no cause of action to compel the President to acquire any interest in real property under this Act.

(2) State Assurance.–The President may use the authority of paragraph (1) for a remedial action only if, before an interest in real estate is acquired under this subsection, the State in which the interest to be acquired is located assures the President, through a contract or cooperative agreement or otherwise, that the State will accept transfer of the interest following completion of the remedial action.

(3) Exemption.–No Federal, State, or local government agency shall be liable under this Act solely as a result of acquiring an interest in real estate under this subsection.

NATIONAL CONTINGENCY PLAN

[42 U.S.C. 9605]

Sec. 105. (a) Revision and Republication.–Within one hundred and eighty days after the enactment of this Act, the President shall, after notice and opportunity for public comments, revise and republish the national contingency plan for the removal of oil and hazardous substances, originally prepared and published pursuant to section 311 of the Federal Water Pollution Control Act, to reflect and effectuate the responsibilities and powers created by this Act, in addition to those matters specified in Section 311(c)(2). Such revision shall include a section of the plan to be known as the national hazardous substance response plan which shall establish procedures and standards for responding to releases of hazardous substances, pollutants, and contaminants, which shall include at a minimum:

(1) methods for discovering and investigating facilities at which hazardous substances have been disposed of or otherwise come to be located;

(2) methods for evaluating, including analyses of relative cost, and remedying any releases or threats of releases from facilities which pose substantial danger to the public health or the environment;

(3) methods and criteria for determining the appropriate extent of removal, remedy, and other measures authorized by this Act;

(4) appropriate roles and responsibilities for the Federal, State, and local governments and for interstate and nongovernmental entities in effectuating the plan;

(5) provision for identification, procurement, maintenance, and storage of response equipment and supplies;

(6) a method for and assignment of responsibility for reporting the existence of such facilities which may be located on federally owned or controlled properties and any releases of hazardous substances from such facilities;

(7) means of assuring that remedial action measures are cost-effective over the period of potential exposure to the hazardous substances or contaminated materials;

(8) (A) criteria for determining priorities among releases or threatened releases throughout the United States for the purpose of taking remedial action and, to the extent practicable taking into account the potential urgency of such action, for the purpose of taking removal action. Criteria and priorities under this paragraph shall be based upon relative risk or danger to public health or welfare or the environment, in the judgment of the President, taking into account to the extent possible the population at risk, the hazard potential of the hazardous substances at such facilities, the potential for contamination of drinking water supplies, the potential for direct human contact, the potential for destruction of sensitive ecosystems, the damage to natural resources which may affect the human food chain and which is associated with any release or threatened release, the contamination or potential contamination of the ambient air which is associated with the release or threatened release, State preparedness to assume State costs and responsibilities, and other appropriate factors;

(B) based upon the criteria set forth in subparagraph (A) if this paragraph, the President shall list as part of the plan national priorities among the known releases or threatened releases throughout the United States and shall revise the list no less often than annually. Within one year after the date of enactment of this Act, and annually thereafter, each State shall establish and submit for consideration by the President priorities for remedial action among known releases and potential releases in that State based upon the criteria set forth in subparagraph (A) of this paragraph. In assembling or revising the national list, the President shall consider any priorities established by the States. To the extent practicable, the highest priority facilities shall be designated individually and shall be referred to as the "top priority among known response targets", and, to the extent practicable, shall include among the one hundred highest priority facilities one such facility from each State which shall be the facility designated by the State as presenting the greatest danger to public health or welfare or the environment among the known facilities in such State. A State shall be allowed to designate its highest priority facility only once. Other priority facilities or incidents may be listed singly or grouped for response priority purposes;

(9) specified roles for private organizations and entities in preparation for response and in responding to releases of hazardous substances, including identification of appropriate qualifications and capacity therefor and including consideration of minority firms in accordance with subsection (f); and

(10) standards and testing procedures by which alternative or innovative treatment technologies can be determined to be appropriate for utilization in response actions authorized by this Act.

The plan shall specify procedures, techniques, materials, equipment, and methods to be employed in identifying, removing, or remedying releases of hazardous substances comparable to those required under section 311(c)(2) (F) and (G) and (j)(1) of the Federal Water Pollution Control Act. Following publication of the revised national contingency plan, the response to and actions to minimize damage from hazardous substances releases shall, to the greatest extent possible, be in accordance with the provisions of the plan. The President may, from time to time, revise and republish the national contingency plan.

(b) Revision of plan.—Not later than 18 months after the enactment of the Superfund Amendments and Reauthorization Act of 1986, the President shall revise the National Contingency Plan to reflect the requirements of such amendments. The portion of such Plan known as "the National Hazardous Substances Response Plan" shall be revised to provide procedures and standards for remedial actions undertaken pursuant to this Act which are consistent with amendments made by the Superfund Amendments and Reauthorization Act of 1986 relating to the selection of remedial action.

(c) Hazard Ranking System.—

(1) Revision.—Not later than 18 months after the enactment of the Superfund Amendments and Reauthorization Act of 1986 and after publication of notice and opportunity for submission of comments in accordance with section 553 of title 5, United States Code, the President shall by rule

promulgate amendments to the hazard ranking system in effect on September 1, 1984. Such amendments shall assure, to the maximum extent feasible, that the hazard ranking system accurately assesses the relative degree of risk to human health and the environment posed by sites and facilities subject to review. The President shall establish an effective date for the amended hazard ranking system which is not later than 24 months after enactment of the Superfund Amendments and Reauthorization Act of 1986. Such amended hazard ranking system shall be applied to any site or facility to be newly listed on the National Priorities List after the effective date established by the President. Until such effective date of the regulations, the hazard ranking system in effect on September 1, 1984, shall continue in full force and effect.

(2) Health assessment of water contamination risks. In carrying out this subsection, the President shall ensure that the human health risks associated with the contamination or potential contamination (either directly or as a result of the runoff of any hazardous substance or pollutant or contaminant from sites or facilities) of surface water are appropriately assessed where such surface water is, or can be, used for recreation or potable water consumption. In making the assessment required pursuant to the preceding sentence, the President shall take into account the potential migration of any hazardous substance or pollutant or contaminant through such surface water to downstream sources of drinking water.

(3) Reevaluation not required. The President shall not be required to reevaluate, after the date of the enactment of the Superfund Amendments and Reauthorization Act of 1986, the hazard ranking of any facility which was evaluated in accordance with the criteria under this section before the effective date of the amendments to the hazard ranking system under this subsection and which was assigned a national priority under the National Contingency Plan.

(4) New information. Nothing in paragraph (3) shall preclude the President from taking new information into account in undertaking response actions under this Act.

(d) Petition for assessment of release.—Any person who is, or may be, affected by a release or threatened release of a hazardous substance or pollutant or contaminant, may petition the President to conduct a preliminary assessment of the hazards to public health and the environment which are associated with such release or threatened release. If the President has not previously conducted a preliminary assessment of such release, the President shall, within 12 months after the receipt of any such petition, complete such assessment or provide an explanation of why the assessment is not appropriate. If the preliminary assessment indicates that the release or threatened release concerned may pose a threat to human health or the environment, the President shall promptly evaluate such release or threatened release in accordance with the hazard ranking system referred to in paragraph (8)(A) of subsection (a) to determine the national priority of such release or threatened release.

(e) Release from earlier sites.—Whenever there has been, after January 1, 1985, a significant release of hazardous substances or pollutants or contaminants from a site which is listed by the President as a "Site Cleaned Up To Date" on the National Priorities List (revised edition, December 1984) the site shall be restored to the National Priorities List, without application of the hazard ranking system.

(f) Minority contractors.—In awarding contracts under this Act, the President shall consider the availability of qualified minority firms. The President shall describe, as part of any annual report submitted to the Congress under this Act, the participation of minority firms in contracts carried out under this Act. Such report shall contain a brief description of the contracts which have been awarded to minority firms under this Act and of the efforts made by the President to encourage the participation of such firms in programs carried out under this Act.

(g)Special study wastes.—

(1) Application.— This subsection applies to facilities—

(A) which as of the date of enactment of the Superfund Amendments and Reauthorization Act of 1986 were not included on, or proposed for inclusion on, the National Priorities List; and

(B) at which special study wastes described in paragraph (2), (3)(A)(ii) or (3)(A)(iii) of section 3001(b) of the Solid Waste Disposal Act are present in significant quantities, including any such facility from which there has been a release of a special study waste.

(2) Considerations in adding facilities to NPL.—Pending revision of the hazard ranking system under subsection (c), the President shall consider each of the following factors in adding facilities covered by this section to the National Priorities List;

(A) The extent to which hazard ranking system score for the facility is affected by the presence of any special study waste at, or any release from, such facility.

(B) Available information as to the quantity, toxicity, and concentration of hazardous substances that are constituents of any special study waste at, or released from such facility, the extent of or potential for release of such hazardous constituents, the exposure or potential exposure to human population and the environment, and the degree of hazard to human health or the environment posed by the release of such hazardous constituents at such facility. This subparagraph refers only to available information on actual concentrations of hazardous substances and not on the total quantity of special study waste at such facility.

(3) Savings provisions.—Nothing in this subsection shall be construed to limit the authority of the President to remove any facility which as of the date of enactment of the Superfund Amendments and Reauthorization Act of 1986 is included on the National Priorities List from such List, or not to list any facility which as of such date is proposed for inclusion on such list.

(4) Information gathering and analysis.—Nothing in this Act shall be construed to preclude the expenditure of monies from the Fund for gathering and analysis of information which will enable the President to consider the specific factors required by paragraph (2).

ABATEMENT ACTION

[42 U.S.C. 9606]

SEC. 106. (a) In addition to any other action taken by a State or local government, when the President determines that there may be an imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of a hazardous substance from a facility, he may require the Attorney General of the United States to secure such relief as may be necessary to abate such danger or threat, and the district court of the United States in the district in which the threat occurs shall have jurisdiction to grant such relief as the public interest and the equities of the case may require. The President may also, after notice to the affected State, take other action under this section including, but not limited to, issuing such orders as may be necessary to protect public health and welfare and the environment.

(b) (1) Any person who, without sufficient cause, willfully violates, or fails or refuses to comply with, any order of the President under subsection (a) may, in an action brought in the appropriate United States district court to enforce such order, be fined not more than $25,000 for each day in which such violation occurs or such failure to comply continues.

(2) (A) Any person who receives and complies with the terms of any order issued under subsection (a) may, within 60 days after completion of the required action, petition the President for reimbursement from the Fund for the reasonable costs of such action, plus interest. Any interest payable under this paragraph shall accrue on the amounts expended from the date of expenditure at the same rate as specified for interest on investments of the Hazardous Substance Superfund established under subchapter A of chapter 98 of the Internal Revenue Code of 1954.

(B) If the President refuses to grant all or part of a petition made under this paragraph, the petitioner may within 30 days of receipt of such refusal file an action against the President in the appropriate United States district court seeking reimbursement from the Fund.

(C) Except as provided in subparagraph (D), to obtain reimbursement, the petitioner shall establish by a preponderance of the evidence that it is not liable for response costs under section 107(a) and that costs for which it seeks reimbursement are reasonable in light of the action required by the relevant order.

(D) A petitioner who is liable for response costs under section 107(a) may also recover its reasonable costs of response to the extent that it can demonstrate, on the administrative record, that the President's decision in selecting the response action ordered was arbitrary and capricious or was otherwise not in accordance with law. Reimbursement awarded under this subparagraph shall include all reasonable response costs incurred by the petitioner pursuant to the portions of the order found to be arbitrary and capricious or otherwise not in accordance with law.

(E) Reimbursement awarded by a court under subparagraph (C) or (D) may include appropriate costs, fees, and other expenses in accordance with subsections (a) and (d) of section 2412 of title 28 of the United States Code.

(c) Within one hundred and eighty days after enactment of this Act, the Administrator of the Environmental Protection Agency shall, after consultation with the Attorney General, establish and publish guidelines for using the imminent hazard, enforcement, and emergency response authorities of this section and other existing statutes administered by the Administrator of the Environmental Protection Agency to effectuate the responsibilities and powers created by this Act. Such guidelines shall to the extent practicable be consistent with the national hazardous substance response plan, and shall include, at a minimum, the assignment of responsibility for coordinating response actions with the issuance of administrative orders, enforcement of standards and permits, the gathering of information, and other imminent hazard and emergency powers authorized by (1) sections 311(c)(2), 308, 309, and 504(a) of the Federal Water Pollution Control Act, (2) sections 3007, 3008, 3013, and 7003 of the Solid Waste Disposal Act, (3) sections 1445 and 1431 of the Safe Drinking Waster Act, (4) sections 113, 114, and 303 of the Clean Air Act, and (5) section 7 of the Toxic Substances Control Act.

LIABILITY

[42 U.S.C. 9607]

Sec. 107. (a) Notwithstanding any other provision or rule of law, and subject only to the defenses set forth in subsection (b) of this section –

(1) the owner and operator of a vessel or a facility,

(2) any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of,

(3) any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person, by any other party or entity, at any facility or incineration vessel owned or operated by another party or entity and containing such hazardous substances, and

(4) any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities, incineration vessels or sites selected by such person, from which there is a release, or a threatened release which causes the incurrence of response costs, of a hazardous substance, shall be liable for –

(A) all costs of removal or remedial action incurred by the United States Government or a State or an Indian tribe not inconsistent with the national contingency plan;

(B) any other necessary costs of response incurred by any other person consistent with the national contingency plan;

(C) damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from such a release; and

(D) the costs of any health assessment or health effects study carried out under section 104(i).

The amounts recoverable in an action under this section shall include interest on the amounts recoverable under subparagraphs (A) through (D). Such interest shall accrue from the later of (i) the date payment of a specified amount is demanded in writing, or (ii) the date of the expenditure concerned. The rate of interest on the outstanding unpaid balance of the amounts recoverable under this section shall be the same rate as is specified for interest on investments of the Hazardous Substance Superfund established under subchapter A of chapter 98 of the Internal Revenue Code of 1954. For purposes of applying such amendments to interest under this subsection, the term "comparable maturity" shall be determined with reference to the date on which interest accruing under this subsection commences.

(b) There shall be no liability under subsection (a) of this section for a person otherwise liable who can establish by a preponderance of the evidence that the release or threat of release of a hazardous substance and the damages resulting therefrom were caused solely by –

(1) an act of God;

(2) an act of war;

(3) an act or omission of a third party other than an employee or agent of the defendant, or than one whose act or omission occurs in connection with a contractual relationship, existing directly or indirectly, with the defendant (except where the sole contractual arrangement arises from a published tariff and acceptance for carriage by a common carrier by rail), if the defendant establishes by a preponderance of the evidence that (a) he exercised due care with respect to the hazardous substance concerned, taking into consideration the characteristics of such hazardous

substance, in light of all relevant facts and circumstances, and (b) he took precautions against foreseeable acts or omissions of any such third party and the consequences that could foreseeably result from such acts or omissions; or

(4) any combination of the foregoing paragraphs.

(c) (1) Except as provided in paragraph (2) of this subsection, the liability under this section of an owner or operator or other responsible person for each release of a hazardous substance or incident involving release of a hazardous substance shall not exceed –

(A) for any vessel, other than an incineration vessel, which carries any hazardous substance as cargo or residue, $300 per gross ton, or $5,000,000, whichever is greater;

(B) for any other vessel, other than an incineration vessel, $300 per gross ton, or $500,000, whichever is greater;

(C) for any motor vehicle, aircraft, pipeline (as defined in the Hazardous Liquid Pipeline Safety Act of 1979), or rolling stock, $50,000,000 or such lesser amount as the President shall establish by regulation, but in no event less than $5,000,000 (or, for releases of hazardous substances as defined in section 101(14)(A) of this title into the navigable waters, $8,000,000). Such regulations shall take into account the size, type, location, storage, and handling capacity and other matters relating to the likelihood of release in each such class and to the economic impact of such limits on each such class; or

(D) for any incineration vessel or any facility other than those specified in subparagraph (C) of this paragraph, the total of all costs of response plus $50,000,000 for any damages under this title.

(2) Notwithstanding the limitations in paragraph (1) of this subsection, the liability of an owner or operator or other responsible person under this section shall be the full and total costs of response and damages, if (A)(i) the release or threat of release of a hazardous substance was the result of willful misconduct or willful negligence within the privity or knowledge of such person, or (ii) the primary cause of the release was a violation (within the privity or knowledge of such person) of applicable safety, construction, or operating standards or regulations; or (B) such person fails or refuses to provide all reasonable cooperation and assistance requested by a responsible public official in connection with response activities under the national contingency plan with respect to regulated carriers subject to the provisions of title 49 of the United States Code or vessels subject to the provisions of title 33 or 46 of the United States Code, subparagraph (A)(ii) of this paragraph shall be deemed to refer to Federal standards or regulations.

(3) If any person who is liable for a release or threat of release of a hazardous substance fails without sufficient cause to properly provide removal or remedial action upon order of the President pursuant to section 104 or 106 of this Act, such person may be liable to the United States for punitive damages in an amount at least equal to, and not more than three times, the amount of any costs incurred by the Fund as a result of such failure to take proper action. The President is authorized to commence a civil action against any such person to recover the punitive damages, which shall be in addition to any costs recovered from such person pursuant to section 112(c) of this Act. Any moneys received by the United States pursuant to this subsection shall be deposited in the Fund.

(d) Rendering care or advice. –

(1) In general. – Except as provided in paragraph (2), no person shall be liable under this title for costs or damages as a result of actions taken or omitted in the course of rendering care, assistance, or advice in accordance with the National Contingency Plan ("NCP") or at the direction of an onscene coordinator appointed under such plan, with respect to an incident creating a danger to public health or welfare or the environment as a result of any releases of a hazardous substance or the threat thereof. This paragraph shall not preclude liability for costs or damages as the result of negligence on the part of such person.

(2) State and local governments. – No State or local government shall be liable under this title for costs or damages as a result of actions taken in response to an emergency created by the release or threatened release of a hazardous substance generated by or from a facility owned by another person. This paragraph shall not preclude liability for costs or damages as a result of gross negligence or intentional misconduct by the State or local government. For the purpose of the preceding sentence, reckless, willful, or wanton misconduct shall constitute gross negligence.

(3) Savings provision.—This subsection shall not alter the liability of any person covered by the provisions of paragraph (1), (2), (3), or
(4) of subsection (a) of this section with respect to the release or threatened release concerned.

(e) (1) No indemnification, hold harmless, or similar agreement or conveyance shall be effective to transfer from the owner or operator of any vessel or facility or from any person who may be liable for a release or threat of release under this section, to any other person the liability imposed under this section. Nothing in this subsection shall bar any agreement to insure, hold harmless, or indemnify a party to such agreement for any liability under this section.
(2) Nothing in this title, including the provisions of paragraph (1) of this subsection, shall bar a cause of action that an owner or operator or any other person subject to liability under this section, or a guarantor, has or would have, by reason of subrogation or otherwise against any person.

(f) (1) Natural resources liability.—In the case of an injury to, destruction of, or loss of natural resources under subparagraph (C) of subsection (a) liability shall be to the United States Government and to any State for natural resources within the State or belonging to, managed by, controlled by, or appertaining to such State and to any Indian tribe for natural resources belonging to, managed by, controlled by, or appertaining to such tribe, or held in trust for the benefit of such tribe, or belonging to a member of such tribe if such resources are subject to a trust restriction on alienation: *Provided, however,* That no liability to the United States or State or Indian tribe shall be imposed under subparagraph (C) or subsection (a), where the party sought to be charged has demonstrated that the damages to natural resources complained of were specifically identified as an irreversible and irretrievable commitment of natural resources in an environmental impact statement, or other comparable environment analysis, and the decision to grant a permit or license authorizes such commitment of natural resources, and the facility or project was otherwise operating within the terms of its permit or license, so long as, in the case of damages to an Indian tribe occurring pursuant to a Federal permit or license, the issuance of that permit or license was not inconsistent with the fiduciary duty of the United States with respect to such Indian tribe. The President, or the authorized representative of any State, shall act on behalf of the public as trustee of such natural resources to recover for such damages. Sums recovered by the United States Government as trustee under this subsection shall be retained by the trustee, without further appropriation, for use only to restore, replace, or acquire the equivalent of such natural resources. Sums recovered by a State[1] as trustee under this subsection shall be available for use only to restore, replace, or acquire the equivalent of such natural resources by the state[1]. The measure of damages in any action under subparagraph (C) of subsection (a) shall not be limited by the sums which can be used to restore or replace such resources. There shall be no double recovery under this Act for natural resource damages, including the costs of damage assessment or restoration, rehabilitation, or acquisition for the same release and natural resource. There shall be no recovery under the authority of subparagraph (C) of subsection (a) where such damages and the release of a hazardous substance from which such damages resulted have occurred wholly before the enactment of this Act.
(2) Designation of Federal and State officials.—
(A) Federal.—The President shall designate in the National Contingency Plan published under section 105 of this Act the Federal officials who shall act on behalf of the public as trustees for natural resources under this Act and section 311 of the Federal Water Pollution Control Act. Such officials shall assess damages for injury to, destruction of, or loss of natural resources for purposes of this Act and such section 311 for those resources under their trusteeship and may, upon request of and reimbursement from a State and at the Federal officials' discretion, assess damages for those natural resources under the State's trusteeship.
(B) State.—The Governor of each State shall designate State officials who may act on behalf of the public as trustees for natural resources under this Act and section 311 of the Federal Water

[1]The words "or the Indian tribe" were apparently intended to be inserted after the word "State" in this sentence. See sections 107(c)(2)(D) of the Superfund Amendments Reauthorization Act of 1986. Two simultaneous amendments were inadvertently made to the same provision.

Pollution Control Act and shall notify the President of such designations. Such State officials shall assess damages to natural resources for the purposes of this Act and such section 311 for those natural resources under their trusteeship.

(C) Rebuttable presumption. – Any determination or assessment of damages to natural resources for the purposes of this Act and section 311 of the Federal Water Pollution Control Act made by a Federal or State trustee in accordance with the regulations promulgated under section 301(c) of this Act shall have the force and effect of a rebuttable presumption on behalf of the trustee in any administrative or judicial proceeding under this Act or section 311 of the Federal Water Pollution Control Act.

(g) Federal agencies. – For provisions relating to Federal agencies, see section 120 of this Act.

(h) The owner or operator of a vessel shall be liable in accordance with this section, under maritime tort law, and as provided under section 114 of this Act notwithstanding any provision of the Act of March 3, 1851 (46 U.S.C. 183ff) or the absence of any physical damage to the proprietary interest of the claimant.

(i) No person (including the United States or any State) or Indian tribe may recover under the authority of this section for any response costs or damages resulting from the application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act. Nothing in this paragraph shall affect or modify in any way the obligations or liability of any person under any other provision of State or Federal law, including common law, for damages, injury, or loss resulting from a release of any hazardous substance or for removal or remedial action or the costs of removal or remedial action of such hazardous substance.

(j) Recovery by any person (including the United States or any State or Indian tribe) for response costs or damages resulting from a federally permitted release shall be pursuant to existing law in lieu of this section. Nothing in this paragraph shall affect or modify in any way the obligations or liability of any person under any other provision of State or Federal law, including common law, for damages, injury, or loss resulting from a release of any hazardous substance or for removal or remedial action or the costs of removal or remedial action of such hazardous substance. In addition, costs of response incurred by the Federal Government in connection with a discharge specified in section 101(10) (B) or (C) shall be recoverable in an action brought under section 309(b) of the Clean Water Act.

(k) (1) The liability established by this section or any other law for the owner or operator of a hazardous waste disposal facility which has received a permit under subtitle C of the Solid Waste Disposal act, shall be transferred to and assumed by the Post-closure Liability Fund established by section 232 of this Act when –

(A) such facility and the owner and operator thereof has complied with the requirements of subtitle C of the Solid Waste Disposal Act and regulations issued thereunder, which may affect the performance of such facility after closure; and

(B) such facility has been closed in accordance with such regulations and the conditions of such permit, and such facility and the surrounding area have been monitored as required by such regulations and permit conditions for a period not to exceed five years after closure to demonstrate that there is no substantial likelihood that any migration offsite or release from confinement of any hazardous substance or other risk to public health or welfare will occur.

(2) Such transfer of liability shall be effective ninety days after the owner or operator of such facility notifies the Administrator of the Environmental Protection Agency [and the State where it has an authorized program under section 3006(b) of the Solid Waste Disposal Act] that the conditions imposed by this subsection have been satisfied. If within such ninety-day period the Administrator of the Environmental Protection Agency or such State determines that any such facility has not complied with all the conditions imposed by this subsection or that insufficient information has been provided to demonstrate such compliance, the Administrator or such State shall so notify the owner and operator of such facility and the administrator of the Fund established by section 232 of this Act, and the owner and operator of such facility shall continue to be liable with respect to such facility under this section and other law until such time as the Administrator and such State determines that such facility has complied with all conditions imposed by this subsection. A determination by the Administrator or such State that a facility has not complied with all conditions imposed by this subsection or that insufficient information has been supplied to demonstrate

compliance, shall be a final administrative action for purposes of judicial review. A request for additional information shall state in specific terms the data required.

(3) In addition to the assumption of liability of owners and operators under paragraph (1) of this subsection, the Post-closure Liability Fund established by section 232 of this Act may be used to pay costs of monitoring and care and maintenance of a site incurred by other persons after the period of monitoring required by regulations under subtitle C of the Solid Waste Disposal Act for hazardous waste disposal facilities meeting the conditions of paragraph (1) of this subsection.

(4) (A) Not later than one year after the date of enactment of this Act, the Secretary of the Treasury shall conduct a study and shall submit a report thereon to the Congress on the feasibility of establishing or qualifying an optional system of private insurance for postclosure financial responsibility for hazardous waste disposal facilities to which this subsection applies. Such study shall include a specification of adequate and realistic minimum standards to assure that any such privately placed insurance will carry out the purposes of this subsection in a reliable, enforceable, and practical manner. Such a study shall include an examination of the public and private incentives, programs, and actions necessary to make privately placed insurance a practical and effective option to the financing system for the Post-closure Liability Fund provided in title II of this Act.

(B) Not later than eighteen months after the date of enactment of this Act and after a public hearing, the President shall by rule determine whether or not it is feasible to establish or qualify an optional system of private insurance for postclosure financial responsibility for hazardous waste disposal facilities to which this subsection applies. If the President determines the establishment or qualification of such a system would be infeasible, he shall promptly publish an explanation of the reasons for such a determination. If the President determines the establishment or qualification of such a system would be feasible, he shall promptly publish notice of such determination. Not later than six months after an affirmative determination under the preceding sentence and after a public hearing, the President shall by rule promulgate adequate and realistic minimum standards which must be met by any such privately placed insurance, taking into account the purposes of this Act and this subsection. Such rules shall also specify reasonably expeditious procedures by which privately placed insurance plans can qualify as meeting such minimum standards.

(C) In the event any privately placed insurance plan qualifies under subparagraph (B), any person enrolled in, and complying with the terms of, such plan shall be excluded from the provisions of paragraphs (1), (2), and (3) of this subsection and exempt from the requirements to pay any tax or fee to the Post-closure Liability Fund under title II of this Act.

(D) The President may issue such rules and take such other actions as are necessary to effectuate the purposes of this paragraph.

(5) Suspension of liability transfer.—Notwithstanding paragraphs (1), (2), (3), and (4) of this subsection and subsection (j) of section 111 of this Act, no liability shall be transferred to or assumed by the Post-Closure Liability Trust Fund established by section 232 of this Act prior to completion of the study required under paragraph (6) of this subsection, transmission of a report of such study to both Houses of Congress, and authorization of such a transfer or assumption by Act of Congress following receipt of such study and report.

(6) Study of options for Post-closure program.—

(A) Study.—The Comptroller General shall conduct a study of options for a program for the management of the liabilities associated with hazardous waste treatment, storage, and disposal sites after their closure which complements the policies set forth in the Hazardous and Solid Waste Amendments of 1984 and assures the protection of human health and the environment.

(B) Program elements.—The program referred to in subparagraph (A) shall be designed to assure each of the following:

(i) Incentives are created and maintained for the safe management and disposal of hazardous wastes so as to assure protection of human health and the environment.

(ii) Members of the public will have reasonable confidence that hazardous wastes will be managed and disposed of safely and that resources will be available to address any problems that may arise and to cover costs of long-term monitoring, care, and maintenance of such sites.

(iii) Persons who are or seek to become owners and operators of hazardous waste disposal facilities will be able to manage their potential future liabilities and to attract the investment capital necessary to build, operate, and close such facilities in a manner which assures protection of human health and the environment.

(C) Assessments.—The study under this paragraph shall include assessments of treatment, storage, and disposal facilities which have been or are likely to be issued a permit under section 3005 of the Solid Waste Disposal Act and the likelihood of future insolvency on the part of owners and operators of such facilities. Separate assessments shall be made for different classes of facilities and for different classes of land disposal facilities and shall include but not be limited to—

(i) the current and future financial capabilities of facility owners and operators;

(ii) the current and future costs associated with facilities, including the costs of routine monitoring and maintenance, compliance monitoring, corrective action, natural resource damages, and liability for damages to third parties; and

(iii) the availability of mechanisms by which owners and operators of such facilities can assure that current and future costs, including post-closure costs, will be financed.

(D) Procedures.—In carrying out the responsibilities of this paragraph, the Comptroller General shall consult with the Administrator, the Secretary of Commerce, the Secretary of the Treasury, and the heads of other appropriate Federal agencies.

(E) Consideration of options.—In conducting the study under this paragraph, the Comptroller General shall consider various mechanisms and combinations of mechanisms to complement the policies set forth in the Hazardous and Solid Waste Amendments of 1984 to serve the purposes set forth in subparagraph (B) and to assure that the current and future costs associated with hazardous waste facilities, including post-closure costs, will be adequately financed and, to the greatest extent possible, borne by the owners and operators of such facilities. Mechanisms to be considered include, but are not limited to—

(i) revisions to closure, post-closure, and financial responsibility requirements under subtitles C and I of the Solid Waste Disposal Act;

(ii) voluntary risk pooling by owners and operators;

(iii) legislation to require risk pooling by owners and operators;

(iv) modification of the Post-Closure Liability Trust Fund previously established by section 232 of this Act, and the conditions for transfer of liability under this subsection, including limiting the transfer of some or all liability under this subsection only in the case of insolvency of owners and operators;

(v) private insurance;

(vi) insurance provided by the Federal Government;

(vii) coinsurance, reinsurance, or pooled-risk insurance, whether provided by the private sector or provided or assisted by the Federal Government; and

(viii) creation of a new program to be administered by a new or existing Federal agency or by a federally chartered corporation.

(F) Recommendations.—The Comptroller General shall consider options for funding any program under this section and shall, to the extent necessary, make recommendations to the appropriate committees of Congress for additional authority to implement such program.

(l) Federal lien.—

(1) In general.—All costs and damages for which a person is liable to the United States under subsection (a) of this section [other than the owner or operator of a vessel under paragraph (1) of subsection (a)] shall constitute a lien in favor of the United States upon all real property and rights to such property which—

(A) belong to such person; and

(B) are subject to or affected by a removal or remedial action.

(2) Duration.—The lien imposed by this subsection shall arise at the later of the following:

(A) The time costs are first incurred by the United States with respect to a response action under this Act.

(B) The time that the person referred to in paragraph (1) is provided (by certified or registered mail) written notice of potential liability.

Such lien shall continue until the liability for the costs (or a judgment against the person arising out of such liability) is satisfied or becomes unenforceable through operation of the statute of limitations provided in section 113.

(3) Notice and validity.—The lien imposed by this subsection shall be subject to the rights of any purchaser, holder of a security interest, or judgment lien creditor whose interest is perfected under applicable State law before notice of the lien has been filed in the appropriate office within the State (or county or other governmental subdivision), as designated by State law, in which the real property subject to the lien is located. Any such purchaser, holder of a security interest, or judgment lien creditor shall be afforded the same protections against the lien imposed by this subsection as are afforded under State law against a judgment lien which arises out of an unsecured obligation and which arises as of the time of the filing of the notice of the lien imposed by this subsection. If the State has not by law designated one office for the receipt of such notices of liens, the notice shall be filed in the office of the clerk of the United States district court for the district in which the real property is located. For purposes of this subsection, the terms "purchaser" and "security interest" shall have the definitions provided under section 6323(h) of the Internal Revenue Code of 1954.

(4) Action in rem.—The costs constituting the lien may be recovered in an action in rem in the United States district court for the district in which the removal or remedial action is occurring or has occurred. Nothing in this subsection shall affect the right of the United States to bring an action against any person to recover all costs and damages for which such person is liable under subsection (a) of this section.

(m) Maritime lien.—All costs and damages for which the owner or operator of a vessel is liable under subsection (a)(1) with respect to a release or threatened release from such vessel shall constitute a maritime lien in favor of the United States on such vessel. Such costs may be recovered in an action in rem in the district court of the United States for the district in which the vessel may be found. Nothing in this subsection shall affect the right of the United States to bring an action against the owner or operator of such vessel in any court of competent jurisdiction to recover such costs.

FINANCIAL RESPONSIBILITY

[42 U.S.C. 9608]

SEC. 108. (a) Establishment and maintenance by owner or operator of vessel; amount; failure to obtain certification of compliance.

(1) The owner or operator of each vessel (except a non-self-propelled barge that does not carry hazardous substances as cargo) over three hundred gross tons that uses any port or place in the United States or the navigable waters or any offshore facility, shall establish and maintain, in accordance with regulations promulgated by the President, evidence of financial responsibility of $300 per gross ton (or for a vessel carrying hazardous substances as cargo, or $5,000,000, whichever is greater), to cover the liability prescribed under paragraph (1) of section 107(a) of this title. Financial responsibility may be established by any one, or any combination, of the following: insurance, guarantee, surety bond, or qualification as a self-insurer. Any bond filed shall be issued by a bonding company authorized to do business in the United States. In cases where an owner or operator owns, operates, or charters more than one vessel subject to this subsection, evidence of financial responsibility need be established only to meet the maximum liability applicable to the largest of such vessels.

(2) The Secretary of the Treasury shall withhold or revoke the clearance required by section 4197 of the Revised Statutes of the United States of any vessel subject to this subsection that does not have certification furnished by the President that the financial responsibility provisions of paragraph (1) of this subsection have been complied with.

(3) The Secretary of Transportation, in accordance with regulations issued by him, shall (A) deny entry to any port or place in the United States or navigable waters to, and (B) detain at the port or place in the United States from which it is about to depart for any other port or place in the United States, any vessel subject to this subsection that, upon request, does not produce certification furnished by the President that the financial responsibility provisions of paragraph (1) of this subsection have been complied with.

(4) In addition to the financial responsibility provisions of paragraph (1) of this subsection, the President shall require additional evidence of financial responsibility for incineration vessels in such

amounts, and to cover such liabilities recognized by law, as the President deems appropriate, taking into account the potential risks posed by incineration and transport for incineration, and any other factors deemed relevant.

(b) (1) Beginning not earlier than five years after December 11, 1980, the President shall promulgate requirements [for facilities in addition to those under subtitle C of the Solid Waste Disposal Act (42 U.S.C. 6921 et seq.) and other Federal law] that classes of facilities establish and maintain evidence of financial responsibility consistent with the degree and duration of risk associated with the production, transportation, treatment, storage, or disposal of hazardous substances. Not later than three years after December 11, 1980, the President shall identify those classes for which requirements will be first developed and publish notice of such identification in the Federal Register. Priority in the development of such requirements shall be accorded to those classes of facilities, owners, and operators which the President determines present the highest level of risk of injury.

(2) The level of financial responsibility shall be initially established, and, when necessary, adjusted to protect against the level of risk which the President in his discretion believes is appropriate based on the payment experience of the Fund, commercial insurers, courts settlements and judgments, and voluntary claims satisfaction. To the maximum extent practicable, the President shall cooperate with and seek the advice of the commercial insurance industry in developing financial responsibility requirements. Financial responsibility may be established by any one, or any combination, of the following: insurance, guarantee, surety bond, letter of credit, or qualification as a self-insurer. In promulgating requirements under this section, the President is authorized to specify policy or other contractual terms, conditions, or defenses which are necessary, or which are unacceptable, in establishing such evidence of financial responsibility in order to effectuate the purposes of this Act.

(3) Regulations promulgated under this subsection shall incrementally impose financial responsibility requirements as quickly as can reasonably be achieved but in no event more than 4 years after the date of promulgation. Where possible, the level of financial responsibility which the President believes appropriate as a final requirement shall be achieved through incremental, annual increases in the requirements.

(4) Where a facility is owned or operated by more than one person, evidence of financial responsibility covering the facility may be established and maintained by one of the owners or operators, or, in consolidated form, by or on behalf of two or more owners or operators. When evidence of financial responsibility is established in a consolidated form, the proportional share of each participant shall be shown. The evidence shall be accompanied by a statement authorizing the applicant to act for and in behalf of each participant in submitting and maintaining the evidence of financial responsibility.

(5) The requirements for evidence of financial responsibility for motor carriers covered by this Act shall be determined under section 30 of the Motor Carrier Act of 1980, Public Law 96-296.

(c) Direct action.—

(1) Releases from vessels.—In the case of a release or threatened release from a vessel, any claim authorized by section 107 or 111 may be asserted directly against any guarantor providing evidence of financial responsibility for such vessel under subsection (a). In defending such a claim, the guarantor may invoke all rights and defenses which would be available to the owner or operator under this title. The guarantor may also invoke the defense that the incident was caused by the willful misconduct of the owner or operator, but the guarantor may not invoke any other defense that the guarantor might have been entitled to invoke in a proceeding brought by the owner or operator against him.

(2) Releases from facilities.—In the case of a release or threatened release from a facility, any claim authorized by section 107 or 111 may be asserted directly against any guarantor providing evidence of financial responsibility for such facility under subsection (b), if the person liable under section 107 is in bankruptcy, reorganization, or arrangement pursuant to the Federal Bankruptcy Code, or if, with reasonable diligence, jurisdiction in the Federal courts cannot be obtained over a person liable under section 107 who is likely to be solvent at the time of judgment. In the case of any action pursuant to this paragraph, the guarantor shall be entitled to invoke all rights and defenses which would have been available to the person liable under section 107 if any action had been brought against such person by the claimant and all rights and defenses which would have been available to the guarantor if an action had been brought against the guarantor by such person.

(d) Limitation of guarantor liability.–

(1) Total liability.–The total liability of any guarantor in a direct action suit brought under this section shall be limited to the aggregate amount of the monetary limits of the policy of insurance, guarantee, surety bond, letter of credit, or similar instrument obtained from the guarantor by the person subject to liability under section 107 for the purpose of satisfying the requirement for evidence of financial responsibility.

(2) Other liability.–Nothing in this subsection shall be construed to limit any other State or Federal statutory, contractual, or common law liability of a guarantor, including, but not limited to, the liability of such guarantor for bad faith either in negotiating or in failing to negotiate the settlement of any claim. Nothing in this subsection shall be construed, interpreted, or applied to diminish the liability of any person under section 107 of this Act or other applicable law.

CIVIL PENALTIES AND AWARDS

[42 U.S.C. 9609]

Sec. 109. (a) Class I administrative penalty.–

(1) Violations.–A civil penalty of not more than $25,000 per violation may be assessed by the President in the case of any of the following–

(A) A violation of the requirements of section 103 (a) or (b) (relating to notice).

(B) A violation of the requirements of section 103(d)(2) (relating to destruction of records, etc.).

(C) A violation of the requirements of section 108 (relating to financial responsibility, etc.), the regulations issued under section 108, or with any denial or detention order under section 108.

(D) A violation of an order under section 122(d)(3) [relating to settlement agreements for action under section 104(b)]

(E) Any failure or refusal referred to in section 122(l) (relating to violations of administrative orders, consent decrees, or agreements under section 120).

(2) Notice and hearings.–No civil penalty may be assessed under this subsection unless the person accused of the violation is given notice and opportunity for a hearing with respect to the violation.

(3) Determining amount.–In determining the amount of any penalty assessed pursuant to this subsection, the President shall take into account the nature, circumstances, extent and gravity of the violation or violations and, with respect to the violator, ability to pay, any prior history of such violations, the degree of culpability, economic benefit or savings (if any) resulting from the violation, and such other matters as justice may require.

(4) Review.–Any person against whom a civil penalty is assessed under this subsection may obtain review thereof in the appropriate district court of the United States by filing a notice of appeal in such court within 30 days from the date of such order and by simultaneously sending a copy of such notice by certified mail to the President. The President shall promptly file in such court a certified copy of the record upon which such violation was found or such penalty imposed. If any person fails to pay an assessment of a civil penalty after is has become a final and unappealable order or after the appropriate court has entered final judgment in favor of the United States, the President may request the Attorney General of the United States to institute a civil action in an appropriate district court of the United States to collect the penalty, and such court shall have jurisdiction to hear and decide any such action. In hearing such action, the court shall have authority to review the violation and the assessment of the civil penalty on the record.

(5) Subpoenas.–The President may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, or documents in connection with hearings under this subsection. In case of contumacy or refusal to obey a subpoena issued pursuant to this paragraph and served upon any person, the district court of the United States for any district in which such person is found, resides, or transacts business, upon application by the United States and after notice to such person, shall have jurisdiction to issue an order requiring such person to appear and give testimony before the administrative law judge or to appear and produce documents before the administrative law judge, or both, and any failure to obey such order of the court may be punished by such court as a contempt thereof.

(b) Class II administrative penalty.–A civil penalty of not more than $25,000 per day for each day during which the violation continues may be assessed by the President in the case of any of the following–

(1) A violation of the notice requirements of section 103 (a) or (b).
(2) A violation of section 103(d)(2) (relating to destruction of records, etc.).
(3) A violation of the requirements of section 108 (relating to financial responsibility, etc.), the regulations issued under section 108, or with any denial or detention order under section 108.
(4) A violation of an order under section 122(d)(3) [relating to settlement agreements for action under section 104(b)].
(5) Any failure or refusal referred to in section 122(l) (relating to violations of administrative orders, consent decrees, or agreements under section 120).

In the case of a second or subsequent violation the amount of such penalty may be not more than $75,000 for each day during which the violation continues. Any civil penalty under this subsection shall be assessed and collected in the same manner, and subject to the same provisions, as in the case of civil penalties assessed and collected after notice and opportunity for hearing on the record in accordance with section 554 of title 5 of the United States Code. In any proceeding for the assessment of a civil penalty under this subsection the President may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, and documents and may promulgate rules for discovery procedures. Any person who requested a hearing with respect to a civil penalty under this subsection and who is aggrieved by an order assessing the civil penalty may file a petition for judicial review of such order with the United States Court of Appeals for the District of Columbia Circuit or for any other circuit in which such person resides or transacts business. Such a petition may only be filed within the 30-day period beginning on the date the order making such assessment was issued.

(c) Judicial assessment.—The President may bring an action in the United States district court for the appropriate district to assess and collect a penalty of not more than $25,000 per day for each day during which the violation (or failure or refusal) continues in the case of any of the following—

(1) A violation of the notice requirements of section 103 (a) or (b).
(2) A violation of section 103(d)(2) (relating to destruction of records, etc.).
(3) A violation of the requirements of section 108 (relating to financial responsibility, etc.), the regulations issued under section 108, or with any denial or detention order under section 108.
(4) A violation of an order under section 122(d)(3) [relating to settlement agreements for action under section 104(b)].
(5) Any failure or refusal referred to in section 122(l) (relating to violations of administrative orders, consent decrees, or agreements under section 120).

In the case of a second or subsequent violation (or failure or refusal), the amount of such penalty may be not more than $75,000 for each day during which the violation (or failure or refusal) continues. For additional provisions providing for judicial assessment of civil penalties for failure to comply with a request or order under section 104(e) (relating to information gathering and access authorities), see section 104(e).

(d) Awards.—The President may pay an award of up to $10,000 to any individual who provides information leading to the arrest and conviction of any person for a violation subject to a criminal penalty under this Act, including any violation of section 103 and any other violation referred to in this section. The President shall, by regulation, prescribe criteria for such an award and may pay any award under this subsection from the Fund, as provided in section 111.

(e) Procurement procedures.—Notwithstanding any other provision of law, any executive agency may use competitive procedures or procedures other than competitive procedures to procure the services of experts for use in preparing or prosecuting a civil or criminal action under this Act, whether or not the expert is expected to testify at trial. The executive agency need not provide any written justification for the use of procedures other than competitive procedures when procuring such expert services under this Act and need not furnish for publication in the Commerce Business Daily or otherwise any notice of solicitation or synopsis with respect to such procurement.

(f) Savings clause.—Action taken by the President pursuant to this section shall not affect or limit the President's authority to enforce any provisions of this Act.

EMPLOYEE PROTECTION

[42 U.S.C. 9610]

SEC. 110. (a) No person shall fire or in any other way discriminate against, or cause to be fired or discriminated against, any employee or any authorized representative of employees by reason of the fact that such employee or representative has provided information to a State or to the Federal Government, filed, instituted, or caused to be filed or instituted any proceeding under this Act, or has testified or is about to testify in any proceeding resulting from the administration or enforcement of the provisions of this Act.

(b) Any employee or a representative of employees who believes that he has been fired or otherwise discriminated against by any person in violation of subsection (a) of this section may, within thirty days after such alleged violation occurs, apply to the Secretary of Labor for a review of such firing or alleged discrimination. A copy of the application shall be sent to such person, who shall be the respondent. Upon receipt of such application, the Secretary of Labor shall cause such investigation to be made as he deems appropriate. Such investigation shall provide an opportunity for a public hearing at the request of any party to such review to enable the parties to present information relating to such alleged violation. The parties shall be given written notice of the time and place of the hearing at least five days prior to the hearing. Any such hearing shall be of record and shall be subject to section 554 of title 5, United States Code. Upon receiving the report of such investigation, the Secretary of Labor shall make findings of fact. If he finds that such violation did occur, he shall issue a decision, incorporating an order therein and his findings, requiring the party committing such violation to take such affirmative action to abate the violation as the Secretary of Labor deems appropriate, including, but not limited to, the rehiring or reinstatement of the employee or representative of employees to his former position with compensation. If he finds that there was no such violation, he shall issue an order denying the application. Such order issued by the Secretary of Labor under this subparagraph shall be subject to judicial review in the same manner as orders and decisions are subject to judicial review under this Act.

(c) Whenever an order is issued under this section to abate such violation, at the request of the applicant a sum equal to the aggregate amount of all costs and expenses (including the attorney's fees) determined by the Secretary of Labor to have been reasonably incurred by the applicant for, or in connection with, the institution and prosecution of such proceedings, shall be assessed against the person committing such violation.

(d) This section shall have no application to any employee who acting without discretion from his employer (or his agent) deliberately violates any requirement of this Act.

(e) The President shall conduct continuing evaluations of potential loss of shifts of employment which may result from the administration or enforcement of the provisions of this Act, including, where appropriate, investigating threatened plant closures or reductions in employment allegedly resulting from such administration or enforcement. Any employee who is discharged, or laid off, threatened with discharge or layoff, or otherwise discriminated against by any person because of the alleged results of such administration or enforcement, or any representative of such employee, may request the President to conduct a full investigation of the matter and, at the request of any party, shall hold public hearings, require the parties, including the employer involved, to present information relating to the actual or potential effect of such administration or enforcement on employment and any alleged discharge, layoff, or other discrimination, and the detailed reasons or justification therefore.[1] Any such hearing shall be of record and shall be subject to section 554 of title 5, United States Code. Upon receiving the report of such investigation, the President shall make findings of fact as to the effect of such administration or enforcement on employment and on the alleged discharge, layoff, or discrimination and shall make such recommendations as he deems appropriate. Such report, findings, and recommendations shall be available to the public. Nothing in this subsection shall be construed to require or authorize the President or any State to modify or withdraw any action, standard, limitation, or any other requirement of this Act.

[1] So in original.

USES OF FUNDS

[42 U.S.C. 9611]

Sec. 111. (a) In general.—For the purposes specified in this section there is authorized to be appropriated from the Hazardous Substance Superfund established under subchapter A of chapter 98 of the Internal Revenue Code of 1986 not more than $8,5000,000,000 for the 5-year period beginning on the date of enactment of the Superfund Amendments and Reauthorization Act of 1986, and not more than $5,100,000,000 for the period commencing October 1, 1991, and ending September 30, 1994, and such sums shall remain available until expended. The preceding sentence constitutes a specific authorization for the funds appropriated under title II of Public Law 99-160 (relating to payment to the Hazardous Substances Trust Fund). The President shall use the money in the Fund for the following purposes:

(1) Payment of governmental response costs incurred pursuant to section 104 of this title, including costs incurred pursuant to the Intervention on the High Seas Act [33 U.S.C. 1471 et seq.].

(2) Payment of any claim for necessary response costs incurred by any other person as a result of carrying out the national contingency plan established under section 311(c) of the Clean Water Act and amended by section 105 of this title: *Provided, however,* That such costs must be approved under said plan and certified by the responsible Federal official.

(3) Payment of any claim authorized by subsection (b) of this section and finally decided pursuant to section 112 of this title, including those costs set out in subsection 112(c)(3) of this title.

(4) Payment of costs specified under subsection (c) of this section.

(5) Grants for technical assistance.—The cost of grants under section 117(e) (relating to public participation grants for technical assistance).

(6) Lead contaminated soil.—Payment of not to exceed $15,000,000 for the costs of a pilot program for removal, decontamination, or other action with respect to lead-contaminated soil in one to three different metropolitan areas.

The President shall not pay for any administrative costs or expenses out of the Fund unless such costs and expenses are reasonably necessary for and incidental to the implementation of this title.

(b) (1) In general.—Claims asserted and compensable but unsatisfied under provisions of section 311 of the Clean Water Act, which are modified by section 304 of this Act may be asserted against the Fund under this title; and other claims resulting from a release or threat of release of a hazardous substance from a vessel or a facility may be asserted against the Fund under this title for injury to, or destruction or loss of, natural resources, including cost for damage assessment: *Provided, however,* That any such claim may be asserted only by the President, as trustee, for natural resources over which the United States has sovereign rights, or natural resources within the territory or the fishery conservation zone of the United States to the extent they are managed or protected by the United States, or by any State for natural resources within the boundary of that State belonging to, managed by, controlled by, or appertaining to the State, or by any Indian tribe or by the United States acting on behalf of any Indian tribe for natural resources belonging to, managed by, controlled by, or appertaining to such tribe, or held in trust for the benefit of such tribe, or belonging to a member of such tribe if such resources are subject to a trust restriction on alienation.

(2) Limitation on payment of natural resource claims.—

(A) General requirements.—No natural resource claim may be paid from the Fund unless the President determines that the claimant has exhausted all administrative and judicial remedies to recover the amount of such claim from persons who may be liable under section 107.

(B) Definition.—As used in this paragraph, the term "natural resource claim" means any claim for injury to, or destruction or loss of, natural resources. The term does not include any claim for the costs of natural resource damage assessment.

(c) Uses of the Fund under subsection (a) of this section include—

(1) The costs of assessing both short-term and long-term injury to, destruction of, or loss of any natural resources resulting from a release of a hazardous substance.

(2) The costs of Federal or State or Indian tribe efforts in the restoration, rehabilitation, or replacement or acquiring the equivalent of any natural resources injured, destroyed, or lost as a result of a release of a hazardous substance.

(3) Subject to such amounts as are provided in appropriation Acts, the costs of a program to identify, investigate, and take enforcement and abatement action against releases of hazardous substances.
(4) Any costs incurred in accordance with subsection (m) of this section (relating to ATSDR) and section 104(i), including the costs of epidemiologic and laboratory studies, health assessments, preparation of toxicologic profiles, development and maintenance of a registry of persons exposed to hazardous substances to allow long-term health effect studies, and diagnostic services not otherwise available to determine whether persons in populations exposed to hazardous substances in connection with a release or a suspected release are suffering from long-latency diseases.
(5) Subject to such amounts as are provided in appropriation Acts, the costs of providing equipment and similar overhead, related to the purposes of this Act and section 311 of the Clean Water Act, and needed to supplement equipment and services available through contractors or other non-Federal entities, and of establishing and maintaining damage assessment capability, for any Federal agency involved in strike forces, emergency task forces, or other response teams under the national contingency plan.
(6) Subject to such amounts as are provided in appropriation Acts, the costs of a program to protect the health and safety of employees involved in response to hazardous substance releases. Such program shall be developed jointly by the Environmental Protection Agency, the Occupational Safety and Health Administration, and the National Institute for Occupational Safety and Health and shall include, but not be limited to, measures for identifying and assessing hazards to which persons engaged in removal, remedy, or other response to hazardous substances may be exposed, methods to protect workers from such hazards, and necessary regulatory and enforcement measures to assure adequate protection of such employees.
(7) Evaluation costs under petition provisions of section 105(d).—Costs incurred by the President in evaluating facilities pursuant to petitions under section 105(d) (relating to petitions for assessment of release).
(8) Contract costs under section 104(a)(1).—The costs of contracts or arrangements entered into under section 104(a)(1) to oversee and review the conduct of remedial investigations and feasibility studies undertaken by persons other than the President and the costs of appropriate Federal and State oversight of remedial activities at National Priorities List sites resulting from consent orders or settlement agreements.
(9) Acquisition costs under section 104(j).—The costs incurred by the President in acquiring real estate or interests in real estate under section 104(j) (relating to acquisition of property).
(10) Research, development, and demonstration costs under section 311.—The cost of carrying out section 311 (relating to research, development, and demonstration), except that the amounts available for such purposes shall not exceed the amounts specified in subsection (n) of this section.
(11) Local government reimbursement.—Reimbursements to local governments under section 123, except that during the 8-fiscal-year period beginning October 1, 1986, not more than 0.1 percent of the total amount appropriated from the Fund may be used for such reimbursements.
(12) Worker training and education grants.—The costs of grants under section 126(g) of the Superfund Amendments and Reauthorization Act of 1986 for training and education of workers to the extent that such costs do not exceed $20,000,000 for each of the fiscal years 1987, 1988, 1989, 1990, and 1991, 1992, 1993, and 1994.
(13) Awards under section 109.—The costs of any awards granted under section 109(d).
(14) Lead poisoning study.—The cost of carrying out the study under subsection (f) of section 118 of the Superfund Amendments and Reauthorization Act of 1986 (relating to lead poisoning in children).

(d) Additional limitations.
(1) No money in the Fund may be used under subsection (c)(1) and (2) of this section, nor for the payment of any claim under subsection (b) of this section, where the injury, destruction, or loss of natural resources and the release of a hazardous substance from which such damages resulted have occurred wholly before December 11, 1980.
(2) No money in the Fund may be used for the payment of any claim under subsection (b) of this section where such expenses are associated with injury or loss resulting from long-term exposure to ambient concentrations of air pollutants from multiple or diffuse sources.

(e) (1) Claims against or presented to the Fund shall not be valid or paid in excess of the total money in the Fund at any one time. Such claims become valid only when additional money is collected, appropriated, or otherwise added to the Fund. Should the total claims outstanding at any time exceed the current balance of the Fund, the President shall pay such claims, to the extent authorized under this section, in full in the order in which they were finally determined.

(2) In any fiscal year, 85 percent of the money credited to the Fund under title II of this Act shall be available only for the purposes specified in paragraphs (1), (2), and (4) of subsection (a) of this section. No money in the Fund may be used for the payment of any claim under subsection (a)(3) or subsection (b) of this section in any fiscal year for which the President determines that all of the Fund is needed for response to threats to public health from releases or threatened releases of hazardous substances.

(3) No money in the Fund shall be available for remedial action, other than actions specified in subsection (c) of this section, with respect to federally owned facilities; except that money in the Fund shall be available for the provision of alternative water supplies (including the reimbursement of costs incurred by a municipality) in any case involving groundwater contamination outside the boundaries of a federally owned facility in which the federally owned facility is not the only potentially responsible party.

(4) Paragraphs (1) and (4) of subsection (a) of this section shall in the aggregate be subject to such amounts as are provided in appropriation Acts.

(f) The President is authorized to promulgate regulations designating one or more Federal officials who may obligate money in the Fund in accordance with this section or portions thereof. The President is also authorized to delegate authority to obligate money in the Fund or to settle claims to officials of a State or Indian tribe operating under a contract or cooperative agreement with the Federal Government pursuant to section 104(d) of this title.

(g) The President shall provide for the promulgation of rules and regulations with respect to the notice to be provided to potential injured parties by an owner and operator of any vessel, or facility from which a hazardous substance has been released. Such rules and regulations shall consider the scope and form of the notice which would be appropriate to carry out the purposes of this title. Upon promulgation of such rules and regulations, the owner and operator of any vessel or facility from which a hazardous substance has been released shall provide notice in accordance with such rules and regulations. With respect to releases from public vessels, the President shall provide such notification as is appropriate to potential injured parties. Until the promulgation of such rules and regulations, the owner and operator of any vessel or facility from which a hazardous substance has been released shall provide reasonable notice to potential injured parties by publication in local newspapers serving the affected area.

[Subsection (h) repealed.]

(i) Except in a situation requiring action to avoid an irreversible loss of natural resources or to prevent or reduce any continuing danger to natural resources or similar need for emergency action, funds may not be used under this Act for the restoration, rehabilitation, or replacement or acquisition of the equivalent of any natural resources until a plan for the use of such funds for such purposes has been developed and adopted by affected Federal agencies and the Governor or Governors of any State having sustained damage to natural resources within its borders, belonging to, managed by or appertaining to such State, and by the governing body of any Indian tribe having sustained damage to natural resources belonging to, managed by, controlled by, or appertaining to such tribe, or held in trust for the benefit of such tribe, or belonging to a member of such tribe if such resources are subject to a trust restriction on alienation, after adequate public notice and opportunity for hearing and consideration of all public comment.

(j) The President shall use the money in the Post-closure Liability Fund for any of the purposes specified in subsection (a) of this section with respect to a hazardous waste disposal facility for which liability has transferred to such fund under section 107(k) of this Act, and, in addition, for payment of any claim or appropriate request for costs of response, damages, or other compensation for injury or loss under section 107 of this Act or any other State or Federal law, resulting from a release of a hazardous substance from such a facility.

(k) Inspector General.—In each fiscal year, the Inspector General of each department, agency, or instrumentality of the United States which is carrying out any authority of this Act shall conduct an

annual audit of all payments, obligations, reimbursements, or other uses of the Fund in the prior fiscal year, to assure that the Fund is being properly administered and that claims are being appropriately and expeditiously considered. The audit shall include an examination of a sample of agreements with States (in accordance with the provisions of the Single Audit Act) carrying out response actions under this title and an examination of remedial investigations and feasibility studies prepared for remedial actions. The Inspector General shall submit to the Congress an annual report regarding the audit report required under this subsection. The report shall contain such recommendations as the Inspector General deems appropriate. Each department, agency, or instrumentality of the United States shall cooperate with its inspector general in carrying out this subsection.

(l) To the extent that the provisions of this Act permit, a foreign claimant may assert a claim to the same extent that a United States claimant may assert a claim if–

(1) the release of a hazardous substance occurred (A) in the navigable waters or (B) in or on the territorial sea or adjacent shoreline of a foreign country of which the claimant is a resident;

(2) the claimant is not otherwise compensated for his loss;

(3) the hazardous substance was released from a facility or from a vessel located adjacent to or within the navigable waters or was discharged in connection with activities conducted under the Outer Continental Shelf Lands Act, as amended (43 U.S.C. 1331 et seq.) or the Deepwater Port Act of 1974, as amended (33 U.S.C. 1501 et seq.), and

(4) recovery is authorized by a treaty or an executive agreement between the United States and foreign country involved, or if the Secretary of State, in consultation with the Attorney General and other appropriate officials, certifies that such country provides a comparable remedy for United States claimants.

(m) Agency for Toxic Substances and Disease Registry. – There shall be directly available to the Agency for Toxic Substances and Disease Registry to be used for the purpose of carrying out activities described in subsection (c)(4) and section 104(i) not less than $50,000,000 per fiscal year for each of fiscal years 1987 and 1988, not less than $55,000,000 for fiscal year 1989, and not less than $60,000,000 per fiscal year for each of fiscal years 1990, 1991, 1992, 1993, and 1994. Any funds so made available which are not obligated by the end of the fiscal year in which made available shall be returned to the Fund.

(n) Limitations on research, development, and demonstration program.–

(1) Section 311(b). – For each of the fiscal years 1987, 1988, 1989, 1990, 1991, 1992, 1993, and 1994, not more than $20,000,000 of the amounts available in the Fund may be used for the purposes of carrying out the applied research, development, and demonstration program for alternative or innovative technologies and training program authorized under section 311(b) (relating to research, development, and demonstration) other than basic research. Such amounts shall remain available until expended.

(2) Section 311(a). – From the amounts available in the Fund, not more than the following amounts may be used for the purposes of section 311(a) (relating to hazardous substance research, demonstration, and training activities):

(A) For the fiscal year 1987, $3,000,000.

(B) For the fiscal year 1988, $10,000,000.

(C) For the fiscal year 1989, $20,000,000.

(D) For the fiscal year 1990, $30,000,000.

(E) For each of the fiscal year 1991, 1992, 1993, and 1994, $35,000,000.

No more than 10 percent of such amounts shall be used for training under section 311(a) in any fiscal year.

(3) Section 311(d). – For each of the fiscal years 1987, 1988, 1989, 1990, 1991, 1992, 1993, and 1994, not more than $5,000,000 of the amounts available in the Fund may be used for the purposes of section 311(d) (relating to university hazardous substance research centers).

(o) Notification procedures for limitations on certain payments. – Not later than 90 days after the enactment of this subsection, the President shall develop and implement procedures to adequately notify, as soon as practicable after a site is included on the National Priorities List, concerned local and State officials and other concerned persons of the limitations, set forth in subsection (a)(2) of this section, on the payment of claims for necessary response costs incurred with respect to such site.

(p) General revenue share of Superfund. –

(1) In general.—The following sums are authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, to the Hazardous Substance Superfund:

(A) For fiscal year 1987, $212,500,000.
(B) For fiscal year 1988, $212,500,000.
(C) For fiscal year 1989, $212,500,000.
(D) For fiscal year 1990, $212,500,000.
(E) For fiscal year 1991, $212,500,000.
(F) For fiscal year 1992, $212,500,000.
(G) For fiscal year 1993, $212,500,000.
(H) For fiscal year 1994, $212,500,000.

In addition there is authorized to be appropriated to the Hazardous Substance Superfund for each fiscal year an amount equal to so much of the aggregate amount authorized to be appropriated under this subsection [and paragraph (2) of section 221(b) of the Hazardous Substance Response Revenue Act of 1980] as has not been appropriated before the beginning of the fiscal year involved.

(2) Computation.—The amounts authorized to be appropriated under paragraph (1) of this subsection in a given fiscal year shall be available only to the extent that such amount exceeds the amount determined by the Secretary under section 9507(b)(2) of the Internal Revenue Code of 1986 for the prior fiscal year.

CLAIMS PROCEDURE

[42 U.S.C. 9612]

Sec. 112. (a) Claims against the Fund for response costs.—No claim may be asserted against the Fund pursuant to section 111(a) unless such claim is presented in the first instance to the owner, operator, or guarantor of the vessel or facility from which a hazardous substance has been released, if known to the claimant, and to any other person known to the claimant who may be liable under section 107. In any case where the claim has not been satisfied within 60 days of presentation in accordance with this subsection, the claimant may present the claim to the Fund for payment. No claim against the Fund may be approved or certified during the pendency of an action by the claimant in court to recover costs which are the subject of the claim.

(b) (1) Prescribing forms and procedures.—The President shall prescribe appropriate forms and procedures for claims filed hereunder, which shall include a provision requiring the claimant to make a sworn verification of the claim to the best of his knowledge. Any person who knowingly gives or causes to be given any false information as a part of any such claim shall, upon conviction, be fined in accordance with the applicable provisions of title 18 of the United States Code or imprisoned for not more than 3 years (or not more than 5 years in the case of a second or subsequent conviction), or both.

(2) Payment or request for hearing.—The President may, if satisfied that the information developed during the processing of the claim warrants it, make and pay an award of the claim, except that no claim may be awarded to the extent that a judicial judgment has been made on the costs that are the subject of the claim. If the President declines to pay all or part of the claim, the claimant may, within 30 days after receiving notice of the President's decision, request an administrative hearing.

(3) Burden of Proof.—In any proceeding under this subsection, the claimant shall bear the burden of proving his claim.

(4) Decisions.—All administrative decisions made hereunder shall be in writing, with notification to all appropriate parties, and shall be rendered within 90 days of submission of a claim to an administrative law judge, unless all the parties to the claim agree in writing to an extension or unless the President, in his discretion, extends the time limit for a period not to exceed sixty days.

(5) Finality and appeal.—All administrative decisions hereunder shall be final, and any party to the proceeding may appeal a decision with 30 days of notification of the award or decision. Any such appeal shall be made to the Federal district court for the district where the release or threat of release took place. In any such appeal, the decision shall be considered binding and conclusive, and shall not be overturned except for arbitrary or capricious abuse of discretion.

(6) Payment.—Within 20 days after the expiration of the appeal period for any administrative decision concerning an award, or within 20 days after the final judicial determination of any appeal

taken pursuant to this subsection, the President shall pay any such award from the Fund. The President shall determine the method, terms, and time of payment.

(c) (1) Payment of any claim by the Fund under this section shall be subject to the United States Government acquiring by subrogation the rights of the claimant to recover those costs of removal or damages for which it has compensated the claimant from the person responsible or liable for such release.

(2) Any person, including the Fund, who pays compensation pursuant to this Act to any claimant for damages or costs resulting from a release of a hazardous substance shall be subrogated to all rights, claims, and causes of action for such damages and costs of removal that the claimant has under this Act or any other law.

(3) Upon request of the President, the Attorney General shall commence an action on behalf of the Fund to recover any compensation paid by the Fund to any claimant pursuant to this title, and, without regard to any limitation of liability, all interest, administrative and adjudicative costs, and attorney's fees incurred by the Fund by reason of the claim. Such an action may be commenced against any owner, operator, or guarantor, or against any other person who is liable, pursuant to any law, to the compensated claimant or to the Fund, for the damages or costs for which compensation was paid.

(d) Statute of Limitations.—

(1) Claims for recovery of costs.—No claim may be presented under this section for recovery of the costs referred to in section 107(a) after the date 6 years after the date of completion of all response action.

(2) Claims for recovery of damages.—No claim may be presented under this section for recovery of the damages referred to in section 107(a) unless the claim is presented within 3 years after the later of the following:

(A) The date of the discovery of the loss and its connection with the release in question.

(B) The date on which final regulations are promulgated under section 301(c).

(3) Minors and incompetents.—The time limitations contained herein shall not begin to run—

(A) against a minor until the earlier of the date when such minor reaches 18 years of age or the date on which a legal representative is duly appointed for the minor, or

(B) against an incompetent person until the earlier of the date on which such person's incompetency ends or the date on which a legal representative is duly appointed for such incompetent person.

(e) Regardless of any State statutory or common law to the contrary, no person who asserts a claim against the Fund pursuant to this title shall be deemed or held to have waived any other claim not covered or assertable against the Fund under this title arising from the same incident, transaction, or set of circumstances, nor to have split a cause of action. Further, no person asserting a claim against the Fund pursuant to this title shall as a result of any determination of a question of fact or law made in connection with that claim be deemed or held to be collaterally estopped from raising such question in connection with any other claim not covered or assertable against the Fund under this title arising from the same incident, transaction, or set of circumstances.

(f) Double recovery prohibited.—Where the President has paid out of the Fund for any response costs or any costs specified under section 111(c) (1) or (2), no other claim may be paid out of the Fund for the same costs.

LITIGATION, JURISDICTION AND VENUE

[42 U.S.C. 9613]

Sec. 113. (a) Review of any regulation promulgated under this Act may be had upon application by any interested person only in the Circuit Court of Appeals of the United States for the District of Columbia. Any such application shall be made within ninety days from the date of promulgation of such regulations. Any matter with respect to which review could have been obtained under this subsection shall not be subject to judicial review in any civil or criminal proceeding for enforcement or to obtain damages or recovery of response costs.

(b) Except as provided in subsections (a) and (h) of this section, the United States district courts shall have exclusive original jurisdiction over all controversies arising under this Act, without regard to the citizenship of the parties or the amount in controversy. Venue shall lie in any district in which the release

or damages occurred, or in which the defendant resides, may be found, or has his principal office. For the purposes of this section, the Fund shall reside in the District of Columbia.

(c) The provisions of subsections (a) and (b) of this section shall not apply to any controversy or other matter resulting from the assessment of collection of any tax, as provided by title II of this Act, or to the review of any regulation promulgated under the Internal Revenue Code of 1954.

(d) No provision of this Act shall be deemed or held to moot any litigation concerning any release of any hazardous substance, or any damages associated therewith, commenced prior to December 11, 1980.

(e) Nationwide service of process.—In any action by the United States under this Act, process may be served in any district where the defendant is found, resides, transacts business, or has appointed an agent for the service of process.

(f) Contribution.—

(1) Contribution.—Any person may seek contribution from any other person who is liable or potentially liable under section 107(a), during or following any civil action under section 106 or under section 107(a). Such claims shall be brought in accordance with this section and the Federal Rules of Civil Procedure, and shall be governed by Federal law. In resolving contribution claims, the court may allocate response costs among liable parties using such equitable factors as the court determines are appropriate. Nothing in this subsection shall diminish the right of any person to bring an action for contribution in the absence of a civil action under section 106 or section 107.

(2) Settlement.—A person who has resolved its liability to the United States or a State in an administrative or judicially approved settlement shall not be liable for claims for contribution regarding matters addressed in the settlement. Such settlement does not discharge any of the other potentially liable persons unless its terms so provide, but it reduces the potential liability of the others by the amount of the settlement.

(3) Persons not party to settlement.—

(A) If the United States or a State has obtained less than complete relief from a person who has resolved its liability to the United States or the State in an administrative or judicially approved settlement, the United States or the State may bring an action against any person who has not so resolved its liability.

(B) A person who has resolved its liability to the United States or a State for some or all of a response action or for some or all of the costs of such action in an administrative or judicially approved settlement may seek contribution from any person who is not party to a settlement referred to in paragraph (2)

(C) In any action under this paragraph, the rights of any person who has resolved its liability to the United States or a State shall be subordinate to the rights of the United States or the State. Any contribution action brought under this paragraph shall be governed by Federal law.

(g) Period in which action may be brought.—

(1) Actions for natural resource damages.—Except as provided in paragraphs (3) and (4), no action may be commenced for damages [as defined in section 101(6)] under this Act, unless that action is commenced within 3 years after the later of the following:

(A) The date of the discovery of the loss and its connection with the release in question.

(B) The date on which regulations are promulgated under section 301(c).

With respect to any facility listed on the National Priorities List (NPL), any Federal facility identified under section 120 (relating to Federal facilities), or any vessel or facility at which a remedial action under this Act is otherwise scheduled, an action for damages under this Act must be commenced within 3 years after the completion of the remedial action (excluding operation and maintenance activities) in lieu of the dates referred to in subparagraph (A) or (B). In no event may an action for damages under this Act with respect to such a vessel or facility be commenced (i) prior to 60 days after the Federal or State natural resource trustee provides to the President and the potentially responsible party a notice of intent to file suit, or (ii) before selection of the remedial action if the President is diligently proceeding with a remedial investigation and feasibility study under section 104(b) or section 120 (relating to Federal facilities). The limitation in the preceding sentence on commencing an action before giving notice or before selection of the remedial action does not apply to actions filed on or before the enactment of the Superfund Amendments and Reauthorization Act of 1986.

(2) Actions for recovery of costs.—An initial action for recovery of the costs referred to in section 107 must be commenced—

(A) for a removal action, within 3 years after completion of the removal action, except that such cost recovery action must be brought within 6 years after a determination to grant a waiver under section 104(c)(1)(C) for continued response action; and

(B) for a remedial action, within 6 years after initiation of physical on-site construction of the remedial action, except that, if the remedial action is initiated within 3 years after the completion of the removal action, costs incurred in the removal action may be recovered in the cost recovery action brought under this subparagraph.

In any such action described in this subsection, the court shall enter a declaratory judgment on liability for response costs or damages that will be binding on any subsequent action or actions to recover further response costs or damages. A subsequent action or actions under section 107 for further response costs at the vessel or facility may be maintained at any time during the response action, but must be commenced no later than 3 years after the date of completion of all response action. Except as otherwise provided in this paragraph, an action may be commenced under section 107 for recovery of costs at any time after such costs have been incurred.

(3) Contribution.—No action for contribution for any response costs or damages may be commenced more than 3 years after—

(A) the date of judgment in any action under this Act for recovery of such costs or damages, or

(B) the date of an administrative order under section 122(g) (relating to de minimis settlements) or 122(h) (relating to cost recovery settlements) or entry of a judicially approved settlement with respect to such costs or damages.

(4) Subrogation.—No action based on rights subrogated pursuant to this section by reason of payment of a claim may be commenced under this title more than 3 years after the date of payment of such claim.

(5) Actions to recover indemnification payments.—Notwithstanding any other provision of this subsection, where a payment pursuant to an indemnification agreement with a response action contractor is made under section 119, an action under section 107 for recovery of such indemnification payment from a potentially responsible party may be brought at any time before the expiration of 3 years from the date on which such payment is made.

(6) Minors and incompetents.—The time limitations contained herein shall not begin to run—

(A) against a minor until the earlier of the date when such minor reaches 18 years of age or the date on which a legal representative is duly appointed for such minor, or

(B) against an incompetent person until the earlier of the date on which such incompetent's incompetency ends or the date on which a legal representative is duly appointed for such incompetent.

(h) Timing of review.—No Federal court shall have jurisdiction under Federal law other than under section 1332 of title 28 of the United States Code (relating to diversity of citizenship jurisdiction) or under State law which is applicable or relevant and appropriate under section 121 (relating to cleanup standards) to review any challenges to removal or remedial action selected under section 104, or to review any order issued under section 106(a), in any action except one of the following:

(1) An action under section 107 to recover response costs or damages or for contribution.

(2) An action to enforce an order issued under section 106(a) or to recover a penalty for violation of such order.

(3) An action for reimbursement under section 106(b)(2).

(4) An action under section 310 (relating to citizens suits) alleging that the removal or remedial action taken under section 104 or secured under section 106 was in violation of any requirement of this Act. Such an action may not be brought with regard to a removal where a remedial action is to be undertaken at the site.

(5) An action under section 106 in which the United States has moved to compel a remedial action.

(i) Intervention.—In any action commenced under this Act or under the Solid Waste Disposal Act in a court of the United States, any person may intervene as a matter of right when such person claims an interest relating to the subject of the action and is so situated that the disposition of the action may, as a practical matter, impair or impede the person's ability to protect that interest, unless the President or the State shows that the person's interest is adequately represented by existing parties.

(j) Judicial review.—

(1) Limitation.—In any judicial action under this Act, judicial review of any issues concerning the adequacy of any response action taken or ordered by the President shall be limited to the administrative record. Otherwise applicable principles of administrative law shall govern whether any supplemental materials may be considered by the court.

(2) Standard.—In considering objections raised in any judicial action under this Act, the court shall uphold the President's decision in selecting the response action unless the objecting party can demonstrate, on the administrative record, that the decision was arbitrary and capricious or otherwise not in accordance with law.

(3) Remedy.—If the court finds that the selection of the response action was arbitrary and capricious or otherwise not in accordance with law, the court shall award (A) only the response costs or damages that are not inconsistent with the national contingency plan, and (B) such other relief as is consistent with the National Contingency Plan.

(4) Procedural errors.—In reviewing alleged procedural errors, the court may disallow costs or damages only if the errors were so serious and related to matters of such central relevance to the action that the action would have been significantly changed had such errors not been made.

(k) Administrative record and participation procedures.—

(1) Administrative record.—The President shall establish an administrative record upon which the President shall base the selection of a response action. The administrative record shall be abailable to the public at or near the facility at issue. The President also may place duplicates of the administrative record at any other location.

(2) Participation procedures.—

(A) Removal action.—The President shall promulgate regulations in accordance with chapter 5 of title 5 of the United States Code establishing procedures for the appropriate participation of interested persons in the development of the administrative record on which the President will base the selection of removal actions and on which judicial review of removal actions will be based.

(B) Remedial action.—The President shall provide for the participation of interested persons, including potentially responsible parties, in the development of the administrative record on which the President will base the selection of remedial actions and on which judicial review of remedial actions will be based. The procedures developed under this subparagraph shall include, at a minimum, each of the following:

(i) Notice to potentially affected persons and the public, which shall be accompanied by a brief analysis of the plan and alternative plans that were considered.

(ii) A reasonable opportunity to comment and provide information regarding the plan.

(iii) An opportunity for a public meeting in the affected area, in accordance with section 117(a)(2) (relating to public participation).

(iv) A response to each of the significant comments, criticisms, and new data submitted in written or oral presentations.

(v) A statement of the basis and purpose of the selected action.

For purposes of this subparagraph, the administrative record shall include all items developed and received under this subparagraph and all items developed and received under this subparagraph and all items described in the second sentence of section 117(d). The President shall promulgate regulations in accordance with chapter 5 of title 5 of the United States Code to carry out the requirements of this subparagraph.

(C) Interim record.—Until such regulations under subparagraphs (A) and (B) are promulgated, the administrative record shall consist of all items developed and received pursuant to current procedures for selection of the response action, including procedures for the participation of interested parties and the public. The development of an administrative record and the selection of response action under this Act shall not include an adjudicatory hearing.

(D) Potentially responsible parties.—The President shall make reasonable efforts to identify and notify potentially responsible parties as early as possible before selection of a response action. Nothing in this paragraph shall be construed to be a defense to liability.

(l) Notice of actions.—Whenever any action is brought under this Act in a court of the United States by a plaintiff other than the United States, the plaintiff shall provide a copy of the complaint to the

Attorney General of the United States and to the Administrator of the Environmental Protection Agency.

RELATIONSHIP TO OTHER LAW

[42 U.S.C. 9614]

Sec. 114. (a) Nothing in this Act shall be construed or interpreted as preempting any State from imposing any additional liability or requirements with respect to the release of hazardous substances within such State.

(b) Any person who receives compensation for removal costs or damages or claims pursuant to this Act shall be precluded from recovering compensation for the same removal costs or damages or claims pursuant to any other State or Federal law. Any person who receives compensation for removal costs or damages or claims pursuant to any other Federal or State law shall be precluded from receiving compensation for the same removal costs or damages or claims as provided in this Act.

(c) Recycled oil.—

(1) Service station dealers, etc.—No person (including the United States or any State) may recover, under the authority of subsection (a)(3) or (a)(4) of section 107, from a service station dealer for any response costs or damages resulting from a release or threatened release of recycled oil, or use the authority of section 106 against a service station dealer other than a person described in subsection (a)(1) or (a)(2) of section 107, if such recycled oil—

(A) is not mixed with any other hazardous substance, and

(B) is stored, treated, transported, or otherwise managed in compliance with regulations or standards promulgated pursuant to section 3014 of the Solid Waste Disposal Act and other applicable authorities.

Nothing in this paragraph shall affect or modify in any way the obligation or liability of any person under any other provision of State or Federal law, including common law, for damages injury, or loss resulting from a release or threatened release of any hazardous substance or for removal or remedial action or the costs of removal or remedial action.

(2) Presumption.—Solely for the purposes of this subsection, a service station dealer may presume that a small quantity of used oil is not mixed with other hazardous substances if it—

(A) has been removed from the engine of a light duty motor vehicle or household appliances by the owner of such vehicle or appliances, and

(B) is presented, by such owner, to the dealer for collection, accumulation, and delivery to an oil recycling facility.

(3) Definition.—For purposes of this subsection, the terms "used oil" and "recycled oil" have the same meanings as set forth in section 1004(36) and 1994(37) of the Solid Waste Disposal Act and regulations promulgated pursuant to that Act.

(4) Effective date.—The effective date of paragraphs (1) and (2) of this subsection shall be the effective date of regulations or standards promulgated under section 3014 of the Solid Waste Disposal Act that include, among other provisions, a requirement to conduct corrective action to respond to any releases of recycled oil under subtitle C or subtitle I of such Act.

(d) Except as provided in this title, no owner or operator of a vessel or facility who establishes and maintains evidence of financial responsibility in accordance with this title shall be required under any State or local law, rule, or regulation to establish or maintain any other evidence of financial responsibility in connection with liability for the release of a hazardous substance from such vessel or facility. Evidence of compliance with the financial responsibility requirements of this title shall be accepted by a State in lieu of any other requirement of financial responsibility imposed by such State in connection with liability for the release of a hazardous substance from such vessel or facility.

AUTHORITY TO DELEGATE, ISSUE REGULATIONS

[42 U.S.C. 9415]

Sec. 115. The President is authorized to delegate and assign any duties or powers imposed upon or assigned to him and to promulgate any regulations necessary to carry out the provisions of this title.

SCHEDULES

[42 U.S.C. 9616]

Sec. 116. (a) Assessment and listing of facilities.—It shall be a goal of this Act that, to the maximum extent practicable—

(1) not later than January 1, 1988, the President shall complete preliminary assessments of all facilities that are contained (as of the date of enactment of the Superfund Amendments and Reauthorization Act of 1986) on the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) including in each assessment a statement as to whether a site inspection is necessary and by whom it should be carried out; and

(2) not later than January 1, 1989, the President shall assure the completion of site inspections at all facilities for which the President has stated a site inspection is necessary pursuant to paragraph (1).

(b) Evaluation.—Within 4 years after enactment of the Superfund Amendments and Reauthorization Act of 1986, each facility listed (as of the date of such enactment) in the CERCLIS shall be evaluated if the President determines that such evaluation is warranted on the basis of a site inspection or preliminary assessment. The evaluation shall be in accordance with the criteria established in section 105 under the National Contingency Plan for determining priorities among release for inclusion on the National Priorities List. In the case of a facility listed in the CERCLIS after the enactment of the Superfund Amendments and Reauthorization Act of 1986, the facility shall be evaluated within 4 years after the date of such listing if the President determines that such evaluation is warranted on the basis of a site inspection or preliminary assessment.

(c) Explanations.—If any of the goals established by subsection (a) or (b) are not achieved, the President shall publish an explanation of why such action could not be completed by the specified date.

(d) Commencement of RI/FS.—The President shall assure that remedial investigations and feasibility studies (RI/FS) are commenced for facilities listed on the National Priorities List, in addition to those commenced prior to the date of enactment of the Superfund Amendments and Reauthorization Act of 1986, in accordance with the following schedule:

(1) not fewer than 275 by the date 36 months after the date of enactment of the Superfund Amendments and Reauthorization Act of 1986, and

(2) if the requirement of paragraph (1) is not met, not fewer than an additional 175 by the date 4 years after such date of enactment, and additional 200 by the date 5 years after such date of enactment, and a total of 650 by the date 5 years after such date of enactment.

(e) Commencement of remedial action.—The President shall assure that substantial and continuous physical on-site remedial action commences at facilities on the National Priorities List, in addition to those facilities on which remedial action has commenced prior to the date of enactment of the Superfund Amendments and Reauthorization Act of 1986, at a rate not fewer than:

(1) 175 facilities during the first 36-month period after enactment of this subsection; and

(2) 200 additional facilities during the following 24 months after such 36-month period.

PUBLIC PARTICIPATION

[42 U.S.C. 9617]

Sec. 117. (a) Proposed plan.—Before adoption of any plan for remedial action to be undertaken by the President, by a State, or by any other person, under section 104, 106, 120, or 122, the President or State, as appropriate, shall take both of the following actions:

(1) Publish a notice and brief analysis of the proposed plan and make such plan available to the public.

(2) Provide a reasonable opportunity for submission of written and oral comments and an opportunity for a public meeting at or near the facility at issue regarding the proposed plan and regarding any proposed findings under section 121(d)(4) (relating to cleanup standards). The President or the State shall keep a transcript of the meeting and make such transcript available to the public.

The notice and analysis published under paragraph (1) shall include sufficient information as may be necessary to provide a reasonable explanation of the proposed plan and alternative proposals considered.

(b) Final plan.—Notice of the final remedial action plan adopted shall be published and the plan shall be made available to the public before commencement of any remedial action. Such final plan shall be accompanied by a discussion of any significant changes (and the reasons for such changes) in the proposed plan and a response to each of the significant comments, criticisms, and new data submitted in written or oral presentations under subsection (a).

(c) Explanation of differences.—After adoption of a final remedial action plan—

(1) if any remedial action is taken,

(2) if any enforcement action under section 106 is taken, or

(3) if any settlement or consent decree under section 106 or section 122 is entered into,

and if such action, settlement, or decree differs in any significant respects from the final plan, the President or the State shall publish an explanation of the significant differences and the reasons such changes were made.

(d) Publication.—For the purposes of this section, publication shall include, at a minimum, publication in a major local newspaper of general circulation. In addition, each item developed, received, published, or made available to the public under this section shall be available for public inspection and copying at or near the facility at issue.

(e) Grants for technical assistance.—

(1) Authority.—Subject to such amounts as are provided in appropriations Acts and in accordance with rules promulgated by the President, the President may make grants available to any group of individuals which may be affected by a release or threatened release at any facility which is listed on the National Priorities List under the National Contingency Plan. Such grants may be used to obtain technical assistance in interpreting information with regard to the nature of the hazard, remedial investigation and feasibility study, record of decision, remedial design, selection and construction of remedial action, operation and maintenance, or removal action at such facility.

(2) Amount.—The amount of any grant under this subsection may not exceed $50,000 for a single grant recipient. The President may waive the $50,000 limitation in any case where such waiver is necessary to carry out the purposes of this subsection. Each grant recipient shall be required, as a condition of the grant, to contribute at least 20 percent of the total of costs of the technical assistance for which such grant is made. The President may waive the 20 percent contribution requirement if the grant recipient demonstrates financial need and such waiver is necessary to facilitate public participation in the selection of remedial action at the facility. Not more than one grant may be made under this subsection with respect to a single facility, but the grant may be renewed to facilitate public participation at all stages of remedial action.

HIGH PRIORITY FOR DRINKING WATER SUPPLIES.

[42 U.S.C. 9618]

SEC. 118. For purposes of taking action under section 104 or 106 and listing facilities on the National Priorities List, the President shall give a high priority to facilities where the release of hazardous substances or pollutants or contaminants has resulted in the closing of drinking water wells or has contaminated a principal drinking water supply.

RESPONSE ACTION CONTRACTORS

[42 U.S.C. 9619]

SEC. 119. (a) Liability of response action contractors.—

(1) Response action contractors.—A person who is a response action contractor with respect to any release or threatened release of a hazardous substance or pollutant or contaminant from a vessel or facility shall not be liable under this title or under any other Federal law to any person for injuries, costs, damages, expenses, or other liability (including but not limited to claims for indemnification or contribution and claims by third parties for death, personal injury, illness or loss of or damage to property or economic loss) which results from such release or threatened release.

(2) Negligence, etc.—Paragraph (1) shall not apply in the case of a release that is caused by conduct of the response action contractor which is negligent, grossly negligent, or which constitutes intentional misconduct.

(3) Effect on warranties; employer liability.—Nothing in this subsection shall affect the liability of any person under any warranty under Federal, State, or common law. Nothing in this subsection shall affect the liability of an employer who is a response action contractor to any employee of such employer under any provision of law, including any provision of any law relating to worker's compensation.

(4) Governmental employees.—A state employee or an employee of a political subdivision who provides services relating to response action while acting within the scope of his authority as a governmental employee shall have the same exemption from liability (subject to the other provisions of this section) as is provided to the response action contractor under this section.

(b) Savings provisions.—

(1) Liability of other persons.—The defense provided by section 107(b)(3) shall not be available to any potentially responsible party with respect to any costs or damages caused by any act or omission of a response action contractor. Except as provided in subsection (a)(4) and the preceding sentence, nothing in this section shall affect the liability under this Act or under any other Federal or State law of any person, other than a response action contractor.

(2) Burden of plaintiff.—Nothing in this section shall affect the plaintiff's burden of establishing liability under this title.

(c) Indemnification.—

(1) In general.—The President may agree to hold harmless and indemnify any response action contractor meeting the requirements of this subsection against any liability (including the expenses of litigation or settlement) for negligence arising out of the contractor's performance in carrying out response action activities under this title, unless such liability was caused by conduct of the contractor which was grossly negligent or which constituted intentional misconduct.

(2) Applicability.—This subsection shall apply only with respect to a response action carried out under written agreement with—

(A) the President;

(B) any Federal agency;

(C) a State or political subdivision which has entered into a contract or cooperative agreement in accordance with section 104(d)(1) of this title; or

(D) any potentially responsible party carrying out any agreement under section 122 (relating to settlements) or section 106 (relating to abatement).

(3) Source of funding.—This subsection shall not be subject to section 1301 or 1341 of title 31 of the United States Code or section 3732 of the Revised Statutes (41 U.S.C. 11) or to section 3 of the Superfund Amendments and Reauthorization Act of 1986. For purposes of section 111, amounts expended pursuant to this subsection for indemnification of any response action contractor (except with respect to federally owned or operated facilities) shall be considered governmental response costs incurred pursuant to section 104. If sufficient funds are unavailable in the Hazardous Substances Superfund established under subchapter A of chapter 98 of the Internal Revenue Code of 1954 to make payments pursuant to such indemnification or if the Fund is repealed, there are authorized to be appropriated such amounts as may be necessary to make such payments.

(4) Requirements.—An indemnification agreement may be provided under this subsection only if the President determines that each of the following requirements are met:

(A) The liability covered by the indemnification agreement exceeds or is not covered by insurance available, at a fair and reasonable price, to the contractor at the time the contractor enters into the contract to provide response action, and adequate insurance to cover such liability is not generally available at the time the response action contract is entered into.

(B) The response action contractor has made diligent efforts to obtain insurance coverage from non-Federal sources to cover such liability.

(C) In the case if a response action contract covering more than one facility, the response action contractor agrees to continue to make such diligent efforts each time the contractor begins work under the contract at a new facility.

(5) Limitations.—

(A) Liability covered.—Indemnification under this subsection shall apply only to response action contractor liability which results from a release of any hazardous substance or pollutant or contaminant if such release arises out of response action activities.

(B) Deductibles and limits. – An indemnification agreement under this subsection shall include deductibles and shall place limits on the amount of indemnification to be made available.

(C) Contracts with potentially responsible parties. –

(i) Decision to indemnify. – In deciding whether to enter into an indemnification agreement with a response action contractor carrying out a written contract or agreement with any potentially responsible party, the President shall determine an amount which the potentially responsible party is able to indemnify the contractor. The President may enter into such an indemnification agreement only if the President determines that such amount of indemnification is inadequate to cover any reasonable potential liability of the contractor arising out of the contractor's negligence in performing the contract or agreement with such party. The President shall make the determinations in the preceding sentences (with respect to the amount and the adequacy of the amount) taking into account the total net assets and resources of potentially responsible parties with respect to the facility at the time of such determinations.

(ii) Conditions. – The President may pay a claim under an indemnification agreement referred to in clause (i) for the amount determined under clause (i) only if the contractor has exhausted all administrative, judicial, and common law claims for indemnification against all potentially responsible parties participating in the clean-up of the facility with respect to the liability of the contractor arising out of the contractor's negligence in performing the contract or agreement with such party. Such indemnification agreement shall require such contractor to pay any deductible established under subparagraph (B) before the contractor may recover any amount from the potentially responsible party or under the indemnification agreement.

(D) RCRA facilities. – No owner or operator of a facility regulated under the Solid Waste Disposal Act may be indemnified under this subsection with respect to such facility.

(E) Persons retained or hired. – A person retained or hired by a person described in subsection (e)(2)(B) shall be eligible for indemnification under this subsection only if the President specifically approved of the retaining or hiring of such person.

(6) Cost recovery. – For purposes of section 107, amounts expended pursuant to this subsection for indemnification of any person who is a response action contractor with respect to any release or threatened release shall be considered a cost of response incurred by the United States Government with respect to such release.

(7) Regulations. – The President shall promulgate regulations for carrying out the provisions of this subsection. Before promulgation of the regulations, the President shall develop guidelines to carry out this section. Development of such guidelines shall include reasonable opportunity for public comment.

(8) Study. – The Comptroller General shall conduct a study in the fiscal year ending September 30, 1989, on the application of this subsection, including whether indemnification agreements under this subsection are being use, the number of claims that have been filed under such agreements, and the need for this subsection. The Comptroller General shall report the findings of the study to Congress no later than September 30, 1989.

(d) Exception. – The exemption provided under subsection (a) and the authority of the President to offer indemnification under subsection (c) shall not apply to any person covered by the provisions of paragraph (1), (2), (3), or (4) of section 107(a) with respect to the release or threatened release concerned if such person would be covered by such provisions even if such person had not carried out any actions referred to in subsection (e) of this section.

(e) Definitions. – For purposes of this section –

(1) Response action contract. – The term "response action contract" means any written contract or agreement entered into by a response action contractor [as defined in paragraph (2)(A) of this subsection] with –

(A) the President;

(B) any Federal agency;

(C) a State or political subdivision which has entered into a contract or cooperative agreement in accordance with section 104(d)(1) of this Act; or

(D) any potentially responsible party carrying out an agreement under section 106 or 122;

to provide any remedial action under this Act at a facility listed on the National Priorities List, or any removal under this Act, with respect to any release or threatened release of hazardous substance or pollutant or contaminant from the facility or to provide any evaluation, planning, engineering, surveying and mapping, design, construction, equipment, or any ancillary services thereto for such facility.

(2) Response action contractor.—The term "response action contractor" means—

(A) any—

(i) person who enters into a response action contract with respect to any release or threatened release of a hazardous substance or pollutant or contaminant from a facility and is carrying out such contract; and

(ii) person, public or nonprofit private entity, conducting a field demonstration pursuant to section 311(b); and

(iii) recipients of grants (including sub-grantees under section 126 for the training and education of workers who are or may be engaged in activities related to hazardous waste removal, containment, or emergency response under this Act; and

(B) any person who is retained or hired by a person described in subparagraph (A) to provide any services relating to a response action, and

(C) any surety who, after October 16, 1990, and before January 1, 1993, provides a bid, performance or payment bond to a response action contractor, and begins activities to meet its obligations under such bond, but only in connection with such activities or obligations."; and

(3) Insurance.—The term "insurance" means liability insurance which is fair and reasonably priced, as determined by the President, and which is made available at the time the contractor enters into the response action contract to provide response action.

(f) Competition.—Response action contractors and subcontractors for program management, construction management, architectural and engineering, surveying and mapping, and related services shall be selected in accordance with title IX if the Federal Property and Administrative Services Act of 1949. The Federal selection procedures shall apply to appropriate contracts negotiated by all Federal governmental agencies involved in carrying out this Act. Such procedures shall be followed by response action contractors and subcontractors.

(g) Surety Bonds.—

(1) If under the Miller Act, 40 U.S.C. sections 270a-270f, surety bonds are required for any direct Federal procurement of any response action contract, they shall be issued in accordance with 40 U.S.C. sections 270a-270d.

(2) If under applicable Federal law surety bonds are required for any direct Federal procurement of any response action contract, no right of action shall accrue on the performance bond issued on such response action contract to or for the use of any person other than the obligee named in the bond.

(3) If under applicable Federal law surety bonds are required for any direct Federal procurement of any response action contract, unless otherwise provided for by the procuring agency in the bond, in the event of a default, the surety's liability on a performance bond shall be only for the cost of completion of the contract work in accordance with the plans and specifications less the balance of funds remaining to be paid under the contract, up to the penal sum of the bond. The surety shall in no event be liable on bonds to indemnify or compensate the obligee for loss or liability arising from personal injury or property damage whether or not caused by a breach of the bonded contract.

(4) Nothing in this subsection shall be construed as preempting, limiting, superseding, affecting, applying to, or modifying any State laws, regulations, requirements, rules, practices or procedures. Nothing in this subsection shall be construed as affecting, applying to, modifying, limiting, superseding, or preempting any rights, authorities, liabilities, demands, actions, causes of action, losses, judgments, claims, statutes of limitation, or obligations under Federal or State law, which do not arise on or under the bond.

(5) This subsection shall not apply to bonds executed before October 17, 1990, or after December 31, 1992.

FEDERAL FACILITIES

[42 U.S.C. 9620]

Sec. 120. (a) Application of Act to Federal Government.—

(1) In general.—Each department, agency, and instrumentality of the United States (including the executive, legislative, and judicial branches of government) shall be subject to, and comply with, this Act in the same manner and to the same extent, both procedurally and substantively, as any nongovernmental entity, including liability under section 107 of this Act. Nothing in this section shall be construed to affect the liability of any person or entity under sections 106 and 107.

(2) Application of requirements to Federal facilities.—All guidelines, rules, regulations, and criteria which are applicable to preliminary assessments carried out under this Act for facilities at which hazardous substances are located, applicable to evaluations of such facilities under the National Contingency Plan, applicable to inclusion on the National Priorities List, or applicable to remedial actions at such facilities shall also be applicable to facilities which are owned or operated by a department, agency, or instrumentality of the United States in the same manner and to the extent as such guidelines, rules, regulations, and criteria are applicable to other facilities. No department, agency, or instrumentality of the United States may adopt or utilize any such guidelines, rules, regulations, or criteria which are inconsistent with the guidelines, rules, regulations, and criteria established by the Administrator under this Act.

(3) Exceptions.—This subsection shall not apply to the extent otherwise provided in this section with respect to applicable time periods. This subsection shall also not apply to any requirements relating to bonding, insurance, or financial responsibility. Nothing in this Act shall be construed to require a State to comply with section 104(c)(3) in the case of a facility which is owned or operated by any department, agency, or instrumentality of the United States.

(4) State laws.—State laws concerning removal and remedial action, including State laws regarding enforcement, shall apply to removal and remedial action at facilities owned or operated by a department, agency, or instrumentality of the United States when such facilities are not included on the National Priorities List. The preceding sentence shall not apply to the extent a State law would apply any standard or requirement to such facilities which is more stringent than the standards and requirements applicable to facilities which are not owned or operated by any such department, agency, or instrumentality.

(b) Notice.—Each department, agency, and instrumentality of the United States shall add to the inventory of Federal agency hazardous waste facilities required to be submitted under section 3016 of the Solid Waste Disposal Act (in addition to the information required under section 3016(a)(3) of such Act) information on contamination from each facility owned or operated by the department, agency, or instrumentality if such contamination affects contiguous or adjacent property owned by the department, agency, or instrumentality or by any other person, including a description of the monitoring data obtained.

(c) Federal Agency Hazardous Waste Compliance Docket.—The Administrator shall establish a special Federal Agency Hazardous Waste Compliance Docket (hereinafter in this section referred to as the "docket") which shall contain each of the following:

(1) All information submitted under section 3016 of the Solid Waste Disposal Act and subsection (b) of this section regarding any Federal facility and notice of each subsequent action taken under this Act with respect to the facility.

(2) Information submitted by the department, agency, or instrumentality of the United States under section 3005 or 3010 of such Act.

(3) Information submitted by the department, agency, or instrumentality under section 103 of this Act.

The docket shall be available for public inspection at reasonable times. Six months after establishment of the docket and every 6 months thereafter, the Administrator shall publish in the Federal Register a list of the Federal facilities which have been included in the docket during the immediately preceding 6-month period. Such publication shall also indicate where in the appropriate regional office of the Environmental Protection Agency additional information may be obtained with respect to any facility on the docket. The Administrator shall establish a program to provide information to the public with respect to facilities which are included in the docket under this subsection.

(d) Assessment and evaluation.—Not later than 18 months after the enactment of the Superfund Amendments and Reauthorization Act of 1986, the Administrator shall take steps to assure that a preliminary assessment is conducted for each facility on the docket. Following such preliminary assessment, the Administrator shall, where appropriate—

(1) evaluate such facilities in accordance with the criteria established in accordance with section 105 under the National Contingency Plan for determining priorities among releases; and

(2) include such facilities on the National Priorities List maintained under such plan if the facility meets such criteria.

Such criteria shall be applied in the same manner as the criteria are applied to facilities which are owned or operated by other persons. Evaluation and listing under this subsection shall be completed not later than 30 months after such date of enactment. Upon the receipt of a petition from the Governor of any State, the Administrator shall make such an evaluation of any facility included in the docket.

(e) Required action by department.—

(1) (RIFS).—Not later than 6 months after the inclusion of any facility on the National Priorities List, the department, agency, or instrumentality which owns or operates such facility shall, in consultation with the Administrator and appropriate State authorities, commence a remedial investigation and feasibility study for such facility. In the case of any facility which is listed on such list before the date of the enactment of this section, the department, agency, or instrumentality which owns or operates such facility shall, in consultation with the Administrator and appropriate State authorities, commence such an investigation and study for such facility within one year after such date of enactment. The Administrator and appropriate State authorities shall publish a timetable and deadlines for expeditious completion of such investigation and study.

(2) Commencement of remedial action; interagency agreement.—The Administrator shall review the results of each investigation and study conducted as provided in paragraph (1). Within 180 days thereafter, the head of the department, agency, or instrumentality concerned shall enter into an interagency agreement with the Administrator for the expeditious completion by such department, agency, or instrumentality of all necessary remedial action at such facility. Substantial continuous physical onsite remedial action shall be commenced at each facility not later than 15 months after completion of the investigation and study. All such interagency agreements, including review of alternative remedial action plans and selection of remedial action, shall comply with the public participation requirements of section 117.

(3) Completion of remedial actions.—Remedial actions at facilities subject to interagency agreements under this section shall be completed as expeditiously as practicable. Each agency shall include in its annual budget submissions to the Congress a review of alternative agency funding which could be used to provide for the costs of remedial action. The budget submission shall also include a statement of the hazard posed by the facility to human health, welfare, and the environment and identify the specific consequences of failure to begin and complete remedial action.

(4) Contents of agreement.—Each interagency agreement under this subsection shall include, but shall not be limited to, each of the following:

(A) A review of alternative remedial actions and selection of a remedial action by the head of the relevant department, agency, or instrumentality and the Administrator or, if unable to reach agreement on selection of a remedial action, selection by the Administrator.

(B) A schedule for the completion of each such remedial action.

(C) Arrangements for long-term operation and maintenance of the facility.

(5) Annual report.—Each department, agency, or instrumentality responsible for compliance with this section shall furnish an annual report to the Congress concerning its progress in implementing the requirements of this section. Such reports shall include, but shall not be limited to, each of the following items:

(A) A report on the progress in reaching interagency agreements under this section.

(B) The specific cost estimates and budgetary proposals involved in each interagency agreement.

(C) A brief summary of the public comments regarding each proposed interagency agreement.

(D) A description of the instances in which no agreement was reached.

(E) A report on progress in conducting investigations and studies under paragraph (1).

(F) A report on progress in conducting remedial actions.

(G) A report on progress in conducting remedial action at facilities which are not listed on the National Priorities List.

With respect to instances in which no agreement was reached within the required time period, the department, agency, or instrumentality filing the report under this paragraph shall include in such report an explanation or the reasons why no agreement was reached. The annual report required by this paragraph shall also contain a detailed description on a State-by-State basis of the status of each facility subject to this section, including a description of the hazard presented by each facility, plans and schedules for initiating and completing response action, enforcement status (where appropriate), and an explanation of any postponements or failure to complete response action. Such reports shall also be submitted to the affected States.

(6) Settlements with other parties.—If the Administrator, in consultation with the head of the relevant department, agency, or instrumentality of the United States, determines that remedial investigations and feasibility studies or remedial action will be done properly at the Federal facility by another potentially responsible party within the deadlines provided in paragraphs (1), (2), and (3) of this subsection, the Administrator may enter into an agreement with such party under section 122 (relating to settlements). Following approval by the Attorney General of any such agreement relating to a remedial action, the agreement shall be entered in the appropriate United States district court as a consent decree under section 106 of this Act.

(f) State and local participation.—The Administrator and each department, agency, or instrumentality responsible for compliance with this section shall afford to relevant State and local officials the opportunity to participate in the planning and selection of the remedial action, including but not limited to the review of all applicable data as it becomes available and the development of studies, reports, and action plans. In the case of State officials, the opportunity to participate shall be provided in accordance with section 121.

(g) Transfer of authorities.—Except for authorities which are delegated by the Administrator to an officer or employee of the Environmental Protection Agency, no authority vested in the Administrator under this section may be transferred, by executive order of the President or otherwise, to any other officer or employee of the United States or to any other person.

(h) Property transferred by Federal agencies.—

(1) Notice.—After the last day of the 6-month period beginning on the effective date of regulations under paragraph (2) of this subsection, whenever any department, agency, or instrumentality of the United States enters into any contract for the sale or other transfer of real property which is owned by the United States and on which any hazardous substance was stored for one year or more, known to have been released, or disposed of, the head of such department, agency, or instrumentality shall include in such contract notice of the type and quantity of such hazardous substance and notice of the time at which such storage, release, or disposal took place, to the extent such information is available on the basis of a complete search of agency files.

(2) Form of notice; regulations.—Notice under this subsection shall be provided in such form and manner as may be provided in regulations promulgated by the Administrator. A promptly as practicable after the enactment of this subsection but not later than 18 months after the date of such enactment, and after consultation with the Administrator of the General Services Administration, the Administrator shall promulgate regulations regarding the notice required to be provided under this subsection.

(3) Contents of certain deeds.—After the last day of the 6-month period beginning on the effective date of regulations under paragraph (2) of this subsection, in the case of any real property owned by the United States on which any hazardous substance was stored for one year or more, known to have been released, or disposed of, each deed entered into for the transfer of such property by the United States to any other person or entity shall contain—

(A) to the extent such information is available on the basis of a complete search of agency files—

(i) a notice of the type and quantity of such hazardous substances,

(ii) notice of the time at which such storage, release, or disposal took place, and

(iii) a description of the remedial action taken, if any, and

(B) a covenant warranting that—

(i) all remedial action necessary to protect human health and the environment with respect to any such substance remaining on the property has been taken before the date of such transfer, and

(ii) any additional remedial action found to be necessary after the date of such transfer shall be conducted by the United States.

The requirements of subparagraph (B) shall not apply in any case in which the person or entity to whom the property is transferred is a potentially responsible party with respect to such real property.

(i) Obligations under Solid Waste Disposal Act.—Nothing in this section shall affect or impair the obligation of any department, agency, or instrumentality of the United States to comply with any requirement of the Solid Waste Disposal Act (including corrective action requirements).

(j) National security.—

(1) Site specific Presidential Orders.—The President may issue such orders regarding response actions at any specified site or facility of the Department of Energy or the Department of Defense as may be necessary to protect the national security interests of the United States at that site or facility. Such orders may include, where necessary to protect such interests, an exemption from any requirement contained in this title or under title III of the Superfund Amendments and Reauthorization Act of 1986 with respect to the site or facility concerned. The President shall notify the Congress within 30 days of the issuance of an order under this paragraph providing for any such exemption. Such notification shall include a statement of the reasons for the granting of the exemption. An exemption under this paragraph shall be for a specified period which may not exceed one year. Additional exemptions may be granted, each upon the President's issuance of a new order under this paragraph for the site or facility concerned. Each such additional exemption shall be for a specified period which may not exceed on year. It is the intention of the Congress that whenever an exemption is issued under this paragraph the response action shall proceed as expeditiously as practicable. The Congress shall be notified periodically of the progress of any response action with respect to which an exemption has been issued under this paragraph. No exemption shall be granted under this paragraph due to lack of appropriation unless the President shall have specifically requested such appropriation as a part of the budgetary process and the Congress shall have failed to make available such requested appropriation.

(2) Classified information.—Notwithstanding any other provision of law, all requirements of the Atomic Energy Act and all Executive orders concerning the handling of restricted data and national security information, including "need to know" requirements, shall be applicable to any grant of access to classified information under the provisions of this Act or under title III of the Superfund Amendments and Reauthorization Act of 1986.

(k) Effective date. With respect to section 121 of CERCLA, as added by this section—

(1) The requirements of section 121 of CERCLA shall not apply to any remedial action for which the Record of Decision (hereinafter in this section referred to as the "ROD") was signed, or the consent decree was lodged, before date of enactment.

(2) If the ROD was signed, or the consent decree lodged, within the 30-day period immediately following enactment of the Act, the Administrator shall certify in writing that the portion of the remedial action covered by the ROD or consent decree complies to the maximum extent practicable with section 121 of CERCLA.

Any ROD signed before enactment of this Act and reopened after enactment of this Act to modify or supplement the selection of remedy shall be subject to the requirements of section 121 of CERCLA.[1]

CLEANUP STANDARDS

[42 U.S.C. 9621]

Sec. 121. (a) Selection of remedial action.—The President shall select appropriate remedial actions determined to be necessary to be carried out under section 104 or secured under section 106 which are in accordance with this section and, to the extent practicable, the national contingency plan, and which

[1] Section 121(b) of SARA of 1986 contained the following:

provide for cost-effective response. In evaluating the cost effectiveness of proposed alternative remedial actions, the President shall take into account the total short- and long-term costs of such actions, including the costs of operation and maintenance for the entire period during which such activities will be required.

(b) General rules.—

(1) Remedial actions in which treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances, pollutants, and contaminants is a principal element, are to be preferred over remedial actions not involving such treatment. The offsite transport and disposal of hazardous substances or contaminated materials without such treatment should be the least favored alternative remedial action where practicable treatment technologies are available. The President shall conduct an assessment of permanent solutions and alternative treatment technologies or resource recovery technologies that, in whole or in part, will result in a permanent and significant decrease in the toxicity, mobility, or volume of the hazardous substance, pollutant, or contaminant. In making such assessment, the President shall specifically address the long-term effectiveness of various alternatives. In assessing alternative remedial actions, the President shall, at a minimum, take into account:

(A) the long-term uncertainties associated with land disposal;

(B) the goals, objectives, and requirements of the Solid Waste Disposal Act;

(C) the persistence, toxicity, mobility, and propensity to bioaccumulate of such hazardous substances and their constituents;

(D) short- and long-term potential for adverse health effects from human exposure;

(E) long-term maintenance costs;

(F) the potential for future remedial action costs if the alternative remedial action in question were to fail; and

(G) the potential threat to human health and the environment associated with excavation, transportation, and redisposal, or containment.

The President shall select a remedial action that is protective of human health and the environment, that is cost effective, and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. If the President selects a remedial action not appropriate for a preference under this subsection, the President shall publish an explanation as to why a remedial action involving such reductions was not selected.

(2) The President may select an alternative remedial action meeting the objectives of this subsection whether or not such action has been achieved in practice at any other facility or site that has similar characteristics. In making such a selection, the President may take into account the degree of support for such remedial action by parties interested in such site.

(c) Review.—If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each 5 years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section 104 or 106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

(d) Degree of cleanup.—

(1) Remedial actions selected under this section or otherwise required or agreed to by the president under this Act shall attain a degree of cleanup of hazardous substances, pollutants, and contaminants released into the environment and of control of further release at a minimum which assures protection of human health and the environment. Such remedial actions shall be relevant and appropriate under the circumstances presented by the release or threatened release of such substance, pollutant, or contaminant.

(2) (A) With respect to any hazardous substance, pollutant or contaminant that will remain onsite, if—

(i) any standard, requirement, criteria, or limitation under any Federal environmental law, including, but not limited to, the Toxic Substances Control Act, the Safe Drinking Water Act,

the Clean Air Act, the Clean Water Act, the Marine Protection, Research and Sanctuaries Act, or the Solid Waste Disposal Act; or

(ii) any promulgated standard, requirement, criteria, or limitation under a State environmental or facility siting law that is more stringent than any Federal standard, requirement, criteria, or limitation, including each such State standard, requirement, criteria, or limitation contained in a program approved, authorized or delegated by the Administrator under a statute cited in subparagraph (A), and that has been identified to the President by the State in a timely manner,

is legally applicable to the hazardous substance or pollutant or contaminant concerned or is relevant and appropriate under the circumstances of the release or threatened release of such hazardous substance or pollutant or contaminant, the remedial action selected under section 104 or secured under section 106 shall require, at the completion of the remedial action, a level or standard of control for such hazardous substance or pollutant or contaminant which at least attains such legally applicable or relevant and appropriate standard, requirement, criteria, or limitation. Such remedial action shall require a level or standard of control which at least attains Maximum Contaminant Level Goals established under the Safe Drinking Water Act and water quality criteria established under section 304 or 303 of the Clean Water Act, where such goals or criteria are relevant and appropriate under the circumstances of the release or threatened release.

(B)(i) In determining whether or not any water quality criteria under the Clean Water Act is relevant and appropriate under the circumstances of the release or threatened release, the President shall consider the designated or potential use of the surface or groundwater, the environmental media affected, the purposes for which such criteria were developed, and the latest information available.

(ii) For the purposes of this section, a process for establishing alternate concentration limits to those otherwise applicable for hazardous constituents in groundwater under subparagraph (A) may not be used to establish applicable standards under this paragraph if the process assumes a point of human exposure beyond the boundary of the facility, as defined at the conclusion of the remedial investigation and feasibility study, except where –

(I) there are known and projected points of entry of such groundwater into surface water; and

(II) on the basis of measurements or projections, there is or will be no statistically significant increase of such constituent from such groundwater in such surface water at the point of entry or at any point where there is reason to believe accumulation of constituents may occur downstream; and

(III) the remedial action includes enforceable measures that will preclude human exposure to the contaminated groundwater at any point between the facility boundary and all known and projected points of entry of such groundwater into surface water then the assumed point of human exposure may be at such known and projected points of entry.

(C)(i) Clause (ii) of this subparagraph shall be applicable only in cases where, due to the President's selection, in compliance with subsection (b)(1), of a proposed remedial action which does not permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances, pollutants, or contaminants, the proposed disposition of waste generated by or associated with the remedial action selected by the President is land disposal in a State referred to in clause (ii).

(ii) Except as provided in clauses (iii) and (iv), a State standard, requirement, criteria, or limitation (including any State siting standard or requirement) which could effectively result in the statewide prohibition of land disposal of hazardous substances, pollutants, or contaminants shall not apply.

(iii) Any State standard, requirement, criteria, or limitation referred to in clause (ii) shall apply where each of the following conditions is met:

(I) The State standard, requirement, criteria, or limitation is of general applicability and was adopted by formal means.

(II) The State standard, requirement, criteria, or limitation was adopted on the bases of hydrologic, geologic, or other relevant considerations and was not adopted for the purpose of precluding onsite remedial actions or other land disposal for reasons unrelated to protection of human health and the environment.

(III) The State arranges for, and assures payment of the incremental costs of utilizing, a facility for disposition of the hazardous substances, pollutants, or contaminants concerned.

(iv) Where the remedial action selected by the President does not conform to a State standard and the State has initiated a law suit against the Environmental Protection Agency prior to May 1, 1986, to seek to have the remedial action conform to such standard, the President shall conform the remedial action to the State standard. The State shall assure the availability of an offsite facility for such remedial action.

(3) In the case of any removal or remedial action involving the transfer of any hazardous substance or pollutant or contaminant offsite, such hazardous substance or pollutant or contaminant shall only be transferred to a facility which is operating in compliance with section 3004 and 3005 of the Solid Waste Disposal Act (or, where applicable, in compliance with the Toxic Substances Control Act or other applicable Federal law) and all applicable State requirements. Such substance or pollutant or contaminant may be transferred to a land disposal facility only if the President determines that both of the following requirements are met:

(A) The unit of which the hazardous substance or pollutant or contaminant is transferred is not releasing any hazardous waste, or constituent thereof, into the groundwater or surface water or soil.

(B) All such releases from other units at the facility are being controlled by a corrective action program approved by the Administrator under subtitle C of the Solid Waste Disposal Act.

The President shall notify the owner or operator of such facility of determinations under this paragraph.

(4) The President may select a remedial action meeting the requirements of paragraph (1) that does not attain a level or standard of control at least equivalent to a legally applicable or relevant and appropriate standard, requirement, criteria, or limitation as required by paragraph (2) [including subparagraph (B) thereof], if the President finds that –

(A) the remedial action selected is only part of a total remedial action that will attain such level or standard of control when completed;

(B) compliance with such requirement at that facility will result in greater risk to human health and the environment than alternative options;

(C) compliance with such requirements is technically impracticable from an engineering perspective;

(D) the remedial action selected will attain a standard of performance that is equivalent to that required under the otherwise applicable standard, requirement, criteria, or limitation, through use of another method or approach;

(E) with respect to a State standard, requirements, criteria, or limitation, the State has not consistently applied (or demonstrated the intention to consistently apply) the standard, requirement, criteria, or limitation, in similar circumstances at other remedial actions within the State; or

(F) in the case of a remedial action to be undertaken solely under section 104 using the Fund, selection of a remedial action that attains such level or standard of control will not provide a balance between the need for protection of public health and welfare and the environment at the facility under consideration, and the availability of amounts from the Fund to respond to other sites which present or may present a threat to public health or welfare or the environment, taking into consideration the relative immediacy of such threats.

The President shall publish such findings, together with an explanation and appropriate documentation.

(e) Permits and enforcement –.

(1) No Federal, State, or local permit shall be required for the portion of any removal or remedial action conducted entirely onsite, where such remedial action is selected and carried out in compliance with this section.

(2) A state may enforce any Federal or State standard, requirement, criteria, or limitation to which the remedial action is required to conform under this Act in the United States district court for the district in which the facility is located. Any consent decree shall require the parties to attempt expeditiously to resolve disagreements concerning implementation of the remedial action informally with the appropriate Federal and State agencies. Where the parties agree, the consent decree may provide for administrative enforcement. Each consent decree shall also contain stipulated penalties for violations of the decree in an amount not to exceed $25,000 per day, which may be enforced by either the President or the State. Such stipulated penalties shall not be construed to impair or affect the authority of the court to order compliance with the specific terms of any such decree.

(f) State involvement.–

(1) The President shall promulgate regulations providing for substantial and meaningful involvement by each State in initiation, development, and selection of remedial actions to be under taken in that State. The regulations, at a minimum, shall include each of the following:

(A) State involvement in decisions whether to perform a preliminary assessment and site inspection.

(B) Allocation of responsibility for hazard ranking system scoring.

(C) State concurrence in deleting sites from the National Priorities List.

(D) State participation in the long-term planning process for all remedial sites within the State.

(E) A reasonable opportunity for States to review and comment on each of the following:

(i) The remedial investigation and feasibility study and all data and technical documents leading to its issuance.

(ii) The planned remedial action identified in the remedial investigation and feasibility study.

(iii) The engineering design following selection of the final remedial action.

(iv) Other technical data and reports relating to implementation of the remedy.

(v) Any proposed finding or decision by the President to exercise the authority of subsection (d)(4).

(F) Notice to the State of negotiations with potentially responsible parties regarding the scope of any response action at a facility in the State and an opportunity to participate in such negotiations and, subject to paragraph (2), be a party to any settlement.

(G) Notice to the State and an opportunity to comment on the President's proposed plan for remedial action as well as on alternative plans under consideration. The President's proposed decision regarding the selection of remedial action shall be accompanied by a response to the comments submitted by the State, including an explanation regarding any decision under subsection (d)(4) on compliance with promulgated State standards. A copy of such response shall also be provided to the State.

(H) Prompt notice and explanation of each proposed action to the State in which the facility is located.

Prior to the promulgation of such regulations, the President shall provide notice to the State of negotiations with potentially responsible parties regarding the scope of any response action at a facility in the State, and such State may participate in such negotiations and subject to paragraph (2), any settlements.

(2) (A) This paragraph shall apply to remedial actions secured under section 106. At least 30 days prior to the entering of any consent decree, if the President proposes to select a remedial action that does not attain a legally applicable or relevant and appropriate standard, requirement, criteria, or limitation, under the authority of subsection (d)(4), the President shall provide an opportunity for the State to concur or not concur in such selection. If the State concurs, the State may become a signatory to the consent decree.

(B) If the State does not concur in such selection, and the State desires to have the remedial action conform to such standard, requirement, criteria, or limitation, the State shall intervene in the action under section 106 before entry of the consent decree, to seek to have the remedial action so conform. Such intervention shall be a matter of right. The remedial action shall conform to such standard, requirement, criteria, or limitation if the State establishes, on the administrative record, that the finding of the President was not supported by substantial evidence. If the court determines that the remedial action shall conform to such standard,

requirement, criteria, or limitation, the remedial action shall be so modified and the State may become a signatory to the decree. If the court determines that the remedial action need not conform to such standard, requirement, criteria, or limitation, and the State pays or assures the payment of the additional costs attributable to meeting such standard, requirement, criteria, or limitation, the remedial action shall be so modified and the State shall become a signatory to the decree.

(C) The President may conclude settlement negotiations with potentially responsible parties without State concurrence.

(3) (A) This paragraph shall apply to remedial actions at facilities owner or operated by a department, agency, or instrumentality of the United States. At least 30 days prior to the publication of the President's final remedial action plan, if the President proposes to select a remedial action that does not attain a legally applicable or relevant and appropriate standard, requirement, criteria, or limitation, under the authority of subsection (d)(4), the President shall provide an opportunity for the State to concur or not concur in such selection. If the State concurs, or does not act within 30 days, the remedial action may proceed.

(B) If the State does not concur in such selection as provided in subparagraph (A), and desires to have the remedial action conform to such standard, requirement, criteria, or limitation, the State may maintain an action as follows:

(i) If the President has notified the State of selection of such a remedial action, the State may bring an action within 30 days of such notification for the sole purpose of determining whether the finding of the President is supported by substantial evidence. Such action shall be brought in the United States district court for the district in which the facility is located.

(ii) If the State establishes, on the administrative record, that the President's finding is not supported by substantial evidence, the remedial action shall be modified to conform to such standard, requirement, criteria, or limitation.

(iii) If the State fails to establish that the president's finding was not supported by substantial evidence and if the State pays, within 60 days of judgment, the additional costs attributable to meeting such standard, requirement, criteria, or limitation, the remedial action shall be selected to meet such standard, requirement, criteria, or limitation. If the State fails to pay within 60 days, the remedial action selected by the President shall proceed through completion.

(C) Nothing in this section precludes, and the court shall not enjoin, the Federal agency from taking any remedial action unrelated to or not inconsistent with such standard, requirement, criteria, or limitation.

SETTLEMENTS

[42 U.S.C. 9622]

Sec. 122. (a) Authority to enter into agreements. – The President, in his discretion, may enter into an agreement with any person (including the owner or operator of the facility from which a release or substantial threat of release emanates, or any other potentially responsible person), to perform any response action [including any action described in section 104(b)] if the President determines that such action will be dome properly by such person. Whenever practicable and in the public interest, as determined by the President, the President shall act to facilitate agreements under this section that are in the public interest, and consistent with the National Contingency Plan in order to expedite effective remedial actions and minimize litigation. If the President shall notify in writing potentially responsible parties at the facility of such decision and the reasons why use of the procedures is inappropriate. A decision of the President to use or not to use the procedures in this section is not subject to judicial review.

(b) Agreements with potentially responsible parties. –

(1) Mixed funding. – An agreement under this section may provide that the President will reimburse the parties to the agreement from the Fund, with interest, for certain costs of actions under the agreement that the parties have agreed to perform but which the President has agreed to finance. In any case in which the President provides such reimbursement, the President shall make all reasonable efforts to recover the amount of such reimbursement under section 107 or under other relevant authorities.

(2) Reviewability.—The President's decisions regarding the availability of fund financing under this subsection shall not be subject to judicial review under subsection (d).

(3) Retention of funds.—If, as part of any agreement, the President will be carrying out any action and the parties will be paying amounts to the President, the President may, notwithstanding any other provision of law, retain and use such amounts for purposes of carrying out the agreement.

(4) Future obligation of fund.—In the case of a completed remedial action pursuant to an agreement described in paragraph (1), the Fund shall be subject to an obligation for subsequent remedial actions at the same facility but only to the extent that such subsequent actions are necessary by reason of the failure of the original remedial action. Such obligation shall be in a proportion equal to, but not exceeding, the proportion contributed by the Fund for the original remedial action. The Fund's obligation for such future remedial action may be met through Fund expenditures or through payment, following settlement or enforcement action, by parties who were not signatories to the original agreement.

(c) Effect of agreement.—

(1) Liability.—Whenever the President has entered into an agreement under this section, the liability to the United States under this Act of each party to the agreement, including any future liability to the United States, arising from the release or threatened release that is the subject of the agreement shall be limited as provided in the agreement pursuant to a covenant not to sue in accordance with subsection (f). A covenant not to sue may provide that future liability to the United States of a settling potentially responsible party under the agreement may be limited to the same proportion as that established in the original settlement agreement. Nothing in this section shall limit or otherwise affect the authority of any court to review in the consent decree process under subsection (d) any covenant not to sue contained in an agreement under this section. In determining the extent to which the liability of parties to an agreement shall be limited pursuant to a covenant not to sue, the President shall be guided by the principle that a more complete covenant not to sue shall be provided for a more permanent remedy undertaken by such parties.

(2) Actions against other persons.—If an agreement has been entered into under this section, the President may take any action under section 106 against any person who is not a party to the agreement, once the period for submitting a proposal under subsection (e)(2)(B) has expired. Nothing in this section shall be construed to affect either of the following:

(A) The liability of any person under section 106 or 107 with respect to any costs or damages which are not included in the agreement.

(B) The authority of the President to maintain an action under this Act against any person who is not a party to the agreement.

(d) Enforcement.—

(1) Cleanup agreements.—

(A) Consent decree.—Whenever the President enters into an agreement under this section with any potentially responsible party with respect to remedial action under section 106, following approval of the agreement by the Attorney General, except as otherwise provided in the case of certain administrative settlements referred to in subsection (g), the agreement shall be entered in the appropriate United States district court as a consent decree. The President need not make any finding regarding an imminent and substantial endangerment to the public health or the environment in connection with any such agreement or consent decree.

(B) Effect.—The entry of any consent decree under this subsection shall not be construed to be an acknowledgement by the parties that the release or threatened release concerned constitutes an imminent and substantial endangerment to the public health or welfare or the environment. Except as otherwise provided in the Federal Rules of Evidence, the participation by any party in the process under this section shall not be considered an admission of liability for any purpose, and the fact of such participation shall not be admissible in any judicial or administrative proceeding, including a subsequent proceeding under this section.

(C) Structure.—The President may fashion a consent decree so that the entering of such decree and compliance with such decree or with any determination or agreement made pursuant to this section shall not be considered an admission of liability for any purpose.

(2) Public participation.—

(A) Filing of proposed judgment. – At least 30 days before a final judgment is entered under paragraph (1), the proposed judgment shall be filed with the court.

(B) Opportunity for comment. – The Attorney General shall provide an opportunity to persons who are not named as parties to the action to comment on the proposed judgment before its entry by the court as a final judgment. The Attorney General shall consider, and file with the court, any written comments, views, or allegations relating to the proposed judgment. The Attorney General may withdraw or withhold its consent to the proposed judgment if the comments, views, and allegations concerning the judgment disclose facts or considerations which indicate that the proposed judgment is inappropriate, improper, or inadequate.

(3) 104(b) agreements. – Whenever the President enters into an agreement under this section with any potentially responsible party with respect to action under section 104(b), the President shall issue an order or enter into a decree setting forth the obligations of such party. The United States district court for the district in which the release or threatened release occurs may enforce such order or decree.

(e) Special notice procedures. –

(1) Notice. – Whenever the President determines that a period of negotiation under this subsection would facilitate an agreement with potentially responsible parties for taking response action [including any action described in section 104(b)] and would expedite remedial action, the President shall so notify all such parties and shall provide them with information concerning each of the following:

(A) The names and addresses of potentially responsible parties [including owners and operators and other persons referred to in section 107(a)], to the extent such information is available.

(B) To the extent such information is available, the volume and nature of substances contributed by each potentially responsible party identified at the facility.

(C) A ranking by volume of the substances at the facility, to the extent such information is available.

The President shall make the information referred to in this paragraph available in advance of notice under this paragraph upon the request of a potentially responsible party in accordance with procedures provided by the President. The provisions of subsection (c) of section 104 regarding protection of confidential information apply to information provided under this paragraph. Disclosure of information generated by the President under this section to persons others than the Congress, or any duly authorized Committee thereof, is subject to other privileges or protections provided by law, including (but not limited to) those applicable to attorney work product. Nothing contained in this paragraph or in other provisions of this Act shall be construed, interpreted, or applied to diminish the required disclosure of information under other provisions of this or other Federal or State laws.

(2) Negotiation. –

(A) Moratorium. – Except as provided in this subsection, the President may not commence action under section 104(a) or take any action under section 106 for 120 days after providing notice and information under this subsection with respect to such action. Except as provided in this subsection, the President may not commence a remedial investigation and feasibility study under section 104(b) for 90 days after providing notice and information under this subsection with respect to such action. The President may commence any additional studies or investigations authorized under section 104(b), including remedial design, during the negotiation period.

(B) Proposals. – Persons receiving notice and information under paragraph (1) of this subsection with respect to action under section 106 shall have 60 days from the date of receipt of such notice to make a proposal to the President for undertaking or financing the action under section 106. Persons receiving notice and information under paragraph (1) of this subsection with respect to action under section 104(b) shall have 60 days form the date of receipt of such notice to make a proposal to the President for undertaking or financing the action under section 104(b).

(C) Additional parties. – If an additional potentially responsible party is identified during the negotiation period or after an agreement has been entered into under this subsection concerning a release or threatened release, the President may bring the additional party into the negotiation or enter into a separate agreement with such party.

(3) Preliminary allocation of responsibility. –

(A) In general.—The President shall develop guidelines for preparing nonbinding preliminary allocations of responsibility. In developing these guidelines the President may include such factors as the President considers relevant, such as: volume, toxicity, mobility, strength of evidence, ability to pay, litigative risks, public interest considerations, precedential value, and inequities and aggravating factors. When it would expedite settlements under this section and remedial action, the President may, after completion of the remedial investigation and feasibility study, provide a nonbinding preliminary allocation of responsibility which allocates percentages of the total cost of response among potentially responsible parties at the facility.

(B) Collection of information.—To collect information necessary or appropriate for performing the allocation under subparagraph (A) or for otherwise implementing this section, the President may subpoena require the attendance and testimony of witnesses and the production of reports, papers, documents, answers to questions, and other information that the President deems necessary. Witnesses shall be paid the same fees and mileage that are paid witnesses in the courts of the United States. In the event of contumacy or failure or refusal of any person to obey any such subpoena, any district court of the United States in which venue is proper shall have jurisdiction to order any such person to comply with such subpoena. Any failure to obey such an order of the court is punishable by the court as a contempt thereof.

(C) Effect.—The nonbinding preliminary allocation of responsibility shall not be admissible as evidence in any proceeding, and no court shall have jurisdiction to review the nonbinding preliminary allocation of responsibility. The nonbinding preliminary allocation of responsibility shall not constitute an apportionment or other statement on the divisibility of harm or causation.

(D) Costs.—The costs incurred by the President in producing the nonbinding preliminary allocation of responsibility shall be reimbursed by the potentially responsible parties whose offer is accepted by the President. Where an offer under this section is not accepted, such costs shall be considered costs of response.

(E) Decision to reject offer.—Where the President, in his discretion, has provided a nonbinding preliminary allocation of responsibility and the potentially responsible parties have made a substantial offer providing for response to the President which he rejects, the reasons for the rejection shall be provided in a written explanation. The President's decision to reject such an offer shall not be subject to judicial review.

(4) Failure to propose.—If the President determines that a good faith proposal for undertaking or financing action under section 106 has not been submitted within 60 days of the provision of notice pursuant to this subsection, the President may thereafter commence action under section 104(a) or take an action against any person under section 106 of this Act. If the President determines that a good faith proposal for undertaking or financing action under section 104(b) has not been submitted within 60 days after the provision of notice pursuant to this subsection, the President may thereafter commence action under section 104(b).

(5) Significant threats.—Nothing in this subsection shall limit the President's authority to undertake response or enforcement action regarding a significant threat to public health or the environment within the negotiation period established by this subsection.

(6) Inconsistent response action.—When either the President, or a potentially responsible party pursuant to an administrative order or consent decree under this Act, has initiated a remedial investigation and feasibility study for a particular facility under this Act, no potentially responsible party may undertake any remedial action at the facility unless such remedial action has been authorized by the President.

(f) Covenant not to sue.—

(1) Discretionary covenants.—The President may, in his discretion, provide any person with a covenant not to sue concerning any liability to the United States under this Act, including future liability, resulting from a release or threatened release of a hazardous substance addressed by a remedial action, whether that action is onsite or offsite, if each of the following conditions is met:

(A) The covenant not to sue is in the public interest.

(B) The covenant not to sue would expedite response action consistent with the National Contingency Plan under section 105 of this Act.

(C) The person is in full compliance with a consent decree under section 106 (including a consent decree entered into in accordance with this section) for response to the release or threatened release concerned.

(D) The response action has been approved by the President.

(2) Special covenants not to sue.—In the case of any person to whom the President is authorized under paragraph (1) of this subsection to provide a covenant not to sue, for the portion of remedial action—

(A) which involves the transport and secure disposition offsite of hazardous substances in a facility meeting the requirements of section 3004 (c), (d), (e), (f), (g), (m), (o), (p), (u), and (v) and 3005(c) of the Solid Waste Disposal Act, where the President has rejected a proposed remedial action that is consistent with the National Contingency Plan that does not include such offsite disposition and has thereafter required offsite disposition; or

(B) which involves the treatment of hazardous substances so as to destroy, eliminate, or permanently immobilize the hazardous constituents of such substances, such that, in the judgment of the President, the substances no longer present any current or currently foreseeable future significant risk to public health, welfare or the environment, no byproduct of the treatment or destruction process presents any significant hazard to public health, welfare or the environment, and all byproducts are themselves treated, destroyed, or contained in a manner which assures that such byproducts do not present any current or currently foreseeable future significant risk to public health, welfare or the environment,

the President shall provide such person with a covenant not to sue with respect to future liability to the United States under this Act for a future release or threatened release of hazardous substances from such facility, and a person provided such covenant not to sue shall not be liable to the United States under section 106 or 107 with respect to such release or threatened release at a future time.

(3) Requirement that remedial action be completed.—A covenant not to sue concerning future liability to the United States shall not take effect until the President certifies that remedial action has been completed in accordance with the requirements of this Act at the facility that is the subject of such covenant.

(4) Factors.—In assessing the appropriateness of a covenant not to sue under paragraph (1) and any condition to be included in a covenant not to sue under paragraph (1) or (2), the President shall consider whether the covenant or condition is in the public interest on the basis of such factors as the following:

(A) The effectiveness and reliability of the remedy, in light of the other alternative remedies considered for the facility concerned.

(B) The nature of the risks remaining at the facility.

(C) The extent to which the performance standards are included in the order or decree.

(D) The extent to which the response action provides a complete remedy for the facility, including a reduction in the hazardous nature of the substances at the facility.

(E) The extent to which the technology used in the response action is demonstrated to be effective.

(F) Whether the Fund or other sources of funding would be available for any additional remedial actions that might eventually be necessary at the facility.

(G) Whether the remedial action will be carried out, in whole or in significant part, by the responsible parties themselves.

(5) Satisfactory performance.—Any covenant not to sue under this subsection shall be subject to the satisfactory performance by such party of its obligations under the agreement concerned.

(6) Additional condition for future liability.—

(A) Except for the portion of the remedial action which is subject to a covenant not to sue under paragraph (2) or under subsection (g) (relating to de minimis settlements), a covenant not to sue a person concerning future liability to the United States shall include an exception to the covenant that allows the President to sue such person concerning future liability resulting from the release or threatened release that is the subject of the covenant where such liability arises out of conditions which are unknown at the time the President certifies under paragraph (3) that remedial action has been completed at the facility concerned.

(B) In extraordinary circumstances, the President may determine, after assessment of relevant factors such as those referred to in paragraph (4) and volume, toxicity, mobility, strength of evidence, ability to pay, litigative risks, public interest considerations, precedential value, and inequities and aggravating factors, not to include the exception referred to in subparagraph (A) if other terms, conditions, or requirements of the agreement containing the covenant not to sue are sufficient to provide all reasonable assurances that public health and the environment will be protected from any future releases at or from the facility.

(C) The President is authorized to include any provisions allowing future enforcement action under section 106 or 107 that in the discretion of the President are necessary and appropriate to assure protection of public health, welfare, and the environment.

(g) De minimis settlements.—

(1) Expedited final settlement.—Whenever practicable and in the public interest, as determined by the President, the President shall as promptly as possible reach a final settlement with a potentially responsible party in an administrative or civil action under section 106 or 107 if such settlement involves only a minor portion of the response costs at the facility concerned and, in the judgment of the President, the conditions in either of the following subparagraph (A) or (B) are met:

(A) Both of the following are minimal in comparison to other hazardous substances at the facility:

(i) The amount of the hazardous substances contributed by that party to the facility.

(ii) The toxic or other hazardous effects of the substances contributed by that party to the facility.

(B) The potentially responsible party—

(i) is the owner of the real property on or in which the facility is located;

(ii) did not conduct or permit the generation, transportation, storage, treatment, or disposal of any hazardous substance at the facility; and

(iii) did not contribute to the release or threat of release of a hazardous substance at the facility through any action or omission.

This subparagraph (B) does not apply if the potentially responsible party purchased the real property with actual or constructive knowledge that the property was used for the generation, transportation, storage, treatment, or disposal of any hazardous substance.

(2) Covenant not to sue.—The President may provide a covenant not to sue with respect to the facility concerned to any party who has entered into a settlement under this subsection unless such a covenant would be inconsistent with the public interest as determined under subsection (f).

(3) Expedited agreement.—The President shall reach any such settlement or grant any such covenant not to sue as soon as possible after the President has available the information necessary to reach such a settlement or grant such a covenant.

(4) Consent decree or administrative order.—A settlement under this subsection shall be entered as a consent decree or embodied in an administrative order setting forth the terms of the settlement. In the case of any facility where the total response costs exceed $500,000 (excluding interest), if the settlement is embodied as an administrative order, the order may be issued only with the prior written approval of the Attorney General. If the Attorney General or his designee has not approved or disapproved the order within 30 days of this referral, the order shall be deemed to be approved unless the Attorney General and the Administrator have agreed to extend the time. The district court for the district in which the release or threatened release occurs may enforce any such administrative order.

(5) Effect of agreement.—A party who has resolved its liability to the United States under this subsection shall not be liable for claims for contribution regarding matters addressed in the settlement. Such settlement does not discharge any of the other potentially responsible parties unless its terms so provide, but it reduces the potential liability of the others by the amount of the settlement.

(6) Settlements with other potentially responsible parties.—Nothing in this subsection shall be construed to affect the authority of the President to reach settlements with other potentially responsible parties under this Act.

(h) Cost recovery settlement authority.—

(1) Authority to settle.—The head of any department or agency with authority to undertake a response action under this Act pursuant to the national contingency plan may consider, compromise, and settle a claim under section 107 for costs incurred by the United States Government if the claim has not been referred to the Department of Justice for further action. In the case of any facility where the total response costs exceed $500,000 (excluding interest), any claim referred to in the preceding sentence may be compromised and settled only with the prior written approval of the Attorney General.

(2) Use of arbitration.—Arbitration in accordance with regulations promulgated under this subsection may be used as a method of settling claims of the United States where the total response costs for the facility concerned do not exceed $500,000 (excluding interest). After consultation with the Attorney General, the department or agency head may establish and publish regulations for the use of arbitration or settlement under this subsection.

(3) Recovery of claims.—If any person fails to pay a claim that has been settled under this subsection, the department or agency head shall request the Attorney General to bring a civil action in an appropriate district court to recover the amount of such claim, plus costs, attorneys' fees, and interest from the date of the settlement. In such an action, the terms of the settlement shall not be subject to review.

(4) Claims for contribution.—A person who has resolved its liability to the United States under this subsection shall not be liable for claims for contribution regarding matters addressed in the settlement. Such settlement shall not discharge any of the other potentially liable persons unless its terms so provide, but it reduces the potential liability of the others by the amount of the settlement.

(i) Settlement procedures.—

(1) Publication in Federal Register.—At least 30 days before any settlement (including any settlement arrived at through arbitration) may become final under subsection (h), or under subsection (g) in the case of a settlement embodied in an administrative order, the head of the department or agency which has jurisdiction over the proposed settlement shall publish in the Federal Register notice of the proposed settlement. The notice shall identify the facility concerned and the parties to the proposed settlement.

(2) Comment period.—For a 30-day period beginning on the date of publication of notice under paragraph (1) of a proposed settlement, the head of the department or agency which has jurisdiction over the proposed settlement shall provide an opportunity for persons who are not parties to the proposed settlement to file written comments relating to the proposed settlement.

(3) Consideration of comments.—The head of the department or agency shall consider any comments filed under paragraph (2) in determining whether or not to consent to the proposed settlement and may withdraw or withhold consent to the proposed settlement if such comments disclose facts or considerations which indicate the proposed settlement is inappropriate, improper, or inadequate.

(j) Natural resources.—

(1) Notification of trustee.—Where a release or threatened release of any hazardous substance that is the subject of negotiations under this section may have resulted in damages to natural resources under the trusteeship of the United States, the President shall notify the Federal natural resource trustee of the negotiations and shall encourage the participation of such trustee in the negotiations.

(2) Covenant not to sue.—An agreement under this section may contain a covenant not to sue under section 107(a)(4)(C) for damages to natural resources under the trusteeship of the United States resulting from the release or threatened release of hazardous substances that is the subject of the agreement, but only if the Federal natural resource trustee has agreed in writing to such covenant. The Federal natural resource trustee may agree to such covenant if the potentially responsible party agrees to undertake appropriate actions necessary to protect and restore the natural resources damaged by such release or threatened release of hazardous substances.

(k) Section not applicable to vessels.—The provisions of this section shall not apply to releases from a vessel.

(l) Civil penalties.—A potentially responsible party which is a party to an administrative order or consent decree entered pursuant to an agreement under this section or section 120 (relating to Federal facilities) or which is a party to an agreement under section 120 and which fails or refuses to comply

with any term or condition of the order, decree or agreement shall be subject to a civil penalty in accordance with section 109.

(m) Application of general principles of law.—In the case of consent decrees and other settlements under this section (including covenants not to sue), no provision of this Act shall be construed to preclude or otherwise affect the applicability of general principles of law regarding the setting aside or modification of consent decrees or other settlements.

REIMBURSEMENT TO LOCAL GOVERNMENTS

[42 U.S.C. 9623]

Sec. 123. (a) Application.—Any general purpose unit of local government for a political subdivision which is affected by a release or threatened release at any facility may apply to the President for reimbursement under this section.

(b) Reimbursement.—

(1) Temporary emergency measures.—The President is authorized to reimburse local community authorities for expenses incurred (before or after the enactment of the Superfund Amendments and Reauthorization Act of 1986) in carrying out temporary emergency measures necessary to prevent or mitigate injury to human health or the environment associated with the release or threatened release of any hazardous substance or pollutant or contaminant. Such measures may include, where appropriate, security fencing to limit access, response to fires and explosions, and other measures which require immediate response at the local level.

(2) Local funds not supplanted.—Reimbursement under this section shall not supplant local funds normally provided for response.

(c) Amount.—The amount of any reimbursement to any local authority under subsection (b)(1) may not exceed $25,000 for a single response. The reimbursement under this section with respect to a single facility shall be limited to the units of local government having jurisdiction over the political subdivision in which the facility is located.

(d) Procedure.—Reimbursements authorized pursuant to this section shall be in accordance with rules promulgated by the Administrator within one year after the enactment of the Superfund Amendments and Reauthorization Act of 1986.

METHANE RECOVERY

[42 U.S.C. 9624]

Sec. 124. (a) In general.—In the case of a facility at which equipment for the recovery or processing (including recirculation of condensate) of methane has been installed, for purposes of this Act:

(1) The owner or operator of such equipment shall not be considered an "owner or operator", as defined in section 101(20), with respect to such facility.

(2) The owner or operator of such equipment shall not be considered to have arranged for disposal or treatment of any hazardous substance at such facility pursuant to section 107 of this Act.

(3) The owner or operator of such equipment shall not be subject to any action under section 106 with respect to such facility.

(b) Exceptions.—Subsection (a) does not apply with respect to a release or threatened release of a hazardous substance from a facility described in subsection (a) if either of the following circumstances exist:

(1) The release or threatened release was primarily caused by activities of the owner or operator of the equipment described in subsection (a).

(2) The owner or operator of such equipment would be covered by paragraph (1), (2), (3), or (4) of subsection (a) of section 107 with respect to such release or threatened release if he were not the owner or operator of such equipment.

In the case of any release or threatened release referred to in paragraph (1), the owner or operator of the equipment described in subsection (a) shall be liable under this Act only for costs or damages primarily caused by the activities of such owner or operator.

SECTION 3001(b)(3)(A)(i) WASTE

[42 U.S.C. 9625]

Sec. 125. (a) Revision of hazard ranking system.—This section shall apply only to facilities which are not included or proposed for inclusion on the National Priorities List and which contain substantial volumes of waste described in section 3001(b)(3)(A)(i) of the Solid Waste Disposal Act. As expeditiously as practicable, the President shall revise the hazard ranking system in effect under the National Contingency Plan with respect to such facilities in a manner which assures appropriate consideration of each of the following site-specific characteristics of such facilities:

(1) The quantity, toxicity, and concentrations of hazardous constituents which are present in such waste and a comparison thereof with other wastes.

(2) The extent of, and potential for, release of such hazardous constituents into the environment.

(3) The degree of risk to human health and the environment posed by such constituents.

(b) Inclusion prohibited.—Until the hazard ranking system is revised as required by this section, the President may not include on the National Priorities List any facility which contains substantial volumes of waste described in section 3001(b)(3)(A)(i) of the Solid Waste Disposal Act on the basis of an evaluation made principally on the volume of such waste and not on the concentrations of the hazardous constituents of such waste. Nothing in this section shall be construed to affect the President's authority to include any such facility on the National Priorities List based on the presence of other substances at such facility or to exercise any other authority of this Act with respect to such other substances.

INDIAN TRIBES

[42 U.S.C. 9626]

Sec. 126. (a) Treatment generally.—The governing body of an Indian tribe shall be afforded substantially the same treatment as a State with respect to the provisions of section 103(a) regarding notification of releases), section 104(c)(2) (regarding consultation on remedial actions), section 104(e) (regarding access to information), section 104(i) (regarding health authorities) and section 105 (regarding roles and responsibilities under the national contingency plan and submittal of priorities for remedial action, but not including the provision regarding the inclusion of at least one facility per State on the National Priorities List).

(b) Community relocation.—Should the President determine that proper remedial action is the permanent relocation of tribal members away from a contaminated site because it is cost effective and necessary to protect their health and welfare, such finding must be concurred in by the affected tribal government before relocation shall occur. The President, in cooperation with the Secretary of the Interior, shall also assure that all benefits of the relocation program are provided to the affected tribe and that alternative land of equivalent value is available and satisfactory to the tribe. Any lands acquired for relocation of tribal members shall be held in trust by the United States for the benefit of the tribe.

(c) Study.—The President shall conduct a survey, in consultation with the Indian tribes, to determine the extent of hazardous waste sites on Indian lands. Such survey shall be included within a report which shall make recommendations on the program needs of tribes under this Act, with particular emphasis on how tribal participation in the administration of such programs can be maximized. Such report shall be submitted to Congress along with the President's budget request for fiscal year 1988.

(d) Limitation.—Notwithstanding any other provision of this Act, no action under this Act by an Indian tribe shall be barred until the later of the following:

(1) The application period of limitations has expired.

(2) 2 years after the United States, in its capacity as trustee for the tribe, gives written notice to the governing body of the tribe that it will not present a claim or commence an action on behalf of the tribe or fails to present a claim or commence an action within the time limitations specified in this Act.

TITLE II—HAZARDOUS SUBSTANCE RESPONSE REVENUE ACT OF 1980

SHORT TITLE; AMENDMENT OF 1954 CODE

Sec. 201. (a) Short title.—This title may be cited as the "Hazardous Substance Response Revenue Act of 1980".

(b) [Omitted]

SUBTITLE A – IMPOSITION OF TAXES ON PETROLEUM AND CERTAIN CHEMICALS

IMPOSITION OF TAXES.

Sec. 211. (a) General Rule – Subtitle D (relating to miscellaneous excise taxes) is amended by inserting after chapter 37 the following new chapter:

CHAPTER 38 – ENVIRONMENTAL TAXES

Subchapter A. Tax on petroleum.
Subchapter B. Tax on certain chemicals.
Sec. 4611. Imposition of tax.
Sec. 4612. Definitions and special rules.

Subchapter A – Tax on Petroleum

IMPOSITION OF TAX

Sec. 4611. (a) General Rule – There is hereby imposed a tax at the rate specified in subsection (c) on –

(1) crude oil received at a United States refinery, and

(2) petroleum products entered into the United States for consumption, use, or warehousing.

(b) Tax on Certain Uses and Exportation. –

(1) In general. – If

(A) any domestic crude oil is used in or exported from the United States, and

(B) before such use or exportation, no tax was imposed on such crude oil under subsection (a), then a tax at the rate specified in subsection (c) is hereby imposed on such crude oil.

(2) Exception for use on premises where produced. – Paragraph (1) shall not apply to any use of crude oil for extracting oil or natural gas on the premises where such crude oil was produced.

(c) Rate of Tax. –

(1) In general. – Except as provided in paragraph (2), the rate of the taxes imposed by this section is 8.2 cents a barrel.

(2) Imported petroleum products. – The rate of the tax imposed by subsection (a)(2) shall be 11.7 cents a barrel.

(d) Persons Liable for Tax. –

(1) Crude Oil Received at Refinery. – The tax imposed by subsection (a)(1) shall be paid by the operator of the United States refinery.

(2) Imported Petroleum Product. – The tax imposed by subsection (a)(2) shall be paid by the person entering the product for consumption, use, or warehousing.

(3) Tax on Certain Uses or Exports. – The tax imposed by subsection (b) shall be paid by the person using or exporting the crude oil, as the case may be.

(e) Application of Taxes. –

(1) In General. – Except as provided in paragraphs (2) and (3), the taxes imposed by this section shall apply after December 31, 1986, and before January 1, 1992.

(2) No Tax if Unobligated Balance in Fund Exceeds $3,500,000,000. – If on December 31, 1989, or December 31, 1990 –

(A) the unobligated balance in the Hazardous Substance Superfund exceeds $3,500,000,000, and

(B) the Secretary, after consultation with the Administrator of the Environmental Protection Agency, determines that the unobligated balance in the Hazardous Substance Superfund will exceed $3,500,000,000 on December 31 of 1990 or 1991, respectively, if no tax is imposed under section 59A, this section and sections 4661 and 4671, then no tax shall be imposed under this section during 1990 or 1991, as the case may be.

(3) No Tax if Amounts collected Exceed $6,650,000,000. –

(A) Estimates by Secretary. – The Secretary as of the close of each calendar quarter (and at such other times as the Secretary determines appropriate) shall make an estimate of the amount of taxes which will be collected under section 59A, this section, and sections 4661 and 4671 and credited to the Hazardous Substance Superfund during the period beginning January 1, 1987, and ending December 31, 1991.

(B) Termination if $6,650,000,000 Credited Before January 1, 1992. – If the Secretary estimates under subparagraph (A) that more than $6,650,000,000 will be credited to the Fund before January 1, 1992, no tax shall be imposed under this section after the date on which (as estimated by the Secretary) $6,650,000,000 will be so credited to the Fund.

(f) Application of Oil Spill Liability Trust Fund Financing Rate. –

(1) In General. – Except as provided in paragraph (2), the Oil Spill Liability Trust Fund financing Rate under subsection (c) shall apply after December 31, 1989, and before January 1, 1995.

(2) No Tax if Unobligated Balance in Fund Exceeds $1,000,000,000. – The Oil Spill Liability Trust Fund financing rate shall not apply during any calendar quarter if the Secretary estimates that as of the close of the preceding calendar quarter the unobligated balance in the Oil Spill Liability Trust Fund exceeds $1,000,000,000.

DEFINITIONS AND SPECIAL RULES

Sec. 4612. (a) Definitions. – For purposes of this subchapter –

(1) Crude Oil. – The term "crude oil" includes crude oil condensates and natural gasoline.

(2) Domestic Crude Oil. – The term "domestic crude oil" means any crude oil produced from a well located in the United States.

(3) Petroleum Product. – The term "petroleum product" includes crude oil.

(4) United States. –

(A) In General. – The term "United States" means the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, any possession of the United States, the Commonwealth of Northern Mariana Islands, and the Trust Territory of the Pacific Islands.

(B) United States Includes Continental Shelf Areas. – The principles of section 638 shall apply for purposes of the term "United States".

(C) United States Includes Foreign Trade Zones. – The term "United States" includes any foreign trade zone of the United States.

(5) United States Refinery. – The term "United States refinery" means any facility in the United States at which crude oil is refined

(6) Refineries Which Produce Natural Gasoline. – In the case of any United States refinery which produces natural gasoline from natural gas, the gasoline so produced shall be treated as received at such refinery at the time so produced.

(7) Premises. – The term "premises" has the same meaning as when used for purposes of determining gross income from the property under section 613.

(8) Barrel. – The term "barrel" means 42 United States gallons.

(9) Fractional Part of Barrel. – In the case of a fraction of a barrel, the tax imposed by section 4611 shall be the same fraction of the amount of such tax imposed on a whole barrel.

(b) Only 1 Tax Imposed With Respect to Any Product. – No tax shall be imposed by section 4611 with respect to any petroleum product if the person who would be liable for such tax establishes that a prior tax imposed by such section has been imposed with respect to such product.

(c) Credit Where Crude Oil Returned to Pipeline. – Under regulations prescribed by the Secretary, if an operator of a United States refinery –

(1) removes crude oil from a pipeline, and

(2) returns a portion of such crude oil into a stream of other crude oil in the same pipeline,

there shall be allowed as a credit against the tax imposed by section 4611 to such operator an amount equal to the product of the rate of tax imposed by section 4611 on the crude oil so removed by such operator and the number of barrels of crude oil returned by such operator to such pipeline. Any crude oil so returned shall be treated for purposes of this subchapter as crude oil on which no tax has been imposed by section 4611.

(d) Credit Against Portion of Tax Attributable to Oil Spill Rate. – There shall be allowed as a credit against so must of the tax imposed by section 4611 as is attributable to the Oil Spill Liability Trust Fund financing rate for any period an amount equal to the excess of –

(1) the sum of –

(A) the aggregate amounts paid by the taxpayer before January 1, 1987, into the Deepwater Port Liability Trust FUnd and the Offshore Oil Pollution Compensation Fund, and

(B) the interest accrued on such amounts before such date, over

(2) the amount of such payments taken into account under this subsection for all prior periods. The preceding sentence shall also apply to amounts paid by the taxpayer into the Trans-Alaska Pipeline Liability FUnd to the extent of amounts transferred from such Fund into the Oil Spill Liability Trust FUnd. FOr purposes of this subsection, all taxpayers which would be members of the same affiliated group (as defined in section 1504(a)) if section 1504(a)(2) were applied by substituting "100 percent" for "80 percent" shall be treated as 1 taxpayer.

(e) Disposition of Revenues from Puerto Rico and the Virgin Islands. – The provisions of subsections (a)(3) and (b)(3) of section 7652 shall not apply to any tax imposed by section 4611.

SUBTITLE B – TAX ON CERTAIN CHEMICALS

Sec. 4661. Imposition of tax.
Sec. 4662. Definitions and special rules.

IMPOSITION OF TAX

Sec. 4661. (a) General Rule. – There is hereby imposed a tax on any taxable chemical sold by the manufacturer, producer, or importer thereof.

(b) Amount of Tax. – The amount of tax imposed by subsection (a) shall be determined in accordance with the following table:

In the case of:	The tax is the following amount per ton
Acetylene	$4.87
Benzene	4.87
Butane	4.87
Butylene	4.87
Butadiene	4.87
Ethylene	4.87
Methane	3.44
Naphthalene	4.87
Propylene	4.87
Toluene	4.87
Xylene	4.87
Ammonia	2.64
Antimony	4.45
Antimony trioxide	3.75
Arsenic	4.45
Arsenic trioxide	3.41
Barium sulfide	2.30
Bromine	4.45
Cadmium	4.45
Chlorine	2.70
Chromium	4.45
Chromite	1.52
Potassium dichromate	1.69
Sodium dichromate	1.87
Cobalt	4.45
Cupric sulfate	1.87
Cupric oxide	3.59
Cuprous oxide	3.97
Hydrochloric acid	0.29
Hydrogen fluoride	4.23
Lead oxide	4.14
Mercury	4.45
Nickel	4.45
Phosphorus	4.45
Stannous chloride	2.85
Stannic chloride	2.12
Zinc chloride	2.22
Zinc sulfate	1.90
Potassium hydroxide	0.22
Sodium hydroxide	0.28
Sulfuric acid	0.26

In the case of:	The tax is the following amount per ton
Nitric acid	0.24

For periods before 1992, the item relating to xylene in the preceding table shall be applied by substituting "10.13" for "4.87".

(c) Termination. – No tax shall be imposed under this section during any period during which no tax is imposed under section 4611(a).

DEFINITIONS AND SPECIAL RULES

Sec. 4662. (a) Definitions. – For purposes of this subchapter –

(1) Taxable chemical. – Except as provided in subsection (b), the term "taxable chemical" means any substance –

(A) which is listed in the table under section 4661(b), and

(B) which is manufactured or produced in the United States or entered into the United States for consumption, use, or warehousing.

(2) United States. – The term "United States" has the meaning given such term by section 4612(a)(4).

(3) Importer. – The term "importer" means the person entering the taxable chemical for consumption, use, or warehousing.

(4) Ton. – The term "ton" means 2,000 pounds. In the case of any taxable chemical which is a gas, the term "ton means the amount of such gas in cubic feet which is the equivalent of 2,000 pounds on a molecular weight basis.

(5) Fractional part of ton. – In the case of a fraction of a ton, the tax imposed by section 4661 shall be the same fraction of the amount of such tax imposed on a whole ton.

(b) Exceptions, Other Special Rules. – For purposes of this subchapter –

(1) Methane or butane used as a fuel. – Under regulations prescribed by the Secretary, methane or butane shall be treated as a taxable chemical only if it is used otherwise than as a fuel or in the manufacture or production of any motor fuel, diesel fuel, aviation fuel, or jet fuel (and, for purposes of section 4661(a), the person so using it shall be treated as the manufacturer thereof).

(2) Substances used in the production of fertilizer. –

(A) In general. – In the case of nitric acid, sulfuric acid, ammonia, or methane used to produce ammonia which is a qualified fertilizer substance, no tax shall be imposed under section 4661(a).

(B) Qualified fertilizer substance. – For purposes of this section, the term "qualified fertilizer substance" means any substance, –

(i) used in a qualified fertilizer used by the manufacturer, producer, or importer,

(ii) sold for use by any purchaser in a qualified fertilizer use, or

(iii) sold for resale by any purchaser for use, or resale for ultimate use, in a qualified fertilizer use.

(C) Qualified fertilizer use. – The term "qualified fertilizer use" means any use in the manufacture or production of fertilizer or for direct application as a fertilizer.

(D) Taxation of nonqualified sale or use. – For purposes of section 4661(a), if no tax was imposed by such section on the sale or use of any chemical by reason of subparagraph (A), the first person who sells or uses such chemical other than in a sale or use described in subparagraph (A) shall be treated as the manufacturer of such chemical.

(3) Sulfuric acid produced as a byproduct of air pollution control. – In the case of sulfuric acid produced solely as a byproduct of and on the same site as air pollution control equipment, no tax shall be imposed under section 4661.

(4) Substances derived from coal. – For purposes of this subchapter, the term "taxable chemical" shall not include any substance to the extent derived from coal.

(5) Substances used in the production of motor fuel, etc. –

(A) In general. – In the case of any chemical described in subparagraph (D) which is a qualified fuel substance, no tax shall be imposed under section 4661(a).

(B) Qualified fuel substance. – For purposes of this section, the term "qualified fuel substance" means any substance –

(i) used in a qualified fuel use by the manufacturer, producer, or importer,
(ii) sold for use by any purchase in a qualified fuel use, or
(iii) sold for resale by any purchaser for use, or resale for ultimate use, in a qualified fuel use.

(C) Qualified fuel use.—For purposes of this subsection, the term "qualified fuel use" means—
(i) any use in the manufacture or production of any motor fuel, diesel fuel, aviation fuel, or jet fuel, or
(ii)any use as such a fuel.

(D) Chemicals to which paragraph applies.—For purposes of this subsection, the chemicals described in this subparagraph are acetylene, benzene, butylene, butadiene, ethylene, naphthalene, propylene, toluene, and xylene.

(E) Taxation of nonqualified sale or use.—For purposes of section 4661(a), if not tax was imposed by such section on the sale or use of any chemical by reason of subparagraph (A), the first person who sells or uses such chemical other than in a sale or use described in subparagraph (A) shall be treated as the manufacturer of such chemical.

(6) Substance having transitory presence during refining process, etc.—

(A) In general.—No tax shall be imposed under section 4661(a) on any taxable chemical described in subparagraph (B) by reason of the transitory presence of such chemical during any process of smelting, refining, or otherwise extracting any substance not subject to tax under section 4661(a).

(B) Chemicals to which subparagraph (A) applies.—The chemicals described in this subparagraph are—
(i) barium sulfide, cupric sulfate, cupric oxide, cuprous oxide, lead oxide, zinc chloride, and zinc sulfate, and
(ii) any solution or mixture containing any chemical described in clause (i).

(C) Removal treated as use.—Nothing in subparagraph (A) shall be construed to apply to any chemical which is removed from or ceases to be part of any smelting, refining, or other extraction process.

(7) Special rule for xylene.—Except in the case of any substance imported into the United States or exported from the United States, the term "xylene" does not include any separated isomer of xylene.

(8) Recycled chromium, cobalt, and nickel.—

(A) In general.—No tax shall be imposed under section 4661(a) on any chromium, cobalt, or nickel which is diverted or recovered in the United States from any solid waste as part of a recycling process (and not as part of the original manufacturing or production process.)

(B) Exemption not to apply while corrective action uncompleted.—Subsection (A) shall not apply during any period that required corrective action by the taxpayer at the unit at which the recycling occurs is uncompleted.

(C) Requested corrective action.—For purposes of subparagraph (B), required corrective action shall be treated as uncompleted during the period—
(i) beginning on the date that the corrective action is required by the Administrator or an authorized State pursuant to—
(I) a final permit under section 3005 of the Solid Waste Disposal Act or a final order under section 3004 or 3008 of such Act, or
(II) a final order under section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and
(ii) ending on the date the Administrator or such State (as the case may be) certifies to the Secretary that such corrective action has been completed.

(D) Special rule for groundwater treatment.— In the case of corrective action requiring groundwater treatment, such action shall be treated as completed as of the close of the 10-year period beginning on the date such action is required if such treatment complies with the permit or order applicable under subparagraph (C)(i) throughout such period. The preceding sentence shall cease to apply beginning on the date such treatment ceases to comply with such permit or order.

(E) Solid waste. – For purposes of this paragraph, the term "solid waste" has the meaning given such term by section 1004 of the Solid Waste Disposal Act, except that such term shall not include any byproduct, coproduct, or other waste from any process of smelting, refining, or otherwise extracting any metal.

(9) Substances used in the production of animal feed. –

(A) In general. – In the case of –

(i) nitric acid,

(ii) sulfuric acid,

(iii) ammonia, or

(iv) methane used to produce ammonia,

which is a qualified animal feed substance, no tax shall be imposed under section 4661(a).

(B) Qualified animal feed substance. – For purposes of this section, the term "qualified animal feed substance" means any substance –

(i) used in a qualified animal feed use by the manufacturer, producer, or importer,

(ii) sold for use by any purchaser in a qualified animal feed use, or

(iii) sold for resale by any purchaser for use, or resale for ultimate use, in a qualified animal feed use.

(C) Qualified animal feed use. – The term "qualified animal feed use" means any use in the manufacture or production of animal feed or animal feed supplements, or of ingredients used in animal feed or animal feed supplements.

(D) Taxation of nonqualified sale or use. – For purposes of section 4661(a), if no tax was imposed by such section on the sale or use of any chemical by reason of subparagraph (A), the 1st person who sells or uses such chemical other than in a sale or use described in subparagraph (A) shall be treated as the manufacture of such chemical.

(10) Hydrocarbon streams containing mixtures of organic taxable chemicals. –

(A) In general. – No tax shall be imposed under section 4661(a) on any organic taxable chemical while such chemical is part of an intermediate hydrocarbon stream containing a one or more organic taxable chemicals.

(B) Removal, etc., treated as use. – For purposes of this part, if any organic taxable chemical on which no tax was imposed by reason of subparagraph (A) is isolated, extracted, or otherwise removed from, or ceases to be part of, an intermediate hydrocarbon stream –

(i) such isolation, extraction, removal, or cessation shall be treated as use by the person causing such event, and

(ii) such person shall be treated as the manufacturer of such chemical.

(C) Registration requirement. – Subparagraph (A) shall not apply to any sale of any intermediate hydrocarbon stream unless the registration requirements of clauses (i) and (ii) of subsection (c)(2)(B) are satisfied.

(D) Organic taxable chemical. – For purposes of this paragraph, the term "organic taxable chemical" means any taxable chemical which is an organic substance.

(c) Use and Certain Exchanges by Manufacturer, Etc. –

(1) Use treated as sale. – Except as provided in subsections (b) and (e), if any person manufactures, produces, or imports any taxable chemical and uses such chemical, then such person shall be liable for tax under section 4661 in the same manner as if such chemical were sold by such person.

(2) Special rules for inventory exchanges. –

(A) In general. – Except as provided in this paragraph, in any case in which a manufacturer, producer, or importer of a taxable chemical exchanges such chemical as part of an inventory exchange with another person –

(i) such exchange shall not be treated as a sale, and

(ii) such other person shall, for purposes of section 4661, be treated as the manufacturer, producer, or importer of such chemical.

(B) Registration requirement. – Subparagraph (A) shall not apply to any inventory exchange unless –

(i) both parties are registered with the Secretary as manufacturers, producers, or importers of taxable chemicals, and

(ii) the person receiving the taxable chemical has, at such time as the Secretary may prescribe, notified the manufacturer, producer, or importer of such person's registration number and the internal revenue district in which such person is registered.

(C) Inventory exchange.—For purposes of this paragraph, the term "inventory exchange" means any exchange in which 2 persons exchange property which is, in the hands of each person, property described in section 1221(1).

(d) Refund or Credit for Certain Uses.—

(1) In general.—Under regulations prescribed by the Secretary, if—

(A) a tax under section 4661 was paid with respect to any taxable chemical, and

(B) such chemical was used by any person in the manufacture or production of any other substance which is a taxable chemical,

then an amount equal to the tax so paid shall be allowed as a credit or refund (without interest) to such person in the same manner as if it were an overpayment of tax imposed by such section. In any case to which this paragraph applies, the amount of any such credit or refund shall not exceed the amount of tax imposed by such section on the other substance manufactured or produced [or which would have been imposed by such section on such other substance but for subsection (b) or (e) of this section].

(2) Use as fertilizer.—Under regulations prescribed by the Secretary, if—

(A) a tax under section 4661 was paid with respect to nitric acid, sulfuric acid, ammonia, or methane used to make ammonia without regard to subsection (b)(2), and

(B) any person uses such substance as a qualified fertilizer substance,

then an amount equal to the excess of the tax so paid over the tax determined with regard to subsection (b)(2) shall be allowed as a credit or refund (without interest) to such person in the same manner as if it were an overpayment of tax imposed by this section.

(3) Use as qualified fuel.—Under regulations prescribed by the Secretary, if—

(A) a tax under section 4661 was paid with respect to any chemical described in subparagraph (D) of subsection (b)(5) without regard to subsection (b)(5), and

(B) any person uses such chemical as qualified fuel substance,

then an amount equal to the excess of the tax so paid over the tax determined with regard to subsection (b)(5) shall be allowed as a credit or refund (without interest) to such person in the same manner as if it were an overpayment of tax imposed by this section.

(4) Use in the production of animal feed.—Under regulations prescribed by the Secretary, if—

(A) a tax under section 4661 was paid with respect to nitric acid, sulfuric acid, ammonia, or methane used to produce ammonia, without regard to subsection (b)(9), and

(B) any person uses such substance as a qualified animal feed substance,

then an amount equal to the excess of the tax so paid over the tax determined with regard to subsection (b)(9) shall be allowed as a credit or refund (without interest) to such person in the same manner as if it were an overpayment of tax imposed by this section.

(e) Exemption for Exports of Taxable Chemicals.—

(1) Tax-free sales.—

(A) In general.—No tax shall be imposed under section 4661 on the sale by the manufacturer or producer of any taxable chemical for export, or for resale by the purchaser to a second purchaser for export.

(B) Proof of export required.—Rules similar to the rules of section 4221(b) shall apply for purposes of subparagraph (A).

(2) Credit for refund where tax paid.—

(A) In general.—Except as provided in subparagraph (B), if—

(i) tax under section 4661 was paid with respect to any taxable chemical, and

(ii)(I)such chemical was exported by any person, or

(II)such chemical was used as a material in the manufacture or production of a substance which was exported by any person and which, at the time of export, was a taxable substance [as defined in section 4672(a)]

credit or refund (without interest) of such tax shall be allowed or made to the person who paid such tax.

(B) Condition to allowance. – No credit or refund shall be allowed or made under subparagraph (A) unless the person who paid the tax establishes that he –

(i) has repaid or agreed to repay the amount of the tax to the person who exported the taxable chemical or taxable substance (as so defined), or

(ii) has obtained the written consent of such exporter to the allowance of the credit or the making of the refund.

(3) Refunds Directly to Exporter. – The Secretary shall provide, in regulations, the circumstances under which a credit or refund (without interest) of the tax under section 4661 shall be allowed or made to the person who exported the taxable chemical or taxable substance, where –

(A) the person who paid the tax waives his claim to the amount of such credit or refund, and

(B) the person exporting the taxable chemical or taxable substance provides such information as the Secretary may require in such regulations.

(4) Regulations. – The Secretary shall prescribe such regulations as may be necessary to carry out the purpose of this subsection.

(f) Disposition of Revenues from Puerto Rico and the Virgin Islands. – The provisions of subsections (a)(3) and (b)(3) of section 7652 shall not apply to any tax imposed by section 4661.

Effective date. – The amendments made by this section shall take effect on April 1, 1981.

Subchapter C – Tax on Certain Imported Substances

Sec. 4671. Imposition of tax.
Sec. 4672. Definitions and special rules.

IMPOSITION OF TAX.

Sec. 4671. (a) General Rule. – There is hereby imposed a tax on any taxable substance sold or used by the importer thereof.

(b) Amount of Tax. –

(1) In general. – Except as provided in paragraph (2), the amount of the tax imposed by subsection (a) with respect to any taxable substance shall be the amount of the tax which would have been imposed by section 4661 on the taxable chemicals used as materials in the manufacture or production of such substance if such taxable chemicals had been sold in the United States for use in the manufacture or production of such taxable substance.

(2) Rate where importer does not furnish information to secretary. – If the importer does not furnish to the Secretary (at such time and in such manner as the Secretary shall prescribe) sufficient information to determine under paragraph (1) the amount of the tax imposed by subsection (a) on any taxable substance, the amount of the tax imposed on such taxable substance shall be 5 percent of the appraised value of such substance as of the time such substance was entered into the United States for consumption, use, or warehousing.

(3) Authority to prescribe rate in lieu of paragraph (2) rate. – The Secretary may prescribe for each taxable substance a tax which, if prescribed, shall apply in lieu of the tax specified in paragraph (2) with respect to such substance. The tax prescribed by the Secretary shall be equal to the amount of tax which would be imposed by subsection (a) with respect to the taxable substance if such substance were produced using the predominant method of production of such substance.

(c) Exemptions for Substances Taxed Under Sections 4611 and 4661. – No tax shall be imposed by this section on the sale or use of any substance if tax is imposed on such sale or use under section 4611 or 4661.

(d) Tax-Free Sales, Etc. for Substances Used as Certain Fuels or in the Production of Fertilizer or Animal Feed. – Rules similar to the following rules shall apply for purposes of applying this section with respect to taxable substances used or sold for use as described in such rules:

(1) Paragraphs (2), (5), and (9) of section 4662(b) (relating to tax-free sales of chemicals used as fuel or in the production of fertilizer or animal feed).

(2) Paragraphs (2), (3), and (4) of section 4662(d) (relating to refund or credit of tax on certain chemicals used as fuel or in the production of fertilizer or animal feed).

(e) Termination. – No tax shall be imposed under this section during any period during which the Hazardous Substance Superfund financing rate under sectino 4611 does not apply.

DEFINITIONS AND SPECIAL RULES

Sec. 4672. (a) Taxable Substance. – For purposes of this subchapter –

(1) In general. – The term "taxable substance" means any substance which, at the time of sale or use by the importer, is listed as a taxable substance by the Secretary for purposes of this subchapter.

(2) Determination of substances on list. – A substance shall be listed under paragraph (1) if –

(A) the substance is contained in the list under paragraph (3), or

(B) the Secretary determines, in consultation with the Administrator of the Environmental Protection Agency and the Commissioner of Customs, that taxable chemicals constitute more than 50 percent of the weight of the materials used to produce such substance (determined on the basis of the predominant method of production).

(3) Initial list of taxable substances. –

Cumene
Styrene
Ammonium nitrate
Nickel oxide
Isopropyl alcohol
Ethylene glycol
Vinyl Chloride
Polyethylene resins, total
Polybutadine
Styrene-butadiene, latex
Styrene-butadiene, snpf
Synthetic rubber, not containing fillers
Urea
Ferronickel
Ferrochromium nov 3 pct.
Ferrochrome ov 3 pct. carbon
Unwrought nickel
Nickel waste and scrap
Wrought nickel rods and wire
Nickel powers
Phenolic resins
Polyvinylchloride resins
Polystyrene resins and compolvmers
Ethyl alcohol for nonbeverage use
Ethylbenzene
Methylene chloride
Polypropylene
Propylene glycol
Formaldehyde
Acetone
Acrylonitrile
Methanol
Propylene oxide
Polypropylene resins
Ethylene oxide
Ethylene dichloride
Cyclohexane
Isophthalic acid
Maleic anhydride
Phthalic anhydride
Ethyl methyl ketone
Chloroform
Carbon tetrachloride
Chromic acid
Hydrogen peroxide
Polystyrene homopolymer resins
Melamine
Acrylic and methacrylic acid resins
Vinyl resins
Vinyl resins, NSPF.

(4) Modification to List. – The Secretary shall add to the list under paragraph (3) substances which meet either the weight or value tests of paragraph (2)(B) and may remove from such list only substances which meet neither of such tests.

(b) Other Definitions. – For purposes of this subchapter –

(1) Importer. – The term "importer" means the person entering the taxable substance for consumption, use, or warehousing.

(2) Taxable chemicals; United State. – The terms "taxable chemical" and "United States" have the respective meanings given such terms by section 4662(a).

(c) Disposition of Revenues from Puerto Rico and the Virgin Islands. – The provisions of subsections (a)(3) and (b)(3) of section 7652 shall not apply to any tax imposed by section 4671.

TITLE III – MISCELLANEOUS PROVISIONS

REPORTS AND STUDIES

[42 U.S.C. 9651]

Sec. 301. (a)(1) The President shall submit to the Congress, within four years after December 11, 1980, a comprehensive report on experience with the implementation of this Act including, but not limited to –

(A) the extent to which the Act and Fund are effective in enabling Government to respond to and mitigate the effects of releases of hazardous substances;

(B) a summary of past receipts and disbursements from the Fund;

(C) a projection of any future funding needs remaining after the expiration of authority to collect taxes, and of the threat to public health, welfare, and the environment posed by the projected releases which create any such needs;

(D) the record and experience of the Fund in recovering Fund disbursements from liable parties;

(E) the record of State participation in the system of response, liability, and compensation established by this Act;

(F) the impact of the taxes imposed by title II of this Act on the Nation's balance of trade with other countries;

(G) an assessment of the feasibility and desirability of a schedule of taxes which would take into account one or more of the following: the likelihood of a release of a hazardous substance, the degree of hazard and risk of harm to public health, welfare, and the environment resulting from any such release, incentives to proper handling, recycling, incineration, and neutralization of hazardous wastes, and disincentives to improper or illegal handling or disposal of hazardous materials, administrative and reporting burdens on Government and industry, and the extent to which the tax burden falls on the substances and parties which create the problems addressed by this Act. In preparing the report, the President shall consult with appropriate Federal, State, and local agencies, affected industries and claimants, and such other interested parties as he may find useful. Based upon the analyses and consultation required by this subsection, the President shall also include in the report any recommendations for legislative changes he may deem necessary for the better effectuation of the purposes of this Act, including but not limited to recommendations concerning authorization levels, taxes, State participation, liability and liability limits, and financial responsibility provisions for the Response Trust Fund and the Post-closure Liability Trust Fund;

(H) an exemption from or an increase in the substances or the amount of taxes imposed by section 4661 of the Internal Revenue Code of 1954 for copper, lead, and zinc oxide, and for feedstocks when used in the manufacture and production of fertilizers, based upon the expenditure experience of the Response Trust Fund;

(I) the economic impact of taxing coal-derived substances and recycled metals.

(2) The Administrator of the Environmental Protection Agency (in consultation with the Secretary of the Treasury) shall submit to the Congress (i) within four years after enactment of this Act, a report identifying additional wastes designated by rule as hazardous after the effective date of this Act and pursuant to section 3001 of the Solid Waste Disposal Act and recommendations on appropriate tax rates for such wastes for the Post-closure Liability Trust Fund. The report shall, in addition, recommend a tax rate, considering the quantity and potential danger to human health and the environment posed by the disposal of any wastes which the Administrator, pursuant to subsection 3001(b)(2)(B) and subsection 3001(b)(3)(A) of the Solid Waste Disposal Act of 1980, has determined should be subject to regulation under subtitle C of such Act (ii) within three years after enactment of this Act, a report on the necessity for and the adequacy of the revenue raised, in relation to estimated future requirements, of the Post-closure Liability Trust Fund.

(b) The President shall conduct a study to determine (1) whether adequate private insurance protection is available on reasonable terms and conditions to the owners and operators of vessels and facilities subject to liability under section 107 of this Act, and (2) whether the market for such insurance is sufficiently competitive to assure purchasers of features such as a reasonable range of deductibles, coinsurance provisions, and exclusions. The President shall submit the results of his study, together with his recommendations, within two years of the date of enactment of this Act, and shall submit an interim report on his study within one year of the date of enactment of this Act.

(c) (1) The President, acting through Federal officials designated by the National Contingency Plan published under section 105 of this Act, shall study and, not later than two years after the enactment of this Act, shall promulgate regulations for the assessment of damages for injury to, destruction of, or loss of natural resources resulting from a release of oil or a hazardous substance for the purposes of this Act and section 311(f)(4) and (5) of the Federal Water Pollution Control Act. Notwithstanding the failure of the President to promulgate the regulations required under this subsection on the required date, the President shall promulgate such regulations not later than 6 months after the enactment of the Superfund Amendments and Reauthorization Act of 1986.

(2) Such regulations shall specify (A) standard procedures for simplified assessments requiring minimal field observation, including establishing measures of damages based on units of discharge or release or units of affected area, and (B) alternative protocols for conducting assessments in individual cases to determine the type and extent of short- and long-term injury, destruction, or loss. Such regulations shall identify the best available procedures to determine such damages, including both direct and indirect injury, destruction, or loss and shall take into consideration factors including, but not limited to, replacement value, use value, and ability of the ecosystem or resource to recover.

(3) Such regulations shall be reviewed and revised as appropriate every two years.

(d) The Administrator of the Environmental Protection Agency shall, in consultation with other Federal agencies and appropriate representatives of State and local governments and nongovernmental agencies, conduct a study and report to the Congress within two years of the date of enactment of this Act on the issues, alternatives, and policy considerations involved in the selection of locations for hazardous waste treatment, storage, and disposal facilities. This study shall include –

(A) an assessment of current and projected treatment, storage, and disposal capacity needs and shortfalls for hazardous waste by management category on a State-by-State basis;

(B) an evaluation of the appropriateness of a regional approach to siting and designing hazardous waste management facilities and the identification of hazardous waste management regions, interstate or intrastate, or both, with similar hazardous waste management needs;

(C) solicitation and analysis of proposals for the construction and operation of hazardous waste management facilities by nongovernmental entities, except that no proposal solicited under terms of this subsection shall be analyzed if it involves cost to the United States Government or fails to comply with the requirements of subtitle C of the Solid Waste Disposal Act and other applicable provisions of law;

(D) recommendations on the appropriate balance between public and private sector involvement in the siting, design, and operation of new hazardous waste management facilities;

(E) documentation of the major reasons for public opposition to new hazardous waste management facilities; and

(F) an evaluation of the various options for overcoming obstacles to siting new facilities, including needed legislation for implementing the most suitable option or options.

(e) (1) In order to determine the adequacy of existing common law and statutory remedies in providing legal redress for harm to man and the environment caused by the release of hazardous substances into the environment, there shall be submitted to the Congress a study within twelve months of enactment of this Act.

(2) This study shall be conducted with the assistance of the American Bar Association, the American Law Institute, the Association of American Trial Lawyers, and the National Association of State Attorneys General with the President of each entity selecting three members from each organization to conduct the study. The study chairman and one reporter shall be elected from among the twelve members of the study group.

(3) As part of their review of the adequacy of existing common law and statutory remedies, the study group shall evaluate the following:

(A) the nature, adequacy, and availability of existing remedies under present law in compensating for harm to man from the release of hazardous substances;

(B) the nature of barriers to recovery (particularly with respect to burdens of going forward and of proof and relevancy) and the role such barriers play in the legal system;

(C) the scope of the evidentiary burdens placed on the plaintiff in proving harm from the release of hazardous substances, particularly in light of the scientific uncertainty over causation with respect to–

(i) carcinogens, mutagens, and teratogens, and

(ii) the human health effects of exposure to low doses of hazardous substances over long periods of time;

(D) the nature and adequacy of existing remedies under present law in providing compensation for damages to natural resources from the release of hazardous substances;

(E) the scope of liability under existing law and the consequences, particularly with respect to obtaining insurance, of any changes in such liability;

(F) barriers to recovery posed by existing statutes of limitations.

(4) The report shall be submitted to the Congress with appropriate recommendations. Such recommendations shall explicitly address—

(A) the need for revisions in existing statutory or common law, and

(B) whether such revisions should take the form of Federal statutes or the development of a model code which is recommended for adoption by the States.

(5) The Fund shall pay administrative expenses incurred for the study. No expenses shall be available to pay compensation, except expenses on a per diem basis for the one reporter, but in no case shall the total expenses of the study exceed $300,000.

(f) The President, acting through the Administrator of the Environmental Protection Agency, the Secretary of Transportation, the Administrator of the Occupational Safety and Health Administration, and the Director of the National Institute for Occupational Safety and Health shall study and, not later than two years after the enactment of this Act, shall modify the national contingency plan to provide for the protection of the health and safety of employees involved in response actions.

(g) Insurability Study.—

(1) Study by Comptroller General.—The Comptroller General of the United States, in consultation with the persons described in paragraph (2), shall undertake a study to determine the insurability, and effects on the standard of care, of the liability of each of the following:

(A) Persons who generate hazardous substances: liability for costs and damages under this Act.

(B) Persons who own or operate facilities: liability for costs and damages under this Act.

(C) Persons liable for injury to persons or property caused by the release of hazardous substances into the environment.

(2) Consultation.—In conducting the study under this subsection, the Comptroller General shall consult with the following:

(A) Representatives of the Administrator.

(B) Representatives of persons described in subparagraphs (A) through (C) of the preceding paragraph.

(C) Representatives (i) of groups or organizations comprised generally of persons adversely affected by releases or threatened releases of hazardous substances and (ii) of groups organized for protecting the interest of consumers.

(D) Representatives of property and casualty insurers.

(E) Representatives of reinsures.

(F) Persons responsible for the regulation of insurance at the State level.

(3) Items evaluated.—The study under this section shall include, among other matters, an evaluation of the following:

(A) Current economic conditions in, and the future outlook for, the commercial market for insurance and reinsurance.

(B) Current trends in statutory and common law remedies.

(C) The impact of possible changes in traditional standards of liability, proof, evidence, and damages on existing statutory and common law remedies.

(D) The effect of the standard of liability and extent of the persons upon whom it is imposed under this Act on the protection of human health and the environment and on the availability, underwriting, and pricing of insurance coverage.

(E) Current trends, if any, in the judicial interpretation and construction of applicable insurance contracts, together with the degree to which amendments in the language of such contracts and the description of the risks assumed, could affect such trends.

(F) The frequency and severity of a representative sample of claims closed during the calendar year immediately preceding the enactment of this subsection.

(G) Impediments to the acquisition of insurance or other means of obtaining liability coverage other than those referred to in the preceding subparagraphs.

(H) The effects of the standards of liability and financial responsibility requirements imposed pursuant to this Act on the cost of, and incentives for, developing and demonstrating alternative and innovative treatment technologies, as well as waste generation minimization.

(4) Submission.—The Comptroller General shall submit a report on the results of the study to Congress with appropriate recommendations within 12 months after the enactment of this subsection.

(h) Report and Oversight Requirements.—

(1) Annual Report by EPA.—On January 1 of each year the Administrator of the Environmental Protection Agency shall submit an annual report to Congress of such Agency on the progress achieved in implementing this Act during the preceding fiscal year. In addition, such report shall specifically include each of the following:

(A) A detailed description of each feasibility study carried out at a facility under title I of this Act.

(B) The status and estimated date of completion of each such study.

(C) Notice of each such study which will not meet a previously published schedule for completion and the new estimated date for completion.

(D) An evaluation of newly developed feasible and achievable permanent treatment technologies.

(E) Progress made in reducing the number of facilities subject to review under section 121(c).

(F) A report on the status of all remedial and enforcement action undertaken during the prior fiscal year, including a comparison to remedial and enforcement actions undertaken in prior fiscal years.

(G) An estimate of the amount of resources, including the number of work years or personnel, which would be necessary for each department, agency, or instrumentality which is carrying out any activities of this Act to complete the implementation of all duties vested in the department, agency, or instrumentality under this Act.

(2) Review by Inspector General.—Consistent with the authorities of the Inspector General Act of 1978 the Inspector General of the Environmental Protection Agency shall review any report submitted under paragraph (1) related to EPA's activities for reasonableness and accuracy and submit to Congress, as a part of such report, a report on the results of such review.

(3) Congressional oversight.—After receiving the reports under paragraphs (1) and (2) of this subsection in any calendar year, the appropriate authorizing committees of Congress shall conduct oversight hearings to ensure that this Act is being implemented according to the purposes of this Act and congressional intent in enacting this Act.

EFFECTIVE DATES, SAVINGS PROVISION

[42 U.S.C. 9652]

Sec. 302. (a) Unless otherwise provided, all provisions of this Act shall be effective on the date of the enactment of this Act.

(b) Any regulation issued pursuant to any provisions of section 311 of the Clean Water Act which is repealed or superseded by this Act and which is in effect on the date immediately preceding the effective date of this Act shall be deemed to be a regulation issued pursuant to the authority of this Act and shall remain in full force and effect unless or until superseded by new regulations issued thereunder.

(c) Any regulation—

(1) respecting financial responsibility,

(2) issued pursuant to any provision of law repealed or superseded by this Act, and

(3) in effect on the date immediately preceding the effective date of this Act shall be deemed to be a regulation issued pursuant to the authority of this Act and shall remain in full force and effect unless or until superseded by new regulations issued thereunder.

(d) Nothing in this Act shall affect or modify in any way the obligations or liabilities of any person under other Federal or State law, including common law, with respect to releases of hazardous substances or other pollutants or contaminants. The provisions of this Act shall not be considered, interpreted, or construed in any way as reflecting a determination, in part or whole, of policy regarding the inapplicability of strict liability, or strict liability doctrines, to activities relating to hazardous substances, pollutants, or contaminants or other such activities.

EXPIRATION, SUNSET PROVISION

Sec. 303. [Repealed by P.L. 99-499]

CONFORMING AMENDMENTS

[42 U.S.C. 9654]

Sec. 304. (a) Subsection (b) of section 504 of the Federal Water Pollution Control Act is hereby repealed.

(b) One-half of the unobligated balance remaining before the date of the enactment of this Act, under subsection (k) of section 311 of the Federal Water Pollution Control Act and all sums appropriated under section 504(b) of the Federal Water Pollution Control Act shall be transferred to the Fund established under title II of this Act.

(c) In any case in which any provision of section 311 of the Federal Water Pollution Control Act is determined to be in conflict with any provisions of this Act, the provisions of this Act shall apply.

LEGISLATIVE VETO

[42 U.S.C. 9655]

Sec. 305. (a) Notwithstanding any other provision of law, simultaneously with promulgation or repromulgation of any rule or regulation under authority of title I of this Act, the head of the department, agency, or instrumentality promulgating such rule or regulation shall transmit a copy thereof to the Secretary of the Senate and the Clerk of the House of Representatives. Except as provided in subsection (b) of this section, the rule or regulation shall not become effective, if –

(1) within ninety calendar days of continuous session of Congress after the date of promulgation, both Houses of Congress adopt a concurrent resolution, the matter after the resolving clause of which is as follows: "That Congress disapproves the rule or regulation promulgated by the dealing with the matter of , which rule or regulation was transmitted to Congress on ", the blank spaces therein being appropriately filled; or

(2) within sixty calendar days of continuous session of Congress after the date of promulgation, one House of Congress adopts such a concurrent resolution and transmits such resolution to the other House, and such resolution is not disapproved by such other House within thirty calendar days of continuous session of Congress after such transmittal.

(b) If, at the end of sixty calendar days of continuous session of Congress after the date of promulgation of a rule or regulation, no committee of either House of Congress has reported or been discharged from further consideration of a concurrent resolution disapproving the rule or regulation and neither House has adopted such a resolution, the rule or regulation may go into effect immediately. If, within such sixty calendar days, such a committee has reported or been discharged from further consideration of such a resolution, or either House has adopted such a resolution, the rule or regulation may go into effect not sooner than ninety calendar days of continuous session of Congress after such rule is prescribed unless disapproved as provided in subsection (a) of this section.

(c) For purposes of subsections (a) and (b) of this section –

(1) continuity of session is broken only by an adjournment of Congress sine die; and

(2) the days on which either House is not in session because of an adjournment of more than three days to a day certain are excluded in the computation of thirty, sixty, and ninety calendar days of continuous session of Congress.

(d) Congressional inaction on, or rejection of, a resolution of disapproval shall not be deemed an expression of approval of such rule or regulation.

TRANSPORTATION

[42 U.S.C. 9656]

Sec. 306. (a) Each hazardous substance which is listed or designated as provided in section 101(14) of this Act shall, within 30 days after the enactment of the Superfund Amendments and Reauthorization Act of 1986 or at the time of such listing or designation, whichever is later, be listed and regulated as a hazardous material under the Hazardous Materials Transportation Act.

(b) A common or contract carrier shall be liable under other law in lieu of section 107 of this Act for damages or remedial action resulting from the release of a hazardous substance during the course of transportation which commenced prior to the effective date of the listing and regulating of such substance as a hazardous material under the Hazardous Materials Transportation Act, or for substances listed pursuant to subsection (a) of this section, prior to the effective date of such listing: *Provided,*

however, That this subsection shall not apply where such a carrier can demonstrate that he did not have actual knowledge of the identity or nature of the substance released.

ASSISTANT ADMINISTRATOR FOR SOLID WASTE

Sec. 307. (a) Section 2001 of the Solid Waste Disposal Act is amended by striking out "a Deputy Assistant" and inserting in lieu thereof "an Assistant".

(b) The Assistant Administrator of the Environmental Protection Agency appointed to head the Office of Solid Waste shall be in addition to the five Assistant Administrators of the Environmental Protection Agency provided for in section 1(d) of Reorganization Plan numbered 3 of 1970 and the additional Assistant Administrator provided by the Toxic Substances Control Act, shall be appointed by the President by and with the advice and consent of the Senate, and shall be compensated at the rate provided for Level IV of the Executive Schedule pay rates under section 5315 of title 5, United States Code.

(c) The amendment made by subsection (a) shall become effective ninety days after the date of the enactment of this Act.

SEPARABILITY

[42 U.S.C. 9657]

Sec. 308. If any provision of this Act, or the application of any provision of this Act to any person or circumstance, is held invalid, the application of such provision to other persons or circumstances and the remainder of this Act shall not be affected thereby. If an administrative settlement under section 122 has the effect of limiting any person's right to obtain contribution from any party to such settlement, and if the effect of such limitation would constitute a taking without just compensation in violation of the fifth amendment of the Constitution of the United States, such person shall not be entitled, under other laws of the United States, to recover compensation from the United States for such taking, but in any such case, such limitation on the right to obtain contribution shall be treated as having no force and effect.

ACTIONS UNDER STATE LAW FOR DAMAGES FROM EXPOSURE TO HAZARDOUS SUBSTANCES

[42 U.S.C. 9658]

Sec. 309. (a) State Statutes of Limitations for Hazardous Substance Cases.—

(1) Exception to state statutes.—In the case of any action brought under State law for personal injury, or property damages, which are caused or contributed to by exposure to any hazardous substance, or pollutant or contaminant, released into the environment from a facility, if the applicable limitations period for such action (as specified in the State statute of limitations or under common law) provides a commencement date which is earlier than the federally required commencement date, such period shall commence at the federally required commencement date in lieu of the date specified in such State statute.

(2) State law generally applicable.—Except as provided in paragraph (1), the statute of limitations established under State law shall apply in all actions brought under State law for personal injury, or property damages, which are caused or contributed to by exposure to any hazardous substance, or pollutant or contaminant, released into the environment from a facility.

(3) Actions under Section 107.—Nothing in this section shall apply with respect to any cause of action brought under section 107 of this Act.

(b) Definitions.—As used in this section—

(1) Title I terms.—The terms used in this section shall have the same meaning as when used in title I of this Act.

(2) Applicable limitations period.—The term "applicable limitations period" means the period specified in a statute of limitations during which a civil action referred to in subsection (a)(1) may be brought.

(3) Commencement date.—The terms "commencement date" means the date specified in a statute of limitations as the beginning of the applicable limitations period.

(4) Federally required commencement date.—

(A) In general.—Except as provided in subparagraph (B), the term "federally required commencement date" means the date the plaintiff knew (or reasonably should have known) that the

personal injury or property damages referred to in subsection (a)(1) were caused or contributed to by the hazardous substance or pollutant or contaminant concerned.

(B) Special rules.—In the case of a minor or incompetent plaintiff, the term "federally required commencement date" means the later of the date referred to in subparagraph (A) or the following:

(i) In the case of a minor, the date on which the minor reaches the age of majority, as determined by State law, or has a legal representative appointed.

(ii) In the case of an incompetent individual, the date on which such individual becomes competent or has had a legal representative appointed.

CITIZEN SUITS

[42 U.S.C. 9659]

Sec. 310. (a) Authority to Bring Civil Actions.— Except as provided in subsections (d) and (e) of this section and in section 113(h) (relating to timing of judicial review), any person may commence a civil action on his own behalf—

(1) against any person (including the United States and any other governmental instrumentality or agency, to the extent permitted by the eleventh amendment to the Constitution) who is alleged to be in violation of any standard, regulation, condition, requirement, or order which has become effective pursuant to this Act (including any provision of an agreement under section 120, relating to Federal facilities); or

(2) against the President or any other officer of the United States (including the Administrator of the Environmental Protection Agency and the Administrator of the ATSDR) where there is alleged a failure of the President or of such other officer to perform any act or duty under this Act, including an act or duty under section 120 (relating to Federal facilities), which is not discretionary with the President or such other officer.

Paragraph (2) shall not apply to any act or duty under the provisions of section 311 (relating to research, development, and demonstration).

(b) Venue.—

(1) Actions under subsection (a)(1).—Any action under subsection (a)(1) shall be brought in the district court for the district in which the alleged violation occurred.

(2) Actions under subsection (a)(2).—Any action brought under subsection (a)(2) may be brought in the United States District Court for the District of Columbia.

(c) Relief.—The district court shall have jurisdiction in actions brought under subsection (a)(1) to enforce the standard, regulation, condition, requirement, or order concerned (including any provision of an agreement under section 120), to order such action as may be necessary to correct the violation, and to impose any civil penalty provided for the violation. The district court shall have jurisdiction in actions brought under subsection (a)(2) to order the President or other officer to perform the act or duty concerned.

(d) Rules applicable to subsection (a)(1) actions.—

(1) Notice.—No action may be commenced under subsection (a)(1) of this section before 60 days after the plaintiff has given notice of the violation to each of the following:

(A) The President.

(B) The State in which the alleged violation occurs.

(C) Any alleged violator of the standard, regulation, condition, requirement, or order concerned (including any provision of an agreement under section 120).

Notice under this paragraph shall be given in such manner as the President shall prescribe by regulation.

(2) Diligent prosecution.—No action may be commenced under paragraph (1) of subsection (a) if the President has commended and is diligently prosecuting an action under this Act, or under the Solid Waste Disposal Act to require compliance with the standard, regulation, condition, requirement, or order concerned (including any provision of an agreement under section 120).

(e) Rules applicable to subsection (a)(2) actions.—No action may be commenced under paragraph (2) of subsection (a) before the 60th day following the date on which the plaintiff gives notice to the Administrator or other department, agency, or instrumentality that the plaintiff will commence such

action. Notice under this subsection shall be given in such manner as the President shall prescribe by regulation.

(f) Costs.—The court, in issuing any final order in any action brought pursuant to this section, may award costs of litigation (including reasonable attorney and expert witness fees) to the prevailing or the substantially prevailing party whenever the court determines such an award is appropriate. The court may, if a temporary restraining order or preliminary injunction is sought, require the filing of a bond or equivalent security in accordance with the Federal Rules of Civil Procedure.

(g) Intervention.—In any action under this section, the United States or the State, or both, if not a party may intervene as a matter of right. For other provisions regarding intervention, see section 113.

(h) Other rights.—This Act does not affect or otherwise impair the rights of any person under Federal, State, or common law, except with respect to the timing of review as provided in section 113(h) or as otherwise provided in section 309 (relating to actions under State law).

(i) Definitions.—The terms used in this section shall have the same meanings as when used in title I.

RESEARCH, DEVELOPMENT, AND DEMONSTRATION

[42 U.S.C. 9660]

Sec. 311. (a) Hazardous Substance Research and Training.—

(1) Authorities of Secretary.—The Secretary of Health and Human Services (hereinafter in this subsection referred to as the Secretary), in consultation with the Administrator, shall establish and support a basic research and training program (through grants, cooperative agreements, and contracts) consisting of the following:

(A) Basic research (including epidemiologic and ecologic studies) which may include each of the following:

(i) Advanced techniques for the detection, assessment, and evaluation of the effects on human health of hazardous substances.

(ii) Methods to assess the risks to human health presented by hazardous substances.

(iii) Methods and technologies to detect hazardous substances in the environment and basic biological, chemical, and physical methods to reduce the amount and toxicity of hazardous substances.

(B) Training, which may include each of the following:

(i) Short courses and continuing education for State and local health and environment agency personnel and other personnel engaged in the handling of hazardous substances, in the management of facilities at which hazardous substances are located, and in the evaluation of the hazards to human health presented by such facilities.

(ii) Graduate or advanced training in environmental and occupational health and safety and in the public health and engineering aspects of hazardous waste control.

(iii) Graduate training in the geosciences, including hydrogeology, geological engineering, geophysics, geochemistry, and related fields necessary to meet professional personnel needs in the public and private sectors and to effectuate the purposes of this Act.

(2) Director of NIEHS.—The Director of the National Institute for Environmental Health Sciences shall cooperate fully with the relevant Federal agencies referred to in subparagraph (A) of paragraph (5) in carrying out the purposes of this section.

(3) Recipients of grants, etc.—A grant, cooperative agreement, or contract may be made or entered into under paragraph (1) with an accredited institution of higher education. The institution may carry out the research or training under the grant, cooperative agreement, or contract through contracts, including contracts with any of the following:

(A) Generators of hazardous wastes.

(B) Persons involved in the detection, assessment, evaluation, and treatment of hazardous substances.

(C) Owners and operators of facilities at which hazardous substances are located.

(D) State and local governments.

(4) Procedures.—In making grants and entering into cooperative agreements and contracts under this subsection, the Secretary shall act through the Director of the National Institute for Environmental Health Sciences. In considering the allocation of funds for training purposes, the director shall ensure that at least one grant, cooperative agreement, or contract shall be awarded for training

described in each of clauses (i), (ii), and (iii) of paragraph (1)(B). Where applicable, the Director may choose to operate training activities in cooperation with the Director of the National Institute for Occupational Safety and Health. The procedures applicable to grants and contracts under title IV of the Public Health Service Act shall be followed under this subsection.

(5) Advisory council.—To assist in the implementation of this subsection and to aid in the coordination of research and demonstration and training activities funded from the Fund under this section, the Secretary shall appoint an advisory council (hereinafter in this subsection referred to as the "Advisory Council") which shall consist of representatives of the following:

(A) The relevant Federal agencies.

(B) The chemical industry.

(C) The toxic waste management industry.

(D) Institutions of higher education.

(E) State and local health and environmental agencies.

(F) The general public.

(6) Planning.—Within nine months after the date of the enactment of this subsection, the Secretary, acting through the Director of the National Institute for Environmental Health Sciences, shall issue a plan for the implementation of paragraph (1). The plan shall include priorities for actions under paragraph (1) and include research and training relevant to scientific and technological issues resulting from site specific hazardous substance response experience. The Secretary shall, to the maximum extent practicable, take appropriate steps to coordinate program activities under this plan with the activities of other Federal agencies in order to avoid duplication of effort. The plan shall be consistent with the need for the development of new technologies for meeting the goals of response actions in accordance with the provisions of this Act. The Advisory Council shall be provided an opportunity to review and comment on the plan and priorities and assist appropriate coordination among the relevant Federal agencies referred to in subparagraph (A) of paragraph (5).

(b) Alternative or Innovative Treatment Technology Research and Demonstration Program.—

(1) Establishment.—The Administrator is authorized and directed to carry out a program of research, evaluation, testing, development, and demonstration of alternative or innovative treatment technologies (hereinafter in this subsection referred to as the "program") which may be utilized in response actions to achieve more permanent protection of human health and welfare and the environment.

(2) Administration.—The program shall be administered by the Administrator, acting through an office of technology demonstration and shall be coordinated with programs carried out by the Office of Solid Waste and Emergency Response and the Office of Research and Development.

(3) Contracts and grants.—In carrying out the program, the Administrator is authorized to enter into contracts and cooperative agreements with, and make grants to, persons, public entities, and nonprofit private entities which are exempt from tax under section 501(c)(3) of the Internal Revenue Code of 1954. The Administrator shall, to the maximum extent possible, enter into appropriate cost sharing arrangements under this subsection.

(4) Use of sites.—In carrying out the program, the Administrator may arrange for the use of sites at which a response may be undertaken under section 104 for the purposes of carrying out research, testing, evaluation, development, and demonstration projects. Each such project shall be carried out under such terms and conditions as the Administrator shall require to assure the protection of human health and the environment and to assure adequate control by the Administrator of the research, testing, evaluation, development, and demonstration activities at the site.

(5) Demonstration assistance.—

(A) Program components.—The demonstration assistance program shall include the following:

(i) The publication of a solicitation and the evaluation of applications for demonstration projects utilizing alternative or innovative technologies.

(ii) The selection of sites which are suitable for the testing and evaluation of innovative technologies.

(iii) The development of detailed plans for innovative technology demonstration projects.

(iv) The supervision of such demonstration projects and the providing of quality assurance for data obtained.

(v) The evaluation of the results of alternative innovative technology demonstration projects and the determination of whether or not the technologies used are effective and feasible.

(B) Solicitation.—Within 90 days after the date of the enactment of this section, and no less often than once every 12 months thereafter, the Administrator shall publish a solicitation for innovative or alternative technologies at a stage of development suitable for full-scale demonstrations at sites at which a response action may be undertaken under section 104. The purpose of any such project shall be to demonstrate the use of an alternative or innovative treatment technology with respect to hazardous substances or pollutants or contaminants which are located at the site or which are to be removed from the site. The solicitation notice shall prescribe information to be included in the application, including technical and economic data derived from the applicant's own research and development efforts, and other information sufficient to permit the Administrator to assess the technology's potential and the types of remedial action to which it may be applicable.

(C) Applications.—Any person and any public or private nonprofit entity may submit an application to the Administrator in response to the solicitation. The application shall contain a proposed demonstration plan setting forth how and when the project is to be carried out and such other information as the Administrator may require.

(D) Project selection.—In selecting technologies to be demonstrated, the Administrator shall fully review the applications submitted and shall consider at least the criteria specified in paragraph (7). The Administrator shall select or refuse to select a project for demonstration under this subsection within 90 days of receiving the completed application for such project. In the case of a refusal to select the project, the Administrator shall notify the applicant within such 90-day period of the reasons for his refusal.

(E) Site selection.—The Administrator shall propose 10 sites at which a response may be undertaken under section 104 to be the location of any demonstration project under this subsection within 60 days after the close of the public comment period. After an opportunity for notice and public comment, the Administrator shall select such sites and projects. In selecting any such site, the Administrator shall take into account the applicant's technical data and preferences either for onsite operation or for utilizing the site as a source of hazardous substances or pollutants or contaminants to be treated offsite.

(F) Demonstration plan.—Within 60 days after the selection of the site under this paragraph to be the location of a demonstration project, the Administrator shall establish a final demonstration plan for the project, based upon the demonstration plan contained in the application for the project. Such plan shall clearly set forth how and when the demonstration project will be carried out.

(G) Supervision and testing.—Each demonstration project under this subsection shall be performed by the applicant, or by a person satisfactory to the applicant, under the supervision of the Administrator. The Administrator shall enter into a written agreement with each applicant granting the Administrator the responsibility and authority for testing procedures, quality control, monitoring, and other measurements necessary to determine and evaluate the results of the demonstration project. The Administration may pay the costs of testing, monitoring, quality control, and other measurements required by the Administrator to determine and evaluate the results of the demonstration project, and the limitations established by subparagraph (J) shall not apply to such costs.

(H) Project completion.—Each demonstration project under this subsection shall be completed within such time as is established in the demonstration plan.

(I) Extensions.—The Administrator may extend any deadline established under this paragraph by mutual agreement with the applicant concerned.

(J) Funding restrictions.—The Administrator shall not provide any Federal assistance for any part of a full-scale field demonstration project under this subsection to any applicant unless such applicant can demonstrate that it cannot obtain appropriate private financing on reasonable terms and conditions sufficient to carry out such demonstration project without such Federal assistance. The total Federal funds for any full-scale field demonstration project under this subsection shall not exceed 50 percent of the total cost of such project estimated at the time of the award of such assistance. The Administrator shall not expend more than $10,000,000 for

assistance under the program in any fiscal year and shall not expend more than $3,000,000 for any single project.

(6) Field demonstrations.—In carrying out the program, the Administrator shall initiate or cause to be initiated at least 10 field demonstration projects of alternative or innovative treatment technologies at sites at which a response may be undertaken under section 104, in fiscal year 1987 and each of the succeeding three fiscal years. If the Administrator determines that 10 field demonstration projects under this subsection cannot be initiated consistent with the criteria set forth in paragraph (7) in any of such fiscal years, the Administrator shall transmit to the appropriate committees of Congress a report explaining the reasons for his inability to conduct such demonstration projects.

(7) Criteria.—In selecting technologies to be demonstrated under this subsection, the Administrator shall, consistent with the protection of human health and the environment, consider each of the following criteria:

(A) The potential for contributing to solutions to those waste problems which pose the greatest threat to human health, which cannot be adequately controlled under present technologies, or which otherwise pose significant management difficulties.

(B) The availability of technologies which have been sufficiently developed for field demonstration and which are likely to be cost effective and reliable.

(C) The availability and suitability of sites for demonstrating such technologies, taking into account the physical, biological, chemical, and geological characteristics of the sites, the extent and type of contamination found at the site, and the capability to conduct demonstration projects in such a manner as to assure the protection of human health and the environment.

(D) The likelihood that the data to be generated from the demonstration project at the site will be applicable to other sites.

(8) Technology transfer.—In carrying out the program, the Administrator shall conduct a technology transfer program including the development, collection, evaluation, coordination, and dissemination of information relating to the utilization of alternative or innovative treatment technologies for response actions. The Administrator shall establish and maintain a central reference library for such information. The information maintained by the Administrator shall be made available to the public, subject to the provisions of section 552 of title 5 of the United States Code, and section 1905 of title 18 of the United States Code, and to other Government agencies in a manner that will facilitate its dissemination; except, that upon a showing satisfactory to the Administrator by any person that any information or portion thereof obtained under this subsection by the Administrator directly or indirectly from such person, would, if made public, divulge—

(A) trade secrets; or

(B) other proprietary information of such person,

the Administrator shall not disclose such information and disclosure thereof shall be punishable under section 1905 of title 18 of the United States Code. This subsection is not authority to withhold information from Congress or any committee of Congress upon the request of the chairman of such committee.

(9) Training.—The Administrator is authorized and directed to carry out, through the Office of Technology Demonstration, a program of training and an evaluation of training needs for each of the following:

(A) Training in the procedures for the handling and removal of hazardous substances for employees who handle hazardous substances.

(B) Training in the management of facilities at which hazardous substances are located and in the evaluation of the hazards to human health presented by such facilities for State and local health and environment agency personnel.

(10) Definition.—For purposes of this subsection, the term "alternative or innovative treatment technologies" means those technologies, including proprietary or patented methods, which permanently alter the composition of hazardous waste through chemical, biological, or physical means so as to significantly reduce the toxicity, mobility, or volume (or any combination thereof) of the hazardous waste or contaminated materials being treated. The term also includes technologies that characterize or assess the extent of contamination, the chemical and physical character of the contaminants, and the stresses imposed by the contaminants on complex ecosystems at sites.

(c) Hazardous Substance Research.—The Administrator may conduct and support, through grants, cooperative agreements, and contracts, research with respect to the detection, assessment, and evaluation of the effects on and risks to human health of hazardous substances and detection of hazardous substances in the environment. The Administrator shall coordinate such research with the Secretary of Health and Human Services, acting through the advisory council established under this section, in order to avoid duplication of effort.

(d) University Hazardous Substance Research Centers.—

(1) Grant program.—The Administrator shall make grants to institutions of higher learning to establish and operate not fewer than 5 hazardous substance research centers in the United States. In carrying out the program under this subsection, the Administrator should seek to have established and operated 10 hazardous substance research centers in the United States.

(2) Responsibilities of centers.—The responsibilities of each hazardous substance research center established under this subsection shall include, but not be limited to, the conduct of research and training relating to the manufacture, use, transportation, disposal, and management of hazardous substances and publication and dissemination of the results of such research.

(3) Applications.—Any institution of higher learning interested in receiving a grant under this subsection shall submit to the Administrator an application in such form and containing such information as the Administrator may require by regulation.

(4) Selection criteria.—The Administrator shall select recipients of grants under this subsection on the basis of the following criteria:

(A) The hazardous substance research center shall be located in a State which is representative of the needs of the region in which such State is located for improved hazardous waste management.

(B) The grant recipient shall be located in an area which has experienced problems with hazardous substance management.

(C) There is available to the grant recipient for carrying out this subsection demonstrated research resources.

(D) The capability of the grant recipient to provide leadership in making national and regional contributions to the solution of both long-range and immediate hazardous substance management problems.

(E) The grant recipient shall make a commitment to support ongoing hazardous substance research programs with budgeted institutional funds of at least $100,000 per year.

(F) The grant recipient shall have an interdisciplinary staff with demonstrated expertise in hazardous substance management and research.

(G) The grant recipient shall have a demonstrated ability to disseminate results of hazardous substance research and educational programs through an interdisciplinary continuing education program.

(H) The projects which the grant recipient proposes to carry out under the grant are necessary and appropriate.

(5) Maintenance of effort.—No grant may be made under this subsection in any fiscal year unless the recipient of such grant enters into such agreements with the Administrator as the Administrator may require to ensure that such recipient will maintain its aggregate expenditures from all other sources for establishing and operating a regional hazardous substance research center and related research activities at or above the average level of such expenditures in its 2 fiscal years preceding the date of the enactment of this subsection.

(6) Federal share.—The Federal share of a grant under this subsection shall not exceed 80 percent of the costs of establishing and operating the regional hazardous substance research center and related research activities carried out by the grant recipient.

(7) Limitation on use of funds.—No funds made available to carry out this subsection shall be used for acquisition of real property (including buildings) or construction of any building.

(8) Administration through the Office of the Administrator.—Administrative responsibility for carrying out this subsection shall be in the Office of the Administrator.

(9) Equitable distribution of funds.—The Administrator shall allocate funds made available to carry out this subsection equitably among the regions of the United States.

(10) Technology transfer activities.—Not less than five percent of the funds made available to carry out this subsection for any fiscal year shall be available to carry out technology transfer activities.

(e) Report to Congress.—At the time of the submission of the annual budget request to Congress, the Administrator shall submit to the appropriate committees of the House of Representatives and the Senate and to the advisory council established under subsection (a), a report on the progress of the research, development, and demonstration program authorized by subsection (b), including an evaluation of each demonstration project completed in the preceding fiscal year, findings with respect to the efficacy of such demonstrated technologies in achieving permanent and significant reductions in risk from hazardous wastes, the costs of such demonstration projects, and the potential applicability of, and projected costs for, such technologies at other hazardous substance sites.

(f) Saving Provision.—Nothing in this section shall be construed to affect the provisions of the Solid Waste Disposal Act.

(g) Small Business Participation.—The Administrator shall ensure, to the maximum extent practicable, an adequate opportunity for small business participation in the program established by subsection (b).

LOVE CANAL PROPERTY ACQUISITION

[42 U.S.C. 9661]

SEC. 312. (a) Acquisition of Property in Emergency Declaration Area.—The Administrator of the Environmental Protection Agency (hereinafter referred to as the "Administrator") may make grants not to exceed $2,500,000 to the State of New York (or to any duly constituted public agency or authority thereof) for purposes of acquisition of private property in the Love Canal Emergency Declaration Area. Such acquisition shall include (but shall not be limited to) all private property within the Emergency Declaration Area, including non-owner occupied residential properties, commercial, industrial, public, religious, non-profit, and vacant properties.

(b) Procedures for Acquisition.—No property shall be acquired pursuant to this section unless the property owner voluntarily agrees to such acquisition. Compensation for any property acquired pursuant to this section shall be based upon the fair market value of the property as it existed prior to the emergency declaration. Valuation procedures for property acquired with funds provided under this section shall be in accordance with those set forth in the agreement entered into between the New York State Disaster Preparedness Commission and the Love Canal Revitalization Agency on October 9, 1980.

(c) State Ownership.—The Administrator shall not provide any funds under this section for the acquisition of any properties pursuant to this section unless a public agency or authority of the State of New York first enters into a cooperative agreement with the Administrator providing assurances deemed adequate by the Administrator that the State or an agency created under the laws of the State shall take title to the properties to be so acquired.

(d) Maintenance of Property.—The Administrator shall enter into a cooperative agreement with an appropriate public agency or authority of the State of New York under which the Administrator shall maintain or arrange for the maintenance of all properties within the Emergency Declaration Area that have been acquired by any public agency or authority of the State. Ninety (90) percent of the costs of such maintenance shall be paid by the Administrator. The remaining portion of such costs shall be paid by the State [unless a credit is available under section 104(c)]. The Administrator is authorized, in his discretion, to provide technical assistance to any public agency or authority of the State of New York in order to implement the recommendations of the habitability and land-use study in order to put the land within the Emergency Declaration Area to its best use.

(e) Habitability and Land Use Study.—The Administrator shall conduct or cause to be conducted a habitability and land-use study. The study shall—

(1) assess the risks associated with inhabiting of the Love Canal Emergency Declaration Area;

(2) compare the level of hazardous waste contamination in that Area to that present in other comparable communities; and

(3) assess the potential uses of the land within the Emergency Declaration Area, including but not limited to residential, industrial, commercial and recreational, and the risks associated with such potential uses.

The Administrator shall publish the findings of such study and shall work with the State of New York to develop recommendations based upon the results of such study.

(f) Funding.—For purposes of section 111 [and 221(c) of this Act],[1] the expenditures authorized by this section shall be treated as a cost specified in section 111(c).

(g) Response.—The provisions of this section shall not affect the implementation of other response actions within the Emergency Declaration Area that the Administrator has determined (before enactment of this section) to be necessary to protect the public health or welfare or the environment.

(h) Definitions.—For purposes of this section:

(1) Emergency Declaration Area.—The terms "Emergency Declaration Area" and "Love Canal Emergency Declaration Area" mean the Emergency Declaration Area as defined in section 950, paragraph (2) of the General Municipal Law of the State of New York, Chapter 259, Laws of 1980, as in effect on the date of the enactment of this section.

(2) Private property.—As used in subsection (a), the term "private property" means all property which is not owned by a department, agency, or instrumentality of—

(A) the United States, or

(B) the State of New York (or any public agency or authority thereof).

TITLE IV—POLLUTION INSURANCE

DEFINITIONS

[42 U.S.C. 9671]

Sec. 401. As used in this title—

(1) Insurance.—The term "insurance" means primary insurance, excess insurance, reinsurance, surplus lines insurance, and any other arrangement for shifting and distributing risk which is determined to be insurance under applicable State or Federal law.

(2) Pollution liability.—The term "pollution liability" means liability for injuries arising from the release of hazardous substances or pollutants or contaminants.

(3) Risk retention group.—The term "risk retention group" means any corporation or other limited liability association taxable as a corporation, or as an insurance company, formed under the laws of any State—

(A) whose primary activity consists of assuming and spreading all, or any portion, of the pollution liability of its group members;

(B) which is organized for the primary purpose of conducting the activity described under subparagraph (A);

(C) which is chartered or licensed as an insurance company and authorized to engage in the business of insurance under the laws of any State; and

(D) which does not exclude any person from membership in the group solely to provide for members of such a group a competitive advantage over such a person.

(4) Purchasing group.—The term "purchasing group" means any group of persons which has as one of its purposes the purchase of pollution liability insurance on a group basis.

(5) State.—The term "State" means any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Virgin Islands, the Commonwealth of the Northern Marianas, and any other territory or possession over which the United States has jurisdiction.

STATE LAWS; SCOPE OF TITLE

[42 U.S.C. 9672]

Sec. 402. (a) State laws.—Nothing in this title shall be construed to affect either the tort law or the law governing the interpretation of insurance contracts of any State. The definitions of pollution liability and pollution liability insurance under any State law shall not be applied for the purposes of this title, including recognition or qualification of risk retention groups or purchasing groups.

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[1] So in original. Section 221 of CERCLA was repealed by section 517(c) of title V of SARA of 1986.

(b) Scope of title.—The authority to offer or to provide insurance under this title shall be limited to coverage of pollution liability risks and this title does not authorize a risk retention group or purchasing group to provide coverage of any other line of insurance.

RISK RETENTION GROUPS

[42 U.S.C. 9673]

Sec. 403. (a) Exemption.—Except as provided in this section, a risk retention group shall be exempt from the following:

(1) A State law, rule, or order which makes unlawful, or regulates, directly or indirectly, the operation of a risk retention group.

(2) A State law, rule, or order which requires or permits a risk retention group to participate in any insurance insolvency guaranty association to which an insurer licensed in the State is required to belong.

(3) A State law, rule, or order which requires any insurance policy issued to a risk retention group or any member of the group to be countersigned by an insurance agent or broker residing in the State.

(4) A State law, rule, or order which otherwise discriminates against a risk retention group or any of its members.

(b) Exceptions.—

(1) State laws generally applicable.—Nothing in subsection (a) shall be construed to affect the applicability of State laws generally applicable to persons or corporations. The State in which a risk retention group is chartered may regulate the formation and operation of the group.

(2) State regulations not subject to exemption.—Subsection (a) shall not apply to any State law which requires a risk retention group to do any of the following:

(A) Comply with the unfair claim settlement practices law of the State.

(B) Pay, on a nondiscriminatory basis, applicable premium and other taxes which are levied on admitted insurers and surplus line insurers, brokers, or policyholders under the laws of the State.

(C) Participate, on a nondiscriminatory basis, in any mechanism established or authorized under the law of the State for the equitable apportionment among insurers of pollution liability insurance losses and expenses incurred on policies written through such mechanism.

(D) Submit to the appropriate authority reports and other information required of licensed insurers under the laws of a State relating solely to pollution liability insurance losses and expenses.

(E) Register with and designate the State insurance commissioner as it agent solely for the purpose of receiving service of legal documents or process.

(F) Furnish, upon request, such commissioner a copy of any financial report submitted by the risk retention group to the commissioner of the chartering or licensing jurisdiction.

(G) Submit to an examination by the State insurance commissioner in any State in which the group is doing business to determine the group's financial condition, if—

(i) the commissioner has reason to believe the risk retention group is in a financially impaired condition; and

(ii) the commissioner of the jurisdiction in which the group is chartered has not begun or has refused to initiate an examination of the group.

(H) Comply with a lawful order issued in a delinquency proceeding commenced by the State insurance commissioner if the commissioner of the jurisdiction in which the group is chartered has failed to initiate such a proceeding after notice of a finding of financial impairment under subparagraph (G).

(c) Application of Exemptions.—The exemptions specified in subsection (a) apply to—

(1) pollution liability insurance coverage provided by a risk retention group for—

(A) such group; or

(B) any person who is a member of such group;

(2) the sale of pollution liability insurance coverage for a risk retention group; and

(3) the provision of insurance related services or management services for a risk retention group or any member of such a group.

(d) Agents or Brokers.—A State may require that a person acting, or offering to act, as an agent or broker for a risk retention group obtain a license from that State, except that a State may not impose any qualification or requirement which discriminates against a nonresident agent or broker.

PURCHASING GROUPS

[42 U.S.C. 9674]

Sec. 404. (a) Exemption.—Except as provided in this section, a purchasing group is exempt from the following:

(1) A State law, rule, or order which prohibits the establishment of a purchasing group.

(2) A State law, rule, or order which makes it unlawful for an insurer to provide or offer to provide insurance on a basis providing, to a purchasing group or its member, advantages, based on their loss and expense experience, not afforded to other persons with respect to rates, policy forms, coverages, or other matters.

(3) A State law, rule, or order which prohibits a purchasing group or its members from purchasing insurance on the group basis described in paragraph (2) of this subsection.

(4) A State law, rule, or order which prohibits a purchasing group from obtaining insurance on a group basis because the group has not been in existence for a minimum period of time or because any member has not belonged to the group for a minimum period of time.

(5) A State law, rule, or order which requires that a purchasing group must have a minimum number of members, common ownership or affiliation, or a certain legal form.

(6) A State law, rule, or order which requires that a certain percentage of a purchasing group must obtain insurance on a group basis.

(7) A State law, rule, or order which requires that any insurance policy issued to a purchasing group or any members of the group be countersigned by an insurance agent or broker residing in that State.

(8) a State law, rule or order which otherwise discriminates against a purchasing group or any of its members.

(b) Application of Exemptions.—The exemptions specified in subsection (a) apply to the following:

(1) Pollution liability insurance, and comprehensive general liability insurance which includes this coverage, provided to—

(A) a purchasing group; or

(B) any person who is a member of a purchasing group.

(2) The sale of any one of the following to a purchasing group or a member of the group:

(A) Pollution liability insurance and comprehensive general liability coverage.

(B) Insurance related services.

(C) Management services.

(c) Agents or Brokers.—A State may require that a person acting, or offering to act, as an agent or broker for a purchasing group obtain a license from that State, except that a State may not impose any qualification or requirement which discriminates against a nonresident agent or broker.

APPLICABILITY OF SECURITIES LAWS

[42 U.S.C. 9675]

Sec. 405. (a) Ownership Interests.—The ownership interests of members of a risk retention group shall be considered to be—

(1) exempted securities for purposes of section 5 of the Securities Act of 1933 and for purposes of section 12 of the Securities Exchange Act of 1934; and

(2) securities for purposes of the provisions of section 17 of the Securities Act of 1933 and the provisions of section 10 of the Securities Exchange Act of 1934.

(b) Investment Company Act.—A risk retention group shall not be considered to be an investment company for purposes of the Investment Company Act of 1940 (15 U.S.C. 80 a-l et seq.).

(c) Blue Sky Law.—The ownership interests of members in a risk retention group shall not be considered securities for purposes of any State blue sky law.

EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW[1]

Sec. 300. Short Title; Table of Contents.
(a) Short title.—This title may be cited as the "Emergency Planning and Community Right-to-Know Act of 1986."

SUBTITLE A—EMERGENCY PLANNING AND NOTIFICATION

Sec. 301. Establishment of State Commissions, Planning Districts, and Local Committees
Sec. 302. Substances and Facilities Covered and Notification
Sec. 303. Comprehensive Emergency Response Plans
Sec. 304. Emergency Notification
Sec. 305. Emergency Training and Review of Emergency Systems

SUBTITLE B—REPORTING REQUIREMENTS

Sec. 311. Material Safety Data Sheets
Sec. 312. Emergency and Hazardous Chemical Inventory Forms
Sec. 313. Toxic Chemical Release Forms

SUBTITLE C—GENERAL PROVISIONS

Sec. 321. Relationship to Other Law
Sec. 322. Trade Secrets
Sec. 323. Provision of Information to Health Professionals, Doctors, and Nurses
Sec. 324. Public Availability of Plans, Data Sheets, Forms, and Followup Notices
Sec. 325. Enforcement
Sec. 326. Civil Actions
Sec. 327. Exemption
Sec. 328. Regulations
Sec. 329. Definitions
Sec. 330. Authorization of Appropriations

SUBTITLE A—EMERGENCY PLANNING AND NOTIFICATION

ESTABLISHMENT OF STATE COMMISSIONS, PLANNING DISTRICTS, AND LOCAL COMMITTEES

[42 U.S.C. 11001]

Sec. 301. (a) Establishment of state emergency response commissions.— Not later than six months after the date of the enactment of this title [enacted Oct. 17, 1986], the Governor of each State shall appoint a State emergency response commission. The Governor may designate as the State emergency response commission one or more existing emergency response organizations that are State-sponsored or appointed. The Governor shall, to the extent practicable, appoint persons to the State emergency response commission who have technical expertise in the emergency response field. The State emergency response commission shall appoint local emergency planning committees under subsection (c) and shall supervise and coordinate the activities of such committees. The State emergency response commission shall establish procedures for receiving and processing requests from the public for information under section 324 [42 U.S.C. 11044], including tier II information under section 312 [42 U.S.C. 11022]. Such procedures shall include the designation of an official to serve as coordinator for information. If the Governor of any State does not designate a State emergency response commission within such period, the Governor shall operate as the State emergency response commission until the Governor makes such designation.
(b) Establishment of emergency planning districts.— Not later than nine months after the date of the enactment of this title [enacted Oct. 17, 1986], the State emergency response commission shall designate

[1] Enacted by PL 99-499, October 17, 1986, Title III of the Superfund Amendments and Reauthorization Act of 1986.

emergency planning districts in order to facilitate preparation and implementation of emergency plans. Where appropriate, the State emergency response commission may designate existing political subdivisions or multijurisdictional planning organizations as such districts. In emergency planning areas that involve more than one State, the State emergency response commissions of all potentially affected States may designate emergency planning districts and local emergency planning committees by agreement. In making such designation, the State emergency response commission shall indicate which facilities subject to the requirements of this subtitle are within such emergency planning district.

(c) Establishment of local emergency planning committees.– Not later than 30 days after designation of emergency planning districts or 10 months after the date of the enactment of this title [enacted Oct. 17, 1986], whichever is earlier, the State emergency response commission shall appoint members of a local emergency planning committee for each emergency planning district. Each committee shall include, at a minimum, representatives from each of the following groups or organizations: elected State and local officials; law enforcement, civil defense, firefighting, first aid, health, local environmental, hospital, and transportation personnel; broadcast and print media; community groups; and owners and operators of facilities subject to the requirements of this subtitle. Such committee shall appoint a chairperson and shall establish rules by which the committee shall function. Such rules shall include provisions for public notification of committee activities, public meetings to discuss the emergency plan; public comments, response to such comments by the committee, and distribution of the emergency plan. The local emergency planning committee shall establish procedures for receiving and processing requests from the public for information under section 324 [42 U.S.C. 11044], including tier II information under section 312 [42 U.S.C. 11022]. Such procedures shall include the designation of an official to serve as coordinator for information.

(d) Revisions.– A State emergency response commission may revise its designations and appointments under subsections (b) and (c) as it deems appropriate. Interested persons may petition the State emergency response commission to modify the membership of a local emergency planning committee.

SUBSTANCES AND FACILITIES COVERED AND NOTIFICATION

[42 U.S.C. 11002]

Sec. 302. (a) Substances covered.–

(1) In general.– A substance is subject to the requirements of this subtitle [42 U.S.C. 11001 et seq.] if the substance is on the list published under paragraph (2).

(2) List of extremely hazardous substances.– Within 30 days after the date of the enactment of this title [enacted Oct. 17, 1986], the Administrator shall publish a list of extremely hazardous substances. The list shall be the same as the list of substances published in November 1985 by the Administrator in Appendix A of the "Chemical Emergency Preparedness Program Interim Guidance".

(3) Thresholds.–

(A) At the time the list referred to in paragraph (2) is published the Administrator shall–

(i) publish an interim final regulation establishing a threshold planning quantity for each substance on the list, taking into account the criteria described in paragraph (4), and

(ii) initiate a rulemaking in order to publish final regulations establishing a threshold planning quantity for each substance on the list.

(B) The threshold planning quantities may, at the Administrator's discretion, be based on classes of chemicals or categories of facilities.

(C) If the Administrator fails to publish an interim final regulation establishing a threshold planning quantity for a substance within 30 days after the date of the enactment of this title [enacted Oct. 17, 1986], the threshold planning quantity for the substance shall be 2 pounds until such time as the Administrator publishes regulations establishing a threshold for the substance.

(4) Revisions.– The Administrator may revise the list and thresholds under paragraphs (2) and (3) from time to time. Any revisions to the list shall take into account the toxicity, reactivity, volatility, dispersability, combustability, or flammability of a substance. For purposes of the preceding sentence, the term "toxicity" shall include any short- or long-term health effect which may result from a short-term exposure to the substance.

(b) Facilities covered.–

(1) Except as provided in section 304 [42 U.S.C. 11004], a facility is subject to the requirements of this subtitle [42 U.S.C. 11001 et seq.] if a substance on the list referred to in subsection (a) is present at the facility in an amount in excess of the threshold planning quantity established for such substance.

(2) For purposes of emergency planning, a Governor or a State emergency response commission may designate additional facilities which shall be subject to the requirements of this subtitle, if such designation is made after public notice and opportunity for comment. The Governor or State emergency response commission shall notify the facility concerned of any facility designation under this paragraph.

(c) Emergency planning notification.– Not later than seven months after the date of the enactment of this title [enacted Oct. 17, 1986] the owner or operator of each facility subject to the requirements of this subtitle by reason of subsection (b)(1) shall notify the State emergency response commission for the State in which such facility is located that such facility is subject to the requirements of this subtitle. Thereafter, if a substance on the list of extremely hazardous substances referred to in subsection (a) first becomes present at such facility in excess of the threshold planning quantity established for such substance, or if there is a revision of such list and the facility has present a substance on the revised list in excess of the threshold planning quantity established for such substance, the owner or operator of the facility shall notify the State emergency response commission and the local emergency planning committee within 60 days after such acquisition or revision that such facility is subject to the requirements of this subtitle.

(d) Notification of administrator.– The State emergency response commission shall notify the Administrator of facilities subject to the requirements of this subtitle by notifying the Administrator of–

(1) each notification received from a facility under subsection (c), and

(2) each facility designated by the Governor or State emergency response commission under subsection (b)(2).

COMPREHENSIVE EMERGENCY RESPONSE PLANS

[42 U.S.C. 11003]

Sec. 303. (a) Plan required.– Each local emergency planning committee shall complete preparation of an emergency plan in accordance with this section not later than two years after the date of the enactment of this title [enacted Oct. 17, 1986]. The committee shall review such plan once a year, or more frequently as changed circumstances in the community or at any facility may require.

(b) Resources.– Each local emergency planning committee shall evaluate the need for resources necessary to develop, implement, and exercise the emergency plan, and shall make recommendations with respect to additional resources that may be required and the means for providing such additional resources.

(c) Plan provisions.– Each emergency plan shall include (but is not limited to) each of the following:

(1) Identification of facilities subject to the requirements of this subtitle [42 U.S.C. 11001 et seq.] that are within the emergency planning district, identification of routes likely to be used for the transportation of substances on the list of extremely hazardous substances referred to in section 302(a) [42 U.S.C. 11002(a)], and identification of additional facilities contributing or subjected to additional risk due to their proximity to facilities subject to the requirements of this subtitle, such as hospitals or natural gas facilities.

(2) Methods and procedures to be followed by facility owners and operators and local emergency and medical personnel to respond to any release of such substances.

(3) Designation of a community emergency coordinator and facility emergency coordinators, who shall make determinations necessary to implement the plan.

(4) Procedures providing reliable, effective, and timely notification by the facility emergency coordinators and the community emergency coordinator to persons designated in the emergency plan, and to the public, that a release has occurred (consistent with the emergency notification requirements of section 304).

(5) Methods for determining the occurrence of a release, and the area or population likely to be affected by such release.

(6) A description of emergency equipment and facilities in the community and at each facility in the community subject to the requirements of this subtitle [42 U.S.C. 11001 et seq.], and an identification of the persons responsible for such equipment and facilities.

(7) Evacuation plans, including provisions for a precautionary evacuation and alternative traffic routes.

(8) Training programs, including schedules for training of local emergency response and medical personnel.

(9) Methods and schedules for exercising the emergency plan.

(d) Providing of information.– For each facility subject to the requirements of this subtitle [42 U.S.C. 11001 et seq.]:

(1) Within 30 days after establishment of a local emergency planning committee for the emergency planning district in which such facility is located, or within 11 months after the date of the enactment of this title [enacted Oct. 17, 1986], whichever is earlier, the owner or operator of the facility shall notify the emergency planning committee (or the Governor if there is no committee) of a facility representative who will participate in the emergency planning process as a facility emergency coordinator.

(2) The owner or operator of the facility shall promptly inform the emergency planning committee of any relevant changes occurring at such facility as such changes occur or are expected to occur.

(3) Upon request from the emergency planning committee, the owner or operator of the facility shall promptly provide information to such committee necessary for developing and implementing the emergency plan.

(e) Review by the state emergency response commission.– After completion of an emergency plan under subsection (a) for an emergency planning district, the local emergency planning committee shall submit a copy of the plan to the State emergency response commission of each State in which such district is located. The commission shall review the plan and make recommendations to the committee on revisions of the plan that may be necessary to ensure coordination of such plan with emergency response plans of other emergency planning districts. To the maximum extent practicable, such review shall not delay implementation of such plan.

(f) Guidance documents.– The national response team, as established pursuant to the National Contingency Plan as established under section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.), shall publish guidance documents for preparation and implementation of emergency plans. Such documents shall be published not later than five months after the date of the enactment of this title [enacted Oct. 17, 1986].

(g) Review of plans by regional response teams.– The regional response teams, as established pursuant to the National Contingency Plan as established under section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.), may review and comment upon an emergency plan or other issues related to preparation, implementation, or exercise of such a plan upon request of a local emergency planning committee. Such review shall not delay implementation of the plan.

EMERGENCY NOTIFICATION

[42 U.S.C. 11004]

Sec. 304. (a) Types of releases.–

(1) 302(a) [42 U.S.C. 11002(a)] Substances which require CERCLA notice.–If a release of an extremely hazardous substance referred to in section 302(a) [42 U.S.C. 11002(a)] occurs from a facility at which a hazardous chemical is produced, used, or stored, and such release requires a notification under section 103(a) [42 U.S.C. 9603(a)] of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (hereafter in this section referred to as "CERCLA") (42 U.S.C. 9601 et seq.), the owner or operator of the facility shall immediately provide notice as described in subsection (b).

(2) Other 302(a) [42 U.S.C. 11002(a)] Substance.– If a release of an extremely hazardous substance referred to in section 302(a) [42 U.S.C. 11002(a)] occurs from a facility at which a hazardous chemical is produced, used, or stored, and such release is not subject to the notification require-

ments under section 103(a) [42 U.S.C. 9603(a)] of CERCLA, the owner or operator of the facility shall immediately provide notice as described in subsection (b), but only if the release –

(A) is not a federally permitted release as defined in section 101(10) of CERCLA [42 U.S.C. 9601(10)],

(B) is in an amount in excess of a quantity which the Administrator has determined (by regulation) requires notice, and

(C) occurs in a manner which would require notification under section 103(a) of CERCLA [42 U.S.C. 9603(a)].

Unless and until superseded by regulations establishing a quantity for an extremely hazardous substance described in this paragraph, a quantity of 1 pound shall be deemed that quantity the release of which requires notice as described in subsection (b).

(3) Non-302(a) [42 U.S.C. 11002(a)] substance which requires CERCLA notice.– If a release of a substance which is not on the list referred to in section 302(a) [42 U.S.C. 11002(a)] occurs at a facility at which a hazardous chemical is produced, used, or stored, and such release requires notification under section 103(a) of CERCLA [42 U.S.C. 9603(a)], the owner or operator shall provide notice as follows:

(A) If the substance is one for which a reportable quantity has been established under section 102(a) of CERCLA [42 U.S.C. 9602(a)], the owner or operator shall provide notice as described in subsection (b).

(B) If the substance is one for which a reportable quantity has not been established under section 102(a) of CERCLA [42 U.S.C. 9602(a)] –

(i) Until April 30, 1988, the owner or operator shall provide, for releases of one pound or more of the substance, the same notice to the community emergency coordinator for the local emergency planning committee, at the same time and in the same form, as notice is provided to the National Response Center under section 103(a) of CERCLA [42 U.S.C. 9603(a)].

(ii) On and after April 30, 1988, the owner or operator shall provide, for releases of one pound or more of the substance, the notice as described in subsection (b).

(4) Exempted releases.– This section does not apply to any release which results in exposure to persons solely within the site or sites on which a facility is located.

(b) Notification.–

(1) Recipients of notice.– Notice required under subsection (a) shall be given immediately after the release by the owner or operator of a facility (by such means as telephone, radio, or in person) to the community emergency coordinator for the local emergency planning committees, if established pursuant to section 301(c) [42 U.S.C. 11001(c)], for any area likely to be affected by the release and to the State emergency planning commission of any State likely to be affected by the release. With respect to transportation of a substance subject to the requirements of this section, or storage incident to such transportation, the notice requirements of this section with respect to a release shall be satisfied by dialing 911 or, in the absence of a 911 emergency telephone number, calling the operator.

(2) Contents.– Notice required under subsection (a) shall include each of the following (to the extent known at the time of the notice and so long as no delay in responding to the emergency results):

(A) The chemical name or identity of any substance involved in the release.

(B) An indication of whether the substance is on the list referred to in section 302(a) [42 U.S.C. 11002(a)].

(C) An estimate of the quantity of any such substance that was released into the environment.

(D) The time and duration of the release.

(E) The medium or media into which the release occurred.

(F) Any known or anticipated acute or chronic health risks associated with the emergency and, where appropriate, advice regarding medical attention necessary for exposed individuals.

(G) Proper precautions to take as a result of the release, including evacuation (unless such information is readily available to the community emergency coordinator pursuant to the emergency plan).

(H) The name and telephone number of the person or persons to be contacted for further information.

(c) Followup emergency notice.—As soon as practicable after a release which requires notice under subsection (a), such owner or operator shall provide a written followup emergency notice (or notices, as more information becomes available) setting forth and updating the information required under subsection (b), and including additional information with respect to—

(1) actions taken to respond to and contain the release,

(2) any known or anticipated acute or chronic health risks associated with the release, and

(3) where appropriate, advice regarding medical attention necessary for exposed individuals.

(d) Transportation exemption not applicable.—The exemption provided in section 327 [42 U.S.C. 11047] (relating to transportation) does not apply to this section.

EMERGENCY TRAINING AND REVIEW OF EMERGENCY SYSTEMS

[42 U.S.C. 11005]

SEC. 305. (a) Emergency training.—

(1) Programs.—Officials of the United States Government carrying out existing Federal programs for emergency training are authorized to specifically provide training and education programs for Federal, State, and local personnel in hazard mitigation, emergency preparedness, fire prevention and control, disaster response, long-term disaster recovery, national security, technological and natural hazards, and emergency processes. Such programs shall provide special emphasis for such training and education with respect to hazardous chemicals.

(2) State and local program support.— There is authorized to be appropriated to the Federal Emergency Management Agency for each of the fiscal years 1987, 1988, 1989, and 1990, $5,000,000 for making grants to support programs of State and local governments, and to support university-sponsored programs, which are designed to improve emergency planning, preparedness, mitigation, response, and recovery capabilities. Such programs shall provide special emphasis with respect to emergencies associated with hazardous chemicals. Such grants may not exceed 80 percent of the cost of any such program. The remaining 20 percent of such costs shall be funded from non-Federal sources.

(3) Other programs.— Nothing in this section shall affect the availability of appropriations to the Federal Emergency Management Agency for any programs carried out by such agency other than the programs referred to in paragraph (2).

(b) Review of emergency systems.—

(1) Review.—The Administrator shall initiate, not later than 30 days after the date of the enactment of this title [enacted Oct. 17, 1986], a review of emergency systems for monitoring, detecting, and preventing releases of extremely hazardous substances at representative domestic facilities that produce, use, or store extremely hazardous substances. The Administrator may select representative extremely hazardous substances from the substances on the list referred to in section 302(a) [42 U.S.C. 11002(a)] for the purposes of this review. The Administrator shall report interim findings to the Congress not later than seven months after such date of enactment [enacted Oct. 17, 1986], and issue a final report of findings and recommendations to the Congress not later than 18 months after such date of enactment [enacted Oct. 17, 1986]. Such report shall be prepared in consultation with the States and appropriate Federal agencies.

(2) Report.—The report required by this subsection shall include the Administrator's findings regarding each of the following:

(A) The status of current technological capabilities to (i) monitor, detect, and prevent, in a timely manner, significant releases of extremely hazardous substances, (ii) determine the magnitude and direction of the hazard posed by each release, (iii) identify specific substances, (iv) provide data on the specific chemical composition of such releases, and (v) determine the relative concentrations of the constituent substances.

(B) The status of public emergency alert devices or systems for providing timely and effective public warning of an accidental release of extremely hazardous substances into the environment, including releases into the atmosphere, surface water, or groundwater from facilities that produce, store, or use significant quantities of such extremely hazardous substances.

(C) The technical and economic feasibility of establishing, maintaining, and operating perimeter alert systems for detecting releases of such extremely hazardous substances into the atmosphere, surface water, or groundwater, at facilities that manufacture, use, or store significant quantities of such substances.

(3) Recommendations.—The report required by this subsection shall also include the Administrator's recommendations for—

(A) initiatives to support the development of new or improved technologies or systems that would facilitate the timely monitoring, detection, and prevention of releases of extremely hazardous substances, and

(B) improving devices or systems for effectively alerting the public in a timely manner, in the event of an accidental release of such extremely hazardous substances.

SUBTITLE B—REPORTING REQUIREMENTS

MATERIAL SAFETY DATA SHEETS

[42 U.S.C. 11021]

Sec. 311. (a) Basic requirement.—

(1) Submission of MSDS or list.—The owner or operator of any facility which is required to prepare or have available a material safety data sheet for a hazardous chemical under the Occupational Safety and Health Act of 1970 and regulations promulgated under that Act (15 U.S.C. 651 et seq.) shall submit a material safety data sheet for each such chemical, or a list of such chemicals as described in paragraph (2), to each of the following:

(A) The appropriate local emergency planning committee.

(B) The State emergency response commission.

(C) The fire department with jurisdiction over the facility.

(2) Contents of list.—

(A) The list of chemicals referred to in paragraph (1) shall include each of the following:

(i) A list of the hazardous chemicals for which a material safety data sheet is required under the Occupational Safety and Health Act of 1970 and regulations promulgated under that Act, grouped in categories of health and physical hazards as set forth under such Act and regulations promulgated under such Act, or in such other categories as the Administrator may prescribe under subparagraph (B).

(ii) The chemical name or the common name of each such chemical as provided on the material safety data sheet.

(iii) Any hazardous component of each such chemical as provided on the material safety data sheet.

(B) For purposes of the list under this paragraph, the Administrator may modify the categories of health and physical hazards as set forth under the Occupational Safety and Health Act of 1970 and regulations promulgated under that Act by requiring information to be reported in terms of groups of hazardous chemicals which present similar hazards in an emergency.

(3) Treatment of mixtures.—An owner or operator may meet the requirements of this section with respect to a hazardous chemical which is a mixture by doing one of the following:

(A) Submitting a material safety data sheet for, or identifying on a list, each element or compound in the mixture which is a hazardous chemical. If more than one mixture has the same element or compound, only one material safety data sheet, or one listing, of the element or compound is necessary.

(B) Submitting a material safety data sheet for, or identifying on a list, the mixture itself.

(b) Thresholds.—The Administrator may establish threshold quantities for hazardous chemicals below which no facility shall be subject to the provisions of this section. The threshold quantities may, in the Administrator's discretion, be based on classes of chemicals or categories of facilities.

(c) Availability of MSDS on request.—

(1) To local emergency planning committee.—If an owner or operator of a facility submits a list of chemicals under subsection (a)(1), the owner or operator, upon request by the local emergency

planning committee, shall submit the material safety data sheet for any chemical on the list to such committee.

(2) To public.—A local emergency planning committee, upon request by any person, shall make available a material safety data sheet to the person in accordance with section 324 [42 U.S.C. 11044]. If the local emergency planning committee does not have the requested material safety data sheet, the committee shall request the sheet from the facility owner or operator and then make the sheet available to the person in accordance with section 324 [42 U.S.C. 11044].

(d) Initial submission and updating.—

(1) The initial material safety data sheet or list required under this section with respect to a hazardous chemical shall be provided before the later of—

(A) 12 months after the date of the enactment of this title [enacted Oct. 17, 1986], or

(B) 3 months after the owner or operator of a facility is required to prepare or have available a material safety data sheet for the chemical under the Occupational Safety and Health Act of 1970 and regulations promulgated under that Act.

(2) Within 3 months following discovery by an owner or operator of significant new information concerning an aspect of a hazardous chemical for which a material safety data sheet was previously submitted to the local emergency planning committee under subsection (a), a revised sheet shall be provided to such person.

(e) Hazardous chemical defined.— For purposes of this section, the term "hazardous chemical" has the meaning given such term by section 1910.1200(c) of title 29 of the Code of Federal Regulations, except that such term does not include the following:

(1) Any food, food additive, color additive, drug, or cosmetic regulated by the Food and Drug Administration.

(2) Any substance present as a solid in any manufactured item to the extent exposure to the substance does not occur under normal conditions of use.

(3) Any substance to the extent it is used for personal, family, or household purposes, or is present in the same form and concentration as a product packaged for distribution and use by the general public.

(4) Any substance to the extent it is used in a research laboratory or a hospital or other medical facility under the direct supervision of a technically qualified individual.

(5) Any substance to the extent it is used in routine agricultural operations or is a fertilizer held for sale by a retailer to the ultimate customer.

EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY FORMS

[42 U.S.C. 11022]

Sec. 312. (a) Basic requirement.—

(1) The owner or operator of any facility which is required to prepare or have available a material safety data sheet for a hazardous chemical under the Occupational Safety and Health Act of 1970 and regulations promulgated under that Act shall prepare and submit an emergency and hazardous chemical inventory form (hereafter in this title referred to as an "inventory form") to each of the following:

(A) The appropriate local emergency planning committee.

(B) The State emergency response commission.

(C) The fire department with jurisdiction over the facility.

(2) The inventory form containing tier I information (as described in subsection (d)(1)) shall be submitted on or before March 1, 1988, and annually thereafter on March 1, and shall contain data with respect to the preceding calendar year. The preceding sentence does not apply if an owner or operator provides, by the same deadline and with respect to the same calendar year, tier II information (as described in subsection (d)(2)) to the recipients described in paragraph (1).

(3) An owner or operator may meet the requirements of this section with respect to a hazardous chemical which is a mixture by doing one of the following:

(A) Providing information on the inventory form on each element or compound in the mixture which is a hazardous chemical. If more than one mixture has the same element or compound, only one listing on the inventory form for the element or compound at the facility is necessary.

(B) Providing information on the inventory form on the mixture itself.

(b) Thresholds.—The Administrator may establish threshold quantities for hazardous chemicals covered by this section below which no facility shall be subject to the provisions of this section. The threshold quantities may, in the Administrator's discretion, be based on classes of chemicals or categories of facilities.

(c) Hazardous chemicals covered.— A hazardous chemical subject to the requirements of this section is any hazardous chemical for which a material safety data sheet or a listing is required under section 311 [42 U.S.C. 11021].

(d) Contents of form.—

(1) Tier I information.—

(A) Aggregate information by category.—An inventory form shall provide the information described in subparagraph (B) in aggregate terms for hazardous chemicals in categories of health and physical hazards as set forth under the Occupational Safety and Health Act of 1970 and regulations promulgated under that Act.

(B) Required information.— The information referred to in subparagraph (A) is the following:

(i) An estimate (in ranges) of the maximum amount of hazardous chemicals in each category present at the facility at any time during the preceding calendar year.

(ii) An estimate (in ranges) of the average daily amount of hazardous chemicals in each category present at the facility during the preceding calendar year.

(iii) The general location of hazardous chemicals in each category.

(C) Modifications.— For purposes of reporting information under this paragraph, the Administrator may—

(i) modify the categories of health and physical hazards as set forth under the Occupational Safety and Health Act of 1970 and regulations promulgated under that Act by requiring information to be reported in terms of groups of hazardous chemicals which present similar hazards in an emergency, or

(ii) require reporting on individual hazardous chemicals of special concern to emergency response personnel.

(2) Tier II information.—An inventory form shall provide the following additional information for each hazardous chemical present at the facility, but only upon request and in accordance with subsection (e):

(A) The chemical name or the common name of the chemical as provided on the material safety data sheet.

(B) An estimate (in ranges) of the maximum amount of the hazardous chemical present at the facility at any time during the preceding calendar year.

(C) An estimate (in ranges) of the average daily amount of the hazardous chemical present at the facility during the preceding calendar year.

(D) A brief description of the manner of storage of the hazardous chemical.

(E) The location at the facility of the hazardous chemical.

(F) An indication of whether the owner elects to withhold location information of a specific hazardous chemical from disclosure to the public under section 324 [42 U.S.C. 11044].

(e) Availability of tier II Information.—

(1) Availability to state commission, local committees, and fire departments.—Upon request by a State emergency planning commission, a local emergency planning committee, or a fire department with jurisdiction over the facility, the owner or operator of a facility shall provide tier II information, as described in subsection (d), to the person making the request. Any such request shall be with respect to a specific facility.

(2) Availability to other state and local officials.— A state or local official acting in his or her official capacity may have access to tier II information by submitting a request to the State emergency response commission or the local emergency planning committee. Upon receipt of a request for tier II information, the State commission or local committee shall, pursuant to paragraph (1), request the facility owner or operator for the tier II information and make available such information to the official.

(3) Availability to public.—

(A) In general.— Any person may request a State emergency response commission or local emergency planning committee for tier II information relating to the preceding calendar year with respect to a facility. Any such request shall be in writing and shall be with respect to a specific facility.

(B) Automatic provision of information to public.— Any tier II information which a State emergency response commission or local emergency planning committee has in its possession shall be made available to a person making a request under this paragraph in accordance with section 324 [42 U.S.C. 11044]. If the State emergency response commission or local emergency planning committee does not have the tier II information in its possession, upon a request for tier II information the State emergency response commission or local emergency planning committee shall, pursuant to paragraph (1), request the facility owner or operator for tier II information with respect to a hazardous chemical which a facility has stored in an amount in excess of 10,000 pounds present at the facility at any time during the preceding calendar year and make such information available in accordance with section 324 [42 U.S.C. 11044] to the person making the request.

(C) Discretionary provision of information to public.—In the case of tier II information which is not in the possession of a State emergency response commission or local emergency planning committee and which is with respect to a hazardous chemical which a facility has stored in an amount less than 10,000 pounds present at the facility at any time during the preceding calendar year, a request from a person must include the general need for the information. The State emergency response commission or local emergency planning committee may, pursuant to paragraph (1), request the facility owner or operator for the tier II information on behalf of the person making the request. Upon receipt of any information requested on behalf of such person, the State emergency response commission or local emergency planning committee shall make the information available in accordance with section 324 [42 U.S.C. 11044] to the person.

(D) Response in 45 days.—A State emergency response commission or local emergency planning committee shall respond to a request for tier II information under this paragraph no later than 45 days after the date of receipt of the request.

(f) Fire department access.— Upon request to an owner or operator of a facility which files an inventory form under this section by the fire department with jurisdiction over the facility, the owner or operator of the facility shall allow the fire department to conduct an on-site inspection of the facility and shall provide to the fire department specific location information on hazardous chemicals at the facility.

(g) Format of forms.— The Administrator shall publish a uniform format for inventory forms within three months after the date of the enactment of this title [enacted Oct. 17, 1986]. If the Administrator does not publish such forms, owners and operators of facilities subject to the requirements of this section shall provide the information required under this section by letter.

TOXIC CHEMICAL RELEASE FORMS

[42 U.S.C. 11023]

Sec. 313. (a) Basic requirement.—The owner or operator of a facility subject to the requirements of this section shall complete a toxic chemical release form as published under subsection (g) for each toxic chemical listed under subsection (c) that was manufactured, processed, or otherwise used in quantities exceeding the toxic chemical threshold quantity established by subsection (f) during the preceding calendar year at such facility. Such form shall be submitted to the Administrator and to an official or officials of the State designated by the Governor on or before July 1, 1988, and annually thereafter on July 1 and shall contain data reflecting releases during the preceding calendar year.

(b) Covered owners and operators of facilities.—

(1) In general.—

(A) The requirements of this section shall apply to owners and operators of facilities that have 10 or more full-time employees and that are in Standard Industrial Classification Codes 20 through 39 (as in effect on July 1, 1985) and that manufactured, processed, or otherwise used a toxic chemical listed under subsection (c) in excess of the quantity of that toxic chemical established under subsection (f) during the calendar year for which a release form is required under this section.

(B) The Administrator may add or delete Standard Industrial Classification Codes for purposes of subparagraph (A), but only to the extent necessary to provide that each Standard Industrial Code to which this section applies is relevant to the purposes of this section.

(C) For purposes of this section –

(i) The term "manufacture" means to produce, prepare, import, or compound a toxic chemical.

(ii) The term "process"means the preparation of a toxic chemical, after its manufacture, for distribution in commerce –

(I) in the same form or physical state as, or in a different form or physical state from, that in which it was received by the person so preparing such chemical, or

(II) as part of an article containing the toxic chemical.

(2) Discretionary application to additional facilities. – The Administrator, on his own motion or at the request of a Governor of a State (with regard to facilities located in that State), may apply the requirements of this section to the owners and operators of any particular facility that manufactures, processes, or otherwise uses a toxic chemical listed under subsection (c) if the Administrator determines that such action is warranted on the basis of toxicity of the toxic chemical, proximity to other facilities that release the toxic chemical or to population centers, the history of releases of such chemical at such facility, or such other factors as the Administrator deems appropriate.

(c) Toxic chemicals covered. – The toxic chemicals subject to the requirements of this section are those chemicals on the list in Committee Print Number 99-169 of the Senate Committee on Environment and Public Works, titled "Toxic Chemicals Subject to Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986" (including any revised version of the list as may be made pursuant to subsection (d) or (e)).

(d) Revisions by administrator. –

(1) In general. – The Administrator may by rule add or delete a chemical from the list described in subsection (c) at any time.

(2) Additions. – A chemical may be added if the Administrator determines, in his judgment, that there is sufficient evidence to establish any one of the following:

(A) The chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases.

(B) The chemical is known to cause or can reasonably be anticipated to cause in humans –

(i) cancer or teratogenic effects, or

(ii) serious or irreversible –

(I) reproductive dysfunctions,

(II) neurological disorders,

(III) heritable genetic mutations, or

(IV) other chronic health effects.

(C) The chemical is known to cause or can reasonably be anticipated to cause, because of –

(i) its toxicity,

(ii) its toxicity and persistence in the environment, or

(iii) its toxicity and tendency to bioaccumulate in the environment,

a significant adverse effect on the environment of sufficient seriousness, in the judgment of the Administrator, to warrant reporting under this section. The number of chemicals included on the list described in subsection (c) on the basis of the preceding sentence may constitute in the aggregate no more than 25 percent of the total number of chemicals on the list.

A determination under this paragraph shall be based on generally accepted scientific principles or laboratory tests, or appropriately designed and conducted epidemiological or other population studies, available to the Administrator.

(3) Deletions. – A chemical may be deleted if the Administrator determines there is not sufficient evidence to establish any of the criteria described in paragraph (2).

(4) Effective date. – Any revision made on or after January 1 and before December 1 of any calendar year shall take effect beginning with the next calendar year. Any revision made on or after December

1 of any calendar year and before January 1 of the next calendar year shall take effect beginning with the calendar year following such next calendar year.

(e) Petitions.–

(1) In general.–Any person may petition the Administrator to add or delete a chemical from the list described in subsection (c) on the basis of the criteria in subparagraph (A) or (B) of subsection (d)(2). Within 180 days after receipt of a petition, the Administrator shall take one of the following actions:

(A) Initiate a rulemaking to add or delete the chemical to the list, in accordance with subsection (d)(2) or (d)(3).

(B) Publish an explanation of why the petition is denied.

(2) Governor petitions.– A State Governor may petition the Administrator to add or delete a chemical from the list described in subsection (c) on the basis of the criteria in subparagraph (A), (B), or (C) of subsection (d)(2). In the case of such a petition from a State Governor to delete a chemical, the petition shall be treated in the same manner as a petition received under paragraph (1) to delete a chemical. In the case of such a petition from a State Governor to add a chemical, the chemical will be added to the list within 180 days after receipt of the petition, unless the Administrator–

(A) initiates a rulemaking to add the chemical to the list, in accordance with subsection (d)(2), or

(B) publishes an explanation of why the Administrator believes the petition does not meet the requirements of subsection (d)(2) for adding a chemical to the list.

(f) Threshold for reporting.–

(1) Toxic chemical threshold amount.–The threshold amounts for purposes of reporting toxic chemicals under this section are as follows:

(A) With respect to a toxic chemical used at a facility, 10,000 pounds of the toxic chemical per year.

(B) With respect to a toxic chemical manufactured or processed at a facility–

(i) For the toxic chemical release form required to be submitted under this section on or before July 1, 1988, 75,000 pounds of the toxic chemical per year.

(ii) For the form required to be submitted on or before July 1, 1989, 50,000 pounds of the toxic chemical per year.

(iii) For the form required to be submitted on or before July 1, 1990, and for each form thereafter, 25,000 pounds of the toxic chemical per year.

(2) Revisions.– The Administrator may establish a threshold amount for a toxic chemical different from the amount established by paragraph (1). Such revised threshold shall obtain reporting on a substantial majority of total releases of the chemical at all facilities subject to the requirements of this section. The amounts established under this paragraph may, at the Administrator's discretion, be based on classes of chemicals or categories of facilities.

(g) Form.–

(1) Information required.–Not later than June 1, 1987, the Administrator shall publish a uniform toxic chemical release form for facilities covered by this section. If the Administrator does not publish such a form, owners and operators of facilities subject to the requirements of this section shall provide the information required under this subsection by letter postmarked on or before the date on which the form is due. Such form shall–

(A) provide for the name and location of, and principal business activities at, the facility;

(B) include an appropriate certification, signed by a senior official with management responsibility for the person or persons completing the report, regarding the accuracy and completeness of the report; and

(C) provide for submission of each of the following items of information for each listed toxic chemical known to be present at the facility:

(i) Whether the toxic chemical at the facility is manufactured, processed, or otherwise used, and the general category or categories of use of the chemical.

(ii) An estimate of the maximum amounts (in ranges) of the toxic chemical present at the facility at any time during the preceding calendar year.

(iii) For each wastestream, the waste treatment or disposal methods employed, and an estimate of the treatment efficiency typically achieved by such methods for that wastestream.

(iv) The annual quantity of the toxic chemical entering each environmental medium.

(2) Use of available data.– In order to provide the information required under this section, the owner or operator of a facility may use readily available data (including monitoring data) collected pursuant to other provisions of law, or, where such data are not readily available, reasonable estimates of the amounts involved. Nothing in this section requires the monitoring or measurement of the quantities, concentration, or frequency of any toxic chemical released into the environment beyond that monitoring and measurement required under other provisions of law or regulation. In order to assure consistency, the Administrator shall require that data be expressed in common units.

(h) Use of release form.– The release forms required under this section are intended to provide information to the Federal, State, and local governments and the public, including citizens of communities surrounding covered facilities. The release form shall be available, consistent with section 324(a) [42 U.S.C. 11044(a)], to inform persons about releases of toxic chemicals to the environment; to assist governmental agencies, researchers, and other persons in the conduct of research and data gathering; to aid in the development of appropriate regulations, guidelines, and standards; and for other similar purposes.

(i) Modifications in reporting frequency.–

(1) In general.–The Administrator may modify the frequency of submitting a report under this section, but the Administrator may not modify the frequency to be any more often than annually. A modification may apply, either nationally or in a specific geographic area, to the following:

(A) All toxic chemical release forms required under this section.

(B) A class of toxic chemicals or a category of facilities.

(C) A specific toxic chemical.

(D) A specific facility.

(2) Requirements.–A modification may be made under paragraph (1) only if the Administrator–

(A) makes a finding that the modification is consistent with the provisions of subsection (h), based on–

(i) experience from previously submitted toxic chemical release forms, and

(ii) determinations made under paragraph (3), and

(B) the finding is made by a rulemaking in accordance with section 553 of title 5, United States Code.

(3) Determinations.– The Administrator shall make the following determinations with respect to a proposed modification before making a modification under paragraph (1):

(A) The extent to which information relating to the proposed modification provided on the toxic chemical release forms has been used by the Administrator or other agencies of the Federal Government, States, local governments, health professionals, and the public.

(B) The extent to which the information is (i) readily available to potential users from other sources, such as State reporting programs, and (ii) provided to the Administrator under another Federal law or through a State program.

(C) The extent to which the modification would impose additional and unreasonable burdens on facilities subject to the reporting requirements under this section.

(4) 5-year review.–Any modification made under this subsection shall be reviewed at least once every 5 years. Such review shall examine the modification and ensure that the requirements of paragraphs (2) and (3) still justify continuation of the modification. Any change to a modification reviewed under this paragraph shall be made in accordance with this subsection.

(5) Notification to congress.–The Administrator shall notify Congress of an intention to initiate a rulemaking for a modification under this subsection.After such notification, the Administrator shall delay initiation of the rulemaking for at least 12 months, but no more than 24 months, after the date of such notification.

(6) Judicial review.–In any judicial review of a rulemaking which establishes a modification under this subsection, a court may hold unlawful and set aside agency action, findings, and conclusions found to be unsupported by substantial evidence.

(7) Applicability.—A modification under this subsection may apply to a calendar year or other reporting period beginning no earlier than January 1, 1993.

(8) Effective date.—Any modification made on or after January 1 and before December 1 of any calendar year shall take effect beginning with the next calendar year. Any modification made on or after December 1 of any calendar year and before January 1 of the next calendar year shall take effect beginning with the calendar year following such next calendar year.

(j) EPA management of data.—The Administrator shall establish and maintain in a computer data base a national toxic chemical inventory based on data submitted to the Administrator under this section. The Administrator shall make these data accessible by computer telecommunication and other means to any person on a cost reimbursable basis.

(k) Report.—Not later than June 30, 1991, the Comptroller General, in consultation with the Administrator and appropriate officials in the States, shall submit to the Congress a report including each of the following:

(1) A description of the steps taken by the Administrator and the States to implement the requirements of this section, including steps taken to make information collected under this section available to and accessible by the public.

(2) A description of the extent to which the information collected under this section has been used by the Environmental Protection Agency, other Federal agencies, the States, and the public, and the purposes for which the information has been used.

(3) An identification and evaluation of options for modifications to the requirements of this section for the purpose of making information collected under this section more useful.

(l) Mass balance study.—

(1) In general.—The Administrator shall arrange for a mass balance study to be carried out by the National Academy of Sciences using mass balance information collected by the Administrator under paragraph (3). The Administrator shall submit to Congress a report on such study no later than 5 years after the date of the enactment of this title [enacted Oct. 17, 1986].

(2) Purposes.—The purposes of the study are as follows:

(A) To assess the value of mass balance analysis in determining the accuracy of information on toxic chemical releases.

(B) To assess the value of obtaining mass balance information, or portions thereof, to determine the waste reduction efficiency of different facilities, or categories of facilities, including the effectiveness of toxic chemical regulations promulgated under laws other than this title.

(C) To assess the utility of such information for evaluating toxic chemical management practices at facilities, or categories of facilities, covered by this section.

(D) To determine the implications of mass balance information collection on a national scale similar to the mass balance information collection carried out by the Administrator under paragraph (3), including implications of the use of such collection as part of a national annual quantity toxic chemical release program.

(3) Information collection.—

(A) The Administrator shall acquire available mass balance information from States which currently conduct (or during the 5 years after the date of enactment of this title [enacted Oct. 17, 1986] initiate) a mass balance-oriented annual quantity toxic chemical release program. If information from such States provides an inadequate representation of industry classes and categories to carry out the purposes of the study, the Administrator also may acquire mass balance information necessary for the study from a representative number of facilities in other States.

(B) Any information acquired under this section shall be available to the public, except that upon a showing satisfactory to the Administrator by any person that the information (or a particular part thereof) to which the Administrator or any officer, employee, or representative has access under this section if made public would divulge information entitled to protection under section 1905 of title 18, United States Code, such information or part shall be considered confidential in accordance with the purposes of that section, except that such information or part may be disclosed to other officers, employees, or authorized representatives of the United States concerned with carrying out this section.

(C) The Administrator may promulgate regulations prescribing procedures for collecting mass balance information under this paragraph.

(D) For purposes of collecting mass balance information under subparagraph (A), the Administrator may require the submission of information by a State or facility.

(4) Mass balance definition.– For purposes of this subsection, the term "mass balance" means an accumulation of the annual quantities of chemicals transported to a facility, produced at a facility, consumed at a facility, used at a facility, accumulated at a facility, released from a facility, and transported from a facility as a waste or as a commercial product or byproduct or component of a commercial product or byproduct.

SUBTITLE C – GENERAL PROVISIONS

RELATIONSHIP TO OTHER LAW

[42 U.S.C. 11041]

Sec. 321. (a) In general.– Nothing in this title shall–

(1) preempt any State or local law,

(2) except as provided in subsection (b), otherwise affect any State or local law or the authority of any State or local government to adopt or enforce any State or local law, or

(3) affect or modify in any way the obligations or liabilities of any person under other Federal law.

(b) Effect on MSDS requirements.– Any State or local law enacted after August 1, 1985, which requires the submission of a material safety data sheet from facility owners or operators shall require that the data sheet be identical in content and format to the data sheet required under subsection (a) of section 311 [42 U.S.C. 11021(a)]. In addition, a State or locality may require the submission of information which is supplemental to the information required on the data sheet (including information on the location and quantity of hazardous chemicals present at the facility), through additional sheets attached to the data sheet or such other means as the State or locality considers appropriate.

TRADE SECRETS

[42 U.S.C. 11042]

Sec. 322. (a) Authority to withhold information.–

(1) General authority.–

(A) With regard to a hazardous chemical, an extremely hazardous substance, or a toxic chemical, any person required under section 303(d)(2), 303(d)(3), 311, 312, or 313 [42 U.S.C. 11003(d)(2), 11003(d)(3), 11021, 11022, or 11023] to submit information to any other person may withhold from such submittal the specific chemical identity (including the chemical name and other specific identification), as defined in regulations prescribed by the Administrator under subsection (c), if the person complies with paragraph (2).

(B) Any person withholding the specific chemical identity shall, in the place on the submittal where the chemical identity would normally be included, include the generic class or category of the hazardous chemical, extremely hazardous substance, or toxic chemical (as the case may be).

(2) Requirements.–

(A) A person is entitled to withhold information under paragraph (1) if such person–

(i) claims that such information is a trade secret, on the basis of the factors enumerated in subsection (b),

(ii) includes in the submittal referred to in paragraph (1) an explanation of the reasons why such information is claimed to be a trade secret, based on the factors enumerated in subsection (b), including a specific description of why such factors apply, and

(iii) submits to the Administrator a copy of such submittal, and the information withheld from such submittal.

(B) In submitting to the Administrator the information required by subparagraph (A)(iii), a person withholding information under this subsection may–

(i) designate, in writing and in such manner as the Administrator may prescribe by regulation, the information which such person believes is entitled to be withheld under paragraph (1), and

(ii) submit such designated information separately from other information submitted under this subsection.

(3) Limitation.– The authority under this subsection to withhold information shall not apply to information which the Administrator has determined, in accordance with subsection (c), is not a trade secret.

(b) Trade secret factors.– No person required to provide information under this title may claim that the information is entitled to protection as a trade secret under subsection (a) unless such person shows each of the following:

(1) Such person has not disclosed the information to any other person, other than a member of a local emergency planning committee, an officer or employee of the United States or a State or local government, an employee of such person, or a person who is bound by a confidentiality agreement, and such person has taken reasonable measures to protect the confidentiality of such information and intends to continue to take such measures.

(2) The information is not required to be disclosed, or otherwise made available, to the public under any other Federal or State law.

(3) Disclosure of the information is likely to cause substantial harm to the competitive position of such person.

(4) The chemical identity is not readily discoverable through reverse engineering.

(c) Trade secret regulations.–As soon as practicable after the date of enactment of this title [enacted Oct. 17, 1986], the Administrator shall prescribe regulations to implement this section. With respect to subsection (b)(4), such regulations shall be equivalent to comparable provisions in the Occupational Safety and Health Administration Hazard Communication Standard (29 C.F.R. 1910.1200) and any revisions of such standard prescribed by the Secretary of Labor in accordance with the final ruling of the courts of the United States in United Steelworkers of America, AFL-CIO-CLC v. Thorne G. Auchter.

(d) Petition for review.–

(1) In general.– Any person may petition the Administrator for the disclosure of the specific chemical identity of a hazardous chemical, an extremely hazardous substance, or a toxic chemical which is claimed as a trade secret under this section. The Administrator may, in the absence of a petition under this paragraph, initiate a determination, to be carried out in accordance with this subsection, as to whether information withheld constitutes a trade secret.

(2) Initial review.– Within 30 days after the date of receipt of a petition under paragraph (1) (or upon the Administrator's initiative), the Administrator shall review the explanation filed by a trade secret claimant under subsection (a)(2) and determine whether the explanation presents assertions which, if true, are sufficient to support a finding that the specific chemical identity is a trade secret.

(3) Finding of sufficient assertions.–

(A) If the Administrator determines pursuant to paragraph (2) that the explanation presents sufficient assertions to support a finding that the specific chemical identity is a trade secret, the Administrator shall notify the trade secret claimant that he has 30 days to supplement the explanation with detailed information to support the assertions.

(B) If the Administrator determines, after receipt of any supplemental supporting detailed information under subparagraph (A), that the assertions in the explanation are true and that the specific chemical identity is a trade secret, the Administrator shall so notify the petitioner and the petitioner may seek judicial review of the determination.

(C) If the Administrator determines, after receipt of any supplemental supporting detailed information under subparagraph (A), that the assertions in the explanation are not true and that the specific chemical identity is not a trade secret, the Administrator shall notify the trade secret claimant that the Administrator intends to release the specific chemical identity. The trade secret claimant has 30 days in which he may appeal the Administrator's determination under this subparagraph to the Administrator. If the Administrator does not reverse his

determination under this subparagraph in such an appeal by the trade secret claimant, the trade secret claimant may seek judicial review of the determination.

(4) Finding of insufficient assertions.–

(A) If the Administrator determines pursuant to paragraph (2) that the explanation presents insufficient assertions to support a finding that the specific chemical identity is a trade secret, the Administrator shall notify the trade secret claimant that he has 30 days to appeal the determination to the Administrator, or, upon a showing of good cause, amend the original explanation by providing supplementary assertions to support the trade secret claim.

(B) If the Administrator does not reverse his determination under subparagraph (A) after an appeal or an examination of any supplementary assertions under subparagraph (A), the Administrator shall so notify the trade secret claimant and the trade secret claimant may seek judicial review of the determination.

(C) If the Administrator reverses his determination under subparagraph (A) after an appeal or an examination of any supplementary assertions under subparagraph (A), the procedures under paragraph (3) of this subsection apply.

(e) Exception for information provided to health professionals.– Nothing in this section, or regulations adopted pursuant to this section, shall authorize any person to withhold information which is required to be provided to a health professional, a doctor, or a nurse in accordance with section 323 [42 U.S.C. 11043].

(f) Providing information to the administrator; availability to public.– Any information submitted to the Administrator under subsection (a)(2) or subsection (d)(3) (except a specific chemical identity) shall be available to the public, except that upon a showing satisfactory to the Administrator by any person that the information (or a particular part thereof) to which the Administrator has access under this section if made public would divulge information entitled to protection under section 1905 of title 18, United States Code, such information or part shall be considered confidential in accordance with the purposes of that section, except that such information or part may be disclosed to other officers, employees, or authorized representatives of the United States concerned with carrying out this title.

(g) Information provided to state.– Upon request by a State, acting through the Governor of the State, the Administrator shall provide to the State any information obtained under subsection (a)(2) and subsection (d)(3).

(h) Information on adverse effects.–

(1) In any case in which the identity of a hazardous chemical or an extremely hazardous substance is claimed as a trade secret, the Governor or State emergency response commission established under section 301 [42 U.S.C. 11001] shall identify the adverse health effects associated with the hazardous chemical or extremely hazardous substance and shall assure that such information is provided to any person requesting information about such hazardous chemical or extremely hazardous substance.

(2) In any case in which the identity of a toxic chemical is claimed as a trade secret, the Administrator shall identify the adverse health and environmental effects associated with the toxic chemical and shall assure that such information is included in the computer database required by section 313(j) [42 U.S.C. 1123(j)] and is provided to any person requesting information about such toxic chemical.

(i) Information provided to Congress. Notwithstanding any limitation contained in this section or any other provision of law, all information reported to or otherwise obtained by the Administrator (or any representative of the Administrator) under this title shall be made available to a duly authorized committee of the Congress upon written request by such a committee.

PROVISIONS OF INFORMATION TO HEALTH PROFESSIONALS, DOCTORS, AND NURSES

[42 U.S.C. 11043]

Sec. 323. (a) Diagnosis or treatment by health professional. An owner or operator of a facility which is subject to the requirements of section 311, 312, or 313 [42 U.S.C. 11021, 11022, or 11023] shall provide the specific chemical identity, if known, of a hazardous chemical, extremely hazardous substance, or a toxic chemical to any health professional who requests such information in writing if the health professional provides a written statement of need under this subsection and a written confidentiality

agreement under subsection (d). The written statement of need shall be a statement that the health professional has a reasonable basis to suspect that –

(1) the information is needed for purposes of diagnosis or treatment of an individual,

(2) the individual or individuals being diagnosed or treated have been exposed to the chemical concerned, and

(3) knowledge of the specific chemical identity of such chemical will assist in diagnosis or treatment.

Following such a written request, the owner or operator to whom such request is made shall promptly provide the requested information to the health professional. The authority to withhold the specific chemical identity of a chemical under section 322 [42 U.S.C. 11042] when such information is a trade secret shall not apply to information required to be provided under this subsection, subject to the provisions of subsection (d).

(b) Medical emergency. – An owner or operator of a facility which is subject to the requirements of section 311, 312, or 313 [42 U.S.C. 11021, 11022, or 11023] shall provide a copy of a material safety data sheet, an inventory form, or a toxic chemical release form, including the specific chemical identity, if known, of a hazardous chemical, extremely hazardous substance, or a toxic chemical, to any treating physician or nurse who requests such information if such physician or nurse determines that –

(1) a medical emergency exists,

(2) the specific chemical identity of the chemical concerned is necessary for or will assist in emergency or first-aid diagnosis or treatment, and

(3) the individual or individuals being diagnosed or treated have been exposed to the chemical concerned.

Immediately following such a request, the owner or operator to whom such request is made shall provide the requested information to the physician or nurse. The authority to withhold the specific chemical identity of a chemical from a material safety data sheet, an inventory form, or a toxic chemical release form under section 322 [42 U.S.C. 11042] when such information is a trade secret shall not apply to information required to be provided to a treating physician or nurse under this subsection. No written confidentiality agreement or statement of need shall be required as a precondition of such disclosure, but the owner or operator disclosing such information may require a written confidentiality agreement in accordance with subsection (d) and a statement setting forth the items listed in paragraphs (1) through (3) as soon as circumstances permit.

(c) Preventive measures by local health professionals. –

(1) Provision of information. – An owner or operator of a facility subject to the requirements of section 311, 312, or 313 [42 U.S.C. 11021, 11022, or 11023] shall provide the specific chemical identity, if known, of a hazardous chemical, an extremely hazardous substance, or a toxic chemical to any health professional (such as a physician, toxicologist, or epidemiologist) –

(A) who is a local government employee or a person under contract with the local government, and

(B) who requests such information in writing and provides a written statement of need under paragraph (2) and a written confidentiality agreement under subsection (d).

Following such a written request, the owner or operator to whom such request is made shall promptly provide the requested information to the local health professional. The authority to withhold the specific chemical identity of a chemical under section 322 [42 U.S.C. 11042] when such information is a trade secret shall not apply to information required to be provided under this subsection, subject to the provisions of subsection (d).

(2) Written statement of need. – The written statement of need shall be a statement that describes with reasonable detail one or more of the following health needs for the information:

(A) To assess exposure of persons living in a local community to the hazards of the chemical concerned.

(B) To conduct or assess sampling to determine exposure levels of various population groups.

(C) To conduct periodic medical surveillance of exposed population groups.

(D) To provide medical treatment to exposed individuals or population groups.

(E) To conduct studies to determine the health effects of exposure.

(F) To conduct studies to aid in the identification of a chemical that may reasonably be anticipated to cause an observed health effect.

(d) Confidentiality agreement. – Any person obtaining information under subsection (a) or (c) shall, in accordance with such subsection (a) or (c), be required to agree in a written confidentiality agreement that he will not use the information for any purpose other than the health needs asserted in the statement of need, except as may otherwise be authorized by the terms of the agreement or by the person providing such information. Nothing in this subsection shall preclude the parties to a confidentiality agreement from pursuing any remedies to the extent permitted by law.

(e) Regulations. As soon as practicable after the date of the enactment of this title [42 U.S.C. 11001 et seq.], the Administrator shall promulgate regulations describing criteria and parameters for the statement of need under subsection (a) and (c) and the confidentiality agreement under subsection (d).

PUBLIC AVAILABILITY OF PLANS, DATA SHEETS, FORMS, AND FOLLOWUP NOTICES

[42 U.S.C. 11044]

Sec. 324. (a) Availability to public. – Each emergency response plan, material safety data sheet, list described in section 311(a)(2) [42 U.S.C. 11021(a)(2)], inventory form, toxic chemical release form, and followup emergency notice shall be made available to the general public, consistent with section 322 [42 U.S.C. 11042], during normal working hours at the location or locations designated by the Administrator, Governor, State emergency response commission, or local emergency planning committee, as appropriate. Upon request by an owner or operator of a facility subject to the requirements of section 312 [42 U.S.C. 11022], the State emergency response commission and the appropriate local emergency planning committee shall withhold from disclosure under this section the location of any specific chemical required by section 312(d)(2) [42 U.S.C. 11022(d)(2)] to be contained in an inventory form as tier II information.

(b) Notice of public availability. – Each local emergency planning committee shall annually publish a notice in local newspapers that the emergency response plan, material safety data sheets, and inventory forms have been submitted under this section. The notice shall state that followup emergency notices may subsequently be issued. Such notice shall announce that members of the public who wish to review any such plan, sheet, form, or followup notice may do so at the location designated under subsection (a).

ENFORCEMENT

[42 U.S.C. 11045]

Sec. 325. (a) Civil penalties for emergency planning. – The Administrator may order a facility owner or operator (except an owner or operator of a facility designated under section 302(b)(2) [42 U.S.C. 11002(b)(2)]) to comply with section 302(c) [42 U.S.C. 11002(c)] and section 303(d) [42 U.S.C. 11003(d)]. The United States district court for the district in which the facility is located shall have jurisdiction to enforce the order, and any person who violates or fails to obey such an order shall be liable to the United States for a civil penalty of not more than $25,000 for each day in which such violation occurs or such failure to comply continues.

(b) Civil, administrative, and criminal penalties for emergency notification. –

(1) Class I administrative penalty. –

(A) A civil penalty of not more than $25,000 per violation may be assessed by the Administrator in the case of a violation of the requirements of section 304 [42 U.S.C. 11004].

(B) No civil penalty may be assessed under this subsection unless the person accused of the violation is given notice and opportunity for a hearing with respect to the violation.

(C) In determining the amount of any penalty assessed pursuant to this subsection, the Administrator shall take into account the nature, circumstances, extent and gravity of the violation or violations and, with respect to the violator, ability to pay, any prior history of such violations, the degree of culpability, economic benefit or savings (if any) resulting from the violation, and such other matters as justice may require.

(2) Class II administrative penalty. – A civil penalty of not more than $25,000 per day for each day during which the violation continues may be assessed by the Administrator in the case of a violation of the requirements of section 304 [42 U.S.C. 11004]. In the case of a second or subsequent violation the amount of such penalty may be not more than $75,000 for each day during which the violation continues. Any civil penalty under this subsection shall be assessed and collected in the same

manner, and subject to the same provisions, as in the case of civil penalties assessed and collected under section 16 of the Toxic Substances Control Act [15 U.S.C. 2615]. In any proceeding for the assessment of a civil penalty under this subsection the Administrator may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, and documents and may promulgate rules for discovery procedures.

(3) Judicial assessment. – The Administrator may bring an action in the United States District court for the appropriate district to assess and collect a penalty of not more than $25,000 per day for each day during which the violation continues in the case of a violation of the requirements of section 304 [42 U.S.C. 11004]. In the case of a second or subsequent violation, the amount of such penalty may be not more than $75,000 for each day during which the violation continues.

(4) Criminal penalties. – Any person who knowingly and willfully fails to provide notice in accordance with section 304 [42 U.S.C. 11004] shall, upon conviction, be fined not more than $25,000 or imprisoned for not more than two years, or both (or in the case of a second or subsequent conviction, shall be fined not more than $50,000 or imprisoned for not more than five years, or both).

(c) Civil and administrative penalties for reporting requirements. –

(1) Any person (other than a governmental entity) who violates any requirement of section 312 or 313 [42 U.S.C. 11022 or 11023] shall be liable to the United States for a civil penalty in an amount not to exceed $25,000 for each such violation.

(2) Any person (other than a governmental entity) who violates any requirement of section 311 or 323(b) [42 U.S.C. 11021 or 11043(b)], and any person who fails to furnish to the Administrator information required under section 322(a)(2) [42 U.S.C. 11042(a)(2)] shall be liable to the United States for a civil penalty in an amount not to exceed $10,000 for each such violation.

(3) Each day a violation described in paragraph (1) or (2) continues shall, for purposes of this subsection, constitute a separate violation.

(4) The Administrator may assess any civil penalty for which a person is liable under this subsection by administrative order or may bring an action to assess and collect the penalty in the United States district court for the district in which the person from whom the penalty is sought resides or in which such person's principal place of business is located.

(d) Civil, administrative, and criminal penalties with respect to trade secrets. –

(1) Civil and administrative penalty for frivolous claims. If the Administrator – determines –

(A)(i) under section 322(d)(4) [42 U.S.C. 11042(d)(4)] that an explanation submitted by a trade secret claimant presents insufficient assertions to support a finding that a specific chemical identity is a trade secret, or

(ii) after receiving supplemental supporting detailed information under section 322(d)(3)(A) [42 U.S.C. 11042(d)(3)(A)], that the specific chemical identity is not a trade secret; and

(B) that the trade secret claim is frivolous, the trade secret claimant is liable for a penalty of $25,000 per claim. The Administrator may assess the penalty by administrative order or may bring an action in the appropriate district court of the United States to assess and collect the penalty.

(2) Criminal penalty for disclosure of trade secret information. – Any person who knowingly and willfully divulges or discloses any information entitled to protection under section 322 [42 U.S.C. 11042] shall, upon conviction, be subject to a fine of not more than $20,000 or to imprisonment not to exceed one year, or both.

(e) Special enforcement provisions for section 323 [42 U.S.C. 11043]. – Whenever any facility owner or operator required to provide information under section 323 [42 U.S.C. 11043] to a health professional who has requested such information fails or refuses to provide such information in accordance with such section, such health professional may bring an action in the appropriate United States district court to require such facility owner or operator to provide the information. Such court shall have jurisdiction to issue such orders and take such other action as may be necessary to enforce the requirements of section 323 [42 U.S.C. 11043].

(f) Procedures for administrative penalties. –

(1) Any person against whom a civil penalty is assessed under this section may obtain review thereof in the appropriate district court of the United States by filing a notice of appeal in such court within

30 days after the date of such order and by simultaneously sending a copy of such notice by certified mail to the Administrator. The Administrator shall promptly file in such court a certified copy of the record upon which such violation was found or such penalty imposed. If any person fails to pay an assessment of a civil penalty after it has become a final and unappealable order or after the appropriate court has entered final judgment in favor of the United States, the Administrator may request the Attorney General of the United States to institute a civil action in an appropriate district court of the United States to collect the penalty, and such court shall have jurisdiction to hear and decide any such action. In hearing such action, the court shall have authority to review the violation and the assessment of the civil penalty on the record.

(2) The Administrator may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, or documents in connection with hearings under this section. In case of contumacy or refusal to obey a subpoena issued pursuant to this paragraph and served upon any person, the district court of the United States for any district in which such person is found, resides, or transacts business, upon application by the United States and after notice to such person, shall have jurisdiction to issue an order requiring such person to appear and give testimony before the administrative law judge or to appear and produce documents before the administrative law judge, or both, and any failure to obey such order of the court may be punished by such court as a contempt thereof.

CIVIL ACTIONS

[42 U.S.C. 11046]

Sec. 326. (a) Authority to bring civil actions.—

(1) Citizen suits.—Except as provided in subsection (e), any person may commence a civil action on his own behalf against the following:

(A) An owner or operator of a facility for failure to do any of the following:

(i) Submit a followup emergency notice under section 304(c) [42 U.S.C. 11004(c)].

(ii) Submit a material safety data sheet or a list under section 311(a) [42 U.S.C. 11021(a)].

(iii) Complete and submit an inventory form under section 312(a) [42 U.S.C. 11022(a)] containing tier I information as described in section 312(d)(1) [42 U.S.C. 11022(d)(1)] unless such requirement does not apply by reason of the second sentence of section 312(a)(2) [42 U.S.C. 11022(a)(2)].

(iv) Complete and submit a toxic chemical release form under section 313(a) [42 U.S.C. 11023(a)].

(B) The Administrator for failure to do any of the following:

(i) Publish inventory forms under section 312(g) [42 U.S.C. 11022(g)].

(ii) Respond to a petition to add or delete a chemical under section 313(e)(1) [42 U.S.C. 11023(e)(1)] within 180 days after receipt of the petition.

(iii) Publish a toxic chemical release form under 313(g) [42 U.S.C. 11023(g).

(iv) Establish a computer database in accordance with section 313(j) [42 U.S.C. 11023(j).

(v) Promulgate trade secret regulations under section 322(c) [42 U.S.C. 11042(c)].

(vi) Render a decision in response to a petition under section 322(d) [42 U.S.C. 11042(d)] within 9 months after receipt of the petition.

(C) The Administrator, a State Governor, or a State emergency response commission, for failure to provide a mechanism for public availability of information in accordance with section 324(a) [42 U.S.C. 11044(a)].

(D) A State Governor or a State emergency response commission for failure to respond to a request for tier II information under section 312(e)(3) [42 U.S.C. 11022(e)(3)] within 120 days after the date of receipt of the request.

(2) State or local suits.—

(A) Any State or local government may commence a civil action against an owner or operator of a facility for failure to do any of the following:

(i) Provide notification to the emergency response commission in the State under section 302(c) [42 U.S.C. 11002(c)].

(ii) Submit a material safety data sheet or a list under section 311(a) [42 U.S.C. 11021(a)].

(iii) Make available information requested under section 311(c) [42 U.S.C. 11021(c)].

(iv) Complete and submit an inventory form under section 312(a) [42 U.S.C. 11022(a) containing tier I information unless such requirement does not apply by reason of the second sentence of section 312(a)(2) [42 U.S.C. 11022(a)(2)].

(B) Any State emergency response commission or local emergency planning committee may commence a civil action against an owner or operator of a facility for failure to provide information under section 303(d) [42 U.S.C. 11003(d)] or for failure to submit tier II information under section 312(e)(1) [42 U.S.C. 11022].

(C) Any State may commence a civil action against the Administrator for failure to provide information to the State under section 322(g) [42 U.S.C. 11042(g)].

(b) Venue.–

(1) Any action under subsection (a) against an owner or operator of a facility shall be brought in the district court for the district in which the alleged violation occurred.

(2) Any action under subsection (a) against the Administrator may be brought in the United States District Court for the District of Columbia.

(c) Relief.–The district court shall have jurisdiction in actions brought under subsection (a) against an owner or operator of a facility to enforce the requirement concerned and to impose any civil penalty provided for violation of that requirement. The district court shall have jurisdiction in actions brought under subsection (a) against the Administrator to order the Administrator to perform the act or duty concerned.

(d) Notice.–

(1) No action may be commenced under subsection (a)(1)(A) prior to 60 days after the plaintiff has given notice of the alleged violation to the Administrator, the State in which the alleged violation occurs, and the alleged violator. Notice under this paragraph shall be given in such manner as the Administrator shall prescribe by regulation.

(2) No action may be commenced under subsection (a)(1)(B) or (a)(1)(C) prior to 60 days after the date on which the plaintiff gives notice to the Administrator, State Governor, or State emergency response commission (as the case may be) that the plaintiff will commence the action. Notice under this paragraph shall be given in such manner as the Administrator shall prescribe by regulation.

(e) Limitation.–No action may be commenced under subsection (a) against an owner or operator of a facility if the Administrator has commenced and is diligently pursuing an administrative order or civil action to enforce the requirement concerned or to impose a civil penalty under this Act [42 U.S.C. 11001 et seq.] with respect to the violation of the requirement.

(f) Costs.–The court, in issuing any final order in any action brought pursuant to this section, may award costs of litigation (including reasonable attorney and expert witness fees) to the prevailing or the substantially prevailing party whenever the court determines such an award is appropriate. The court may, if a temporary restraining order or preliminary injunction is sought, require the filing of a bond or equivalent security in accordance with the Federal Rules of Civil Procedure.

(g) Other rights.–Nothing in this section shall restrict or expand any right which any person (or class of persons) may have under any Federal or State statute or common law to seek enforcement of any requirement or to seek any other relief (including relief against the Administrator or a State agency).

(h) Intervention.–

(1) By the United States.–In any action under this section the United States or the State, or both, if not a party, may intervene as a matter of right.

(2) By persons.–In any action under this section, any person may intervene as a matter of right when such person has a direct interest which is or may be adversely affected bY the action and the disposition of the action may, as a practical matter, impair or impede the person's ability to protect that interest unless the Administrator or the State shows that the person's interest is adequately represented by existing parties in the action.

EXEMPTION

[42 U.S.C. 11047]

Sec. 327. Except as provided in section 304 [42 U.S.C. 11004], this title does not apply to the transportation, including the storage incident to such transportation, of any substance or chemical subject to the requirements of this title, including the transportation and distribution of natural gas.

REGULATIONS

[42 U.S.C. 11048]

Sec. 328. The Administrator may prescribe such regulations as may be necessary to carry out this title.

DEFINITIONS

[42 U.S.C. 11048]

Sec. 329. For purposes of this title –

(1) Administrator. – The term "Administrator" means the Administrator of the Environmental Protection Agency.

(2) Environment. – The term "environment" includes water, air, and land and the interrelationship which exists among and between water, air, and land and all living things.

(3) Extremely hazardous substance. – The term "extremely hazardous substance" means a substance on the list described in section 302(a)(2) [42 U.S.C. 11002(a)(2)].

(4) Facility. – The term "facility" means all buildings, equipment, structures, and other stationary items which are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by, or under common control with, such person). For purposes of section 304 [42 U.S.C. 11004], the term includes motor vehicles, rolling stock, and aircraft.

(5) Hazardous chemical. – The term "hazardous chemical" has the meaning given such term by section 311(e) [42 U.S.C. 11021(e)].

(6) Material safety data sheet. The term "material safety data sheet" means the sheet required to be developed under section 1910.1200(g) of title 29 of the Code of Federal Regulations, as that section may be amended from time to time.

(7) Person. – The term "person" means any individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or interstate body.

(8) Release. – The term "release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles) of any hazardous chemical, extremely hazardous substance, or toxic chemical.

(9) State. – The term "State" means any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, and any other territory or possession over which the United States has jurisdiction.

(10) Toxic chemical. – The term "toxic chemical" means a substance on the list described in section 313(c) [42 U.S.C. 11023(c)].

AUTHORIZATION OF APPROPRIATIONS

[42 U.S.C. 11050]

Sec. 330. There are authorized to be appropriated for fiscal years beginning after September 30, 1986, such sums as may be necessary to carry out this title.

EXECUTIVE ORDER 12580

Superfund Implementation

(Signed January 23, 1987; Published at 52 FR 2923, January 29, 1987)

By the authority vested in me as President of the United States of America by Section 115 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (42 U.S.C. 9615 *et seq.*)("the Act"), and by Section 301 of Title 3 of the United States Code, it is hereby ordered as follows:

Section 1. National Contingency Plan.

(a)(1) The National Contingency Plan ("the NCP"), shall provide for a National Response Team ("the NRT") composed of representatives of appropriate Federal departments and agencies for national planning and coordination of preparedness and response actions, and regional response teams as the regional counterpart to the NRT for planning and coordination of regional preparedness and response actions.

(2) The following agencies (in addition to other appropriate agencies) shall provide representatives to the National and Regional Response Teams to carry out their responsibilities under the NCP: Department of State, Department of Defense, Department of Justice, Department of the Interior, Department of Agriculture, Department of Commerce, Department of Labor, Department of Health and Human Services, Department of Transportation, Department of Energy, Environmental Protection Agency, Federal Emergency Management Agency, United States Coast Guard, and the Nuclear Regulatory Commission.

(3) Except for periods of activation because of a response action, the representative of the Environmental Protection Agency ("EPA") shall be the chairman and the representative of the United States Coast Guard shall be the vice chairman of the NRT and these agencies' representatives shall be co-chairs of the Regional Response Teams ("the RRTs"). When the NRT or an RRT is activated for a response action, the chairman shall be the EPA or United States Coast Guard representative, based on whether the release or threatened release occurs in the inland or coastal zone, unless otherwise agreed upon by the EPA and United States Coast Guard representatives.

(4) The RRTs may include representatives from State governments, local governments (as agreed upon by the States), and Indian tribal governments. Subject to the functions and authorities delegated to Executive departments and agencies in other sections of this Order, the NRT shall provide policy and program direction to the RRTs.

(b)(1) The responsibility for the revision of the NCP and all of the other functions vested in the President by Sections 105(a), (b), (c), and (g), 125, and 301(f) of the Act is delegated to the Administrator of the Environmental Protection Agency ("the Administrator").

(2) The function vested in the President by Section 118(p) of the Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499) ("SARA") is delegated to the Administrator.

(c) In accord with Section 107(f)(2)(A) of the Act and Section 311(f)(5) of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1321 (f)(5)), the following shall be among those designated in the NCP as Federal trustees for natural resources:

(1) Secretary of Defense;
(2) Secretary of the Interior;
(3) Secretary of Agriculture;
(4) Secretary of Commerce;
(5) Secretary of Energy.

(d) Revisions to the NCP shall be made in consultation with members of the NRT prior to publication for notice and comment. Revisions shall also be made in consultation with the Director of the Federal Emergency Management Agency and the Nuclear Regulatory Commission in order to avoid inconsistent or duplicative requirements in the emergency planning responsibilities of those agencies.

(e) All revisions to the NCP, whether in proposed or final form, shall be subject to review and approval by the Director of the Office of Management and Budget ("OMB").

Sec. 2. Response and Related Authorities.

(a) The functions vested in the President by the first sentence of Section 104(b)(1) of the Act relating to "illness, disease, or complaints thereof" are delegated to the Secretary of Health and Human Services who shall, in accord with Section 104(i) of the Act, perform those functions through the Public Health Service.

(b) The functions vested in the President by Sections 104(e)(7)(C), 113(k)(2), 119(c)(7), and 121(f)(1) of the Act, relating to promulgation of regulations and guidelines, are delegated to the Administrator, to be exercised in consultation with the NRT.

(c)(1) The functions vested in the President by Sections 104(a) and the second

sentence of 126(b) of the Act, to the extent they require permanent relocation of residents, businesses, and community facilities or temporary evacuation and housing of threatened individuals not otherwise provided for, are delegated to the Director of the Federal Emergency Management Agency.

(2) Subject to subsection (b) of this Section, the functions vested in the President by Sections 117(a) and (c), and 119 of the Act, to the extent such authority is needed to carry out the functions delegated under paragraph (1) of this subsection, are delegated to the Director of the Federal Emergency Management Agency.

(d) Subject to subsections (a), (b) and (c) of this Section, the functions vested in the President by Sections 104(a), (b) and (c)(4), 113(k), 117(a) and (c), 119, and 121 of the Act are delegated to the Secretaries of Defense and Energy, with respect to releases or threatened releases where either the release is on or the sole source of the release is from any facility or vessel under the jurisdiction, custody or control of their departments, respectively, including vessels bare-boat chartered and operated. These functions must be exercised consistent with the requirements of Section 120 of the Act.

(e)(1) Subject to subsections (a), (b), (c), and (d) of this Section, the functions vested in the President by Sections 104 (a), (b), and (c)(4), and 121 of the Act are delegated to the heads of Executive departments and agencies, with respect to remedial actions for releases or threatened releases which are not on the National Priorities List ("the NPL") and removal actions other than emergencies, where either the release is on or the sole source of the release is from any facility or vessel under the jurisdiction, custody or control of those departments and agencies, including vessels bare-boat chartered and operated. The Administrator shall define the term "emergency", solely for the purposes of this subsection, either by regulation or by a memorandum of understanding with the head of an Executive department or agency.

(2) Subject to subsections (b), (c), and (d) of this Section, the functions vested in the President by Sections 104(b)(2), 113(k), 117(a) and (c), and 119 of the Act are delegated to the heads of Executive departments and agencies, with respect to releases or threatened releases where either the release is on or the sole source of the release is from any facility or vessel under the jurisdiction, custody or control of those departments and agencies, including vessels bare-boat chartered and operated.

(f) Subject to subsections (a), (b), (c), (d), and (e) of this Section, the functions vested in the President by Sections 104(a), (b) and (c)(4), 113(k), 117(a) and (c), 119, and 121 of the Act are delegated to the Secretary of the Department in which the Coast Guard is operating ("the Coast Guard"), with respect to any release or threatened release involving the coastal zone, Great Lakes waters, ports, and harbors.

(g) Subject to subsections (a), (b), (c), (d), (e), and (f) of this Section, the functions vested in the President by Sections 101(24), 104(a), (b), (c)(4) and (c)(9), 113(k), 117(a) and (c), 119, 121, and 126(b) of the Act are delegated to the Administrator. The Administrator's authority under Section 119 of the Act is retroactive to the date of enactment of SARA.

(h) The functions vested in the President by Section 104(c)(3) of the Act are delegated to the Administrator, with respect to providing assurances for Indian tribes, to be exercised in consultation with the Secretary of the Interior.

(i) Subject to subsections (d), (e), (f), (g) and (h) of this Section, the functions vested in the President by Section 104(c) and (d) of the Act are delegated to the Coast Guard, the Secretary of Health and Human Services, the Director of the Federal Emergency Management Agency, and the Administrator in order to carry out the functions delegated to them by this Section.

(j)(1) The functions vested in the President by Section 104(e)(5)(A) are delegated to the heads of Executive departments and agencies, with respect to releases or threatened releases where either the release is on or the sole source of the release is from any facility or vessel under the jurisdiction, custody or control of those departments and agencies, to be exercised with the concurrence of the Attorney General.

(2) Subject to subsection (b) of this Section and paragraph (1) of this subsection, the functions vested in the President by Section 104(e) are delegated to the heads of Executive departments and agencies in order to carry out their functions under this Order or the Act.

(k) The functions vested in the President by Sections 104(f), (g), (h), (i)(11), and (j) of the Act are delegated to the heads of Executive departments and agencies in order to carry out the functions delegated to them by this Section. The exercise of authority under Section 104(h) of the Act shall be subject to the approval of the Administrator of the Office of Federal Procurement Policy.

Sec. 3. Cleanup Schedules.

(a) The functions vested in the President by Sections 116(a) and the first two sentences of 105(d) of the Act are delegated to the heads of Executive departments and agencies with respect to facilities under the jurisdiction, custody or control of those departments and agencies.

(b) Subject to subsection (a) of this Section, the functions vested in the President by Sections 116 and 105(d) are delegated to the Administrator.

Sec. 4. Enforcement.

(a) The functions vested in the President by Sections 109(d) and 122(e)(3)(A) of the Act, relating to development of regulations and guidelines, are delegated to the Administrator, to be exercised in consultation with the Attorney General.

(b)(1) Subject to subsection (a) of this Section, the functions vested in the President by Section 122 (except subsection (b)(1)) are delegated to the heads of Executive departments and agencies, with respect to releases or threatened releases not on the NPL where either the release is on or the sole source of the release is from any facility under the jurisdiction, custody or control of those Executive departments and agencies. These functions may be exercised only with the concurrence of the Attorney General.

(2) Subject to subsection (a) of this Section, the functions vested in the President by Section 109 of the Act, relating to violations of Section 122 of the Act, are delegated to the heads of Executive departments and agencies, with respect to releases or threatened releases not on the NPL where either the release is on or the sole source of the release is from any facility under the jurisdiction, custody or control of those Executive departments and agencies. These functions may be ex-

ercised only with the concurrence of the Attorney General.

(c)(1) Subject to subsection (a) and (b)(1) of this Section, the functions vested in the President by Sections 106(a) and 122 of the Act are delegated to the Coast Guard with respect to any release or threatened release involving the coastal zone, Great Lakes waters, ports, and harbors.

(2) Subject to subsection (a) and (b)(2) of this Section, the functions vested in the President by Section 109 of the Act, relating to violations of Sections 103(a) and (b), and 122 of the Act, are delegated to the Coast Guard with respect to any release or threatened release involving the coastal zone, Great Lakes waters, ports, and harbors.

(d)(1) Subject to subsections (a), (b)(1), and (c)(1) of this Section, the functions vested in the President by Sections 106 and 122 of the Act are delegated to the Administrator.

(2) Subject to subsections (a), (b)(2), and (c)(2) of this Section, the functions vested in the President by Section 109 of the Act, relating to violations of Sections 103 and 122 of the Act, are delegated to the Administrator.

(e) Notwithstanding any other provision of this Order, the authority under Sections 104(e)(5)(A) and 106(a) of the Act to seek information, entry, inspection, samples, or response actions from Executive departments and agencies may be exercised only with the concurrence of the Attorney General.

Sec. 5. Liability.

(a) The function vested in the President by Section 107 (c)(1)(C) of the Act is delegated to the Secretary of Transportation.

(b) The functions vested in the President by Section 107(c)(3) of the Act are delegated to the Coast Guard with respect to any release or threatened release involving the coastal zone, Great Lakes waters, ports, and harbors.

(c) Subject to subsection (b) of this Section, the functions vested in the President by Section 107(c)(3) of the Act are delegated to the Administrator.

(d) The functions vested in the President by Section 107(f)(1) of the Act are delegated to each of the Federal trustees for natural resources designated in the NCP for resources under their trusteeship.

(e) The functions vested in the President by Section 107(f)(2)(B) of the Act, to receive notification of the state natural resource trustee designations, are delegated to the Administrator.

Sec. 6. Litigation.

(a) Notwithstanding any other provision of this Order, any representation pursuant to or under this Order in any judicial proceedings shall be by or through the Attorney General. The conduct and control of all litigation arising under the Act shall be the responsibility of the Attorney General.

(b) Notwithstanding any other provision of this Order, the authority under the Act to require the Attorney General to commence litigation is retained by the President.

(c) The functions vested in the President by Section 113(g) of the Act, to receive notification of a natural resource trustee's intent to file suit, are delegated to the heads of Executive departments and agencies with respect to response actions for which they have been delegated authority under Section 2 of this Order. The Administrator shall promulgate procedural regulations for providing such notification.

(d) The functions vested in the President by Sections 310(d) and (e) of the Act, relating to promulgation of regulations, are delegated to the Administrator.

Sec. 7. Financial Responsibility.

(a) The functions vested in the President by Section 107(k)(4)(B) of the Act are delegated to the Secretary of the Treasury. The Administrator will provide the Secretary with such technical information and assistance as the Administrator may have available.

(b)(1) The functions vested in the President by Section 108(a)(1) of the Act are delegated to the Coast Guard.

(2) Subject to Section 4(a) of this Order, the functions vested in the President by Section 109 of the Act, relating to violations of Section 108(a)(1) of the Act, are delegated to the Coast Guard.

(c)(1) The functions vested in the President by Section 108(b) of the Act are delegated to the Secretary of Transportation with respect to all transportation related facilities, including any pipeline, motor vehicle, rolling stock, or aircraft.

(2) Subject to Section 4(a) of this Order, the functions vested in the President by Section 109 of the Act, relating to violations of Section 108(a)(3) of the Act, are delegated to the Secretary of Transportation.

(3) Subject to Section 4(a) of this Order, the functions vested in the President by Section 109 of the Act, relating to violations of Section 108(b) of the Act, are delegated to the Secretary of Transportation with respect to all transportation related facilities, including any pipeline, motor vehicle, rolling stock, or aircraft.

(d)(1) Subject to subsection (c)(1) of this Section, the functions vested in the President by Section 108(a)(4) and (b) of the Act are delegated to the Administrator.

(2) Subject to Section 4(a) of this Order and subsection (c)(3) of this Section, the functions vested in the President by Section 109 of the Act, relating to violations of Section 108(a)(4) and (b) of the Act, are delegated to the Administrator.

Sec. 8. Employee Protection and Notice to Injured.

(a) The functions vested in the President by Section 110(e) of the Act are delegated to the Administrator.

(b) The functions vested in the President by Section 111(g) of the Act are delegated to the Secretaries of Defense and Energy with respect to releases from facilities or vessels under the jurisdiction, custody or control of their departments, respectively, including vessels bare-boat chartered and operated.

(c) Subject to subsection (b) of this Section, the functions vested in the President by Section 111(g) of the Act are delegated to the Administrator.

Sec. 9. Management of the Hazardous Substance Superfund and Claims.

(a) The functions vested in the President by Section 111(a) of the Act are delegated to the Administrator, subject to the provisions of this Section and other applicable provisions of this Order.

(b) The Administrator shall transfer to other agencies, from the Hazardous Substance Superfund out of sums appropriated, such amounts as the Administrator may determine necessary to carry out the purposes of the Act. These amounts shall be consistent with the President's Budget, within the total approved by the Congress, unless a revised amount is approved by OMB. Funds appropriated specifically for the Agency for Toxic Substances and Dis-

ease Registry ("ATSDR"), shall be directly transferred to ATSDR, consistent with fiscally responsible investment of trust fund money.

(c) The Administrator shall chair a budget task force composed of representatives of Executive departments and agencies having responsibilities under this Order or the Act. The Administrator shall also, as part of the budget request for the Environmental Protection Agency, submit to OMB a budget for the Hazardous Substance Superfund which is based on recommended levels developed by the budget task force. The Administrator may prescribe reporting and other forms, procedures, and guidelines to be used by the agencies of the Task Force in preparing the budget request, consistent with budgetary reporting requirements issued by OMB. The Administrator shall prescribe forms to agency task force members for reporting the expenditure of funds on a site specific basis.

(d) The Administrator and each department and agency head to whom funds are provided pursuant to this Section, with respect to funds provided to them, are authorized in accordance with Section 111(f) of the Act to designate Federal officials who may obligate such funds.

(e) The functions vested in the President by Section 112 of the Act are delegated to the Administrator for all claims presented pursuant to Section 111 of the Act.

(f) The functions vested in the President by Section 111(o) of the Act are delegated to the Administrator.

(g) The functions vested in the President by Section 117(e) of the Act are delegated to the Administrator, to be exercised in consultation with the Attorney General.

(h) The functions vested in the President by Section 123 of the Act are delegated to the Administrator.

(i) Funds from the Hazardous Substance Superfund may be used, at the discretion of the Administrator or the Coast Guard, to pay for removal actions for releases or threatened releases from facilities or vessels under the jurisdiction, custody or control of Executive departments and agencies but must be reimbursed to the Hazardous Substance Superfund by such Executive department or agency.

Sec. 10. Federal Facilities.

(a) When necessary, prior to selection of a remedial action by the Administrator under Section 120(e)(4)(A) of the Act, Executive agencies shall have the opportunity to present their views to the Administrator after using the procedures under Section 1-6 of Executive Order No. 12088 of October 13, 1978, or any other mutually acceptable process. Notwithstanding subsection 1-602 of Executive Order No. 12088, the Director of the Office of Management and Budget shall facilitate resolution of any issues.

(b) [Omitted]

[*Editor's note:* Paragraph (b) of this section amended Executive Order 12088. See page 71:0201.]

Sec. 11. General Provisions.

(a) The function vested in the President by Section 101(37) of the Act is delegated to the Administrator.

(b)(1) The function vested in the President by Section 105(f) of the Act, relating to reporting on minority participation in contracts, is delegated to the Administrator.

(2) Subject to paragraph 1 of this subsection, the functions vested in the President by Section 105(f) of the Act are delegated to the heads of Executive departments and agencies in order to carry out the functions delegated to them by this Order. Each Executive department and agency shall provide to the Administrator any requested information on minority contracting for inclusion in the Section 105(f) annual report.

(c) The functions vested in the President by Section 126(c) of the Act are delegated to the Administrator, to be exercised in consultation with the Secretary of the Interior.

(d) The functions vested in the President by Section 301(c) of the Act are delegated to the Secretary of the Interior.

(e) Each agency shall have authority to issue such regulations as may be necessary to carry out the functions delegated to them by this Order.

(f) The performance of any function under this Order shall be done in consultation with interested Federal departments and agencies represented on the NRT, as well as with any other interested Federal agency.

(g) The following functions vested in the President by the Act which have been delegated or assigned by this Order may be redelegated to the head of any Executive department or agency with his consent: functions set forth in Sections 2 (except subsection (b)), 3, 4(b), 4(c), 4(d), 5(b), 5(c), and 8(c) of this Order.

(h) Executive Order No. 12316 of August 14, 1981, is revoked.

RONALD REAGAN

THE WHITE HOUSE,
January 23, 1987.

PART 300 – NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN

Subpart A – Introduction

Sec.

300.1 Purpose and objectives.
300.2 Authority and applicability.
300.3 Scope.
300.4 Abbreviations.
300.5 Definitions.
300.6 Use of number and gender.
300.7 Computation of time.

Subpart B – Responsibility and Organization for Response

300.100 Duties of President delegated to federal agencies.
300.105 General organization concepts.
300.110 National Response Team.
300.115 Regional Response Teams.
300.120 On-scene coordinators and remedial project managers: general responsibilities.
300.125 Notification and communications.
300.130 Determinations to initiate response and special conditions.
300.135 Response operations.
300.140 Multi-regional responses.
300.145 Special teams and other assistance available to OSCs/RPMs.
300.150 Worker health and safety.
300.155 Public information and community relations.
300.160 Documentation and cost recovery.
300.165 OSC reports.
300.170 Federal agency participation.
300.175 Federal agencies: additional responsibilities and assistance.
300.180 State and local participation in response.
300.185 Nongovernmental participation.

Subpart C – Planning and Preparedness

300.200 General.
300.205 Planning and coordination structure.
300.210 Federal contingency plans.
300.215 Title III local emergency response plans.
300.220 Related Title III issues.

Subpart D – Operational Response Phases for Oil Removal

300.300 Phase I – Discovery or notification.
300.305 Phase II – Preliminary assessment and initiation of action.
300.310 Phase III – Containment, countermeasures, cleanup, and disposal.
300.315 Phase IV – Documentation and cost recovery.
300.320 General pattern of response.
300.330 Wildlife conservation.
300.335 Funding.

Subpart E – Hazardous Substance Response

300.400 General.
300.405 Discovery or notification.
300.410 Removal site evaluation.
300.415 Removal action.
300.420 Remedial site evaluation.
300.425 Establishing remedial priorities.
300.430 Remedial investigation/feasibility study and selection of remedy.
300.435 Remedial design/remedial action, operation and maintenance.
300.440 Procedures for planning and implementing off-site response actions. [Reserved]

Subpart F – State Involvement in Hazardous Substance Response

300.500 General.
300.505 EPA/State Superfund Memorandum of Agreement (SMOA).
300.510 State assurances.
300.515 Requirements for state involvement in remedial and enforcement response.
300.520 State involvement in EPA-lead enforcement negotiations.
300.525 State involvement in removal actions.

Subpart G – Trustees for Natural Resources

300.600 Designation of federal trustees.
300.605 State trustees.
300.610 Indian tribes.
300.615 Responsibilities of trustees.

Subpart H – Participation by Other Persons

300.700 Activities by other persons.

Subpart I – Administrative Record for Selection of Response Action

300.800 Establishment of an administrative record.

300.805 Location of the administrative record file.
300.810 Contents of the administrative record file.
300.815 Administrative record file for a remedial action.
300.820 Administrative record file for a removal action.
300.825 Record requirements after the decision document is signed.

Subpart J—Use of Dispersants and Other Chemicals

300.900 General.
300.905 NCP Product Schedule.
300.910 Authorization of use.
300.915 Data requirements.
300.920 Addition of products to schedule.

Subpart K—Federal Facilities [Reserved]

Appendix A—Uncontrolled Hazardous Waste Site Ranking System; A Users Manual

Appendix B—National Priorities List

Appendix C—Revised Standard Dispersant Effectiveness And Toxicity Tests

Authority: 42 U.S.C. 9601-9657; 33 U.S.C. 1321(c)(2); E.O. 11735, 38 FR 21243; E.O. 12580, 52 FR 2923.

Subpart A—Introduction

§300.1 Purpose and objectives.

The purpose of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) is to provide the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants.

§300.2 Authority and applicability.

The NCP is required by section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9605, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub.L. 99-499, (hereinafter CERCLA), and by section 311(c)(2) of the Clean Water Act (CWA), as amended, 33 U.S.C. 1321(c)(2). In Executive Order (E.O.) 12580 (52 FR 2923, January 29, 1987), the President delegated to the Environmental Protection Agency (EPA) the responsibility for the amendment of the NCP. Amendments to the NCP are coordinated with members of the National Response Team (NRT) prior to publication for notice and comment. This includes coordination with the Federal Emergency Management Agency and the Nuclear Regulatory Commission in order to avoid inconsistent or duplicative requirements in the emergency planning responsibilities of those agencies. The NCP is applicable to response actions taken pursuant to the authorities under CERCLA and section 311 of the CWA.

§300.3 Scope.

(a) The NCP applies to and is in effect for:

(1) Discharges of oil into or upon the navigable waters of the United States and adjoining shorelines, the waters of the contiguous zone, and the high seas beyond the contiguous zone in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Magnuson Fishery Conservation and Management Act). (See sections 311(b)(1) and 502(7) of the CWA.)

(2) Releases into the environment of hazardous substances, and pollutants or contaminants which may present an imminent and substantial danger to public health or welfare.

(b) The NCP provides for efficient, coordinated, and effective response to discharges of oil and releases of hazardous substances, pollutants, and contaminants in accordance with the authorities of CERCLA and the CWA. It provides for:

(1) The national response organization that may be activated in response actions. It specifies responsibilities among the federal, state, and local governments and describes resources that are available for response.

(2) The establishment of requirements for federal regional and on-scene coordinator (OSC) contingency plans. It also summarizes state and local emergency planning requirements under SARA Title III.

(3) Procedures for undertaking removal actions pursuant to section 311 of the CWA.

(4) Procedures for undertaking response actions pursuant to CERCLA.

(5) Procedures for involving state governments in the initiation, development, selection, and implementation of response actions.

(6) Designation of federal trustees for natural resources for purposes of CERCLA and the CWA.

(7) Procedures for the participation of other persons in response actions.

(8) Procedures for compiling and making available an administrative record for response actions.

(9) National procedures for the use of dispersants and other chemicals in removals under the CWA and response actions under CERCLA.

(c) In implementing the NCP, consideration shall be given to international assistance plans and agreements, security regulations and responsibilities based on international agreements, federal statutes, and executive orders. Actions taken pursuant to the NCP shall conform to the provisions of international joint contingency plans, where they are applicable. The Department of State shall be consulted, as appropriate, prior to taking any action which may affect its activities.

§300.4 Abbreviations.

(a) *Department and Agency Title Abbreviations:*

ATSDR – Agency for Toxic Substances and Disease Registry

DOC – Department of Commerce

DOD – Department of Defense

DOE – Department of Energy

DOI – Department of the Interior

DOJ – Department of Justice

DOL – Department of Labor

DOS – Department of State

DOT – Department of Transportation

EPA – Environmental Protection Agency

FEMA – Federal Emergency Management Agency

HHS – Department of Health and Human Services

NIOSH – National Institute for Occupational Safety and Health

NOAA – National Oceanic and Atmospheric Administration

RSPA – Research and Special Programs Administration

USCG – United States Coast Guard

USDA – United States Department of Agriculture

Note: Reference is made in the NCP to both the Nuclear Regulatory Commission and the National Response Center. In order to avoid confusion, the NCP will spell out Nuclear Regulatory Commission and use the abbreviation "NRC" only with respect to the National Response Center.

(b) *Operational Abbreviations:*

ARARs – Applicable or Relevant and Appropriate Requirements

CERCLIS – CERCLA Information System

CRC – Community Relations Coordinator

CRP – Community Relations Plan

ERT – Environmental Response Team

FCO – Federal Coordinating Officer

FS – Feasibility Study

HRS – Hazard Ranking System

LEPC – Local Emergency Planning Committee

NCP – National Contingency Plan

NPL – National Priorities List

NRC – National Response Center

NRT – National Response Team

NSF – National Strike Force

O&M – Operation and Maintenance

OSC – On-Scene Coordinator

PA – Preliminary Assessment

PIAT – Public Information Assist Team

RA – Remedial Action

RAT – Radiological Assistance Team

RCP – Regional Contingency Plan

RD – Remedial Design

RI – Remedial Investigation

ROD – Record of Decision

RPM – Remedial Project Manager

RRC – Regional Response Center

RRT – Regional Response Team

SAC – Support Agency Coordinator

SERC – State Emergency Response Commission

SI – Site Inspection

SMOA – Superfund Memorandum of Agreement

SSC – Scientific Support Coordinator

§300.5 Definitions.

Terms not defined in this section have the meaning given by CERCLA or the CWA.

"Activation" means notification by telephone or other expeditious manner or, when required, the assembly of some or all appropriate members of the RRT or NRT.

"Alternative water supplies" as defined by section 101(34) of CERCLA, includes,

but is not limited to, drinking water and household water supplies.

"Applicable requirements" means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.

"Biological additives" means microbiological cultures, enzymes, or nutrient additives that are deliberately introduced into an oil discharge for the specific purpose of encouraging biodegradation to mitigate the effects of the discharge.

"Burning agents" means those additives that, through physical or chemical means, improve the combustibility of the materials to which they are applied.

"CERCLA" is the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986.

"CERCLIS" is the abbreviation of the CERCLA Information System, EPA's comprehensive data base and management system that inventories and tracks releases addressed or needing to be addressed by the Superfund program. CERCLIS contains the official inventory of CERCLA sites and supports EPA's site planning and tracking functions. Sites that EPA decides do not warrant moving further in the site evaluation process are given a "No Further Response Action Planned" (NFRAP) designation in CERCLIS. This means that no additional federal steps under CERCLA will be taken at the site unless future information so warrants. Sites are not removed from the data base after completion of evaluations in order to document that these evaluations took place and to preclude the possibility that they be needlessly repeated. Inclusion of a specific site or area in the CERCLIS data base does not represent a determination of any party's liability, nor does it represent a finding that any response action is necessary. Sites that are deleted from the NPL are not designated NFRAP sites. Deleted sites are listed in a separate category in the CERCLIS data base.

"Chemical agents" means those elements, compounds, or mixtures that coagulate, disperse, dissolve, emulsify, foam, neutralize, precipitate, reduce, solubilize, oxidize, concentrate, congeal, entrap, fix, make the pollutant mass more rigid or viscous, or otherwise facilitate the mitigation of deleterious effects or the removal of the pollutant from the water.

"Claim" as defined by section 101(4) of CERCLA, means a demand in writing for a sum certain.

"Coastal waters" for the purposes of classifying the size of discharges, means the waters of the coastal zone except for the Great Lakes and specified ports and harbors on inland rivers.

"Coastal zone" as defined for the purpose of the NCP, means all United States waters subject to the tide, United States waters of the Great Lakes, specified ports and harbors on inland rivers, waters of the contiguous zone, other waters of the high seas subject to the NCP, and the land surface or land substrata, ground waters, and ambient air proximal to those waters. The term coastal zone delineates an area of federal responsibility for response action. Precise boundaries are determined by EPA/USCG agreements and identified in federal regional contingency plans.

"Community relations" means EPA's program to inform and encourage public participation in the Superfund process and to respond to community concerns. The term "public" includes citizens directly affected by the site, other interested citizens or parties, organized groups, elected officials, and potentially responsible parties.

"Community relations coordinator" means lead agency staff who work with the OSC/RPM to involve and inform the public about the Superfund process and response actions in accordance with the interactive community relations requirements set forth in the NCP.

"Contiguous zone" means the zone of the high seas, established by the United States under Article 24 of the Convention on the Territorial Sea and Contiguous Zone, which is contiguous to the territorial sea and which extends nine miles seaward from the outer limit of the territorial sea.

"Cooperative agreement" is a legal instrument EPA uses to transfer money, property, services, or anything of value to a

recipient to accomplish a public purpose in which substantial EPA involvement is anticipated during the performance of the project.

"Discharge" as defined by section 311(a)(2) of the CWA, includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil, but excludes discharges in compliance with a permit under section 402 of the CWA, discharges resulting from circumstances identified and reviewed and made a part of the public record with respect to a permit issued or modified under section 402 of the CWA, and subject to a condition in such permit, or continuous or anticipated intermittent discharges from a point source, identified in a permit or permit application under section 402 of the CWA, that are caused by events occurring within the scope of relevant operating or treatment systems. For purposes of the NCP, discharge also means threat of discharge.

"Dispersants" means those chemical agents that emulsify, disperse, or solubilize oil into the water column or promote the surface spreading of oil slicks to facilitate dispersal of the oil into the water column.

"Drinking water supply" as defined by section 101(7) of CERCLA, means any raw or finished water source that is or may be used by a public water system (as defined in the Safe Drinking Water Act) or as drinking water by one or more individuals.

"Environment" as defined by section 101(8) of CERCLA, means the navigable waters, the waters of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Magnuson Fishery Conservation and Management Act; and any other surface water, ground water, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States.

"Facility" as defined by section 101(9) of CERCLA, means any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or any site or area, where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

"Feasibility study" (FS) means a study undertaken by the lead agency to develop and evaluate options for remedial action. The FS emphasizes data analysis and is generally performed concurrently and in an interactive fashion with the remedial investigation (RI), using data gathered during the RI. The RI data are used to define the objectives of the response action, to develop remedial action alternatives, and to undertake an initial screening and detailed analysis of the alternatives. The term also refers to a report that describes the results of the study.

"First federal official" means the first federal representative of a participating agency of the National Response Team to arrive at the scene of a discharge or a release. This official coordinates activities under the NCP and may initiate, in consultation with the OSC, any necessary actions until the arrival of the predesignated OSC. A state with primary jurisdiction over a site covered by a cooperative agreement will act in the stead of the first federal official for any incident at the site.

"Fund or Trust Fund" means the Hazardous Substance Superfund established by section 9507 of the Internal Revenue Code of 1986.

"Ground water" as defined by section 101(12) of CERCLA, means water in a saturated zone or stratum beneath the surface of land or water.

"Hazard Ranking System" (HRS) means the method used by EPA to evaluate the relative potential of hazardous substance releases to cause health or safety problems, or ecological or environmental damage.

"Hazardous substance" as defined by section 101(14) of CERCLA, means: Any substance designated pursuant to section 311(b)(2)(A) of the CWA; any element, compound, mixture, solution, or substance designated pursuant to section 102 of CERCLA; any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress); any toxic pollutant listed under section 307(a) of the CWA; any hazardous air pollutant listed under section 112 of the Clean Air Act; and any

imminently hazardous chemical substance or mixture with respect to which the EPA Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance in the first sentence of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

"Indian tribe" as defined by section 101(36) of CERCLA, means any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village but not including any Alaska Native regional or village corporation, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

"Inland waters," for the purposes of classifying the size of discharges, means those waters of the United States in the inland zone, waters of the Great Lakes, and specified ports and harbors on inland rivers.

"Inland zone" means the environment inland of the coastal zone excluding the Great Lakes and specified ports and harbors on inland rivers. The term inland zone delineates an area of federal responsibility for response action. Precise boundaries are determined by EPA/USCG agreements and identified in federal regional contingency plans.

"Lead agency" means the agency that provides the OSC/RPM to plan and implement response action under the NCP. EPA, the USCG, another federal agency, or a state (or political subdivision of a state) operating pursuant to a contract or cooperative agreement executed pursuant to section 104(d)(1) of CERCLA, or designated pursuant to a Superfund Memorandum of Agreement (SMOA) entered into pursuant to subpart F of the NCP or other agreements may be the lead agency for a response action. In the case of a release of a hazardous substance, pollutant, or contaminant, where the release is on, or the sole source of the release is from, any facility or vessel under the jurisdiction, custody, or control of Department of Defense (DOD) or Department of Energy (DOE), then DOD or DOE will be the lead agency. Where the release is on, or the sole source of the release is from, any facility or vessel under the jurisdiction, custody, or control of a federal agency other than EPA, the USCG, DOD, or DOE, then that agency will be the lead agency for remedial actions and removal actions other than emergencies. The federal agency maintains its lead agency responsibilities whether the remedy is selected by the federal agency for non-NPL sites or by EPA and the federal agency or by EPA alone under CERCLA section 120. The lead agency will consult with the support agency, if one exists, throughout the response process.

"Management of migration" means actions that are taken to minimize and mitigate the migration of hazardous substances or pollutants or contaminants and the effects of such migration. Measures may include, but are not limited to, management of a plume of contamination, restoration of a drinking water aquifer, or surface water restoration.

"Miscellaneous oil spill control agent" is any product, other than a dispersant, sinking agent, surface collecting agent, biological additive, or burning agent, that can be used to enhance oil spill cleanup, removal, treatment, or mitigation.

"National Priorities List" (NPL) means the list, compiled by EPA pursuant to CERCLA section 105, of uncontrolled hazardous substance releases in the United States that are priorities for long-term remedial evaluation and response.

"Natural resources" means land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States (including the resources of the exclusive economic zone defined by the Magnuson Fishery Conservation and Management Act of 1976), any state or local government, any foreign government, any Indian tribe, or, if such resources are subject to a trust restriction on alienation, any member of an Indian tribe.

"Navigable waters," as defined by 40 CFR 110.1, means the waters of the United States, including the territorial seas. The term includes:

(a) All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;

(b) Interstate waters, including interstate wetlands;

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, and wetlands, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) That are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce;

(3) That are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as navigable waters under this section;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition, including adjacent wetlands; and

(f) Wetlands adjacent to waters identified in paragraphs (a) through (e) of this definition: Provided, that waste treatment systems (other than cooling ponds meeting the criteria of this paragraph) are not waters of the United States.

"Offshore facility" as defined by section 101(17) of CERCLA and section 311(a)(11) of the CWA, means any facility of any kind located in, on, or under any of the navigable waters of the United States and any facility of any kind which is subject to the jurisdiction of the United States and is located in, on, or under any other waters, other than a vessel or a public vessel.

"Oil" as defined by section 311(a)(1) of the CWA, means oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

"Oil pollution fund" means the fund established by section 311(k) of the CWA.

"On-scene coordinator" (OSC) means the federal official predesignated by EPA or the USCG to coordinate and direct federal responses under subpart D, or the official designated by the lead agency to coordinate and direct removal actions under subpart E of the NCP.

"Onshore facility" as defined by section 101(18) of CERCLA, means any facility (including, but not limited to, motor vehicles and rolling stock) of any kind located in, on, or under any land or non-navigable waters within the United States; and, as defined by section 311(a)(10) of the CWA, means any facility (including, but not limited to, motor vehicles and rolling stock) of any kind located in, on, or under any land within the United States other than submerged land.

"On-site" means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action.

"Operable unit" means a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site.

"Operation and maintenance" (O&M) means measures required to maintain the effectiveness of response actions.

"Person" as defined by section 101(21) of CERCLA, means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, United States government, state, municipality, commission, political subdivision of a state, or any interstate body.

"Pollutant or contaminant" as defined by section 101(33) of CERCLA, shall include, but not be limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under section

101(14) (A) through (F) of CERCLA, nor does it include natural gas, liquified natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas). For purposes of the NCP, the term pollutant or contaminant means any pollutant or contaminant that may present an imminent and substantial danger to public health or welfare.

"Post-removal site control" means those activities that are necessary to sustain the integrity of a Fund-financed removal action following its conclusion. Post-removal site control may be a removal or remedial action under CERCLA. The term includes, without being limited to, activities such as relighting gas flares, replacing filters, and collecting leachate.

"Preliminary assessment" (PA) means review of existing information and an off-site reconnaissance, if appropriate, to determine if a release may require additional investigation or action. A PA may include an on-site reconnaissance, if appropriate.

"Public participation," see the definition for community relations.

"Public vessel" as defined by section 311(a)(4) of the CWA, means a vessel owned or bareboat-chartered and operated by the United States, or by a state or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce.

"Quality assurance project plan" (QAPP) is a written document, associated with all remedial site sampling activities, which presents in specific terms the organization (where applicable), objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities designed to achieve the data quality objectives of a specific project(s) or continuing operation(s). The QAPP is prepared for each specific project or continuing operation (or group of similar projects or continuing operations). The QAPP will be prepared by the responsible program office, regional office, laboratory, contractor, recipient of an assistance agreement, or other organization. For an enforcement action, potentially responsible parties may prepare a QAPP subject to lead agency approval.

"Release" as defined by section 101(22) of CERCLA, means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant), but excludes: Any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons; emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine; release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act, or, for the purposes of section 104 of CERCLA or any other response action, any release of source, byproduct, or special nuclear material from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978; and the normal application of fertilizer. For purposes of the NCP, release also means threat of release.

"Relevant and appropriate requirements" means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

"Remedial design" (RD) means the technical analysis and procedures which follow the selection of remedy for a site and result in a detailed set of plans and specifications for implementation of the remedial action.

"Remedial investigation" (RI) is a process undertaken by the lead agency to determine the nature and extent of the problem presented by the release. The RI emphasizes data collection and site characterization, and is generally performed concurrently and in an

interactive fashion with the feasibility study. The RI includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for remedial action and to support the evaluation of remedial alternatives.

"Remedial project manager" (RPM) means the official designated by the lead agency to coordinate, monitor, or direct remedial or other response actions under subpart E of the NCP.

"Remedy or remedial action" (RA) means those actions consistent with permanent remedy taken instead of, or in addition to, removal action in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment. The term includes, but is not limited to, such actions at the location of the release as storage, confinement, perimeter protection using dikes, trenches, or ditches, clay cover, neutralization, cleanup of released hazardous substances and associated contaminated materials, recycling or reuse, diversion, destruction, segregation of reactive wastes, dredging or excavations, repair or replacement of leaking containers, collection of leachate and runoff, on-site treatment or incineration, provision of alternative water supplies, any monitoring reasonably required to assure that such actions protect the public health and welfare and the environment and, where appropriate, post-removal site control activities. The term includes the costs of permanent relocation of residents and businesses and community facilities (including the cost of providing "alternative land of equivalent value" to an Indian tribe pursuant to CERCLA section 126(b)) where EPA determines that, alone or in combination with other measures, such relocation is more cost-effective than, and environmentally preferable to, the transportation, storage, treatment, destruction, or secure disposition off-site of such hazardous substances, or may otherwise be necessary to protect the public health or welfare; the term includes off-site transport and off-site storage, treatment, destruction, or secure disposition of hazardous substances and associated contaminated materials. For the purpose of the NCP, the term also includes enforcement activities related thereto.

"Remove or removal" as defined by section 311(a)(8) of the CWA, refers to removal of oil or hazardous substances from the water and shorelines or the taking of such other actions as may be necessary to minimize or mitigate damage to the public health or welfare or to the environment. As defined by section 101(23) of CERCLA, remove or removal means the cleanup or removal of released hazardous substances from the environment; such actions as may be necessary taken in the event of the threat of release of hazardous substances into the environment; such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances; the disposal of removed material; or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under section 104(b) of CERCLA, post-removal site control, where appropriate, and any emergency assistance which may be provided under the Disaster Relief Act of 1974. For the purpose of the NCP, the term also includes enforcement activities related thereto.

"Respond or response" as defined by section 101(25) of CERCLA, means remove, removal, remedy, or remedial action, including enforcement activities related thereto.

"SARA" is the Superfund Amendments and Reauthorization Act of 1986. In addition to certain free-standing provisions of law, it includes amendments to CERCLA, the Solid Waste Disposal Act, and the Internal Revenue Code. Among the free-standing provisions of law is Title III of SARA, also known as the "Emergency Planning and Community Right-to-Know Act of 1986" and Title IV of SARA, also known as the "Radon Gas and Indoor Air Quality Research Act of 1986." Title V of SARA amending the Internal Revenue Code is also known as the "Superfund Revenue Act of 1986."

"Sinking agents" means those additives applied to oil discharges to sink floating pollutants below the water surface.

"Site inspection" (SI) means an on-site investigation to determine whether there is a release or potential release and the nature of the associated threats. The purpose is to augment the data collected in the preliminary assessment and to generate, if necessary, sampling and other field data to determine if further action or investigation is appropriate.

"Size classes of discharges" refers to the following size classes of oil discharges which are provided as guidance to the OSC and serve as the criteria for the actions delineated in subpart D. They are not meant to imply associated degrees of hazard to public health or welfare, nor are they a measure of environmental injury. Any oil discharge that poses a substantial threat to public health or welfare or the environment or results in significant public concern shall be classified as a major discharge regardless of the following quantitative measures:

(a) Minor discharge means a discharge to the inland waters of less than 1,000 gallons of oil or a discharge to the coastal waters of less than 10,000 gallons of oil.

(b) Medium discharge means a discharge of 1,000 to 10,000 gallons of oil to the inland waters or a discharge of 10,000 to 100,000 gallons of oil to the coastal waters.

(c) Major discharge means a discharge of more than 10,000 gallons of oil to the inland waters or more than 100,000 gallons of oil to the coastal waters.

"Size classes of releases" refers to the following size classifications which are provided as guidance to the OSC for meeting pollution reporting requirements in subpart B. The final determination of the appropriate classification of a release will be made by the OSC based on consideration of the particular release (e.g., size, location, impact, etc.):

(a) Minor release means a release of a quantity of hazardous substance(s), pollutant(s), or contaminant(s) that poses minimal threat to public health or welfare or the environment.

(b) Medium release means a release not meeting the criteria for classification as a minor or major release.

(c) Major release means a release of any quantity of hazardous substance(s), pollutant(s), or contaminant(s) that poses a substantial threat to public health or welfare or the environment or results in significant public concern.

"Source control action" is the construction or installation and start-up of those actions necessary to prevent the continued release of hazardous substances or pollutants or contaminants (primarily from a source on top of or within the ground, or in buildings or other structures) into the environment.

"Source control maintenance" measures are those measures intended to maintain the effectiveness of source control actions once such actions are operating and functioning properly, such as the maintenance of landfill caps and leachate collection systems.

"Specified ports and harbors" means those ports and harbor areas on inland rivers, and land areas immediately adjacent to those waters, where the USCG acts as predesignated on-scene coordinator. Precise locations are determined by EPA/USCG regional agreements and identified in federal regional contingency plans.

"State" means the several states of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Virgin Islands, the Commonwealth of Northern Marianas, and any other territory or possession over which the United States has jurisdiction. For purposes of the NCP, the term includes Indian tribes as defined in the NCP except where specifically noted. Section 126 of CERCLA provides that the governing body of an Indian tribe shall be afforded substantially the same treatment as a state with respect to certain provisions of CERCLA. Section 300.515(b) of the NCP describes the requirements pertaining to Indian tribes that wish to be treated as states.

"Superfund Memorandum of Agreement" (SMOA) means a nonbinding, written document executed by an EPA Regional Administrator and the head of a state agency that may establish the nature and extent of EPA and state interaction during the removal, pre-remedial, remedial, and/or enforcement response process. The SMOA is not a site-specific document although attachments may address specific sites. The SMOA generally defines the role and responsibilities of both the lead and the support agencies.

"Superfund state contract" is a joint, legally binding agreement between EPA

and a state to obtain the necessary assurances before a federal-lead remedial action can begin at a site. In the case of a political subdivision-lead remedial response, a three-party Superfund state contract among EPA, the state, and political subdivision thereof, is required before a political subdivision takes the lead for any phase of remedial response to ensure state involvement pursuant to section 121(f)(1) of CERCLA. The Superfund state contract may be amended to provide the state's CERCLA section 104 assurances before a political subdivision can take the lead for remedial action.

"Support agency" means the agency or agencies that provide the support agency coordinator to furnish necessary data to the lead agency, review response data and documents, and provide other assistance as requested by the OSC or RPM. EPA, the USCG, another federal agency, or a state may be support agencies for a response action if operating pursuant to a contract executed under section 104(d)(1) of CERCLA or designated pursuant to a Superfund Memorandum of Agreement entered into pursuant to subpart F of the NCP or other agreement. The support agency may also concur on decision documents.

"Support agency coordinator" (SAC) means the official designated by the support agency, as appropriate, to interact and coordinate with the lead agency in response actions under subpart E of this part.

"Surface collecting agents" means those chemical agents that form a surface film to control the layer thickness of oil.

"Threat of discharge or release," see definitions for discharge and release.

"Threat of release," see definition for release.

"Treatment technology" means any unit operation or series of unit operations that alters the composition of a hazardous substance or pollutant or contaminant through chemical, biological, or physical means so as to reduce toxicity, mobility, or volume of the contaminated materials being treated. Treatment technologies are an alternative to land disposal of hazardous wastes without treatment.

"Trustee" means an official of a federal natural resources management agency designated in subpart G of the NCP or a designated state official or Indian tribe who may pursue claims for damages under section 107(f) of CERCLA.

"United States" when used in relation to section 311(a)(5) of the CWA, means the states, the District of Columbia, the Commonwealth of Puerto Rico, the Northern Mariana Islands, Guam, American Samoa, the United States Virgin Islands, and the Pacific Island Governments. United States, when used in relation to section 101(27) of CERCLA, includes the several states of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Commonwealth of the Northern Marianas, and any other territory or possession over which the United States has jurisdiction.

"Vessel" as defined by section 101(28) of CERCLA, means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water; and, as defined by section 311(a)(3) of the CWA, means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel.

"Volunteer" means any individual accepted to perform services by the lead agency which has authority to accept volunteer services (examples: See 16 U.S.C. 742f(c)). A volunteer is subject to the provisions of the authorizing statute and the NCP.

§300.6 Use of number and gender.

As used in this regulation, words in the singular also include the plural and words in the masculine gender also include the feminine and vice versa, as the case may require.

§300.7 Computation of time.

In computing any period of time prescribed or allowed in these rules of practice, except as otherwise provided, the day of the event from which the designated period begins to run shall not be included. Saturdays, Sundays, and federal legal holidays shall be included. When a stated time expires on a Saturday, Sunday, or legal holiday, the stated time period shall be extended to include the next business day.

Subpart B—Responsibility and Organization for Response

§300.100 Duties of President delegated to federal agencies.

In Executive Order 11735 and Executive Order 12580, the President delegated certain functions and responsibilities vested in him by the CWA and CERCLA, respectively.

§300.105 General organization concepts.

(a) Federal agencies should:

(1) Plan for emergencies and develop procedures for addressing oil discharges and releases of hazardous substances, pollutants, or contaminants;

(2) Coordinate their planning, preparedness, and response activities with one another;

(3) Coordinate their planning, preparedness, and response activities with affected states and local governments and private entities; and

(4) Make available those facilities or resources that may be useful in a response situation, consistent with agency authorities and capabilities.

(b) Three fundamental kinds of activities are performed pursuant to the NCP:

(1) Preparedness planning and coordination for response to a discharge of oil or release of a hazardous substance, pollutant, or contaminant;

(2) Notification and communications; and

(3) Response operations at the scene of a discharge or release.

(c) The organizational elements created to perform these activities are:

(1) The National Response Team (NRT), responsible for national response and preparedness planning, for coordinating regional planning, and for providing policy guidance and support to the Regional Response Teams. NRT membership consists of representatives from the agencies specified in §300.175.

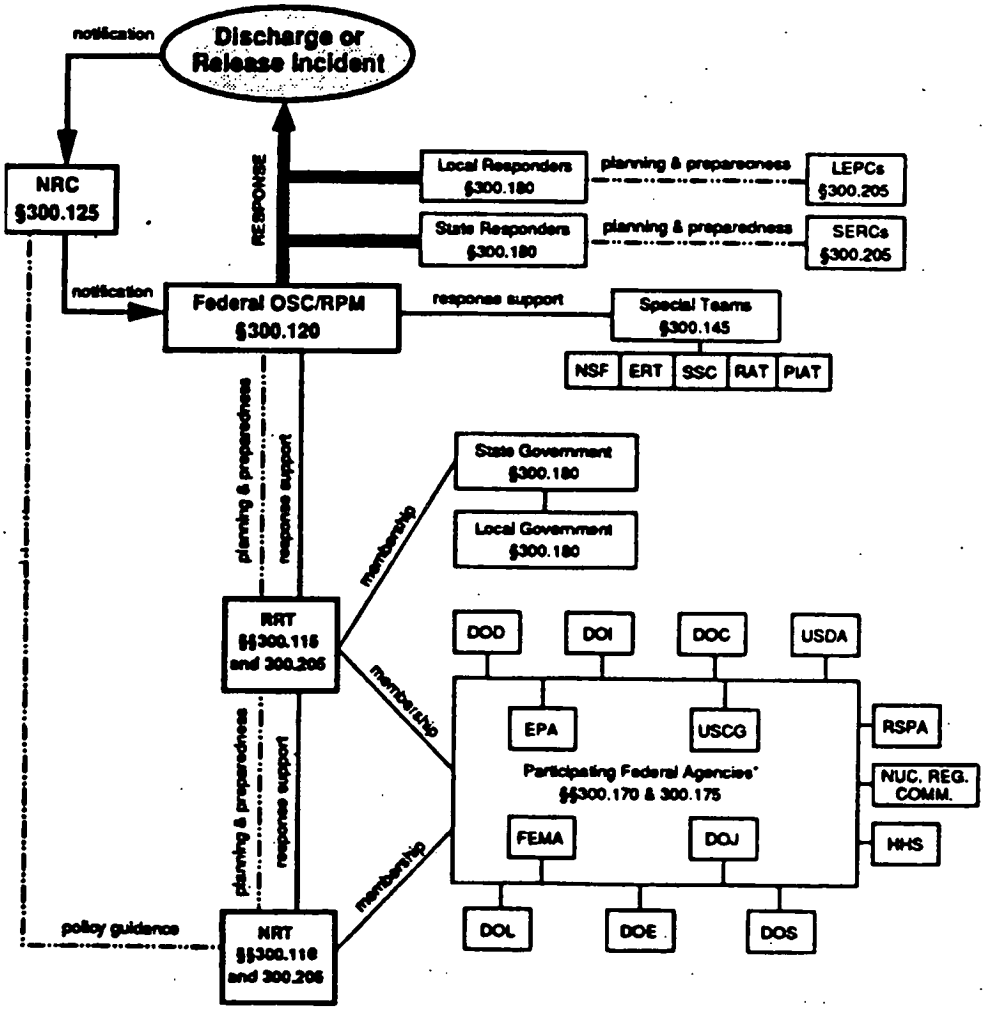
(2) Regional Response Teams (RRTs), responsible for regional planning and preparedness activities before response actions, and for providing advice and support to the on-scene coordinator (OSC) or remedial project manager (RPM) when activated during a response. RRT membership consists of designated representatives from each federal agency participating in the NRT together with state and (as agreed upon by the states) local government representatives.

(3) The OSC and the RPM, primarily responsible for directing response efforts and coordinating all other efforts at the scene of a discharge or release. The other responsibilities of OSCs and RPMs are described in §300.135.

(d)(1) The organizational concepts of the national response system are depicted in the following Figure 1:

Figure 1

National Response System Concepts



*The same federal agencies participate on both the National Response Team (NRT) and the Regional Response Team (RRT). Federal agencies on the RRT are represented by regional staff. Abbreviations used in this figure are explained in §300.4.

(2) The standard federal regional boundaries (which are also the geographic areas of responsibility for the Regional Response Teams) are shown in the following Figure 2:

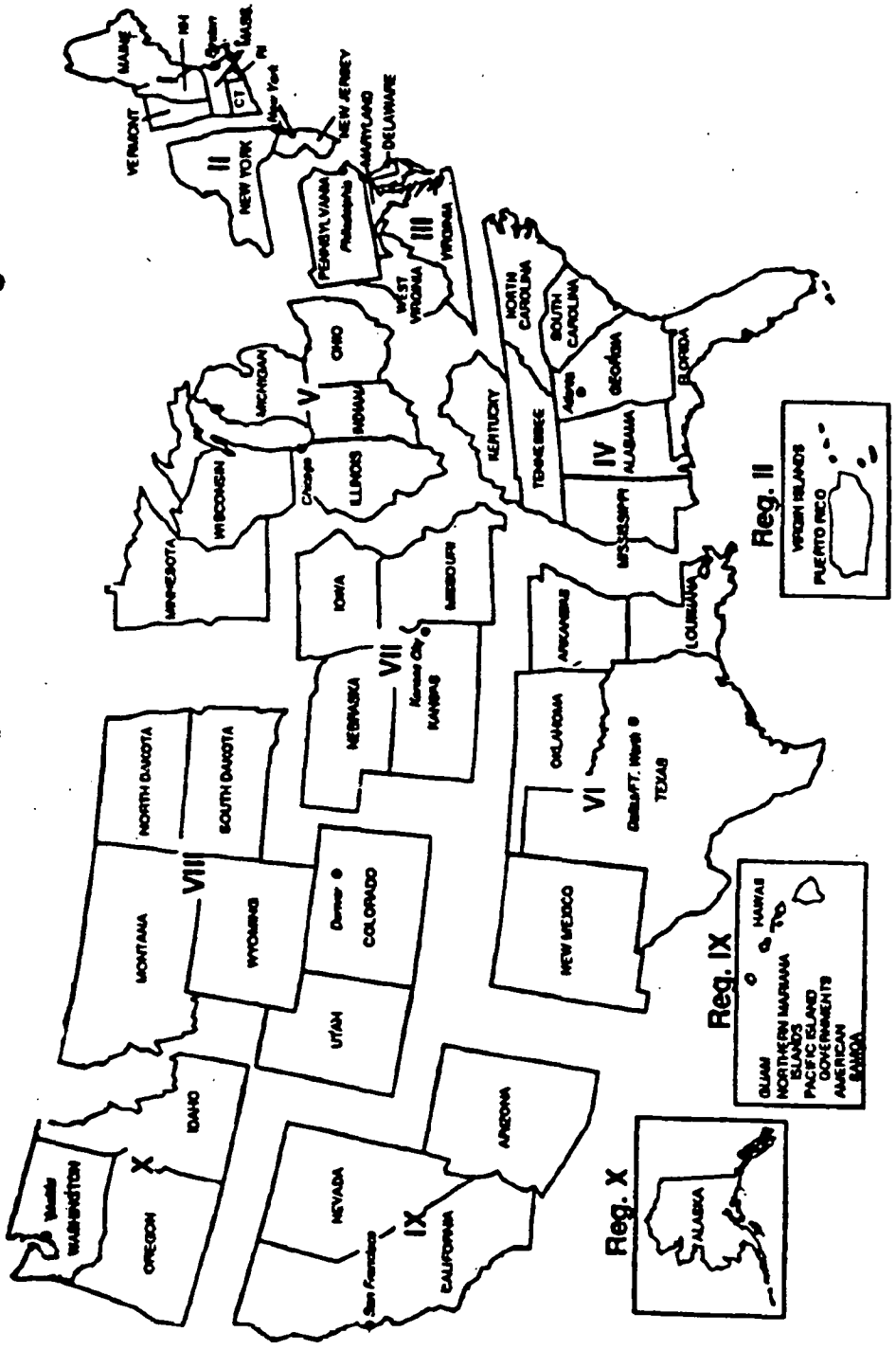
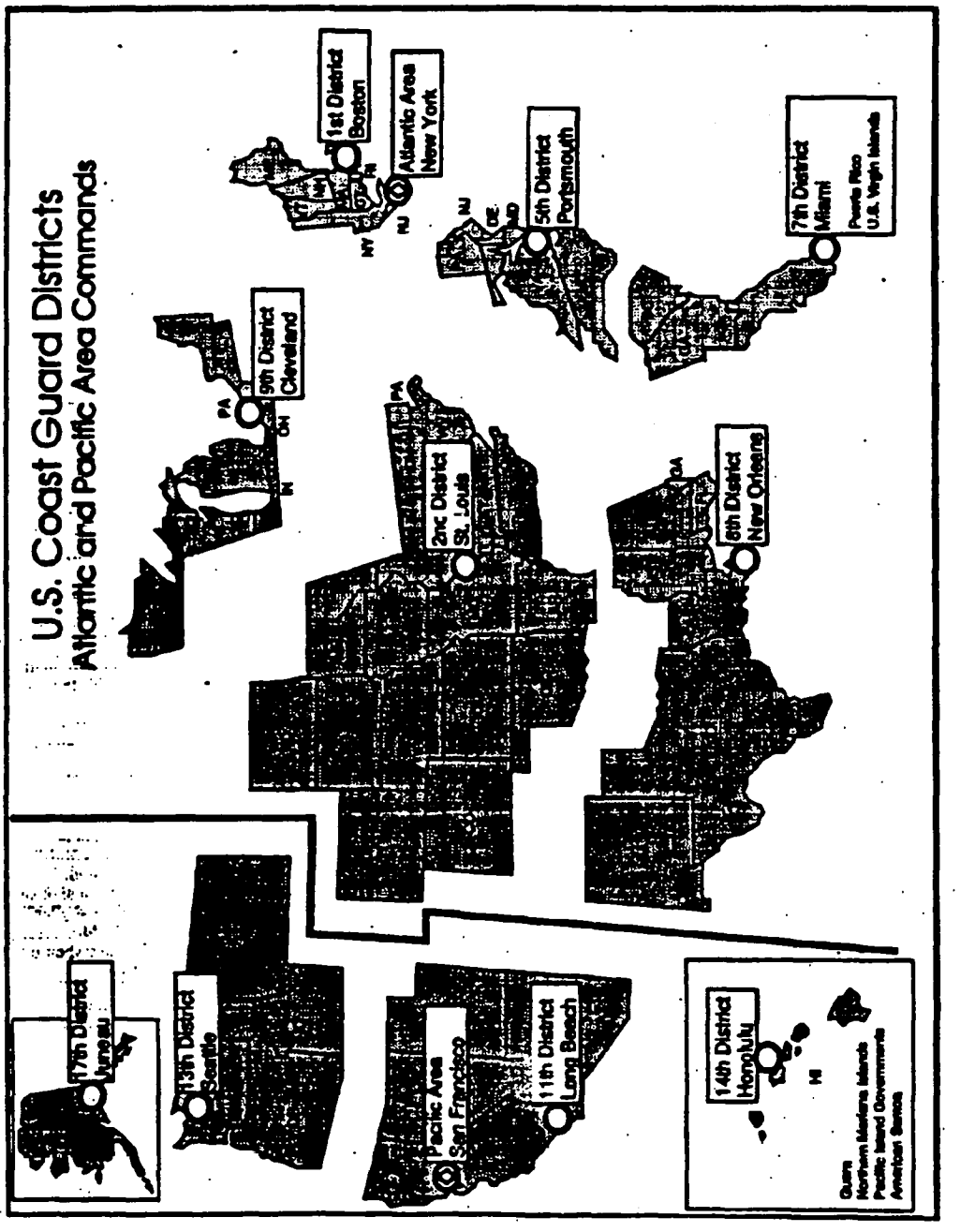


Figure 2 — Standard Regional Boundaries for Ten Regions

(3) The USCG District boundaries are shown in the following Figure 3:



§300.110 National Response Team.

National planning and coordination is accomplished through the National Response Team (NRT).

(a) The NRT consists of representatives from the agencies named in §300.175. Each agency shall designate a member to the team and sufficient alternates to ensure representation, as agency resources permit. The NRT will consider requests for membership on the NRT from other agencies. Other agencies may request membership by forwarding such requests to the chair of the NRT.

(b) The chair of the NRT shall be the representative of EPA and the vice chair shall be the representative of the USCG, with the exception of periods of activation because of response action. During activation, the chair shall be the member agency providing the OSC/RPM. The vice chair shall maintain records of NRT activities along with national, regional, and OSC plans for response actions.

(c) While the NRT desires to achieve a consensus on all matters brought before it, certain matters may prove unresolvable by this means. In such cases, each agency serving as a participating agency on the NRT may be accorded one vote in NRT proceedings.

(d) The NRT may establish such bylaws and committees as it deems appropriate to further the purposes for which it is established.

(e) The NRT shall evaluate methods of responding to discharges or releases, shall recommend any changes needed in the response organization, and may recommend revisions to the NCP.

(f) The NRT shall provide policy and program direction to the RRTs.

(g) The NRT may consider and make recommendations to appropriate agencies on the training, equipping, and protection of response teams and necessary research, development, demonstration, and evaluation to improve response capabilities.

(h) Direct planning and preparedness responsibilities of the NRT include:

(1) Maintaining national preparedness to respond to a major discharge of oil or release of a hazardous substance, pollutant, or contaminant that is beyond regional capabilities;

(2) Publishing guidance documents for preparation and implementation of SARA Title III local emergency response plans;

(3) Monitoring incoming reports from all RRTs and activating for a response action, when necessary;

(4) Coordinating a national program to assist member agencies in preparedness planning and response, and enhancing coordination of member agency preparedness programs;

(5) Developing procedures to ensure the coordination of federal, state, and local governments, and private response to oil discharges and releases of hazardous substances, pollutants, or contaminants;

(6) Monitoring response-related research and development, testing, and evaluation activities of NRT agencies to enhance coordination and avoid duplication of effort;

(7) Developing recommendations for response training and for enhancing the coordination of available resources among agencies with training responsibilities under the NCP; and

(8) Reviewing regional responses to oil discharges and hazardous substance, pollutant, or contaminant releases, including an evaluation of equipment readiness and coordination among responsible public agencies and private organizations.

(i) The NRT will consider matters referred to it for advice or resolution by an RRT.

(j) The NRT should be activated as an emergency response team:

(1) When an oil discharge or hazardous substance release:

(i) Exceeds the response capability of the region in which it occurs;

(ii) Transects regional boundaries; or

(iii) Involves a significant threat to public health or welfare or the environment, substantial amounts of property, or substantial threats to natural resources; or

(2) If requested by any NRT member.

(k) When activated for a response action, the NRT shall meet at the call of the chair and may:

(1) Monitor and evaluate reports from the OSC/RPM and recommend to the OSC/RPM, through the RRT, actions to combat the discharge or release;

(2) Request other federal, state, and local governments, or private agencies, to provide resources under their existing authorities to combat a discharge or release, or to monitor response operations; and

(3) Coordinate the supply of equipment, personnel, or technical advice to the affected region from other regions or districts.

§300.115 Regional Response Teams.

(a) Regional planning and coordination of preparedness and response actions is accomplished through the RRT. The RRT agency membership parallels that of the NRT, as described in §300.110, but also includes state and local representation. The RRT provides the appropriate regional mechanism for development and coordination of preparedness activities before a response action is taken and for coordination of assistance and advice to the OSC/RPM during such response actions.

(b) The two principal components of the RRT mechanism are a standing team, which consists of designated representatives from each participating federal agency, state governments, and local governments (as agreed upon by the states); and incident-specific teams formed from the standing team when the RRT is activated for a response. On incident-specific teams, participation by the RRT member agencies will relate to the technical nature of the incident and its geographic location.

(1) The standing team's jurisdiction corresponds to the standard federal regions, except for Alaska, Oceania in the Pacific, and the Caribbean area, each of which has a separate standing RRT. The role of the standing RRT includes communications systems and procedures, planning, coordination, training, evaluation, preparedness, and related matters on a regionwide basis.

(2) The role of the incident-specific team is determined by the operational requirements of the response to a specific discharge or release. Appropriate levels of activation and/or notification of the incident-specific RRT, including participation by state and local governments, shall be determined by the designated RRT chair for the incident, based on the Regional Contingency Plan (RCP). The incident-specific RRT supports the designated OSC/RPM. The designated OSC/RPM directs response efforts and coordinates all other efforts at the scene of a discharge or release.

(c) The representatives of EPA and the USCG shall act as co-chairs of RRTs except when the RRT is activated. When the RRT is activated for response actions, the chair shall be the member agency providing the OSC/RPM.

(d) Each participating agency should designate one member and at least one alternate member to the RRT. Agencies whose regional subdivisions do not correspond to the standard federal regions may designate additional representatives to the standing RRT to ensure appropriate coverage of the standard federal region. Participating states may also designate one member and at least one alternate member to the RRT. Indian tribal governments may arrange for representation with the RRT appropriate to their geographical location. All agencies and states may also provide additional representatives as observers to meetings of the RRT.

(e) RRT members should designate representatives and alternates from their agencies as resource personnel for RRT activities, including RRT work planning, and membership on incident-specific teams in support of the OSCs/RPMs.

(f) Federal RRT members or their representatives should provide OSCs/RPMs with assistance from their respective federal agencies commensurate with agency responsibilities, resources, and capabilities within the region. During a response action, the members of the RRT should seek to make available the resources of their agencies to the OSC/RPM as specified in the RCP and OSC contingency plan.

(g) RRT members should designate appropriately qualified representatives from their agencies to work with OSCs in developing and maintaining OSC contingency plans, described in §300.210, that provide for use of agency resources in responding to discharges and releases.

(h) Affected states are encouraged to participate actively in all RRT activities. Each state governor is requested to assign an office or agency to represent the state on the appropriate RRT; to designate representatives to work with the RRT and OSCs in developing RCPs and OSC contingency plans; to plan for, make available, and coordinate state resources; and to serve as the contact point for coordination of response with local government agencies, whether or not represented on the RRT. The state's RRT representative should keep the State Emergency Response Commission (SERC), described in §300.205(c),

apprised of RRT activities and coordinate RRT activities with the SERC. Local governments and Indian tribes are invited to participate in activities on the appropriate RRT as provided by state law or as arranged by the state's representative.

(i) The standing RRT shall recommend changes in the regional response organization as needed, revise the RCP as needed, evaluate the preparedness of the participating agencies and the effectiveness of OSC contingency plans for the federal response to discharges and releases, and provide technical assistance for preparedness to the response community. The RRT should:

(1) Review and comment, to the extent practicable, on local emergency response plans or other issues related to the preparation, implementation, or exercise of such plans upon request of a local emergency planning committee;

(2) Evaluate regional and local responses to discharges or releases on a continuing basis, considering available legal remedies, equipment readiness, and coordination among responsible public agencies and private organizations, and recommend improvements;

(3) Recommend revisions of the NCP to the NRT, based on observations of response operations;

(4) Review OSC actions to ensure that RCPs and OSC contingency plans are effective;

(5) Encourage the state and local response community to improve its preparedness for response;

(6) Conduct advance planning for use of dispersants, surface collection agents, burning agents, biological additives, or other chemical agents in accordance with subpart J of this part;

(7) Be prepared to provide response resources to major discharges or releases outside the region;

(8) Conduct or participate in training and exercises as necessary to encourage preparedness activities of the response community within the region;

(9) Meet at least semiannually to review response actions carried out during the preceding period and consider changes in RCPs and OSC contingency plans; and

(10) Provide letter reports on RRT activities to the NRT twice a year, no later than January 31 and July 31. At a minimum, reports should summarize recent activities, organizational changes, operational concerns, and efforts to improve state and local coordination.

(j)(1) The RRT may be activated by the chair as an incident-specific response team when a discharge or release:

(i) Exceeds the response capability available to the OSC/RPM in the place where it occurs;

(ii) Transects state boundaries; or

(iii) May pose a substantial threat to the public health or welfare or the environment, or to regionally significant amounts of property. RCPs shall specify detailed criteria for activation of RRTs.

(2) The RRT will be activated during any discharge or release upon a request from the OSC/RPM, or from any RRT representative, to the chair of the RRT. Requests for RRT activation shall later be confirmed in writing. Each representative, or an appropriate alternate, should be notified immediately when the RRT is activated.

(3) During prolonged removal or remedial action, the RRT may not need to be activated or may need to be activated only in a limited sense, or may need to have available only those member agencies of the RRT who are directly affected or who can provide direct response assistance.

(4) When the RRT is activated for a discharge or release, agency representatives shall meet at the call of the chair and may:

(i) Monitor and evaluate reports from the OSC/RPM, advise the OSC/RPM on the duration and extent of response, and recommend to the OSC/RPM specific actions to respond to the discharge or release;

(ii) Request other federal, state, or local governments, or private agencies, to provide resources under their existing authorities to respond to a discharge or release or to monitor response operations;

(iii) Help the OSC/RPM prepare information releases for the public and for communication with the NRT;

(iv) If the circumstances warrant, make recommendations to the regional or district head of the agency providing the OSC/RPM that a different OSC/RPM should be designated; and

(v) Submit pollution reports to the NRC as significant developments occur.

(5) At the regional level, a Regional Response Center (RRC) may provide facilities and personnel for communications, information storage, and other requirements

for coordinating response. The location of each RRC should be provided in the RCP.

(6) When the RRT is activated, affected states may participate in all RRT deliberations. State government representatives participating in the RRT have the same status as any federal member of the RRT.

(7) The RRT can be deactivated when the incident-specific RRT chair determines that the OSC/RPM no longer requires RRT assistance.

(8) Notification of the RRT may be appropriate when full activation is not necessary, with systematic communication of pollution reports or other means to keep RRT members informed as to actions of potential concern to a particular agency, or to assist in later RRT evaluation of regionwide response effectiveness.

(k) Whenever there is insufficient national policy guidance on a matter before the RRT, a technical matter requiring solution, or a question concerning interpretation of the NCP, or there is a disagreement on discretionary actions among RRT members that cannot be resolved at the regional level, it may be referred to the NRT, described in §300.110, for advice.

§300.120 On-scene coordinators and remedial project managers: general responsibilities.

(a) The OSC/RPM directs response efforts and coordinates all other efforts at the scene of a discharge or release. As part of the planning and preparedness for response, OSCs shall be predesignated by the regional or district head of the lead agency. EPA and the USCG shall predesignate OSCs for all areas in each region, except as provided in paragraphs (b) and (c) of this section. RPMs shall be assigned by the lead agency to manage remedial or other response actions at NPL sites, except as provided in paragraphs (b) and (c) of this section.

(1) The USCG shall provide OSCs for oil discharges, including discharges from facilities and vessels under the jurisdiction of another federal agency, within or threatening the coastal zone. The USCG shall also provide OSCs for the removal of releases of hazardous substances, pollutants, or contaminants into or threatening the coastal zone, except as provided in paragraph (b) of this section. The USCG shall not provide predesignated OSCs for discharges or releases from hazardous waste management facilities or in similarly chronic incidents. The USCG shall provide an initial response to discharges or releases from hazardous waste management facilities within the coastal zone in accordance with DOT/EPA Instrument of Redelegation (May 27, 1988) except as provided by paragraph (b) of this section. The USCG OSC shall contact the cognizant RPM as soon as it is evident that a removal may require a follow-up remedial action, to ensure that the required planning can be initiated and an orderly transition to an EPA or state lead can occur.

(2) EPA shall provide OSCs for discharges or releases into or threatening the inland zone and shall provide RPMs for federally funded remedial actions, except in the case of state-lead federally funded response and as provided in paragraph (b) of this section. EPA will also assume all remedial actions at NPL sites in the coastal zone, even where removals are initiated by the USCG, except as provided in paragraph (b) of this section.

(b) For releases of hazardous substances, pollutants, or contaminants, when the release is on, or the sole source of the release is from, any facility or vessel, including vessels bareboat-chartered and operated, under the jurisdiction, custody, or control of DOD, DOE, or other federal agency:

(1) In the case of DOD or DOE, DOD or DOE shall provide OSCs/RPMs responsible for taking all response actions; and

(2) In the case of a federal agency other than EPA, DOD, or DOE, such agency shall provide OSCs for all removal actions that are not emergencies and shall provide RPMs for all remedial actions.

(c) DOD will be the removal response authority with respect to incidents involving DOD military weapons and munitions or weapons and munitions under the jurisdiction, custody, or control of DOD.

(d) The OSC is responsible for developing any OSC contingency plans for the federal response in the area of the OSC's responsibility. The planning shall, as appropriate, be accomplished in cooperation with the RRT, described in §300.115, and designated state and local representatives. The OSC coordinates, directs, and reviews the work of other agencies, responsible parties, and contractors to assure compliance with the

NCP, decision document, consent decree, administrative order, and, lead agency-approved plans applicable to the response.

(e) The RPM is the prime contact for remedial or other response actions being taken (or needed) at sites on the proposed or promulgated NPL, and for sites not on the NPL but under the jurisdiction, custody, or control of a federal agency. The RPM's responsibilities include:

(1) Fund-financed response: The RPM coordinates, directs, and reviews the work of EPA, states and local governments, the U.S. Army Corps of Engineers, and all other agencies and contractors to assure compliance with the NCP. Based upon the reports of these parties, the RPM recommends action for decisions by lead-agency officials. The RPM's period of responsibility begins prior to initiation of the remedial investigation/feasibility study (RI/FS), described in §300.430, and continues through design, remedial action, deletion of the site from the NPL, and the CERCLA cost recovery activity. When a removal and remedial action occur at the same site, the OSC and RPM should coordinate to ensure an orderly transition of responsibility.

(2) Federal-lead non-Fund-financed response: The RPM coordinates, directs, and reviews the work of other agencies, responsible parties, and contractors to assure compliance with the NCP, ROD, consent decree, administrative order, and lead agency-approved plans applicable to the response. Based upon the reports of these parties, the RPM shall recommend action for decisions by lead agency officials. The RPM's period of responsibility begins prior to initiation of the RI/FS, described in §300.430, and continues through design and remedial action and the CERCLA cost recovery activity. The OSC and RPM shall ensure orderly transition of responsibilities from one to the other.

(3) The RPM shall participate in all decision-making processes necessary to ensure compliance with the NCP, including, as appropriate, agreements between EPA or other federal agencies and the state. The RPM may also review responses where EPA has preauthorized a person to file a claim for reimbursement to determine that the response was consistent with the terms of such preauthorization in cases where claims are filed for reimbursement.

(f)(1) Where a support agency has been identified through a cooperative agreement, SMOA, or other agreement, that agency may designate a support agency coordinator (SAC) to provide assistance, as requested, by the OSC/RPM. The SAC is the prime representative of the support agency for response actions.

(2) The SAC's responsibilities may include:

(i) Providing and reviewing data and documents as requested by the OSC/RPM during the planning, design, and cleanup activities of the response action; and

(ii) Providing other assistance as requested.

(g)(1) The lead agency should provide appropriate training for its OSCs, RPMs, and other response personnel to carry out their responsibilities under the NCP.

(2) OSCs/RPMs should ensure that persons designated to act as their on-scene representatives are adequately trained and prepared to carry out actions under the NCP, to the extent practicable.

§300.125 Notification and communications.

(a) The National Response Center (NRC), located at USCG Headquarters, is the national communications center, continuously manned for handling activities related to response actions. The NRC acts as the single point of contact for all pollution incident reporting, and as the NRT communications center. Notice of discharges must be made telephonically through a toll free number or a special local number (Telecommunication Device for the Deaf (TDD) and collect calls accepted). (Notification details appear in §§300.300 and 300.405.) The NRC receives and immediately relays telephone notices of discharges or releases to the appropriate predesignated federal OSC. The telephone report is distributed to any interested NRT member agency or federal entity that has established a written agreement or understanding with the NRC. The NRC evaluates incoming information and immediately advises FEMA of a potential major disaster or evacuation situation.

(b) The Commandant, USCG, in conjunction with other NRT agencies, shall provide the necessary personnel, communications, plotting facilities, and equipment for the NRC.

(c) Notice of an oil discharge or release of a hazardous substance in an amount

equal to or greater than the reportable quantity must be made immediately in accordance with 33 CFR part 153, subpart B, and 40 CFR part 302, respectively. Notification shall be made to the NRC Duty Officer, HQ USCG, Washington, DC, telephone (800) 424-8802 or (202) 267-2675. All notices of discharges or releases received at the NRC will be relayed immediately by telephone to the OSC.

§300.130 Determinations to initiate response and special conditions.

(a) In accordance with CWA and CERCLA, the Administrator of EPA or the Secretary of the Department in which the USCG is operating, as appropriate, is authorized to act for the United States to take response measures deemed necessary to protect the public health or welfare or environment from discharges of oil or releases of hazardous substances, pollutants, or contaminants except with respect to such releases on or from vessels or facilities under the jurisdiction, custody, or control of other federal agencies.

(b) The Administrator of EPA or the Secretary of the Department in which the USCG is operating, as appropriate, is authorized to initiate appropriate response activities when the Administrator or Secretary determines that:

(1) Any oil is discharged from any vessel or offshore or onshore facility into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or which may affect natural resources belonging to, appertaining to, or under exclusive management authority of the United States;

(2) Any hazardous substance is released or there is a threat of such a release into the environment, or there is a release or threat of release into the environment of any pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare; or

(3) A marine disaster in or upon the navigable waters of the United States has created a substantial threat of a pollution hazard to the public health or welfare because of a discharge or release, or an imminent discharge or release, from a vessel of large quantities of oil or hazardous substances designated pursuant to section 311(b)(2)(A) of the CWA.

(c) Whenever there is such a marine disaster, the Administrator of EPA or Secretary of the Department in which the USCG is operating may:

(1) Coordinate and direct all public and private efforts to abate the threat; and

(2) Summarily remove and, if necessary, destroy the vessel by whatever means are available without regard to any provisions of law governing the employment of personnel or the expenditure of appropriated funds.

(d) In addition to any actions taken by a state or local government, the Administrator of EPA or the Secretary of the Department in which the USCG is operating may request the U.S. Attorney General to secure the relief necessary to abate a threat if the Administrator or Secretary determines:

(1) That there is an imminent and substantial threat to the public health or welfare or the environment because of discharge of oil from any offshore or onshore facility into or upon the navigable waters of the United States; or

(2) That there may be an imminent and substantial endangerment to the public health or welfare or the environment because of a release of a hazardous substance from a facility.

(e) Response actions to remove discharges originating from operations conducted subject to the Outer Continental Shelf Lands Act shall be in accordance with the NCP.

(f) Where appropriate, when a discharge or release involves radioactive materials, the lead or support federal agency shall act consistent with the notification and assistance procedures described in the appropriate Federal Radiological Plan. For the purpose of the NCP, the Federal Radiological Emergency Response Plan (FRERP) (50 FR 46542, November 8, 1985) is the appropriate plan.

(g) Removal actions involving nuclear weapons should be conducted in accordance with the joint Department of Defense, Department of Energy, and Federal Emergency Management Agency Agreement for Response to Nuclear Incidents and Nuclear Weapons Significant Incidents (January 8, 1981).

(h) If the situation is beyond the capability of state and local governments and the statutory authority of federal agencies, the President may, under the Disaster Relief Act of 1974, act upon a

request by the governor and declare a major disaster or emergency and appoint a Federal Coordinating Officer (FCO) to coordinate all federal disaster assistance activities. In such cases, the OSC/RPM would continue to carry out OSC/RPM responsibilities under the NCP, but would coordinate those activities with the FCO to ensure consistency with other federal disaster assistance activities.

§300.135 Response operations.

(a) The OSC/RPM, consistent with §§300.120 and 300.125, shall direct response efforts and coordinate all other efforts at the scene of a discharge or release. As part of the planning and preparation for response, the OSCs/RPMs shall be predesignated by the regional or district head of the lead agency.

(b) The first federal official affiliated with an NRT member agency to arrive at the scene of a discharge or release should coordinate activities under the NCP and is authorized to initiate, in consultation with the OSC, any necessary actions normally carried out by the OSC until the arrival of the predesignated OSC. This official may initiate federal Fund-financed actions only as authorized by the OSC or, if the OSC is unavailable, the authorized representative of the lead agency.

(c) The OSC/RPM shall, to the extent practicable, collect pertinent facts about the discharge or release, such as its source and cause; the identification of potentially responsible parties; the nature, amount, and location of discharged or released materials; the probable direction and time of travel of discharged or released materials; the pathways to human and environmental exposure; the potential impact on human health, welfare, and safety and the environment; the potential impact on natural resources and property which may be affected; priorities for protecting human health and welfare and the environment; and appropriate cost documentation.

(d) The OSC's/RPM's efforts shall be coordinated with other appropriate federal, state, local, and private response agencies. OSCs/RPMs may designate capable persons from federal, state, or local agencies to act as their on-scene representatives. State and local governments, however, are not authorized to take actions under subparts D and E of the NCP that involve expenditures of CWA section 311(k) or CERCLA funds unless an appropriate contract or cooperative agreement has been established.

(e) The OSC/RPM should consult regularly with the RRT in carrying out the NCP and keep the RRT informed of activities under the NCP.

(f) The OSC/RPM shall advise the support agency as promptly as possible of reported releases.

(g) The OSC/RPM shall immediately notify FEMA of situations potentially requiring evacuation, temporary housing, or permanent relocation. In addition, the OSC/RPM shall evaluate incoming information and immediately advise FEMA of potential major disaster situations.

(h) In those instances where a possible public health emergency exists, the OSC/RPM should notify the HHS representative to the RRT. Throughout response actions, the OSC/RPM may call upon the HHS representative for assistance in determining public health threats and call upon the Occupational Safety and Health Administration (OSHA) and HHS for advice on worker health and safety problems.

(i) All federal agencies should plan for emergencies and develop procedures for dealing with oil discharges and releases of hazardous substances, pollutants, or contaminants from vessels and facilities under their jurisdiction. All federal agencies, therefore, are responsible for designating the office that coordinates response to such incidents in accordance with the NCP and applicable federal regulations and guidelines.

(j) The OSC/RPM shall promptly notify the trustees for natural resources of discharges or releases that are injuring or may injure natural resources under their jurisdiction. The OSC or RPM shall seek to coordinate all response activities with the natural resource trustees.

(k) Where the OSC/RPM becomes aware that a discharge or release may adversely affect any endangered or threatened species, or result in destruction or adverse modification of the habitat of such species, the OSC/RPM should consult with the DOI or DOC (NOAA).

(l) The OSC/RPM is responsible for addressing worker health and safety concerns at a response scene, in accordance with §300.150.

(m) The OSC shall submit pollution reports to the RRT and other appropriate

agencies as significant developments occur during response actions, through communications networks or procedures agreed to by the RRT and covered in the RCP.

(n) OSCs/RPMs should ensure that all appropriate public and private interests are kept informed and that their concerns are considered throughout a response, to the extent practicable, consistent with the requirements of §300.155 of this part.

§300.140 Multi-regional responses.

(a) If a discharge or release moves from the area covered by one RCP or OSC contingency plan into another area, the authority for response actions should likewise shift. If a discharge or release affects areas covered by two or more RCPs, the response mechanisms of both may be activated. In this case, response actions of all regions concerned shall be fully coordinated as detailed in the RCPs.

(b) There shall be only one OSC and/or RPM at any time during the course of a response operation. Should a discharge or release affect two or more areas, EPA, the USCG, DOD, DOE, or other lead agency, as appropriate, shall give prime consideration to the area vulnerable to the greatest threat, in determining which agency should provide the OSC and/or RPM. The RRT shall designate the OSC and/or RPM if the RRT member agencies who have response authority within the affected areas are unable to agree on the designation. The NRT shall designate the OSC and/or RPM if members of one RRT or two adjacent RRTs are unable to agree on the designation.

(c) Where the USCG has initially provided the OSC for response to a release from hazardous waste management facilities located in the coastal zone, responsibility for response action shall shift to EPA or another federal agency, as appropriate.

§300.145 Special teams and other assistance available to OSCs/RPMs.

(a) Strike Teams, collectively known as the National Strike Force (NSF), are established by the USCG on the Pacific coast and Gulf coast (covering the Atlantic and Gulf coast regions), to provide assistance to the OSC/RPM.

(1) Strike Teams can provide communications support, advice, and assistance for oil and hazardous substances removal. These teams also have knowledge of shipboard damage control, are equipped with specialized containment and removal equipment, and have rapid transportation available. When possible, the Strike Teams will provide training for emergency task forces to support OSCs/RPMs and assist in the development of RCPs and OSC contingency plans.

(2) The OSC/RPM may request assistance from the Strike Teams. Requests for a team may be made directly to the Commanding Officer of the appropriate team, the USCG member of the RRT, the appropriate USCG Area Commander, or the Commandant of the USCG through the NRC.

(b) Each USCG OSC manages emergency task forces trained to evaluate, monitor, and supervise pollution responses. Additionally, they have limited "initial aid" response capability to deploy equipment prior to the arrival of a cleanup contractor or other response personnel.

(c)(1) The Environmental Response Team (ERT) is established by EPA in accordance with its disaster and emergency responsibilities. The ERT has expertise in treatment technology, biology, chemistry, hydrology, geology, and engineering.

(2) The ERT can provide access to special decontamination equipment for chemical releases and advice to the OSC/RPM in hazard evaluation; risk assessment; multimedia sampling and analysis program; on-site safety, including development and implementation plans; cleanup techniques and priorities; water supply decontamination and protection; application of dispersants; environmental assessment; degree of cleanup required; and disposal of contaminated material.

(3) The ERT also provides both introductory and intermediate level training courses to prepare response personnel.

(4) OSC/RPM or RRT requests for ERT support should be made to the EPA representative on the RRT; EPA Headquarters, Director, Emergency Response Division; or the appropriate EPA regional emergency coordinator.

(d) Scientific support coordinators (SSCs) are available, at the request of OSCs/RPMs, to assist with actual or potential responses to discharges of oil or releases of hazardous substances, pollutants, or contaminants. The SSC will

also provide scientific support for the development of RCPs and OSC contingency plans. Generally, SSCs are provided by NOAA in coastal and marine areas, and by EPA in inland regions. In the case of NOAA, SSCs may be supported in the field by a team providing, as necessary, expertise in chemistry, trajectory modeling, natural resources at risk, and data management.

(1) During a response, the SSC serves under the direction of the OSC/RPM and is responsible for providing scientific support for operational decisions and for coordinating on-scene scientific activity. Depending on the nature of the incident, the SSC can be expected to provide certain specialized scientific skills and to work with governmental agencies, universities, community representatives, and industry to compile information that would assist the OSC/RPM in assessing the hazards and potential effects of discharges and releases and in developing response strategies.

(2) If requested by the OSC/RPM, the SSC will serve as the principal liaison for scientific information and will facilitate communications to and from the scientific community on response issues. The SSC, in this role, will strive for a consensus on scientific issues surrounding the response but will also ensure that any differing opinions within the community are communicated to the OSC/RPM.

(3) The SSC will assist the OSC/RPM in responding to requests for assistance from state and federal agencies regarding scientific studies and environmental assessments. Details on access to scientific support shall be included in the RCPs.

(e) For marine salvage operations, OSCs/RPMs with responsibility for monitoring, evaluating, or supervising these activities should request technical assistance from DOD, the Strike Teams, or commercial salvors as necessary to ensure that proper actions are taken. Marine salvage operations generally fall into five categories: Afloat salvage; offshore salvage; river and harbor clearance; cargo salvage; and rescue towing. Each category requires different knowledge and specialized types of equipment. The complexity of such operations may be further compounded by local environmental and geographic conditions. The nature of marine salvage and the conditions under which it occurs combine to make such operations imprecise, difficult, hazardous, and expensive. Thus, responsible parties or other persons attempting to perform such operations without adequate knowledge, equipment, and experience could aggravate, rather than relieve, the situation.

(f) Radiological Assistance Teams (RATs) have been established by EPA's Office of Radiation Programs (ORP) to provide response and support for incidents or sites containing radiological hazards. Expertise is available in radiation monitoring, radionuclide analysis, radiation health physics, and risk assessment. Radiological Assistance Teams can provide on-site support including mobile monitoring laboratories for field analyses of samples and fixed laboratories for radiochemical sampling and analyses. Requests for support may be made 24 hours a day to the Radiological Response Coordinator in the EPA Office of Radiation Programs. Assistance is also available from the Department of Energy and other federal agencies.

(g) The USCG Public Information Assist Team (PIAT) is available to assist OSCs/RPMs and regional or district offices to meet the demands for public information and participation. Its use is encouraged any time the OSC/RPM requires outside public affairs support. Requests for the PIAT may be made through the NRC.

§300.150 Worker health and safety.

(a) Response actions under the NCP will comply with the provisions for response action worker safety and health in 29 CFR 1910.120.

(b) In a response action taken by a responsible party, the responsible party must assure that an occupational safety and health program consistent with 29 CFR 1910.120 is made available for the protection of workers at the response site.

(c) In a response taken under the NCP by a lead agency, an occupational safety and health program should be made available for the protection of workers at the response site, consistent with, and to the extent required by, 29 CFR 1910.120. Contracts relating to a response action under the NCP should contain assurances that the contractor at the response site will comply with this program and with any applicable provisions of the OSH Act and state OSH laws.

(d) When a state, or political subdivision of a state, without an OSHA-approved state plan is the lead agency for response, the

state or political subdivision must comply with standards in 40 CFR part 311, promulgated by EPA pursuant to section 126(f) of SARA.

(e) Requirements, standards, and regulations of the Occupational Safety and Health Act of 1970 (29 U.S.C. 651 et seq.) (OSH Act) and of state laws with plans approved under section 18 of the OSH Act (state OSH laws), not directly referenced in paragraphs (a) through (d) of this section, must be complied with where applicable. Federal OSH Act requirements include, among other things, Construction Standards (29 CFR part 1926), General Industry Standards (29 CFR part 1910), and the general duty requirement of section 5(a)(1) of the OSH Act (29 U.S.C. 654(a)(1)). No action by the lead agency with respect to response activities under the NCP constitutes an exercise of statutory authority within the meaning of section 4(b)(1) of the OSH Act. All governmental agencies and private employers are directly responsible for the health and safety of their own employees.

§300.155 Public information and community relations.

(a) When an incident occurs, it is imperative to give the public prompt, accurate information on the nature of the incident and the actions underway to mitigate the damage. OSCs/RPMs and community relations personnel should ensure that all appropriate public and private interests are kept informed and that their concerns are considered throughout a response. They should coordinate with available public affairs/community relations resources to carry out this responsibility.

(b) An on-scene news office may be established to coordinate media relations and to issue official federal information on an incident. Whenever possible, it will be headed by a representative of the lead agency. The OSC/RPM determines the location of the on-scene news office, but every effort should be made to locate it near the scene of the incident. If a participating agency believes public interest warrants the issuance of statements and an on-scene news office has not been established, the affected agency should recommend its establishment. All federal news releases or statements by participating agencies should be cleared through the OSC/RPM.

(c) The community relations requirements specified in §§300.415, 300.430, and 300.435 apply to removal, remedial, and enforcement actions and are intended to promote active communication between communities affected by discharges or releases and the lead agency responsible for response actions. Community Relations Plans (CRPs) are required by EPA for certain response actions. The OSC/RPM should ensure coordination with such plans which may be in effect at the scene of a discharge or release or which may need to be developed during follow-up activities.

§300.160 Documentation and cost recovery.

(a) For releases of a hazardous substance, pollutant, or contaminant, the following provisions apply:

(1) During all phases of response, the lead agency shall complete and maintain documentation to support all actions taken under the NCP and to form the basis for cost recovery. In general, documentation shall be sufficient to provide the source and circumstances of the release, the identity of responsible parties, the response action taken, accurate accounting of federal, state, or private party costs incurred for response actions, and impacts and potential impacts to the public health and welfare and the environment. Where applicable, documentation shall state when the NRC received notification of a release of a reportable quantity.

(2) The information and reports obtained by the lead agency for Fund-financed response actions shall, as appropriate, be transmitted to the chair of the RRT. Copies can then be forwarded to the NRT, members of the RRT, and others as appropriate. In addition, OSCs shall submit reports as required under §300.165.

(3) The lead agency shall make available to the trustees of affected natural resources information and documentation that can assist the trustees in the determination of actual or potential natural resource injuries.

(b) For discharges of oil, documentation and cost recovery provisions are described in §300.315.

(c) Response actions undertaken by the participating agencies shall be carried out under existing programs and authorities when available. Federal agencies are to make resources available, expend funds, or

participate in response to discharges and releases under their existing authority. Interagency agreements may be signed when necessary to ensure that the federal resources will be available for a timely response to a discharge or release. The ultimate decision as to the appropriateness of expending funds rests with the agency that is held accountable for such expenditures. Further funding provisions for discharges of oil are described in §300.335.

(d) The Administrator of EPA and the Administrator of the Agency for Toxic Substances and Disease Registry (ATSDR) shall assure that the costs of health assessment or health effect studies conducted under the authority of CERCLA section 104(i) are documented in accordance with standard EPA procedures for cost recovery. Documentation shall include information on the nature of the hazardous substances addressed by the research, information concerning the locations where these substances have been found, and any available information on response actions taken concerning these substances at the location.

§300.165 OSC reports.

(a) Within one year after completion of removal activities at a major discharge of oil, a major release of a hazardous substance, pollutant, or contaminant, or when requested by the RRT, the OSC/RPM shall submit to the RRT a complete report on the removal operation and the actions taken. The OSC/RPM shall at the same time send a copy of the report to the Secretary of the NRT. The RRT shall review the OSC report and send to the NRT a copy of the OSC report with its comments or recommendations within 30 days after the RRT has received the OSC report.

(b) The OSC report shall record the situation as it developed, the actions taken, the resources committed, and the problems encountered.

(c) The format for the OSC report shall be as follows:

(1) Summary of Events – a chronological narrative of all events, including:

(i) The location of the hazardous substance, pollutant, or contaminant release or oil discharge, including, for oil discharges, an indication of whether the discharge was in connection with activities regulated under the Outer Continental Shelf Lands Act (OCSLA), the Trans-Alaska Pipeline Authorization Act, or the Deepwater Port Act;

(ii) The cause of the discharge or release;

(iii) The initial situation;

(iv) Efforts to obtain response by responsible parties;

(v) The organization of the response, including state participation;

(vi) The resources committed;

(vii) Content and time of notice to natural resource trustees relating injury or possible injury to natural resources;

(viii) Federal or state trustee damage assessment activities and efforts to replace or restore damaged natural resources;

(ix) Details of any threat abatement action taken under CERCLA or under section 311(c) or (d) of the CWA;

(x) Treatment/disposal/alternative technology approaches pursued and followed; and

(xi) Public information/community relations activities.

(2) Effectiveness of removal actions taken by:

(i) The responsible party(ies);

(ii) State and local forces;

(iii) Federal agencies and special teams; and

(iv) Contractors, private groups, and volunteers, if applicable.

(3) Difficulties Encountered – A list of items that affected the response, with particular attention to issues of intergovernmental coordination.

(4) Recommendations – OSC/RPM recommendations, including at a minimum:

(i) Means to prevent a recurrence of the discharge or release;

(ii) Improvement of response actions; and

(iii) Any recommended changes in the NCP, RCP, OSC contingency plan, and, as appropriate, plans developed under section 303 of SARA and other local emergency response plans.

§300.170 Federal agency participation.

Federal agencies listed in §300.175 have duties established by statute, executive order, or Presidential directive which may apply to federal response actions following, or in prevention of, the discharge of oil or release of a hazardous substance, pollutant, or contaminant. Some of these agencies also have duties relating to the rehabilitation, restoration, or replacement of natural resources injured or lost as a result of such discharge or release as described in subpart

G of this part. The NRT and RRT organizational structure, and the NCP, federal regional contingency plans (RCPs), and OSC contingency plans, described in §300.210, provide for agencies to coordinate with each other in carrying out these duties.

(a) Federal agencies may be called upon by an OSC/RPM during response planning and implementation to provide assistance in their respective areas of expertise, as described in §300.175, consistent with the agencies' capabilities and authorities.

(b) In addition to their general responsibilities, federal agencies should:

(1) Make necessary information available to the Secretary of the NRT, RRTs, and OSCs/RPMs.

(2) Provide representatives to the NRT and RRTs and otherwise assist RRTs and OSCs, as necessary, in formulating RCPs and OSC contingency plans.

(3) Inform the NRT and RRTs, consistent with national security considerations, of changes in the availability of resources that would affect the operations implemented under the NCP.

(c) All federal agencies are responsible for reporting releases of hazardous substances from facilities or vessels under their jurisdiction or control in accordance with section 103 of CERCLA.

(d) All federal agencies are encouraged to report releases of pollutants or contaminants or discharges of oil from vessels under their jurisdiction or control to the NRC.

§300.175 Federal agencies: additional responsibilities and assistance.

(a) During preparedness planning or in an actual response, various federal agencies may be called upon to provide assistance in their respective areas of expertise, as indicated in paragraph (b) of this section, consistent with agency legal authorities and capabilities.

(b) The federal agencies include:

(1) The United States Coast Guard (USCG), as provided in 14 U.S.C. 1-3, is an agency in the Department of Transportation (DOT), except when operating as an agency in the United States Navy in time of war. The USCG provides the NRT vice chair, co-chairs for the standing RRTs, and predesignated OSCs for the coastal zone, as described in §300.120(a)(1). The USCG maintains continuously manned facilities which can be used for command, control, and surveillance of oil discharges and hazardous substance releases occurring in the coastal zone, The USCG also offers expertise in domestic and international fields of port safety and security, maritime law enforcement, ship navigation and construction, and the manning, operation, and safety of vessels and marine facilities. The USCG may enter into a contract or cooperative agreement with the appropriate state in order to implement a response action.

(2) The Environmental Protection Agency (EPA) chairs the NRT and co-chairs, with the USCG, the standing RRTs; provides predesignated OSCs for the inland zone and RPMs for remedial actions except as otherwise provided; and generally provides the SSC for responses in the inland zone. EPA provides expertise on environmental effects of oil discharges or releases of hazardous substances, pollutants, or contaminants, and environmental pollution control techniques. EPA also provides legal expertise on the interpretation of CERCLA and other environmental statutes. EPA may enter into a contract or cooperative agreement with the appropriate state in order to implement a response action.

(3) The Federal Emergency Management Agency (FEMA) provides guidance, policy and program advice, and technical assistance in hazardous materials and radiological emergency preparedness activities (planning, training, and exercising). In a response, FEMA provides advice and assistance to the lead agency on coordinating relocation assistance and mitigation efforts with other federal agencies, state and local governments, and the private sector. FEMA may enter into a contract or cooperative agreement with the appropriate state or political subdivision in order to implement relocation assistance in a response. In the event of a hazardous materials incident at a major disaster or emergency declared by the President, the lead agency shall coordinate hazardous materials response with the Federal Coordinating Officer (FCO) appointed by the President.

(4) The Department of Defense (DOD) has responsibility to take all action necessary with respect to releases where either the release is on, or the sole source of the release is from, any facility or vessel

under the jurisdiction, custody, or control of DOD. DOD may also, consistent with its operational requirements and upon request of the OSC, provide locally deployed United States Navy oil spill equipment and provide assistance to other federal agencies on request. The following two branches of DOD have particularly relevant expertise:

(i) The United States Army Corps of Engineers has specialized equipment and personnel for maintaining navigation channels, for removing navigation obstruction, for accomplishing structural repairs, and for performing maintenance to hydropower electric generating equipment. The Corps can also provide design services, perform construction, and provide contract writing and contract administrative services for other federal agencies.

(ii) The United States Navy (USN) is the federal agency most knowledgeable and experienced in ship salvage, shipboard damage control, and diving. The USN has an extensive array of specialized equipment and personnel available for use in these areas as well as specialized containment, collection, and removal equipment specifically designed for salvage-related and open-sea pollution incidents.

(5) The Department of Energy (DOE) generally provides designated OSCs/RPMs that are responsible for taking all response actions with respect to releases where either the release is on, or the sole source of the release is from, any facility or vessel under its jurisdiction, custody, or control, including vessels bareboat-chartered and operated. In addition, under the Federal Radiological Emergency Response Plan (FRERP), DOE provides advice and assistance to other OSCs/RPMs for emergency actions essential for the control of immediate radiological hazards. Incidents that qualify for DOE radiological advice and assistance are those believed to involve source, by-product, or special nuclear material or other ionizing radiation sources, including radium, and other naturally occurring radionuclides, as well as particle accelerators. Assistance is available through direct contact with the appropriate DOE Radiological Assistance Coordinating Office.

(6) The Department of Agriculture (USDA) has scientific and technical capability to measure, evaluate, and monitor, either on the ground or by use of aircraft, situations where natural resources including soil, water, wildlife, and vegetation have been impacted by fire, insects and diseases, floods, hazardous substances, and other natural or man-caused emergencies. The USDA may be contacted through Forest Service emergency staff officers who are the designated members of the RRT. Agencies within USDA have relevant capabilities and expertise as follows:

(i) The Forest Service has responsibility for protection and management of national forests and national grasslands. The Forest Service has personnel, laboratory, and field capability to measure, evaluate, monitor, and control as needed, releases of pesticides and other hazardous substances on lands under its jurisdiction.

(ii) The Agriculture Research Service (ARS) administers an applied and developmental research program in animal and plant protection and production; the use and improvement of soil, water, and air; the processing, storage, and distribution of farm products; and human nutrition. The ARS has the capabilities to provide regulation of, and evaluation and training for, employees exposed to biological, chemical, radiological, and industrial hazards. In emergency situations, the ARS can identify, control, and abate pollution in the areas of air, soil, wastes, pesticides, radiation, and toxic substances for ARS facilities.

(iii) The Soil Conservation Service (SCS) has personnel in nearly every county in the nation who are knowledgeable in soil, agronomy, engineering, and biology. These personnel can help to predict the effects of pollutants on soil and their movements over and through soils. Technical specialists can assist in identifying potential hazardous waste sites and provide review and advice on plans for remedial measures.

(iv) The Animal and Plant Health Inspection Service (APHIS) can respond in an emergency to regulate movement of diseased or infected organisms to prevent the spread and contamination of nonaffected areas.

(v) The Food Safety and Inspection Service (FSIS) has responsibility to prevent meat and poultry products contaminated with harmful substances from entering human food channels. In emergencies, the FSIS works with other federal and state agencies to establish acceptability for slaughter of exposed or potentially exposed animals and their products. In addition they are charged with managing the Federal

Radiological Emergency Response Program for the USDA.

(7) The Department of Commerce (DOC), through NOAA, provides scientific support for response and contingency planning in coastal and marine areas, including assessments of the hazards that may be involved, predictions of movement and dispersion of oil and hazardous substances through trajectory modeling, and information on the sensitivity of coastal environments to oil and hazardous substances; provides expertise on living marine resources and their habitats, including endangered species, marine mammals and National Marine Sanctuary ecosystems; provides information on actual and predicted meteorological, hydrological, ice, and oceanographic conditions for marine, coastal, and inland waters, and tide and circulation data for coastal and territorial waters and for the Great Lakes.

(8) The Department of Health and Human Services (HHS) is responsible for providing assistance on matters related to the assessment of health hazards at a response, and protection of both response workers and the public's health. HHS is delegated authorities under section 104(b) of CERCLA relating to a determination that illness, disease, or complaints thereof may be attributable to exposure to a hazardous substance, pollutant, or contaminant. HHS programs and services may be carried out through grants, contracts, or cooperative agreements. The basic research programs shall be coordinated with the Superfund research, demonstration, and development program conducted by EPA and DOD through the mechanisms provided for in CERCLA. Agencies within HHS have relevant responsibilities, capabilities, and expertise as follows:

(i) The Agency for Toxic Substances and Disease Registry (ATSDR), under section 104(i) of CERCLA, is required to: Establish appropriate disease/exposure registries; provide medical care and testing of exposed individuals in cases of public health emergencies; develop, maintain, and provide information on health effects of toxic substances; maintain a list of areas restricted or closed because of toxic substances contamination; conduct research to determine relationships between exposure to toxic substances and illness; conduct health assessments at all NPL sites; conduct a health assessment in response to a petition or provide a written explanation why an assessment will not be conducted; together with EPA, identify the most hazardous substances related to CERCLA sites; together with EPA, develop guidelines for toxicological profiles for hazardous substances; develop a toxicological profile for all such substances; and develop educational materials related to health effects of toxic substances for health professionals.

(ii) The National Institutes for Environmental Health Sciences (NIEHS) has been given the responsibilities under section 311(a) of CERCLA, to conduct and support programs of basic research, development, and demonstration; and to establish short course and continuing education programs, and graduate or advanced training. In addition, section 126(g) of SARA authorizes NIEHS to administer grants for training and education of workers who are or may be engaged in activities related to hazardous waste removal, containment, or emergency responses.

(9) The Department of the Interior (DOI) may be contacted through Regional Environmental Officers (REOs), who are the designated members of RRTs. Department land managers have jurisdiction over the national park system, national wildlife refuges and fish hatcheries, the public lands, and certain water projects in western states. In addition, bureaus and offices have relevant expertise as follows:

(i) Fish and Wildlife Service: Anadromous and certain other fishes and wildlife, including endangered and threatened species, migratory birds, and certain marine mammals; waters and wetlands; contaminants affecting habitat resources; and laboratory research facilities.

(ii) Geological Survey: Geology, hydrology (ground water and surface water), and natural hazards.

(iii) Bureau of Land Management: Minerals, soils, vegetation, wildlife, habitat, archaeology, and wilderness; and hazardous materials.

(iv) Minerals Management Service: Manned facilities for Outer Continental Shelf (OCS) oversight.

(v) Bureau of Mines: Analysis and identification of inorganic hazardous substances and technical expertise in

metals and metallurgy relevant to site cleanup.

(vi) Office of Surface Mining: Coal mine wastes and land reclamation.

(vii) National Park Service: Biological and general natural resources expert personnel at park units.

(viii) Bureau of Reclamation: Operation and maintenance of water projects in the West; engineering and hydrology; and reservoirs.

(ix) Bureau of Indian Affairs: Coordination of activities affecting Indian lands; assistance in identifying Indian tribal government officials.

(x) Office of Territorial Affairs: Assistance in implementing the NCP in American Samoa, Guam, the Pacific Island Governments, the Northern Mariana Islands, and the Virgin Islands.

(10) The Department of Justice (DOJ) can provide expert advice on complicated legal questions arising from discharges or releases, and federal agency responses. In addition, the DOJ represents the federal government, including its agencies, in litigation relating to such discharges or releases.

(11) The Department of Labor (DOL), through the Occupational Safety and Health Administration (OSHA) and the states operating plans approved under section 18 of the Occupational Safety and Health Act of 1970 (OSH Act), has authority to conduct safety and health inspections of hazardous waste sites to assure that employees are being protected and to determine if the site is in compliance with:

(i) Safety and health standards and regulations promulgated by OSHA (or the states) in accordance with section 126 of SARA and all other applicable standards; and

(ii) Regulations promulgated under the OSH Act and its general duty clause. OSHA inspections may be self-generated, consistent with its program operations and objectives, or may be conducted in response to requests from EPA or another lead agency. OSHA may also conduct inspections in response to accidents or employee complaints. OSHA may also conduct inspections at hazardous waste sites in those states with approved plans that choose not to exercise their jurisdiction to inspect such sites. On request, OSHA will provide advice and assistance to EPA and other NRT/RRT agencies as well as to the OSC/RPM regarding hazards to persons engaged in response activities. Technical assistance may include review of site safety plans and work practices, assistance with exposure monitoring, and help with other compliance questions. OSHA may also take any other action necessary to assure that employees are properly protected at such response activities. Any questions about occupational safety and health at these sites should be referred to the OSHA Regional Office.

(12) The Department of Transportation (DOT) provides response expertise pertaining to transportation of oil or hazardous substances by all modes of transportation. Through the Research and Special Programs Administration (RSPA), DOT offers expertise in the requirements for packaging, handling, and transporting regulated hazardous materials.

(13) The Department of State (DOS) will lead in the development of international joint contingency plans. It will also help to coordinate an international response when discharges or releases cross international boundaries or involve foreign flag vessels. Additionally, DOS will coordinate requests for assistance from foreign governments and U.S. proposals for conducting research at incidents that occur in waters of other countries.

(14) The Nuclear Regulatory Commission will respond, as appropriate, to releases of radioactive materials by its licensees, in accordance with the NRC Incident Response Plan (NUREG-0728) to monitor the actions of those licensees and assure that the public health and environment are protected and adequate recovery operations are instituted. The Nuclear Regulatory Commission will keep EPA informed of any significant actual or potential releases in accordance with procedural agreements. In addition, the Nuclear Regulatory Commission will provide advice to the OSC/RPM when assistance is required in identifying the source and character of other hazardous substance releases where the Nuclear Regulatory Commission has licensing authority for activities utilizing radioactive materials.

(15) The National Response Center (NRC), located at USCG Headquarters, is the national communications center, continuously manned for handling activities related to response actions. The NRC acts as the single federal point of contact for all

pollution incident reporting and as the NRT communications center. These response actions include: Oil and hazardous substances, radiological, biological, etiological, surety materials, munitions, and fuels. Notice of discharges must be made telephonically through a toll free number or a special local number (Telecommunication Device for the Deaf (TDD) and collect calls accepted.) The telephone report is distributed to any interested NRT member agency or federal entity that has established a written agreement or understanding with the NRC. Each telephone notice is magnetically voice recorded and manually entered into an on-line computer data base. The NRC tracks medium, major, and potential, major spills and provides incident summaries to all NRT members and other interested parties. The NRC evaluates incoming information and immediately advises FEMA of a potential major disaster or evacuations situation. The NRC provides facilities for the NRT to use in coordinating a national response action, when required; assists in arrangements for regular as well as special NRT meetings and maintains information on the time and place of such meetings; and sends representatives to RRT meetings as appropriate. The NRC is available to assist all NRT agencies as needed.

§300.180 State and local participation in response.

(a) Each state governor is requested to designate one state office/representative to represent the state on the appropriate RRT. The state's office/representative may participate fully in all activities of the appropriate RRT. Each state governor is also requested to designate a lead state agency that will direct state-lead response operations. This agency is responsible for designating the OSC/RPM for state-lead response actions, designating SACs for federal-lead response actions, and coordinating/communicating with any other state agencies, as appropriate. Local governments are invited to participate in activities on the appropriate RRT as may be provided by state law or arranged by the state's representative. Indian tribes wishing to participate should assign one person or office to represent the tribal government on the appropriate RRT.

(b) In addition to meeting the requirements for local emergency plans under SARA section 303, state and local government agencies are encouraged to include contingency planning for responses, consistent with the NCP and the RCP, in all emergency and disaster planning.

(c) For facilities not addressed under CERCLA, states are encouraged to undertake response actions themselves or to use their authorities to compel potentially responsible parties to undertake response actions.

(d) States are encouraged to enter into cooperative agreements pursuant to section 104(c)(3) and (d) of CERCLA to enable them to undertake actions authorized under subparts D and E of the NCP. Requirements for entering into these agreements are included in subpart F of the NCP. A state agency that acts pursuant to such agreements is referred to as the lead agency. In the event there is no cooperative agreement, the lead agency can be designated in a SMOA or other agreement.

(e) Because state and local public safety organizations would normally be the first government representatives at the scene of a discharge or release, they are expected to initiate public safety measures that are necessary to protect public health and welfare and that are consistent with containment and cleanup requirements in the NCP, and are responsible for directing evacuations pursuant to existing state or local procedures.

§300.185 Nongovernmental participation.

(a) Industry groups, academic organizations, and others are encouraged to commit resources for response operations. Specific commitments should be listed in the RCP and OSC contingency plans.

(b) The technical and scientific information generated by the local community, along with information from federal, state, and local governments, should be used to assist the OSC/RPM in devising response strategies where effective standard techniques are unavailable. The SSC may act as liaison between the OSC/RPM and such interested organizations.

(c) OSC contingency plans shall establish procedures to allow for well organized, worthwhile, and safe use of volunteers, including compliance with §300.150 regarding worker health and

safety. OSC contingency plans should provide for the direction of volunteers by the OSC/RPM or by other federal, state, or local officials knowledgeable in contingency operations and capable of providing leadership. OSC contingency plans also should identify specific areas in which volunteers can be used, such as beach surveillance, logistical support, and bird and wildlife treatment. Unless specifically requested by the OSC/RPM, volunteers generally should not be used for physical removal or remedial activities. If, in the judgment of the OSC/RPM, dangerous conditions exist, volunteers shall be restricted from on-scene operations.

(d) Nongovernmental participation must be in compliance with the requirements of subpart H of this part if any recovery of costs will be sought.

Subpart C – Planning and Preparedness

§300.200 General.

This subpart summarizes emergency preparedness activities relating to discharges of oil and releases of hazardous substances, pollutants, or contaminants; describes the federal, state, and local planning structure; provides for three levels of federal contingency plans; and cross-references state and local emergency preparedness activities under SARA Title III, also known as the "Emergency Planning and Community Right-to-Know Act of 1986" but referred to herein as "Title III." Regulations implementing Title III are codified at 40 CFR subchapter J.

§300.205 Planning and coordination structure.

(a) National. As described in §300.110, the NRT is responsible for national planning and coordination.

(b) Regional. As described in §300.115, the RRTs are responsible for regional planning and coordination.

(c) State. As provided by sections 301 and 303 of SARA, the state emergency response commission (SERC) of each state, appointed by the Governor, is to designate emergency planning districts, appoint local emergency planning committees (LEPCs), supervise and coordinate their activities, and review local emergency response plans, which are described in §300.215. The SERC also is to establish procedures for receiving and processing requests from the public for information generated by Title III reporting requirements and to designate an official to serve as coordinator for information.

(d) Local. As provided by sections 301 and 303 of SARA, emergency planning districts are designated by the SERC in order to facilitate the preparation and implementation of emergency plans. Each LEPC is to prepare a local emergency response plan for the emergency planning district and establish procedures for receiving and processing requests from the public for information generated by Title III reporting requirements. The LEPC is to appoint a chair and establish rules for the LEPC. The LEPC is to designate an official to serve as coordinator for information.

§300.210 Federal contingency plans.

There are three levels of federal contingency plans: The National Contingency Plan, regional contingency plans (RCPs), and OSC contingency plans. These plans are available for inspection at EPA regional offices or USCG district offices. Addresses and telephone numbers for these offices may be found in the United States Government Manual, issued annually, or in local telephone directories.

(a) The National Contingency Plan. The purpose and objectives, authority, and scope of the NCP are described in §§300.1 through 300.3.

(b) Regional contingency plans. The RRTs, working with the states, shall develop federal RCPs for each standard federal region, Alaska, Oceania in the Pacific, and the Caribbean to coordinate timely, effective response by various federal agencies and other organizations to discharges of oil or releases of hazardous substances, pollutants, or contaminants. RCPs shall, as appropriate, include information on all useful facilities and resources in the region, from government, commercial, academic, and other sources. To the greatest extent possible, RCPs shall follow the format of the NCP and coordinate with state emergency response plans, OSC contingency plans, which are described in §300.210(c), and Title III local emergency response plans, which are described in §300.215. Such coordination should be accomplished by working with the SERCs in the region covered by the RCP. RCPs shall contain lines of demarcation between the inland and coastal zones, as mutually agreed upon by USCG and EPA.

(c)(1) OSC contingency plans. In order to provide for a coordinated, effective federal, state, and local response, each OSC, in consultation with the RRT, may develop an OSC contingency plan for response in the OSC area of responsibility. OSC contingency plans shall be developed in all areas in the coastal zone, because OSCs in the coastal zone have responsibility for discharges and releases offshore, which often exceed the jurisdiction and capabilities of other responders. Boundaries for OSC contingency plans shall coincide with those agreed upon among EPA, USCG, DOE, and DOD, subject to functions and authorities delegated in Executive Order 12580, to determine OSC areas of responsibility and should be clearly indicated in the RCP. Jurisdictional boundaries of local emergency planning districts established by states, described in §300.205(c), shall, as appropriate, be considered in determining OSC areas of responsibility. OSC areas of responsibility may include several such local emergency planning districts, or parts of such districts. In developing the OSC contingency plan, OSCs shall coordinate with SERCs and LEPCs affected by the OSC area of responsibility.

(2) The OSC contingency plan shall provide for a well-coordinated response that is integrated and compatible with all appropriate response plans of state, local, and other nonfederal entities, and especially with Title III local emergency response plans, described in §300.215, or in the OSC area of responsibility. The OSC contingency plan shall, as appropriate, identify the probable locations of discharges or releases; the available resources to respond to multi-media incidents; where such resources can be obtained; waste disposal methods and facilities consistent with local and state plans developed under the Solid Waste Disposal Act, 42 U.S.C. 6901 et seq.; and a local structure for responding to discharges or releases.

§300.215 Title III local emergency response plans.

This section describes and cross-references the regulations that implement Title III of SARA. These regulations are codified at 40 CFR part 355.

(a) Each LEPC is to prepare an emergency response plan in accordance with section 303 of SARA Title III and review the plan once a year, or more frequently as changed circumstances in the community or at any subject facility may require. Such Title III local emergency response plans should be closely coordinated with applicable federal OSC contingency plans and state emergency response plans.

(b) A facility, as defined in 40 CFR part 355, is subject to emergency planning requirements if an extremely hazardous substance, as defined in 40 CFR part 355, is present at the facility in an amount equal to or in excess of the threshold planning quantity established for such substance. In addition, for the purposes of emergency planning, a Governor or SERC may designate additional facilities that shall be subject to planning requirements, if such designation is made after public notice and opportunity for comment. EPA may revise the list of extremely hazardous substances and threshold planning quantities, taking into account the toxicity, reactivity, volatility, dispersability, combustibility, or flammability of a substance. Facility owners or operators are to name a facility representative who will participate in the planning process as a facility emergency coordinator.

(c) In accordance with section 303 of SARA, each local emergency response plan is to include, but is not limited to, the following:

(1) Identification of facilities subject to Title III emergency planning requirements that are within the emergency planning district; routes likely to be used for the transportation of substances on the list of extremely hazardous substances; and any additional facilities, such as hospitals or natural gas facilities, contributing or subjected to additional risk due to their proximity to facilities subject to Title III emergency planning requirements;

(2) Methods and procedures to be followed by facility owners and operators and local emergency and medical personnel to respond to any release, as defined in 40 CFR part 355, of extremely hazardous substances;

(3) Designation of a community emergency coordinator and a facility emergency coordinator for each facility subject to Title III emergency planning requirements, who will make determinations necessary to implement the emergency response plan;

(4) Procedures providing reliable, effective, and timely notification by the facility emergency coordinators and the community emergency coordinator to persons designated in the emergency response plan, and to the public, that a release has occurred;

(5) Methods for determining the occurrence of a release and the area or population likely to be affected by such a release;

(6) A description of emergency equipment and facilities in the community and at each facility in the community subject to Title III emergency planning requirements, including an identification of the persons responsible for such equipment and facilities;

(7) Evacuation plans, including provisions for precautionary evacuation and alternative traffic routes;

(8) Training programs, including schedules for training of local emergency response and medical personnel; and

(9) Methods and schedules for exercising the emergency response plan.

(d) In accordance with section 303 of SARA, the SERC of each state is to review the emergency response plan developed by the LEPC of each emergency planning district and make recommendations to the LEPC on revisions that may be necessary to ensure coordination of the plan with emergency response plans of other emergency planning districts. RRTs may review a local emergency response plan at the request of the LEPC. This request should be made by the LEPC, through the SERC and the state representative on the RRT.

(e) Title III establishes reporting requirements that provide useful information in developing emergency plans.

(1) Upon request from the LEPC, facility owners or operators shall provide promptly to such LEPC information necessary for developing and implementing the emergency response plan.

(2) Facilities required to prepare or have available a material safety data sheet (MSDS) for a hazardous chemical, as defined in 40 CFR part 370, under the Occupational Safety and Health Act of 1970, 29 U.S.C. 651 et seq., and regulations promulgated under that Act, shall submit a MSDS for each hazardous chemical or a list of hazardous chemicals to the appropriate SERC, LEPC, and local fire department in accordance with 40 CFR part 370.

(3) Facilities subject to the requirements of paragraph (e)(2) of this section shall also submit an inventory form to the SERC, LEPC, and the local fire department, which contains an estimate of the maximum amount of hazardous chemicals present at the facility during the preceding year, an estimate of the average daily amount of hazardous chemicals at the facility, and the location of these hazardous chemicals at the facility, in accordance with 40 CFR part 370.

(4) Certain facilities with 10 or more employees and which manufacture, process, or use a toxic chemical, as defined in 40 CFR part 372, in excess of a statutorily prescribed quantity, shall submit annual information on the chemical and releases of the chemical into the environment to EPA and the state in accordance with 40 CFR part 372.

(f) Immediately after a release of an extremely hazardous substance, or a hazardous substance subject to the notification requirements of CERCLA section 103(a), the owner or operator of a facility, as defined in 40 CFR part 355, shall notify the community emergency coordinator for the appropriate LEPC and the appropriate SERC in accordance with 40 CFR part 355. As soon as practicable after such a release has occurred, the facility owner or operator shall provide a written follow-up emergency notice, or notices, if more information becomes available, setting forth and updating the information contained in the initial release notification and including additional information with respect to response actions taken, health risks associated with the release, and, where appropriate, advice regarding medical attention necessary for exposed individuals. For releases of hazardous substances subject to the notification requirements of CERCLA section 103(a), immediate notification must also be made to the NRC, as provided in §300.405(b).

(g) Title III requires public access to information submitted pursuant to its reporting requirements. Each emergency response plan, MSDS, inventory form, toxic chemical release form, and follow-up emergency release notification is to be made available to the general public during normal working hours at the location(s)

designated by the EPA Administrator, Governor, SERC, or LEPC, as appropriate.

§300.220 Related Title III issues.

Other related Title III requirements are found in 40 CFR part 355.

Subpart D—Operational Response Phases for Oil Removal

§300.300 Phase I—Discovery or notification.

(a) A discharge of oil may be discovered through:

(1) A report submitted by the person in charge of a vessel or facility, in accordance with statutory requirements;

(2) Deliberate search by patrols;

(3) Random or incidental observation by government agencies or the public; or

(4) Other sources.

(b) Any person in charge of a vessel or a facility shall, as soon as he or she has knowledge of any discharge from such vessel or facility in violation of section 311(b)(3) of the Clean Water Act, immediately notify the NRC. If direct reporting to the NRC is not practicable, reports may be made to the USCG or EPA predesignated OSC for the geographic area where the discharge occurs. The EPA predesignated OSC may also be contacted through the regional 24-hour emergency response telephone number. All such reports shall be promptly relayed to the NRC. If it is not possible to notify the NRC or predesignated OSC immediately, reports may be made immediately to the nearest Coast Guard unit. In any event such person in charge of the vessel or facility shall notify the NRC as soon as possible.

(c) Any other person shall, as appropriate, notify the NRC of a discharge of oil.

(d) Upon receipt of a notification of discharge, the NRC shall promptly notify the OSC. The OSC shall proceed with the following phases as outlined in the RCP and OSC contingency plan.

§300.305 Phase II—Preliminary assessment and initiation of action.

(a) The OSC is responsible for promptly initiating a preliminary assessment.

(b) The preliminary assessment shall be conducted using available information, supplemented where necessary and possible by an on-scene inspection. The OSC shall undertake actions to:

(1) Evaluate the magnitude and severity of the discharge or threat to public health or welfare or the environment;

(2) Assess the feasibility of removal;

(3) To the extent practicable, identify potentially responsible parties; and

(4) Ensure that authority exists for undertaking additional response actions.

(c) The OSC, in consultation with legal authorities when appropriate, shall make a reasonable effort to have the discharger voluntarily and promptly perform removal actions. The OSC shall ensure adequate surveillance over whatever actions are initiated. If effective actions are not being taken to eliminate the threat, or if removal is not being properly done, the OSC shall, to the extent practicable under the circumstances, so advise the responsible party. If the responsible party does not take proper removal actions, or is unknown, or is otherwise unavailable, the OSC shall, pursuant to section 311(c)(1) of the CWA, determine whether authority for a federal response exists, and, if so, take appropriate response actions. Where practicable, continuing efforts should be made to encourage response by responsible parties.

(d) If natural resources are or may be injured by the discharge, the OSC shall ensure that state and federal trustees of affected natural resources are promptly notified in order that the trustees may initiate appropriate actions, including those identified in subpart G. The OSC shall seek to coordinate assessments, evaluations, investigations, and planning with state and federal trustees.

§300.310 Phase III—Containment, countermeasures, cleanup, and disposal.

(a) Defensive actions shall begin as soon as possible to prevent, minimize, or mitigate threat(s) to public health or welfare or the environment. Actions may include but are not limited to: Analyzing water samples to determine the source and spread of the oil; controlling the source of discharge; measuring and sampling; source and spread control or salvage operations; placement of physical barriers to deter the spread of the oil and to protect natural resources; control of the water discharged from upstream impoundment; and the use of chemicals and other materials in accordance with subpart

J of this part to restrain the spread of the oil and mitigate its effects.

(b) As appropriate, actions shall be taken to recover the oil or mitigate its effects. Of the numerous chemical or physical methods that may be used, the chosen methods shall be the most consistent with protecting public health and welfare and the environment. Sinking agents shall not be used.

(c) Oil and contaminated materials recovered in cleanup operations shall be disposed of in accordance with the RCP and OSC contingency plan and any applicable laws, regulations, or requirements.

§300.315 Phase IV—Documentation and cost recovery.

(a) Documentation shall be collected and maintained to support all actions taken under the CWA and to form the basis for cost recovery. Whenever practicable, documentation shall be sufficient to prove the source and circumstances of the incident, the responsible party or parties, and impact and potential impacts to public health and welfare and the environment. When appropriate, documentation shall also be collected for scientific understanding of the environment and for the research and development of improved response methods and technology. Damages to private citizens, including loss of earnings, are not addressed by the NCP. Evidentiary and cost documentation procedures are specified in the USCG Marine Safety Manual (Commandant Instruction M16000.11) and further provisions are contained in 33 CFR part 153.

(b) OSCs shall submit OSC reports to the RRT as required by §300.165.

(c) OSCs shall ensure the necessary collection and safeguarding of information, samples, and reports. Samples and information shall be gathered expeditiously during the response to ensure an accurate record of the impacts incurred. Documentation materials shall be made available to the trustees of affected natural resources. The OSC shall make available to trustees of the affected natural resources information and documentation that can assist the trustees in the determination of actual or potential natural resource injuries.

(d) Information and reports obtained by the EPA or USCG OSC shall be transmitted to the appropriate offices responsible for follow-up actions.

§300.320 General pattern of response.

(a) When the OSC receives a report of a discharge, actions normally should be taken in the following sequence:

(1) When the reported discharge is an actual or potential major discharge, immediately notify the RRT, including the affected state, if appropriate, and the NRC.

(2) Investigate the report to determine pertinent information such as the threat posed to public health or welfare or the environment, the type and quantity of polluting material, and the source of the discharge.

(3) Officially classify the size of the discharge and determine the course of action to be followed.

(4) Determine whether a discharger or other person is properly carrying out removal. Removal is being done properly when:

(i) The cleanup is fully sufficient to minimize or mitigate threat(s) to public health and welfare and the environment. Removal efforts are improper to the extent that federal efforts are necessary to minimize further or mitigate those threats; and

(ii) The removal efforts are in accordance with applicable regulations, including the NCP.

(5) Determine whether a state or political subdivision thereof has the capability to carry out response actions and whether a contract or cooperative agreement has been established with the appropriate fund administrator for this purpose.

(6) Notify the trustees of affected natural resources in accordance with the applicable RCP.

(b) The preliminary inquiry will probably show that the situation falls into one of four categories. These categories and the appropriate response to each are outlined below:

(1) If the investigation shows that no discharge occurred, or it shows a minor discharge with no removal action required, the case may be closed for response purposes.

(2) If the investigation shows a minor discharge with the responsible party taking proper removal action, contact shall be established with the party. The removal action shall, whenever possible, be

monitored to ensure continued proper action.

(3) If the investigation shows a minor discharge with improper removal action being taken, the following measures shall be taken:

(i) An immediate effort shall, as appropriate, be made to stop further pollution and remove past and ongoing contamination.

(ii) The responsible party shall be advised of what action will be considered appropriate.

(iii) If the responsible party does not properly respond, the party shall be notified of potential liability for federal response performed under the CWA. This liability includes all costs of removal and may include the costs of assessing and restoring, rehabilitating, replacing, or acquiring the equivalent of damaged natural resources, and other actual or necessary costs of a federal response.

(iv) The OSC shall notify appropriate state and local officials, keep the RRT advised, and initiate Phase III operations, as described in §300.310, as conditions warrant.

(v) Information shall be collected for possible recovery of response costs in accordance with §300.315.

(4) When the investigation shows that an actual or potential medium or major oil discharge exists, the OSC shall follow the same general procedures as for a minor discharge. If appropriate, the OSC shall recommend activation of the RRT.

§300.330 Wildlife conservation.

The Department of the Interior, Department of Commerce, and state representatives to the RRT shall arrange for the coordination of professional and volunteer groups permitted and trained to participate in wildlife dispersal, collection, cleaning, rehabilitation, and recovery activities, consistent with 16 U.S.C. 703-712 and applicable state laws. The RCP and OSC contingency plans shall, to the extent practicable, identify organizations or institutions that are permitted to participate in such activities and operate such facilities. Wildlife conservation activities will normally be included in Phase III response actions, described in §300.310.

§300.335 Funding.

(a) If the person responsible for the discharge does not act promptly or take proper removal actions, or if the person responsible for the discharge is unknown, federal discharge removal actions may begin under section 311(c)(1) of the CWA. The discharger, if known, is liable for costs of federal removal in accordance with section 311(f) of the CWA and other federal laws.

(b) Actions undertaken by the participating agencies in response to pollution shall be carried out under existing programs and authorities when available. Federal agencies will make resources available, expend funds, or participate in response to oil discharges under their existing authority. Authority to expend resources will be in accordance with agencies' basic statutes and, if required, through interagency agreements. Where the OSC requests assistance from a federal agency, that agency may be reimbursed in accordance with the provisions of 33 CFR 153.407. Specific interagency reimbursement agreements may be signed when necessary to ensure that the federal resources will be available for a timely response to a discharge of oil. The ultimate decisions as to the appropriateness of expending funds rest with the agency that is held accountable for such expenditures.

(c) The OSC shall exercise sufficient control over removal operations to be able to certify that reimbursement from the following funds is appropriate:

(1) The oil pollution fund, administered by the Commandant, USCG, that has been established pursuant to section 311(k) of the CWA or any other spill response fund established by Congress. Regulations governing the administration and use of the section 311(k) fund are contained in 33 CFR part 153.

(2) The fund authorized by the Deepwater Port Act is administered by the Commandant, USCG. Governing regulations are contained in 33 CFR part 137.

(3) The fund authorized by the Outer Continental Shelf Lands Act, as amended, is administered by the Commandant, USCG. Governing regulations are contained in 33 CFR parts 135 and 136.

(4) The fund authorized by the Trans-Alaska Pipeline Authorization Act is administered by a Board of Trustees under the purview of the Secretary of the Interior. Governing regulations are contained in 43 CFR part 29.

(d) Response actions other than removal, such as scientific investigations not in support of removal actions or law enforcement, shall be provided by the agency with legal responsibility for those specific actions.

(e) The funding of a response to a discharge from a federally operated or supervised facility or vessel is the responsibility of the operating or supervising agency.

(f) The following agencies have funds available for certain discharge removal actions:

(1) EPA may provide funds to begin timely discharge removal actions when the OSC is an EPA representative.

(2) The USCG pollution control efforts are funded under "operating expenses." These funds are used in accordance with agency directives.

(3) The Department of Defense has two specific sources of funds that may be applicable to an oil discharge under appropriate circumstances. This does not consider military resources that might be made available under specific conditions.

(i) Funds required for removal of a sunken vessel or similar obstruction of navigation are available to the Corps of Engineers through Civil Works Appropriations, Operations and Maintenance, General.

(ii) The U.S. Navy may conduct salvage operations contingent on defense operational commitments, when funded by the requesting agency. Such funding may be requested on a direct cite basis.

(4) Pursuant to section 311(c)(2)(H) of the CWA, the state or states affected by a discharge of oil may act where necessary to remove such discharge and may, pursuant to 33 CFR part 153, be reimbursed from the oil pollution fund for the reasonable costs incurred in such a removal.

(i) Removal by a state is necessary within the meaning of section 311(c)(2)(H) of the CWA when the OSC determines that the owner or operator of the vessel, onshore facility, or offshore facility from which the discharge occurs does not effect removal properly, or is unknown, and that:

(A) State action is required to minimize or mitigate significant threat(s) to the public health or welfare or the environment that federal action cannot minimize or mitigate; or

(B) Removal or partial removal can be done by the state at a cost that is less than or not significantly greater than the cost that would be incurred by the federal agencies.

(ii) State removal actions must be in compliance with the NCP in order to qualify for reimbursement.

(iii) State removal actions are considered to be Phase III actions, described in §300.310, under the same definitions applicable to federal agencies.

(iv) Actions taken by local governments in support of federal discharge removal operations are considered to be actions of the state for purposes of this section. The RCP and OSC contingency plan shall show what funds and resources are available from participating agencies under various conditions and cost arrangements. Interagency agreements may be necessary to specify when reimbursement is required.

Subpart E—Hazardous Substance Response

§300.400 General.

(a) This subpart establishes methods and criteria for determining the appropriate extent of response authorized by CERCLA:

(1) When there is a release of a hazardous substance into the environment; or

(2) When there is a release into the environment of any pollutant or contaminant that may present an imminent and substantial danger to the public health or welfare.

(b) Limitations on response. Unless the lead agency determines that a release constitutes a public health or environmental emergency and no other person with the authority and capability to respond will do so in a timely manner, a removal or remedial action under section 104 of CERCLA shall not be undertaken in response to a release:

(1) Of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found;

(2) From products that are part of the structure of, and result in exposure within, residential buildings or business or community structures; or

(3) Into public or private drinking water supplies due to deterioration of the system through ordinary use.

(c) Fund-financed action. In determining the need for and in planning or undertaking Fund-financed action, the lead agency shall, to the extent practicable:

(1) Engage in prompt response;

(2) Provide for state participation in response actions, as described in subpart F of this part;

(3) Conserve Fund monies by encouraging private party response;

(4) Be sensitive to local community concerns;

(5) Consider using treatment technologies;

(6) Involve the Regional Response Team (RRT) in both removal and remedial response actions at appropriate decision-making stages;

(7) Encourage the involvement and sharing of technology by industry and other experts; and

(8) Encourage the involvement of organizations to coordinate responsible party actions, foster site response, and provide technical advice to the public, federal and state governments, and industry.

(d) Entry and access.

(1) For purposes of determining the need for response, or choosing or taking a response action, or otherwise enforcing the provisions of CERCLA, EPA, or the appropriate federal agency, and a state or political subdivision operating pursuant to a contract or cooperative agreement under CERCLA section 104(d)(1), has the authority to enter any vessel, facility, establishment or other place, property, or location described in paragraph (d)(2) of this section and conduct, complete, operate, and maintain any response actions authorized by CERCLA or these regulations.

(2)(i) Under the authorities described in paragraph (d)(1) of this section, EPA, or the appropriate federal agency, and a state or political subdivision operating pursuant to a contract or cooperative agreement under CERCLA section 104(d)(1), may enter:

(A) Any vessel, facility, establishment, or other place or property where any hazardous substance or pollutant or contaminant may be or has been generated, stored, treated, disposed of, or transported from;

(B) Any vessel, facility, establishment, or other place or property from which, or to which, a hazardous substance or pollutant or contaminant has been, or may have been, released or where such release is or may be threatened;

(C) Any vessel, facility, establishment, or other place or property where entry is necessary to determine the need for response or the appropriate response or to effectuate a response action; or

(D) Any vessel, facility, establishment, or other place, property, or location adjacent to those vessels, facilities, establishments, places, or properties described in paragraphs (d)(2)(i)(A), (B), or (C) of this section.

(ii) Once a determination has been made that there is a reasonable basis to believe that there has been or may be a release, EPA, or the appropriate federal agency, and a state or political subdivision operating pursuant to a contract or cooperative agreement under CERCLA section 104(d)(1), is authorized to enter all vessels, facilities, establishments, places, properties, or locations specified in paragraph (d)(2)(i) of this section, at which the release is believed to be, and all other vessels, facilities, establishments, places, properties, or locations identified in paragraph (d)(2)(i) of this section that are related to the response or are necessary to enter in responding to that release.

(3) The lead agency may designate as its representative solely for the purpose of access, among others, one or more potentially responsible parties, including representatives, employees, agents, and contractors of such parties. EPA, or the appropriate federal agency, may exercise the authority contained in section 104(e) of CERCLA to obtain access for its designated representative. A potentially responsible party may only be designated as a representative of the lead agency where that potentially responsible party has agreed to conduct response activities pursuant to an administrative order or consent decree.

(4)(i) If consent is not granted under the authorities described in paragraph (d)(1) of this section, or if consent is conditioned in any manner, EPA, or the appropriate federal agency, may issue an order pursuant to section 104(e)(5) of CERCLA directing compliance with the request for access made under §300.400(d)(1). EPA or the appropriate federal agency may ask the Attorney General to commence a civil action to compel compliance with either a request for access or an order directing compliance.

(ii) EPA reserves the right to proceed, where appropriate, under applicable

authority other than CERCLA section 104(e).

(iii) The administrative order may direct compliance with a request to enter or inspect any vessel, facility, establishment, place, property, or location described in paragraph (d)(2) of this section.

(iv) Each order shall contain:

(A) A determination by EPA, or the appropriate federal agency, that it is reasonable to believe that there may be or has been a release or threat of a release of a hazardous substance or pollutant or contaminant and a statement of the facts upon which the determination is based;

(B) A description, in light of CERCLA response authorities, of the purpose and estimated scope and duration of the entry, including a description of the specific anticipated activities to be conducted pursuant to the order;

(C) A provision advising the person who failed to consent that an officer or employee of the agency that issued the order will be available to confer with respondent prior to effective date of the order; and

(D) A provision advising the person who failed to consent that a court may impose a penalty of up to $25,000 per day for unreasonable failure to comply with the order.

(v) Orders shall be served upon the person or responsible party who failed to consent prior to their effective date. Force shall not be used to compel compliance with an order.

(vi) Orders may not be issued for any criminal investigations.

(e) Permit requirements.

(1) No federal, state, or local permits are required for on-site response actions conducted pursuant to CERCLA sections 104, 106, 120, 121, or 122. The term "on-site" means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action.

(2) Permits, if required, shall be obtained for all response activities conducted off-site.

(f) Health assessments. Health assessments shall be performed by ATSDR at facilities on or proposed to be listed on the NPL and may be performed at other releases or facilities in response to petitions made to ATSDR. Where available, these health assessments may be used by the lead agency to assist in determining whether response actions should be taken and/or to identify the need for additional studies to assist in the assessment of potential human health effects associated with releases or potential releases of hazardous substances.

(g) Identification of applicable or relevant and appropriate requirements.

(1) The lead and support agencies shall identify requirements applicable to the release or remedial action contemplated based upon an objective determination of whether the requirement specifically addresses a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site.

(2) If, based upon paragraph (g)(1) of this section, it is determined that a requirement is not applicable to a specific release, the requirement may still be relevant and appropriate to the circumstances of the release. In evaluating relevance and appropriateness, the factors in paragraphs (g)(2)(i) through (viii) of this section shall be examined, where pertinent, to determine whether a requirement addresses problems or situations sufficiently similar to the circumstances of the release or remedial action contemplated, and whether the requirement is well-suited to the site, and therefore is both relevant and appropriate. The pertinence of each of the following factors will depend, in part, on whether a requirement addresses a chemical, location, or action. The following comparisons shall be made, where pertinent, to determine relevance and appropriateness:

(i) The purpose of the requirement and the purpose of the CERCLA action;

(ii) The medium regulated or affected by the requirement and the medium contaminated or affected at the CERCLA site;

(iii) The substances regulated by the requirement and the substances found at the CERCLA site;

(iv) The actions or activities regulated by the requirement and the remedial action contemplated at the CERCLA site;

(v) Any variances, waivers, or exemptions of the requirement and their availability for the circumstances at the CERCLA site;

(vi) The type of place regulated and the type of place affected by the release or CERCLA action;

(vii) The type and size of structure or facility regulated and the type and size of structure or facility affected by the release or contemplated by the CERCLA action;

(viii) Any consideration of use or potential use of affected resources in the requirement and the use or potential use of the affected resource at the CERCLA site.

(3) In addition to applicable or relevant and appropriate requirements, the lead and support agencies may, as appropriate, identify other advisories, criteria, or guidance to be considered for a particular release. The "to be considered" (TBC) category consists of advisories, criteria, or guidance that were developed by EPA, other federal agencies, or states that may be useful in developing CERCLA remedies.

(4) Only those state standards that are promulgated, are identified by the state in a timely manner, and are more stringent than federal requirements may be applicable or relevant and appropriate. For purposes of identification and notification of promulgated state standards, the term "promulgated" means that the standards are of general applicability and are legally enforceable.

(5) The lead agency and support agency shall identify their specific requirements that are applicable or relevant and appropriate for a particular site. These agencies shall notify each other, in a timely manner as described in §300.515(d), of the requirements they have determined to be applicable or relevant and appropriate. When identifying a requirement as an ARAR, the lead agency and support agency shall include a citation to the statute or regulation from which the requirement is derived.

(6) Notification of ARARs shall be according to procedures and timeframes specified in §300.515 (d)(2) and (h)(2).

(h) Oversight. The lead agency may provide oversight for actions taken by potentially responsible parties to ensure that a response is conducted consistent with this part. The lead agency may also monitor the actions of third parties preauthorized under subpart H of this part. EPA will provide oversight when the response is pursuant to an EPA order or federal consent decree.

(i) Other.

(1) This subpart does not establish any preconditions to enforcement action by either the federal or state governments to compel response actions by potentially responsible parties.

(2) While much of this subpart is oriented toward federally funded response actions, this subpart may be used as guidance concerning methods and criteria for response actions by other parties under other funding mechanisms. Except as provided in subpart H of this part, nothing in this part is intended to limit the rights of any person to seek recovery of response costs from responsible parties pursuant to CERCLA section 107.

(3) Activities by the federal and state governments in implementing this subpart are discretionary governmental functions. This subpart does not create in any private party a right to federal response or enforcement action. This subpart does not create any duty of the federal government to take any response action at any particular time.

§300.405 Discovery or notification.

(a) A release may be discovered through:

(1) A report submitted in accordance with section 103(a) of CERCLA, i.e., reportable quantities codified at 40 CFR part 302;

(2) A report submitted to EPA in accordance with section 103(c) of CERCLA;

(3) Investigation by government authorities conducted in accordance with section 104(e) of CERCLA or other statutory authority;

(4) Notification of a release by a federal or state permit holder when required by its permit;

(5) Inventory or survey efforts or random or incidental observation reported by government agencies or the public;

(6) Submission of a citizen petition to EPA or the appropriate federal facility requesting a preliminary assessment, in accordance with section 105(d) of CERCLA; and

(7) Other sources.

(b) Any person in charge of a vessel or a facility shall report releases as described in paragraph (a)(1) of this section to the National Response Center (NRC). If direct reporting to the NRC is not practicable, reports may be made to the United States Coast Guard (USCG) on-scene coordinator (OSC) for the geographic area where the release occurs. The EPA predesignated OSC may also be contacted

through the regional 24-hour emergency response telephone number. All such reports shall be promptly relayed to the NRC. If it is not possible to notify the NRC or predesignated OSC immediately, reports may be made immediately to the nearest USCG unit. In any event, such person in charge of the vessel or facility shall notify the NRC as soon as possible.

(c) All other reports of releases described under paragraph (a) of this section, except releases reported under paragraphs (a) (2) and (6) of this section, shall, as appropriate, be made to the NRC.

(d) The NRC will generally need information that will help to characterize the release. This will include, but not be limited to: Location of the release; type(s) of material(s) released; an estimate of the quantity of material released; possible source of the release; and date and time of the release. Reporting under paragraphs (b) and (c) of this section shall not be delayed due to incomplete notification information.

(e) Upon receipt of a notification of a release, the NRC shall promptly notify the appropriate OSC. The OSC shall notify the Governor, or designee, of the state affected by the release.

(f)(1) When the OSC is notified of a release that may require response pursuant to §300.415(b), a removal site evaluation shall, as appropriate, be promptly undertaken pursuant to §300.410.

(2) When notification indicates that removal action pursuant to §300.415(b) is not required, a remedial site evaluation shall, if appropriate, be undertaken by the lead agency pursuant to §300.420, if one has not already been performed.

(3) If radioactive substances are present in a release, the EPA Radiological Response Coordinator should be notified for evaluation and assistance, consistent with §§300.130(f) and 300.145(f).

(g) Release notification made to the NRC under this section does not relieve the owner/operator of a facility from any obligations to which it is subject under SARA Title III or state law. In particular, it does not relieve the owner/operator from the requirements of section 304 of SARA Title III and 40 CFR part 355 and §300.215(f) of this part for notifying the community emergency coordinator for the appropriate local emergency planning committee of all affected areas and the state emergency response commission of any state affected that there has been a release. Federal agencies are not legally obligated to comply with the requirements of Title III of SARA.

§300.410 Removal site evaluation.

(a) A removal site evaluation includes a removal preliminary assessment and, if warranted, a removal site inspection.

(b) A removal site evaluation of a release identified for possible CERCLA response pursuant to §300.415 shall, as appropriate, be undertaken by the lead agency as promptly as possible. The lead agency may perform a removal preliminary assessment in response to petitions submitted by a person who is, or may be, affected by a release of a hazardous substance, pollutant, or contaminant pursuant to §300.420(b)(5).

(c)(1) The lead agency shall, as appropriate, base the removal preliminary assessment on readily available information. A removal preliminary assessment may include, but is not limited to:

(i) Identification of the source and nature of the release or threat of release;

(ii) Evaluation by ATSDR or by other sources, for example, state public health agencies, of the threat to public health;

(iii) Evaluation of the magnitude of the threat;

(iv) Evaluation of factors necessary to make the determination of whether a removal is necessary; and

(v) Determination of whether a nonfederal party is undertaking proper response.

(2) A removal preliminary assessment of releases from hazardous waste management facilities may include collection or review of data such as site management practices, information from generators, photographs, analysis of historical photographs, literature searches, and personal interviews conducted, as appropriate.

(d) A removal site inspection may be performed if more information is needed. Such inspection may include a perimeter (i.e., off-site) or on-site inspection, taking into consideration whether such inspection can be performed safely.

(e) A removal site evaluation shall be terminated when the OSC or lead agency determines:

(1) There is no release;

(2) The source is neither a vessel nor a facility as defined in §300.5 of the NCP;

(3) The release involves neither a hazardous substance, nor a pollutant or contaminant that may present an imminent and substantial danger to public health or welfare;

(4) The release consists of a situation specified in §300.400(b)(1) through (3) subject to limitations on response;

(5) The amount, quantity, or concentration released does not warrant federal response;

(6) A party responsible for the release, or any other person, is providing appropriate response, and on-scene monitoring by the government is not required; or

(7) The removal site evaluation is completed.

(f) The results of the removal site evaluation shall be documented.

(g) If natural resources are or may be injured by the release, the OSC or lead agency shall ensure that state and federal trustees of the affected natural resources are promptly notified in order that the trustees may initiate appropriate actions, including those identified in subpart G of this part. The OSC or lead agency shall seek to coordinate necessary assessments, evaluations, investigations, and planning with such state and federal trustees.

(h) If the removal site evaluation indicates that removal action under §300.415 is not required, but that remedial action under §300.430 may be necessary, the lead agency shall, as appropriate, initiate a remedial site evaluation pursuant to §300.420.

§300.415 Removal action.

(a)(1) In determining the appropriate extent of action to be taken in response to a given release, the lead agency shall first review the removal site evaluation, any information produced through a remedial site evaluation, if any has been done previously, and the current site conditions, to determine if removal action is appropriate.

(2) Where the responsible parties are known, an effort initially shall be made, to the extent practicable, to determine whether they can and will perform the necessary removal action promptly and properly.

(3) This section does not apply to removal actions taken pursuant to section 104(b) of CERCLA. The criteria for such actions are set forth in section 104(b) of CERCLA.

(b)(1) At any release, regardless of whether the site is included on the National Priorities List, where the lead agency makes the determination, based on the factors in paragraph (b)(2) of this section, that there is a threat to public health or welfare or the environment, the lead agency may take any appropriate removal action to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or the threat of release.

(2) The following factors shall be considered in determining the appropriateness of a removal action pursuant to this section:

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(iii) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;

(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;

(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

(vi) Threat of fire or explosion;

(vii) The availability of other appropriate federal or state response mechanisms to respond to the release; and

(viii) Other situations or factors that may pose threats to public health or welfare or the environment.

(3) If the lead agency determines that a removal action is appropriate, actions shall, as appropriate, begin as soon as possible to abate, prevent, minimize, stabilize, mitigate, or eliminate the threat to public health or welfare or the environment. The lead agency shall, at the earliest possible time, also make any necessary determinations pursuant to paragraph (b)(4) of this section.

(4) Whenever a planning period of at least six months exists before on-site activities must be initiated, and the lead agency determines, based on a site evaluation, that a removal action is appropriate:

(i) The lead agency shall conduct an engineering evaluation/cost analysis

(EE/CA) or its equivalent. The EE/CA is an analysis of removal alternatives for a site.

(ii) If environmental samples are to be collected, the lead agency shall develop sampling and analysis plans that shall provide a process for obtaining data of sufficient quality and quantity to satisfy data needs. Sampling and analysis plans shall be reviewed and approved by EPA. The sampling and analysis plans shall consist of two parts:

(A) The field sampling plan, which describes the number, type, and location of samples and the type of analyses; and

(B) The quality assurance project plan, which describes policy, organization, and functional activities and the data quality objectives and measures necessary to achieve adequate data for use in planning and documenting the removal action.

(5) Fund-financed removal actions, other than those authorized under section 104(b) of CERCLA, shall be terminated after $2 million has been obligated for the action or 12 months have elapsed from the date that removal activities begin on-site, unless the lead agency determines that:

(i) There is an immediate risk to public health or welfare or the environment; continued response actions are immediately required to prevent, limit, or mitigate an emergency; and such assistance will not otherwise be provided on a timely basis; or

(ii) Continued response action is otherwise appropriate and consistent with the remedial action to be taken.

(c) Removal actions shall, to the extent practicable, contribute to the efficient performance of any anticipated long-term remedial action with respect to the release concerned.

(d) The following removal actions are, as a general rule, appropriate in the types of situations shown; however, this list is not exhaustive and is not intended to prevent the lead agency from taking any other actions deemed necessary under CERCLA or other appropriate federal or state enforcement or response authorities, and the list does not create a duty on the lead agency to take action at any particular time:

(1) Fences, warning signs, or other security or site control precautions—where humans or animals have access to the release;

(2) Drainage controls, for example, run-off or run-on diversion—where needed to reduce migration of hazardous substances or pollutants or contaminants off-site or to prevent precipitation or run-off from other sources, for example, flooding, from entering the release area from other areas;

(3) Stabilization of berms, dikes, or impoundments or drainage or closing of lagoons—where needed to maintain the integrity of the structures;

(4) Capping of contaminated soils or sludges—where needed to reduce migration of hazardous substances or pollutants or contaminants into soil, ground or surface water, or air;

(5) Using chemicals and other materials to retard the spread of the release or to mitigate its effects—where the use of such chemicals will reduce the spread of the release;

(6) Excavation, consolidation, or removal of highly contaminated soils from drainage or other areas—where such actions will reduce the spread of, or direct contact with, the contamination;

(7) Removal of drums, barrels, tanks, or other bulk containers that contain or may contain hazardous substances or pollutants or contaminants—where it will reduce the likelihood of spillage; leakage; exposure to humans, animals, or food chain; or fire or explosion;

(8) Containment, treatment, disposal, or incineration of hazardous materials—where needed to reduce the likelihood of human, animal, or food chain exposure; or

(9) Provision of alternative water supply—where necessary immediately to reduce exposure to contaminated household water and continuing until such time as local authorities can satisfy the need for a permanent remedy.

(e) Where necessary to protect public health or welfare, the lead agency shall request that FEMA conduct a temporary relocation or that state/local officials conduct an evacuation.

(f) If the lead agency determines that the removal action will not fully address the threat posed by the release and the release may require remedial action, the lead agency shall ensure an orderly transition from removal to remedial response activities.

(g) Removal actions conducted by states under cooperative agreements, described in subpart F of this part, shall comply with all requirements of this section.

(h) Facilities operated by a state or political subdivision at the time of disposal

require a state cost share of at least 50 percent of Fund-financed response costs if a Fund-financed remedial action is conducted.

(i) Fund-financed removal actions under CERCLA section 104 and removal actions pursuant to CERCLA section 106 shall, to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws. Waivers described in §300.430(f)(1)(ii)(C) may be used for removal actions. Other federal and state advisories, criteria, or guidance may, as appropriate, be considered in formulating the removal action (see §300.400(g)(3)). In determining whether compliance with ARARs is practicable, the lead agency may consider appropriate factors, including:

(1) The urgency of the situation; and

(2) The scope of the removal action to be conducted.

(j) Removal actions pursuant to section 106 or 122 of CERCLA are not subject to the following requirements of this section:

(1) Section 300.415(a)(2) requirement to locate responsible parties and have them undertake the response;

(2) Section 300.415(b)(2)(vii) requirement to consider the availability of other appropriate federal or state response and enforcement mechanisms to respond to the release;

(3) Section 300.415(b)(5) requirement to terminate response after $2 million has been obligated or 12 months have elapsed from the date of the initial response; and

(4) Section 300.415(f) requirement to assure an orderly transition from removal to remedial action.

(k) To the extent practicable, provision for post-removal site control following a Fund-financed removal action at both NPL and non-NPL sites is encouraged to be made prior to the initiation of the removal action. Such post-removal site control includes actions necessary to ensure the effectiveness and integrity of the removal action after the completion of the on-site removal action or after the $2 million or 12-month statutory limits are reached for sites that do not meet the exemption criteria in paragraph (b)(5) of this section. Post-removal site control may be conducted by:

(1) The affected state or political subdivision thereof or local units of government for any removal;

(2) Potentially responsible parties; or

(3) EPA's remedial program for some federal-lead Fund-financed responses at NPL sites.

(l) OSCs/RPMs conducting removal actions shall submit OSC reports to the RRT as required by §300.165.

(m) Community relations in removal actions.

(1) In the case of all removal actions taken pursuant to §300.415 or CERCLA enforcement actions to compel removal response, a spokesperson shall be designated by the lead agency. The spokesperson shall inform the community of actions taken, respond to inquiries, and provide information concerning the release. All news releases or statements made by participating agencies shall be coordinated with the OSC/RPM. The spokesperson shall notify, at a minimum, immediately affected citizens, state and local officials, and, when appropriate, civil defense or emergency management agencies.

(2) For actions where, based on the site evaluation, the lead agency determines that a removal is appropriate, and that less than six months exists before on-site removal activity must begin, the lead agency shall:

(i) Publish a notice of availability of the administrative record file established pursuant to §300.820 in a major local newspaper of general circulation within 60 days of initiation of on-site removal activity;

(ii) Provide a public comment period, as appropriate, of not less than 30 days from the time the administrative record file is made available for public inspection, pursuant to §300.820(b)(2); and

(iii) Prepare a written response to significant comments pursuant to §300.820(b)(3).

(3) For removal actions where on-site action is expected to extend beyond 120 days from the initiation of on-site removal activities, the lead agency shall by the end of the 120-day period:

(i) Conduct interviews with local officials, community residents, public interest groups, or other interested or affected parties, as appropriate, to solicit their concerns, information needs, and how or when citizens would like to be involved in the Superfund process;

(ii) Prepare a formal community relations plan (CRP) based on the community interviews and other relevant information, specifying the community relations activities that the lead agency expects to undertake during the response; and

(iii) Establish at least one local information repository at or near the location of the response action. The information repository should contain items made available for public information. Further, an administrative record file established pursuant to subpart I for all removal actions shall be available for public inspection in at least one of the repositories. The lead agency shall inform the public of the establishment of the information repository and provide notice of availability of the administrative record file for public review. All items in the repository shall be available for public inspection and copying.

(4) Where, based on the site evaluation, the lead agency determines that a removal action is appropriate and that a planning period of at least six months exists prior to initiation of the on-site removal activities, the lead agency shall at a minimum:

(i) Comply with the requirements set forth in paragraphs (m)(3)(i), (ii), and (iii) of this section, prior to the completion of the engineering evaluation/cost analysis (EE/CA), or its equivalent, except that the information repository and the administrative record file will be established no later than when the EE/CA approval memorandum is signed;

(ii) Publish a notice of availability and brief description of the EE/CA in a major local newspaper of general circulation pursuant to §300.820;

(iii) Provide a reasonable opportunity, not less than 30 calendar days, for submission of written and oral comments after completion of the EE/CA pursuant to §300.820(a). Upon timely request, the lead agency will extend the public comment period by a minimum of 15 days; and

(iv) Prepare a written response to significant comments pursuant to §300.820(a).

§300.420 Remedial site evaluation.

(a) *General.* The purpose of this section is to describe the methods, procedures, and criteria the lead agency shall use to collect data, as required, and evaluate releases of hazardous substances, pollutants, or contaminants. The evaluation may consist of two steps: a remedial preliminary assessment (PA) and a remedial site inspection (SI).

(b) *Remedial preliminary assessment.*

(1) The lead agency shall perform a remedial PA on all sites in CERCLIS as defined in §300.5 to:

(i) Eliminate from further consideration those sites that pose no threat to public health or the environment;

(ii) Determine if there is any potential need for removal action;

(iii) Set priorities for site inspections; and

(iv) Gather existing data to facilitate later evaluation of the release pursuant to the Hazard Ranking System (HRS) if warranted.

(2) A remedial PA shall consist of a review of existing information about a release such as information on the pathways of exposure, exposure targets, and source and nature of release. A remedial PA shall also include an off-site reconnaissance as appropriate. A remedial PA may include an on-site reconnaissance where appropriate.

(3) If the remedial PA indicates that a removal action may be warranted, the lead agency shall initiate removal evaluation pursuant to §300.410.

(4) In performing a remedial PA, the lead agency may complete the EPA Preliminary Assessment form, available from EPA regional offices, or its equivalent, and shall prepare a PA report, which shall include:

(i) A description of the release;

(ii) A description of the probable nature of the release; and

(iii) A recommendation on whether further action is warranted, which lead agency should conduct further action, and whether an SI or removal action or both should be undertaken.

(5) Any person may petition the lead federal agency (EPA or the appropriate federal agency in the case of a release or suspected release from a federal facility), to perform a PA of a release when such person is, or may be, affected by a release of a hazardous substance, pollutant, or contaminant. Such petitions shall be addressed to the EPA Regional Administrator for the region in which the release is located, except that petitions for PAs involving federal facilities should be addressed to the head of the appropriate federal agency.

(i) Petitions shall be signed by the petitioner and shall contain the following:

(A) The full name, address, and phone number of petitioner;

(B) A description, as precisely as possible, of the location of the release; and

(C) How the petitioner is or may be affected by the release.

(ii) Petitions should also contain the following information to the extent available:

(A) What type of substances were or may be released;

(B) The nature of activities that have occurred where the release is located; and

(C) Whether local and state authorities have been contacted about the release.

(iii) The lead federal agency shall complete a remedial or removal PA within one year of the date of receipt of a complete petition pursuant to paragraph (b)(5) of this section, if one has not been performed previously, unless the lead federal agency determines that a PA is not appropriate. Where such a determination is made, the lead federal agency shall notify the petitioner and will provide a reason for the determination.

(iv) When determining if performance of a PA is appropriate, the lead federal agency shall take into consideration:

(A) Whether there is information indicating that a release has occurred or there is a threat of a release of a hazardous substance, pollutant, or contaminant; and

(B) Whether the release is eligible for response under CERCLA.

(c) *Remedial site inspection.*

(1) The lead agency shall perform a remedial SI as appropriate to:

(i) Eliminate from further consideration those releases that pose no significant threat to public health or the environment;

(ii) Determine the potential need for removal action;

(iii) Collect or develop additional data, as appropriate, to evaluate the release pursuant to the HRS; and

(iv) Collect data in addition to that required to score the release pursuant to the HRS, as appropriate, to better characterize the release for more effective and rapid initiation of the RI/FS or response under other authorities.

(2) The remedial SI shall build upon the information collected in the remedial PA. The remedial SI shall involve, as appropriate, both on- and off-site field investigatory efforts, and sampling.

(3) If the remedial SI indicates that removal action may be appropriate, the lead agency shall initiate removal site evaluation pursuant to §300.410.

(4) Prior to conducting field sampling as part of site inspections, the lead agency shall develop sampling and analysis plans that shall provide a process for obtaining data of sufficient quality and quantity to satisfy data needs. The sampling and analysis plans shall consist of two parts:

(i) The field sampling plan, which describes the number, type, and location of samples, and the type of analyses, and

(ii) The quality assurance project plan (QAPP), which describes policy, organization, and functional activities, and the data quality objectives and measures necessary to achieve adequate data for use in site evaluation and hazard ranking system activities.

(5) Upon completion of a remedial SI, the lead agency shall prepare a report that includes the following:

(i) A description/history/nature of waste handling;

(ii) A description of known contaminants;

(iii) A description of pathways of migration of contaminants;

(iv) An identification and description of human and environmental targets; and

(v) A recommendation on whether further action is warranted.

§300.425 Establishing remedial priorities.

(a) *General.* The purpose of this section is to identify the criteria as well as the methods and procedures EPA uses to establish its priorities for remedial actions.

(b) *National Priorities List.* The NPL is the list of priority releases for long-term remedial evaluation and response.

(1) Only those releases included on the NPL shall be considered eligible for Fund-financed remedial action. Removal actions (including remedial planning activities, RI/FSs, and other actions taken pursuant to CERCLA section 104(b)) are not limited to NPL sites.

(2) Inclusion of a release on the NPL does not imply that monies will be expended, nor does the rank of a release on the NPL establish the precise priorities for the allocation of Fund resources. EPA may also pursue other appropriate authorities to remedy the release, including enforcement actions under CERCLA and other laws. A

site's rank on the NPL serves, along with other factors, including enforcement actions, as a basis to guide the allocation of Fund resources among releases.

(3) Federal facilities that meet the criteria identified in paragraph (c) of this section are eligible for inclusion on the NPL. Except as provided by CERCLA sections 111(e)(3) and 111(c), federal facilities are not eligible for Fund-financed remedial actions.

(4) Inclusion on the NPL is not a precondition to action by the lead agency under CERCLA sections 106 or 122 or to action under CERCLA section 107 for recovery of non-Fund-financed costs or Fund-financed costs other than Fund-financed remedial construction costs.

(c) *Methods for determining eligibility for NPL.* A release may be included on the NPL if the release meets one of the following criteria:

(1) The release scores sufficiently high pursuant to the Hazard Ranking System described in Appendix A to this part.

(2) A state (not including Indian tribes) has designated a release as its highest priority. States may make only one such designation; or

(3) The release satisfies all of the following criteria:

(i) The Agency for Toxic Substances and Disease Registry has issued a health advisory that recommends dissociation of individuals from the release;

(ii) EPA determines that the release poses a significant threat to public health; and

(iii) EPA anticipates that it will be more cost-effective to use its remedial authority than to use removal authority to respond to the release.

(d) *Procedures for placing sites on the NPL.* Lead agencies may submit candidates to EPA by scoring the release using the HRS and providing the appropriate backup documentation.

(1) Lead agencies may submit HRS scoring packages to EPA anytime throughout the year.

(2) EPA shall review lead agencies' HRS scoring packages and revise them as appropriate. EPA shall develop any additional HRS scoring packages on releases known to EPA.

(3) EPA shall compile the NPL based on the methods identified in paragraph (c) of this section.

(4) EPA shall update the NPL at least once a year.

(5) To ensure public involvement during the proposal to add a release to the NPL, EPA shall:

(i) Publish the proposed rule in the Federal Register and solicit comments through a public comment period; and

(ii) Publish the final rule in the Federal Register, and make available a response to each significant comment and any significant new data submitted during the comment period.

(6) Releases may be categorized on the NPL when deemed appropriate by EPA.

(e) *Deletion from the NPL.* Releases may be deleted from or recategorized on the NPL where no further response is appropriate.

(1) EPA shall consult with the state on proposed deletions from the NPL prior to developing the notice of intent to delete. In making a determination to delete a release from the NPL, EPA shall consider, in consultation with the state, whether any of the following criteria has been met:

(i) Responsible parties or other persons have implemented all appropriate response actions required;

(ii) All appropriate Fund-financed response under CERCLA has been implemented, and no further response action by responsible parties is appropriate; or

(iii) The remedial investigation has shown that the release poses no significant threat to public health or the environment and, therefore, taking of remedial measures is not appropriate.

(2) Releases shall not be deleted from the NPL until the state in which the release was located has concurred on the proposed deletion. EPA shall provide the state 30 working days for review of the deletion notice prior to its publication in the Federal Register.

(3) All releases deleted from the NPL are eligible for further Fund-financed remedial actions should future conditions warrant such action. Whenever there is a significant release from a site deleted from the NPL, the site shall be restored to the NPL without application of the HRS.

(4) To ensure public involvement during the proposal to delete a release from the NPL, EPA shall:

(i) Publish a notice of intent to delete in the Federal Register and solicit comment

through a public comment period of a minimum of 30 calendar days;

(ii) In a major local newspaper of general circulation at or near the release that is proposed for deletion, publish a notice of availability of the notice of intent to delete;

(iii) Place copies of information supporting the proposed deletion in the information repository, described in §300.430(c)(2)(iii), at or near the release proposed for deletion. These items shall be available for public inspection and copying; and

(iv) Respond to each significant comment and any significant new data submitted during the comment period and include this response document in the final deletion package.

(5) EPA shall place the final deletion package in the local information repository once the notice of final deletion has been published in the Federal Register.

§300.430 Remedial investigation/feasibility study and selection of remedy.

(a) *General.*

(1) Introduction. The purpose of the remedy selection process is to implement remedies that eliminate, reduce, or control risks to human health and the environment. Remedial actions are to be implemented as soon as site data and information make it possible to do so. Accordingly, EPA has established the following program goal, expectations, and program management principles to assist in the identification and implementation of appropriate remedial actions.

(i) *Program goal.* The national goal of the remedy selection process is to select remedies that are protective of human health and the environment, that maintain protection over time, and that minimize untreated waste.

(ii) *Program management principles.* EPA generally shall consider the following general principles of program management during the remedial process:

(A) Sites should generally be remediated in operable units when early actions are necessary or appropriate to achieve significant risk reduction quickly, when phased analysis and response is necessary or appropriate given the size or complexity of the site, or to expedite the completion of total site cleanup.

(B) Operable units, including interim action operable units, should not be inconsistent with nor preclude implementation of the expected final remedy.

(C) Site-specific data needs, the evaluation of alternatives, and the documentation of the selected remedy should reflect the scope and complexity of the site problems being addressed.

(iii) *Expectations.* EPA generally shall consider the following expectations in developing appropriate remedial alternatives:

(A) EPA expects to use treatment to address the principal threats posed by a site, wherever practicable. Principal threats for which treatment is most likely to be appropriate include liquids, areas contaminated with high concentrations of toxic compounds, and highly mobile materials.

(B) EPA expects to use engineering controls, such as containment, for waste that poses a relatively low long-term threat or where treatment is impracticable.

(C) EPA expects to use a combination of methods, as appropriate, to achieve protection of human health and the environment. In appropriate site situations, treatment of the principal threats posed by a site, with priority placed on treating waste that is liquid, highly toxic or highly mobile, will be combined with engineering controls (such as containment) and institutional controls, as appropriate, for treatment residuals and untreated waste.

(D) EPA expects to use institutional controls such as water use and deed restrictions to supplement engineering controls as appropriate for short- and long-term management to prevent or limit exposure to hazardous substances, pollutants, or contaminants. Institutional controls may be used during the conduct of the remedial investigation/feasibility study (RI/FS) and implementation of the remedial action and, where necessary, as a component of the completed remedy. The use of institutional controls shall not substitute for active response measures (e.g., treatment and/or containment of source material, restoration of ground waters to their beneficial uses) as the sole remedy unless such active measures are determined not to be practicable, based on the balancing of trade-offs among alternatives that is conducted during the selection of remedy.

(E) EPA expects to consider using innovative technology when such

technology offers the potential for comparable or superior treatment performance or implementability, fewer or lesser adverse impacts than other available approaches, or lower costs for similar levels of performance than demonstrated technologies.

(F) EPA expects to return usable ground waters to their beneficial uses wherever practicable, within a timeframe that is reasonable given the particular circumstances of the site. When restoration of ground water to beneficial uses is not practicable, EPA expects to prevent further migration of the plume, prevent exposure to the contaminated ground water, and evaluate further risk reduction.

(2) *Remedial investigation/feasibility study.* The purpose of the remedial investigation/feasibility study (RI/FS) is to assess site conditions and evaluate alternatives to the extent necessary to select a remedy. Developing and conducting an RI/FS generally includes the following activities: project scoping, data collection, risk assessment, treatability studies, and analysis of alternatives. The scope and timing of these activities should be tailored to the nature and complexity of the problem and the response alternatives being considered.

(b) *Scoping.* In implementing this section, the lead agency should consider the program goal, program management principles, and expectations contained in this rule. The investigative and analytical studies should be tailored to site circumstances so that the scope and detail of the analysis is appropriate to the complexity of site problems being addressed. During scoping, the lead and support agencies shall confer to identify the optimal set and sequence of actions necessary to address site problems. Specifically, the lead agency shall:

(1) Assemble and evaluate existing data on the site, including the results of any removal actions, remedial preliminary assessment and site inspections, and the NPL listing process.

(2) Develop a conceptual understanding of the site based on the evaluation of existing data described in paragraph (b)(1) of this section.

(3) Identify likely response scenarios and potentially applicable technologies and operable units that may address site problems.

(4) Undertake limited data collection efforts or studies where this information will assist in scoping the RI/FS or accelerate response actions, and begin to identify the need for treatability studies, as appropriate.

(5) Identify the type, quality, and quantity of the data that will be collected during the RI/FS to support decisions regarding remedial response activities.

(6) Prepare site-specific health and safety plans that shall specify, at a minimum, employee training and protective equipment, medical surveillance requirements, standard operating procedures, and a contingency plan that conforms with 29 CFR 1910.120 (l)(1) and (l)(2).

(7) If natural resources are or may be injured by the release, ensure that state and federal trustees of the affected natural resources have been notified in order that the trustees may initiate appropriate actions, including those identified in subpart G of this part. The lead agency shall seek to coordinate necessary assessments, evaluations, investigations, and planning with such state and federal trustees.

(8) Develop sampling and analysis plans that shall provide a process for obtaining data of sufficient quality and quantity to satisfy data needs. Sampling and analysis plans shall be reviewed and approved by EPA. The sampling and analysis plans shall consist of two parts:

(i) The field sampling plan, which describes the number, type, and location of samples and the type of analyses; and

(ii) The quality assurance project plan, which describes policy, organization, and functional activities and the data quality objectives and measures necessary to achieve adequate data for use in selecting the appropriate remedy.

(9) Initiate the identification of potential federal and state ARARs and, as appropriate, other criteria, advisories, or guidance to be considered.

(c) *Community relations.*

(1) The community relations requirements described in this section apply to all remedial activities undertaken pursuant to CERCLA section 104 and to section 106 or section 122 consent orders or decrees, or section 106 administrative orders.

(2) The lead agency shall provide for the conduct of the following community relations activities, to the extent practicable, prior to commencing field work for the remedial investigation:

(i) Conducting interviews with local officials, community residents, public interest groups, or other interested or affected parties, as appropriate, to solicit their concerns and information needs, and to learn how and when citizens would like to be involved in the Superfund process.

(ii) Preparing a formal community relations plan (CRP), based on the community interviews and other relevant information, specifying the community relations activities that the lead agency expects to undertake during the remedial response. The purpose of the CRP is to:

(A) Ensure the public appropriate opportunities for involvement in a wide variety of site-related decisions, including site analysis and characterization, alternatives analysis, and selection of remedy;

(B) Determine, based on community interviews, appropriate activities to ensure such public involvement, and

(C) Provide appropriate opportunities for the community to learn about the site.

(iii) Establishing at least one local information repository at or near the location of the response action. Each information repository should contain a copy of items made available to the public, including information that describes the technical assistance grants application process. The lead agency shall inform interested parties of the establishment of the information repository.

(iv) Informing the community of the availability of technical assistance grants.

(3) For PRP actions, the lead agency shall plan and implement the community relations program at a site. PRPs may participate in aspects of the community relations program at the discretion of and with oversight by the lead agency.

(4) The lead agency may conduct technical discussions involving PRPs and the public. These technical discussions may be held separately from, but contemporaneously with, the negotiations/settlement discussions.

(5) In addition, the following provisions specifically apply to enforcement actions:

(i) Lead agencies entering into an enforcement agreement with de minimis parties under CERCLA section 122(g) or cost recovery settlements under section 122(h) shall publish a notice of the proposed agreement in the Federal Register at least 30 days before the agreement becomes final, as required by section 122(i). The notice must identify the name of the facility and the parties to the proposed agreement and must allow an opportunity for comment and consideration of comments; and

(ii) Where the enforcement agreement is embodied in a consent decree, public notice and opportunity for public comment shall be provided in accordance with 28 CFR 50.7.

(d) *Remedial investigation.*

(1) The purpose of the remedial investigation (RI) is to collect data necessary to adequately characterize the site for the purpose of developing and evaluating effective remedial alternatives. To characterize the site, the lead agency shall, as appropriate, conduct field investigations, including treatability studies, and conduct a baseline risk assessment. The RI provides information to assess the risks to human health and the environment and to support the development, evaluation, and selection of appropriate response alternatives. Site characterization may be conducted in one or more phases to focus sampling efforts and increase the efficiency of the investigation. Because estimates of actual or potential exposures and associated impacts on human and environmental receptors may be refined throughout the phases of the RI as new information is obtained, site characterization activities should be fully integrated with the development and evaluation of alternatives in the feasibility study. Bench- or pilot-scale treatability studies shall be conducted, when appropriate and practicable, to provide additional data for the detailed analysis and to support engineering design of remedial alternatives.

(2) The lead agency shall characterize the nature of and threat posed by the hazardous substances and hazardous materials and gather data necessary to assess the extent to which the release poses a threat to human health or the environment or to support the analysis and design of potential response actions by conducting, as appropriate, field investigations to assess the following factors:

(i) Physical characteristics of the site, including important surface features, soils, geology, hydrogeology, meteorology, and ecology;

(ii) Characteristics or classifications of air, surface water, and ground water;

(iii) The general characteristics of the waste, including quantities, state,

concentration, toxicity, propensity to bioaccumulate, persistence, and mobility;

(iv) The extent to which the source can be adequately identified and characterized;

(v) Actual and potential exposure pathways through environmental media;

(vi) Actual and potential exposure routes, for example, inhalation and ingestion; and

(vii) Other factors, such as sensitive populations, that pertain to the characterization of the site or support the analysis of potential remedial action alternatives.

(3) The lead and support agency shall identify their respective potential ARARs related to the location of and contaminants at the site in a timely manner. The lead and support agencies may also, as appropriate, identify other pertinent advisories, criteria, or guidance in a timely manner (see §300.400(g)(3)).

(4) Using the data developed under paragraphs (d) (1) and (2) of this section, the lead agency shall conduct a site-specific baseline risk assessment to characterize the current and potential threats to human health and the environment that may be posed by contaminants migrating to ground water or surface water, releasing to air, leaching through soil, remaining in the soil, and bioaccumulating in the food chain. The results of the baseline risk assessment will help establish acceptable exposure levels for use in developing remedial alternatives in the FS, as described in paragraph (e) of this section.

(e) *Feasibility study.*

(1) The primary objective of the feasibility study (FS) is to ensure that appropriate remedial alternatives are developed and evaluated such that relevant information concerning the remedial action options can be presented to a decision-maker and an appropriate remedy selected. The lead agency may develop a feasibility study to address a specific site problem or the entire site. The development and evaluation of alternatives shall reflect the scope and complexity of the remedial action under consideration and the site problems being addressed. Development of alternatives shall be fully integrated with the site characterization activities of the remedial investigation described in paragraph (d) of this section. The lead agency shall include an alternatives screening step, when needed, to select a reasonable number of alternatives for detailed analysis.

(2) Alternatives shall be developed that protect human health and the environment by recycling waste or by eliminating, reducing, and/or controlling risks posed through each pathway by a site. The number and type of alternatives to be analyzed shall be determined at each site, taking into account the scope, characteristics, and complexity of the site problem that is being addressed. In developing and, as appropriate, screening the alternatives, the lead agency shall:

(i) Establish remedial action objectives specifying contaminants and media of concern, potential exposure pathways, and remediation goals. Initially, preliminary remediation goals are developed based on readily available information, such as chemical-specific ARARs or other reliable information. Preliminary remediation goals should be modified, as necessary, as more information becomes available during the RI/FS. Final remediation goals will be determined when the remedy is selected. Remediation goals shall establish acceptable exposure levels that are protective of human health and the environment and shall be developed by considering the following:

(A) Applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws, if available, and the following factors:

(1) For systemic toxicants, acceptable exposure levels shall represent concentration levels to which the human population, including sensitive subgroups, may be exposed without adverse effect during a lifetime or part of a lifetime, incorporating an adequate margin of safety;

(2) For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} using information on the relationship between dose and response. The 10^{-6} risk level shall be used as the point of departure for determining remediation goals for alternatives when ARARs are not available or are not sufficiently protective because of the presence of multiple contaminants at a site or multiple pathways of exposure;

(3) Factors related to technical limitations such as detection/quantification limits for contaminants;

(4) Factors related to uncertainty; and

(5) Other pertinent information.

(B) Maximum contaminant level goals (MCLGs), established under the Safe Drinking Water Act, that are set at levels above zero, shall be attained by remedial actions for ground or surface waters that are current or potential sources of drinking water, where the MCLGs are relevant and appropriate under the circumstances of the release based on the factors in §300.400(g)(2). If an MCLG is determined not to be relevant and appropriate, the corresponding maximum contaminant level (MCL) shall be attained where relevant and appropriate to the circumstances of the release.

(C) Where the MCLG for a contaminant has been set at a level of zero, the MCL promulgated for that contaminant under the Safe Drinking Water Act shall be attained by remedial actions for ground or surface waters that are current or potential sources of drinking water, where the MCL is relevant and appropriate under the circumstances of the release based on the factors in §300.400(g)(2).

(D) In cases involving multiple contaminants or pathways where attainment of chemical-specific ARARs will result in cumulative risk in excess of 10^{-4}, criteria in paragraph (e)(2)(i)(A) of this section may also be considered when determining the cleanup level to be attained.

(E) Water quality criteria established under sections 303 or 304 of the Clean Water Act shall be attained where relevant and appropriate under the circumstances of the release.

(F) An alternate concentration limit (ACL) may be established in accordance with CERCLA section 121(d)(2)(B)(ii).

(G) Environmental evaluations shall be performed to assess threats to the environment, especially sensitive habitats and critical habitats of species protected under the Endangered Species Act.

(ii) Identify and evaluate potentially suitable technologies, including innovative technologies;

(iii) Assemble suitable technologies into alternative remedial actions.

(3) For source control actions, the lead agency shall develop, as appropriate:

(i) A range of alternatives in which treatment that reduces the toxicity, mobility, or volume of the hazardous substances, pollutants, or contaminants is a principal element. As appropriate, this range shall include an alternative that removes or destroys hazardous substances, pollutants, or contaminants to the maximum extent feasible, eliminating or minimizing, to the degree possible, the need for long-term management. The lead agency also shall develop, as appropriate, other alternatives which, at a minimum, treat the principal threats posed by the site but vary in the degree of treatment employed and the quantities and characteristics of the treatment residuals and untreated waste that must be managed; and

(ii) One or more alternatives that involve little or no treatment, but provide protection of human health and the environment primarily by preventing or controlling exposure to hazardous substances, pollutants, or contaminants, through engineering controls, for example, containment, and, as necessary, institutional controls to protect human health and the environment and to assure continued effectiveness of the response action.

(4) For ground-water response actions, the lead agency shall develop a limited number of remedial alternatives that attain site-specific remediation levels within different restoration time periods utilizing one or more different technologies.

(5) The lead agency shall develop one or more innovative treatment technologies for further consideration if those technologies offer the potential for comparable or superior performance or implementability; fewer or lesser adverse impacts than other available approaches; or lower costs for similar levels of performance than demonstrated treatment technologies.

(6) The no-action alternative, which may be no further action if some removal or remedial action has already occurred at the site, shall be developed.

(7) As appropriate, and to the extent sufficient information is available, the short- and long-term aspects of the following three criteria shall be used to guide the development and screening of remedial alternatives:

(i) *Effectiveness.* This criterion focuses on the degree to which an alternative reduces toxicity, mobility, or volume through treatment, minimizes residual risks and affords long-term protection, complies with ARARs, minimizes short-term impacts, and how quickly it achieves

protection. Alternatives providing significantly less effectiveness than other, more promising alternatives may be eliminated. Alternatives that do not provide adequate protection of human health and the environment shall be eliminated from further consideration.

(ii) *Implementability.* This criterion focuses on the technical feasibility and availability of the technologies each alternative would employ and the administrative feasibility of implementing the alternative. Alternatives that are technically or administratively infeasible or that would require equipment, specialists, or facilities that are not available within a reasonable period of time may be eliminated from further consideration.

(iii) *Cost.* The costs of construction and any long-term costs to operate and maintain the alternatives shall be considered. Costs that are grossly excessive compared to the overall effectiveness of alternatives may be considered as one of several factors used to eliminate alternatives. Alternatives providing effectiveness and implementability similar to that of another alternative by employing a similar method of treatment or engineering control, but at greater cost, may be eliminated.

(8) The lead agency shall notify the support agency of the alternatives that will be evaluated in detail to facilitate the identification of ARARs and, as appropriate, pertinent advisories, criteria, or guidance to be considered.

(9) *Detailed analysis of alternatives.*

(i) A detailed analysis shall be conducted on the limited number of alternatives that represent viable approaches to remedial action after evaluation in the screening stage. The lead and support agencies must identify their ARARs related to specific actions in a timely manner and no later than the early stages of the comparative analysis. The lead and support agencies may also, as appropriate, identify other pertinent advisories, criteria, or guidance in a timely manner.

(ii) The detailed analysis consists of an assessment of individual alternatives against each of nine evaluation criteria and a comparative analysis that focuses upon the relative performance of each alternative against those criteria.

(iii) *Nine criteria for evaluation.* The analysis of alternatives under review shall reflect the scope and complexity of site problems and alternatives being evaluated and consider the relative significance of the factors within each criteria. The nine evaluation criteria are as follows:

(A) *Overall protection of human health and the environment.* Alternatives shall be assessed to determine whether they can adequately protect human health and the environment, in both the short- and long-term, from unacceptable risks posed by hazardous substances, pollutants, or contaminants present at the site by eliminating, reducing, or controlling exposures to levels established during development of remediation goals consistent with §300.430(e)(2)(i). Overall protection of human health and the environment draws on the assessments of other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs.

(B) *Compliance with ARARs.* The alternatives shall be assessed to determine whether they attain applicable or relevant and appropriate requirements under federal environmental laws and state environmental or facility siting laws or provide grounds for invoking one of the waivers under paragraph (f)(1)(ii)(C) of this section.

(C) *Long-term effectiveness and permanence.* Alternatives shall be assessed for the long-term effectiveness and permanence they afford, along with the degree of certainty that the alternative will prove successful. Factors that shall be considered, as appropriate, include the following:

(1) Magnitude of residual risk remaining from untreated waste or treatment residuals remaining at the conclusion of the remedial activities. The characteristics of the residuals should be considered to the degree that they remain hazardous, taking into account their volume, toxicity, mobility, and propensity to bioaccumulate.

(2) Adequacy and reliability of controls such as containment systems and institutional controls that are necessary to manage treatment residuals and untreated waste. This factor addresses in particular the uncertainties associated with land disposal for providing long-term protection from residuals; the assessment of the potential need to replace technical components of the alternative, such as a cap, a slurry wall, or a treatment system; and the potential exposure pathways and risks

posed should the remedial action need replacement.

(D) *Reduction of toxicity, mobility, or volume through treatment.* The degree to which alternatives employ recycling or treatment that reduces toxicity, mobility, or volume shall be assessed, including how treatment is used to address the principal threats posed by the site. Factors that shall be considered, as appropriate, include the following:

(1) The treatment or recycling processes the alternatives employ and materials they will treat;

(2) The amount of hazardous substances, pollutants, or contaminants that will be destroyed, treated, or recycled;

(3) The degree of expected reduction in toxicity, mobility, or volume of the waste due to treatment or recycling and the specification of which reduction(s) are occurring;

(4) The degree to which the treatment is irreversible;

(5) The type and quantity of residuals that will remain following treatment, considering the persistence, toxicity, mobility, and propensity to bioaccumulate of such hazardous substances and their constituents; and

(6) The degree to which treatment reduces the inherent hazards posed by principal threats at the site.

(E) *Short-term effectiveness.* The short-term impacts of alternatives shall be assessed considering the following:

(1) Short-term risks that might be posed to the community during implementation of an alternative;

(2) Potential impacts on workers during remedial action and the effectiveness and reliability of protective measures;

(3) Potential environmental impacts of the remedial action and the effectiveness and reliability of mitigative measures during implementation; and

(4) Time until protection is achieved.

(F) *Implementability.* The ease or difficulty of implementing the alternatives shall be assessed by considering the following types of factors as appropriate:

(1) Technical feasibility, including technical difficulties and unknowns associated with the construction and operation of a technology, the reliability of the technology, ease of undertaking additional remedial actions, and the ability to monitor the effectiveness of the remedy.

(2) Administrative feasibility, including activities needed to coordinate with other offices and agencies and the ability and time required to obtain any necessary approvals and permits from other agencies (for off-site actions);

(3) Availability of services and materials, including the availability of adequate off-site treatment, storage capacity, and disposal capacity and services; the availability of necessary equipment and specialists, and provisions to ensure any necessary additional resources; the availability of services and materials; and availability of prospective technologies.

(G) *Cost.* The types of costs that shall be assessed include the following:

(1) Capital costs, including both direct and indirect costs;

(2) Annual operation and maintenance costs; and

(3) Net present value of capital and O&M costs.

(H) State acceptance. Assessment of state concerns may not be completed until comments on the RI/FS are received but may be discussed, to the extent possible, in the proposed plan issued for public comment. The state concerns that shall be assessed include the following:

(1) The state's position and key concerns related to the preferred alternative and other alternatives; and

(2) State comments on ARARs or the proposed use of waivers.

(I) Community acceptance. This assessment includes determining which components of the alternatives interested persons in the community support, have reservations about, or oppose. This assessment may not be completed until comments on the proposed plan are received.

(f) *Selection of remedy.*

(1) Remedies selected shall reflect the scope and purpose of the actions being undertaken and how the action relates to long-term, comprehensive response at the site.

(i) The criteria noted in paragraph (e)(9)(iii) of this section are used to select a remedy. These criteria are categorized into three groups.

(A) *Threshold criteria.* Overall protection of human health and the environment and compliance with ARARs (unless a specific ARAR is waived) are threshold requirements that each

alternative must meet in order to be eligible for selection.

(B) *Primary balancing criteria.* The five primary balancing criteria are long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; and cost.

(C) *Modifying criteria.* State and community acceptance are modifying criteria that shall be considered in remedy selection.

(ii) The selection of a remedial action is a two-step process and shall proceed in accordance with §300.515(e). First, the lead agency, in conjunction with the support agency, identifies a preferred alternative and presents it to the public in a proposed plan, for review and comment. Second, the lead agency shall review the public comments and consult with the state (or support agency) in order to determine if the alternative remains the most appropriate remedial action for the site or site problem. The lead agency, as specified in §300.515(e), makes the final remedy selection decision, which shall be documented in the ROD. Each remedial alternative selected as a Superfund remedy will employ the criteria as indicated in paragraph (f)(1)(i) of this section to make the following determination:

(A) Each remedial action selected shall be protective of human health and the environment.

(B) On-site remedial actions selected in a ROD must attain those ARARs that are identified at the time of ROD signature or provide grounds for invoking a waiver under §300.430(f)(1)(ii)(C).

(*1*) Requirements that are promulgated or modified after ROD signature must be attained (or waived) only when determined to be applicable or relevant and appropriate and necessary to ensure that the remedy is protective of human health and the environment.

(*2*) Components of the remedy not described in the ROD must attain (or waive) requirements that are identified as applicable or relevant and appropriate at the time the amendment to the ROD or the explanation of significant difference describing the component is signed.

(C) An alternative that does not meet an ARAR under federal environmental or state environmental or facility siting laws may be selected under the following circumstances:

(*1*) The alternative is an interim measure and will become part of a total remedial action that will attain the applicable or relevant and appropriate federal or state requirement;

(*2*) Compliance with the requirement will result in greater risk to human health and the environment than other alternatives;

(*3*) Compliance with the requirement is technically impracticable from an engineering perspective;

(*4*) The alternative will attain a standard of performance that is equivalent to that required under the otherwise applicable standard, requirement, or limitation through use of another method or approach;

(*5*) With respect to a state requirement, the state has not consistently applied, or demonstrated the intention to consistently apply, the promulgated requirement in similar circumstances at other remedial actions within the state; or

(*6*) For Fund-financed response actions only, an alternative that attains the ARAR will not provide a balance between the need for protection of human health and the environment at the site and the availability of Fund monies to respond to other sites that may present a threat to human health and the environment.

(D) Each remedial action selected shall be cost-effective, provided that it first satisfies the threshold criteria set forth in §300.430(f)(1)(ii) (A) and (B). Cost-effectiveness is determined by evaluating the following three of the five balancing criteria noted in §300.430(f)(1)(i)(B) to determine overall effectiveness: long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, and short-term effectiveness. Overall effectiveness is then compared to cost to ensure that the remedy is cost-effective. A remedy shall be cost-effective if its costs are proportional to its overall effectiveness.

(E) Each remedial action shall utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. This requirement shall be fulfilled by selecting the alternative that satisfies paragraph (f)(1)(ii) (A) and (B) of this section and provides the best balance of trade-offs among alternatives in terms of the five primary balancing criteria noted in paragraph (f)(1)(i)(B) of this section. The

balancing shall emphasize long-term effectiveness and reduction of toxicity, mobility, or volume through treatment. The balancing shall also consider the preference for treatment as a principal element and the bias against off-site land disposal of untreated waste. In making the determination under this paragraph, the modifying criteria of state acceptance and community acceptance described in paragraph (f)(1)(i)(C) of this section shall also be considered.

(2) *The proposed plan.* In the first step in the remedy selection process, the lead agency shall identify the alternative that best meets the requirements in §300.430(f)(1), above, and shall present that alternative to the public in a proposed plan. The lead agency, in conjunction with the support agency and consistent with §300.515(e), shall prepare a proposed plan that briefly describes the remedial alternatives analyzed by the lead agency, proposes a preferred remedial action alternative, and summarizes the information relied upon to select the preferred alternative. The selection of remedy process for an operable unit may be initiated at any time during the remedial action process. The purpose of the proposed plan is to supplement the RI/FS and provide the public with a reasonable opportunity to comment on the preferred alternative for remedial action, as well as alternative plans under consideration, and to participate in the selection of remedial action at a site. At a minimum, the proposed plan shall:

(i) Provide a brief summary description of the remedial alternatives evaluated in the detailed analysis established under paragraph (e)(9) of this section;

(ii) Identify and provide a discussion of the rationale that supports the preferred alternative;

(iii) Provide a summary of any formal comments received from the support agency; and

(iv) Provide a summary explanation of any proposed waiver identified under paragraph (f)(1)(ii)(C) of this section from an ARAR.

(3) *Community relations to support the selection of remedy.* (i) The lead agency, after preparation of the proposed plan and review by the support agency, shall conduct the following activities:

(A) Publish a notice of availability and brief analysis of the proposed plan in a major local newspaper of general circulation;

(B) Make the proposed plan and supporting analysis and information available in the administrative record required under subpart I of this part;

(C) Provide a reasonable opportunity, not less than 30 calendar days, for submission of written and oral comments on the proposed plan and the supporting analysis and information located in the information repository, including the RI/FS. Upon timely request, the lead agency will extend the public comment period by a minimum of 30 additional days;

(D) Provide the opportunity for a public meeting to be held during the public comment period at or near the site at issue regarding the proposed plan and the supporting analysis and information;

(E) Keep a transcript of the public meeting held during the public comment period pursuant to CERCLA section 117(a) and make such transcript available to the public; and

(F) Prepare a written summary of significant comments, criticisms, and new relevant information submitted during the public comment period and the lead agency response to each issue. This responsiveness summary shall be made available with the record of decision.

(ii) After publication of the proposed plan and prior to adoption of the selected remedy in the record of decision, if new information is made available that significantly changes the basic features of the remedy with respect to scope, performance, or cost, such that the remedy significantly differs from the original proposal in the proposed plan and the supporting analysis and information, the lead agency shall:

(A) Include a discussion in the record of decision of the significant changes and reasons for such changes, if the lead agency determines such changes could be reasonably anticipated by the public based on the alternatives and other information available in the proposed plan or the supporting analysis and information in the administrative record; or

(B) Seek additional public comment on a revised proposed plan, when the lead agency determines the change could not have been reasonably anticipated by the public based on the information available in the proposed plan or the supporting analysis and information in the

administrative record. The lead agency shall, prior to adoption of the selected remedy in the ROD, issue a revised proposed plan, which shall include a discussion of the significant changes and the reasons for such changes, in accordance with the public participation requirements described in paragraph (f)(3)(i) of this section.

(4) *Final remedy selection.* (i) In the second and final step in the remedy selection process, the lead agency shall reassess its initial determination that the preferred alternative provides the best balance of trade-offs, now factoring in any new information or points of view expressed by the state (or support agency) and community during the public comment period. The lead agency shall consider state (or support agency) and community comments regarding the lead agency's evaluation of alternatives with respect to the other criteria. These comments may prompt the lead agency to modify aspects of the preferred alternative or decide that another alternative provides a more appropriate balance. The lead agency, as specified in §300.515(e), shall make the final remedy selection decision and document that decision in the ROD.

(ii) If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after initiation of the selected remedial action.

(iii) The process for selection of a remedial action at a federal facility on the NPL, pursuant to CERCLA section 120, shall entail:

(A) Joint selection of remedial action by the head of the relevant department, agency, or instrumentality and EPA; or

(B) If mutual agreement on the remedy is not reached, selection of the remedy is made by EPA.

(5) *Documenting the decision.*

(i) To support the selection of a remedial action, all facts, analyses of facts, and site-specific policy determinations considered in the course of carrying out activities in this section shall be documented, as appropriate, in a record of decision, in a level of detail appropriate to the site situation, for inclusion in the administrative record required under subpart I of this part. Documentation shall explain how the evaluation criteria in paragraph (e)(9)(iii) of this section were used to select the remedy.

(ii) The ROD shall describe the following statutory requirements as they relate to the scope and objectives of the action:

(A) How the selected remedy is protective of human health and the environment, explaining how the remedy eliminates, reduces, or controls exposures to human and environmental receptors;

(B) The federal and state requirements that are applicable or relevant and appropriate to the site that the remedy will attain;

(C) The applicable or relevant and appropriate requirements of other federal and state laws that the remedy will not meet, the waiver invoked, and the justification for invoking the waiver;

(D) How the remedy is cost-effective, i.e., explaining how the remedy provides overall effectiveness proportional to its costs;

(E) How the remedy utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and

(F) Whether the preference for remedies employing treatment which permanently and significantly reduces the toxicity, mobility, or volume of the hazardous substances, pollutants, or contaminants as a principal element is or is not satisfied by the selected remedy. If this preference is not satisfied, the record of decision must explain why a remedial action involving such reductions in toxicity, mobility, or volume was not selected.

(iii) The ROD also shall:

(A) Indicate, as appropriate, the remediation goals, discussed in paragraph (e)(2)(i) of this section, that the remedy is expected to achieve. Performance shall be measured at appropriate locations in the ground water, surface water, soils, air, and other affected environmental media. Measurement relating to the performance of the treatment processes and the engineering controls may also be identified, as appropriate;

(B) Discuss significant changes and the response to comments described in paragraph (f)(3)(i)(F) of this section;

(C) Describe whether hazardous substances, pollutants, or contaminants will remain at the site such that a review of the

remedial action under paragraph (f)(4)(ii) of this section no less often than every five years shall be required; and

(D) When appropriate, provide a commitment for further analysis and selection of long-term response measures within an appropriate time-frame.

(6) *Community relations when the record of decision is signed.* After the ROD is signed, the lead agency shall:

(i) Publish a notice of the availability of the ROD in a major local newspaper of general circulation; and

(ii) Make the record of decision available for public inspection and copying at or near the facility at issue prior to the commencement of any remedial action.

§300.435 Remedial design/remedial action, operation and maintenance.

(a) *General.* The remedial design/remedial action (RD/RA) stage includes the development of the actual design of the selected remedy and implementation of the remedy through construction. A period of operation and maintenance may follow the RA activities.

(b) *RD/RA activities.*

(1) All RD/RA activities shall be in conformance with the remedy selected and set forth in the ROD or other decision document for that site. Those portions of RD/RA sampling and analysis plans describing the QA/QC requirements for chemical and analytical testing and sampling procedures of samples taken for the purpose of determining whether cleanup action levels specified in the ROD are achieved, generally will be consistent with the requirements of §300.430(b)(8).

(2) During the course of the RD/RA, the lead agency shall be responsible for ensuring that all federal and state requirements that are identified in the ROD as applicable or relevant and appropriate requirements for the action are met. If waivers from any ARARs are involved, the lead agency shall be responsible for ensuring that the conditions of the waivers are met.

(c) *Community relations.*

(1) Prior to the initiation of RD, the lead agency shall review the CRP to determine whether it should be revised to describe further public involvement activities during RD/RA that are not already addressed or provided for in the CRP.

(2) After the adoption of the ROD, if the remedial action or enforcement action taken, or the settlement or consent decree entered into, differs significantly from the remedy selected in the ROD with respect to scope, performance, or cost, the lead agency shall consult with the support agency, as appropriate, and shall either:

(i) Publish an explanation of significant differences when the differences in the remedial or enforcement action, settlement, or consent decree significantly change but do not fundamentally alter the remedy selected in the ROD with respect to scope, performance, or cost. To issue an explanation of significant differences, the lead agency shall:

(A) Make the explanation of significant differences and supporting information available to the public in the administrative record established under §300.815 and the information repository; and

(B) Publish a notice that briefly summarizes the explanation of significant differences, including the reasons for such differences, in a major local newspaper of general circulation; or

(ii) Propose an amendment to the ROD if the differences in the remedial or enforcement action, settlement, or consent decree fundamentally alter the basic features of the selected remedy with respect to scope, performance, or cost. To amend the ROD, the lead agency, in conjunction with the support agency, as provided in §300.515(e), shall:

(A) Issue a notice of availability and brief description of the proposed amendment to the ROD in a major local newspaper of general circulation;

(B) Make the proposed amendment to the ROD and information supporting the decision available for public comment;

(C) Provide a reasonable opportunity, not less than 30 calendar days, for submission of written or oral comments on the amendment to the ROD. Upon timely request, the lead agency will extend the public comment period by a minimum of 30 additional days;

(D) Provide the opportunity for a public meeting to be held during the public comment period at or near the facility at issue;

(E) Keep a transcript of comments received at the public meeting held during the public comment period;

(F) Include in the amended ROD a brief explanation of the amendment and the

response to each of the significant comments, criticisms, and new relevant information submitted during the public comment period;

(G) Publish a notice of the availability of the amended ROD in a major local newspaper of general circulation; and

(H) Make the amended ROD and supporting information available to the public in the administrative record and information repository prior to the commencement of the remedial action affected by the amendment.

(3) After the completion of the final engineering design, the lead agency shall issue a fact sheet and provide, as appropriate, a public briefing prior to the initiation of the remedial action.

(d) *Contractor conflict of interest.*

(1) For Fund-financed RD/RA and O&M activities, the lead agency shall:

(i) Include appropriate language in the solicitation requiring potential prime contractors to submit information on their status, as well as the status of their subcontractors, parent companies, and affiliates, as potentially responsible parties at the site.

(ii) Require potential prime contractors to certify that, to the best of their knowledge, they and their potential subcontractors, parent companies, and affiliates have disclosed all information described in §300.435(d)(1)(i) or that no such information exists, and that any such information discovered after submission of their bid or proposal or contract award will be disclosed immediately.

(2) Prior to contract award, the lead agency shall evaluate the information provided by the potential prime contractors and:

(i) Determine whether they have conflicts of interest that could significantly impact the performance of the contract or the liability of potential prime contractors or subcontractors.

(ii) If a potential prime contractor or subcontractor has a conflict of interest that cannot be avoided or otherwise resolved, and using that potential prime contractor or subcontractor to conduct RD/RA or O&M work under a Fund-financed action would not be in the best interests of the state or federal government, an offeror or bidder contemplating use of that prime contractor or subcontractor may be declared nonresponsible or ineligible for award in accordance with appropriate acquisition regulations, and the contract may be awarded to the next eligible offeror or bidder.

(e) *Recontracting.*

(1) If a Fund-financed contract must be terminated because additional work outside the scope of the contract is needed, EPA is authorized to take appropriate steps to continue interim RAs as necessary to reduce risks to public health and the environment. Appropriate steps may include extending an existing contract for a federal-lead RA or amending a cooperative agreement for a state-lead RA. Until the lead agency can reopen the bidding process and recontract to complete the RA, EPA may take such appropriate steps as described above to cover interim work to reduce such risks, where:

(i) Additional work is found to be needed as a result of such unforeseen situations as newly discovered sources, types, or quantities of hazardous substances at a facility; and

(ii) Performance of the complete RA requires the lead agency to rebid the contract because the existing contract does not encompass this newly discovered work.

(2) The cost of such interim actions shall not exceed $2 million.

(f) *Operation and maintenance.*

(1) Operation and maintenance (O&M) measures are initiated after the remedy has achieved the remedial action objectives and remediation goals in the ROD, and is determined to be operational and functional, except for ground- or surface-water restoration actions covered under §300.435(f)(4). A state must provide its assurance to assume responsibility for O&M, including, where appropriate, requirements for maintaining institutional controls, under §300.510(c).

(2) A remedy becomes "operational and functional" either one year after construction is complete, or when the remedy is determined concurrently by EPA and the state to be functioning properly and is performing as designed, whichever is earlier. EPA may grant extensions to the one-year period, as appropriate.

(3) For Fund-financed remedial actions involving treatment or other measures to restore ground- or surface-water quality to a level that assures protection of human health and the environment, the operation of such treatment or other measures for a period of up to 10 years after the remedy becomes operational and functional will be

considered part of the remedial action. Activities required to maintain the effectiveness of such treatment or measures following the 10-year period, or after remedial action is complete, whichever is earlier, shall be considered O&M. For the purposes of federal funding provided under CERCLA section 104(c)(6), a restoration activity will be considered administratively "complete" when:

(i) Measures restore ground- or surface-water quality to a level that assures protection of human health and the environment;

(ii) Measures restore ground or surface water to such a point that reductions in contaminant concentrations are no longer significant; or

(iii) Ten years have elapsed, whichever is earliest.

(4) The following shall not be deemed to constitute treatment or other measures to restore contaminated ground or surface water under §300.435(f)(3):

(i) Source control maintenance measures; and

(ii) Ground- or surface-water measures initiated for the primary purpose of providing a drinking-water supply, not for the purpose of restoring ground water.

§300.440 Procedures for planning and implementing off-site response actions [Reserved].

Subpart F—State Involvement in Hazardous Substance Response

§300.500 General.

(a) EPA shall ensure meaningful and substantial state involvement in hazardous substance response as specified in this subpart. EPA shall provide an opportunity for state participation in removal, pre-remedial, remedial, and enforcement response activities. EPA shall encourage states to enter into an EPA/state Superfund Memorandum of Agreement (SMOA) under §300.505 to increase state involvement and strengthen the EPA/state partnership.

(b) EPA shall encourage states to participate in Fund-financed response in two ways. Pursuant to §300.515(a), states may either assume the lead through a cooperative agreement for the response action or may be the support agency in EPA-lead remedial response. Section 300.515 sets forth requirements for state involvement in EPA-lead remedial and enforcement response and also addresses comparable requirements for EPA involvement in state-lead remedial and enforcement response. Section 300.520 specifies requirements for state involvement in EPA-lead enforcement negotiations. Section 300.525 specifies requirements for state involvement in removal actions. In addition to the requirements set forth in this subpart, 40 CFR part 35, subpart O, "Cooperative Agreements and Superfund State Contracts for Superfund Response Actions," contains further requirements for state participation during response.

§300.505 EPA/State Superfund Memorandum of Agreement (SMOA).

(a) The SMOA may establish the nature and extent of EPA and state interaction during EPA-lead and state-lead response (Indian tribes meeting the requirements of §300.515(b) may be treated as states for purposes of this section). EPA shall enter into SMOA discussions if requested by a state. The following may be addressed in a SMOA:

(1) The EPA/state or Indian tribe relationship for removal, pre-remedial, remedial, and enforcement response, including a description of the roles and the responsibilities of each.

(2) The general requirements for EPA oversight. Oversight requirements may be more specifically defined in cooperative agreements.

(3) The general nature of lead and support agency interaction regarding the review of key documents and/or decision points in removal, pre-remedial, remedial, and enforcement response. The requirements for EPA and state review of each other's key documents when each is serving as the support agency shall be equivalent to the extent practicable. Review times agreed to in the SMOA must also be documented in site-specific cooperative agreements or Superfund state contracts in order to be binding.

(4) Procedures for modification of the SMOA (e.g., if EPA and a state agree that the lead and support agency roles and responsibilities have changed, or if modifications are required to achieve desired goals).

(b) The SMOA and any modifications thereto shall be executed by the EPA Regional Administrator and the head of the

state agency designated as lead agency for state implementation of CERCLA.

(c) Site-specific agreements entered into pursuant to section 104(d)(1) of CERCLA shall be developed in accordance with 40 CFR part 35, subpart O. The SMOA shall not supersede such agreements.

(d)(1) EPA and the state shall consult annually to determine priorities and make lead and support agency designations for removal, pre-remedial, remedial, and enforcement response to be conducted during the next fiscal year and to discuss future priorities and long-term requirements for response. These consultations shall include the exchange of information on both Fund- and non-Fund-financed response activities. The SMOA may describe the timeframe and process for the EPA/state consultation.

(2) The following activities shall be discussed in the EPA/state consultations established in the SMOA, or otherwise initiated and documented in writing in the absence of a SMOA, on a site-specific basis with EPA and the state identifying the lead agency for each response action discussed:

(i) Pre-remedial response actions, including preliminary assessments and site inspections;

(ii) Hazard Ranking System scoring and NPL listing and deletion activities;

(iii) Remedial phase activities, including remedial investigation/feasibility study, identification of potential applicable or relevant and appropriate requirements (ARARs) under federal and state environmental laws and, as appropriate, other advisories, criteria, or guidance to be considered (TBCs), proposed plan, ROD, remedial design, remedial action, and operation and maintenance;

(iv) Potentially responsible party (PRP) searches, notices to PRPs, response to information requests, PRP negotiations, oversight of PRPs, other enforcement actions pursuant to state law, and activities where the state provides support to EPA;

(v) Compilation and maintenance of the administrative record for selection of a response action as required by subpart I of this part;

(vi) Related site support activities;

(vii) State ability to share in the cost and timing of payments; and

(viii) General CERCLA implementation activities.

(3) If a state is designated as the lead agency for a non-Fund-financed action at an NPL site, the SMOA shall be supplemented by site-specific enforcement agreements between EPA and the state which specify schedules and EPA involvement.

(4) In the absence of a SMOA, EPA and the state shall comply with the requirements in §300.515(h). If the SMOA does not address all of the requirements specified in §300.515(h), EPA and the state shall comply with any unaddressed requirements in that section.

§300.510 State assurances.

(a) A Fund-financed remedial action undertaken pursuant to CERCLA section 104(a) cannot proceed unless a state provides its applicable required assurances. The assurances must be provided by the state prior to the initiation of remedial action pursuant to a Superfund state contract for EPA-lead (or political subdivision-lead) remedial action or pursuant to a cooperative agreement for a state-lead remedial action. The SMOA may not be used for this purpose. Federally recognized Indian tribes are not required to provide CERCLA section 104(c)(3) assurances for Fund-financed response actions. Further requirements pertaining to state, political subdivision, and federally recognized Indian tribe involvement in CERCLA response are found in 40 CFR part 35, subpart O.

(b)(1) The state is not required to share in the cost of state- or EPA-lead Fund-financed removal actions (including remedial planning activities associated with remedial actions) conducted pursuant to CERCLA section 104 unless the facility was operated by the state or a political subdivision thereof at the time of disposal of hazardous substances therein and a remedial action is ultimately undertaken at the site. Such remedial planning activities include, but are not limited to, remedial investigations (RIs), feasibility studies (FSs), and remedial design (RD). States shall be required to share 50 percent, or greater, in the cost of all Fund-financed response actions if the facility was publicly operated at the time of the disposal of hazardous substances. For other facilities, except federal facilities, the state shall be required to share 10 percent of the cost of the remedial action.

(2) CERCLA section 104(c)(5) provides that EPA shall grant a state credit for reasonable, documented, direct,

out-of-pocket, non-federal expenditures subject to the limitations specified in CERCLA section 104(c)(5). For a state to apply credit toward its cost share, it must enter into a cooperative agreement or Superfund state contract. The state must submit as soon as possible, but no later than at the time CERCLA section 104 assurances are provided for a remedial action, its accounting of eligible credit expenditures for EPA verification. Additional credit requirements are contained in 40 CFR part 35, subpart O.

(3) Credit may be applied to a state's future cost share requirements at NPL sites for response expenditures or obligations incurred by the state or a political subdivision from January 1, 1978 to December 11, 1980, and for the remedial action expenditures incurred only by the state after October 17, 1986.

(4) Credit that exceeds the required cost share at the site for which the credit is granted may be transferred to another site to offset a state's required remedial action cost share.

(c)(1) Prior to a Fund-financed remedial action, the state must also provide its assurance in accordance with CERCLA section 104(c)(3)(A) to assume responsibility for operation and maintenance of implemented remedial actions for the expected life of such actions. In addition, when appropriate, as part of the O&M assurance, the state must assure that any institutional controls implemented as part of the remedial action at a site are in place, reliable, and will remain in place after the initiation of O&M. The state and EPA shall consult on a plan for operation and maintenance prior to the initiation of a remedial action.

(2) After a joint EPA/state inspection of the implemented Fund-financed remedial action under §300.515(g), EPA may share, for a period of up to one year, in the cost of the operation of the remedial action to ensure that the remedy is operational and functional. In the case of the restoration of ground or surface water, EPA shall share in the cost of the state's operation of ground- or surface-water restoration remedial actions as specified in §300.435(f)(3).

(d) In accordance with CERCLA sections 104 (c)(3)(B) and 121(d)(3), if the remedial action requires off-site storage, destruction, treatment, or disposal, the state must provide its assurance before the remedial action begins on the availability of a hazardous waste disposal facility that is in compliance with CERCLA section 121(d)(3) and is acceptable to EPA.

(e)(1) In accordance with CERCLA section 104(c)(9), EPA shall not provide any remedial action pursuant to CERCLA section 104 until the state in which the release occurs enters into a cooperative agreement or Superfund state contract with EPA providing assurances deemed adequate by EPA that the state will assure the availability of hazardous waste treatment or disposal facilities which:

(i) Have adequate capacity for the destruction, treatment, or secure disposition of all hazardous wastes that are reasonably expected to be generated within the state during the 20-year period following the date of such cooperative agreement or Superfund state contract and to be destroyed, treated, or disposed;

(ii) Are within the state, or outside the state in accordance with an interstate agreement or regional agreement or authority;

(iii) Are acceptable to EPA; and

(iv) Are in compliance with the requirements of Subtitle C of the Solid Waste Disposal Act.

(2) This rule does not address whether or not Indian tribes are states for purposes of this paragraph (e).

(f) EPA may determine that an interest in real property must be acquired in order to conduct a response action. As a general rule, the state in which the property is located must agree to acquire and hold the necessary property interest, including any interest in acquired property that is needed to ensure the reliability of institutional controls restricting the use of that property. If it is necessary for the United States government to acquire the interest in property to permit implementation of the response, the state must accept transfer of the acquired interest on or before the completion of the response action.

§300.515 Requirements for state involvement in remedial and enforcement response.

(a) *General.*

(1) States are encouraged to undertake actions authorized under subpart E. Section 104(d)(1) of CERCLA authorizes EPA to enter into cooperative agreements or contracts with a state, political subdivision, or a federally recognized Indian tribe to carry out Fund-financed

response actions authorized under CERCLA, when EPA determines that the state, the political subdivision, or federally recognized Indian tribe has the capability to undertake such actions. EPA will use a cooperative agreement to transfer funds to those entities to undertake Fund-financed response activities. The requirements for states, political subdivisions, or Indian tribes to receive funds as a lead or support agency for response are addressed at 40 CFR part 35, subpart O.

(2) For EPA-lead Fund-financed remedial planning activities, including, but not limited to, remedial investigations, feasibility studies, and remedial designs, the state agency acceptance of the support agency role during an EPA-lead response shall be documented in a letter, SMOA, or cooperative agreement. Superfund state contracts are unnecessary for this purpose.

(3) Cooperative agreements and Superfund state contracts are only appropriate for non-Fund-financed response actions if a state intends to seek credit for remedial action expenses under §300.510.

(b) *Indian tribe involvement during response.* To be afforded substantially the same treatment as states under section 104 of CERCLA, the governing body of the Indian tribe must:

(1) Be federally recognized; and

(2) Have a tribal governing body that is currently performing governmental functions to promote the health, safety, and welfare of the affected population or to protect the environment within a defined geographic area; and

(3) Have jurisdiction over a site at which Fund-financed response, including pre-remedial activities, is contemplated.

(c) *State involvement in PA/SI and National Priorities List process.* EPA shall ensure state involvement in the listing and deletion process by providing states opportunities for review, consultation, or concurrence specified in this section.

(1) EPA shall consult with states as appropriate on the information to be used in developing HRS scores for releases.

(2) EPA shall, to the extent feasible, provide the state 30 working days to review releases which were scored by EPA and which will be considered for placement on the National Priorities List (NPL).

(3) EPA shall provide the state 30 working days to review and concur on the Notice of Intent to Delete a release from the NPL. Section 300.425 describes the EPA/state consultation and concurrence process for deleting releases from the NPL.

(d) *State involvement in RI/FS process.* A key component of the EPA/state partnership shall be the communication of potential federal and state ARARs and, as appropriate, other pertinent advisories, criteria, or guidance to be considered (TBCs).

(1) In accordance with §§300.400(g) and 300.430, the lead and support agencies shall identify their respective potential ARARs and communicate them to each other in a timely manner, i.e., no later than the early stages of the comparative analysis described in §300.430(e)(9), such that sufficient time is available for the lead agency to consider and incorporate all potential ARARs without inordinate delays and duplication of effort. The lead and support agencies may also identify TBCs and communicate them in a timely manner.

(2) When a state and EPA have entered into a SMOA, the SMOA may specify a consultation process which requires the lead agency to solicit potential ARARs at specified points in the remedial planning and remedy selection processes. At a minimum, the SMOA shall include the points specified in §300.515(h)(2). The SMOA shall specify timeframes for support agency response to lead agency requests to ensure that potential ARARs are identified and communicated in a timely manner. Such timeframes must also be documented in site-specific agreements. The SMOA may also discuss identification and communication of TBCs.

(3) If EPA in its statement of a proposed plan intends to waive any state-identified ARARs, or does not agree with the state that a certain state standard is an ARAR, it shall formally notify the state when it submits the RI/FS report for state review or responds to the state's submission of the RI/FS report.

(4) EPA shall respond to state comments on waivers from or disagreements about state ARARs, as well as the preferred alternative when making the RI/FS report and proposed plan available for public comment.

(e) *State involvement in selection of remedy.*

(1) Both EPA and the state shall be involved in preliminary discussions of the alternatives addressed in the FS prior to preparation of the proposed plan and

ROD. At the conclusion of the RI/FS, the lead agency, in conjunction with the support agency, shall develop a proposed plan. The support agency shall have an opportunity to comment on the plan. The lead agency shall publish a notice of availability of the RI/FS report and a brief analysis of the proposed plan pursuant to §300.430(e) and (f). Included in the proposed plan shall be a statement that the lead and support agencies have reached agreement or, where this is not the case, a statement explaining the concerns of the support agency with the lead agency's proposed plan. The state may not publish a proposed plan that EPA has not approved. EPA may assume the lead from the state if agreement cannot be reached.

(2)(i) EPA and the state shall identify, at least annually, sites for which RODs will be prepared during the next fiscal year, in accordance with §300.515(h)(1). For all EPA-lead sites, EPA shall prepare the ROD and provide the state an opportunity to concur with the recommended remedy. For Fund-financed state-lead sites, EPA and the state shall designate sites, in a site-specific agreement, for which the state shall prepare the ROD and seek EPA's concurrence and adoption of the remedy specified therein, and sites for which EPA shall prepare the ROD and seek the state's concurrence. EPA and the state may designate sites for which the state shall prepare the ROD for non-Fund-financed state-lead enforcement response actions (i.e., actions taken under state law) at an NPL site. The state may seek EPA's concurrence in the remedy specified therein. Either EPA or the state may choose not to designate a site as state-lead.

(ii) State concurrence on a ROD is not a prerequisite to EPA's selecting a remedy, i.e., signing a ROD, nor is EPA's concurrence a prerequisite to a state's selecting a remedy at a non-Fund-financed state-lead enforcement site under state law. Unless EPA's Assistant Administrator for Solid Waste and Emergency Response or Regional Administrator concurs in writing with a state-prepared ROD, EPA shall not be deemed to have approved the state decision. A state may not proceed with a Fund-financed response action unless EPA has first concurred in and adopted the ROD. Section 300.510(a) specifies limitations on EPA's proceeding with a remedial action without state assurances.

(iii) The lead agency shall provide the support agency with a copy of the signed ROD for remedial actions to be conducted pursuant to CERCLA.

(iv) On state-lead sites identified for EPA concurrence, the state generally shall be expected to maintain its lead agency status through the completion of the remedial action.

(f) *Enhancement of remedy.*

(1) A state may ask EPA to make changes in or expansions of a remedial action selected under subpart E.

(i) If EPA finds that the proposed change or expansion is necessary and appropriate to the EPA-selected remedial action, the remedy may be modified (consistent with §300.435(c)(2)) and any additional costs paid as part of the remedial action.

(ii) If EPA finds that the proposed change or expansion is not necessary to the selected remedial action, but would not conflict or be inconsistent with the EPA-selected remedy, EPA may agree to integrate the proposed change or expansion into the planned CERCLA remedial work if:

(A) The state agrees to fund the entire additional cost associated with the change or expansion; and

(B) The state agrees to assume the lead for supervising the state-funded component of the remedy or, if EPA determines that the state-funded component cannot be conducted as a separate phase or activity, for supervising the remedial design and construction of the entire remedy.

(2) Where a state does not concur in a remedial action secured by EPA under CERCLA section 106, and the state desires to have the remedial action conform to an ARAR that has been waived under §300.430(f)(1)(ii)(C), a state may seek to have that remedial action so conform, in accordance with the procedures set out in CERCLA section 121(f)(2).

(g) *State involvement in remedial design/remedial action.* The extent and nature of state involvement during remedial design and remedial action shall be specified in site-specific cooperative agreements or Superfund state contracts, consistent with 40 CFR part 35, subpart O. For Fund-financed remedial actions, the lead and support agencies shall conduct a joint inspection at the conclusion of construction of the remedial action to determine that the remedy has been

constructed in accordance with the ROD and with the remedial design.

(h) *Requirements for state involvement in absence of SMOA.* In the absence of a SMOA, EPA and the state shall comply with the requirements in §300.515(h). If the SMOA does not address all of the requirements specified in §300.515(h), EPA and the state shall comply with any unaddressed requirements in that section.

(1) *Annual consultations.* EPA shall conduct consultations with states at least annually to establish priorities and identify and document in writing the lead for remedial and enforcement response for each NPL site within the state for the upcoming fiscal year. States shall be given the opportunity to participate in long-term planning efforts for remedial and enforcement response during these annual consultations.

(2) *Identification of ARARs and TBCs.* The lead and support agencies shall discuss potential ARARs during the scoping of the RI/FS. The lead agency shall request potential ARARs from the support agency no later than the time that the site characterization data are available. The support agency shall communicate in writing those potential ARARs to the lead agency within 30 working days of receipt of the lead agency request for these ARARs. The lead and support agencies may also discuss and communicate other pertinent advisories, criteria, or guidance to be considered (TBCs). After the initial screening of alternatives has been completed but prior to initiation of the comparative analysis conducted during the detailed analysis phase of the FS, the lead agency shall request that the support agency communicate any additional requirements that are applicable or relevant and appropriate to the alternatives contemplated within 30 working days of receipt of this request. The lead agency shall thereafter consult the support agency to ensure that identified ARARs and TBCs are updated as appropriate.

(3) *Support agency review of lead agency documents.* The lead agency shall provide the support agency an opportunity to review and comment on the RI/FS, proposed plan, ROD, and remedial design, and any proposed determinations on potential ARARs and TBCs. The support agency shall have a minimum of 10 working days and a maximum of 15 working days to provide comments to the lead agency on the RI/FS, ROD, ARAR/TBC determinations, and remedial design. The support agency shall have a minimum of five working days and a maximum of 10 working days to comment on the proposed plan.

(i) *Administrative record requirements.* The state, where it is the lead agency for a Fund-financed site, shall compile and maintain the administrative record for selection of a response action under subpart I of this part unless specified otherwise in the SMOA.

§300.520 State involvement in EPA-lead enforcement negotiations.

(a) EPA shall notify states of response action negotiations to be conducted by EPA with potentially responsible parties during each fiscal year.

(b) The state must notify EPA of such negotiations in which it intends to participate.

(c) The state is not foreclosed from signing a consent decree if it does not participate substantially in the negotiations.

§300.525 State involvement in removal actions.

(a) States may undertake Fund-financed removal actions pursuant to a cooperative agreement with EPA. State-lead removal actions taken pursuant to cooperative agreements must be conducted in accordance with §300.415 on removal actions, and 40 CFR part 35, subpart O.

(b) States are not required under section 104(c)(3) of CERCLA to share in the cost of a Fund-financed removal action, unless the removal is conducted at an NPL site that was operated by a state or political subdivision at the time of disposal of hazardous substances therein and a Fund-financed remedial action is ultimately undertaken at the site. In this situation, states are required to share, 50 percent or greater, in the cost of all removal (including remedial planning) and remedial action costs at the time of the remedial action.

(c) States are encouraged to provide for post-removal site control as discussed in §300.415(k) for all Fund-financed removal actions.

(d) States shall be responsible for identifying potential state ARARs for all Fund-financed removal actions and for providing such ARARs to EPA in a timely manner for all EPA-lead removal actions.

(e) EPA shall consult with a state on all removal actions to be conducted in that state.

Subpart G—Trustees for Natural Resources

§300.600 Designation of federal trustees.

(a) The President is required to designate in the National Contingency Plan those federal officials who are to act on behalf of the public as trustees for natural resources. Federal officials so designated will act pursuant to section 107(f) of CERCLA and section 311(f)(5) of the Clean Water Act. Natural resources include:

(1) Natural resources over which the United States has sovereign rights; and

(2) Natural resources within the territorial sea, contiguous zone, exclusive economic zone, and outer continental shelf belonging to, managed by, held in trust by, appertaining to, or otherwise controlled (hereinafter referred to as "managed or protected") by the United States. .

(b) The following individuals shall be the designated trustee(s) for general categories of natural resources. They are authorized to act pursuant to section 107(f) of CERCLA or section 311(f)(5) of the Clean Water Act when there is injury to, destruction of, loss of, or threat to natural resources as a result of a release of a hazardous substance or a discharge of oil. Notwithstanding the other designations in this section, the Secretaries of Commerce and the Interior shall act as trustees of those resources subject to their respective management or protection.

(1) Secretary of Commerce. The Secretary of Commerce shall act as trustee for natural resources managed or protected by the Department of Commerce or by other federal agencies and that are found in or under waters navigable by deep draft vessels, in or under tidally influenced waters, or waters of the contiguous zone, the exclusive economic zone, and the outer continental shelf, and in upland areas serving as habitat for marine mammals and other protected species. However, before the Secretary takes an action with respect to an affected resource under the management or protection of another federal agency, he shall, whenever practicable, seek to obtain the concurrence of that other federal agency. Examples of the Secretary's trusteeship include marine fishery resources and their supporting ecosystems; anadromous fish; certain endangered species and marine mammals; and National Marine Sanctuaries and Estuarine Research Reserves.

(2) *Secretary of the Interior.* The Secretary of the Interior shall act as trustee for natural resources managed or protected by the Department of the Interior. Examples of the Secretary's trusteeship include migratory birds; certain anadromous fish, endangered species, and marine mammals; federally owned minerals; and certain federally managed water resources. The Secretary of the Interior shall also be trustee for those natural resources for which an Indian tribe would otherwise act as trustee in those cases where the United States acts on behalf of the Indian tribe.

(3) *Secretary for the land managing agency.* For natural resources located on, over, or under land administered by the United States, the trustee shall be the head of the Department in which the land managing agency is found. The trustees for the principal federal land managing agencies are the Secretaries of the Department of the Interior, the Department of Agriculture, the Department of Defense, and the Department of Energy.

(4) *Head of authorized agencies.* For natural resources located in the United States but not otherwise described in this section, the trustee shall be the head of the federal agency or agencies authorized to manage or protect those resources.

§300.605 State trustees.

State trustees shall act on behalf of the public as trustees for natural resources within the boundary of a state or belonging to, managed by, controlled by, or appertaining to such state. For the purposes of subpart G of this part, the definition of the term "state" docs not include Indian tribes.

§300.610 Indian tribes.

The tribal chairmen (or heads of the governing bodies) of Indian tribes, as defined in §300.5, or a person designated by the tribal officials, shall act on behalf of the Indian tribes as trustees for the natural resources belonging to, managed by, controlled by, or appertaining to such Indian tribe, or held in trust for the benefit of such Indian tribe, or belonging to a member of such Indian tribe, if such resources are subject to a trust restriction on alienation. When the tribal chairman or head of the tribal governing body

designates another person as trustee, the tribal chairman or head of the tribal governing body shall notify the President of such designation. Such officials are authorized to act when there is injury to, destruction of, loss of, or threat to natural resources as a result of a release of a hazardous substance.

§300.615 Responsibilities of trustees.

(a) Where there are multiple trustees, because of coexisting or contiguous natural resources or concurrent jurisdictions, they should coordinate and cooperate in carrying out these responsibilities.

(b) Trustees are responsible for designating to the RRTs, for inclusion in the Regional Contingency Plan, appropriate contacts to receive notifications from the OSCs/RPMs of potential injuries to natural resources.

(c) Upon notification or discovery of injury to, destruction of, loss of, or threat to natural resources, trustees may, pursuant to section 107(f) of CERCLA or section 311(f)(5) of the Clean Water Act, take the following or other actions as appropriate:

(1) Conduct a preliminary survey of the area affected by the discharge or release to determine if trust resources under their jurisdiction are, or potentially may be, affected;

(2) Cooperate with the OSC/RPM in coordinating assessments, investigations, and planning;

(3) Carry out damage assessments; or

(4) Devise and carry out a plan for restoration, rehabilitation, replacement, or acquisition of equivalent natural resources. In assessing damages to natural resources, the federal, state, and Indian tribe trustees have the option of following the procedures for natural resource damage assessments located at 43 CFR part 11.

(d) The authority of federal trustees includes, but is not limited to the following actions:

(1) Requesting that the Attorney General seek compensation from the responsible parties for the damages assessed and for the costs of an assessment and of restoration planning; and

(2) Participating in negotiations between the United States and potentially responsible parties (PRPs) to obtain PRP-financed or PRP-conducted assessments and restorations for injured resources or protection for threatened resources and to agree to covenants not to sue, where appropriate.

(3) Requiring, in consultation with the lead agency, any person to comply with the requirements of CERCLA section 104(e) regarding information gathering and access.

(e) Actions which may be taken by any trustee pursuant to section 107(f) of CERCLA or section 311(f)(5) of the Clean Water Act include, but are not limited to, any of the following:

(1) Requesting that an authorized agency issue an administrative order or pursue injunctive relief against the parties responsible for the discharge or release; or

(2) Requesting that the lead agency remove, or arrange for the removal of, or provide for remedial action with respect to, any hazardous substances from a contaminated medium pursuant to section 104 of CERCLA.

Subpart H — Participation by Other Persons

§300.700 Activities by other persons.

(a) *General.* Any person may undertake a response action to reduce or eliminate a release of a hazardous substance, pollutant, or contaminant.

(b) *Summary of CERCLA authorities.* The mechanisms available to recover the costs of response actions under CERCLA are, in summary:

(1) Section 107(a), wherein any person may receive a court award of his or her response costs, plus interest, from the party or parties found to be liable;

(2) Section 111(a)(2), wherein a private party, a potentially responsible party pursuant to a settlement agreement, or certain foreign entities may file a claim against the Fund for reimbursement of response costs;

(3) Section 106(b), wherein any person who has complied with a section 106(a) order may petition the Fund for reimbursement of reasonable costs, plus interest; and

(4) Section 123, wherein a general purpose unit of local government may apply to the Fund under 40 CFR part 310 for reimbursement of the costs of temporary emergency measures that are necessary to prevent or mitigate injury to human health or the environment associated with a release.

(c) Section 107(a) cost recovery actions.

(1) Responsible parties shall be liable for all response costs incurred by the United

States government or a State or an Indian tribe not inconsistent with the NCP.

(2) Responsible parties shall be liable for necessary costs of response actions to releases of hazardous substances incurred by any other person consistent with the NCP.

(3) For the purpose of cost recovery under section 107(a)(4)(B) of CERCLA:

(i) A private party response action will be considered "consistent with the NCP" if the action, when evaluated as a whole, is in substantial compliance with the applicable requirements in paragraphs (c)(5) and (6) of this section, and results in a CERCLA-quality cleanup;

(ii) Any response action carried out in compliance with the terms of an order issued by EPA pursuant to section 106 of CERCLA, or a consent decree entered into pursuant to section 122 of CERCLA, will be considered "consistent with the NCP."

(4) Actions under §300.700(c)(1) will not be considered "inconsistent with the NCP," and actions under §300.700(c)(2) will not be considered not "consistent with the NCP," based on immaterial or insubstantial deviations from the provisions of 40 CFR part 300.

(5) The following provisions of this part are potentially applicable to private party response actions:

(i) Section 300.150 (on worker health and safety);

(ii) Section 300.160 (on documentation and cost recovery);

(iii) Section 300.400(c)(1), (4), (5), and (7) (on determining the need for a Fund-financed action); (e) (on permit requirements) except that the permit waiver does not apply to private party response actions; and (g) (on identification of ARARs) except that applicable requirements of federal or state law may not be waived by a private party;

(iv) Section 300.405(b), (c), and (d) (on reports of releases to the NRC);

(v) Section 300.410 (on removal site evaluation) except paragraphs (e)(5) and (6);

(vi) Section 300.415 (on removal actions) except paragraphs (a)(2), (b)(2)(vii), (b)(5), and (f); and including §300.415(i) with regard to meeting ARARs where practicable except that private party removal actions must always comply with the requirements of applicable law;

(vii) Section 300.420 (on remedial site evaluation);

(viii) Section 300.430 (on RI/FS and selection of remedy) except paragraph (f)(1)(ii)(C)(6) and that applicable requirements of federal or state law may not be waived by a private party; and

(ix) Section 300.435 (on RD/RA and operation and maintenance).

(6) Private parties undertaking response actions should provide an opportunity for public comment concerning the selection of the response action based on the provisions set out below, or based on substantially equivalent state and local requirements. The following provisions of this part regarding public participation are potentially applicable to private party response actions, with the exception of administrative record and information repository requirements stated therein:

(i) Section 300.155 (on public information and community relations);

(ii) Section 300.415(m) (on community relations during removal actions);

(iii) Section 300.430(c) (on community relations during RI/FS) except paragraph (c)(5);

(iv) Section 300.430(f)(2), (3), and (6) (on community relations during selection of remedy); and

(v) Section 300.435(c) (on community relations during RD/RA and operation and maintenance).

(7) When selecting the appropriate remedial action, the methods of remedying releases listed in Appendix D of this part may also be appropriate to a private party response action.

(8) Except for actions taken pursuant to CERCLA sections 104 or 106 or response actions for which reimbursement from the Fund will be sought, any action to be taken by the lead agency listed in paragraphs (c)(5) through (c)(7) may be taken by the person carrying out the response action.

(d) *Section 111(a)(2) claims.*

(1) Persons, other than those listed in paragraphs (d)(1)(i) through (iii) of this section, may be able to receive reimbursement of response costs by means of a claim against the Fund. The categories of persons excluded from pursuing this claims authority are:

(i) Federal government;

(ii) State governments, and their political subdivisions, unless they are potentially responsible parties covered by an order or consent decree pursuant to section 122 of CERCLA; and

(iii) Persons operating under a procurement contract or an assistance agreement with the United States with respect to matters covered by that contract or assistance agreement, unless specifically provided therein.

(2) In order to be reimbursed by the Fund, an eligible person must notify the Administrator of EPA or designee prior to taking a response action and receive prior approval, i.e., "preauthorization," for such action.

(3) Preauthorization is EPA's prior approval to submit a claim against the Fund for necessary response costs incurred as a result of carrying out the NCP. All applications for preauthorization will be reviewed to determine whether the request should receive priority for funding. EPA, in its discretion, may grant preauthorization of a claim. Preauthorization will be considered only for:

(i) Removal actions pursuant to §300.415;

(ii) CERCLA section 104(b) activities; and

(iii) Remedial actions at National Priorities List sites pursuant to §300.435.

(4) To receive EPA's prior approval, the eligible person must:

(i) Demonstrate technical and other capabilities to respond safely and effectively to releases of hazardous substances, pollutants, or contaminants; and

(ii) Establish that the action will be consistent with the NCP in accordance with the elements set forth in paragraphs (c)(5) through (8) of this section.

(5) EPA will grant preauthorization to a claim by a party it determines to be potentially liable under section 107 of CERCLA only in accordance with an order issued pursuant to section 106 of CERCLA, or a settlement with the federal government in accordance with section 122 of CERCLA.

(6) Preauthorization does not establish an enforceable contractual relationship between EPA and the claimant.

(7) Preauthorization represents EPA's commitment that if funds are appropriated for response actions, the response action is conducted in accordance with the preauthorization decision document, and costs are reasonable and necessary, reimbursement will be made from the Superfund, up to the maximum amount provided in the preauthorization decision document.

(8) For a claim to be awarded under section 111 of CERCLA, EPA must certify that the costs were necessary and consistent with the preauthorization decision document.

(e) *Section 106(b) petition.* Subject to conditions specified in CERCLA section 106(b), any person who has complied with an order issued after October 16, 1986 pursuant to section 106(a) of CERCLA, may seek reimbursement for response costs incurred in complying with that order unless the person has waived that right.

(f) *Section 123 reimbursement to local governments.* Any general purpose unit of local government for a political subdivision that is affected by a release may receive reimbursement for the costs of temporary emergency measures necessary to prevent or mitigate injury to human health or the environment subject to the conditions set forth in 40 CFR part 310. Such reimbursement may not exceed $25,000 for a single response.

(g) Release from liability. Implementation of response measures by potentially responsible parties or by any other person does not release those parties from liability under section 107(a) of CERCLA, except as provided in a settlement under section 122 of CERCLA or a federal court judgment.

Subpart I—Administrative Record for Selection of Response Action

§300.800 Establishment of an administrative record.

(a) *General requirement.* The lead agency shall establish an administrative record that contains the documents that form the basis for the selection of a response action. The lead agency shall compile and maintain the administrative record in accordance with this subpart.

(b) *Administrative records for federal facilities.*

(1) If a federal agency other than EPA is the lead agency for a federal facility, the federal agency shall compile and maintain the administrative record for the selection of the response action for that facility in accordance with this subpart. EPA may furnish documents which the federal agency shall place in the administrative record file to ensure that the administrative record

includes all documents that form the basis for the selection of the response action.

(2) EPA or the U.S. Coast Guard shall compile and maintain the administrative record when it is the lead agency for a federal facility.

(3) If EPA is involved in the selection of the response action at a federal facility on the NPL, the federal agency acting as the lead agency shall provide EPA with a copy of the index of documents included in the administrative record file, the RI/FS workplan, the RI/FS released for public comment, the proposed plan, any public comments received on the RI/FS and proposed plan, and any other documents EPA may request on a case-by-case basis.

(c) *Administrative record for state-lead sites.* If a state is the lead agency for a site, the state shall compile and maintain the administrative record for the selection of the response action for that site in accordance with this subpart. EPA may require the state to place additional documents in the administrative record file to ensure that the administrative record includes all documents which form the basis for the selection of the response action. The state shall provide EPA with a copy of the index of documents included in the administrative record file, the RI/FS workplan, the RI/FS released for public comment, the proposed plan, any public comments received on the RI/FS and proposed plan, and any other documents EPA may request on a case-by-case basis.

(d) *Applicability.* This subpart applies to all response actions taken under section 104 of CERCLA or sought, secured, or ordered administratively or judicially under section 106 of CERCLA, as follows:

(1) Remedial actions where the remedial investigation commenced after the promulgation of these regulations; and

(2) Removal actions where the action memorandum is signed after the promulgation of these regulations.

(e) For those response actions not included in paragraph (d) of this section, the lead agency shall comply with this subpart to the extent practicable.

§300.805 Location of the administrative record file.

(a) The lead agency shall establish a docket at an office of the lead agency or other central location at which documents included in the administrative record file shall be located and a copy of the documents included in the administrative record file shall also be made available for public inspection at or near the site at issue, except as provided below:

(1) Sampling and testing data, quality control and quality assurance documentation, and chain of custody forms, need not be located at or near the site at issue or at the central location, provided that the index to the administrative record file indicates the location and availability of this information.

(2) Guidance documents not generated specifically for the site at issue need not be located at or near the site at issue, provided that they are maintained at the central location and the index to the administrative record file indicates the location and availability of these guidance documents.

(3) Publicly available technical literature not generated for the site at issue, such as engineering textbooks, articles from technical journals, and toxicological profiles, need not be located at or near the site at issue or at the central location, provided that the literature is listed in the index to the administrative record file or the literature is cited in a document in the record.

(4) Documents included in the confidential portion of the administrative record file shall be located only in the central location.

(5) The administrative record for a removal action where the release or threat of release requires that on-site removal activities be initiated within hours of the lead agency's determination that a removal is appropriate and on-site removal activities cease within 30 days of initiation, need be available for public inspection only at the central location.

(b) Where documents are placed in the central location but not in the file located at or near the site, such documents shall be added to the file located at or near the site upon request, except for documents included in paragraph (a)(4) of this section.

(c) The lead agency may make the administrative record file available to the public in microform.

§300.810 Contents of the administrative record file.

(a) *Contents.* The administrative record file for selection of a response action typically, but not in all cases, will contain the following types of documents:

(1) Documents containing factual information, data and analysis of the factual information, and data that may form a basis for the selection of a response action. Such documents may include verified sampling data, quality control and quality assurance documentation, chain of custody forms, site inspection reports, preliminary assessment and site evaluation reports, ATSDR health assessments, documents supporting the lead agency's determination of imminent and substantial endangerment, public health evaluations, and technical and engineering evaluations. In addition, for remedial actions, such documents may include approved workplans for the remedial investigation/feasibility study, state documentation of applicable or relevant and appropriate requirements, and the RI/FS;

(2) Guidance documents, technical literature, and site-specific policy memoranda that may form a basis for the selection of the response action. Such documents may include guidance on conducting remedial investigations and feasibility studies, guidance on determining applicable or relevant and appropriate requirements, guidance on risk/exposure assessments, engineering handbooks, articles from technical journals, memoranda on the application of a specific regulation to a site, and memoranda on off-site disposal capacity;

(3) Documents received, published, or made available to the public under §300.815 for remedial actions, or §300.820 for removal actions. Such documents may include notice of availability of the administrative record file, community relations plan, proposed plan for remedial action, notices of public comment periods, public comments and information received by the lead agency, and responses to significant comments;

(4) Decision documents. Such documents may include action memoranda and records of decision;

(5) Enforcement orders. Such documents may include administrative orders and consent decrees; and

(6) An index of the documents included in the administrative record file. If documents are customarily grouped together, as with sampling data chain of custody documents, they may be listed as a group in the index to the administrative record file.

(b) *Documents not included in the administrative record file.* The lead agency is not required to include documents in the administrative record file which do not form a basis for the selection of the response action. Such documents include but are not limited to draft documents, internal memoranda, and day-to-day notes of staff unless such documents contain information that forms the basis of selection of the response action and the information is not included in any other document in the administrative record file.

(c) *Privileged documents.* Privileged documents shall not be included in the record file except as provided in paragraph (d) of this section or where such privilege is waived. Privileged documents include but are not limited to documents subject to the attorney-client, attorney work product, deliberative process, or other applicable privilege.

(d) *Confidential file.* If information which forms the basis for the selection of a response action is included only in a document containing confidential or privileged information and is not otherwise available to the public, the information, to the extent feasible, shall be summarized in such a way as to make it disclosable and the summary shall be placed in the publicly available portion of the administrative record file. The confidential or privileged document itself shall be placed in the confidential portion of the administrative record file. If information, such as confidential business information, cannot be summarized in a disclosable manner, the information shall be placed only in the confidential portion of the administrative record file. All documents contained in the confidential portion of the administrative record file shall be listed in the index to the file.

§300.815 Administrative record file for a remedial action.

(a) The administrative record file for the selection of a remedial action shall be made available for public inspection at the commencement of the remedial investigation phase. At such time, the lead agency shall publish in a major local newspaper of general circulation a notice of the availability of the administrative record file.

(b) The lead agency shall provide a public comment period as specified in §300.430(f)(3) so that interested persons

may submit comments on the selection of the remedial action for inclusion in the administrative record file. The lead agency is encouraged to consider and respond as appropriate to significant comments that were submitted prior to the public comment period. A written response to significant comments submitted during the public comment period shall be included in the administrative record file.

(c) The lead agency shall comply with the public participation procedures required in §300.430(f)(3) and shall document such compliance in the administrative record.

(d) Documents generated or received after the record of decision is signed shall be added to the administrative record file only as provided in §300.825.

§300.820 Administrative record file for a removal action.

(a) If, based on the site evaluation, the lead agency determines that a removal action is appropriate and that a planning period of at least six months exists before on-site removal activities must be initiated:

(1) The administrative record file shall be made available for public inspection when the engineering evaluation/cost analysis (EE/CA) is made available for public comment. At such time, the lead agency shall publish in a major local newspaper of general circulation a notice of the availability of the administrative record file.

(2) The lead agency shall provide a public comment period as specified in §300.415 so that interested persons may submit comments on the selection of the removal action for inclusion in the administrative record file. The lead agency is encouraged to consider and respond, as appropriate, to significant comments that were submitted prior to the public comment period. A written response to significant comments submitted during the public comment period shall be included in the administrative record file.

(3) The lead agency shall comply with the public participation procedures of §300.415(m) and shall document compliance with §300.415(m)(3)(i) through (iii) in the administrative record file.

(4) Documents generated or received after the decision document is signed shall be added to the administrative record file only as provided in §300.825.

(b) For all removal actions not included in paragraph (a) of this section:

(1) Documents included in the administrative record file shall be made available for public inspection no later than 60 days after initiation of on-site removal activity. At such time, the lead agency shall publish in a major local newspaper of general circulation a notice of availability of the administrative record file.

(2) The lead agency shall, as appropriate, provide a public comment period of not less than 30 days beginning at the time the administrative record file is made available to the public. The lead agency is encouraged to consider and respond, as appropriate, to significant comments that were submitted prior to the public comment period. A written response to significant comments submitted during the public comment period shall be included in the administrative record file.

(3) Documents generated or received after the decision document is signed shall be added to the administrative record file only as provided in §300.825.

§300.825 Record requirements after the decision document is signed.

(a) The lead agency may add documents to the administrative record file after the decision document selecting the response action has been signed if:

(1) The documents concern a portion of a response action decision that the decision document does not address or reserves to be decided at a later date; or

(2) An explanation of significant differences required by §300.435(c), or an amended decision document is issued, in which case, the explanation of significant differences or amended decision document and all documents that form the basis for the decision to modify the response action shall be added to the administrative record file.

(b) The lead agency may hold additional public comment periods or extend the time for the submission of public comment after a decision document has been signed on any issues concerning selection of the response action. Such comment shall be limited to the issues for which the lead agency has requested additional comment. All additional comments submitted during such comment periods that are responsive to the request, and any response to these comments, along with documents supporting the request and any final decision with respect to the issue, shall be placed in the administrative record file.

(c) The lead agency is required to consider comments submitted by interested persons after the close of the public comment period only to the extent that the comments contain significant information not contained elsewhere in the administrative record file which could not have been submitted during the public comment period and which substantially support the need to significantly alter the response action. All such comments and any responses thereto shall be placed in the administrative record file.

Subpart J—Use of Dispersants and Other Chemicals

§300.900 General.

(a) Section 311(c)(2)(G) of the Clean Water Act requires that EPA prepare a schedule of dispersants and other chemicals, if any, that may be used in carrying out the NCP. This subpart makes provisions for such a schedule.

(b) This subpart applies to the navigable waters of the United States and adjoining shorelines, the waters of the contiguous zone, and the high seas beyond the contiguous zone in connection with activities under the Outer Continental Shelf Lands Act, activities under the Deepwater Port Act of 1974, or activities that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States, including resources under the Magnuson Fishery Conservation and Management Act of 1976.

(c) This subpart applies to the use of any chemical agents or other additives as defined in subpart A of this part that may be used to remove or control oil discharges.

§300.905 NCP Product Schedule.

(a) *Oil Discharges.*

(1) EPA shall maintain a schedule of dispersants and other chemical or biological products that may be authorized for use on oil discharges in accordance with the procedures set forth in §300.910. This schedule, called the NCP Product Schedule, may be obtained from the Emergency Response Division (OS-210), U.S. Environmental Protection Agency, Washington, DC 20460. The telephone number is 1-202-382-2190.

(2) Products may be added to the NCP Product Schedule by the process specified in §300.920.

(b) *Hazardous Substance Releases* [Reserved].

§300.910 Authorization of use.

(a) The OSC, with the concurrence of the EPA representative to the RRT and, as appropriate, the concurrence of the RRT representatives from the states with jurisdiction over the navigable waters threatened by the release or discharge, and in consultation with the DOC and DOI natural resource trustees, when practicable, may authorize the use of dispersants, surface collecting agents, biological additives, or miscellaneous oil spill control agents on the oil discharge, provided that the dispersants, surface collecting agents, biological additives, or miscellaneous oil spill control agents are listed on the NCP Product Schedule.

(b) The OSC, with the concurrence of the EPA representative to the RRT and, as appropriate, the concurrence of the RRT representatives from the states with jurisdiction over the navigable waters threatened by the release or discharge, and in consultation with the DOC and DOI natural resource trustees, when practicable, may authorize the use of burning agents on a case-by-case basis.

(c) The OSC may authorize the use of any dispersant, surface collecting agent, other chemical agent, burning agent, biological additive, or miscellaneous oil spill control agent, including products not listed on the NCP Product Schedule, without obtaining the concurrence of the EPA representative to the RRT, the RRT representatives from the states with jurisdiction over the navigable waters threatened by the release or discharge, when, in the judgment of the OSC, the use of the product is necessary to prevent or substantially reduce a hazard to human life. The OSC is to inform the EPA RRT representative and, as appropriate, the RRT representatives from the affected states and, when practicable, the DOC/DOI natural resource trustees of the use of a product not on the Schedule as soon as possible and, pursuant to the provisions in paragraph (a) of this section, obtain their concurrence or their comments on its continued use once the threat to human life has subsided.

(d) Sinking agents shall not be authorized for application to oil discharges.

(e) RRTs shall, as appropriate, consider, as part of their planning activities, the

appropriateness of using the dispersants, surface collecting agents, biological additives, or miscellaneous oil spill control agents listed on the NCP Product Schedule, and the appropriateness of using burning agents. Regional Contingency Plans (RCPs) shall, as appropriate, address the use of such products in specific contexts. If the RRT representatives from the states with jurisdiction over the waters of the area to which an RCP applies and the DOC and DOI natural resource trustees approve in advance the use of certain products under specified circumstances as described in the RCP, the OSC may authorize the use of the products without obtaining the specific concurrences described in paragraphs (a) and (b) of this section.

§300.915 Data requirements.

(a) *Dispersants.*

(1) Name, brand, or trademark, if any, under which the dispersant is sold.

(2) Name, address, and telephone number of the manufacturer, importer, or vendor.

(3) Name, address, and telephone number of primary distributors or sales outlets.

(4) Special handling and worker precautions for storage and field application. Maximum and minimum storage temperatures, to include optimum ranges as well as temperatures that will cause phase separations, chemical changes, or other alterations to the effectiveness of the product.

(5) Shelf life.

(6) Recommended application procedures, concentrations, and conditions for use depending upon water salinity, water temperature, types and ages of the pollutants, and any other application restrictions.

(7) Dispersant Toxicity. Use standard toxicity test methods described in Appendix C to part 300.

(8) Effectiveness. Use standard effectiveness test methods described in Appendix C to part 300. Manufacturers are also encouraged to provide data on product performance under conditions other than those captured by these tests.

(9) The following data requirements incorporate by reference standards from the 1988 Annual Book of ASTM Standards. American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.[1]

(i) Flash Point—Select appropriate method from the following:

(A) ASTM—D 56-87, "Standard Test Method for Flash Point by Tag Closed Tester";

(B) ASTM—D 92-85, "Standard Test Method for Flash and Fire Points by Cleveland Open Cup";

(C) ASTM—D 93-85, "Standard Test Methods for Flash Point by Pensky-Martens Closed Tester";

(D) ASTM—D 1310-86, "Standard Test Method for Flash Point and Fire Point of Liquids by Tag Open-Cup Apparatus"; or

(E) ASTM—D 3278-82, "Standard Test Methods for Flash Point of Liquids by Setaflash Closed-Cup Apparatus."

(ii) Pour Point—Use ASTM—D 97-87, "Standard Test Method for Pour Point of Petroleum Oils."

(iii) Viscosity—Use ASTM—D 445-86, "Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)."

(iv) Specific Gravity—Use ASTM—D 1298-85, "Standard Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method."

(v) pH—Use ASTM—D 1293-84, "Standard Test Methods for pH of Water."

(10) Dispersing Agent Components. Itemize by chemical name and percentage by weight each component of the total formulation. The percentages will include maximum, minimum, and average weights in order to reflect quality control variations in manufacture or formulation. In addition to the chemical information provided in response to the first two sentences, identify the major components in at least the following categories: surface active agents, solvents, and additives.

(11) Heavy Metals, Cyanide, and Chlorinated Hydrocarbons. Using standard test procedures, state the concentrations or upper limits of the following materials:

[1] Copies of these standards may be obtained from the publisher. Copies may be inspected at the U.S. Environmental Protection Agency, 401 M. St., SW., Room LG, Washington, DC, or at the Office of the Federal Register, 1100 L Street, NW., Room 8401, Washington, DC.

(i) Arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc, plus any other metals that may be reasonably expected to be in the sample. Atomic absorption methods should be used and the detailed analytical methods and sample preparation shall be fully described.

(ii) Cyanide. Standard calorimetric procedures should be used.

(iii) Chlorinated hydrocarbons. Gas chromatography should be used and the detailed analytical methods and sample preparation shall be fully described.

(12) The technical product data submission shall include the identity of the laboratory that performed the required tests, the qualifications of the laboratory staff, including professional biographical information for individuals responsible for any tests, and laboratory experience with similar tests. Laboratories performing toxicity tests for dispersant toxicity must demonstrate previous toxicity test experience in order for their results to be accepted. It is the responsibility of the submitter to select competent analytical laboratories based on the guidelines contained herein. EPA reserves the right to refuse to accept a submission of technical product data because of lack of qualification of the analytical laboratory, significant variance between submitted data and any laboratory confirmation performed by EPA, or other circumstances that would result in inadequate or inaccurate information on the dispersing agent.

(b) *Surface collecting agents.*

(1) Name, brand, or trademark, if any, under which the product is sold.

(2) Name, address, and telephone number of the manufacturer, importer, or vendor.

(3) Name, address, and telephone number of primary distributors or sales outlets.

(4) Special handling and worker precautions for storage and field application. Maximum and minimum storage temperatures, to include optimum ranges as well as temperatures that will cause phase separations, chemical changes, or other alterations to the effectiveness of the product.

(5) Shelf life.

(6) Recommended application procedures, concentrations, and conditions for use depending upon water salinity, water temperature, types and ages of the pollutants, and any other application restrictions.

(7) Toxicity. Use standard toxicity test methods described in Appendix C to Part 300.

(8) The following data requirements incorporate by reference standards from the 1988 Annual Book of ASTM Standards. American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.[2]

(i) Flash Point—Select appropriate method from the following:

(A) ASTM—D 56-87, "Standard Test Method for Flash Point by Tag Closed Tester";

(B) ASTM—D 92-85, "Standard Test Method for Flash and Fire Points by Cleveland Open Cup";

(C) ASTM—D 93-85, "Standard Test Methods for Flash Point by Pensky-Martens Closed Tester";

(D) ASTM—D 1310-86, "Standard Test Method for Flash Point and Fire Point of Liquids by Tag Open-Cup Apparatus"; or

(E) ASTM—D 3278-82, "Standard Test Methods for Flash Point of Liquids by Setaflash Closed-Cup Apparatus."

(ii) Pour Point—Use ASTM—D 97-87, "Standard Test Method for Pour Point of Petroleum Oils."

(iii) Viscosity—Use ASTM—D 445-86, "Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)."

(iv) Specific Gravity—Use ASTM—D 1298-85, "Standard Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method."

(v) pH—Use ASTM—D 1293-84, "Standard Test Methods for pH of Water."

(9) Test to Distinguish Between Surface Collecting Agents and Other Chemical Agents.

(i) Method Summary—Five milliliters of the chemical under test are mixed with 95 milliliters of distilled water and allowed to

[2] Copies of these standards may be obtained from the publisher. Copies may be inspected at the U.S. Environmental Protection Agency, 401 M. St., SW., Room LG, Washington, DC, or at the Office of the Federal Register, 1100 L Street, NW., Room 8401, Washington, DC.

stand undisturbed for one hour. Then the volume of the upper phase is determined to the nearest one milliliter.

(ii) Apparatus.

(A) Mixing Cylinder: 100 milliliter subdivisions and fitted with a glass stopper.

(B) Pipettes: Volumetric pipette, 5.0 milliliter.

(C) Timers.

(iii) Procedure—Add 95 milliliters of distilled water at 22°C, plus or minus 3°C, to a 100 milliliter mixing cylinder. To the surface of the water in the mixing cylinder, add 5.0 milliliters of the chemical under test. Insert the stopper and invert the cylinder five times in ten seconds. Set upright for one hour at 22°C, plus or minus 3°C, and then measure the chemical layer at the surface of the water. If the major portion of the chemical added (75 percent) is at the water surface as a separate and easily distinguished layer, the product is a surface collecting agent.

(10) Surface Collecting Agent Components. Itemize by chemical name and percentage by weight each component of the total formulation. The percentages should include maximum, minimum, and average weights in order to reflect quality control variations in manufacture or formulation. In addition to the chemical information provided in response to the first two sentences, identify the major components in at least the following categories: surface action agents, solvents, and additives.

(11) Heavy Metals, Cyanide, and Chlorinated Hydrocarbons. Follow specifications in paragraph (a)(15) of this section.

(12) Analytical Laboratory Requirements for Technical Product Data. Follow specifications in paragraph (a)(16) of this section.

(c) *Biological Additives.*

(1) Name, brand, or trademark, if any, under which the additive is sold.

(2) Name, address, and telephone number of the manufacturer, importer, or vendor.

(3) Name, address, and telephone number of primary distributors or sales outlets.

(4) Special handling and worker precautions for storage and field application. Maximum and minimum storage temperatures.

(5) Shelf life.

(6) Recommended application procedures, concentrations, and conditions for use, depending upon water salinity, water temperature, types and ages of the pollutants, and any other application restrictions.

(7) Statements and supporting data on the effectiveness of the additive, including degradation rates, and on the test conditions under which the effectiveness data were obtained.

(8) For microbiological cultures, furnish the following information:

(i) Listing of all microorganisms by species.

(ii) Percentage of each species in the composition of the additive.

(iii) Optimum pH, temperature, and salinity ranges for use of the additive, and maximum and minimum pH, temperature, and salinity levels above or below which the effectiveness of the additive is reduced to half its optimum capacity.

(iv) Special nutrient requirements, if any.

(v) Separate listing of the following, and test methods for such determinations: Salmonella, fecal coliform, Shigella, Staphylococcus Coagulase positive, and Beta Hemolytic Streptococci.

(9) For enzyme additives furnish the following information:

(i) Enzyme name(s).

(ii) International Union of Biochemistry (I.U.B.) number(s).

(iii) Source of the enzyme.

(iv) Units.

(v) Specific Activity.

(vi) Optimum pH, temperature, and salinity ranges for use of the additive, and maximum and minimum pH, temperature, and salinity levels above or below which the effectiveness of the additive is reduced to half its optimum capacity.

(vii) Enzyme shelf life.

(viii) Enzyme optimum storage conditions.

(10) Laboratory Requirements for Technical Product Data. Follow specifications in paragraph (a)(16) of this section.

(d) *Burning Agents.* EPA does not require technical product data submissions for burning agents and does not include burning agents on the NCP Product Schedule.

(e) *Miscellaneous Oil Spill Control Agents.*

(1) Name, brand, or trademark, if any, under which the miscellaneous oil spill control agent is sold.

(2) Name, address, and telephone number of the manufacturer, importer, or vendor.

(3) Name, address, and telephone number of primary distributors or sales outlets.

(4) Special handling and worker precautions for storage and field application. Maximum and minimum storage temperatures, to include optimum ranges as well as temperatures that will cause phase separations, chemical changes, or other alternatives to the effectiveness of the product.

(5) Shelf life.

(6) Recommended application procedures, concentrations, and conditions for use depending upon water salinity, water temperature, types and ages of the pollutants, and any other application restrictions.

(7) Toxicity. Use standard toxicity test methods described in Appendix C to part 300.

(8) The following data requirements incorporate by reference standards from the 1988 Annual Book of ASTM Standards. American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.[3]

(i) Flash Point – Select appropriate method from the following:

(A) ASTM – D 56-87, "Standard Test Method for Flash Point by Tag Closed Tester";

(B) ASTM – D 92-85, "Standard Test Method for Flash and Fire Points by Cleveland Open Cup";

(C) ASTM – D 93-85, "Standard Test Methods for Flash Point by Pensky-Martens Closed Tester";

(D) ASTM – D 1310-86, "Standard Test Method for Flash Point and Fire Point of Liquids by Tag Open-Cup Apparatus"; or

(E) ASTM – D 3278-82, "Standard Test Methods for Flash Point of Liquids by Setaflash Closed-Cup Apparatus."

[3]Copies of these standards may be obtained from the publisher. Copies may be inspected at the U.S. Environmental Protection Agency, 401 M. St., SW., Room LG, Washington, DC, or at the Office of the Federal Register, 1100 L Street, NW., Room 8401, Washington, DC.

(ii) Pour Point – Use ASTM – D 97-87, "Standard Test Method for Pour Point of Petroleum Oils."

(iii) Viscosity – Use ASTM – D 445-86, "Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)."

(iv) Specific Gravity – Use ASTM – D 1298-85, "Standard Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method."

(v) pH – Use ASTM – D 1293-84, "Standard Test Methods for pH of Water."

(9) Miscellaneous Oil Spill Control Agent Components. Itemize by chemical name and percentage by weight each component of the total formulation. The percentages should include maximum, minimum, and average weights in order to reflect quality control variations in manufacture or formulation. In addition to the chemical information provided in response to the first two sentences, identify the major components in at least the following categories: surface active agents, solvents, and additives.

(10) Heavy Metals, Cyanide, and Chlorinated Hydrocarbons. Follow specifications in paragraph (a)(15) of this section.

(11) For any miscellaneous oil spill control agent that contains microbiological cultures or enzyme additives, furnish the information specified in paragraphs (c)(8) and (c)(9) of this section, as appropriate.

(12) Analytical Laboratory Requirements for Technical Product Data. Follow specifications in paragraph (a)(16) of this section.

§300.920 Addition of products to schedule.

(a) To add a dispersant, surface collecting agent, biological additive, or miscellaneous oil spill control agent to the NCP Product Schedule, the technical product data specified in §300.915 must be submitted to the Emergency Response Division (OS-210), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460. If EPA determines that the required data were submitted, EPA will add the product to the schedule.

(b) EPA will inform the submitter in writing, within 60 days of the receipt of

technical product data, of its decision on adding the product to the schedule.

(c) The submitter may assert that certain information in the technical product data submissions is confidential business information. EPA will handle such claims pursuant to the provisions in 40 CFR part 2, subpart B. Such information must be submitted separately from non-confidential information, clearly identified, and clearly marked "Confidential Business Information." If the submitter fails to make such a claim at the time of submittal, EPA may make the information available to the public without further notice.

(d) The submitter must notify EPA of any changes in the composition, formulation, or application of the dispersant, surface collecting agent, biological additive, or miscellaneous oil spill control agent. On the basis of this data, EPA may require retesting of the product if the change is likely to affect the effectiveness or toxicity of the product.

(e) The listing of a product on the NCP Product Schedule does not constitute approval of the product. To avoid possible misinterpretation or misrepresentation, any label, advertisement, or technical literature that refers to the placement of the product on the NCP Schedule must either reproduce in its entirety EPA's written statement that it will add the product to the NCP Product Schedule under §300.920(b), or include the disclaimer shown below. If the disclaimer is used, it must be conspicuous and must be fully reproduced. Failure to comply with these restrictions or any other improper attempt to demonstrate the approval of the product by any NRT or other U.S. Government agency shall constitute grounds for removing the product from the NCP Product Schedule.

Disclaimer

[PRODUCT NAME] is on the U.S. Environmental Protection Agency's NCP Product Schedule. This listing does NOT mean that EPA approves, recommends, licenses, certifies, or authorizes the use of [product name] on an oil discharge. This listing means only that data have been submitted to EPA as required by subpart J of the National Contingency Plan, §300.915.

Subpart K—Federal Facilities [Reserved]

Appendix A to Part 300—The Hazard Ranking System

Table of Contents

List of Figures

List of Tables

1.0 Introduction.
1.1 Definitions.
2.0 Evaluations Common to Multiple Pathways.
2.1 Overview.
2.1.1 Calculation of HRS site score.
2.1.2 Calculation of pathway score.
2.1.3 Common evaluations.
2.2 Characterize sources.
2.2.1 Identify sources.
2.2.2 Identify hazardous substances associated with a source.
2.2.3 Identify hazardous substances available to a pathway.
2.3 Likelihood of release.
2.4 Waste characteristics.
2.4.1 Selection of substance potentially posing greatest hazard.
2.4.1.1 Toxicity factor.
2.4.1.2 Hazardous substance selection.
2.4.2 Hazardous waste quantity.
2.4.2.1 Source hazardous waste quantity.
2.4.2.1.1 Hazardous constituent quantity.
2.4.2.1.2 Hazardous wastestream quantity.
2.4.2.1.3 Volume.
2.4.2.1.4 Area.
2.4.2.1.5 Calculation of source hazardous waste quantity value.
2.4.2.2 Calculation of hazardous waste quantity factor value.
2.4.3 Waste characteristics factor category value.
2.4.3.1 Factor category value.
2.4.3.2 Factor category value, considering bioaccumulation potential.
2.5 Targets.
2.5.1 Determination of level of actual contamination at a sampling location.
2.5.2 Comparison to benchmarks.
3.0 Ground Water Migration Pathway.
3.0.1 General considerations.
3.0.1.1 Ground water target distance limit.
3.0.1.2 Aquifer boundaries.
3.0.1.2.1 Aquifer interconnections.
3.0.1.2.2 Aquifer discontinuities.
3.0.1.3 Karst aquifer.
3.1 Likelihood of release.
3.1.1 Observed release.
3.1.2 Potential to release.
3.1.2.1 Containment.
3.1.2.2 Net precipitation.
3.1.2.3 Depth to aquifer.
3.1.2.4 Travel time.
3.1.2.5 Calculation of potential to release factor value.
3.1.3 Calculation of likelihood of release factor category value.
3.2 Waste characteristics.
3.2.1 Toxicity/mobility.
3.2.1.1 Toxicity.
3.2.1.2 Mobility.
3.2.1.3 Calculation of toxicity/mobility factor value.
3.2.2 Hazardous waste quantity.
3.2.3 Calculation of waste characteristics factor category value.
3.3 Targets.
3.3.1 Nearest well.
3.3.2 Population.
3.3.2.1 Level of contamination.
3.3.2.2 Level I concentrations.
3.3.2.3 Level II concentrations.
3.3.2.4 Potential contamination.
3.3.2.5 Calculation of population factor value.
3.3.3 Resources.
3.3.4 Wellhead Protection Area.
3.3.5 Calculation of targets factor category value.
3.4 Ground water migration score for an aquifer.
3.5 Calculation of ground water migration pathway score.
4.0 Surface Water Migration Pathway.
4.0.1 Migration components.
4.0.2 Surface water categories.
4.1 Overland/flood migration component.
4.1.1 General considerations.
4.1.1.1 Definition of hazardous substance migration path for overland/flood migration component.
4.1.1.2 Target distance limit.
4.1.1.3 Evaluation of overland/flood migration component.
4.1.2 Drinking water threat.
4.1.2.1 Drinking water threat-likelihood of release.
4.1.2.1.1 Observed release.
4.1.2.1.2 Potential to release.
4.1.2.1.2.1 Potential to release by overland flow.
4.1.2.1.2.1.1 Containment.
4.1.2.1.2.1.2 Runoff.
4.1.2.1.2.1.3 Distance to surface water.
4.1.2.1.2.1.4 Calculation of factor value for potential to release by overland flow.
4.1.2.1.2.2 Potential to release by flood.
4.1.2.1.2.2.1 Containment (flood).

4.1.2.1.2.2.2 Flood frequency.
4.1.2.1.2.2.3 Calculation of factor value for potential to release by flood.
4.1.2.1.2.3 Calculation of potential to release factor value.
4.1.2.1.3 Calculation of drinking water threat-likelihood of release factor category value.
4.1.2.2 Drinking water threat-waste characteristics.
4.1.2.2.1 Toxicity/persistence.
4.1.2.2.1.1 Toxicity.
4.1.2.2.1.2 Persistence.
4.1.2.2.1.3 Calculation of toxicity/persistence factor value.
4.1.2.2.2 Hazardous waste quantity.
4.1.2.2.3 Calculation of drinking water threat-waste characteristics factor category value.
4.1.2.3 Drinking water threat-targets.
4.1.2.3.1 Nearest intake.
4.1.2.3.2 Population.
4.1.2.3.2.1 Level of contamination.
4.1.2.3.2.2 Level I concentrations.
4.1.2.3.2.3 Level II concentrations.
4.1.2.3.2.4 Potential contamination.
4.1.2.3.2.5 Calculation of population factor value.
4.1.2.3.3 Resources.
4.1.2.3.4 Calculation of drinking water threat-targets factor category value.
4.1.2.4 Calculation of the drinking water threat score for a watershed.
4.1.3 Human food chain threat.
4.1.3.1 Human food chain threat-likelihood of release.
4.1.3.2 Human food chain threat-waste characteristics.
4.1.3.2.1 Toxicity/persistence/bioaccumulation.
4.1.3.2.1.1 Toxicity.
4.1.3.2.1.2 Persistence.
4.1.3.2.1.3 Bioaccumulation potential.
4.1.3.2.1.4 Calculation of toxicity/persistence/bioaccumulation factor value.
4.1.3.2.2 Hazardous waste quantity.
4.1.3.2.3 Calculation of human food chain threat-waste characteristics factor category value.
4.1.3.3 Human food chain threat-targets.
4.1.3.3.1 Food chain individual.
4.1.3.3.2 Population.
4.1.3.3.2.1 Level I concentrations.
4.1.3.3.2.2 Level II concentrations.
4.1.3.3.2.3 Potential human food chain contamination.
4.1.3.3.2.4 Calculation of population factor value.
4.1.3.3.3 Calculation of human food chain threat-targets factor category value.
4.1.3.4 Calculation of human food chain threat score for a watershed.
4.1.4 Environmental threat.
4.1.4.1 Environmental threat-likelihood of release.
4.1.4.2 Environmental threat-waste characteristics.
4.1.4.2.1 Ecosystem toxicity/persistence/bioaccumulation.
4.1.4.2.1.1 Ecosystem toxicity.
4.1.4.2.1.2 Persistence.
4.1.4.2.1.3 Ecosystem bioaccumulation potential.
4.1.4.2.1.4 Calculation of ecosystem toxicity/persistence/bioaccumulation factor value.
4.1.4.2.2 Hazardous waste quantity.
4.1.4.2.3 Calculation of environmental threat-waste characteristics factor category value.
4.1.4.3 Environmental threat-targets.
4.1.4.3.1 Sensitive environments.
4.1.4.3.1.1 Level I concentrations.
4.1.4.3.1.2 Level II concentrations.
4.1.4.3.1.3 Potential contamination.
4.1.4.3.1.4 Calculation of environmental threat-targets factor category value.
4.1.4.4 Calculation of environmental threat score for a watershed.
4.1.5 Calculation of overland/flood migration component score for a watershed.
4.1.6 Calculation of overland/flood migration component score.
4.2 Ground water to surface water migration component.
4.2.1 General Considerations.
4.2.1.1 Eligible surface waters.
4.2.1.2 Definition of hazardous substance migration path for ground water to surface water migration component.
4.2.1.3 Observed release of a specific hazardous substance to surface water in-water segment.
4.2.1.4 Target distance limit.
4.2.1.5 Evaluation of ground water to surface water migration component.
4.2.2 Drinking water threat.
4.2.2.1 Drinking water threat-likelihood of release.

4.2.2.1.1 Observed release.
4.2.2.1.2 Potential to release.
4.2.2.1.3 Calculation of drinking water threat-likelihood of release factor category value.
4.2.2.2 Drinking water threat-waste characteristics.
4.2.2.2.1 Toxicity/mobility/persistence.
4.2.2.2.1.1 Toxicity.
4.2.2.2.1.2 Mobility.
4.2.2.2.1.3 Persistence.
4.2.2.2.1.4 Calculation of toxicity/mobility/persistence factor value.
4.2.2.2.2 Hazardous waste quantity.
4.2.2.2.3 Calculation of drinking water threat-waste characteristics factor category value.
4.2.2.3 Drinking water threat-targets.
4.2.2.3.1 Nearest intake.
4.2.2.3.2 Population.
4.2.2.3.2.1 Level I concentrations.
4.2.2.3.2.2 Level II concentrations.
4.2.2.3.2.3 Potential contamination.
4.2.2.3.2.4 Calculation of population factor value.
4.2.2.3.3 Resources.
4.2.2.3.4 Calculation of drinking water threat-targets factor category value.
4.2.2.4 Calculation of drinking water threat score for a watershed.
4.2.3 Human food chain threat.
4.2.3.1 Human food chain threat-likelihood of release.
4.2.3.2 Human food chain threat-waste characteristics.
4.2.3.2.1 Toxicity/mobility/persistence/bioaccumulation.
4.2.3.2.1.1 Toxicity.
4.2.3.2.1.2 Mobility.
4.2.3.2.1.3 Persistence.
4.2.3.2.1.4 Bioaccumulation potential.
4.2.3.2.1.5 Calculation of toxicity/mobility/persistence/bioaccumulation factor value.
4.2.3.2.2 Hazardous waste quantity.
4.2.3.2.3 Calculation of human food chain threat-waste characteristics factor category value.
4.2.3.3 Human food chain threat-targets.
4.2.3.3.1 Food chain individual.
4.2.3.3.2 Population.
4.2.3.3.2.1 Level I concentrations.
4.2.3.3.2.2 Level II concentrations.
4.2.3.3.2.3 Potential human food chain contamination.
4.2.3.3.2.4 Calculation of population factor value.
4.2.3.3.3 Calculation of human food chain threat-targets factor category value.
4.2.3.4 Calculation of human food chain threat score for a watershed.
4.2.4 Environmental threat.
4.2.4.1 Environmental threat-likelihood of release.
4.2.4.2 Environmental threat-waste characteristics.
4.2.4.2.1 Ecosystem toxicity/mobility/persistence/bioaccumulation.
4.2.4.2.1.1 Ecosystem toxicity.
4.2.4.2.1.2 Mobility.
4.2.4.2.1.3 Persistence.
4.2.4.2.1.4 Ecosystem bioaccumulation potential.
4.2.4.2.1.5 Calculation of ecosystem toxicity/mobility/persistence/bioaccumulation factor value.
4.2.4.2.2 Hazardous waste quantity.
4.2.4.2.3 Calculation of environmental threat-waste characteristics factor category value.
4.2.4.3 Environmental threat-targets.
4.2.4.3.1 Sensitive environments.
4.2.4.3.1.1 Level I concentrations.
4.2.4.3.1.2 Level II concentrations.
4.2.4.3.1.3 Potential contamination.
4.2.4.3.1.4 Calculation of environmental threat-targets factor category value.
4.2.4.4 Calculation of environmental threat score for a watershed.
4.2.5 Calculation of ground water to surface water migration component score for a watershed.
4.2.6 Calculation of ground water to surface water migration component score.
4.3 Calculation of surface water migration pathway score.
5.0 Soil Exposure Pathway.
5.0.1 General considerations.
5.1 Resident population threat.
5.1.1 Likelihood of exposure.
5.1.2 Waste characteristics.
5.1.2.1 Toxicity.
5.1.2.2 Hazardous waste quantity.
5.1.2.3 Calculation of waste characteristics factor category value.
5.1.3 Targets.
5.1.3.1 Resident individual.
5.1.3.2 Resident population.
5.1.3.2.1 Level I concentrations.
5.1.3.2.2 Level II concentrations.
5.1.3.2.3 Calculation of resident population factor value.

5.1.3.3 Workers.
5.1.3.4 Resources.
5.1.3.5 Terrestrial sensitive environments.
5.1.3.6 Calculation of resident population targets factor category value.
5.1.4 Calculation of resident population threat score.
5.2 Nearby population threat.
5.2.1 Likelihood of exposure.
5.2.1.1 Attractiveness/accessibility.
5.2.1.2 Area of contamination.
5.2.1.3 Likelihood of exposure factor category value.
5.2.2 Waste characteristics.
5.2.2.1 Toxicity.
5.2.2.2 Hazardous waste quantity.
5.2.2.3 Calculation of waste characteristics factor category value.
5.2.3 Targets.
5.2.3.1 Nearby individual.
5.2.3.2 Population within 1 mile.
5.2.3.3 Calculation of nearby population targets factor category value.
5.2.4 Calculation of nearby population threat score.
5.3 Calculation of soil exposure pathway score.
6.0 Air Migration Pathway.
6.1 Likelihood of release.
6.1.1 Observed release.
6.1.2 Potential to release.
6.1.2.1 Gas potential to release.
6.1.2.1.1 Gas containment.
6.1.2.1.2 Gas source type.
6.1.2.1.3 Gas migration potential.
6.1.2.1.4 Calculation of gas potential to release value.
6.1.2.2 Particulate potential to release.
6.1.2.2.1 Particulate containment.
6.1.2.2.2 Particulate source type.
6.1.2.2.3 Particulate migration potential.
6.1.2.2.4 Calculation of particulate potential to release value.
6.1.2.3 Calculation of potential to release factor value for the site.
6.1.3 Calculation of likelihood of release factor category value.
6.2 Waste characteristics.
6.2.1 Toxicity/mobility.
6.2.1.1 Toxicity.
6.2.1.2 Mobility.
6.2.1.3 Calculation of toxicity/mobility factor value.
6.2.2 Hazardous waste quantity.
6.2.3 Calculation of waste characteristics factor category value.
6.3 Targets.
6.3.1 Nearest individual.
6.3.2 Population.
6.3.2.1 Level of contamination.
6.3.2.2 Level I concentrations.
6.3.2.3 Level II concentrations.
6.3.2.4 Potential contamination.
6.3.2.5 Calculation of population factor value.
6.3.3 Resources.
6.3.4 Sensitive environments.
6.3.4.1 Actual contamination.
6.3.4.2 Potential contamination.
6.3.4.3 Calculation of sensitive environments factor value.
6.3.5 Calculation of targets factor category value.
6.4 Calculation of air migration pathway score.
7.0 Sites Containing Radioactive Substances.
7.1 Likelihood of release/likelihood of exposure.
7.1.1 Observed release/observed contamination.
7.1.2 Potential to release.
7.2 Waste characteristics.
7.2.1 Human toxicity.
7.2.2 Ecosystem toxicity.
7.2.3 Persistence.
7.2.4 Selection of substance potentially posing greatest hazard.
7.2.5 Hazardous waste quantity.
7.2.5.1 Source hazardous waste quantity for radionuclides.
7.2.5.1.1 Radionuclide constituent quantity (Tier A).
7.2.5.1.2 Radionuclide wastestream quantity (Tier B).
7.2.5.1.3 Calculation of source hazardous waste quantity value for radionuclides.
7.2.5.2 Calculation of hazardous waste quantity factor value for radionuclides.
7.2.5.3 Calculation of hazardous waste quantity factor value for sites containing mixed radioactive and other hazardous substances.
7.3 Targets.
7.3.1 Level of contamination at a sampling location.
7.3.2 Comparison to benchmarks.

List of Figures

Figure number
3-1 Overview of ground water migration pathway.
3-2 Net precipitation factor values.

4-1 Overview of surface water overland/flood migration component.
4-2 Overview of ground water to surface water migration component.
4-3 Sample determination of ground water to surface water angle.
5-1 Overview of soil exposure pathway.
6-1 Overview of air migration pathway.
6-2 Particulate migration potential factor values.
6-3 Particulate mobility factor values.

List of Tables

Table number

2-1 Sample pathway scoresheet.
2-2 Sample source characterization worksheet.
2-3 Observed release criteria for chemical analysis.
2-4 Toxicity factor evaluation.
2-5 Hazardous waste quantity evaluation equations.
2-6 Hazardous waste quantity factor values.
2-7 Waste characteristics factor category values.
3-1 Ground water migration pathway scoresheet.
3-2 Containment factor values for ground water migration pathway.
3-3 Monthly latitude adjusting values.
3-4 Net precipitation factor values.
3-5 Depth to aquifer factor values.
3-6 Hydraulic conductivity of geologic materials.
3-7 Travel time factor values.
3-8 Ground water mobility factor values.
3-9 Toxicity/mobility factor values.
3-10 Health-based benchmarks for hazardous substances in drinking water.
3-11 Nearest well factor values.
3-12 Distance-weighted population values for potential contamination factor for ground water migration pathway.
4-1 Surface water overland/flood migration component scoresheet.
4-2 Containment factor values for surface water migration pathway.
4-3 Drainage area values.
4 4 Soil group designations.
4-5 Rainfall/runoff values.
4-6 Runoff factor values.
4-7 Distance to surface water factor values.
4-8 Containment (flood) factor values.
4-9 Flood frequency factor values.
4-10 Persistence factor values – half-life.
4-11 Persistence factor values – log K_{ow}.
4-12 Toxicity/persistence factor values.
4-13 Surface water dilution weights.
4-14 Dilution-weighted population values for potential contamination factor for surface water migration pathway.
4-15 Bioaccumulation potential factor values.
4-16 Toxicity/persistence/bioaccumulation factor values.
4-17 Health-based benchmarks for hazardous substances in human food chain.
4-18 Human food chain population values.
4-19 Ecosystem toxicity factor values.
4-20 Ecosystem toxicity/persistence factor values.
4-21 Ecosystem toxicity/persistence/bioaccumulation factor values.
4-22 Ecological-based benchmarks for hazardous substances in surface water.
4-23 Sensitive environments rating values.
4-24 Wetlands rating values for surface water migration pathway.
4-25 Ground water to surface water migration component scoresheet.
4-26 Toxicity/mobility/persistence factor values.
4-27 Dilution weight adjustments.
4-28 Toxicity/mobility/persistence/bioaccumulation factor values.
4-29 Ecosystem toxicity/mobility/persistence factor values.
4-30 Ecosystem toxicity/mobility/persistence/bioaccumulation factor values.
5-1 Soil exposure pathway scoresheet.
5-2 Hazardous waste quantity evaluation equations for soil exposure pathway.
5-3 Health-based benchmarks for hazardous substances in soils.
5-4 Factor values for workers.
5-5 Terrestrial sensitive environments rating values.
5-6 Attractiveness/accessibility values.
5-7 Area of contamination factor values.
5-8 Nearby population likelihood of exposure factor values.
5-9 Nearby individual factor values.
5-10 Distance-weighted population values for nearby population threat.
6-1 Air migration pathway scoresheet.
6-2 Gas potential to release evaluation.
6-3 Gas containment factor values.
6-4 Source type factor values.
6-5 Values for vapor pressure and Henry's constant.
6-6 Gas migration potential values for a hazardous substance.

6-7 Gas migration potential values for the source.
6-8 Particulate potential to release evaluation.
6-9 Particulate containment factor values.
6-10 Particulate migration potential values.
6-11 Gas mobility factor values.
6-12 Particulate mobility factor values.
6-13 Toxicity/mobility factor values.
6-14 Health-based benchmarks for hazardous substances in air.
6-15 Air migration pathway distance weights.
6-16 Nearest individual factor values.
6-17 Distance-weighted population values for potential contamination factor for air pathway.
6-18 Wetlands rating values for air migration pathway.
7-1 HRS factors evaluated differently for radionuclides.
7-2 Toxicity factor values for radionuclides.

1.0 Introduction

The Hazard Ranking System (HRS) is the principal mechanism the U.S. Environmental Protection Agency (EPA) uses to place sites on the National Priorities List (NPL). The HRS serves as a screening device to evaluate the potential for releases of uncontrolled hazardous substances to cause human health or environmental damage. The HRS provides a measure of relative rather than absolute risk. It is designed so that it can be consistently applied to a wide variety of sites.

1.1 Definitions

Acute toxicity: Measure of toxicological responses that result from a single exposure to a substance or from multiple exposures within a short period of time (typically several days or less). Specific measures of acute toxicity used within the HRS include lethal dose$_{50}$ (LD_{50}) and lethal concentration$_{50}$ (LC_{50}), typically measured within a 24-hour to 96-hour period.

Ambient Aquatic Life Advisory Concentrations (AALACs): EPA's advisory concentration limit for acute or chronic toxicity to aquatic organisms as established under section 304(a)(1) of the Clean Water Act, as amended.

Ambient Water Quality Criteria (AWQC): EPA's maximum acute or chronic toxicity concentrations for protection of aquatic life and its uses as established under section 304(a)(1) of the Clean Water Act, as amended.

Bioconcentration factor (BCF): Measure of the tendency for a substance to accumulate in the tissue of an aquatic organism. BCF is determined by the extent of partitioning of a substance, at equilibrium, between the tissue of an aquatic organism and water. As the ratio of concentration of a substance in the organism divided by the concentration in water, higher BCF values reflect a tendency for substances to accumulate in the tissue of aquatic organisms. [unitless].

Biodegradation: Chemical reaction of a substance induced by enzymatic activity of microorganisms.

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (Pub. L. 96-510, as amended).

Chronic toxicity: Measure of toxicological responses that result from repeated exposure to a substance over an extended period of time (typically 3 months or longer). Such responses may persist beyond the exposure or may not appear until much later in time than the exposure. HRS measures of chronic toxicity include Reference Dose (RfD) values.

Contract Laboratory Program (CLP): Analytical program developed for CERCLA waste site samples to fill the need for legally defensible analytical results supported by a high level of quality assurance and documentation.

Contract-Required Detection Limit (CRDL): Term equivalent to contract-required quantitation limit, but used primarily for inorganic substances.

Contract-Required Quantitation Limit (CRQL): Substance-specific level that a CLP laboratory must be able to routinely and reliably detect in specific sample matrices. It is not the lowest detectable level achievable, but rather the level that a CLP laboratory should reasonably quantify. The CRQL may or may not be equal to the quantitation limit of a given substance in a given sample. For HRS purposes, the term CRQL refers to both the contract-required quantitation limit and the contract-required detection limit.

Curie (Ci): Measure used to quantify the amount of radioactivity. One curie equals 37 billion nuclear transformations per second, and one picocurie (pCi) equals 10^{-12} Ci.

Decay product: Isotope formed by the radioactive decay of some other isotope. This newly formed isotope possesses physical and chemical properties that are different from those of its parent isotope, and may also be radioactive.

Detection Limit (DL): Lowest amount that can be distinguished from the normal random "noise" of an analytical instrument or method. For HRS purposes, the detection limit used is the method detection limit (MDL) or, for real-time field instruments, the detection limit of the instrument as used in the field.

Dilution weight: Parameter in the HRS surface water migration pathway that reduces the point value assigned to targets as the flow or depth of the relevant surface water body increases. [unitless].

Distance weight: Parameter in the HRS air migration, ground water migration, and soil exposure pathways that reduces the point value assigned to targets as their distance increases from the site. [unitless].

Distribution coefficient (K_d): Measure of the extent of partitioning of a substance between geologic materials (for example, soil, sediment, rock) and water (also called partition coefficient). The distribution coefficient is used in the HRS in evaluating the mobility of a substance for the ground water migration pathway [ml/g].

ED_{10} (10 percent effective dose): Estimated dose associated with a 10 percent increase in response over control groups. For HRS purposes, the response considered is cancer. [milligrams toxicant per kilogram body weight per day (mg/kg-day)].

Food and Drug Administration Action Level (FDAAL): Under section 408 of the Federal Food, Drug and Cosmetic Act, as amended, concentration of a poisonous or deleterious substance in human food or animal feed at or above which FDA will take legal action to remove adulterated products from the market. Only FDAALs established for fish and shellfish apply in the HRS.

Half-life: Length of time required for an initial concentration of a substance to be halved as a result of loss through decay. The HRS considers five decay processes: biodegradation, hydrolysis, photolysis, radioactive decay, and volatilization.

Hazardous substance: CERCLA hazardous substances, pollutants, and contaminants as defined in CERCLA sections 101(14) and 101(33), except where otherwise specifically noted in the HRS.

Hazardous wastestream: Material containing CERCLA hazardous substances (as defined in CERCLA section 101[14]) that was deposited, stored, disposed, or placed in, or that otherwise migrated to, a source.

HRS *"factor"*: Primary rating elements internal to the HRS.

HRS *"factor category"*: Set of HRS factors (that is, likelihood of release [or exposure], waste characteristics, targets).

HRS *"migration pathways"*: HRS ground water, surface water, and air migration pathways.

HRS *"pathway"*: Set of HRS factor categories combined to produce a score to measure relative risks posed by a site in one of four environmental pathways (that is, ground water, surface water, soil, and air).

HRS *"site score"*: Composite of the four HRS pathway scores.

Henry's law constant: Measure of the volatility of a substance in a dilute solution of water at equilibrium. It is the ratio of the vapor pressure exerted by a substance in the gas phase over a dilute aqueous solution of that substance to its concentration in the solution at a given temperature. For HRS purposes, use the value reported at or near 25° C. [atmosphere-cubic meters per mole ($atm\text{-}m^3/mol$)].

Hydrolysis: Chemical reaction of a substance with water.

Karst: Terrain with characteristics of relief and drainage arising from a high degree of rock solubility in natural waters. The majority of karst occurs in limestones, but karst may also form in dolomite, gypsum, and salt deposits. Features associated with karst terrains typically include irregular topography, sinkholes, vertical shafts, abrupt ridges, caverns, abundant springs, and/or disappearing streams. Karst aquifers are associated with karst terrain.

LC_{50} (lethal concentration, 50 percent): Concentration of a substance in air [typically micrograms per cubic meter ($\mu g/m^3$)] or water [typically micrograms per liter ($\mu g/l$)] that kills 50 percent of a group of exposed organisms. The LC_{50} is used in the HRS in assessing acute toxicity.

LD_{50} (lethal dose, 50 percent): Dose of a substance that kills 50 percent of a group of exposed organisms. The LD_{50} is used in the HRS in assessing acute toxicity

[milligrams toxicant per kilogram body weight (mg/kg)].

Maximum Contaminant Level (MCL): Under section 1412 of the Safe Drinking Water Act, as amended, the maximum permissible concentration of a substance in water that is delivered to any user of a public water supply.

Maximum Contaminant Level Goal (MCLG): Under section 1412 of the Safe Drinking Water Act, as amended, a nonenforceable concentration for a substance in drinking water that is protective of adverse human health effects and allows an adequate margin of safety.

Method Detection Limit (MDL): Lowest concentration of analyze that a method can detect reliably in either a sample or blank.

Mixed radioactive and other hazardous substances: Material containing both radioactive hazardous substances and nonradioactive hazardous substances, regardless of whether these types of substances are physically separated, combined chemically, or simply mixed together.

National Ambient Air Quality Standards (NAAQS): Primary standards for air quality established under sections 108 and 109 of the Clean Air Act, as amended.

National Emission Standards for Hazardous Air Pollutants (NESHAPs): Standards established for substances listed under section 112 of the Clean Air Act, as amended. Only those NESHAPs promulgated in ambient concentration units apply in the HRS.

Octanol-water partition coefficient (K_{ow} [or P]): Measure of the extent of partitioning of a substance between water and octanol at equilibrium. The K_{ow} is determined by the ratio between the concentration in octanol divided by the concentration in water at equilibrium. [unitless].

Organic carbon partition coefficient (K_{oc}): Measure of the extent of partitioning of a substance, at equilibrium, between organic carbon in geologic materials and water. The higher the K_{oc}, the more likely a substance is to bind to geologic materials than to remain in water [ml/g].

Photolysis: Chemical reaction of a substance caused by direct absorption of solar energy (direct photolysis) or caused by other substances that absorb solar energy (indirect photolysis).

Radiation: Particles (alpha, beta, neutrons) or photons (x- and gamma-rays) emitted by radionuclides.

Radioactive decay: Process of spontaneous nuclear transformation, whereby an isotope of one element is transformed into an isotope of another element, releasing excess energy in the form of radiation.

Radioactive half-life: Time required for one-half the atoms in a given quantity of a specific radionuclide to undergo radioactive decay.

Radioactive substance: Solid, liquid, or gas containing atoms of a single radionuclide or multiple radionuclides.

Radioactivity: Property of those isotopes of elements that exhibit radioactive decay and emit radiation.

Radionuclide/radioisotope: Isotope of an element exhibiting radioactivity. For HRS purposes, "radionuclide" and "radioisotope" are used synonymously.

Reference dose (RfD): Estimate of a daily exposure level of a substance to a human population below which adverse noncancer health effects are not anticipated. [milligrams toxicant per kilogram body weight per day (mg/kg-day)].

Removal action: Action that removes hazardous substances from the site for proper disposal or destruction in a facility permitted under the Resource Conservation and Recovery Act or the Toxic Substances Control Act or by the Nuclear Regulatory Commission.

Roentgen (R): Measure of external exposures to ionizing radiation. One roentgen equals that amount of x-ray or gamma radiation required to produce ions carrying a charge of 1 electrostatic unit (esu) in 1 cubic centimeter of dry air under standard conditions. One microroentgen (μR) equals 10^{-6} R.

Sample quantitation limit (SQL): Quantity of a substance that can be reasonably quantified given the limits of detection for the methods of analysis and sample characteristics that may affect quantitation (for example, dilution, concentration).

Screening concentration: Media-specific benchmark concentration for a hazardous substance that is used in the HRS for comparison with the concentration of that hazardous substance in a sample from that media. The screening concentration for a specific hazardous substance corresponds

to its reference dose for inhalation exposures or for oral exposures, as appropriate, and, if the substance is a human carcinogen with a weight-of-evidence classification of A, B, or C, to that concentration that corresponds to its 10^{-6} individual lifetime excess cancer risk for inhalation exposures or for oral exposures, as appropriate.

Site: Area(s) where a hazardous substance has been deposited, stored, disposed, or placed, or has otherwise come to be located. Such areas may include multiple sources and may include the area between sources.

Slope factor (also referred to as cancer potency factor): Estimate of the probability of response (for example, cancer) per unit intake of a substance over a lifetime. The slope factor is typically used to estimate upper-bound probability of an individual developing cancer as a result of exposure to a particular level of a human carcinogen with a weight-of-evidence classification of A, B, or C [$(mg/kg\text{-}day)^{-1}$ for non-radioactive substances and $(pCi)^{-1}$ for radioactive substances].

Source: Any area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated from migration of a hazardous substance. Sources do not include those volumes of air, ground water, surface water, or surface water sediments that have become contaminated by migration, except: in the case of either a ground water plume with no identified source or contaminated surface water sediments with no identified source, the plume or contaminated sediments may be considered a source.

Target distance limit: Maximum distance over which targets for the site are evaluated. The target distance limit varies by HRS pathway.

Uranium Mill Tailings Radiation Control Act (UMTRCA) Standards: Standards for radionuclides established under sections 102, 104, and 108 of the Uranium Mill Tailings Radiation Control Act, as amended.

Vapor pressure: Pressure exerted by the vapor of a substance when it is in equilibrium with its solid or liquid form at a given temperature. For HRS purposes, use the value reported at or near 25° C. [atmosphere or torr].

Volatilization: Physical transfer process through which a substance undergoes a change of state from a solid or liquid to a gas.

Water solubility: Maximum concentration of a substance in pure water at a given temperature. For HRS purposes, use the value reported at or near 25° C. [milligrams per liter (mg/l)].

Weight-of-evidence: EPA classification system for characterizing the evidence supporting the designation of a substance as a human carcinogen. EPA weight-of-evidence groupings include:

Group A: Human carcinogen – sufficient evidence of carcinogenicity in humans.

Group B1: Probable human carcinogen – limited evidence of carcinogenicity in humans.

Group B2: Probable human carcinogen – sufficient evidence of carcinogenicity in animals.

Group C: Possible human carcinogen – limited evidence of carcinogenicity in animals.

Group D: Not classifiable as to human carcinogenicity – applicable when there is no animal evidence, or when human or animal evidence is inadequate.

Group E: Evidence of noncarcinogenicity for humans.

2.0 Evaluations Common to Multiple Pathways

2.1 *Overview*. The HRS site score (S) is the result of an evaluation of four pathways:

- Ground Water Migration (S_{gw}).
- Surface Water Migration (S_{sw}).
- Soil Exposure (S_s).
- Air Migration (S_a).

The ground water and air migration pathways use single threat evaluations, while the surface water migration and soil exposure pathways use multiple threat evaluations. Three threats are evaluated for the surface water migration pathway: drinking water, human food chain, and environmental. These threats are evaluated for two separate migration components – overland/flood migration and ground water to surface water migration. Two threats are evaluated for the soil exposure pathway: resident population and nearby population.

The HRS is structured to provide a parallel evaluation for each of these pathways and threats. This section focuses on these parallel evaluations, starting with the calculation of the HRS site score and the individual pathway scores.

2.1.1 *Calculation of HRS site score.* Scores are first calculated for the individual pathways as specified in sections 2 through

$$S = \frac{S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2}{4}$$

7 and then are combined for the site using the following root-mean-square equation to determine the overall HRS site score, which ranges from 0 to 100:

2.1.2 *Calculation of pathway score.* Table 2-1, which is based on the air migration pathway, illustrates the basic parameters used to calculate a pathway score. As Table 2-1 shows, each pathway (or threat) score is the product of three "factor categories": likelihood of release, waste characteristics, and targets. (The soil exposure pathway uses likelihood of exposure rather than likelihood of release.) Each of the three factor categories contains a set of factors that are assigned numerical values and combined as specified in sections 2 through 7. The factor values are rounded to the nearest integer, except where otherwise noted.

2.1.3 *Common evaluations.* Evaluations common to all four HRS pathways include:

- Characterizing sources.
  - Identifying sources (and, for the soil exposure pathway, areas of observed contamination [see section 5.0.1]).
  - Identifying hazardous substances associated with each source (or area of observed contamination).
  - Identifying hazardous substances available to a pathway.

Table 2-1.—Sample Pathway Scoresheet

Factor category	Maximum Value	Value assigned
Likelihood of Release		
1. Observed Release	550	
2. Potential to Release	500	
3. Likelihood of Release (higher of lines 1 and 2)	550	
Waste Characteristics		
4. Toxicity/Mobility	(a)	
5. Hazardous Waste Quantity	(a)	
6. Waste Characteristics	100	
Targets		
7. Nearest Individual		
7a. Level I	50	
7b. Level II	45	
7c. Potential Contamination	20	
7d. Nearest Individual (higher of lines 7a, 7b, or 7c)	50	
8. Population		
8a. Level I	(b)	
8b. Level II	(b)	
8c. Potential Contamination	(b)	
8d. Total Population (lines 8a + 8b + 8c)	(b)	
9. Resources	5	
10. Sensitive Environments	(b)	
10a. Actual Contamination	(b)	
10b. Potential Contamination	(b)	
10c. Sensitive Environments (lines 10a + 10b)	(b)	
11. Targets (lines 7d + 8d + 9 + 10c)	(b)	
12. Pathway Score is the product of Likelihood of Release, Waste Characteristics, and Targets, divided by 82,500. Pathway scores are limited to a maximum of 100 points.		

[a] Maximum value applies to waste characteristics category. The product of lines 4 and 5 is used in Table 2-7 to derive the value for the waste characteristics factor category.

[b] There is no limit to the human population or sensitive environments factor values. However, the pathway score based solely on sensitive environments is limited to a maximum of 60 points.

- Scoring likelihood of release (or likelihood of exposure) factor category.
  - Scoring observed release (or observed contamination).
  - Scoring potential to release when there is no observed release.
- Scoring waste characteristics factor category.
  - Evaluating toxicity.
  - Combining toxicity with mobility, persistence, and/or bioaccumulation (or ecosystem bioaccumulation) potential, as appropriate to the pathway or threat).
  - Evaluating hazardous waste quantity.
  - Combining hazardous waste quantity with the other waste characteristics factors.
  - Determining waste characteristics factor category value.
- Scoring targets factor category.
  - Determining level of contamination for targets.

These evaluations are essentially identical for the three migration pathways (ground water, surface water, and air).

However, the evaluations differ in certain respects for the soil exposure pathway.

Section 7 specifies modifications that apply to each pathway when evaluating sites containing radioactive substances.

Section 2 focuses on evaluations common at the pathway and threat levels. Note that for the ground water and surface water migration pathways, separate scores are calculated for each aquifer (see section 3.0) and each watershed (see sections 4.1.1.3 and 4.2.1.5) when determining the pathway scores for a site. Although the evaluations in section 2 do not vary when different aquifers or watersheds are scored at a site, the specific factor values (for example, observed release, hazardous waste quantity, toxicity/mobility) that result from these evaluations can vary by aquifer and by watershed at the site. This can occur through differences both in the specific sources and targets eligible to be evaluated for each aquifer and watershed and in whether observed releases can be established for each aquifer and watershed. Such differences in scoring at the aquifer and watershed level are addressed in sections 3 and 4, not section 2.

2.2 *Characterize sources.* Source characterization includes identification of the following:

- Sources (and areas of observed contamination) at the site.
- Hazardous substances associated with these sources (or areas of observed contamination).
- Pathways potentially threatened by these hazardous substances.

Table 2-2 presents a sample worksheet for source characterization.

2.2.1 *Identify sources.* For the three migration pathways, identify the sources at the site that contain hazardous substances. Identify the migration pathway(s) to which each source applies. For the soil exposure pathway, identify areas of observed contamination at the site (see section 5.0.1).

Table 2.2.—Sample Source Characterization Worksheet

Source:

A. Source dimensions and hazardous waste quantity.
Hazardous constituent quantity:
Hazardous wastestream quantity:
Volume:
Area:
Area of observed contamination:

B. Hazardous substances associated with the source.

Hazardous substance	Available to pathway						
	Air		Ground water (GW)	Surface water (SW)		Soil	
	Gas	Particulate		Overland/ flood	GW to SW	Resident	Nearby
.....							
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....

2.2.2 *Identify hazardous substances associated with a source.* For each of the three migration pathways, consider those hazardous substances documented in a source (for example, by sampling, labels, manifests, oral or written statements) to be associated with that source when evaluating each pathway. In some instances, a hazardous substance can be documented as being present at a site (for example, by labels, manifests, oral or written statements), but the specific source(s) containing that hazardous substance cannot be documented. For the three migration pathways, in those instances when the specific source(s) cannot be documented for a hazardous substance, consider the hazardous substance to be present in each source at the site, except sources for which definitive information indicates that the hazardous substance was not or could not be present.

For an area of observed contamination in the soil exposure pathway, consider only those hazardous substances that meet the criteria for observed contamination for that area (see section 5.0.1) to be associated with that area when evaluating the pathway.

2.2.3 *Identify hazardous substances available to a pathway.* In evaluating each

migration pathway, consider the following hazardous substances available to migrate from the sources at the site to the pathway:

- Ground water migration.
  - Hazardous substances that meet the criteria for an observed release (see section 2.3) to ground water.
  - All hazardous substances associated with a source with a ground water containment factor value greater than 0 (see section 3.1.2.1).
- Surface water migration—overland/flood component.
  - Hazardous substances that meet the criteria for an observed release to surface water in the watershed being evaluated.
  - All hazardous substances associated with a source with a surface water containment factor value greater than 0 for the watershed (see sections 4.1.2.1.2.1.1 and 4.1.2.1.2.2.1).
- Surface water migration—ground water to surface water component.
  - Hazardous substances that meet the criteria for an observed release to ground water.
  - All hazardous substances associated with a source with a ground water containment factor value greater than 0 (see sections 4.2.2.1.2 and 3.1.2.1).
- Air migration.
  - Hazardous substances that meet the criteria for an observed release to the atmosphere.
  - All gaseous hazardous substances associated with a source with a gas containment factor value greater than 0 (see section 6.1.2.1.1).
  - All particulate hazardous substances associated with a source with a particulate containment factor value greater than 0 (see section 6.1.2.2.1).
- For each migration pathway, in those instances when the specific source(s) containing the hazardous substance cannot be documented, consider that hazardous substance to be available to migrate to the pathway when it can be associated (see section 2.2.2) with at least one source having a containment factor value greater than 0 for that pathway.

In evaluating the soil exposure pathway, consider the following hazardous substances available to the pathway:

- Soil exposure—resident population threat.
  - All hazardous substances that meet the criteria for observed contamination at the site (see section 5.0.1).
- Soil exposure—nearby population threat.
  - All hazardous substances that meet the criteria for observed contamination at areas with an attractiveness/accessibility factor value greater than 0 (see section 5.2.1.1).

2.3 *Likelihood of release.* Likelihood of release is a measure of the likelihood that a waste has been or will be released to the environment. The likelihood of release factor category is assigned the maximum value of 550 for a migration pathway whenever the criteria for an observed release are met for that pathway. If the criteria for an observed release are met, do not evaluate potential to release for that pathway. When the criteria for an observed release are not met, evaluate potential to release for that pathway, with a maximum value of 500. The evaluation of potential to release varies by migration pathway (see sections 3, 4 and 6).

Establish an observed release either by direct observation of the release of a hazardous substance into the media being evaluated (for example, surface water) or by chemical analysis of samples appropriate to the pathway being evaluated (see sections 3, 4, and 6). The minimum standard to establish an observed release by chemical analysis is analytical evidence of a hazardous substance in the media significantly above the background level. Further, some portion of the release must be attributable to the site. Use the criteria in Table 2-3 as the standard for determining analytical significance. (The criteria in Table 2-3 are also used in establishing observed contamination for the soil exposure pathway, see section 5.0.1.) Separate criteria apply to radionuclides (see section 7.1.1).

Table 2-3.—Observed Release Criteria for Chemical Analysis

Sample Measurement < Sample Quantitation Limit[a]
No observed release is established.
Sample Measurement ≥ Sample Quantitation Limit[a]
An observed release is established as follows: • If the background concentration is not detected (or is less than the detection limit), an observed release is established when the sample measurement equals or exceeds the sample quantitation limit.[a] • If the background concentration equals or exceeds the detection limit, an observed release is established when the sample measurement is 3 times or more above the background concentration.

[a]If the sample quantitation limit (SQL) cannot be established,, determine if there is an observed release as follows:
—If the sample analysis was performed under the EPA Contract Laboratory Program,, use the EPA contract-required quantitation limit (CRQL) in place of the SQL.
—If the sample analysis is not performed under the EPA Contract Laboratory Program,, use the detection limit (DL) in place of the SQL.

2.4 *Waste characteristics.* The waste characteristics factor category includes the following factors: hazardous waste quantity, toxicity, and as appropriate to the pathway or threat being evaluated, mobility, persistence, and/or bioaccumulation (or ecosystem bioaccumulation) potential.

2.4.1 *Selection of substance potentially posing greatest hazard.* For all pathways (and threats), select the hazardous substance potentially posing the greatest hazard for the pathway (or threat) and use that substance in evaluating the waste characteristics category of the pathway (or threat). For the three migration pathways (and threats), base the selection of this hazardous substance on the toxicity factor value for the substance, combined with its mobility, persistence, and/or bioaccumulation (or ecosystem bioaccumulation) potential factor values, as applicable to the migration pathway (or threat). For the soil exposure pathway, base the selection on the toxicity factor alone.

Evaluation of the toxicity factor is specified in section 2.4.1.1. Use and evaluation of the mobility, persistence, and/or bioaccumulation (or ecosystem bioaccumulation) potential factors vary by pathway (or threat) and are specified under the appropriate pathway (or threat) section. Section 2.4.1.2 identifies the specific factors that are combined with toxicity in evaluating each pathway (or threat).

2.4.1.1 *Toxicity factor.* Evaluate toxicity for those hazardous substances at the site that are available to the pathway being scored. For all pathways and threats, except the surface water environmental threat, evaluate human toxicity as specified below. For the surface water environmental threat, evaluate ecosystem toxicity as specified in section 4.1.4.2.1.1.

Establish human toxicity factor values based on quantitative dose-response parameters for the following three types of toxicity:

- Cancer—Use slope factors (also referred to as cancer potency factors) combined with weight-of-evidence ratings for carcinogenicity. If a slope factor is not available for a substance, use its ED_{10} value to estimate a slope factor as follows:

$$\textit{Slope factor} = \frac{1}{6(ED_{10})}$$

- Noncancer toxicological responses of chronic exposure—use reference dose (RfD) values.
- Noncancer toxicological responses of acute exposure—use acute toxicity parameters, such as the LD_{50}.

Assign human toxicity factor values to a hazardous substance using Table 2-4, as follows:

- If RfD and slope factor values are both available for the hazardous substance, assign the substance a value from Table 2-4 for each. Select the higher of the two values assigned and use it as the overall toxicity factor value for the hazardous substance.
- If either an RfD or slope factor value is available, but not both, assign the hazardous substance an overall toxicity factor value from Table 2-4 based solely on the available value (RfD or slope factor).
- If neither an RfD nor slope factor value is available, assign the hazardous substance an overall toxicity factor value from Table 2-4 based solely on acute toxicity. That is, consider acute toxicity in Table 2-4 only when both RfD and slope factor values are not available.

- If neither an RfD, nor slope factor, nor acute toxicity value is available, assign the hazardous substance an overall toxicity factor value of 0 and use other hazardous substances for which information is available in evaluating the pathway.

Table 2-4.—Toxicity Factor Evaluation
Chronic Toxicity (Human)

Reference dose (RfD) (mg/kg-day)	Assigned value
RfD < 0.0005	10,000
0.0005 ≤ RfD < 0.005	1,000
0.005 ≤ RfD < 0.05	100
0.05 ≤ RfD < 0.5	10
0.5 ≤ RfD	1
RfD not available	0

Carcinogenicity (Human)

Weight-of-evidence[a]/slope factor $(mg/kg\text{-}day)^{-1}$			Assigned Value
A	B	C	
0.5 ≤ SF[b]	5 ≤ SF	50 ≤ SF	10,000
0.05 ≤ SF < 0.5	0.5 ≤ SF < 5	5 ≤ SF < 50	1,000
SF < 0.05	0.05 ≤ SF < 0.5	0.5 ≤ SF < 5	100
— — —	SF < 0.05	SF < 0.5	10
Slope factor not available	Slope factor not available	Slope factor not available	0

[a]A, B, and C refer to weight-of-evidence categories. Assign substances with a weight-of-evidence category of D (inadequate evidence of carcinogenicity) or E (evidence of lack of carcinogenicity) a value of 0 for carcinogenicity.

[b]SF = Slope factor.

If a toxicity factor value of 0 is assigned to all hazardous substances available to a particular pathway (that is, insufficient toxicity data are available for evaluating all the substances), use a default value of 100 as the overall human toxicity factor value for all hazardous substances available to the pathway. For hazardous substances having usable toxicity data for multiple exposure routes (for example, inhalation and ingestion), consider all exposure routes and use the highest assigned value, regardless of exposure route, as the toxicity factor value.

For HRS purposes, assign both asbestos and lead (and its compounds) a human toxicity factor value of 10,000.

Separate criteria apply for assigning factor values for human toxicity and ecosystem toxicity for radionuclides (see sections 7.2.1 and 7.2.2).

Table 2-4.—Toxicity Factor Evaluation—Concluded
Acute Toxicity (Human)

Oral LD50 (mg/kg)	Dermal LD50 (mg/kg)	Dust or mist LC50 (mg/l)	Gas or vapor LC50 (ppm)	Assigned value
— — —	— — —	— — —	— — —	— — —
LD50 < 5	LD50 < 2	LC50 < 0.2	LC50 < 20	1,000
5 ≤ LD50 < 50	2 ≤ LD50 < 20	0.2 ≤ LC50 < 2	20 ≤ LC50 < 200	100
50 ≤ LD50 < 500	20 ≤ LD50 < 200	2 ≤ LC50 < 20	200 ≤ LC50 < 2000	10
500 ≤ LD50	200 ≤ LD50	20 ≤ LC50	2,000 ≤ LC50	1
LD50 not available	LD50 not available	LD50 not available	LD50 not available	0

2.4.1.2 *Hazardous substance selection.* For each hazardous substance evaluated for a migration pathway (or threat), combine the human toxicity factor value (or ecosystem toxicity factor value) for the hazardous substance with a mobility, persistence, and/or bioaccumulation (or ecosystem bioaccumulation) potential factor value as follows:

- Ground water migration.
  - Determine a combined human toxicity/mobility factor value for the hazardous substance (see section 3.2.1).
- Surface water migration-overland/flood migration component.
  - Determine a combined human toxicity/persistence factor value for the hazardous substance for the drinking water threat (see section 4.1.2.2.1).
  - Determine a combined human toxicity/persistence/bioaccumulation factor value for the hazardous substance for the human food chain threat (see section 4.1.3.2.1).
  - Determine a combined ecosystem toxicity/persistence/bioaccumlation factor value for the hazardous substance for the

environmental threat (see section 4.1.4.2.1).

- Surface water migration-ground water to surface water migration component.
  - Determine a combined human toxicity/mobility/persistence factor value for the hazardous substance for the drinking water threat (see section 4.2.2.2.1).
  - Determine a combined human toxicity/mobility/persistence/bioaccumulation factor value for the hazardous substance for the human food chain threat (see section 4.2.3.2.1).
  - Determine a combined ecosystem toxicity/mobility/persistence/bioaccumulation factor value for the hazardous substance for the environmental threat (see section 4.2.4.2.1).
- Air migration.
  - Determine a combined human toxicity/mobility factor value for the hazardous substance (see section 6.2.1).

Determine each combined factor value for a hazardous substance by multiplying the individual factor values appropriate to the pathway (or threat). For each migration pathway (or threat) being evaluated, select the hazardous substance with the highest combined factor value and use that substance in evaluating the waste characteristics factor category of the pathway (or threat).

For the soil exposure pathway, select the hazardous substance with the highest human toxicity factor value from among the substances that meet the criteria for observed contamination for the threat evaluated and use that substance in evaluating the waste characteristics factor category.

2.4.2 *Hazardous waste quantity.* Evaluate the hazardous waste quantity factor by first assigning each source (or area of observed contamination) a source hazardous waste quantity value as specified below. Sum these values to obtain the hazardous waste quantity factor value for the pathway being evaluated.

In evaluating the hazardous waste quantity factor for the three migration pathways, allocate hazardous substances and hazardous wastestreams to specific sources in the manner specified in section 2.2.2, except: consider hazardous substances and hazardous wastestreams that cannot be allocated to any specific source to constitute a separate "unallocated source" for purposes of evaluating only this factor for the three migration pathways. Do not, however, include a hazardous substance or hazardous wastestream in the unallocated source for a migration pathway if there is definitive information indicating that the substance or wastestream could only have been placed in sources with a containment factor value of 0 for that migration pathway.

In evaluating the hazardous waste quantity factor for the soil exposure pathway, allocate to each area of observed contamination only those hazardous substances that meet the criteria for observed contamination for that area of observed contamination and only those hazardous wastestreams that contain hazardous substances that meet the criteria for observed contamination for that area of observed contamination. Do not consider other hazardous substances or hazardous wastestreams at the site in evaluating this factor for the soil exposure pathway.

2.4.2.1 *Source hazardous waste quantity.* For each of the three migration pathways, assign a source hazardous waste quantity value to each source (including the unallocated source) having a containment factor value greater than 0 for the pathway being evaluated. Consider the unallocated source to have a containment factor value greater than 0 for each migration pathway.

For the soil exposure pathway, assign a source hazardous waste quantity value to each area of observed contamination, as applicable to the threat being evaluated.

For all pathways, evaluate source hazardous waste quantity using the following four measures in the following hierarchy:

- Hazardous constituent quantity.
- Hazardous wastestream quantity.
- Volume.
- Area.

For the unallocated source, use only the first two measures.

Separate criteria apply for assigning a source hazardous waste quantity value for radionuclides (see section 7.2.5).

2.4.2.1.1 *Hazardous constituent quantity.* Evaluate hazardous constituent quantity for the source (or area of observed contamination) based solely on the mass of

CERCLA hazardous substances (as defined in CERCLA section 101(14), as amended) allocated to the source (or area of observed contamination), except:

- For a hazardous waste listed pursuant to section 3001 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. 6901 et seq., determine its mass for the evaluation of this measure as follows:
  - If the hazardous waste is listed solely for Hazard Code T (toxic waste), include only the mass of constituents in the hazardous waste that are CERCLA hazardous substances and not the mass of the entire hazardous waste.
  - If the hazardous waste is listed for any other Hazard Code (including T plus any other Hazard Code), include the mass of the entire hazardous waste.
- For a RCRA hazardous waste that exhibits the characteristics identified under section 3001 of RCRA, as amended, determine its mass for the evaluation of this measure as follows:
  - If the hazardous waste exhibits only the characteristic of toxicity (or only the characteristic of EP toxicity), include only the mass of constituents in the hazardous waste that are CERCLA hazardous substances and not the mass of the entire hazardous waste.
  - If the hazardous waste exhibits any other characteristic identified under section 3001 (including any other characteris- tic plus the characteristic of toxicity [or the characteristic of EP toxicity]), include the mass of the entire hazardous waste.

Based on this mass, designated as C, assign a value for hazardous constituent quantity as follows:

- For the migration pathways, assign the source a value for hazardous constituent quantity using the Tier A equation of Table 2-5.
- For the soil exposure pathway, assign the area of observed contamination a value using the Tier A equation of Table 5-2 (section 5.1.2.2).

If the hazardous constituent quantity for the source (or area of observed contamination) is adequately determined (that is, the total mass of all CERCLA hazardous substances in the source and releases from the source [or in the area of observed contamination] is known or is estimated with reasonable confidence), do not evaluate the other three measures discussed below. Instead assign these other three measures a value of 0 for the source (or area of observed contamination) and proceed to section 2.4.2.1.5.

If the hazardous constituent quantity is not adequately determined, assign the source (or area of observed contamination) a value for hazardous constituent quantity based on the available data and proceed to section 2.4.2.1.2.

Table 2-5.—Hazardous Waste Quantity Evaluation Equations

Tier	Measure	Units	Equation for assigning value[a]
A	Hazardous constituent quantity (C)	lb	C
B[b]	Hazardous wastestream quantity (W)	lb	W/5,000
C[b]	Volume (V)		
	Landfill	yd^3	V/2.500
	Surface impoundment	yd^3	V/2.5
	Surface impoundment (buried/backfilled)	yd^3	V/2.5
	Drums[c]	gallon	V/500
	Tanks and containers other than drums	yd^3	V/2.5
	Contaminated soil	yd^3	V/2.500
	Pile	yd^3	V/2.5
	Other	yd^3	V/2.5
D[b]	Area (A)		
	Landfill	ft^2	A/3,400
	Surface impoundment	ft^2	A/13
	Surface impoundment (buried/backfilled)	ft^2	A/13
	Land treatment	ft^2	A/270
	Pile	ft^2	A/13
	Contaminated soil	ft^2	A/34,000

[a] Do not round to nearest integer.

[b] Convert volume to mass when necessary: 1 ton = 2,000 pounds = 1 cubic yard = 4 drums = 200 gallons.

[c] If actual volume of drums is unavailable, assume 1 drum = 50 gallons.

Table 2-5.—Hazardous Waste Quantity Evaluation Equations

Tier	Measure	Units	Equation for assigning value[a]

[d]Use land surface area under pile, not surface area of pile.

2.4.2.1.2 *Hazardous wastestream quantity.* Evaluate hazardous wastestream quantity for the source (or area of observed contamination) based on the mass of hazardous wastestreams plus the mass of any additional CERCLA pollutants and contaminants (as defined in CERCLA section 101[33], as amended) that are allocated to the source (or area of observed contamination). For a wastestream that consists solely of a hazardous waste listed pursuant to section 3001 of RCRA, as amended or that consists solely of a RCRA hazardous waste that exhibits the characteristics identified under section 3001 of RCRA, as amended, include the mass of that entire hazardous waste in the evaluation of this measure.

Based on this mass, designated as W, assign a value for hazardous wastestream quantity as follows:

- For the migration pathways, assign the source a value for hazardous wastestream quantity using the Tier B equation of Table 2-5.
- For the soil exposure pathway, assign the area of observed contamination a value using the Tier B equation of Table 5-2 (section 5.1.2.2).

Do not evaluate the volume and area measures described below if the source is the unallocated source or if the following condition applies:

- The hazardous wastestream quantity for the source (or area of observed contamination) is adequately determined—that is, total mass of all hazardous wastestreams and CERCLA pollutants and contaminants for the source and releases from the source (or for the area of observed contamination) is known or is estimated with reasonable confidence.

If the source is the unallocated source or if this condition applies, assign the volume and area measures a value of 0 for the source (or area of observed contamination) and proceed to section 2.4.2.1.5. Otherwise, assign the source (or area of observed contamination) a value for hazardous wastestream quantity based on the available data and proceed to section 2.4.2.1.3.

2.4.2.1.3 *Volume.* Evaluate the volume measure using the volume of the source (or the volume of the area of observed contamination). For the soil exposure pathway, restrict the use of the volume measure to those areas of observed contamination specified in section 5.1.2.2.

Based on the volume, designated as V, assign a value to the volume measure as follows:

- For the migration pathways, assign the source a value for volume using the appropriate Tier C equation of Table 2-5.
- For the soil exposure pathway, assign the area of observed contamination a value for volume using the appropriate Tier C equation of Table 5-2 (section 5.1.2.2).

If the volume of the source (or volume of the area of observed contamination, if applicable) can be determined, do not evaluate the area measure. Instead, assign the area measure a value of 0 and proceed to section 2.4.2.1.5. If the volume cannot be determined (or is not applicable for the soil exposure pathway), assign the source (or area of observed contamination) a value of 0 for the volume measure and proceed to section 2.4.2.1.4.

2.4.2.1.4 *Area.* Evaluate the area measure using the area of the source (or the area of the area of observed contamination). Based on this area, designated as A, assign a value to the area measure as follows:

- For the migration pathways, assign the source a value for area using the appropriate Tier D equation of Table 2-5.
- For the soil exposure pathway, assign the area of observed contamination a value for area using the appropriate Tier D equation of Table 5-2 (section 5.1.2.2).

2.4.2.1.5 *Calculation of source hazardous waste quantity value.* Select the highest of the values assigned to the source (or area of observed contamination) for the hazardous constituent quantity, hazardous wastestream quantity, volume, and area measures. Assign this value as the source

hazardous waste quantity value. Do not round to the nearest integer.

2.4.2.2 *Calculation of hazardous waste quantity factor value.* Sum the source hazardous waste quantity values assigned to all sources (including the unallocated source) or areas of observed contamination for the pathway being evaluated and round this sum to the nearest integer, except: if the sum is greater than 0, but less than 1, round it to 1. Based on this value, select a hazardous waste quantity factor value for the pathway from Table 2-6.

Table 2-6. – Hazardous Waste Quantity Factor

Hazardous waste quantity value	Assigned value
0	0
1[a] to 100	1[b]
Greater than 100 to 10,,000	100
Greater than 10,,000 to 1,,000,,000	10,000
Greater than 1,,000,,000	1,000,000

[a]If the hazardous waste quantity value is greater than 0, but less than 1, round it to 1 as specified in text.

[b]For the pathway, if hazardous constituent quantity is not adequately determined, assign a value as specified in the text; do not assign the value of 1.

For a migration pathway, if the hazardous constituent quantity is adequately determined (see section 2.4.2.1.1) for all sources (or all portions of sources and releases remaining after a removal action), assign the value from Table 2-6 as the hazardous waste quantity factor value for the pathway. If the hazardous constituent quantity is not adequately determined for one or more sources (or one or more portions of sources or releases remaining after a removal action) assign a factor value as follows:

- If any target for that migration pathway is subject to Level I or Level II concentrations (see section 2.5), assign either the value from Table 2-6 or a value of 100, whichever is greater, as the hazardous waste quantity factor value for that pathway.
- If none of the targets for that pathway is subject to Level I or Level II concentrations, assign a factor value as follows:
  - If there has been no removal action, assign either the value from Table 2-6 or a value of 10, whichever is greater, as the hazardous waste quantity factor value for that pathway.
  - If there has been a removal action:
    - Determine values from Table 2-6 with and without consideration of the removal action.
    - If the value that would be assigned from Table 2-6 without consideration of the removal action would be 100 or greater, assign either the value from Table 2-6 with consideration of the removal action or a value of 100, whichever is greater, as the hazardous waste quantity factor value for the pathway.
    - If the value that would be assigned from Table 2-6 without consideration of the removal action would be less than 100, assign a value of 10 as the hazardous waste quantity factor value for the pathway.

For the soil exposure pathway, if the hazardous constituent quantity is adequately determined for all areas of observed contamination, assign the value from Table 2-6 as the hazardous waste quantity factor value. If the hazardous constituent quantity is not adequately determined for one or more areas of observed contamination, assign either the value from Table 2-6 or a value of 10, whichever is greater, as the hazardous waste quantity factor value.

2.4.3 *Waste characteristics factor category value.* Determine the waste characteristics factor category value as specified in section 2.4.3.1 for all pathways and threats, except the surface water-human food chain threat and the surface water-environmental threat. Determine the waste characteristics factor category value for these latter two threats as specified in section 2.4.3.2.

2.4.3.1 *Factor category value.* For the pathway (or threat) being evaluated, multiply the toxicity or combined factor value, as appropriate, from section 2.4.1.2 and the hazardous waste quantity factor value from section 2.4.2.2, subject to a maximum product of $1x10^8$. Based on this waste characteristics product, assign a waste characteristics factor category value to the pathway (or threat) from Table 2-7.

Table 2-7.—Waste Characteristics Factor Category Values

Waste characteristics product	Assigned value
0	0
Greater than 0 to less than 10	1
10 to less than 1×10^2	2
1×10^2 to less than 1×10^3	3
1×10^3 to less than 1×10^4	6
1×10^4 to less than 1×10^5	10
1×10^5 to less than 1×10^6	18
1×10^6 to less than 1×10^7	32
1×10^7 to less than 1×10^8	56
1×10^8 to less than 1×10^9	100
1×10^9 to less than 1×10^{10}	180
1×10^{10} to less than 1×10^{11}	320
1×10^{11} to less than 1×10^{12}	560
1×10^{12}	1,000

2.4.3.2 *Factor category value, considering bioaccumulation potential.* For the surface water-human food chain threat and the surface water-environmental threat, multiply the toxicity or combined factor value, as appropriate, from section 2.4.1.2 and the hazardous waste quantity factor value from section 2.4.2.2, subject to:

- A maximum product of 1×10^{12}, and
- A maximum product exclusive of the bioaccumulation (or ecosystem bioaccumulation) potential factor of 1×10^8.

Based on the total waste characteristics product, assign a waste characteristics factor category value to these threats from Table 2-7.

2.5 *Targets.*

The types of targets evaluated include the following:

- Individual (factor name varies by pathway and threat).
- Human population.
- Resources (these vary by pathway and threat).
- Sensitive environments (included for all pathways except ground water migration).

The factor values that may be assigned to each type of target have the same range for each pathway for which that type of target is evaluated. The factor value for most types of targets depends on whether the target is subject to actual or potential contamination for the pathway and whether the actual contamination is Level I or Level II:

- Actual contamination: Target is associated either with a sampling location that meets the criteria for an observed release (or observed contamination) for the pathway or with an observed release based on direct observation for the pathway (additional criteria apply for establishing actual contamination for the human food chain threat in the surface water migration pathway, see sections 4.1.3.3 and 4.2.3.3). sections 3 through 6 specify how to determine the targets associated with a sampling location or with an observed release based on direct observation. Determine whether the actual contamination is Level I or Level II as follows:
  - Level I:
    - Media-specific concentrations for the target meet the criteria for an observed release (or observed contamination) for the pathway and are at or above media-specific benchmark values. These benchmark values (see section 2.5.2) include both screening concentrations and concentrations specified in regulatory limits (such as Maximum Contaminant Level (MCL) values), or
    - For the human food chain threat in the surface water migration pathway, concentrations in tissue samples from aquatic human food chain organisms are at or above benchmark values. Such tissue samples may be used in addition to media-specific concentrations only as specified in sections 4.1.3.3 and 4.2.3.3.
  - Level II:
    - Media-specific concentrations for the target meet the criteria for an observed release (or observed contamination) for the pathway, but are less than media-specific benchmarks. If none of the hazardous substances eligible to be evaluated for the sampling

location has an applicable benchmark, assign Level II to the actual contamination at the sampling location, or
- For observed releases based on direct observation, assign Level II to targets as specified in sections 3, 4, and 6, or
- For the human food chain threat in the surface water migration pathway, concentrations in tissue samples from aquatic human food chain organisms, when applicable, are below benchmark values.
- If a target is subject to both Level I and Level II concentrations for a pathway (or threat), evaluate the target using Level I concentrations for that pathway (or threat).

• Potential contamination: Target is subject to a potential release (that is, target is not associated with actual contamination for that pathway or threat).

Assign a factor value for individual risk as follows (select the highest value that applies to the pathway or threat):

• 50 points if any individual is exposed to Level I concentrations.
• 45 points if any individual is exposed to Level II concentrations.
• Maximum of 20 points if any individual is subject to potential contamination. The value assigned is 20 multiplied by the distance or dilution weight appropriate to the pathway.

Assign factor values for population and sensitive environments as follows:

• Sum Level I targets and multiply by 10. (Level I is not used for sensitive environments in the soil exposure and air migration pathways.)
• Sum Level II targets.
• Multiply potential targets by distance or dilution weights appropriate to the pathway, sum, and divide by 10. Distance or dilution weighting accounts for diminishing exposure with increasing distance or dilution within the different pathways.
• Sum the values for the three levels.

In addition, resource value points are assigned within all pathways for welfare-related impacts (for example, impacts to agricultural land), but do not depend on whether there is actual or potential contamination.

2.5.1 *Determination of level of actual contamination at a sampling location.* Determine whether Level I concentrations or Level II concentrations apply at a sampling location (and thus to the associated targets) as follows:

• Select the benchmarks applicable to the pathway (or threat) being evaluated.
• Compare the concentrations of hazardous substances in the sample (or comparable samples) to their benchmark concentrations for the pathway (or threat), as specified in section 2.5.2.
• Determine which level applies based on this comparison.
• If none of the hazardous substances eligible to be evaluated for the sampling location has an applicable benchmark, assign Level II to the actual contamination at that sampling location for the pathway (or threat).

In making the comparison, consider only those samples, and only those hazardous substances in the sample, that meet the criteria for an observed release (or observed contamination) for the pathway, except: tissue samples from aquatic human food chain organisms may also be used as specified in sections 4.1.3.3 and 4.2.3.3 of the surface water-human food chain threat. If any hazardous substance is present in more than one comparable sample for the sampling location, use the highest concentration of that hazardous substance from any of the comparable samples in making the comparisons.

Treat sets of samples that are not comparable separately and make a separate comparison for each such set.

2.5.2 *Comparison to benchmarks.* Use the following media-specific benchmarks for making the comparisons for the indicated pathway (or threat):

• Maximum Contaminant Level Goals (MCLGs)—ground water migration pathway and drinking water threat in surface water migration pathway. Use only MCLG values greater than 0.
• Maximum Contaminant Levels (MCLs)—ground water migration

pathway and drinking water threat in surface water migration pathway.

- Food and Drug Administration Action Level (FDAAL) for fish or shellfish – human food chain threat in surface water migration pathway.
- EPA Ambient Water Quality Criteria (AWQC) for protection of aquatic life – environmental threat in surface water migration pathway.
- EPA Ambient Aquatic Life Advisory Concentrations (AALAC) – environmental threat in surface water migration pathway.
- National Ambient Air Quality Standards (NAAQS) – air migration pathway.
- National Emission Standards for Hazardous Air Pollutants (NESHAPs) – air migration pathway. Use only those NESHAPs promulgated in ambient concentration units.
- Screening concentration for cancer corresponding to that concentration that corresponds to the 10^{-6} individual cancer risk for inhalation exposures (air migration pathway) or for oral exposures (ground water migration pathway; drinking water and human food chain threats in surface water migration pathway; and soil exposure pathway).
- Screening concentration for non-cancer toxicological responses corresponding to the RfD for inhalation exposures (air migration pathway) or for oral exposures (ground water migration pathway; drinking water and human food chain threats in surface water migration pathway; and soil exposure pathway).

Select the benchmark(s) applicable to the pathway (or threat) being evaluated as specified in sections 3 through 6. Compare the concentration of each hazardous substance from the sampling location to its benchmark concentration(s) for that pathway (or threat). Use only those samples and only those hazardous substances in the sample that meet the criteria for an observed release (or observed contamination) for the pathway, except: tissue samples from aquatic human food chain organisms may be used as specified in sections 4.1.3.3 and 4.2.3.3. If the concentration of any applicable hazardous substance from any sample equals or exceeds its benchmark concentration, consider the sampling location to be subject to Level I concentrations for that pathway (or threat). If more than one benchmark applies to the hazardous substance, assign Level I if the concentration of the hazardous substance equals or exceeds the lowest applicable benchmark concentration.

If no hazardous substance individually equals or exceeds its benchmark concentration, but more than one hazardous substance either meets the criteria for an observed release (or observed contamination) for the sample (or comparable samples) or is eligible to be evaluated for a tissue sample (see sections 4.1.3.3 and 4.2.3.3), calculate the indices I and J specified below based on these hazardous substances.

For those hazardous substances that are carcinogens (that is, those having a carcinogen weight-of-evidence classification of A, B, or C), calculate an index I for the sample location as follows:

$$I = \sum_{i=1}^{n} \frac{C_i}{SC_i}$$

where:

C_i = Concentration of hazardous substance i in sample (or highest concentration of hazardous substance i from among comparable samples).

SC_i = Screening concentration for cancer corresponding to that concentration that corresponds to its 10^{-6} individual cancer risk for applicable exposure (inhalation or oral) for hazardous substance i.

n = Number of applicable hazardous substances in sample (or comparable samples) that are carcinogens and for which an SC_i is available.

For those hazardous substances for which an RfD is available, calculate an index J for the sample location as follows:

where:

$$J = \sum_{j=1}^{m} \frac{C_j}{CR_j}$$

C_j = Concentration of hazardous substance j in sample (or highest concentration of hazardous substance j from among comparable samples).

CR_j = Screening concentration for noncancer toxicological responses corresponding to RfD for applicable exposure (inhalation or oral) for hazardous substance j.

m = Number of applicable hazardous substances in sample (or comparable samples) for which a CR_j is available.

If either I or J equals or exceeds 1, consider the sampling location to be subject to Level I concentrations for that pathway (or threat). If both I and J are less than 1, consider the sampling location to be subject to Level II concentrations for that pathway (or threat). If, for the sampling location, there are sets of samples that are not comparable, calculate I and J separately for each such set, and use the highest calculated values of I and J to assign Level I and Level II.

See sections 7.3.1 and 7.3.2 for criteria for determining the level of contamination for radioactive substances.

3.0 *Ground Water Migration Pathway*

Evaluate the ground water migration pathway based on three factor categories: likelihood of release, waste characteristics, and targets. Figure 3-1 indicates the factors included within each factor category.

Determine the ground water migration pathway score (S_{gw}) in terms of the factor category values as follows:

$$S_{gw} = \frac{(LR)(WC)(T)}{SF}$$

where:

LR = Likelihood of release factor category value.

WC = Waste characteristics factor category value.

T = Targets factor category value.

SF = Scaling factor.

Table 3-1 outlines the specific calculation procedure.

Calculate a separate ground water migration pathway score for each aquifer, using the factor category values for that aquifer for likelihood of release, waste characteristics, and targets. In doing so, include both the targets using water from that aquifer and the targets using water from all overlying aquifers through which the hazardous substances would migrate to reach the aquifer being evaluated. Assign the highest ground water migration pathway score that results for any aquifer as the ground water migration pathway score for the site.

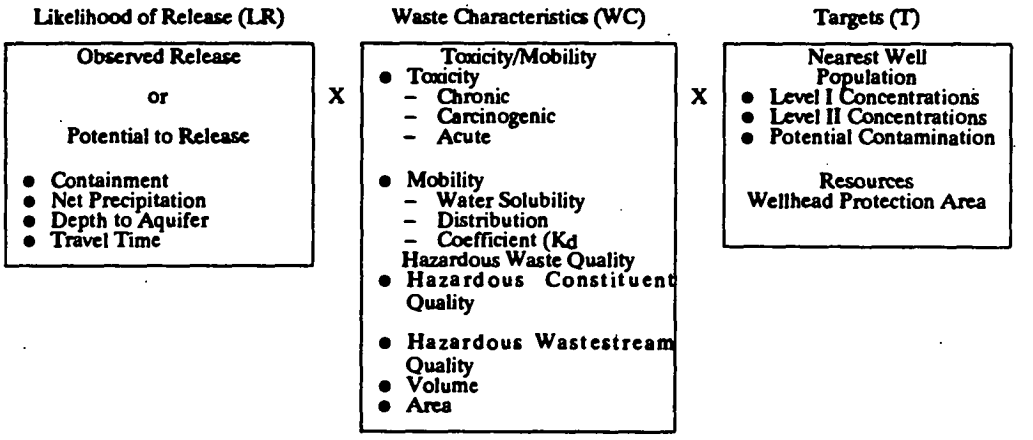


FIGURE 3-1
OVERVIEW OF GROUND WATER MIGRATION PATHWAY

Table 3-1.—Ground Water Migration Pathway Scoresheet

Factor categories and factors	Maxium value	Value assigned
Likelihood of Release to an Aquifer:		
1. Observed Release	550	___
2. Potential to Release:		
2a. Containment	10	___

Table 3-1.—Ground Water Migration Pathway Scoresheet

Factor categories and factors	Maxium value	Value assigned
2b. Net Precipitation	10	
2c. Depth to Aquifer	5	
2d. Travel Time	35	
2e. Potential to Release [lines 2a(2b + 2c + 2d)]	500	
3. Likelihood of Release (higher of lines 1 and 2e)	550	
Waste Characteristics:		
4. Toxicity/Mobility	(a)	
5. Hazardous Waste Quantity	(a)	
6. Waste Characteristics	100	
Targets:		
7. Nearest Well	50	
8. Population:		
8a. Level I Concentrations	(b)	
8b. Level II Concentrations	(b)	
8c. Potential Contamination	(b)	
8d. Population (lines 8a + 8b + 8c)	(b)	
9. Resources	5	
10. Wellhead Protection Area	20	
11. Targets (lines 7 + 8d + 9 + 10)	(b)	
Ground Water Migration Score for an Aquifer:		
12. Aquifer Score [(lines 3 x 6 x 11)/82,500] c	100	
Ground Water Migration Pathway Score:		
13. Pathway Score (Sgw), (highest value from line 12 for all aquifers evaluated)[c]	100	

[a] Maximum value applies to waste characteristics category.

[b] Maximum value not applicable.

[c] Do not round to nearest integer.

3.0.1 *General considerations*

3.0.1.1 *Ground water target distance limit.* The target distance limit defines the maximum distance from the sources at the site over which targets are evaluated. Use a target distance limit of 4 miles for the ground water migration pathway, except when aquifer discontinuities apply (see section 3.0.1.2.2). Furthermore, consider any well with an observed release from a source at the site (see section 3.1.1) to lie within the target distance limit of the site, regardless of the well's distance from the sources at the site.

For sites that consist solely of a contaminated ground water plume with no identified source, begin measuring the 4-mile target distance limit at the center of the area of observed ground water contamination. Determine the area of observed ground water contamination based on available samples that meet the criteria for an observed release.

3.0.1.2 *Aquifer boundaries.* Combine multiple aquifers into a single hydrologic unit for scoring purposes if aquifer interconnections can be established for these aquifers. In contrast, restrict aquifer boundaries if aquifer discontinuities can be established.

3.0.1.2.1 *Aquifer interconnections.* Evaluate whether aquifer interconnections occur within 2 miles of the sources at the site. If they occur within this 2-mile distance, combine the aquifers having interconnections in scoring the site. In addition, if observed ground water contamination attributable to the sources at the site extends beyond 2 miles from the sources, use any locations within the limits of this observed ground water contamination in evaluating aquifer interconnections. If data are not adequate to establish aquifer interconnections, evaluate the aquifers as separate aquifers.

3.0.1.2.2 *Aquifer discontinuities.* Evaluate whether aquifer discontinuities occur within the 4-mile target distance limit. An aquifer discontinuity occurs for scoring purposes only when a geologic, topographic, or other structure or feature entirely transects an aquifer within the 4-mile target distance limit, thereby creating a continuous boundary to ground water flow within this limit. If two or more aquifers can be combined into a single hydrologic unit for scoring purposes, an aquifer discontinuity occurs only when the structure or feature entirely transects the boundaries of this single hydrologic unit.

When an aquifer discontinuity is established within the 4-mile target distance limit, exclude that portion of the aquifer beyond the discontinuity in evaluating the ground water migration pathway. However, if hazardous substances have migrated across an apparent discontinuity within the 4-mile target

distance limit, do not consider this to be a discontinuity in scoring the site.

3.0.1.3 *Karst aquifer.* Give a karst aquifer that underlies any portion of the sources at the site special consideration in the evaluation of two potential to release factors (depth to aquifer in section 3.1.2.3 and travel time in section 3.1.2.4), one waste characteristics factor (mobility in section 3.2.1.2), and two targets factors (nearest well in section 3.3.1 and potential contamination in section 3.3.2.4).

3.1 *Likelihood of release.* For an aquifer, evaluate the likelihood of release factor category in terms of an observed release factor or a potential to release factor.

3.1.1 *Observed release.* Establish an observed release to an aquifer by demonstrating that the site has released a hazardous substance to the aquifer. Base this demonstration on either:

- Direct observation – a material that contains one or more hazardous substances has been deposited into or has been observed entering the aquifer.
- Chemical analysis – an analysis of ground water samples from the aquifer indicates that the concentration of hazardous substance(s) has increased significantly above the background concentration for the site (see section 2.3). Some portion of the significant increase must be attributable to the site to establish the observed release, except: when the source itself consists of a ground water plume with no identified source, no separate attribution is required.

If an observed release can be established for the aquifer, assign the aquifer an observed release factor value of 550, enter this value in Table 3-1, and proceed to section 3.1.3. If an observed release cannot be established for the aquifer, assign an observed release factor value of 0, enter this value in Table 3-1, and proceed to section 3.1.2.

3.1.2 *Potential to release.* Evaluate potential to release only if an observed release cannot be established for the aquifer. Evaluate potential to release based on four factors: containment, net precipitation, depth to aquifer, and travel time. For sources overlying karst terrain, give any karst aquifer that underlies any portion of the sources at the site special consideration in evaluating depth to aquifer and travel time, as specified in sections 3.1.2.3 and 3.1.2.4.

3.1.2.1 *Containment.* Assign a containment factor value from Table 3-2 to each source at the site. Select the highest containment factor value assigned to those sources with a source hazardous waste quantity value of 0.5 or more (see section 2.4.2.1.5). (Do not include this minimum size requirement in evaluating any other factor of this pathway.) Assign this highest value as the containment factor value for the aquifer being evaluated. Enter this value in Table 3-1.

If no source at the site meets the minimum size requirement, then select the highest value assigned to the sources at the site and assign it as the containment factor value for the aquifer being evaluated. Enter this value in Table 3-1.

3.1.2.2 *Net precipitation.* Assign a net precipitation factor value to the site. Figure 3-2 provides computed net precipitation factor values, based on site location. Where necessary, determine the net precipitation factor value as follows:

- Determine monthly precipitation and monthly evapotranspiration:
  - Use local measured monthly averages.
  - When local data are not available, use monthly averages from the nearest National Oceanographic and Atmospheric Administration weather station that is in a similar geographic setting.

Table 3-2. – Containment Factor Values for Ground Water Migration Pathway

Source	Assigned value
All Sources (Except Surface Impoundments, Land Treatment, Containers, and Tanks	
Evidence of hazardous substance migration from source area (i.e., source area includes source and any associated containment structures)	10
No liner	10
No evidence of hazardous substance migration from source area, a liner, and:	

Table 3-2.—Containment Factor Values for Ground Water Migration Pathway

Source	Assigned value
(a) None of the following present: (1) maintained engineered cover, or (2) functioning and maintained run-on control system and runoff management system, or (3) functioning leachate collection and removal system immediately above liner	10
(b) Any one of the three items in (a) present	9
c) Any two of the items in (a) present	7
(d) All three items in (a) present plus a functioning ground water monitoring system	5
(e) All items in (d) present, plus no bulk or non-containerized liquids nor materials containing free liquids deposited in source area.	3
No evidence of hazardous substance migration from source area, double liner with functioning leachate collection and removal system above and between liners, functioning ground water monitoring system, and:	
(f) Only one of the following deficiencies present in containment: (1) bulk or noncontainerized liquids or materials containing free liquids deposited in source area, or (2) no or nonfunctioning or nonmaintained run-on control system and runoff management system, or (3) no or nonmaintained engineered cover.	3
(g) None of the deficiencies in (f) present	0
Source area inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate is generated, liquids or materials containing free liquids not deposited in source area, and functioning and maintained run-on control present.	0
Surface Impoundment	
Evidence of hazardous substance migration from surface impoundment	10
No liner	10
Free liquids present with either no diking, unsound diking, or diking that is not regularly inspected and maintained	10
No evidence of hazardous substance migration from surface impoundment, free liquids present, sound diking that is regularly inspected and maintained, adequate freeboard, and.	
(a) Liner	9
(b) Liner with functioning leachate collection and removal system below liner, and functioning ground water monitoring system	5
(c) Double liner with functioning leachate collection and removal system between liners, and functioning ground water monitoring system	3
No evidence of hazardous substance migration from surface impoundment and all free liquids eliminated at closure (either by removal of liquids or solidification of remaining wastes and waste residues)	Evaluate using All sources criteria (with no bulk or free liquid deposited).
Land Treatment	
Evidence of hazardous substance migration from land treatment zone	10
No functioning, maintained, run-on control and runoff management system	10
No evidence of hazardous substance migration from land treatment zone and: .	
(a) Functioning and maintained run-on control and runoff management system	7
(b) Functioning and maintained run-on control and runoff management system, and vegetative cover established over entire land treatment area	5
(c) Land treatment area maintained in compliance with 40 CFR 264.280	0
Containers	
All containers buried	Evaluate using All sources criteria.
Evidence of hazardous substance migration from container area (i.e., container area includes containers and any associated containment structures)	10
No liner (or no essentially impervious base) under container area	10
No diking (or no similar structure) surrounding container area	10
Diking surrounding container area unsound or not regularly inspected and maintained	10
No evidence of hazardous substance migration from container area, container area surrounded by sound diking that is regularly inspected and maintained, and:	
(a) Liner (or essentially impervious base) under container area	9
(b) Essentially impervious base under container area with liquids collection and removal system	7

Table 3-2.—Containment Factor Values for Ground Water Migration Pathway

Source	Assigned value
(c) Containment system includes essentially impervious base, liquids collection system, sufficient capacity to contain 10 percent of volume of all containers, and functioning and maintained run-on control; plus functioning ground water monitoring system, and spilled or leaked hazardous substances and accumulated precipitation removed in timely manner to prevent overflow of collection system, at least weekly inspection of containers, hazardous substances in leaking or deteriorating containers transferred to containers in good condition, and containers sealed except when waste is added or removed ..	5
(d) Free liquids present, containment system has sufficient capacity to hold total volume of all containers and to provide adequate freeboard, single liner under container area with functioning leachate collection and removal system below liner, and functioning ground water monitoring system	5
(e) Same as (d) except: double liner 3 under container area with functioning leachate collection and removal system between liners	
Containers inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate would be generated from any unsealed or ruptured containers, liquids or materials containing free liquids not deposited in any container, and functioning and maintained run-off control present	0
No evidence of hazardous substance migration from container area, containers leaking, and all free liquids eliminated at closure (either by removal of liquid or solidification of remaining wastes and waste residues)	Evaluate using All sources criteria (with no bulk or free liquid deposited).
Tank	
Below-ground tank	Evaluate using All sources criteria.
Evidence of hazardous substance migration from tank area (i.e., tank area includes tank, ancillary equipment such as piping, and any associated containment structures).....	10
Tank and ancillary equipment not provided with secondary containment (e.g., liner under tank area, vault system, double wall).....	10
No diking (or no similar structure) surrounding tank and ancillary equipment...	10
Diking surrounding tank and ancillary equipment unsound or not regularly inspected and maintained	10
No evidence of hazardous substance migration from tank area, tank and ancillary equipment surrounded by sound diking that is regularly inspected and maintained, and:	
(a) Tank and ancillary equipment provided with secondary containment.....	9
(b) Tank and ancillary equipment provided with secondary containment with leak detection and collection system	7
(c) Tank and ancillary equipment provided with secondary containment system that detects and collects spilled or leaked hazardous substances and accumulated precipitation and has sufficient capacity to contain 110 percent of volume of largest tank within containment area, spilled or leaked hazardous substances and accumulated precipitation removed in timely manner, at least weekly inspection of tank and secondary containment system, all leaking or unfit-for-use tank systems promptly responded to, and functioning ground water monitoring system.....	5
(d) Containment system has sufficient capacity to hold volume of all tanks within tank containment area and to provide adequate freeboard, single liner under that containment area with functioning leachate collection and removal system below liner, and functioning ground water monitoring system	5
(e) Same as (d) except: double liner under tank containment area with functioning leachate collection and removal system between liners.....	3
Tank is above ground, and inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate would be generated from any material released from tank, liquids or materials containing free liquids not deposited in any tank, and functioning and maintained run-on control present	0

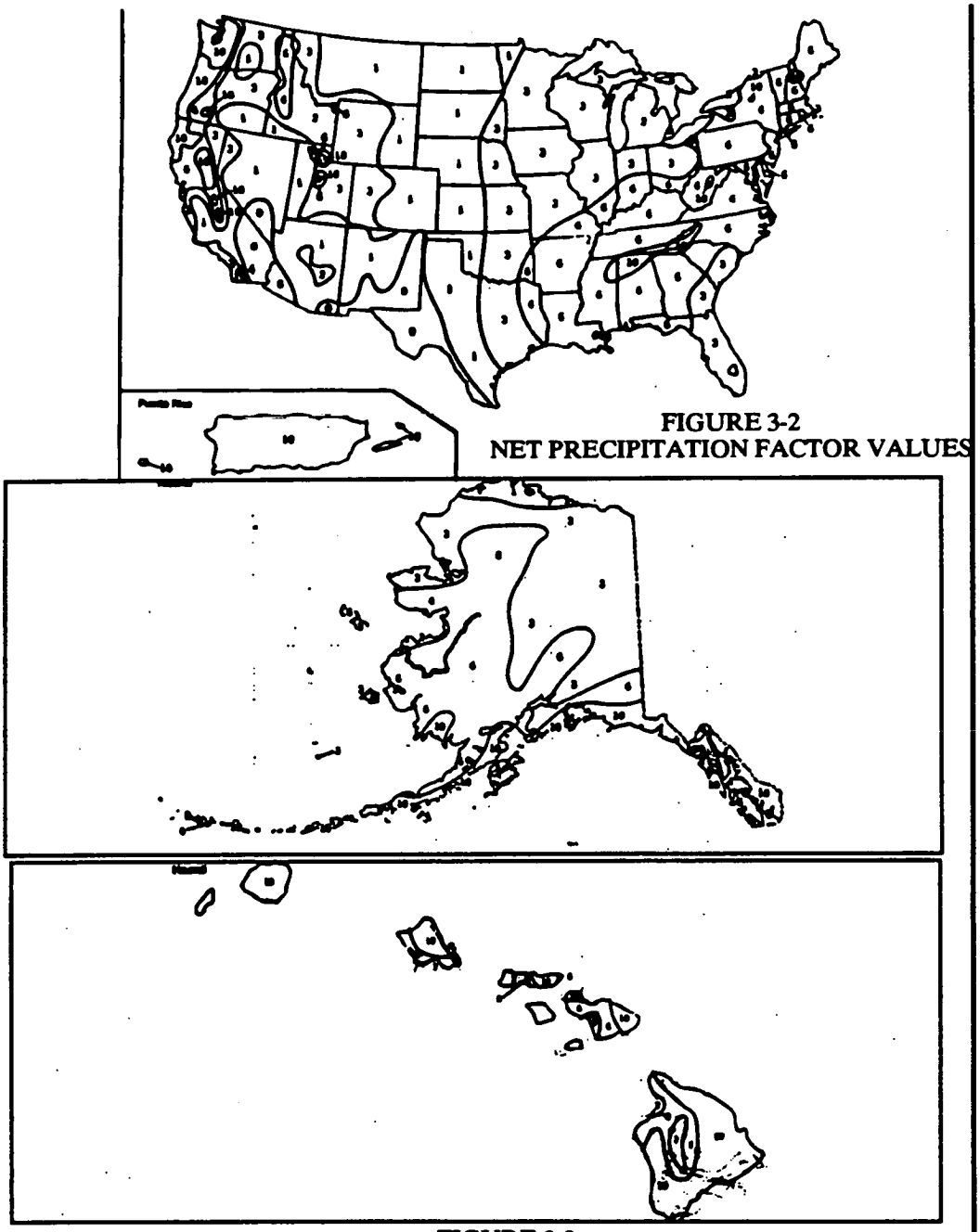


FIGURE 3-2
NET PRECIPITATION FACTOR VALUES

FIGURE 3-2
NET PRECIPITATION FACTOR VALUES
(CONCLUDED)

– When measured monthly evapotranspiration is not available, calculate monthly potential evapotranspiration (E_i) as follows:

$$E_i = 0.6\, F_i\, (10\, T_i/I)^a$$

where:

E_i = Monthly potential evapotranspiration (inches) for month i.

F_i = Monthly latitude adjusting value for month i.

T_i = Mean monthly temperature (°C) for month i.

$$I = \sum_{i=1}^{12} (T_i/5)^{1.514}$$

$a = 6.75 \times 10^{-7} I^3 - 7.71 \times 10^{-5} I^2 + 1.79 \times 10^{-2} I + 0.49239$

Select the latitude adjusting value for each month from Table 3-3. For latitudes lower than 50° North or 20° South, determine the monthly latitude adjusting value by interpolation.

- Calculate monthly net precipitation by subtracting monthly evapotranspiration (or monthly potential evapotranspiration) from monthly precipitation. If evapotranspiration (or potential evapotranspiration) exceeds precipitation for a month, assign that month a net precipitation value of 0.
- Calculate the annual net precipitation by summing the monthly net precipitation values.
- Based on the annual net precipitation, assign a net precipitation factor value from Table 3-4.

Enter the value assigned from Figure 3-2 or from Table 3-4, as appropriate, in Table 3-1.

Table 3-3.—Monthly Latitude Adjusting Values[a]

Latitude[b] (degrees)	Month											
	Jan	Feb.	March	April	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
≥ 50 N	0.74	0.78	1.02	1.15	1.33	1.36	1.37	1.25	1.06	0.92	0.76	0.70
45 N	0.80	0.81	1.02	1.13	1.28	1.29	1.31	1.21	1.04	0.94	0.79	0.75
40 N	0.84	0.83	1.03	1.11	1.24	1.25	1.27	1.18	1.04	0.96	0.83	0.81
35 N	0.87	0.85	1.03	1.09	1.21	1.21	1.23	1.16	1.03	0.97	0.89	0.85
30 N	0.90	0.87	1.03	1.08	1.18	1.17	1.20	1.14	1.03	0.98	0.89	0.88
20 N	0.95	0.90	1.03	1.05	1.13	1.11	1.14	1.11	1.02	1.00	0.93	0.94
10 N	1.00	0.91	1.03	1.03	1.08	1.06	1.08	1.07	1.02	1.02	0.98	0.99
0	1.04	0.94	1.04	1.01	1.04	1.01	1.04	1.04	1.01	1.04	1.01	1.04
10 S	1.08	0.97	1.05	0.99	1.00	0.96	1.00	1.02	1.00	1.06	1.05	1.09
20 S	1.14	0.99	1.05	0.97	0.96	0.91	0.95	0.99	1.00	1.08	1.09	1.15

[a] Do not round to nearest integer.

[b] For unlisted latitudes lower than 50° North or 20° South, determine the latitude adjusting value by interpolation.

Table 3-4.—Net Precipitation Factor Values

Net precipitation (inches)	Assigned value
0	0
Greater than 0 to 5	1
Greater than 5 to 15	3
Greater than 15 to 30	6
Greater than 30	10

3.1.2.3 *Depth to aquifer.* Evaluate depth to aquifer by determining the depth from the lowest known point of hazardous substances at a site to the top of the aquifer being evaluated, considering all layers in that interval. Measure the depth to an aquifer as the distance from the surface to the top of the aquifer minus the distance from the surface to the lowest known point of hazardous substances eligible to be evaluated for that aquifer. In evaluating depth to aquifer in karst terrain, assign a thickness of 0 feet to a karst aquifer that underlies any portion of the sources at the site. Based on the calculated depth, assign a value from Table 3-5 to the depth to aquifer factor.

Determine the depth to aquifer only at locations within 2 miles of the sources at the site, except: if observed ground water contamination attributable to sources at the site extends more than 2 miles beyond these sources, use any location within the limits of this observed ground water contamination when evaluating the depth to aquifer factor for any aquifer that does not have an observed release. If the necessary geologic information is available at multiple locations, calculate the depth to aquifer at each location. Use the location having the smallest depth to assign the factor value. Enter this value in Table 3-1.

Table 3-5.—Depth to Aquifer Factor Values

Depth to aquifer[a] (feet)	Assigned value
Less than or equal to 25	5
Greater than 25 to 250	3
Greater than 250	1

[a] Use depth of all layers between the hazardous substances and aquifer. Assign a thickness of 0 feet to any karst aquifer that underlies any portion of the sources at the site.

3.1.2.4 *Travel time.* Evaluate the travel time factor based on the geologic materials in the interval between the lowest known point of hazardous substances at the site and the top of the aquifer being evaluated. Assign a value to the travel time factor as follows:

- If the depth to aquifer (see section 3.1.2.3) is 10 feet or less, assign a value of 35.
- If, for the interval being evaluated, all layers that underlie a portion of the sources at the site are karst, assign a value of 35.
- Otherwise:
  - Select the lowest hydraulic conductivity layer(s) from within the above interval. Consider only layers at least 3 feet thick. However, do not consider layers or portions of layers within the first 10 feet of the depth to the aquifer.
  - Determine hydraulic conductivities for individual layers from Table 3-6 or from in-situ or laboratory tests. Use representative, measured, hydraulic conductivity values whenever available.
  - If more than one layer has the same lowest hydraulic conductivity, include all such layers and sum their thicknesses. Assign a thickness of 0 feet to a karst layer that underlies any portion of the sources at the site.
  - Assign a value from Table 3-7 to the travel time factor, based on the thickness and hydraulic conductivity of the lowest hydraulic conductivity layer(s).

Table 3-6.—Hydraulic Conductivity of Geologic Materials

Type of material	Assisgned hydraulic conductivity [a] (cm/sec)
Clay; low permeability till (compact unfractured till); shale; unfractured metamorphic and igneous rocks	10^{-8}
Silt; loesses; silty clays; sediments that are predominantly silts; moderately permeable till (fine-grained, unconsolidated till, or compact till with some fractures); low permeability limestones and dolomites (no karst); low permeability sandstone; low permeability fractured igneous and metamorphic rocks	10^{-6}
Sands; sandy silts; sediments that are predominantly sand; highly permeable till (coarse-grained, unconsolidated or compact and highly fractured); peat; moderately permeable limestones and dolomites (no karst); moderately permeable sandstone; moderately permeable fractured igneous and metamorphic rocks	10^{-4}
Gravel; clean sand; highly permeable fractured igneous and metamorphic rocks; permeable basalt; karst limestones and dolomites	10^{-2}

[a] Do not round to nearest integer.

Table 3-7.—Travel Time Factor Values [a]

Hydraulic conductivity (cm/sec)	Thickness of lowest hydraulic conductivity layer(s)b (feet)			
	Greater than 3 to 5	Greater than 5 to 100	Greater than 100 to 500	Greater than 500
Greater than or equal to 10^{-3}	35	35	35	25
Less than 10^{-3} to 10^{-5}	35	25	15	15
Less than 10^{-5} to 10^{-7}	15	15	5	5
Less than 10^{-7}	5	5	1	1

[a] If depth to aquifer is 10 feet or less or if, for the interval being evaluated, all layers that underlie a portion of the sources at the site are karst, assign a value of 35.

[b] Consider only layers at least 3 feet thick. Do not consider layers or portions of layers within the first 10 feet of the depth to the aquifer.

Determine travel time only at locations within 2 miles of the sources at the site, except: if observed ground water contamination attributable to sources at the site extends more than 2 miles beyond these sources, use any location within the limits of this observed ground water contamination when evaluating the travel time factor for any aquifer that does not have an observed release. If the necessary subsurface geologic information is available at multiple locations, evaluate the travel time factor at each location. Use the location having the highest travel time factor value to assign the factor value for the aquifer. Enter this value in Table 3-1.

3.1.2.5 *Calculation of potential to release factor value*. Sum the factor values for net precipitation, depth to aquifer, and travel time, and multiply this sum by the factor value for containment. Assign this product as the potential to release factor value for the aquifer. Enter this value in Table 3-1.

3.1.3 *Calculation of likelihood of release factor category value*. If an observed release is established for an aquifer, assign the observed release factor value of 550 as the likelihood of release factor category value for that aquifer. Otherwise, assign the potential to release factor value for that aquifer as the likelihood of release value. Enter the value assigned in Table 3-1.

3.2 *Waste characteristics*. Evaluate the waste characteristics factor category for an aquifer based on two factors: toxicity/mobility and hazardous waste quantity. Evaluate only those hazardous substances available to migrate from the sources at the site to ground water. Such hazardous substances include:

- Hazardous substances that meet the criteria for an observed release to ground water.
- All hazardous substances associated with a source that has a ground water containment factor value greater than 0 (see sections 2.2.2, 2.2.3, and 3.1.2.1).

3.2.1 *Toxicity/mobility*. For each hazardous substance, assign a toxicity factor value, a mobility factor value, and a combined toxicity/mobility factor value as specified in the following sections. Select the toxicity/mobility factor value for the aquifer being evaluated as specified in section 3.2.1.3.

3.2.1.1 *Toxicity*. Assign a toxicity factor value to each hazardous substance as specified in Section 2.4.1.1.

3.2.1.2 *Mobility*. Assign a mobility factor value to each hazardous substance for the aquifer being evaluated as follows:

- For any hazardous substance that meets the criteria for an observed release by chemical analysis to one or more aquifers underlying the sources at the site, regardless of the aquifer being evaluated, assign a mobility factor value of 1.
- For any hazardous substance that does not meet the criteria for an observed release by chemical analysis to at least one of the aquifers, assign that hazardous substance a mobility factor value from Table 3-8 for the aquifer being evaluated, based on its water solubility and distribution coefficient (K_d).
- If the hazardous substance cannot be assigned a mobility factor value because data on its water solubility or distribution coefficient are not available, use other hazardous substances for which information is available in evaluating the pathway.

Table 3-8.—Ground Water Mobility Factor Values [a]

Water solubility (mg/l)	Distribution coefficient (K_d) (ml/g)			
	Karst [c]	≤ 10	> 10 to 1,000	> 1,000
Present as liquid [b]	1	1	0.01	0.0001
Greater than 100	1	1	0.01	0.0001
Greater than 1 to 100	0.2	0.2	0.002	$2x10^{-5}$
Greater than 0.01 to 1	0.002	0.002	$2x10^{-5}$	$2x10^{-7}$
Less than or equal to 0.01	$2x10^{-5}$	$2x10^{-5}$	$2x10^{-7}$	$2x10^{-9}$

[a] Do not round to nearest integer.

[b] Use if the hazardous substance is present or deposited as a liquid.

[c] Use if the entire interval from the source to the aquifer being evaluated is karst.

- If none of the hazardous substances eligible to be evaluated can be assigned a mobility factor value, use a default value of 0.002 as the mobility factor value for all these hazardous substances.

Determine the water solubility to be used in Table 3-8 for the hazardous substance as follows (use this same water solubility for all aquifers):

- For any hazardous substance that does not meet the criteria for an observed release by chemical analysis, if the hazardous substance is present or deposited as a liquid, use the water solubility category "Present as Liquid" in Table 3-8 to assign the mobility factor value to that hazardous substance.
- Otherwise:
  - For any hazardous substance that is a metal (or metalloid) and that does not meet the criteria for an observed release by chemical analysis, establish a water solubility for the hazardous substance as follows:
    - Determine the overall range of water solubilities for compounds of this hazardous substance (consider all compounds for which adequate water solubility information is available, not just compounds identified as present at the site).
    - Calculate the geometric mean of the highest and the lowest water solubility in this range.
    - Use this geometric mean as the water solubility in assigning the hazardous substance a mobility factor value from Table 3-8.
  - For any other hazardous substance (either organic or inorganic) that does not meet the criteria for an observed release by chemical analysis, use the water solubility of that hazardous substance to assign a mobility factor value from Table 3-8 to the hazardous substance.

For the aquifer being evaluated, determine the distribution coefficient to be used in Table 3-8 for the hazardous substance as follows:

- For any hazardous substance that does not meet the criteria for an observed release by chemical analysis, if the entire interval from a source at the site to the aquifer being evaluated is karst, use the distribution coefficient category "Karst" in Table 3-8 in assigning the mobility factor value for that hazardous substance for that aquifer.
- Otherwise:
  - For any hazardous substance that is a metal (or metalloid) and that does not meet the criteria for an observed release by chemical analysis, use the distribution coefficient for the metal or (metalloid) to assign a mobility factor value from Table 3-8 for that hazardous substance.
  - For any other inorganic hazardous substance that does not meet the criteria for an observed release by chemical analysis, use the distribution coefficient for that inorganic hazardous substance, if available, to assign a mobility factor value from Table 3-8. If the distribution coefficient is not available, use a default value of "less than 10" as the distribution coefficient, except: for asbestos use a default value of "greater than 1,000" as the distribution coefficient.
  - For any hazardous substance that is organic and that does not meet the criteria for an observed release by chemical analysis, establish a distribution coefficient for that hazardous substance as follows:
    - Estimate the Kd range for the hazardous substance using the following equation:

$$K_d = (K_{oc})(f_s)$$

where:

K_{oc} = Soil-water partition coefficient for organic carbon for the hazardous substance.

f_s = Sorbent content (fraction of clays plus organic carbon) in the subsurface.

- Use f_s values of 0.03 and 0.77 in the above equation to establish the upper and lower

values of the K_d range for the hazardous substance.
- Calculate the geometric mean of the upper and lower K_d range values.

Use this geometric mean as the distribution coefficient in assigning the hazardous substance a mobility factor value from Table 3-8.

3.2.1.3 *Calculation of toxicity/mobility factor value.* Assign each hazardous substance a toxicity/mobility factor value from Table 3-9, based on the values assigned to the hazardous substance for the toxicity and mobility factors. Use the hazardous substance with the highest toxicity/mobility factor value for the aquifer being evaluated to assign the value to the toxicity/mobility factor for that aquifer. Enter this value in Table 3-1.

Table 3-9.—Toxicity/Mobility Factor Values [a]

Mobility factor value	Toxicity factor value					
	10,000	1,000	100	10	1	0
1.0	10,000	1,000	100	10	1	0
0.2	2,000	200	20	2	0.2	0
0.01	100	10	1	0.1	0.01	0
0.002	20	2	0.2	0.02	0.002	0
0.0001	1	0.1	0.01	0.001	$1x10^{-4}$	0
$2x10^{-5}$	0.2	0.02	0.002	$2x10^{-4}$	$2x10^{-5}$	0
$2x10^{-7}$	0.002	$2x10^{-4}$	$2x10^{-5}$	$2x10^{-6}$	$2x10^{-7}$	0
$2x10^{-9}$	$2x10^{-5}$	$2x10^{-6}$	$2x10^{-7}$	$2x10^{-8}$	$2x10^{-9}$	0

[a] Do not round to nearest integer.

3.2.2 *Hazardous waste quantity.* Assign a hazardous waste quantity factor value for the ground water pathway (or aquifer) as specified in section 2.4.2. Enter this value in Table 3-1.

3.2.3 *Calculation of waste characteristics factor category value.* Multiply the toxicity/mobility and hazardous waste quantity factor values, subject to a maximum product of $1x10^8$. Based on this product, assign a value from Table 2-7 (section 2.4.3.1) to the waste characteristics factor category. Enter this value in Table 3-1.

3.3 *Targets.* Evaluate the targets factor category for an aquifer based on four factors: nearest well, population, resources, and Wellhead Protection Area. Evaluate these four factors based on targets within the target distance limit specified in section 3.0.1.1 and the aquifer boundaries specified in section 3.0.1.2. Determine the targets to be included in evaluating these factors for an aquifer as specified in section 3.0.

3.3.1 *Nearest well.* In evaluating the nearest well factor, include both the drinking water wells drawing from the aquifer being evaluated and those drawing from overlying aquifers as specified in section 3.0. Include standby wells in evaluating this factor only if they are used for drinking water supply at least once every year.

If there is an observed release by direct observation for a drinking water well within the target distance limit, assign Level II concentrations to that well. However, if one or more samples meet the criteria for an observed release for that well, determine if that well is subject to Level I or Level II concentrations as specified in sections 2.5.1 and 2.5.2. Use the health-based benchmarks from Table 3-10 in determining the level of contamination.

Assign a value for the nearest well factor as follows:
- If one or more drinking water wells is subject to Level I concentrations, assign a value of 50.
- If not, but if one or more drinking water wells is subject to Level II concentrations, assign a value of 45.
- If none of the drinking water wells is subject to Level I or Level II concentrations, assign a value as follows:
  - If one of the target aquifers is a karst aquifer that underlies any portion of the sources at the site and any well draws drinking water from this karst aquifer within the target distance limit, assign a value of 20.

– If not, determine the shortest distance to any drinking water well, as measured from any source at the site with a ground water containment factor value greater than 0. Select a value from Table 3-11 based on this distance. Assign it as the value for the nearest well factor.

Enter the value assigned to the nearest well factor in Table 3-1.

Table 3-10.—Health-Based Benchmarks for Hazardous Substances in Drinking Water

- Concentration corresponding to Maximum Contaminant Level (MCL).
- Concentration corresponding to a nonzero Maximum Contaminant Level Goal (MCLG).
- Screening concentration for cancer corresponding to that concentration that corresponds to the 10^{-6} individual cancer risk for oral exposures.
- Screening concentration for noncancer toxicological responses corresponding to the Reference Dose (RfD) for oral exposures.

Table 3-11.—Nearest Well Factor Values

Distance from source (miles)	Assigned value
Level I concentrations[a]	50
Level II concentrations[a]	45
0 to 1/4	20
Greater than 1/4 to 1/2	18
Greater than 1/2 to 1	9
Greater than 1 to 2	5
Greater than 2 to 3	3
Greater than 3 to 4	2
Greater than 4	0

[a]Distance does not apply.

3.3.2 *Population.* In evaluating the population factor, include those persons served by drinking water wells within the target distance limit specified in section 3.0.1.1. For the aquifer being evaluated, count those persons served by wells in that aquifer and those persons served by wells in overlying aquifers as specified in section 3.0. Include residents, students, and workers who regularly use the water. Exclude transient populations such as customers and travelers passing through the area. Evaluate the population based on the location of the water supply wells, not on the location of residences, work places, etc. When a standby well is maintained on a regular basis so that water can be withdrawn, include it in evaluating the population factor.

In estimating residential population, when the estimate is based on the number of residences, multiply each residence by the average number of persons per residence for the county in which the residence is located.

In determining the population served by a well, if the water from the well is blended with other water (for example, water from other ground water wells or surface water intakes), apportion the total population regularly served by the blended system to the well based on the well's relative contribution to the total blended system. In estimating the well's relative contribution, assume each well and intake contributes equally and apportion the population accordingly, except: if the relative contribution of any one well or intake exceeds 40 percent based on average annual pumpage or capacity, estimate the relative contribution of the wells and intakes considering the following data, if available:

- Average annual pumpage from the ground water wells and surface water intakes in the blended system.
- Capacities of the wells and intakes in the blended system.

For systems with standby ground water wells or standby surface water intakes, apportion the total population regularly served by the blended system as described above, except:

- Exclude standby surface water intakes in apportioning the population.
- When using pumpage data for a standby ground water well, use average pumpage for the period during which the standby well is used rather than average annual pumpage.
- For that portion of the total population that could be apportioned to a standby ground water well, assign that portion of the population either to that standby well or to the other ground water well(s) and surface water intake(s) that serve that population; do not assign that portion of the population both to the standby well and to the other well(s) and intake(s) in the blended system. Use the apportioning that results in the highest population factor value. (Either include all standby well(s) or exclude some or all of the standby well(s) as appropriate to obtain this highest value.)

Note that the specific standby well(s) included or excluded and, thus, the specific apportioning may vary in evaluating different aquifers and in evaluating the surface water pathway.

3.3.2.1 *Level of contamination.* Evaluate the population served by water from a point of withdrawal based on the level of contamination for that point of withdrawal. Use the applicable factor: Level I concentrations, Level II concentrations, or potential contamination.

If no samples meet the criteria for an observed release for a point of withdrawal and there is no observed release by direct observation for that point of withdrawal, evaluate that point of withdrawal using the potential contamination factor in section 3.3.2.4. If there is an observed release by direct observation, use Level II concentrations for that point of withdrawal. However, if one or more samples meet the criteria for an observed release for the point of withdrawal, determine which factor (Level I or Level II concentrations) applies to that point of withdrawal as specified in sections 2.5.1 and 2.5.2. Use the health-based benchmarks from Table 3-10 in determining the level of contamination. Evaluate the point of withdrawal using the Level I concentrations factor in section 3.3.2.2 or the Level II concentrations factor in section 3.3.2.3, as appropriate.

For the potential contamination factor, use population ranges in evaluating the factor as specified in section 3.3.2.4. For the Level I and Level II concentrations factors, use the population estimate, not population ranges, in evaluating both factors.

3.3.2.2 *Level I concentrations.* Sum the number of people served by drinking water from points of withdrawal subject to Level I concentrations. Multiply this sum by 10. Assign this product as the value for this factor. Enter this value in Table 3-1.

3.3.2.3 *Level II concentrations.* Sum the number of people served by drinking water from points of withdrawal subject to Level II concentrations. Do not include those people already counted under the Level I concentrations factor. Assign this sum as the value for this factor. Enter this value in Table 3-1.

3.3.2.4 *Potential contamination.* Determine the number of people served by drinking water from points of withdrawal subject to potential contamination. Do not include those people already counted under the Level I and Level II concentrations factors.

Assign distance-weighted population values from Table 3-12 to this population as follows:

- Use the "Karst" portion of Table 3-12 to assign values only for that portion of the population served by points of withdrawal that draw drinking water from a karst aquifer that underlies any portion of the sources at the site.
  - For this portion of the population, determine the number of people included within each "Karst" distance category in Table 3-12.

Table 3-12.—Distance-Weighted Population Values for Potential Contamination Factor for Ground Water Migration Pathway [a]

Distance category (miles)	Number of people within the distance category [**]												
	0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,00,000	1,000,001 to 3,000,000
Other Than Karst b:													
0 to 1/4	0	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455
Greater than 1/4 to 1/2	0	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122
Greater than 1/2 to 1	0	1	5	17	52	167	523	1,669	5,224	16,684	52,239	166,835	522,385
Greater than 1 to 2	0	0.7	3	10	30	94	294	939	2,939	9,385	29,384	93,845	293,842
Greater than 2 to 3	0	0.5	2	7	21	68	212	678	2,122	6,778	21,222	67,777	212,219
Greater than 3 to 4	0	0.3	1	4	13	42	131	417	1,306	4,171	13,060	41,709	130,596
Karst c:													
0 to 1/4	0	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455
Greater than 1/4 to 1/2	0	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122
Greater than 1/2 to 1	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227
Greater than 1 to 2	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227

Table 3-12. – Distance-Weighted Population Values for Potential Contamination Factor for Ground Water Migration Pathway [a]

Distance category (miles)	Number of people within the distance category **												
	0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,00,000	1,000,001 to 3,000,000
Greater than 2 to 3.....	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227
Greater than 3 to 4.....	0	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227

[** This header applies to all remaining columns in this segment and extends to the next segment.]

[a] Round the number of people present within a distance category to nearest integer. Do not round the assigned distance-weighted population value to nearest integer.

[b] Use for all aquifers, except karst aquifers underlying any portion of the sources at the site.

[c] Use only for karst aquifers underlying any portion of the sources at the site.

  - Assign a distance-weighted population value for each distance category based on the number of people included within the distance category.
- Use the "Other Than Karst" portion of Table 3-12 for the remainder of the population served by points of withdrawal subject to potential contamination.
  - For this portion of the population, determine the number of people included within each "Other Than Karst" distance category in Table 3-12.
  - Assign a distance-weighted population value for each distance category based on the number of people included within the distance category.

Calculate the value for the potential contamination factor (PC) as follows:

$$PC = \frac{1}{10} \sum_{i=1}^{n} (W_i + K_i)$$

where:

W_i = Distance-weighted population from "Other Than Karst" portion of Table 3-12 for distance category i.

K_i = Distance-weighted population from "Karst" portion of Table 3-12 for distance category i.

n = Number of distance categories.

If PC is less than 1, do not round it to the nearest integer; if PC is 1 or more, round to the nearest integer. Enter this value in Table 3-1.

3.3.2.5 *Calculation of population factor value.* Sum the factor values for Level I concentrations, Level II concentrations, and potential contamination. Do not round this sum to the nearest integer. Assign this sum as the population factor value for the aquifer. Enter this value in Table 3-1.

3.3.3 *Resources.* To evaluate the resources factor, select the highest value specified below that applies for the aquifer being evaluated. Assign this value as the resources factor value for the aquifer. Enter this value in Table 3-1.

Assign a resources value of 5 if water drawn from any target well for the aquifer being evaluated or overlying aquifers (as specified in section 3.0) is used for one or more of the following purposes:

- Irrigation (5-acre minimum) of commercial food crops or commercial forage crops.
- Watering of commercial livestock.
- Ingredient in commercial food preparation.
- Supply for commercial aquaculture.
- Supply for a major or designated water recreation area, excluding drinking water use.

Assign a resources value of 5 if no drinking water wells are within the target distance limit, but the water in the aquifer being evaluated or any overlying aquifers (as specified in section 3.0) is usable for drinking water purposes.

Assign a resources value of 0 if none of the above applies.

3.3.4 *Wellhead Protection Area.* Evaluate the Wellhead Protection Area factor based on Wellhead Protection Areas designated according to section 1428 of the Safe Drinking Water Act, as amended. Consider only those Wellhead Protection Areas applicable to the aquifer being evaluated or overlying aquifers (as specified in section 3.0). Select the highest value below that applies. Assign it as the value for the Wellhead Protection Area factor for the

aquifer being evaluated. Enter this value in Table 3-1.

Assign a value of 20 if either of the following criteria applies for the aquifer being evaluated or overlying aquifers:

- A source with a ground water containment factor value greater than 0 lies, either partially or fully, within or above the designated Wellhead Protection Area.
- Observed ground water contamination attributable to the sources at the site lies, either partially or fully, within the designated Wellhead Protection Area.

If neither criterion applies, assign a value of 5, if, within the target distance limit, there is a designated Wellhead Protection Area applicable to the aquifer being evaluated or overlying aquifers.

Assign a value of 0 if none of the above applies.

3.3.5 *Calculation of targets factor category value.* Sum the factor values for nearest well, population, resources, and Wellhead Protection Area. Do not round this sum to the nearest integer. Use this sum as the targets factor category value for the aquifer. Enter this value in Table 3-1.

3.4 *Ground water migration score for an aquifer.* For the aquifer being evaluated, multiply the factor category values for likelihood of release, waste characteristics, and targets, and round the product to the nearest integer. Then divide by 82,500. Assign the resulting value, subject to a maximum value of 100, as the ground water migration pathway score for the aquifer. Enter this score in Table 3-1.

3.5 *Calculation of ground water migration pathway score.* Calculate a ground water migration score for each aquifer underlying the sources at the site, as appropriate. Assign the highest ground water migration score for an aquifer as the ground water migration pathway score (S_{gw}) for the site. Enter this score in Table 3-1.

4.0 *Surface Water Migration Pathway.*

4.0.1 *Migration components.* Evaluate the surface water migration pathway based on two migration components:

- Overland/flood migration to surface water (see section 4.1).
- Ground water to surface water migration (see section 4.2).

Evaluate each component based on the same three threats: drinking water threat, human food chain threat, and environmental threat.

Score one or both components, considering their relative importance. If only one component is scored, assign its score as the surface water migration pathway score. If both components are scored, select the higher of the two scores and assign it as the surface water migration pathway score.

4.0.2 *Surface water categories.* For HRS purposes, classify surface water into four categories: rivers, lakes, oceans, and coastal tidal waters.

Rivers include:

- Perennially flowing waters from point of origin to the ocean or to coastal tidal waters, whichever comes first, and wetlands contiguous to these flowing waters.
- Aboveground portions of disappearing rivers.
- Man-made ditches only insofar as they perennially flow into other surface water.
- Intermittently flowing waters and contiguous intermittently flowing ditches only in arid or semiarid areas with less than 20 inches of mean annual precipitation.

Lakes include:

- Natural and man-made lakes (including impoundments) that lie along rivers, but excluding the Great Lakes.
- Isolated, but perennial, lakes, ponds, and wetlands.
- Static water channels or oxbow lakes contiguous to rivers.
- Small rivers, without diking, that merge into surrounding perennially inundated wetlands.
- Wetlands contiguous to water bodies defined here as lakes.

Ocean and ocean-like water bodies include:

- Ocean areas seaward from the baseline of the Territorial Sea. (This baseline represents the generalized coastline of the United States. It is parallel to the seaward limit of the Territorial Sea and other maritime limits such as the inner boundary of Federal fisheries jurisdiction and the limit of States jurisdiction under the Submerged Lands Act, as amended.)
- The Great Lakes.

- Wetlands contiguous to the Great Lakes.

Coastal tidal waters include:

- Embayments, harbors, sounds, estuaries, back bays, lagoons, wetlands, etc. seaward from mouths of rivers and landward from the baseline of the Territorial Sea.

4.1 *Overland/flood migration component.* Use the overland/flood migration component to evaluate surface water threats that result from overland migration of hazardous substances from a source at the site to surface water. Evaluate three types of threats for this component: drinking water threat, human food chain threat, and environmental threat.

4.1.1 *General considerations.*

4.1.1.1 *Definition of hazardous substance migration path for overland/flood migration component.* The hazardous substance migration path includes both the overland segment and the in-water segment that hazardous substances would take as they migrate away from sources at the site:

- Begin the overland segment at a source and proceed downgradient to the probable point of entry to surface water.
- Begin the in-water segment at this probable point of entry.
  - For rivers, continue the in-water segment in the direction of flow (including any tidal flows) for the distance established by the target distance limit (see section 4.1.1.2).
  - For lakes, oceans, coastal tidal waters, or Great Lakes, do not consider flow direction. Instead apply the target distance limit as an arc.
  - If the in-water segment includes both rivers and lakes (or oceans, coastal tidal waters, or Great Lakes), apply the target distance limit to their combined in-water segments.

For sites that consist of contaminated sediments with no identified source, the hazardous substance migration path consists solely of the in-water segment specified in section 4.1.1.2.

Consider a site to be in two or more watersheds for this component if two or more hazardous substance migration paths from the sources at the site do not reach a common point within the target distance limit. If the site is in more than one watershed, define a separate hazardous substance migration path for each watershed. Evaluate the overland/flood migration component for each watershed separately as specified in section 4.1.1.3.

4.1.1.2 *Target distance limit.* The target distance limit defines the maximum distance over which targets are considered in evaluating the site. Determine a separate target distance limit for each watershed as follows:

- If there is no observed release to surface water in the watershed or if there is an observed release only by direct observation (see section 4.1.2.1.1), begin measuring the target distance limit for the watershed at the probable point of entry to surface water and extend it for 15 miles along the surface water from that point.
- If there is an observed release from the site to the surface water in the watershed that is based on sampling, begin measuring the target distance limit for the watershed at the probable point of entry; extend the target distance limit either for 15 miles along the surface water or to the most distant sample point that meets the criteria for an observed release to that watershed, whichever is greater.

In evaluating the site, include only surface water targets (for example, intakes, fisheries, sensitive environments) that are within or contiguous to the hazardous substance migration path and located, partially or wholly, at or between the probable point of entry and the target distance limit applicable to the watershed:

- If flow within the hazardous substance migration path is reversed by tides, evaluate upstream targets only if there is documentation that the tidal run could carry substances from the site as far as those upstream targets.
- Determine whether targets within or contiguous to the hazardous substance migration path are subject to actual or potential contamination as follows:
  - If a target is located, partially or wholly, either at or between the probable point of entry and any sampling point that meets the

criteria for an observed release to the watershed or at a point that meets the criteria for an observed release by direct observation, evaluate that target as subject to actual contamination, except as otherwise specified for fisheries in section 4.1.3.3 and for wetlands in section 4.1.4.3.1.1. If the actual contamination is based on direct observation, assign Level II to the actual contamination. However, if the actual contamination is based on samples, determine whether the actual contamination is at Level I or Level II concentrations as specified in sections 4.1.2.3, 4.1.3.3, and 4.1.4.3.1.

- If a target is located, partially or wholly, within the target distance limit for the watershed, but not at or between the probable point of entry and any sampling point that meets the criteria for an observed release to the watershed, nor at a point that meets the criteria for an observed release by direct observation, evaluate it as subject to potential contamination.

For sites consisting solely of contaminated sediments with no identified source, determine the target distance limit as follows:

- If there is a clearly defined direction of flow for the surface water body (or bodies) containing the contaminated sediments, begin measuring the target distance limit at the point of observed sediment contamination that is farthest upstream (that is, at the location of the farthest available upstream sediment sample that meets the criteria for an observed release); extend the target distance limit either for 15 miles along the surface water or to the most distant downstream sample point that meets the criteria for an observed release to that watershed, whichever is greater.
- If there is no clearly defined direction of flow, begin measuring the target distance limit at the center of the area of observed sediment contamination. Extend the target distance limit as an arc either for 15 miles along the surface water or to the most distant sample point that meets the criteria for an observed release to that watershed, whichever is greater. Determine the area of observed sediment contamination based on available samples that meet the criteria for an observed release.

Note that the hazardous substance migration path for these contaminated sediment sites consists solely of the in-water segment defined by the target distance limit; there is no overland segment.

For these contaminated sediment sites, include only those targets (for example, intakes, fisheries, sensitive environments) that are within or contiguous to the hazardous substance migration path and located, wholly or partially, within the target distance limit for the site. Determine whether these targets are subject to actual or potential contamination as follows:

- If a target is located, partially or wholly, within the area of observed sediment contamination, evaluate it as subject to actual contamination, except as otherwise specified for fisheries in section 4.1.3.3 and wetlands in section 4.1.4.3.1.1.
  - If a drinking water target is subject to actual contamination, evaluate it using Level II concentrations.
  - If a human food chain target or environmental target is subject to actual contamination, evaluate it using Level I or Level II concentrations, as appropriate (see sections 4.1.3.3 and 4.1.4.3.1).
- If a target is located, partially or wholly, within the target distance limit for the watershed, but not within the area of observed sediment contamination, evaluate it as subject to potential contamination.

4.1.1.3 *Evaluation of overland/flood migration component.* Evaluate the drinking water threat, human food chain threat, and environmental threat for each watershed for this component based on three factor categories: likelihood of release, waste characteristics, and targets. Figure 4-1 indicates the factors included within each factor category for each type of threat.

Determine the overland/flood migration component score (S_{of}) for a watershed in

terms of the factor category values as follows:

$$S_{of} = \sum_{i=1}^{3} \frac{(LR_i)(WC_i)(T_i)}{SF}$$

where:

LR_i = Likelihood of release factor category value for threat i (that is, drinking water, human food chain, or environmental threat).

WC_i = Waste characteristics factor category value for threat i.

T_i = Targets factor category value for threat i.

SF = Scaling factor.

Table 4-1 outlines the specific calculation procedure.

If the site is in only one watershed, assign the overland/flood migration score for that watershed as the overland/flood migration component score for the site.

If the site is in more than one watershed:

- Calculate a separate overland/flood migration component score for each watershed, using likelihood of release, waste characteristics, and targets applicable to each watershed.
- Select the highest overland/flood migration component score from the watersheds evaluated and assign it as the overland/flood migration component score for the site.

4.1.2 *Drinking water threat.* Evaluate the drinking water threat for each watershed based on three factor categories: likelihood of release, waste characteristics, and targets.

4.1.2.1 *Drinking water threat—likelihood of release.* Evaluate the likelihood of release factor category for each watershed in terms of an observed release factor or a potential to release factor.

4.1.2.1.1 *Observed release.* Establish an observed release to surface water for a watershed by demonstrating that the site has released a hazardous substance to the surface water in the watershed. Base this demonstration on either:

- Direct observation:
  - A material that contains one or more hazardous substances has been seen entering surface water through migration or is known to have entered surface water through direct deposition, or
  - A source area has been flooded at a time that hazardous substances were present, and one or more hazardous substances were in contact with the flood waters, or
  - When evidence supports the inference of a release of a material that contains one or more hazardous substances by the site to surface water, demonstrated adverse effects associated with that release may also be used to establish an observed release.
- Chemical analysis:
  - Analysis of surface water, benthic, or sediment samples indicates that the concentration of hazardous substance(s) has increased significantly above the background concentration for the site for that type of sample (see section 2.3).
    - Limit comparisons to similar types of samples and background concentrations—for example, compare surface water samples to surface water background concentrations.
    - For benthic samples, limit comparisons to essentially sessile organisms.
  - Some portion of the significant increase must be attributable to the site to establish the observed release, except: when the site itself consists of contaminated sediments with no identified source, no separate attribution is required.

If an observed release can be established for a watershed, assign an observed release factor value of 550 to that watershed, enter this value in Table 4-1, and proceed to section 4.1.2.1.3. If no observed release can be established for the watershed, assign an observed release factor value of 0 to that watershed, enter this value in Table 4-1, and proceed to section 4.1.2.1.2.

4.1.2.1.2 *Potential to release.* Evaluate potential to release only if an observed release cannot be established for the

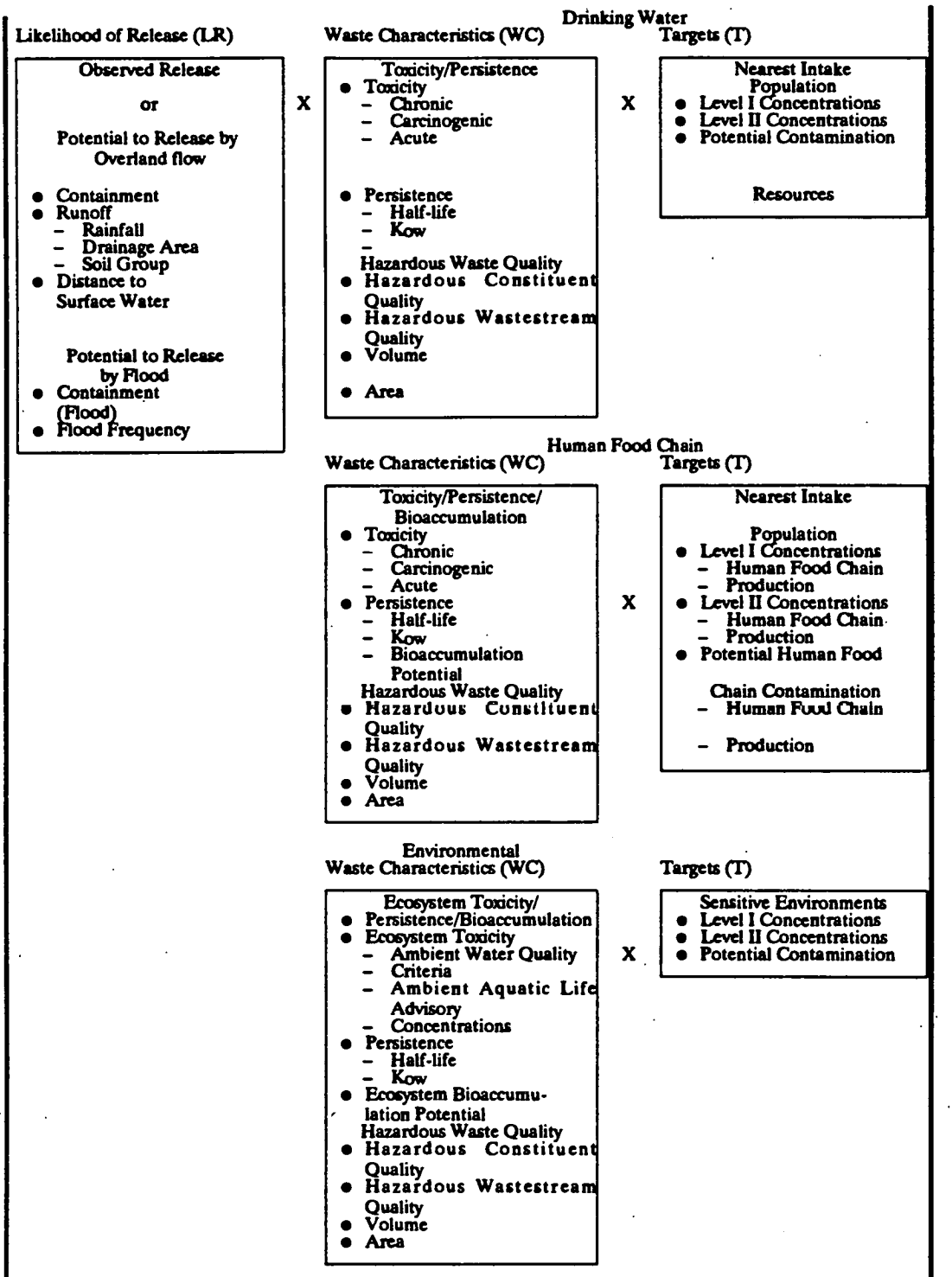


FIGURE 4-1
OVERVIEW OF SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT

Table 4-1.—Surface Water Overland/Flood Migration Component Scoresheet

Factor categories and factors	Maximum value	Value assigned
Drinking Water Threat		
Likelihood of Release:		
1. Observed Release	550	
2. Potential to Release by Overland Flow:		
2a. Containment	10	
2b. Runoff	25	
2c. Distance to Surface Water	25	
2d. Potential to Release by Overland Flow (lines 2a[2b + 2c])	500	
3. Potential to Release by Flood:		
3a. Containment (Flood)	10	
3b. Flood Frequency	50	
3c. Potential to Release by Flood (lines 3ax3b)	500	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	
5. Likelihood of Release (higher of lines 1 and 4)	550	
Waste Characteristics:		
6. Toxicity/Persistence	(a)	
7. Hazardous Waste Quantity	(a)	
8. Waste Characteristics	100	
Targets:		
9. Nearest Intake	50	
10. Population		
10a. Level I Concentrations	(b)	
10b. Level II Concentrations	(b)	
10c. Potential Contamination	(b)	
10d. Population (lines 10a + 10b + 10c)	(b)	
11. Resources	5	
12. Targets (lines 9 + 10d + 11)	(b)	
Drinking Water Threat Score:		
13. Drinking Water Threat Score ([lines 5x8x12]/82,500, subject to a maximum of 100)	100	
Human Food Chain Threat		
Likelihood of Release:		
14. Likelihood of Release (same value as line 5)	550	
Waste Characteristics:		
15. Toxicity/Persistence/Bioaccumulation	(a)	
16. Hazardous Waste Quantity	(a)	
17. Waste Characteristics	1,000	
Targets:		
18. Food Chain Individual	50	
19. Population		
19a. Level I Concentrations	(b)	
19b. Level II Concentrations	(b)	
19c. Potential Human Food Chain Contamination	(b)	
19d. Population (lines 19a + 19b + 19c)	(b)	
20. Targets (lines 18 + 19d)	(b)	
Human Food Chain Threat Score:		
21. Human Food Chain Threat Score ([lines 14x17x20]/82,500, subject to a maximum of 100)	100	
Environmental Threat		
Likelihood of Release:		
22. Likelihood of Release (same value as line 5)	550	
Waste Characteristics:		
23. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	
24. Hazardous Waste Quantity	(a)	
25. Waste Characteristics	1,000	
Targets:		
26. Sensitive Environments		
26a. Level I Concentrations	(b)	
26b. Level II Concentrations	(b)	
26c. Potential Contamination	(b)	
26d. Sensitive Environments (lines 26a + 26b + 26c)	(b)	
27. Targets (value from line 26d)	(b)	
Environmental Threat Score:		
28. Environmental Threat Score ([lines 22x25x27]/82,500, subject to a maximum of 60)	60	
Surface Water Overland/Flood Migration Component Score for a Watershed		
29. Watershed Score c (lines 13 + 21 + 28, subject to a maximum of 100)	100	
Surface Water Overland/Flood Migration Component Score		
30. Component Score (Sof) c (highest score from line 29 for all watersheds evaluated, subject to a maximum of 100)	100	

[a] Maximum value applies to waste characteristics category.

[b] Maximum value not applicable.

[c] Do not round to nearest integer.

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watershed. Evaluate potential to release based on two components: potential to release by overland flow (see section 4.1.2.1.2.1) and potential to release by flood (see section 4.1.2.1.2.2). Sum the values for these two components to obtain the potential to release factor value for the watershed, subject to a maximum value of 500.

4.1.2.1.2.1 *Potential to release by overland flow.* Evaluate potential to release by overland flow for the watershed based on three factors: containment, runoff, and distance to surface water.

Assign potential to release by overland flow a value of 0 for the watershed if:

- No overland segment of the hazardous substance migration path can be defined for the watershed, or
- The overland segment of the hazardous substance migration path for the watershed exceeds 2 miles before surface water is encountered.

If either condition applies, enter a value of 0 in Table 4-1 and proceed to section 4.1.2.1.2.2 to evaluate potential to release by flood. If neither applies, proceed to section 4.1.2.1.2.1.1 to evaluate potential to release by overland flow.

4.1.2.1.2.1.1 *Containment.* Determine the containment factor value for the watershed as follows:

- If one or more sources is located in surface water in the watershed (for example, intact sealed drums in surface water), assign the containment factor a value of 10 for the watershed. Enter this value in Table 4-1.
- If none of the sources is located in surface water in the watershed, assign a containment factor value from Table 4-2 to each source at the site that can potentially release hazardous substances to the hazardous substance migration path for this watershed. Assign the containment factor value for the watershed as follows:
  - Select the highest containment factor value assigned to those sources that meet the minimum size requirement described below. Assign this highest value as the containment factor value for the watershed. Enter this value in Table 4-1.
  - If, for this watershed, no source at the site meets the minimum size requirement, then select the highest containment factor value assigned to the sources at the site eligible to be evaluated for this watershed and assign it as the containment factor value for the watershed. Enter this value in Table 4-1.

A source meets the minimum size requirement if its source hazardous waste quantity value (see section 2.4.2.1.5) is 0.5 or more. Do not include the minimum size requirement in evaluating any other factor of this surface water migration component, except potential to release by flood as specified in section 4.1.2.1.2.2.3.

4.1.2.1.2.1.2 *Runoff.* Evaluate runoff based on three components: rainfall, drainage area, and soil group.

Table 4-2.—Containment Factor Values for Surface Water Migration Pathway

Source	Assigned value
All Sources (Except Surface Impoundments, Land Treatment, Containers, and Tanks)	
Evidence of hazardous substance migration from source area (i.e., source area includes source and any associated containment structures)	10
No evidence of hazardous substance migration from source area and:	
(a) Neither of the following present: (1) maintained engineered cover, or (2) functioning and maintained run-on control system and runoff management system	10
(b) Any one of the two items in (a) present	9
(c) Any two of the following present: (1) maintained engineered cover, or (2) functioning and maintained run-on control system and runoff management system, or (3) liner with functioning leachate collection and removal system immediately above liner	7
(d) All items in (c) present	5
(e) All items in (c) present, plus no bulk or non-containerized liquids nor materials containing free liquids deposited in source area	3
No evidence of hazardous substance migration from source area, double liner with functioning leachate collection and removal system above and between liners, and	:

Table 4-2.—Containment Factor Values for Surface Water Migration Pathway

Source	Assigned value
(f) Only one of the following deficiencies present in containment: (1) bulk or noncontainerized liquids or materials containing free liquids deposited in source area, or (2) no or nonfunctioning or nonmaintained run-on control system and runoff management system, or (3) no or nonmaintained engineered cover	3
(g) None of the deficiencies in (f) present	0
Source area inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate is generated, liquids or materials containing free liquids not deposited in source area, and functioning and maintained run-on control present	
Surface Impoundment	
Evidence of hazardous substance migration from surface impoundment	10
Free liquids present with either no diking, unsound diking, or diking that is not regularly inspected and maintained	10
No evidence of hazardous substance migration from surface impoundment, free liquids present, sound diking that is regularly inspected and maintained, adequate freeboard, and:	
(a) No liner	9
(b) Liner	7
(c) Liner with functioning leachate collection and removal system below liner	5
(d) Double liner with functioning leachate collection and removal system between liners	3
No evidence of hazardous substance migration from surface impoundment and all free liquids eliminated at closure (either by removal of liquids or solidification of remaining wastes and waste residues)	Evaluate using All Sources criteria (with no bulk or free liquids deposited).
Land Treatment	
Evidence of hazardous substance migration from land treatment zone	10
No functioning and maintained run-on control and runoff management system	10
No evidence of hazardous substance migration from land treatment zone and:	
(a) Functioning and maintained run-on control and runoff management system	7
(b) Functioning and maintained run-on control and runoff management system, and vegetative cover established over entire land treatment area	5
(c) Land treatment area maintained in compliance with 40 CFR 264.280	0
Containers	
All containers buried	Evaluate using All Sources criteria.
Evidence of hazardous substance migration from container area (i.e., container area includes containers and any associated containment structures)	10
No diking (or no similar structure) surrounding container area	10
Diking surrounding container area unsound or not regularly inspected and maintained	10
No evidence of hazardous substance migration from container area and container area surrounded by sound diking that is regularly inspected and maintained	9
No evidence of hazardous substance migration from container area, container area surrounded by sound diking that is regularly inspected and maintained, and:	9
(a) Essentially impervious base under container area with liquids collection and removal system	7
(b) Containment system includes essentially impervious base, liquids collection system, sufficient capacity to contain 10 percent of volume of all containers, and functioning and maintained run-on control; and spilled or leaked hazardous substances and accumulated precipitation removed in timely manner to prevent overflow of collection system, at least weekly inspection of containers, hazardous substances in leaking or deteriorating containers transferred to containers in good condition, and containers sealed except when waste is added or removed	5
(c) Free liquids present, containment system has sufficient capacity to hold total volume of all containers and to provide adequate freeboard, and single liner under container area with functioning leachate collection and removal system below liner	5
(d) Same as (c) except: double liner under container area with functioning leachate collection and removal system between liners	3
Containers inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate would be generated from any unsealed or ruptured containers, liquids or materials containing free liquids not deposited in any container, and functioning and maintained run-on control present	0
No evidence of hazardous substance migration from container area, containers leaking, and all free liquids eliminated at closure (either by removal of liquids or solidification of remaining wastes and waste residues)	Evaluate using All Sources criteria (with no bulk or free liquids deposited).
Tank	
Below-ground tank	Evaluate using All Sources criteria

Table 4-2.—Containment Factor Values for Surface Water Migration Pathway

Source	Assigned value
Evidence of hazardous substance migration from tank area (i.e., tank area includes tank, ancillary equipment such as piping, and any associated containment structures)	10
No diking (or no similar structure) surrounding tank and ancillary equipment	10
Diking surrounding tank and ancillary equipment unsound or not regularly inspected and maintained	10
No evidence of hazardous substance migration from tank area and tank and ancillary equipment surrounded by sound diking that is regularly inspected and maintained	9
No evidence of hazardous substance migration from tank area, tank and ancillary equipment surrounded by sound diking that is regularly inspected and maintained, and:	
(a) Tank and ancillary equipment provided with secondary containment (e.g., liner under tank area, vault system, double-wall) with leak detection and collection system	7
(b) Tank and ancillary equipment provided with secondary containment system that detects and collects spilled or leaked hazardous substances and accumulated precipitation and has sufficient capacity to contain 110 percent of volume of largest tank within containment area, spilled or leaked hazardous substances and accumulated precipitation removed in a timely manner, at least weekly inspection of tank and secondary containment system, and all leaking or unfit-for-use tank systems promptly responded to	5
(c) Containment system has sufficient capacity to hold total volume of all tanks within the tank containment area and to provide adequate freeboard, and single liner under tank containment area with functioning leachate collection and removal system below liner	5
(d) Same as (c) except: double liner under tank containment area with functioning leachate collection and removal system between liners	3
Tank is above ground, and inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate would be generated from any material released from tank, liquids or materials containing free liquids not deposited in any tank, and functioning and maintained run-on control present	0

Rainfall. Determine the 2-year, 24-hour rainfall for the site. Use site-specific, 2-year, 24-hour rainfall data if records are available for at least 20 years. If such site-specific data are not available, estimate the 2-year, 24-hour rainfall for the site from a rainfall-frequency map. Do not round the rainfall value to the nearest integer.

Drainage area. Determine the drainage area for the sources at the site. Include in this drainage area both the source areas and the area upgradient of the sources, but exclude any portion of this drainage area for which runoff is diverted from entering the sources by storm sewers or run-on control and/or runoff management systems. Assign a drainage area value for the watershed from Table 4-3.

Soil group. Based on the predominant soil group within the drainage area described above, assign a soil group designation for the watershed from Table 4-4 as follows:

- Select the predominant soil group as that type which comprises the largest total area within the applicable drainage area.
- If a predominant soil group cannot be delineated, select that soil group in the drainage area that yields the highest value for the runoff factor.

Calculation of runoff factor value. Assign a combined rainfall/runoff value for the watershed from Table 4-5, based on the 2-year, 24-hour rainfall and the soil group designation. Determine the runoff factor value for the watershed from Table 4-6, based on the rainfall/runoff and drainage area values. Enter the runoff factor value in Table 4-1.

Table 4-3.—Drainage Area Values

Drainage area (acres)	Assigned value
Less than 50	1
50 to 250	2
Greater than 250 to 1,000	3
Greater than 1,000	4

Table 4-4.—Soil Group Designations

Surface soil description	Soil group designation
Coarse-textured soils with high infiltration rates (for example, sands, loamy sands)	A

Table 4-4.—Soil Group Designations

Surface soil description	Soil group designation
Medium-textured soils with moderate infiltration rates (for example, sandy loams, loams)	B
Moderately fine-textured soils with low infiltration rates (for example, silty loams, silts, sandy clay loams)	C
Fine-textured soils with very low infiltration rates (for example, clays, sandy clays, silty clay loams, clay loams, silty clays); or impermeable surfaces (for example, pavement)	D

Table 4-5.—Rainfall/Runoff Values

2-Year, 24-hour rainfall (inches)	Soil group designation			
	A	B	C	D
Less than 1.0	0	0	2	3
1.0 to less than 1.5	0	1	2	3
1.5 to less than 2.0	0	2	3	4
2.0 to less than 2.5	1	2	3	4
2.5 to less than 3.0	2	3	4	4
3.0 to less than 3.5	2	3	4	5
3.5 or greater	3	4	5	6

Table 4-6.—Runoff Factor Values

Drainage area value	Rainfall/runoff value						
	0	1	2	3	4	5	6
1	0	0	0	1	1	1	1
2	0	0	1	1	2	3	4
3	0	0	1	3	7	11	15
4	0	1	2	7	17	25	25

4.1.2.1.2.1.3 *Distance to surface water.* Evaluate the distance to surface water as the shortest distance, along the overland segment, from any source with a surface water containment factor value greater than 0 to either the mean high water level for tidal waters or the mean water level for other surface waters. Based on this distance, assign a value from Table 4-7 to the distance to surface water factor for the watershed. Enter this value in Table 4-1.

4.1.2.1.2.1.4 *Calculation of factor value for potential to release by overland flow.* Sum the factor values for runoff and distance to surface water for the watershed and multiply this sum by the factor value for containment. Assign the resulting product as the factor value for potential to release by overland flow for the watershed. Enter this value in Table 4-1.

4.1.2.1.2.2 *Potential to release by flood.* Evaluate potential to release by flood for each watershed as the product of two factors: containment (flood) and flood frequency. Evaluate potential to release by flood separately for each source that is within the watershed. Furthermore, for each source, evaluate potential to release by flood separately for each category of floodplain in which the source lies. (See section 4.1.2.1.2.2.2 for the applicable floodplain categories.) Calculate the value for the potential to release by flood factor as specified in 4.1.2.1.2.2.3.

4.1.2.1.2.2.1 *Containment (flood).* For each source within the watershed, separately evaluate the containment (flood) factor for each category of floodplain in which the source is partially or wholly located. Assign a containment (flood) factor value from Table 4-8 to each floodplain category applicable to that source. Assign a containment (flood) factor value of 0 to each floodplain category in which the source does not lie.

4.1.2.1.2.2.2 *Flood frequency.* For each source within the watershed, separately evaluate the flood frequency factor for each category of floodplain in which the source is partially or wholly located. Assign a flood frequency factor value from Table 4-9 to each floodplain category in which the source is located.

4.1.2.1.2.2.3 *Calculation of factor value for potential to release by flood.* For each source within the watershed and for each category of floodplain in which the source is partially or wholly located, calculate a separate potential to release by flood factor value. Calculate this value as the product of the containment (flood) value and the flood frequency value applicable to the source for the floodplain category. Select the highest value calculated for those sources that meet the minimum size requirement specified in section 4.1.2.1.2.1.1 and assign it as the value for the potential to release by flood factor for the watershed. However, if, for this watershed, no source at the site meets the minimum size requirement, select the highest value calculated for the sources at the site eligible to be evaluated for this watershed and assign it as the value for this factor.

Table 4-7.—Distance to Surface Water Factor Values

Distance	Assigned value
Less than 100 feet	25
100 feet to 500 feet	20
Greater than 500 feet to 1,000 feet	16
Greater than 1,000 feet to 2,500 feet	9
Greater than 2,500 feet to 1.5 miles	6
Greater than 1.5 miles to 2 miles	3

Table 4-8.—Containment (Flood) Factor Values

Containment criteria	Assigned value
Documentation that containment at the source is designed, constructed, operated, and maintained to prevent a washout of hazardous substances by the flood being evaluated	0
Other	10

Table 4-9.—Flood Frequency Factor Values

Floodplain category	Assigned value
Source floods annually	50
Source in 10-year floodplain	50
Source in 100-year floodplain	25
Source in 500-year floodplain	7
None of above	0

Enter this highest potential to release by flood factor value for the watershed in Table 4-1, as well as the values for containment (flood) and flood frequency that yield this highest value.

4.1.2.1.2.3 *Calculation of potential to release factor value.* Sum the factor values assigned to the watershed for potential to release by overland flow and potential to release by flood. Assign this sum as the potential to release factor value for the watershed, subject to a maximum value of 500. Enter this value in Table 4-1.

4.1.2.1.3 *Calculation of drinking water threat-likelihood of release factor category value.* If an observed release is established for the watershed, assign the observed release factor value of 550 as the likelihood of release factor category value for that watershed. Otherwise, assign the potential to release factor value for that watershed as the likelihood of release factor category value for that watershed. Enter the value assigned in Table 4-1.

4.1.2.2 *Drinking water threat-waste characteristics.* Evaluate the waste characteristics factor category for each watershed based on two factors: toxicity/persistence and hazardous waste quantity. Evaluate only those hazardous substances that are available to migrate from the sources at the site to surface water in the watershed via the overland/flood hazardous substance migration path for the watershed (see section 4.1.1.1). Such hazardous substances include:

- Hazardous substances that meet the criteria for an observed release to surface water in the watershed.
- All hazardous substances associated with a source that has a surface water containment factor value greater than 0 for the watershed (see sections 2.2.2, 2.2.3, 4.1.2.1.2.1.1, and 4.1.2.1.2.2.1).

4.1.2.2.1 *Toxicity/persistence.* For each hazardous substance, assign a toxicity factor value, a persistence factor value, and a combined toxicity/persistence factor value as specified in sections 4.1.2.2.1.1 through 4.1.2.2.1.3. Select the toxicity/persistence factor value for the watershed as specified in section 4.1.2.2.1.3.

4.1.2.2.1.1 *Toxicity.* Assign a toxicity factor value to each hazardous substance as specified in section 2.4.1.1.

4.1.2.2.1.2 *Persistence.* Assign a persistence factor value to each hazardous substance. In assigning this value, evaluate persistence based primarily on the half-life of the hazardous substance in surface water and secondarily on the sorption of the hazardous substance to sediments. The half-life in surface water is defined for HRS purposes as the time required to reduce the initial concentration in surface water by one-half as a result of the combined decay processes of biodegradation, hydrolysis, photolysis, and volatilization. Sorption to sediments is evaluated for the HRS based on the logarithm of the n-octanol-water partition coefficient (log K_{ow}) of the hazardous substance.

Estimate the half-life ($t_{1/2}$) of a hazardous substance as follows:

$$t_{1/2} = \frac{1}{\frac{1}{h} + \frac{1}{b} + \frac{1}{p} + \frac{1}{v}}$$

where

h = Hydrolysis half-life.

b = Biodegradation half-life.

p = Photolysis half-life.

v = Volatilization half-life.

If one or more of these four component half-lives cannot be estimated for the hazardous substance from available data, delete that component half-life from the above equation. If none of these four component half-lives can be estimated for the hazardous substance from available data, use the default procedure indicated below. Estimate a half-life for the hazardous substance for lakes or for rivers, oceans, coastal tidal waters, and Great Lakes, as appropriate.

If a half-life can be estimated for a hazardous substance:

- Assign that hazardous substance a persistence factor value from the appropriate portion of Table 4-10 (that is lakes; or rivers, oceans, coastal tidal waters, and Great Lakes).
- Select the appropriate portion of Table 4-10 as follows:
  - If there is one or more drinking water intakes along the hazardous substance migration path for the watershed, select the nearest drinking water intake as measured from the probable point of entry. If the in-water segment between the probable point of entry and this selected intake includes both lakes and other water bodies, use the lakes portion of Table 4-10 only if more than half the distance to this selected intake lies in lake(s). Otherwise, use the rivers, oceans, coastal tidal waters, and Great Lakes portion of Table 4-10. For contaminated sediments with no identified source, use the point where measurement begins (see section 4.1.1.2) rather than the probable point of entry.
  - If there are no drinking water intakes but there are intakes or points of use for any of the resource types listed in section 4.1.2.3.3, select the nearest such intake or point of use. Select the portion of Table 4-10 based on this intake or point of use in the manner specified for drinking water intakes.
  - If there are no drinking water intakes and no specified resource intakes and points of use, but there is another type of resource listed in section 4.1.2.3.3 (for example, the water is usable for drinking water purposes even though not used), select the portion of Table 4-10 based on the nearest point of this resource in the manner specified for drinking water intakes.

Table 4-10.—Persistence Factor Values—Half-Life

Surface water category	Substance half-life (days)	Assigned value [a]
Rivers, oceans, coastal tidal waters, and Great Lakes	Less than or equal to 0.2	0.0007
	Greater than 0.2 to 0.5	0.07
	Greater than 0.5 to 1.5	0.4
	Greater than 1.5	1
Lakes	Less than or equal to 0.02	0.0007
	Greater than 0.02 to 2	0.07
	Greater than 2 to 20	0.4
	Greater than 20	1

[a] Do not round to nearest integer.

If a half-life cannot be estimated for a hazardous substance from available data, use the following default procedure to assign a persistence factor value to that hazardous substance:

- For those hazardous substances that are metals (or metalloids), assign a persistence factor value of 1 as a default for all surface water bodies.
- For other hazardous substances (both organic and inorganic), assign a persistence factor value of 0.4 as a default for rivers, oceans, coastal tidal waters, and Great Lakes, and a persistence factor value of 0.07 as a default for lakes. Select the appropriate value in the same manner specified for using Table 4-10.

Use the persistence factor value assigned based on half-life or the default procedure unless the hazardous substance can be assigned a higher factor value from

Table 4-11, based on its Log K_{ow}. If a higher value can be assigned from Table 4-11, assign this higher value as the persistence factor value for the hazardous substance.

Table 4-11.—Persistence Factor Values—Log Kow

Log Kow	Assigned value[a]
Less than 3.5	0.0007
3.5 to less than 4.0	0.07
4.0 to 4.5	0.4
Greater than 4.5	1

[a]Use for lakes, rivers, oceans, coastal tidal waters, and Great Lakes. Do not round to nearest integer.

4.1.2.2.1.3 *Calculation of toxicity/persistence factor value.* Assign each hazardous substance a toxicity/persistence factor value from Table 4-12, based on the values assigned to the hazardous substance for the toxicity and persistence factors. Use the hazardous substance with the highest toxicity/persistence factor value for the watershed to assign the toxicity/persistence factor value for the drinking water threat for the watershed. Enter this value in Table 4-1.

4.1.2.2.2 *Hazardous waste quantity.* Assign a hazardous waste quantity factor value for the watershed as specified in section 2.4.2. Enter this value in Table 4-1.

4.1.2.2.3 *Calculation of drinking water threat-waste characteristics factor category value.* Multiply the toxicity/persistence and hazardous waste quantity factor values for the watershed, subject to a maximum product of 1×10^8. Based on this product, assign a value from Table 2-7 (section 2.4.3.1) to the drinking water threat-waste characteristics factor category for the watershed. Enter this value in Table 4-1.

Table 4-12.—Toxicity/Persistence Factor Values[a]

Persistence factor value	Toxicity factor value					
	10,000	1,000	100	10	1	0
1.0	10,000	1,000	100	10	1	0
0.4	4,000	400	40	4	0.4	0
0.07	700	70	7	0.7	0.07	0
0.0007	7	0.7	0.07	0.007	0.0007	0

[a] Do not round to nearest integer.

4.1.2.3 *Drinking water threat-targets.* Evaluate the targets factor category for each watershed based on three factors: nearest intake, population, and resources.

To evaluate the nearest intake and population factors, determine whether the target surface water intakes are subject to actual or potential contamination as specified in section 4.1.1.2. Use either an observed release based on direct observation at the intake or the exposure concentrations from samples (or comparable samples) taken at or beyond the intake to make this determination (see section 4.1.2.1.1). The exposure concentrations for a sample (that is, surface water, benthic, or sediment sample) consist of the concentrations of those hazardous substances present that are significantly above background levels and attributable at least in part to the site (that is, those hazardous substance concentrations that meet the criteria for an observed release).

When an intake is subject to actual contamination, evaluate it using Level I concentrations or Level II concentrations. If the actual contamination is based on an observed release by direct observation, use Level II concentrations for that intake. However, if the actual contamination is based on an observed release from samples, determine which level applies for the intake by comparing the exposure concentrations from samples (or comparable samples) to health-based benchmarks as specified in sections 2.5.1 and 2.5.2. Use the health-based benchmarks from Table 3-10 (section 3.3.1) in determining the level of contamination from samples. For contaminated sediments with no identified source, evaluate the actual contamination using Level II concentrations (see section 4.1.1.2).

4.1.2.3.1 *Nearest intake.* Evaluate the nearest intake factor based on the drinking water intakes along the overland/flood hazardous substance migration path for the watershed. Include standby intakes in evaluating this factor only if they are used for supply at least once a year.

Assign the nearest intake factor a value as follows and enter the value in Table 4-1:

- If one or more of these drinking water intakes is subject to Level I concentrations as specified in section 4.1.2.3, assign a factor value of 50.
- If not, but if one or more of these drinking water intakes is subject to Level II concentrations, assign a factor value of 45.
- If none of these drinking water intakes is subject to Level I or Level II concentrations, determine the nearest of these drinking water intakes, as measured from the probable point of entry (or from the point where measurement begins for contaminated sediments with no identified source). Assign a dilution weight from Table 4-13 to this intake, based on the type of surface water body in which it is located. Multiply this dilution weight by 20, round the product to the nearest integer, and assign it as the factor value.

Assign the dilution weight from Table 4-13 as follows:

TABLE 4-13.—Surface Water Dilution Weights

Type of surface water body [a]		Assigned dilution weight [b]
Descriptor	Flow characteristics	
Minimal stream	Less than 10 cfs [c]	1
Small to moderate stream	10 to 100 cfs	0.1
Moderate to large stream	Greater than 100 to 1,000 cfs	0.01
Large stream to river	Greater than 1,000 to 10,000 cfs	0.001
Large river	Greater than 10,000 to 100,000 cfs	0.0001
Very large river	Greater than 100,000 cfs	0.00001
Coastal tidal waters [d]	Flow not applicable, depth not applicable	0.0001
Shallow ocean zonee or Great Lake	Flow not applicable, depth less than 20 feet	0.0001
Moderate depth ocean zone [e] or Great Lake	Flow not applicable, depth 20 to 200 feet	0.00001
Deep ocean zone [e] or Great Lake	Flow not applicable, depth greater than 200 feet.	0.000005
3-mile mixing zone in quiet flowing river	10 cfs or greater	0.5

[a] Treat each lake as a separate type of water body and assign a dilution weight as specified in text.

[b] Do not round to nearest integer.

[c] cfs = cubic feet per second.

[d] Embayments, harbors, sounds, estuaries, back bays, lagoons, wetlands, etc., seaward from mouths of rivers and landward from baseline of Territorial Sea.

[e] Seaward from baseline of Territorial Sea. This baseline represents the generalized U.S. coastline. It is parallel to the seaward limit of the Territorial Sea and other maritime limits such as the inner boundary of the Federal fisheries jurisdiction and the limit of States jurisdiction under the Submerged Lands Act, as amended.

- For a river (that is, surface water body types specified in Table 4-13 as minimal stream through very large river), assign a dilution weight based on the average annual flow in the river at the intake. If available, use the average annual discharge as defined in the U.S. Geological Survey Water Resources Data Annual Report. Otherwise, estimate the average annual flow.
- For a lake, assign a dilution weight as follows:
  - For a lake that has surface water flow entering the lake, assign a dilution weight based on the sum of the average annual flows for the surface water bodies entering the lake up to the point of the intake.
  - For a lake that has no surface water flow entering, but that does have surface water flow leaving, assign a dilution weight based on the sum of the average annual flows for the surface water bodies leaving the lake.
  - For a closed lake (that is, a lake without surface water flow entering or leaving), assign a dilution weight based on the average annual ground water flow into the lake, if available, using the dilution weight for the corresponding river flow rate in Table 4-13. If not available, assign a default dilution weight of 1.
- For the ocean and the Great Lakes, assign a dilution weight based on depth.

- For coastal tidal waters, assign a dilution weight of 0.0001; do not consider depth or flow.
- For a quiet-flowing river that has average annual flow of 10 cubic feet per second (cfs) or greater and that contains the probable point of entry to surface water, apply a zone of mixing in assigning the dilution weight:
  - Start the zone of mixing at the probable point of entry and extend it for 3 miles from the probable point of entry, except: if the surface water characteristics change to turbulent within this 3-mile distance, extend the zone of mixing only to the point at which the change occurs.
  - Assign a dilution weight of 0.5 to any intake that lies within this zone of mixing.
  - Beyond this zone of mixing, assign a dilution weight the same as for any other river (that is, assign the dilution weight based on average annual flow).
  - Treat a quiet-flowing river with an average annual flow of less than 10 cfs the same as any other river (that is, assign it a dilution weight of 1).

In those cases where water flows from a surface water body with a lower assigned dilution weight (from Table 4-13) to a surface water body with a higher assigned dilution weight (that is, water flows from a surface water body with more dilution to one with less dilution), use the lower assigned dilution weight as the dilution weight for the latter surface water body.

4.1.2.3.2 *Population*. In evaluating the population factor, include only persons served by drinking water drawn from intakes that are along the overland/flood hazardous substance migration path for the watershed and that are within the target distance limit specified in section 4.1.1.2. Include residents, students, and workers who regularly use the water. Exclude transient populations such as customers and travelers passing through the area. When a standby intake is maintained on a regular basis so that water can be withdrawn, include it in evaluating the population factor.

In estimating residential population, when the estimate is based on the number of residences, multiply each residence by the average number of persons per residence for the county in which the residence is located.

In estimating the population served by an intake, if the water from the intake is blended with other water (for example, water from other surface water intakes or ground water wells), apportion the total population regularly served by the blended system to the intake based on the intake's relative contribution to the total blended system. In estimating the intake's relative contribution, assume each well or intake contributes equally and apportion the population accordingly, except: if the relative contribution of any one intake or well exceeds 40 percent based on average annual pumpage or capacity, estimate the relative contribution of the wells and intakes considering the following data, if available:

- Average annual pumpage from the ground water wells and surface water intakes in the blended system.
- Capacities of the wells and intakes in the blended system.

For systems with standby surface water intakes or standby ground water wells, apportion the total population regularly served by the blended system as described above, except:

- Exclude standby ground water wells in apportioning the population.
- When using pumpage data for a standby surface water intake, use average pumpage for the period during which the standby intake is used rather than average annual pumpage.
- For that portion of the total population that could be apportioned to a standby surface water intake, assign that portion of the population either to that standby intake or to the other surface water intake(s) and ground water well(s) that serve that population; do not assign that portion of the population both to the standby intake and to the other intake(s) and well(s) in the blended system. Use the apportioning that results in the highest population factor value. (Either include all standby intake(s) or exclude some or all of the standby intake(s) as appropriate to obtain this highest

- Ingredient in commercial food preparation.
- Major or designated water recreation area, excluding drinking water use.

Assign a value of 5 if, within the in-water segment of the hazardous substance migration path for the watershed, the surface water is not used for drinking water, but either of the following applies:

- Any portion of the surface water is designated by a State for drinking water use under section 305(a) of the Clean Water Act, as amended.
- Any portion of the surface water is usable for drinking water purposes.

Assign a value of 0 if none of the above applies.

4.1.2.3.4 *Calculation of drinking water threat-targets factor category value.* Sum the nearest intake, population, and resources factor values for the watershed. Do not round this sum to the nearest integer. Assign this sum as the drinking water threat-targets factor category value for the watershed. Enter this value in Table 4-1.

4.1.2.4 *Calculation of the drinking water threat score for a watershed.* Multiply the drinking water threat factor category values for likelihood of release, waste characteristics, and targets for the watershed, and round the product to the nearest integer. Then divide by 82,500. Assign the resulting value, subject to a maximum of 100, as the drinking water threat score for the watershed. Enter this value in Table 4-1.

4.1.3 *Human food chain threat.* Evaluate the human food chain threat for each watershed based on three factor categories: likelihood of release, waste characteristics, and targets.

4.1.3.1 *Human food chain threat-likelihood of release.* Assign the same likelihood of release factor category value for the human food chain threat for the watershed as would be assigned in section 4.1.2.1.3 for the drinking water threat. Enter this value in Table 4-1.

4.1.3.2 *Human food chain threat-waste characteristics.* Evaluate the waste characteristics factor category for each watershed based on two factors: toxicity/persistence/bioaccumulation and hazardous waste quantity.

4.1.3.2.1 *Toxicity/persistence/bioaccumulation.* Evaluate all those hazardous substances eligible to be evaluated for toxicity/persistence in the drinking water threat for the watershed (see section 4.1.2.2).

4.1.3.2.1.1 *Toxicity.* Assign a toxicity factor value to each hazardous substance as specified in section 2.4.1.1.

4.1.3.2.1.2 *Persistence.* Assign a persistence factor value to each hazardous substance as specified for the drinking water threat (see section 4.1.2.2.1.2), except: use the predominant water category (that is, lakes; or rivers, oceans, coastal tidal waters, or Great Lakes) between the probable point of entry and the nearest fishery (not the nearest drinking water or resources intake) along the hazardous substance migration path for the watershed to determine which portion of Table 4-10 to use. Determine the predominant water category based on distance as specified in section 4.1.2.2.1.2. For contaminated sediments with no identified source, use the point where measurement begins rather than the probable point of entry.

4.1.3.2.1.3 *Bioaccumulation potential.* Use the following data hierarchy to assign a bioaccumulation potential factor value to each hazardous substance:

- Bioconcentration factor (BCF) data.
- Logarithm of the n-octanol-water partition coefficient (log K_{ow}) data.
- Water solubility data.

Assign a bioaccumulation potential factor value to each hazardous substance from Table 4-15.

If BCF data are available for any aquatic human food chain organism for the substance being evaluated, assign the bioaccumulation potential factor value to the hazardous substance as follows:

- If BCF data are available for both fresh water and salt water for the hazardous substance, use the BCF data that correspond to the type of water body (that is, fresh water or salt water) in which the fisheries are located to assign the bioaccumulation potential factor value to the hazardous substance.
- If, however, some of the fisheries being evaluated are in fresh water and some are in salt water, or if any are in brackish water, use the BCF data that yield the higher factor value to assign the bioaccumulation potential factor value to the hazardous substance.

- If BCF data are available for either fresh water or salt water, but not for both, use the available BCF data to assign the bioaccumulation potential factor value to the hazardous substance.

If BCF data are not available for the hazardous substance, use log K_{ow} data to assign a bioaccumulation potential factor value to organic substances, but not to inorganic substances. If BCF data are not available, and if either log K_{ow} data are not available, the log K_{ow} is available but exceeds 6.0, or the substance is an inorganic substance, use water solubility data to assign a bioaccumulation potential factor value.

Table 4-15.—Bioaccumulation Potential Factor Values[a]

If bioconcentration factor (BCF) data are available for any aquatic human food chain organism, assign a value as follows:[b]

BCF	Assigned value
Greater than or equal to 10,,000	50,000
1,000 to less than 10,,000	5,000
100 to less than 1,,000	500
10 to less than 100	50
1 to less than 10	5
Less than 1	0.5

If BCF data are not available, and log K_{ow} data are available and do not exceed 6.0, assign a value to an organic hazardous substance as follows (for inorganic hazardous substances, skip this step and proceed to the next):

Log K_{ow}	Assigned value
5.5 to 6.0	50,000
4.5 to less than 5.5	5,000
3.2 to less than 4.5	500
2.0 to less than 3.2	50
0.8 to less than 2.0	5
Less than 0.8	0.5

If BCF data are not available, and if either Log K_{ow} data are not available, a log K_{ow} is available but exceeds 6.0, or the substance is an inorganic substance, assign a value as follows:

Water solubility (mg/l)	Assigned value
Less than 25	50,000
25 to 500	5,000
Greater than 500 to 1,500	500
Greater than 1,500	0.5

If none of these data are available, assign a value of 0.5.

[a]Do not round to nearest integer.

[b]See text for use of freshwater and saltwater BCF data.

Do not distinguish between fresh water and salt water in assigning the bioaccumulation potential factor value based on log K_{ow} or water solubility data.

If none of these data are available, assign the hazardous substance a bioaccumulation potential factor value of 0.5.

4.1.3.2.1.4 *Calculation of toxicity/persistence/bioaccumulation factor value.* Assign each hazardous substance a toxicity/persistence factor value from Table 4-12, based on the values assigned to the hazardous substance for the toxicity and persistence factors. Then assign each hazardous substance a toxicity/persistence/bioaccumulation factor value from Table 4-16, based on the values assigned for the toxicity/persistence and bioaccumulation potential factors. Use the hazardous substance with the highest toxicity/persistence/bioaccumulation factor value for the watershed to assign the value to this factor. Enter this value in Table 4-1.

Table 4-16.—Toxicity/Persistence/Bioaccumulation Factor Values[a]

Toxicity/ Persistence Factor Value	Bioaccumulation Potential Factor Value					
	50,000	5,000	500	50	5	0.5
10,000	5×10^8	5×10^7	5×10^6	5×10^5	5×10^4	5,000
4,000	2×10^8	2×10^7	2×10^6	2×10^5	2×10^4	2,000
1,000	5×10^7	5×10^6	5×10^5	5×10^4	5,000	500
700	3.5×10^7	3.5×10^6	3.5×10^5	3.5×10^4	3,500	350
400	2×10^7	2×10^6	2×10^5	2×10^4	2,000	200
100	5×10^6	5×10^5	5×10^4	5,000	500	50
70	3.5×10^6	3.5×10^5	3.5×10^4	3,500	350	35
40	2×10^6	2×10^5	2×10^4	2,000	200	20
10	5×10^5	5×10^4	5,000	500	50	5

value.) Note that the specific standby intake(s) included or excluded and, thus, the specific apportioning may vary in evaluating different watersheds and in evaluating the ground water pathway.

4.1.2.3.2.1 *Level of contamination.* Evaluate the population factor based on three factors: Level I concentrations, Level II concentrations, and potential contamination. Determine which factor applies for an intake as specified in section 4.1.2.3. Evaluate intakes subject to Level I concentration as specified in section 4.1.2.3.2.2, intakes subject to Level II concentration as specified in section 4.1.2.3.2.3, and intakes subject to potential contamination as specified in section 4.1.2.3.2.4.

For the potential contamination factor, use population ranges in evaluating the factor as specified in section 4.1.2.3.2.4. For the Level I and Level II concentrations factors, use the population estimate, not population ranges, in evaluating both factors.

4.1.2.3.2.2 *Level I concentrations.* Sum the number of people served by drinking water from intakes subject to Level I concentrations. Multiply this sum by 10. Assign this product as the value for this factor. Enter this value in Table 4-1.

4.1.2.3.2.3 *Level II concentrations.* Sum the number of people served by drinking water from intakes subject to Level II concentrations. Do not include people already counted under the Level I concentrations factor. Assign this sum as the value for this factor. Enter this value in Table 4-1.

4.1.2.3.2.4 *Potential contamination.* For each applicable type of surface water body in Table 4-14, first determine the number of people served by drinking water from intakes subject to potential contamination in that type of surface water body. Do not include those people already counted under the Level I and Level II concentrations factors.

Table 4-14. – Dilution-Weighted Population Values for Potential Contamination Factor For Surface Water Migration Pathway[a]

Type of Surface Water Body[b]	Number of People								
	0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000
Minimal stream (< 10 cfs)	0	4	17	53	164	522	1,633	5,214	16,325
Small to moderate stream (10 to 100 cfs)	0	0.4	2	5	16	52	163	521	1,633
Moderate to large stream (> 100 to 1,000 cfs)	0	0.04	0.2	0.5	2	5	16	52	163
Large stream to river (> 1,000 to 10,000 cfs)	0	0.004	0.02	0.05	0.2	0.5	2	5	16
Large river (>10,000 to 100,000 cfs)	0	0	0.002	0.005	0.02	0.05	0.2	0.5	2
Very large river (>100,000 cfs)	0	0	0	0.001	0.002	0.005	0.02	0.05	0.2
Shallow ocean zone or Great Lake (depth (< 20 feet)	0	0	0.002	0.005	0.02	0.05	0.2	0.5	2
Moderate ocean zone or Great Lake (depth 20 to 200 feet)	0	0	0	0.001	0.002	0.005	0.02	0.05	0.2
Deep ocean zone or Great Lakes (depth >200 feet)	0	0	0	0	0.001	0.003	0.008	0.03	0.08
3-mile mixing zone in quiet flowing river (≥ 10 cfs)	0	2	9	26	82	261	817	2,607	8,163

TABLE 4-14 (Concluded)

Type of Surface Water Body[b]	Number of People				
	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	3,000,001 to 10,000,000
Minimal stream (< 10 cfs)	52,137	163,256	521,360	1,632,455	5,213,590
Small to moderate stream (10 to 100 cfs)	5,214	16,325	52,136	163,245	521,359
Moderate to large stream (> 100 to 1,000 cfs)	521	1,633	5,214	16,325	52,136
Large stream to river (> 1,000 to 10,000 cfs)	52	163	521	1,632	5,215
Large river (> 10,000 to 100,000 cfs)	5	16	52	163	521
Very large river (> 100,000 cfs)	0.5	2	5	16	52
Shallow ocean zone or Great Lake (depth < 20 feet)	5	16	52	163	521
Moderate ocean zone or Great Lake (depth 20 to 200 feet)	0.5	2	5	16	52
Deep ocean zone or Great Lakes (depth > 200 feet)	0.3	1	3	8	26
3-mile mixing zone in quiet flowing river (≥ 10 cfs)	26,068	81,623	260,680	816,227	2,606,795

[a]Round the number of people to nearest integer. Do not round the assigned dilution-weighted population value to nearest integer.

[b]Treat each lake as a separate type of water body and assign it a dilution-weighted population value using the surface water body type with the same dilution weight from Table 4-13 as the lake. If drinking water is withdrawn from coastal tidal water or the ocean, assign a dilution-weighted population value to it using the surface water body type with the same dilution weight from Table 4-13 as the coastal tidal water or the ocean zone.

For each type of surface water body, assign a dilution-weighted population value from Table 4-14, based on the number of people included for that type of surface water body. (Note that the dilution-weighted population values in Table 4-14 incorporate the dilution weights from Table 4-13. Do not multiply the values from Table 4-14 by these dilution weights.)

Calculate the value for the potential contamination factor (PC) for the watershed as follows:

$$PC = \frac{1}{10} \sum_{i=1}^{n} W_i$$

where:

W_i = Dilution-weighted population from Table 4-14 for surface water body type i.

n = Number of different surface water body types in the watershed.

If PC is less than 1, do not round it to the nearest integer; if PC is 1 or more, round to the nearest integer. Enter this value for the potential contamination factor in Table 4-1.

4.1.2.3.2.5 *Calculation of population factor value*. Sum the factor values for Level I concentrations, Level II concentrations, and potential contamination. Do not round this sum to the nearest integer. Assign this sum as the population factor value for the watershed. Enter this value in Table 4-1.

4.1.2.3.3 *Resources*. To evaluate the resources factor for the watershed, select the highest value below that applies to the watershed. Assign this value as the resources factor value for the watershed. Enter this value in Table 4-1.

Assign a value of 5 if, within the in-water segment of the hazardous substance migration path for the watershed, the surface water is used for one or more of the following purposes:

- Irrigation (5 acre minimum) of commercial food crops or commercial forage crops.
- Watering of commercial livestock.

Table 4-16. – Toxicity/Persistence/Bioaccumulation Factor Values[a]

Toxicity/ Persistence Factor Value	Bioaccumulation Potential Factor Value					
	50,000	5,000	500	50	5	0.5
7	3.5×10^5	3.5×10^4	3,500	350	35	3.5
4	2×10^5	2×10^4	2,000	200	20	2
1	5×10^4	5,000	500	50	5	0.5
0.7	3.5×10^4	3,500	350	35	3.5	0.35
0.4	2×10^4	2,000	200	20	2	0.2
0.07	3,500	350	35	3.5	0.35	0.035
0.007	350	35	3.5	0.35	0.035	0.0035
0.0007	35	3.5	0.35	0.035	0.0035	0.00035
0	0	0	0	0	0	0

[a]Do not round to nearest integer.

4.1.3.2.2 *Hazardous waste quantity.* Assign the same factor value for hazardous waste quantity for the watershed as would be assigned in section 4.1.2.2.2 for the drinking water threat. Enter this value in Table 4-1.

4.1.3.2.3 *Calculation of human food chain threat-waste characteristics factor category value.* For the hazardous substance selected for the watershed in section 4.1.3.2.1.4, use its toxicity/persistence factor value and bioaccumulation potential factor value as follows to assign a value to the waste characteristics factor category. First, multiply the toxicity/persistence factor value and the hazardous waste quantity factor value for the watershed, subject to a maximum product of 1×10^8. Then multiply this product by the bioaccumulation potential factor value for this hazardous substance, subject to a maximum product of 1×10^{12}. Based on this second product, assign a value from Table 2-7 (section 2.4.3.1) to the human food chain threat-waste characteristics factor category for the watershed. Enter this value in Table 4-1.

4.1.3.3 *Human food chain threat-targets.* Evaluate two target factors for each watershed: food chain individual and population. For both factors, determine whether the target fisheries are subject to actual or potential human food chain contamination.

Consider a fishery (or portion of a fishery) within the target distance limit of the watershed to be subject to actual human food chain contamination if any of the following apply:

- A hazardous substance having a bioaccumulation potential factor value of 500 or greater is present either in an observed release by direct observation to the watershed or in a surface water or sediment sample from the watershed at a level that meets the criteria for an observed release to the watershed from the site, and at least a portion of the fishery is within the boundaries of the observed release (that is, it is located either at the point of direct observation or at or between the probable point of entry and the most distant sampling point establishing the observed release).
- The fishery is closed, and a hazardous substance for which the fishery has been closed has been documented in an observed release to the watershed from the site, and at least a portion of the fishery is within the boundaries of the observed release.
- A hazardous substance is present in a tissue sample from an essentially sessile, benthic, human food chain organism from the watershed at a level that meets the criteria for an observed release to the watershed from the site, and at least a portion of the fishery is within the boundaries of the observed release.

For a fishery that meets any of these three criteria, but that is not wholly within the boundaries of the observed release, consider only the portion of the fishery that is within the boundaries of the observed release to be subject to actual human food

chain contamination. Consider the remainder of the fishery within the target distance limit to be subject to potential food chain contamination.

In addition, consider all other fisheries that are partially or wholly within the target distance limit for the watershed, including fisheries partially or wholly within the boundaries of an observed release for the watershed that do not meet any of the three criteria listed above, to be subject to potential human food chain contamination. If only a portion of the fishery is within the target distance limit for the watershed, include only that portion in evaluating the targets factor category.

When a fishery (or portion of a fishery) is subject to actual food chain contamination, determine the part of the fishery subject to Level I concentrations and the part subject to Level II concentrations. If the actual food chain contamination is based on direct observation, evaluate it using Level II concentrations. However, if the actual food chain contamination is based on samples from the watershed, use these samples and, if available, additional tissue samples from aquatic human food chain organisms as specified below, to determine the part subject to Level I concentrations and the part subject to Level II concentrations:

- Determine the level of actual contamination from samples (including tissue samples from essentially sessile, benthic organisms) that meet the criteria for actual food chain contamination by comparing the exposure concentrations (see section 4.1.2.3) from these samples (or comparable samples) to the health-based benchmarks from Table 4-17, as described in section 2.5.1 and 2.5.2. Use only the exposure concentrations for those hazardous substances in the sample (or comparable samples) that meet the criteria for actual contamination of the fishery.
- In addition, determine the level of actual contamination from other tissue samples by comparing the concentrations of hazardous substances in the tissue samples (or comparable tissue samples) to the health-based benchmarks from Table 4-17, as described in sections 2.5.1 and 2.5.2. Use only those additional tissue samples and only those hazardous substances in the tissue samples that meet all the following criteria:
  - The tissue sample is from a location that is within the boundaries of the actual food chain contamination for the site (that is, either at the point of direct observation or at or between the probable point of entry and the most distant sample point meeting the criteria for actual food chain contamination).
  - The tissue sample is from a species of aquatic human food chain organism that spends extended periods of time within the boundaries of the actual food chain contamination for the site and that is not an essentially sessile, benthic organism.
  - The hazardous substance is a substance that is also present in a surface water, benthic, or sediment sample from within the target distance limit for the watershed and, for such a sample, meets the criteria for actual food chain contamination.

Table 4-17.—Health-Based Benchmarks for Hazardous Substances in Human Food Chain

- Concentration corresponding to Food and Drug Administration Action Level (FDAAL) for fish or shellfish.
- Screening concentration for cancer corresponding to that concentration that corresponds to the 10^{-6} individual cancer risk for oral exposures.
- Screening concentration for noncancer toxicological responses corresponding to the Reference Dose (RfD) for oral exposures.

4.1.3.3.1 *Food chain individual.* Evaluate the food chain individual factor based on the fisheries (or portions of fisheries) within the target distance limit for the watershed. Assign this factor a value as follows:

- If any fishery (or portion of a fishery) is subject to Level I concentrations, assign a value of 50.
- If not, but if any fishery (or portion of a fishery) is subject to Level II concentrations, assign a value of 45.
- If not, but if there is an observed release of a hazardous substance having a bioaccumulation potential

factor value of 500 or greater to surface water in the watershed and there is a fishery (or portion of a fishery) present anywhere within the target distance limit, assign a value of 20.

- If there is no observed release to surface water in the watershed or there is no observed release of a hazardous substance having a bioaccumulation potential factor value of 500 or greater, but there is a fishery (or portion of a fishery) present anywhere within the target distance limit, assign a value as follows:
  - Using Table 4-13, determine the highest dilution weight (that is, lowest amount of dilution) applicable to the fisheries (or portions of fisheries) within the target distance limit. Multiply this dilution weight by 20 and round to the nearest integer.
  - Assign this calculated value as the factor value.
- If there are no fisheries (or portions of fisheries) within the target distance limit of the watershed, assign a value of 0.

Enter the value assigned in Table 4-1.

4.1.3.3.2 *Population.* Evaluate the population factor for the watershed based on three factors: Level I concentrations, Level II concentrations, and potential human food chain contamination. Determine which factor applies for a fishery (or portion of a fishery) as specified in section 4.1.3.3.

4.1.3.3.2.1 *Level I concentrations.* Determine those fisheries (or portions of fisheries) within the watershed that are subject to Level I concentrations.

Estimate the human food chain population value for each fishery (or portion of a fishery) as follows:

- Estimate human food chain production for the fishery based on the estimated annual production (in pounds) of human food chain organisms (for example, fish, shellfish) for that fishery, except: if the fishery is closed and a hazardous substance for which the fishery has been closed has been documented in an observed release to the fishery from a source at the site, use the estimated annual production for the period prior to closure of the fishery or use the estimated annual production from comparable fisheries that are not closed.
- Assign the fishery a value for human food chain population from Table 4-18, based on the estimated human food production for the fishery.
- Set boundaries between fisheries at those points where human food chain production changes or where the surface water dilution weight changes.

Sum the human food chain population value for each fishery (and portion of a fishery). Multiply this sum by 10. If the product is less than 1, do not round it to the nearest integer; if 1 or more, round to the nearest integer. Assign the resulting value as the Level I concentrations factor value. Enter this value in Table 4-1.

4.1.3.3.2.2 *Level II concentrations.* Determine those fisheries (or portions of fisheries) within the watershed that are subject to Level II concentrations. Do not include any fisheries (or portions of fisheries) already counted under the Level I concentrations factor.

Assign each fishery (or portion of a fishery) a value for human food chain population from Table 4-18, based on the estimated human food production for the fishery. Estimate the human food chain production for the fishery as specified in section 4.1.3.3.2.1.

Sum the human food chain population value for each fishery (and portion of a fishery). If this sum is less than 1, do not round it to the nearest integer; if 1 or more, round to the nearest integer. Assign the resulting value as the Level II concentrations factor value. Enter this value in Table 4-1.

Table 4-18.—Human Food Chain Population Values[a]

Human food chain production (pounds per year)	Assigned human food chain population value
0	0
Greater than 0 to 100	0.03
Greater than 100 to 1,000	0.3
Greater than 1,000 to 10,000	3
Greater than 10,000 to 100,000	31
Greater than 100,000 to 1,000,000	310
Greater than 106 to 107	3,100
Greater than 107 to 108	31,000
Greater than 108 to 109	310,000
Greater than 109	3,100,000

[a]Do not round to nearest integer.

4.1.3.3.2.3 *Potential human food chain contamination.* Determine those fisheries (or portions of fisheries) within the watershed that are subject to potential human food chain contamination. Do not include those fisheries (or portion of fisheries) already counted under the Level I or Level II concentrations factors.

Calculate the value for the potential human food chain contamination factor (PF) for the watershed as follows:

$$PF = \frac{1}{10_i} \sum_{1}^{n} P_i D_i$$

where:

P_i = Human food chain population value for fishery i.

D_i = Dilution weight from Table 4-13 for fishery i.

n = Number of fisheries subject to potential human food chain contamination.

In calculating PF:

- Estimate the human food chain population value (P_i) for a fishery (or portion of a fishery) as specified in section 4.1.3.3.2.1.
- Assign the fishery (or portion of a fishery) a dilution weight as indicated in Table 4-13 (section 4.1.2.3.1), except: do not assign a dilution weight of 0.5 for a "3-mile mixing zone in quiet flowing river"; instead assign a dilution weight based on the average annual flow.

If PF is less than 1, do not round it to the nearest integer; if PF is 1 or more, round to the nearest integer. Enter the value assigned in Table 4-1.

4.1.3.3.2.4 *Calculation of population factor value.* Sum the values for the Level I concentrations, Level II concentrations, and potential human food chain contamination factors for the watershed. Do not round this sum to the nearest integer. Assign it as the population factor value for the watershed. Enter this value in Table 4-1.

4.1.3.3.3 *Calculation of human food chain threat-targets factor category value.* Sum the food chain individual and population factor values for the watershed. Do not round this sum to the nearest integer. Assign it as the human food chain threat-targets factor category value for the watershed. Enter this value in Table 4-1.

4.1.3.4 *Calculation of human food chain threat score for a watershed.* Multiply the human food chain threat factor category values for likelihood of release, waste characteristics, and targets for the watershed, and round the product to the nearest integer. Then divide by 82,500. Assign the resulting value, subject to a maximum of 100, as the human food chain threat score for the watershed. Enter this score in Table 4-1.

4.1.4 *Environmental threat.* Evaluate the environmental threat for the watershed based on three factor categories: likelihood of release, waste characteristics, and targets.

4.1.4.1 *Environmental threat-likelihood of release.* Assign the same likelihood of release factor category value for the environmental threat for the watershed as would be assigned in section 4.1.2.1.3 for the drinking water threat. Enter this value in Table 4-1.

4.1.4.2 *Environmental threat-waste characteristics.* Evaluate the waste characteristics factor category for each watershed based on two factors: ecosystem toxicity/persistence/bioaccumulation and hazardous waste quantity.

4.1.4.2.1 *Ecosystem toxicity/persistence/bioaccumulation.* Evaluate all those hazardous substances eligible to be evaluated for toxicity/persistence in the drinking water threat for the watershed (see section 4.1.2.2).

4.1.4.2.1.1 *Ecosystem toxicity.* Assign an ecosystem toxicity factor value from Table 4-19 to each hazardous substance on the basis of the following data hierarchy:

- EPA chronic Ambient Water Quality Criterion (AWQC) for the substance.
- EPA chronic Ambient Aquatic Life Advisory Concentrations (AALAC) for the substance.
- EPA acute AWQC for the substance.
- EPA acute AALAC for the substance.
- Lowest LC_{50} value for the substance.

In assigning the ecosystem toxicity factor value to the hazardous substance:

- If either an EPA chronic AWQC or AALAC is available for the hazardous substance, use it to assign the ecosystem toxicity factor value. Use the chronic AWQC in preference

to the chronic AALAC when both are available.

- If neither is available, use the EPA acute AWQC or AALAC to assign the ecosystem toxicity factor value. Use the acute AWQC in preference to the acute AALAC.
- If none of the chronic and acute AWQCs and AALACs is available, use the lowest LC_{50} value to assign the ecosystem toxicity factor value.
- If an LC_{50} value is also not available, assign an ecosystem toxicity factor value of 0 to the hazardous substance and use other hazardous substances for which data are available in evaluating the pathway.

If an ecosystem toxicity factor value of 0 is assigned to all hazardous substances eligible to be evaluated for the watershed (that is, insufficient data are available for evaluating all the substances), use a default value of 100 as the ecosystem toxicity factor value for all these hazardous substances.

With regard to the AWQC, AALAC, or LC_{50} selected for assigning the ecosystem toxicity factor value to the hazardous substance:

- If values for the selected AWQC, AALAC, or LC_{50} are available for both fresh water and marine water for the hazardous substance, use the value that corresponds to the type of water body (that is, fresh water or salt water) in which the sensitive environments are located to assign the ecosystem toxicity factor value to the hazardous substance.
- If, however, some of the sensitive environments being evaluated are in fresh water and some are in salt water, or if any are in brackish water, use the value (fresh water or marine) that yields the higher factor value to assign the ecosystem toxicity factor value to the hazardous substance.
- If a value for the selected AWQC, AALAC, or LC_{50} is available for either fresh water or marine water, but not for both, use the available one to assign an ecosystem toxicity factor value to the hazardous substance.

Table 4-19.—Ecosystem Toxicity Factor Values

If an EPA chronic AWQC[a] or AALAC[b] is available, assign a value as follows:[c]

EPA chronic AWQC or AALAC.....	Assigned value
Less than 1 μg/l.....	10,000
1 to 10 μg/l.....	1,000
Greater than 10 to 100 μg/l, 100.....	
Greater than 100 to 1,000 μg/l.....	10
Greater than 1,000 μg/l.....	1
If neither an EPA chronic AWQC nor EPA chronic AALAC is available assign a value based on the EPA acute AWQC or AALAC as follows:[c]	+

EPA acute AWQC or AALAC.....	Assigned value
Less than 100 μg/l.....	10,000
100 to 1,000 μg/l.....	1,000
Greater than 1,000 to 10,000 μg/l.....	100
Greater than 10,000 to 100,000 μg/l.....	10
Greater than 100,000 μg/l.....	1

If neither an EPA chronic or acute AWQC nor EPA chronic or acute AALAC is available, assign a value from the LC50 as follows:

EPA acute AWQC or AALAC

LC50	Assigned value
Less than 100 μg/l.....	10,000
100 to 1,000 μg/l.....	1,000
Greater than 1,000 to 10,000 μg/l.....	100
Greater than 10,000 to 100,000 μg/l.....	10
Greater than 100,000 μg/l.....	1

If none of the AWQCs and AALACs nor the LC50 is available, assign a value of 0.

[a] AWQC—Ambient Water Quality Criteria.

[b] AALAC—Ambient Aquatic Life Advisory Concentrations.

[c] Use the AWQC value in preference to the AALAC when both are available. See text for use of fresh water and marine values.

4.1.4.2.1.2 *Persistence.* Assign a persistence factor value to each hazardous substance as specified in section 4.1.2.2.1.2, except: use the predominant water category (that is lakes; or rivers, oceans, coastal tidal waters, or Great Lakes) between the probable point of entry and the nearest sensitive environment (not the nearest drinking water or resources intake) along the hazardous substance migration path for the watershed to determine which portion of Table 4-10 to use. Determine the predominant water category based on distance as specified in section 4.1.2.2.1.2. For contaminated sediments with no identified source, use the point where

measurement begins rather than the probable point of entry.

4.1.4.2.1.3 *Ecosystem bioaccumulation potential.* Assign an ecosystem bioaccumulation potential factor value to each hazardous substance in the same manner specified for the bioaccumulation potential factor in section 4.1.3.2.1.3, except:

- Use BCF data for all aquatic organisms, not just for aquatic human food chain organisms.
- Use the BCF data that corresponds to the type of water body (that is, fresh water or salt water) in which the sensitive environments (not fisheries) are located.

4.1.4.2.1.4 *Calculation of ecosystem toxicity/persistence/bioaccumulation factor value.* Assign each hazardous substance an ecosystem toxicity/persistence factor value from Table 4-20, based on the values assigned to the hazardous substance for the ecosystem toxicity and persistence factors. Then assign each hazardous substance an ecosystem toxicity/persistence/bioaccumulation factor value from Table 4-21, based on the values assigned for the ecosystem toxicity/persistence and ecosystem bioaccumulation potential factors. Select the hazardous substance with the highest ecosystem toxicity/persistence/bioaccumulation factor value for the watershed and use it to assign the value to this factor. Enter this value in Table 4-1.

Table 4-20.—Ecosystem Toxicity/Persistence Factor Values[a]

Persistence factor value	Ecosystem toxicity factor value				
	10,000	1,000	100	10	1
1.0	10,000	1,000	100	10	1
0.4	4,000	400	40	4	0.4
0.07	700	70	7	0.7	0.07
0.0007	7	0.7	0.07	0.007	0.0007

[a]Do not round to nearest integer.

Table 4-21—Ecosystem Toxicity/Persistence/Bioaccumulation Factor Values[a]

Ecosystem Toxicity/Persistence Factor Value	Ecosystem Bioaccumulation Potential Factor Value					
	50,000	5,000	500	50	5	0.5
10,000	5×10^8	5×10^7	5×10^6	5×10^5	5×10^4	5,000
4,000	2×10^8	2×10^7	2×10^6	2×10^5	2×10^4	2,000
1,000	5×10^7	5×10^6	5×10^5	5×10^4	5,,000	500
700	3.5×10^7	3.5×10^6	3.5×10^5	3.5×10^4	3,500	350
400	2×10^7	2×10^6	2×10^5	2×10^4	2,000	200
100	5×10^6	5×10^5	5×10^4	5,000	500	50
70	3.5×10^6	3.5×10^5	3.5×10^4	3,500	350	35
40	2×10^6	2×10^5	2×10^4	2,000	200	20
10	5×10^5	5×10^4	5,000	500	50	5
7	3.5×10^5	3.5×10^4	3,500	350	35	3.5
4	2×10^5	2×10^4	2,000	200	20	2
1	5×10^4	5,000	500	50	5	0.5
0.7	3.5×10^4	3,500	350	35	3.5	0.35
0.4	2×10^4	2,000	200	20	2	0.2
0.07	3,500	350	35	3.5	0.35	0.035
0.007	350	35	3.5	0.35	0.035	0.0035
0.0007	35	3.5	0.35	0.035	0.0035	0.00035
0	0	0	0	0	0	0

[a]Do not round to nearest integer.

4.1.4.2.2 *Hazardous waste quantity.* Assign the same factor value for hazardous waste quantity for the watershed as would be assigned in section 4.1.2.2.2 for the drinking water threat. Enter this value in Table 4-1.

4.1.4.2.3 *Calculation of environmental threat-waste characteristics factor category value.* For the hazardous substance selected for the watershed in section 4.1.4.2.1.4, use its ecosystem toxicity/persistence factor value and ecosystem bioaccumulation

potential factor value as follows to assign a value to the waste characteristics factor category. First, multiply the ecosystem toxicity/persistence factor value and the hazardous waste quantity factor value for the watershed, subject to a maximum product of $1x10^8$. Then multiply this product by the ecosystem bioaccumulation potential factor value for this hazardous substance, subject to a maximum product of $1x10^{12}$. Based on this second product, assign a value from Table 2-7 (section 2.4.3.1) to the environmental threat-waste characteristics factor category for the watershed. Enter this value in Table 4-1.

Table 4-22.—Ecological-Based Benchmarks for Hazardous Substances in Surface Water

- Concentration corresponding to EPA Ambient Water Quality Criteria (AWQC) for protection of aquatic life (fresh water or marine).
- Concentration corresponding to EPA Ambient Aquatic Life Advisory Concentrations (AALAC).
- Select the appropriate AWQC and AALAC as follows:
  - Use chronic value, if available; otherwise use acute value.
  - If the sensitive environment being evaluated is in fresh water, use fresh water value, except: if no fresh water value is available, use marine value if available.
  - If the sensitive environment being evaluated is in salt water, use marine value, except: if no marine value is available, use fresh water value if available.
  - If the sensitive environment being evaluated is in both fresh water and salt water, or is in brackish water, use lower of fresh water or marine values.

Table 4-23.—Sensitive Environments Rating Values

Sensitive environment	Assigned value
Critical habitat[a] for Federal designated endangered or threatened species Marine Sanctuary National Park Designated Federal Wilderness Area Areas identified under Coastal Zone Management Act[b] Sensitive areas identified under National Estuary Program[c] or Near Coastal Waters Program[d] Critical areas identified under the Clean Lakes Program[e] National Monument[f] National Seashore Recreational Area National Lakeshore Recreational Area	100
Habitat known to be used by Federal designated or proposed endangered or threatened species National Preserve National or State Wildlife Refuge Unit of Coastal Barrier Resources System Coastal Barrier (undeveloped) Federal land designated for protection of natural ecosystems Administratively Proposed Federal Wilderness Area Spawning areas critical[g] for the maintenance of fish/shellfish species within river, lake, or coastal tidal waters Migratory pathways and feeding areas critical for maintenance of anadromous fish species within river reaches or areas in lakes or coastal tidal waters in which the fish spend extended periods of time Terrestrial areas utilized for breeding by large or dense aggregations of animals[h] National river reach designated as Recreational	75
Habitat known to be used by State designated endangered or threatened species Habitat known to be used by species under review as to its Federal endangered or threatened status Coastal Barrier (partially developed) Federal designated Scenic or Wild River	50
State land designated for wildlife or game management State designated Scenic or Wild River State designated Natural Areas Particular areas, relatively small in size, important to maintenance of unique biotic communities	25

Table 4-23. – Sensitive Environments Rating Values

Sensitive environment	Assigned value
State designated areas for protection or maintenance of aquatic life[i]	5

[a]Critical habitat as defined in 50 CFR 424.02.
[b]Areas identified in State Coastal Zone Management plans as requiring protection because of ecological value.
[c]National Estuary Program study areas (subareas within estuaries) identified in Comprehensive Conservation and Management Plans as requiring protection because they support critical life stages of key estuarine species (Section 320 of Clean Water Act, as amended).
[d]Near Coastal Waters as defined in Sections 104(b)(3), 304(1), 319, and 320 of Clean Water Act, as amended.
[e]Clean Lakes Program critical areas (subareas within lakes, or in some cases entire small lakes) identified by State Clean Lake Plans as critical habitat (Section 314 of Clean Water Act, as amended).
[f]Use only for air migration pathway.
[g]Limit to areas described as being used for intense or concentrated spawning by a given species.
[h]For the air migration pathway, limit to terrestrial vertebrate species. For the surface water migration pathway, limit to terrestrial vertebrate species with aquatic or semiaquatic foraging habits.
[i]Areas designated under Section 305(a) of Clean Water Act, as amended.

Table 4-24. – Wetlands Rating Values for Surface Water Migration Pathway

Total length of wetlands[a] (miles)	Assigned value
Less than 0.1	0
0.1 to 1	25
Greater than 1 to 2	50
Greater than 2 to 3	75
Greater than 3 to 4	100
Greater than 4 to 8	150
Greater than 8 to 12	250
Greater than 12 to 16	350
Greater than 16 to 20	450
Greater than 20	500

[a]Wetlands as defined in 40 CFR Section 230.3.

4.1.4.3 *Environmental threat-targets.* Evaluate the environmental threat-targets factor category for a watershed using one factor: sensitive environments.

4.1.4.3.1 *Sensitive environments.* Evaluate sensitive environments along the hazardous substance migration path for the watershed based on three factors: Level I concentrations, Level II concentrations, and potential contamination.

Determine which factor applies to each sensitive environment as specified in section 4.1.2.3, except: use ecological-based benchmarks (Table 4-22) rather than health-based benchmarks (Table 3-10) in determining the level of contamination from samples. In determining the level of actual contamination, use a point of direct observation anywhere within the sensitive environment or samples (that is, surface water, benthic, or sediment samples) taken anywhere within or beyond the sensitive environment (or anywhere adjacent to or beyond the sensitive environment if it is contiguous to the migration path).

4.1.4.3.1.1 *Level I concentrations.* Assign value(s) from Table 4-23 to each sensitive environment subject to Level I concentrations.

For those sensitive environments that are wetlands, assign an additional value from Table 4-24. In assigning a value from Table 4-24, include only those portions of wetlands located along the hazardous substance migration path in the area of Level I concentrations. If a wetland is located partially along the area of Level I concentrations and partially along the area of Level II concentrations and/or potential contamination, then solely for purposes of Table 4-24, count the portion(s) along the areas of Level II concentrations or potential contamination under the Level II concentrations factor (section 4.1.4.3.1.2) or potential contamination factor (section 4.1.4.3.1.3), as appropriate.

Estimate the total length of wetlands along the hazardous substance migration path (that is, wetland frontage) in the area of Level I concentrations and assign a value from Table 4-24 based on this total length. Estimate this length as follows:

- For an isolated wetland or for a wetland where the probable point of entry to surface water is in the wetland, use the perimeter of that portion of the wetland subject to Level I concentrations as the length.
- For rivers, use the length of the wetlands contiguous to the in-water segment of the hazardous substance migration path (that is, wetland frontage).
- For lakes, oceans, coastal tidal waters, and Great Lakes, use the length of the wetlands along the shoreline within the target distance

limit (that is, wetland frontage along the shoreline).

Calculate the Level I concentrations factor value (SH) for the watershed as follows:

$$SH = 10(WH + \sum_{i=1}^{n} S_i)$$

where:

WH = Value assigned from Table 4-24 to wetlands along the area of Level I concentrations.

S_i = Value(s) assigned from Table 4-23 to sensitive environment i.

n = Number of sensitive environments from Table 4-23 subject to Level I concentrations.

Enter the value assigned in Table 4-1.

4.1.4.3.1.2 *Level II concentrations.* Assign value(s) from Table 4-23 to each sensitive environment subject to Level II concentrations. Do not include sensitive environments already counted for Table 4-23 under the Level I concentrations factor for this watershed.

For those sensitive environments that are wetlands, assign an additional value from Table 4-24. In assigning a value from Table 4-24, include only those portions of wetlands located along the hazardous substance migration path in the area of Level II concentrations, as specified in section 4.1.4.3.1.1.

Estimate the total length of wetlands along the hazardous substance migration path (that is, wetland frontage) in the area of Level II concentrations and assign a value from Table 4-24 based on this total length. Estimate this length as specified in section 4.1.4.3.1.1, except: for an isolated wetland or for a wetland where the probable point of entry to surface water is in the wetland, use the perimeter of that portion of the wetland subject to Level II (not Level I) concentrations as the length.

Calculate the Level II concentrations value (SL) for the watershed as follows:

$$SL = WL + \sum_{i=1}^{n} S_i$$

where:

WL = Value assigned from Table 4-24 to wetlands along the area of Level II concentrations.

S_i = Value(s) assigned from Table 4-23 to sensitive environment i.

n = Number of sensitive environments from Table 4-23 subject to Level II concentrations.

Enter the value assigned in Table 4-1.

4.1.4.3.1.3 *Potential contamination.* Assign value(s) from Table 4-23 to each sensitive environment subject to potential contamination. Do not include sensitive environments already counted for Table 4-23 under the Level I or Level II concentrations factors.

For each type of surface water body in Table 4-13 (section 4.1.2.3.1), sum the value(s) assigned from Table 4-23 to the sensitive environments along that type of surface water body, except: do not use the surface water body type "3-mile mixing zone in quiet flowing river." If a sensitive environment is along two or more types of surface water bodies (for example, Wildlife Refuge contiguous to both a moderate stream and a large river), assign the sensitive environment only to that surface water body type having the highest dilution weight value from Table 4-13.

For those sensitive environments that are wetlands, assign an additional value from Table 4-24. In assigning a value from Table 4-24, include only those portions of wetlands located along the hazardous substance migration path in the area of potential contamination, as specified in section 4.1.4.3.1.1. Aggregate these wetlands by type of surface water body, except: do not use the surface water body type "3-mile mixing zone in quiet flowing river." Treat the wetlands aggregated within each type of surface water body as separate sensitive environments solely for purposes of applying Table 4-24. Estimate the total length of the wetlands within each surface water body type as specified in section 4.1.4.3.1.1, except: for an isolated wetland or for a wetland where the probable point of entry to surface water is in the wetland, use the perimeter of that portion of the wetland subject to potential contamination (or the portion of that perimeter that is within the target distance limit) as the length. Assign a separate value from Table 4-24 for each type of surface water body in the watershed.

Calculate the potential contamination factor value (SP) for the watershed as follows:

$$SP = \frac{1}{10} \sum_{j=1}^{m} ([W_j + S_j] D_j)$$

where:

$$S_j = \sum_{i=1}^{n} S_{ij}$$

S_{ij} = Value(s) assigned from Table 4-23 to sensitive environment i in surface water body type j.

n = Number of sensitive environments from Table 4-23 subject to potential contamination.

W_j = Value assigned from Table 4-24 for wetlands along the area of potential contamination in surface water body type j.

D_j = Dilution weight from Table 4-13 for surface water body type j.

m = Number of different surface water body types from Table 4-13 in the watershed.

If SP is less than 1, do not round it to the nearest integer; if SP is 1 or more, round to the nearest integer. Enter this value for the potential contamination factor in Table 4-1.

4.1.4.3.1.4 *Calculation of environmental threat-targets factor category value.* Sum the values for the Level I concentrations, Level II concentrations, and potential contamination factors for the watershed. Do not round this sum to the nearest integer. Assign this sum as the environmental threat-targets factor category value for the watershed. Enter this value in Table 4-1.

4.1.4.4 *Calculation of environmental threat score for a watershed.* Multiply the environmental threat factor category values for likelihood of release, waste characteristics, and targets for the watershed, and round the product to the nearest integer. Then divide by 82,500. Assign the resulting value, subject to a maximum of 60, as the environmental threat score for the watershed. Enter this score in Table 4-1.

4.1.5 *Calculation of overland/flood migration component score for a watershed.* Sum the scores for the three threats for the watershed (that is, drinking water, human food chain, and environmental threats). Assign the resulting score, subject to a maximum value of 100, as the surface water overland/flood migration component score for the watershed. Enter this score in Table 4-1.

4.1.6 *Calculation of overland/flood migration component score.* Select the highest surface water overland/flood migration component score from the watersheds evaluated. Assign this score as the surface water overland/flood migration component score for the site, subject to a maximum score of 100. Enter this score in Table 4-1.

4.2 *Ground water to surface water migration component.* Use the ground water to surface water migration component to evaluate surface water threats that result from migration of hazardous substances from a source at the site to surface water via ground water. Evaluate three types of threats for this component: drinking water threat, human food chain threat, and environmental threat.

4.2.1 *General considerations.*

4.2.1.1 *Eligible surface waters.* Calculate ground water to surface water migration component scores only for surface waters (see section 4.0.2) for which all the following conditions are met:

- A portion of the surface water is within 1 mile of one or more sources at the site having a containment factor value greater than 0 (see section 4.2.2.1.2).
- No aquifer discontinuity is established between the source and the portion of the surface water within 1 mile of the source (see section 3.0.1.2.2). However, if hazardous substances have migrated across an apparent discontinuity within this 1 mile distance, do not consider a discontinuity present in scoring the site.
- The top of the uppermost aquifer is at or above the bottom of the surface water.

Do not evaluate this component for sites consisting solely of contaminated sediments with no identified source.

4.2.1.2 *Definition of hazardous substance migration path for ground water to surface water migration component.* The hazardous substance migration path includes both the ground water segment and the surface water in-water segment that hazardous substances would take as they migrate away from sources at the site:

- Restrict the ground water segment to migration via the uppermost

aquifer between a source and the surface water.

- Begin the surface water in-water segment at the probable point of entry from the uppermost aquifer to the surface water. Identify the probable point of entry as that point of the surface water that yields the shortest straight-line distance, within the aquifer boundary (see section 3.0.1.2), from the sources at the site with a containment factor value greater than 0 to the surface water.
  - For rivers, continue the in-water segment in the direction of flow (including any tidal flows) for the distance established by the target distance limit (see section 4.2.1.4).
  - For lakes, oceans, coastal tidal waters, or Great Lakes, do not consider flow direction. Instead apply the target distance limit as an arc.
  - If the in-water segment includes both rivers and lakes (or oceans, coastal tidal waters, or Great Lakes), apply the target distance limit to their combined in-water segments.

Consider a site to be in two or more watersheds for this component if two or more hazardous substance migration paths from the sources at the site do not reach a common point within the target distance limit. If the site is in more than one watershed, define a separate hazardous substance migration path for each watershed. Evaluate the ground water to surface water migration component for each watershed separately as specified in section 4.2.1.5.

4.2.1.3 *Observed release of a specific hazardous substance to surface water in-water segment.* Section 4.2.2.1.1 specifies the criteria for assigning values to the observed release factor for the ground water to surface water migration component. With regard to an individual hazardous substance, consider an observed release of that hazardous substance to be established for the surface water in-water segment of the ground water to surface water migration component only when the hazardous substance meets the criteria both for an observed release both to ground water (see section 4.2.2.1.1) and for an observed release by chemical analysis to surface water (see section 4.1.2.1.1).

If the hazardous substance meets the section 4.1.2.1.1 criteria for an observed release by chemical analysis to surface water but does not also meet the criteria for an observed release to ground water, do not use any samples of that hazardous substance from the surface water in-water segment in evaluating the factors of this component (for example, do not use the hazardous substance in establishing targets subject to actual contamination or in determining the level of actual contamination for a target).

4.2.1.4 *Target distance limit.* Determine the target distance limit for each watershed as specified in section 4.1.1.2, except: do not extend the target distance limit to a sample location beyond 15 miles unless at least one hazardous substance in a sample from that location meets the criteria in section 4.2.1.3 for an observed release to the surface water in-water segment.

Determine the targets eligible to be evaluated for each watershed and establish whether these targets are subject to actual or potential contamination as specified in section 4.1.1.2, except: do not establish actual contamination based on a sample location unless at least one hazardous substance in a sample from that location meets the criteria in section 4.2.1.3 for an observed release to the surface water in-water segment.

4.2.1.5 *Evaluation of ground water to surface water migration component.* Evaluate the drinking water threat, human food chain threat, and environmental threat for each watershed for this component based on three factor categories: likelihood of release, waste characteristics, and targets. Figure 4-2 indicates the factors included within each factor category for each type of threat.

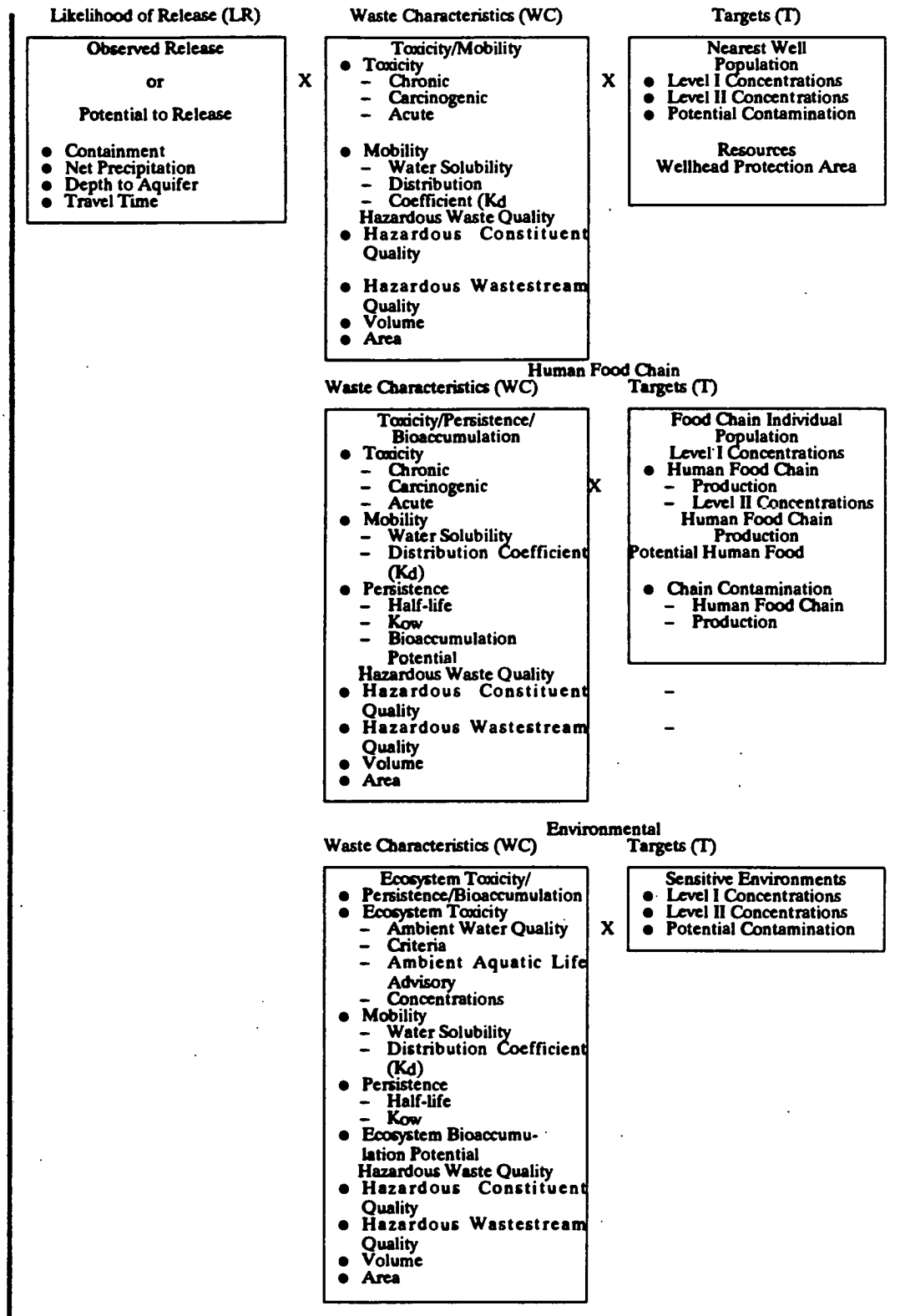


FIGURE 4-2
OVERVIEW OF GROUND WATER TO SURFACE WATER MIGRATION COMPONENT

Determine the ground water to surface water migration component score (S_{gs}) for a watershed in terms of the factor category values as follows:

$$S_{gs} = \frac{\sum_{i=1}^{n} (LR_i)(WC_i)(T_i)}{SF}$$

where:

LR_i = Likelihood of release factor category value for threat i (that is, drinking water, human food chain, or environmental threat).

WC_i = Waste characteristics factor category value for threat i.

T_i = Targets factor category value for threat i.

SF = Scaling factor.

Table 4-25 outlines the specific calculation procedure.

If the site is in only one watershed, assign the ground water to surface water migration component score for that watershed as the ground water to surface water migration component score for the site.

If the site is in more than one watershed:

- Calculate a separate ground water to surface water migration component score for each watershed, using likelihood of release, waste characteristics, and targets applicable to each watershed.
- Select the highest ground water to surface water migration component score from the watersheds evaluated and assign it as the ground water to surface water migration component score for the site.

Table 4-25. – Ground Water to Surface Water Migration Component Scoresheet

Factor categories and factors	Maximum value	Value assigned
Drinking Water Threat		
Likelihood of Release to Aquifer:		
1. Observed Release	550	—
2. Potential to Release:		
2a. Containment	10	—
2b. Net Precipitation	10	—
2c. Depth to Aquifer	5	—
2d. Travel Time	35	—
2e. Potential to Release (lines 2a[2b + 2c + 2d])	500	—
3. Likelihood of Release (higher of lines 1 and 2e)	550	—
Waste Characteristics:		
4. Toxicity/Mobility/Persistence	(a)	—
5. Hazardous Waste Quantity	(a)	—
6. Waste Characteristics	100	—
Targets:		
7. Nearest Intake	50	—
8. Population		
8a. Level I Concentrations	(b)	—
8b. Level II Concentrations	(b)	—
8c. Potential Contamination	(b)	—
8d. Population (lines 8a + 8b + 8c)		—
9. Resources	5	—
10. Targets (lines 7 + 8d + 9)	(b)	—
Drinking Water Threat Score:		
11. Drinking Water Threat Score ([lines 3 x 6 x 10]/82,500, ubject to a maximum of 100)	100	–
Human Food Chain Threat Likelihood of Release:		
12. Likelihood of Release (same value as line 3)	550	—
Waste Characteristics:		
13. Toxicity/Mobility/Persistence/Bioaccumulation	(a)	—
14. Hazardous Waste Quantity	(a)	—
15. Waste Characteristics	1,000	—
Targets:		
16. Food Chain Individual	50	—
17. Population:		
17a. Level I Concentrations	(b)	—
17b. Level II Concentrations	(b)	—
17c. Potential Human Food Chain Contamination	(b)	—
17d. Population (lines 17a + 17b + 17c)	(b)	—
18. Targets (Lines 16 + 17d)	(b)	—
Human Food Chain Threat Score:		
19. Human Food Chain Threat Score ([lines 12 x 15 x 18]/82,500, subject to a maximum of 100)	100	–

Table 4-25.—Ground Water to Surface Water Migration Component Scoresheet

Factor categories and factors	Maximum value	Value assigned
Environmental Threat Likelihood of Release:		
20. Likelihood of Release (same value as line 3)	550	___
Waste Characteristics:		
21. Ecosystem Toxicity/Mobility/Persistence/Bioaccumulation	(a)	___
22. Hazardous Waste Quantity	(a)	___
23. Waste Characteristics	1,000	___
Targets:		
24. Sensitive Environments:		
24a. Level I Concentrations	(b)	___
24b. Level II Concentrations	(b)	___
24c. Potential Contamination	(b)	___
24d. Sensitive Environments (lines 24a + 24b + 24c)	(b)	___
25. Targets (value from line 24d)	(b)	___
Environmental Threat Score:		
26. Environmental Threat Score ([lines 20 x 23 x 25]/82,500, subject to a maximum of 60)	60	___
Ground Water to Surface Water Migration Component Score for a Watershed		
27. Watershed Score[c] (lines 11 + 19 + 26, subject to a maximum of 100)	100	–
28. Component Score (S_{gs})[c] (highest score from Line 27 for all watersheds evaluated, subject to a maximum of 100)	100	___

[a]Maximum value applies to waste characteristics category.

[b]Maximum value not applicable.

[c]Do not round to nearest integer.

4.2.2 *Drinking water threat.* Evaluate the drinking water threat for each watershed based on three factor categories: likelihood of release, waste characteristics, and targets.

4.2.2.1 *Drinking water threat-likelihood of release.* Evaluate the likelihood of release factor category for each watershed in terms of an observed release factor or a potential to release factor.

4.2.2.1.1 *Observed release.* Establish an observed release to the uppermost aquifer as specified in section 3.1.1. If an observed release can be established for the uppermost aquifer, assign an observed release factor value of 550 to that watershed, enter this value in Table 4-25, and proceed to section 4.2.2.1.3. If no observed release can be established, assign an observed release factor value of 0, enter this value in Table 4-25, and proceed to section 4.2.2.1.2.

4.2.2.1.2 *Potential to release.* Evaluate potential to release only if an observed release cannot be established for the uppermost aquifer. Calculate a potential to release value for the uppermost aquifer as specified in section 3.1.2 and sections 3.1.2.1 through 3.1.2.5. Assign the potential to release value for the uppermost aquifer as the potential to release factor value for the watershed. Enter this value in Table 4-25.

4.2.2.1.3 *Calculation of drinking water threat-likelihood of release factor category value.* If an observed release is established for the uppermost aquifer, assign the observed release factor value of 550 as the likelihood of release factor category value for the watershed. Otherwise, assign the potential to release factor value as the likelihood of release factor category value for the watershed. Enter the value assigned in Table 4-25.

4.2.2.2 *Drinking water threat-waste characteristics.* Evaluate the waste characteristics factor category for each watershed based on two factors: toxicity/mobility/persistence and hazardous waste quantity. Evaluate only those hazardous substances available to migrate from the sources at the site to the uppermost aquifer (see section 3.2). Such hazardous substances include:

- Hazardous substances that meet the criteria for an observed release to ground water.
- All hazardous substances associated with a source that has a ground water containment factor value greater than 0 (see sections 2.2.2, 2.2.3, and 3.1.2.1).

4.2.2.2.1 *Toxicity/mobility/persistence.* For each hazardous substance, assign a toxicity factor value, a mobility factor value, a persistence factor value, and a combined toxicity/mobility/persistence factor value as

specified in sections 4.2.2.2.1.1 through 4.2.2.2.1.4.

4.2.2.2.1.1 *Toxicity*. Assign a toxicity factor value to each hazardous substance as specified in section 2.4.1.1.

4.2.2.2.1.2 *Mobility*. Assign a ground water mobility factor value to each hazardous substance as specified in section 3.2.1.2.

4.2.2.2.1.3 *Persistence*. Assign a surface water persistence factor value to each hazardous substance as specified in section 4.1.2.2.1.2.

4.2.2.2.1.4 *Calculation of toxicity/mobility/persistence factor value*. First, assign each hazardous substance a toxicity/mobility factor value from Table 3-9 (section 3.2.1.3), based on the values assigned to the hazardous substance for the toxicity and mobility factors. Then assign each hazardous substance a toxicity/mobility/persistence factor value from Table 4-26, based on the values assigned for the toxicity/mobility and persistence factors. Use the substance with the highest toxicity/mobility/persistence factor value for the watershed to assign the value to this factor. Enter this value in Table 4-25.

4.2.2.2.2 *Hazardous waste quantity*. Assign the same factor value for hazardous waste quantity for the watershed as would be assigned for the uppermost aquifer in section 3.2.2. Enter this value in Table 4-25.

4.2.2.2.3 *Calculation of drinking water threat-waste characteristics factor category value*. Multiply the toxicity/mobility/persistence and hazardous waste quantity factor values for the watershed, subject to a maximum product of $1x10^8$. Based on this product, assign a value from Table 2-7 (section 2.4.3.1) to the drinking water threat-waste characteristics factor category for the watershed. Enter this value in Table 4-25.

4.2.2.3 *Drinking water threat-targets*. Evaluate the targets factor category for each watershed based on three factors: nearest intake, population, and resources.

Table 4-26.—Toxicity/Mobility/Persistence Factor Values[a]

Toxicity/ Mobility Factor Value	Persistence Factor Value			
	1.0	0.4	0.07	0.0007
10,000	10,000	4,000	700	7
2,000	2,000	800	140	1.4
1,000	1,000	400	70	0.7
200	200	80	14	0.14
100	100	40	7	0.07
20	20	8	1.4	0.014
10	10	4	0.7	0.007
2	2	0.8	0.14	0.0014
1	1	0.4	0.07	7×10^{-4}
0.2	0.2	0.08	0.014	1.4×10^{-4}
0.1	0.1	0.04	0.007	7×10^{-5}
0.02	0.02	0.008	0.0014	1.4×10^{-5}
0.01	0.01	0.004	7×10^{-4}	7×10^{-6}
0.002	0.002	8×10^{-4}	1.4×10^{-4}	1.4×10^{-6}
0.001	0.001	4×10^{-4}	7×10^{-5}	7×10^{-7}
2×10^{-4}	2×10^{-4}	8×10^{-5}	1.4×10^{-5}	1.4×10^{-7}
1×10^{-4}	1×10^{-4}	4×10^{-5}	7×10^{-6}	7×10^{-8}
2×10^{-5}	2×10^{-5}	8×10^{-6}	1.4×10^{-6}	1.4×10^{-8}
2×10^{-6}	2×10^{-6}	8×10^{-7}	1.4×10^{-7}	1.4×10^{-9}
2×10^{-7}	2×10^{-7}	8×10^{-8}	1.4×10^{-8}	1.4×10^{-10}
2×10^{-8}	2×10^{-8}	8×10^{-9}	1.4×10^{-9}	1.4×10^{-11}
2×10^{-9}	2×10^{-9}	8×10^{-10}	1.4×10^{-10}	1.4×10^{-12}
0	0	0	0	0

[a]Do not round to nearest integer.

For the nearest intake and population factors, determine whether the target surface water intakes are subject to actual or potential contamination as specified in section 4.1.1.2, subject to the restrictions specified in sections 4.2.1.3 and 4.2.1.4.

When the intake is subject to actual contamination, evaluate it using Level I concentrations or Level II concentrations. Determine which level applies for the intake by comparing the exposure concentrations from a sample (or comparable samples) to health-based benchmarks as specified in section 4.1.2.3, except use only those samples from the surface water in-water segment and only those hazardous substances in such samples that meet the conditions in sections 4.2.1.3 and 4.2.1.4.

4.2.2.3.1 *Nearest intake.* Assign a value to the nearest intake factor as specified in section 4.1.2.3.1 with the following modification. For the intake being evaluated, multiply its dilution weight from Table 4-13 (section 4.1.2.3.1) by a value selected from Table 4-27. Use the resulting product, not the value from Table 4-13, as the dilution weight for the intake for the ground water to surface water component. Do not round this product to the nearest integer.

Select the value from Table 4-27 based on the angle U, the angle defined by the sources at the site and either the two points at the intersection of the surface water body and the 1-mile distance ring of any two other points of the surface water body within the 1-mile distance ring, whichever results in the largest angle. (See Figure 4-3 for an example of how to determine U.) If the surface water body does not extend to the 1-mile ring at one or both ends, define U using the surface water endpoint(s) within the 1-mile ring or any two other points of the surface water body within the 1-mile distance ring, whichever results in the largest angle.

TABLE 4-27.—Dilution Weight Adjustments

Angle U (degrees)	Assigned value[a]
0	0
Greater than 0 to 18	0.05
Greater than 18 to 54	0.1
Greater than 54 to 90	0.2
Greater than 90 to 126	0.3
Greater than 126 to 162	0.4
Greater than 162 to 198	0.5
Greater than 198 to 234	0.6
Greater than 234 to 270	0.7
Greater than 270 to 306	0.8
Greater than 306 to 342	0.9
Greater than 342 to 360	1.0

[a]Do not round to nearest integer.

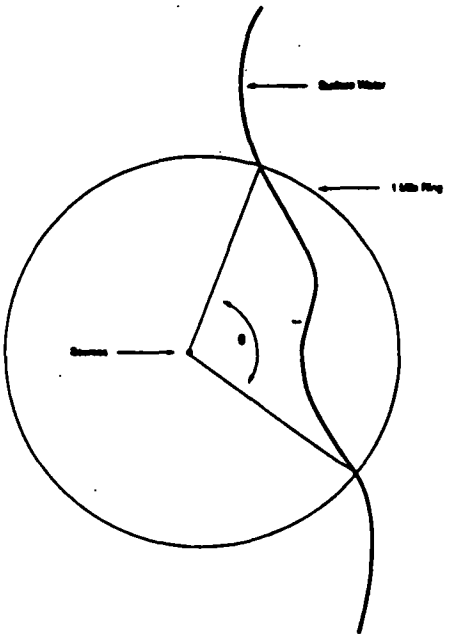


FIGURE 4-3
SAMPLE DETERMINATION OF GROUND WATER TO SURFACE WATER ANGLE

Table 4-28. – Toxicity/Mobility/Persistence/Bioaccumulation Factor Values[a]

Toxicity/ Mobility/ Persistence Factor Value	Bioaccumulation Potential Factor Value					
	50,000	5,000	500	50	5	0.5
10,000	5×10^8	5×10^7	5×10^6	5×10^5	5×10^4	5,000
4,000	2×10^8	2×10^7	2×10^6	2×10^5	2×10^4	2,000
2,000	1×10^8	1×10^7	1×10^6	1×10^5	1×10^4	1,000
1,000	5×10^7	5×10^6	5×10^5	5×10^4	5,000	500
800	4×10^7	4×10^6	4×10^5	4×10^4	4,000	400
700	3.5×10^7	3.5×10^6	3.5×10^5	3.5×10^4	3,500	350
400	2×10^7	2×10^6	2×10^5	2×10^4	2,000	200
200	1×10^7	1×10^6	1×10^5	1×10^4	1,000	100
140	7×10^6	7×10^5	7×10^4	7,000	700	70
100	5×10^6	5×10^5	5×10^4	5,000	500	50
80	4×10^6	4×10^5	4×10^4	4,000	400	40
70	3.5×10^6	3.5×10^5	3.5×10^4	3,500	350	35
40	2×10^6	2×10^5	2×10^4	2,000	200	20
20	1×10^6	1×10^5	1×10^4	1,000	100	10
14	7×10^5	7×10^4	7,000	700	70	7
10	5×10^5	5×10^4	5,000	500	50	5
8	4×10^5	4×10^4	4,000	400	40	4
7	3.5×10^5	3.5×10^4	3,500	350	35	3.5
4	2×10^5	2×10^4	2,000	200	20	2
2	1×10^5	1×10^4	1,000	100	10	1
1.4	7×10^4	7,000	700	70	7	0.7
1.0	5×10^4	5,000	500	50	5	0.5
0.8	4×10^4	4,000	400	40	4	0.4
0.7	3.5×10^4	3,500	350	35	3.5	0.35
0.4	2×10^4	2,000	200	20	2	0.2
0.2	1×10^4	1,000	100	10	1	0.1
0.14	7,000	700	70	7	0.7	0.07
0.1	5,000	500	50	5	0.5	0.05
0.08	4,000	400	40	4	0.4	0.04
0.07	3,500	350	35	3.5	0.35	0.035
0.04	2,000	200	20	2	0.2	0.02
0.02	1,000	100	10	1	0.1	0.01
0.014	700	70	7	0.7	0.07	0.007
0.01	500	50	5	0.5	0.05	0.005
0.008	400	40	4	0.4	0.04	0.004
0.007	350	35	3.5	0.35	0.035	0.0035
0.004	200	20	2	0.2	0.02	0.002
0.002	100	10	1	0.1	0.01	0.001
0.0014	70	7	0.7	0.07	0.007	7×10^{-4}
0.001	50	5	0.5	0.05	0.005	5×10^{-4}
8×10^{-4}	40	4	0.4	0.04	0.004	4×10^{-4}
7×10^{-4}	35	3.5	0.35	0.035	0.0035	3.5×10^{-4}
4×10^{-4}	20	2	0.2	0.02	0.002	2×10^{-4}
2×10^{-4}	10	1	0.1	0.01	0.001	1×10^{-4}
1.4×10^{-4}	7	0.7	0.07	0.007	7×10^{-4}	7×10^{-5}
1×10^{-4}	5	0.5	0.05	0.005	5×10^{-4}	5×10^{-5}
8×10^{-5}	4	0.4	0.04	0.004	4×10^{-4}	4×10^{-5}
7×10^{-5}	3.5	0.35	0.035	0.0035	3.5×10^{-4}	3.5×10^{-5}
4×10^{-5}	2	0.2	0.02	0.002	2×10^{-4}	2×10^{-5}

Table 4-28.—Toxicity/Mobility/Persistence/Bioaccumulation Factor Values[a]

Toxicity/ Mobility/ Persistence Factor Value	Bioaccumulation Potential Factor Value					
	50,000	5,000	500	50	5	0.5
2×10^{-5}	1	0.1	0.01	0.001	1×10^{-4}	1×10^{-5}
1.4×10^{-5}	0.7	0.07	0.007	7×10^{-4}	7×10^{-5}	7×10^{-6}
8×10^{-6}	0.4	0.04	0.004	4×10^{-4}	4×10^{-5}	4×10^{-6}
7×10^{-6}	0.35	0.035	0.0035	3.5×10^{-4}	3.5×10^{-5}	3.5×10^{-6}
2×10^{-6}	0.1	0.01	0.001	1×10^{-4}	1×10^{-5}	1×10^{-6}
1.4×10^{-6}	0.07	0.007	7×10^{-4}	7×10^{-5}	7×10^{-6}	7×10^{-7}
8×10^{-7}	0.04	0.004	4×10^{-4}	4×10^{-5}	4×10^{-6}	4×10^{-7}
7×10^{-7}	0.035	0.0035	3.5×10^{-4}	3.5×10^{-5}	3.5×10^{-6}	3.5×10^{-7}
2×10^{-7}	0.01	0.001	1×10^{-4}	1×10^{-5}	1×10^{-6}	1×10^{-7}
1.4×10^{-7}	0.007	7×10^{-4}	7×10^{-5}	7×10^{-6}	7×10^{-7}	7×10^{-8}
8×10^{-8}	0.004	4×10^{-4}	4×10^{-5}	4×10^{-6}	4×10^{-7}	4×10^{-8}
7×10^{-8}	0.0035	3.5×10^{-4}	3.5×10^{-5}	3.5×10^{-6}	3.5×10^{-7}	3.5×10^{-8}
2×10^{-8}	0.001	1×10^{-4}	1×10^{-5}	1×10^{-6}	1×10^{-7}	1×10^{-8}
1.4×10^{-8}	7×10^{-4}	7×10^{-5}	7×10^{-6}	7×10^{-7}	7×10^{-8}	7×10^{-9}
8×10^{-9}	4×10^{-4}	4×10^{-5}	4×10^{-6}	4×10^{-7}	4×10^{-8}	4×10^{-9}
2×10^{-9}	1×10^{-4}	1×10^{-5}	1×10^{-6}	1×10^{-7}	1×10^{-8}	1×10^{-9}
1.4×10^{-9}	7×10^{-5}	7×10^{-6}	7×10^{-7}	7×10^{-8}	7×10^{-9}	7×10^{-10}
8×10^{-10}	4×10^{-5}	4×10^{-6}	4×10^{-7}	4×10^{-8}	4×10^{-9}	4×10^{-10}
1.4×10^{-10}	7×10^{-6}	7×10^{-7}	7×10^{-8}	7×10^{-9}	7×10^{-10}	4×10^{-11}
1.4×10^{-11}	7×10^{-7}	7×10^{-8}	7×10^{-9}	7×10^{-10}	7×10^{-11}	7×10^{-12}
1.4×10^{-12}	7×10^{-8}	7×10^{-9}	7×10^{-10}	7×10^{-11}	7×10^{-12}	7×10^{-13}
0	0	0	0	0	0	0

4.2.2.3.2 *Population.* Evaluate the population factor for the watershed based on three factors: Level I concentrations, Level II concentrations, and potential contamination. Determine which factor applies to an intake as specified in section 4.2.2.3. Determine the population to be counted for that intake as specified in section 4.1.2.3.2, using the target distance limits in section 4.2.1.4 and the hazardous substance migration path in section 4.2.1.2.

4.2.2.3.2.1 *Level I concentrations.* Assign a value to this factor as specified in section 4.1.2.3.2.2.

4.2.2.3.2.2 *Level II concentrations.* Assign a value to this factor as specified in section 4.1.2.3.2.3.

4.2.2.3.2.3 *Potential contamination.* For each applicable type of surface water body in Table 4-14, determine the dilution-weighted population value as specified in section 4.1.2.3.2.4. Select the appropriate dilution weight adjustment value from Table 4-27 as specified in section 4.2.2.3.1.

Calculate the value for the potential contamination factor (PC) for the watershed as follows:

$$PC = \frac{A}{10_i} \sum_{1}^{n} W_i$$

where:

A = Dilution weight adjustment value from Table 4-27.

W_i = Dilution-weighted population from Table 4-14 for surface water body type i.

n = Number of different surface water body types in the watershed.

If PC is less than 1, do not round it to the nearest integer; if PC is 1 or more, round to the nearest integer. Enter the value in Table 4-25.

4.2.2.3.2.4 *Calculation of population factor value.* Sum the factor values for Level I concentrations, Level II concentrations, and potential contamination. Do not round this sum to the nearest integer. Assign this

sum as the population factor value for the watershed. Enter this value in Table 4-25.

4.2.2.3.3 *Resources.* Assign a value to the resources factor as specified in section 4.1.2.3.3.

4.2.2.3.4 *Calculation of drinking water threat-targets factor category value.* Sum the nearest intake, population, and resources factor values for the watershed. Do not round this sum to the nearest integer. Assign this sum as the drinking water threat-targets factor category value for the watershed. Enter this value in Table 4-25.

4.2.2.4 *Calculation of drinking water threat score for a watershed.* Multiply the drinking water threat factor category values for likelihood of release, waste characteristics, and targets for the watershed, and round the product to the nearest integer. Then divide by 82,500. Assign the resulting value, subject to a maximum of 100, as the drinking water threat score for the watershed. Enter this score in Table 4-25.

4.2.3 *Human food chain threat.* Evaluate the human food chain threat for a watershed based on three factor categories: likelihood of release, waste characteristics, and targets.

4.2.3.1 *Human food chain threat-likelihood of release.* Assign the same likelihood of release factor category value for the human food chain threat for the watershed as would be assigned in section 4.2.2.1.3 for the drinking water threat. Enter this value in Table 4-25.

4.2.3.2 *Human food chain threat-waste characteristics.* Evaluate the waste characteristics factor category for each watershed based on two factors: toxicity/mobility/persistence/bioaccumulation and hazardous waste quantity.

4.2.3.2.1 *Toxicity/mobility/persistence/bioaccumulation.* Evaluate all those hazardous substances eligible to be evaluated for toxicity/mobility/persistence in the drinking water threat for the watershed (see section 4.2.2.2.1).

4.2.3.2.1.1 *Toxicity.* Assign a toxicity factor value to each hazardous substance as specified in section 2.4.1.1.

4.2.3.2.1.2 *Mobility.* Assign a ground water mobility factor value to each hazardous substance as specified for the drinking water threat (see section 4.2.2.2.1.2).

4.2.3.2.1.3 *Persistence.* Assign a surface water persistence factor value to each hazardous substance as specified for the drinking water threat (see section 4.2.2.2.1.3), except: use the predominant water category (that is, lakes; or rivers, oceans, coastal tidal waters, or Great Lakes) between the probable point of entry and the nearest fishery (not the nearest drinking water or resources intake) along the hazardous substance migration path for the watershed to determine which portion of Table 4-10 to use. Determine the predominant water category based on distance as specified in section 4.1.2.2.1.2.

4.2.3.2.1.4 *Bioaccumulation potential.* Assign a bioaccumulation potential factor value to each hazardous substance as specified in section 4.1.3.2.1.3.

4.2.3.2.1.5 *Calculation of toxicity/mobility/persistence/bioaccumulation factor value.* Assign each hazardous substance a toxicity/mobility factor value from Table 3-9 (section 3.2.1.3), based on the values assigned to the hazardous substance for the toxicity and mobility factors. Then assign each hazardous substance a toxicity/mobility/persistence factor value from Table 4-26, based on the values assigned for the toxicity/mobility and persistence factors. Then assign each hazardous substance a toxicity/mobility/persistence/ bioaccumulation factor value from Table 4-28. Use the substance with the highest toxicity/mobility/persistence/ bioaccumulation factor value for the watershed to assign the value to this factor for the watershed. Enter this value in Table 4-25.

4.2.3.2.2 *Hazardous waste quantity.* Assign the same factor value for hazardous waste quantity for the watershed as would be assigned in section 4.2.2.2.2 for the drinking water threat. Enter this value in Table 4-25.

4.2.3.2.3 *Calculation of human food chain threat-waste characteristics factor category value.* For the hazardous substance selected for the watershed in section 4.2.3.2.1.5, use its toxicity/mobility/persistence factor value and bioaccumulation potential factor value as follows to assign a value to the waste characteristics factor category. First, multiply the toxicity/mobility/persistence factor value and the hazardous waste quantity factor value for the watershed, subject to a maximum product of $1x10^8$. Then multiply

this product by the bioaccumulation potential factor value for this hazardous substance, subject to a maximum product of $1x10^{12}$. Based on this second product, assign a value from Table 2-7 (section 2.4.3.1) to the human food chain threat-waste characteristics factor category for the watershed. Enter this value in Table 4-25.

4.2.3.3 *Human food chain threat-targets.* Evaluate two target factors for the watershed: food chain individual and population.

For both factors, determine whether the target fisheries are subject to Level I concentrations, Level II concentrations, or potential human food chain contamination. Determine which applies to each fishery (or portion of a fishery) as specified in section 4.1.3.3, subject to the restrictions specified in sections 4.2.1.3 and 4.2.1.4.

4.2.3.3.1 *Food chain individual.* Assign a value to the food chain individual factor as specified in section 4.1.3.3.1 with the following modification. When a dilution weight is used, multiply the appropriate dilution weight from Table 4-13 by the adjustment value selected from Table 4-27, as specified in section 4.2.2.3.1. Use the resulting product, not the value from Table 4-13, as the dilution weight in assigning the factor value. Do not round this product to the nearest integer. Enter the value assigned in Table 4-25.

4.2.3.3.2 *Population.* Evaluate the population factor for the watershed based on three factors: Level I concentrations, Level II concentrations, and potential human food chain contamination. Determine which of these factors is to be applied to each fishery as specified in section 4.2.3.3.

4.2.3.3.2.1 *Level I concentrations.* Assign a value to this factor as specified in section 4.1.3.3.2.1. Enter this value in Table 4-25.

4.2.3.3.2.2 *Level II concentrations.* Assign a value to this factor as specified in section 4.1.3.3.2.2. Enter this value in Table 4-25.

4.2.3.3.2.3 *Potential human food chain contamination.* Assign a value to this factor as specified in section 4.1.3.3.2.3 with the following modification. For each fishery being evaluated, multiply the appropriate dilution weight for that fishery from Table 4-13 by the adjustment value selected from Table 4-27, as specified in section 4.2.2.3.1. Use the resulting product, not the value from Table 4-13, as the dilution weight for the fishery. Do not round this product to the nearest integer. Enter the value assigned in Table 4-25.

4.2.3.3.2.4 *Calculation of population factor value.* Sum the factor values for Level I concentrations, Level II concentrations, and potential human food chain contamination for the watershed. Do not round this sum to the nearest integer. Assign this sum as the population factor value for the watershed. Enter this value in Table 4-25.

4.2.3.3.3 *Calculation of human food chain threat-targets factor category value.* Sum the food chain individual and population factor values for the watershed. Do not round this sum to the nearest integer. Assign this sum as the human food chain threat-targets factor category value for the watershed. Enter this value in Table 4-25.

4.2.3.4 *Calculation of human food chain threat score for a watershed.* Multiply the human food chain threat factor category values for likelihood of release, waste characteristics, and targets for the watershed, and round the product to the nearest integer. Then divide by 82,500. Assign the resulting value, subject to a maximum of 100, as the human food chain threat score for the watershed. Enter this score in Table 4-25.

4.2.4 *Environmental threat.* Evaluate the environmental threat for the watershed based on three factor categories: likelihood of release, waste characteristics, and targets.

4.2.4.1 *Environmental threat-likelihood of release.* Assign the same likelihood of release factor category value for the environmental threat for the watershed as would be assigned in section 4.2.2.1.3 for the drinking water threat. Enter this value in Table 4-25.

4.2.4.2 *Environmental threat-waste characteristics.* Evaluate the waste characteristics factor category for each watershed based on two factors: ecosystem toxicity/mobility/persistence/bioaccumulation and hazardous waste quantity.

4.2.4.2.1 *Ecosystem toxicity/mobility/persistence/bioaccumulation.* Evaluate all those hazardous substances eligible to be evaluated for toxicity/mobility/persistence in the drinking water threat for the watershed (see section 4.2.2.2.1).

4.2.4.2.1.1 *Ecosystem toxicity.* Assign an ecosystem toxicity factor value to each

hazardous substance as specified in section 4.1.4.2.1.1.

4.2.4.2.1.2 *Mobility.* Assign a ground water mobility factor value to each hazardous substance as specified in section 4.2.2.2.1.2 for the drinking water threat.

4.2.4.2.1.3 *Persistence.* Assign a surface water persistence factor value to each hazardous substance as specified in section 4.2.2.2.1.3 for the drinking water threat, except: use the predominant water category (that is, lakes; or rivers, oceans, coastal tidal waters, or Great Lakes) between the probable point of entry and the nearest sensitive environment (not the nearest drinking water or resources intake) along the hazardous substance migration path for the watershed to determine which portion of Table 4-10 to use. Determine the predominant water category based on distance as specified in section 4.1.2.2.1.2.

4.2.4.2.1.4 *Ecosystem bioaccumulation potential.* Assign an ecosystem bioaccumulation potential factor value to each hazardous substance as specified in section 4.1.4.2.1.3.

4.2.4.2.1.5 *Calculation of ecosystem toxicity/mobility/persistence/bioaccumulation factor value.* Assign each hazardous substance an ecosystem toxicity/mobility factor value from Table 3-9 (section 3.2.1.3), based on the values assigned to the hazardous substance for the ecosystem toxicity and mobility factors. Then assign each hazardous substance an ecosystem toxicity/mobility/persistence factor value from Table 4-29, based on the values assigned for the ecosystem toxicity/mobility and persistence factors. Then assign each hazardous substance an ecosystem toxicity/mobility/persistence/bioaccumulation factor value from Table 4-30, based on the values assigned for the ecosystem toxicity/mobility/persistence and ecosystem bioaccumulation potential factors. Select the substance with the highest ecosystem toxicity/mobility/persistence/bioaccumulation factor value for the watershed and use it to assign the value to this factor for the watershed. Enter this value in Table 4-25.

Table 4-29. – Ecosystem Toxicity/Mobility/Persistence Factor Values[a]

Ecistsen Toxicity/ Mobility Factor Value	Persistence Factor Value			
	1.0	0.4	0.07	0.0007
10,000	10,000	4,000	700	7
2,000	2,000	800	140	1.4
1,000	1,000	400	70	0.7
200	200	80	14	0.14
100	100	40	7	0.07
20	20	8	1.4	0.014
10	10	4	0.7	0.007
2	2	0.8	0.14	0.0014
1	1	0.4	0.07	7×10^{-4}
0.2	0.2	0.08	0.014	1.4×10^{-4}
0.1	0.1	0.04	0.007	7×10^{-5}
0.02	0.02	0.008	0.0014	1.4×10^{-5}
0.01	0.01	0.004	7×10^{-4}	7×10^{-6}
0.002	0.002	8×10^{-4}	1.4×10^{-4}	1.4×10^{-6}
0.001	0.001	4×10^{-4}	7×10^{-5}	7×10^{-7}
2×10^{-4}	2×10^{-4}	8×10^{-5}	1.4×10^{-5}	1.4×10^{-7}
1×10^{-4}	1×10^{-4}	4×10^{-5}	7×10^{-6}	7×10^{-8}
2×10^{-5}	2×10^{-5}	8×10^{-6}	1.4×10^{-6}	1.4×10^{-8}
2×10^{-6}	2×10^{-6}	8×10^{-7}	1.4×10^{-7}	1.4×10^{-9}
2×10^{-7}	2×10^{-7}	8×10^{-8}	1.4×10^{-8}	1.4×10^{-10}
2×10^{-8}	2×10^{-8}	8×10^{-9}	1.4×10^{-9}	1.4×10^{-11}
2×10^{-9}	2×10^{-9}	8×10^{-10}	1.4×10^{-10}	1.4×10^{-12}
0	0	0	0	0

[a]Do not round to nearest integer.

Table 4-30. – Ecosystem Toxicity/Mobility/Persistence/Bioaccumulation Factor Values[a]

Ecosystem Toxicity/ Mobility/ Persistence Factor Value	Bioaccumulation Potential Factor Value					
	50,000	5,000	500	50	5	0.5
10,000	5×10^8	5×10^7	5×10^6	5×10^5	5×10^4	5,000
4,000	2×10^8	2×10^7	2×10^6	2×10^5	2×10^4	2,000
2,000	1×10^8	1×10^7	1×10^6	1×10^5	1×10^4	1,000
1,000	5×10^7	5×10^6	5×10^5	5×10^4	5,000	500
800	4×10^7	4×10^6	4×10^5	4×10^4	4,000	400
700	3.5×10^7	3.5×10^6	3.5×10^5	3.5×10^4	3,500	350
400	2×10^7	2×10^6	2×10^5	2×10^4	2,000	200
200	1×10^7	1×10^6	1×10^5	1×10^4	1,000	100
140	7×10^6	7×10^5	7×10^4	7,000	700	70
100	5×10^6	5×10^5	5×10^4	5,000	500	50
80	4×10^6	4×10^5	4×10^4	4,000	400	40
70	3.5×10^6	3.5×10^5	3.5×10^4	3,500	350	35
40	2×10^6	2×10^5	2×10^4	2,000	200	20
20	1×10^6	1×10^5	1×10^4	1,000	100	10
14	7×10^5	7×10^4	7,000	700	70	7
10	5×10^5	5×10^4	5,000	500	50	5
8	4×10^5	4×10^4	4,000	400	40	4
7	3.5×10^5	3.5×10^4	3,500	350	35	3.5
4	2×10^5	2×10^4	2,000	200	20	2
2	1×10^5	1×10^4	1,000	100	10	1
1.4	7×10^4	7,000	700	70	7	0.7
1.0	5×10^4	5,000	500	50	5	0.5
0.8	4×10^4	4,000	400	40	4	0.4
0.7	3.5×10^4	3,500	350	35	3.5	0.35
0.4	2×10^4	2,000	200	20	2	0.2
0.2	1×10^4	1,000	100	10	1	0.1
0.14	7,000	700	70	7	0.7	0.07
0.1	5,000	500	50	5	0.5	0.05
0.08	4,000	400	40	4	0.4	0.04
0.07	3,500	350	35	3.5	0.35	0.035
0.04	2,000	200	20	2	0.2	0.02
0.02	1,000	100	10	1	0.1	0.01
0.014	700	70	7	0.7	0.07	0.007
0.01	500	50	5	0.5	0.05	0.005
0.008	400	40	4	0.4	0.04	0.004
0.007	350	35	3.5	0.35	0.035	0.0035
0.004	200	20	2	0.2	0.02	0.002
0.002	100	10	1	0.1	0.01	0.001
0.0014	70	7	0.7	0.07	0.007	7×10^{-4}
0.001	50	5	0.5	0.05	0.005	5×10^{-4}
8×10^{-4}	40	4	0.4	0.04	0.004	4×10^{-4}
7×10^{-4}	35	3.5	0.35	0.035	0.0035	3.5×10^{-4}
4×10^{-4}	20	2	0.2	0.02	0.002	2×10^{-4}
2×10^{-4}	10	1	0.1	0.01	0.001	1×10^{-4}
1.4×10^{-4}	7	0.7	0.07	0.007	7×10^{-4}	7×10^{-5}
1×10^{-4}	5	0.5	0.05	0.005	5×10^{-4}	5×10^{-5}
8×10^{-5}	4	0.4	0.04	0.004	4×10^{-4}	4×10^{-5}
7×10^{-5}	3.5	0.35	0.035	0.0035	3.5×10^{-4}	3.5×10^{-5}

Table 4-30. – Ecosystem Toxicity/Mobility/Persistence/Bioaccumulation Factor Values[a]

Ecosystem Toxicity/ Mobility/ Persistence Factor Value	Bioaccumulation Potential Factor Value					
	50,000	5,000	500	50	5	0.5
4×10^{-5}	2	0.2	0.02	0.002	2×10^{-4}	2×10^{-5}
2×10^{-5}	1	0.1	0.01	0.001	1×10^{-4}	1×10^{-5}
1.4×10^{-5}	0.7	0.07	0.007	7×10^{-4}	7×10^{-5}	7×10^{-6}
8×10^{-6}	0.4	0.04	0.004	4×10^{-4}	4×10^{-5}	4×10^{-6}
7×10^{-6}	0.35	0.035	0.0035	3.5×10^{-4}	3.5×10^{-5}	3.5×10^{-6}
2×10^{-6}	0.1	0.01	0.001	1×10^{-4}	1×10^{-5}	1×10^{-6}
1.4×10^{-6}	0.07	0.007	7×10^{-4}	7×10^{-5}	7×10^{-6}	7×10^{-7}
8×10^{-7}	0.04	0.004	4×10^{-4}	4×10^{-5}	4×10^{-6}	4×10^{-7}
7×10^{-7}	0.035	0.0035	3.5×10^{-4}	3.5×10^{-5}	3.5×10^{-6}	3.5×10^{-7}
2×10^{-7}	0.01	0.001	1×10^{-4}	1×10^{-5}	1×10^{-6}	1×10^{-7}
1.4×10^{-7}	0.007	7×10^{-4}	7×10^{-5}	7×10^{-6}	7×10^{-7}	7×10^{-8}
8×10^{-8}	0.004	4×10^{-4}	4×10^{-5}	4×10^{-6}	4×10^{-7}	4×10^{-8}
7×10^{-8}	0.0035	3.5×10^{-4}	3.5×10^{-5}	3.5×10^{-6}	3.5×10^{-7}	3.5×10^{-8}
2×10^{-8}	0.001	1×10^{-4}	1×10^{-5}	1×10^{-6}	1×10^{-7}	1×10^{-8}
1.4×10^{-8}	7×10^{-4}	7×10^{-5}	7×10^{-6}	7×10^{-7}	7×10^{-8}	7×10^{-9}
8×10^{-9}	4×10^{-4}	4×10^{-5}	4×10^{-6}	4×10^{-7}	4×10^{-8}	4×10^{-9}
2×10^{-9}	1×10^{-4}	1×10^{-5}	1×10^{-6}	1×10^{-7}	1×10^{-8}	1×10^{-9}
1.4×10^{-9}	7×10^{-5}	7×10^{-6}	7×10^{-7}	7×10^{-8}	7×10^{-9}	7×10^{-10}
8×10^{-10}	4×10^{-5}	4×10^{-6}	4×10^{-7}	4×10^{-8}	4×10^{-9}	4×10^{-10}
1.4×10^{-10}	7×10^{-6}	7×10^{-7}	7×10^{-8}	7×10^{-9}	7×10^{-10}	4×10^{-11}
1.4×10^{-11}	7×10^{-7}	7×10^{-8}	7×10^{-9}	7×10^{-10}	7×10^{-11}	7×10^{-12}
1.4×10^{-12}	7×10^{-8}	7×10^{-9}	7×10^{-10}	7×10^{-11}	7×10^{-12}	7×10^{-13}
0	0	0	0	0	0	0

[a]Do not round to nearest integer.

4.2.4.2.2 *Hazardous waste quantity.* Assign the same factor value for hazardous waste quantity for the watershed as would be assigned in section 4.2.2.2.2 for the drinking water threat. Enter this value in Table 4-25.

4.2.4.2.3 *Calculation of environmental threat-waste characteristics factor category value.* For the hazardous substance selected for the watershed in section 4.2.4.2.1.5, use its ecosystem toxicity/mobility/persistence factor value and ecosystem bioaccumulation potential factor value as follows to assign a value to the waste characteristics factor category. First, multiply the ecosystem toxicity/mobility/persistence factor value and the hazardous waste quantity factor value for the watershed, subject to a maximum product of 1×10^{8}. Then multiply this product by the ecosystem bioaccumulation potential factor value for this hazardous substance, subject to a maximum product of 1×10^{12}. Based on this product, assign a value from Table 2-7 (section 2.4.3.1) to the environmental threat-waste characteristics category for the watershed. Enter the value in Table 4-25.

4.2.4.3 *Environmental threat-targets.* Evaluate the environmental threat-targets factor category for a watershed using one factor: sensitive environments.

4.2.4.3.1 *Sensitive environments.* Evaluate sensitive environments for the watershed based on three factors: Level I concentrations, Level II concentrations, and potential contamination. Determine which applies to each sensitive environment as specified in section 4.1.4.3.1, except: use only those samples from the surface water in-water segment and only those hazardous substances in such samples that meet the conditions in sections 4.2.1.3 and 4.2.1.4.

4.2.4.3.1.1 *Level I concentrations.* Assign a value to this factor as specified in section 4.1.4.3.1.1. Enter this value in Table 4-25.

4.2.4.3.1.2 *Level II concentrations*. Assign a value to this factor as specified in section 4.1.4.3.1.2. Enter this value in Table 4-25.

4.2.4.3.1.3 *Potential contamination*. Assign a value to this factor as specified in section 4.1.4.3.1.3 with the following modification. Multiply the appropriate dilution weight from Table 4-13 for the sensitive environments in each type of surface water body by the adjustment value selected from Table 4-27, as specified in section 4.2.2.3.1. Use the resulting product, not the value from Table 4-13, as the dilution weight for the sensitive environments in that type of surface water body. Do not round this product to the nearest integer. Enter the value assigned in Table 4-25.

4.2.4.3.1.4 *Calculation of environmental threat-targets factor category value*. Sum the values for Level I concentrations, Level II concentrations, and potential contamination for the watershed. Do not round this sum to the nearest integer. Assign this sum as the environmental threat targets factor category value for the watershed. Enter this value in Table 4-25.

4.2.4.4 *Calculation of environmental threat score for a watershed*. Multiply the environmental threat factor category values for likelihood of release, waste characteristics, and targets for the watershed, and round the product to the nearest integer. Then divide by 82,500. Assign the resulting value, subject to a maximum of 60, as the environmental threat score for the watershed. Enter this score in Table 4-25.

4.2.5 *Calculation of ground water to surface water migration component score for a watershed*. Sum the scores for the three threats for the watershed (that is, drinking water, human food chain, and environmental threats). Assign the resulting score, subject to a maximum value of 100, as the ground water to surface water migration component score for the watershed. Enter this score in Table 4-25.

4.2.6 *Calculation of ground water to surface water migration component score*. Select the highest ground water to surface water migration component score from the watersheds evaluated. Assign this score as the ground water to surface water migration component score for the site, subject to a maximum score of 100. Enter this score in Table 4-25.

4.3 *Calculation of surface water migration pathway score*. Determine the surface water migration pathway score as follows:

- If only one of the two surface water migration components (overland/flood or ground water to surface water) is scored, assign the score of that component as the surface water migration pathway score.
- If both components are scored, select the higher of the two component scores from sections 4.1.6 and 4.2.6. Assign that score as the surface water migration pathway score.

5.0 *Soil Exposure Pathway*

Evaluate the soil exposure pathway based on two threats: Resident population threat and nearby population threat. Evaluate both threats based on three factor categories: Likelihood of exposure, waste characteristics, and targets. Figure 5-1 indicates the factors included within each factor category for each type of threat.

Determine the soil exposure pathway score (S_s) in terms of the factor category values as follows:

where:

$$S_s = \frac{\sum_{i=1}^{2} (LE_i)(WC_i)(T_i)}{SF}$$

LE_i = Likelihood of exposure factor category value for threat i (that is, resident population threat or nearby population threat).

WC_i = Waste characteristics factor category value for threat i.

T_i = Targets factor category value for threat i.

SF = Scaling factor.

Table 5-1 outlines the specific calculation procedure.

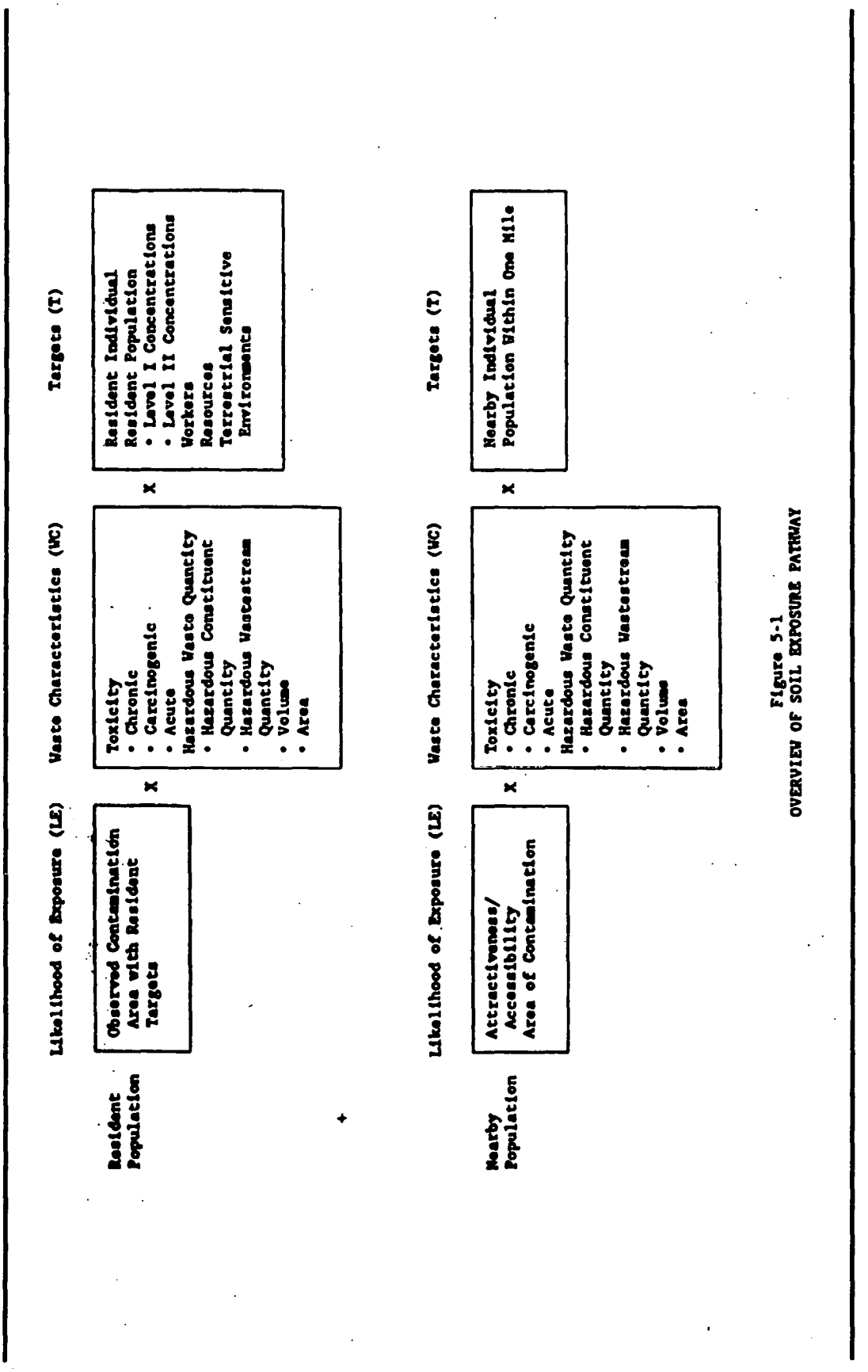


Figure 5-1
OVERVIEW OF SOIL EXPOSURE PATHWAY

Table 5-1.—Soil Exposure Pathway Scoresheet

Factor categories and factors	Maximum value	Value assigned
Resident Population Threat		
Likelihood of Exposure		
1. Likelihood of Exposure	550	
Waste Characteristics		
2. Toxicity	(a)	
3. Hazardous Waste Quantity	(a)	
4. Waste Characteristics	100	
Targets		
5. Resident Individual	50	
6. Resident Population:		
6a. Level I Concentrations	(b)	
6b. Level II Concentrations	(b)	
6c. Resident Population (lines 6a + 6b)	(b)	
7. Workers	15	
8. Resources	5	
9. Terrestrial Sensitive Environments	(c)	
10. Targets (lines 5 + 6c + 7 + 8 + 9)	(b)	
Resident Population Threat Score		
11. Resident Population Threat (lines 1 x 4 x 10)	(b)	
Nearby Population Threat		
Likelihood of Exposure		
12. Attractiveness/Accessibility	100	
13. Area of Contamination	100	
14. Likelihood of Exposure	500	
Waste Characteristics		
15. Toxicity	(a)	
16. Hazardous Waste Quantity	(a)	
17. Waste Characteristics	100	
Targets		
18. Nearby Individual	1	
19. Population Within 1 Mile	(b)	
20. Targets (lines 18 + 19)	(b)	
Nearby Population Threat Score		
21. Nearby Population Threat (lines 14 x 17 x 20)	(b)	
Soil Exposure Pathway Score		
22. Soil Exposure Pathway Score d (Ss), (lines [11 + 21]/82,500, subject to a maximum of 100)	100	

[a] Maximum value applies to waste characteristics category.

[b] Maximum value not applicable.

[c] No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to maximum of 60.

[d] Do not round to nearest integer.

5.0.1 *General considerations.* Evaluate the soil exposure pathway based on areas of observed contamination:

- Consider observed contamination to be present at sampling locations where analytic evidence indicates that:
  - A hazardous substance attributable to the site is present at a concentration significantly above background levels for the site (see Table 2-3 in section 2.3 for the criteria for determining analytical significance), *and*
  - This hazardous substance, if not present at the surface, is covered by 2 feet or less of cover material (for example, soil).
- Establish areas of observed contamination based on sampling locations at which there is observed contamination as follows:
  - For all sources except contaminated soil, if observed contamination from the site is present at any sampling location within the source, consider that entire source to be an area of observed contamination.
  - For contaminated soil, consider both the sampling location(s) with observed contamination from the site and the area lying between such locations to be an area of observed contamination, unless available information indicates otherwise.
- If an area of observed contamination (or portion of such an area) is covered by a permanent, or otherwise maintained, essentially impenetrable material (for example, asphalt) that is not more than 2 feet thick, exclude that area (or portion

of the area) in evaluating the soil exposure pathway.

- For an area of observed contamination, consider only those hazardous substances that meet the criteria for observed contamination for that area to be associated with that area in evaluating the soil exposure pathway (see section 2.2.2).

If there is observed contamination, assign scores for the resident population threat and the nearby population threat, as specified in sections 5.1 and 5.2. If there is no observed contamination, assign the soil exposure pathway a score of 0.

5.1 *Resident Population Threat.* Evaluate the resident population threat only if there is an area of observed contamination in one or more of the following locations:

- Within the property boundary of a residence, school, or day care center and within 200 feet of the respective residence, school, or day care center, or
- Within a workplace property boundary and within 200 feet of a workplace area, or
- Within the boundaries of a resource specified in section 5.1.3.4, or
- Within the boundaries of a terrestrial sensitive environment specified in section 5.1.3.5.

If not, assign the resident population threat a value of 0, enter this value in Table 5-1, and proceed to the nearby population threat (section 5.2).

5.1.1 *Likelihood of exposure.* Assign a value of 550 to the likelihood of exposure factor category for the resident population threat if there is an area of observed contamination in one or more locations listed in section 5.1. Enter this value in Table 5-1.

5.1.2 *Waste characteristics.* Evaluate waste characteristics based on two factors: toxicity and hazardous waste quantity. Evaluate only those hazardous substances that meet the criteria for observed contamination at the site (see section 5.0.1).

5.1.2.1 *Toxicity.* Assign a toxicity factor value to each hazardous substance as specified in section 2.4.1.1. Use the hazardous substance with the highest toxicity factor value to assign the value to the toxicity factor for the resident population threat. Enter this value in Table 5-1.

5.1.2.2 *Hazardous waste quantity.* Assign a hazardous waste quantity factor value as specified in section 2.4.2. In estimating the hazardous waste quantity, use Table 5-2 and:

- Consider only the first 2 feet of depth of an area of observed contamination, except as specified for the volume measure.
- Use the volume measure (see section 2.4.2.1.3) only for those types of areas of observed contamination listed in Tier C of Table 5-2. In evaluating the volume measure for these listed areas of observed contamination, use the full volume, not just the volume within the top 2 feet.
- Use the area measure (see section 2.4.2.1.4), not the volume measure, for all other types of areas of observed contamination, even if their volume is known.

Enter the value assigned in Table 5-1.

Table 5-2.—Hazardous Waste Quantity Evaluation Equations For Soil Exposure Pathway

Tier	Measure	Units	Equation for assigning value[a]
A	Hazardous Constituent Quantity (C)	lb	C
B[b]	Hazardous Wastestream Quantity (W)	lb	W/5,000
C[b]	Volume (V) Surface Impoundment[c]	yd^3	V/2.5
	Drums[d]	gallon	V/500
	Tanks and Containers Other Than Drums	yd^3	V/2.5

Table 5-2.—Hazardous Waste Quantity Evaluation Equations For Soil Exposure Pathway

Tier	Measure	Units	Equation for assigning value[a]
D[b]	Area (A)		
	Landfill	ft^2	A/34,000
	Surface Impoundment	ft^2	A/13
	Surface Impoundment (Buried/backfilled)	ft^2	A/13
	Land treatment	ft^2	A/270
	Pile[c]	ft^2	A/34
	Contaminated Soil	ft^2	A/34,000

[a]Do not round nearest integer.

[b]Convert volume to mass when necessary: 1 ton = 2,000 pounds = 1 cubic yard = 4 drums = 200 gallons.

[c]Use volume measure only for surface impoundments containing hazardous substances present as liquids. Use area measures in Tier D for dry surface impoundments and for buried/backfilled surface impoundments.

[d]If actual volume of drums is unavailable, assume 1 drum = 50 gallons.

[e]Use land surface area under pile, not surface area of pile.

5.1.2.3 *Calculation of waste characteristics factor category value.* Multiply the toxicity and hazardous waste quantity factor values, subject to a maximum product of 1×10^8. Based on this product, assign a value from Table 2-7 (section 2.4.3.1) to the waste characteristics factor category. Enter this value in Table 5-1.

5.1.3 *Targets.* Evaluate the targets factor category for the resident population threat based on five factors: resident individual, resident population, workers, resources, and terrestrial sensitive environments.

In evaluating the targets factor category for the resident population threat, count only the following as targets:

- Resident individual—a person living or attending school or day care on a property with an area of observed contamination *and* whose residence, school, or day care center, respectively, is on or within 200 feet of the area of observed contamination.
- Worker—a person working on a property with an area of observed contamination *and* whose workplace area is on or within 200 feet of the area of observed contamination.
- Resources located on an area of observed contamination, as specified in section 5.1.
- Terrestrial sensitive environments located on an area of observed contamination, as specified in section 5.1.

5.1.3.1 *Resident individual.* Evaluate this factor based on whether there is a resident individual, as specified in section 5.1.3, who is subject to Level I or Level II concentrations.

First, determine those areas of observed contamination subject to Level I concentrations and those subject to Level II concentrations as specified in sections 2.5.1 and 2.5.2. Use the health-based benchmarks from Table 5-3 in determining the level of contamination. Then assign a value to the resident individual factor as follows:

- Assign a value of 50 if there is at least one resident individual for one or more areas subject to Level I concentrations.
- Assign a value of 45 if there is no such resident individuals, but there is at least one resident individual for one or more areas subject to Level II concentrations.
- Assign a value of 0 if there is no resident individual.

Enter the value assigned in Table 5-1.

5.1.3.2 *Resident population.* Evaluate resident population based on two factors: Level I concentrations and Level II concentrations. Determine which factor applies as specified in sections 2.5.1 and 2.5.2, using the health- based benchmarks from Table 5-3. Evaluate populations subject to Level I concentrations as specified in section 5.1.3.2.1 and populations subject to Level II concentrations as specified in section 5.1.3.2.2.

Table 5-3.—Health-Based Benchmarks for Hazardous Substances in Soils

- Screening concentration for cancer corresponding to that concentration that corresponds to the 10^{-6} individual cancer risk for oral exposures.
- Screening concentration for noncancer toxicological responses corresponding to the Reference Dose (RfD) for oral exposures.

Count only those persons meeting the criteria for resident individual as specified in section 5.1.3. In estimating the number of

people living on property with an area of observed contamination, when the estimate in based on the number of residences, multiply each residence by the average number of persons per residence for the county in which the residence is located.

5.1.3.2.1 *Level I concentrations.* Sum the number of resident individuals subject to Level I concentrations and multiply this sum by 10. Assign the resulting product as the value for this factor. Enter this value in Table 5- 1.

5.1.3.2.2 *Level II concentrations.* Sum the number of resident individuals subject to Level II concentrations. Do not include those people already counted under the Level I concentrations factor. Assign this sum as the value for this factor. Enter this value in Table 5-1.

5.1.3.2.3 *Calculation of resident population factor value.* Sum the factor values for Level I concentrations and Level II concentrations. Assign this sum as the resident population factor value. Enter this value in Table 5-1.

5.1.3.3 *Workers.* Evaluate this factor based on the number of workers that meet the section 5.1.3 criteria. Assign a value for these workers using Table 5-4. Enter this value in Table 5-1.

Table 5-4. – Factor Values for Workers

Number of workers	Assigned value
0	0
1 to 100	5
101 to 1,000	10
Greater than 1,000	15

5.1.3.4 *Resources.* Evaluate the resources factor as follows:

- Assign a value of 5 to the resources factor if one or more of the following is present on an area of observed contamination at the site:
  - Commercial agriculture.
  - Commercial silviculture.
  - Commercial livestock production or commercial livestock grazing.
- Assign a value of 0 if none of the above are present.

Enter the value assigned in Table 5-1.

5.1.3.5 *Terrestrial sensitive environments.* Assign value(s) from Table 5-5 to each terrestrial sensitive environment that meets the eligibility criteria of section 5.1.3.

Calculate a value (ES) for terrestrial sensitive environments as follows:

$$ES = \sum_{i=1}^{n} S_i$$

where:

S_i = Value(s) assigned from Table 5-5 to terrestrial sensitive environment i.

n = Number of terrestrial sensitive environments meeting section 5.1.3 criteria.

Because the pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60, determine the value for the terrestrial sensitive environments factor as follows:

Table 5-5.—Terrestrial Sensitive Environments Rating Values

Terrestrial sensitive environments	Assigned value
Terrestrial critical habitat[a] for Federal designated endangered or threatened species	100
National Park	
Designated Federal Wilderness Area	
National Monument	
Terrestrial habitat known to be used by Federal designated or proposed threatened or endangered species	75
National Preserve (terrestrial)	
National or State Terrestrial Wildlife Refuge	
Federal land designated for protection of natural ecosystems	
Administratively proposed Federal Wilderness Area	
Terrestrial areas utilized for breeding by large or dense aggregations of animals[b]	
Terrestrial habitat known to be used by State designated endangered or threatened species	50
Terrestrial habitat known to be used by species under review as to its Federal designated endangered or threatened status State lands designated for wildlife or game management	25
State designated Natural Areas	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	

[a] Critical habitat as defined in 50 CFR 424.02.

[b] Limit to vertebrate species.

- Multiply the values assigned to the resident population threat for likelihood of exposure (LE), waste char-

acteristics (WC), and ES. Divide the product by 82,500.

- If the result is 60 or less, assign the value ES as the terrestrial sensitive environments factor value.
- If the result exceeds 60, calculate a value EC as follows:

$$EC = \frac{(60)(82{,}500)}{(LE)(WC)}$$

Assign the value EC as the terrestrial sensitive environments factor value. Do not round this value to the nearest integer.

Enter the value assigned for the terrestrial sensitive environments factor in Table 5-1.

5.1.3.6 *Calculation of resident population targets factor category value.* Sum the values for the resident individual, resident population, workers, resources, and terrestrial sensitive environments factors. Do not round to the nearest integer. Assign this sum as the targets factor category value for the resident population threat. Enter this value in Table 5-1.

5.1.4 *Calculation of resident population threat score.* Multiply the values for likelihood of exposure, waste characteristics, and targets for the resident population threat, and round the product to the nearest integer. Assign this product as the resident population threat score. Enter this score in Table 5-1.

5.2 *Nearby population threat.* Include in the nearby population only those individuals who live or attend school within a 1-mile travel distance of an area of observed contamination at the site and who do not meet the criteria for resident individual as specified in section 5.1.3.

Do not consider areas of observed contamination that have an attractiveness/accessibility factor value of 0 (see section 5.2.1.1) in evaluating the nearby population threat.

5.2.1 *Likelihood of exposure.* Evaluate two factors for the likelihood of exposure factor category for the nearby population threat: attractiveness/accessibility and area of contamination.

5.2.1.1. *Attractiveness/accessibility.* Assign a value for attractiveness/accessibility from Table 5-6 to each area of observed contamination, excluding any land used for residences. Select the highest value assigned to the areas evaluated and use it as the value for the attractiveness/accessibility factor. Enter this value in Table 5-1.

5.2.1.2 *Area of contamination.* Evaluate area of contamination based on the total area of the areas of observed contamination at the site. Count only the area(s) that meet the criteria in section 5.0.1 and that receive an attractiveness/accessibility value greater than 0. Assign a value to this factor from Table 5-7. Enter this value in Table 5-1.

Table 5-6.—Attractiveness/Accessibility Values

Area of observed contamination	Assigned value
Designated recreational area	100
Regularly used for public recreation (for example, fishing, hiking, softball)	75
Accessible and unique recreational area (for example, vacant lots in urban area)	75
Moderately accessible (may have some access improvements—for example, gravel road), with some public recreation use	50
Slightly accessible (for example, extremely rural area with no road improvement), with some public recreation use	25
Accessible, with no public recreation use	10
Surrounded by maintained fence or combination of maintained fence and natural barriers	5
Physically inaccessible to public, with no evidence of public recreation use	0

Table 5-7.—Area of Contamination Factor Values

Total area of the areas of observed contamination (square feet)	Assigned value
Less than or equal to 5,000	5
Greater than 5,000 to 125,000	20
Greater than 125,000 to 250,000	40
Greater than 250,000 to 375,000	60
Greater than 375,000 to 500,000	80
Greater than 500,000	100

5.2.1.3 *Likelihood of exposure factor category value.* Assign a value from Table 5-8 to the likelihood of exposure factor category, based on the values assigned to the attractiveness/accessibility and area of contamination factors. Enter this value in Table 5-1.

Table 5-8.—Nearby Population Likelihood of Exposure Factor Values

Area of contamination factor value	Attractiveness/accessibility factor value						
	100	75	50	25	10	5	0
100	500	500	375	250	125	50	0
80	500	375	250	125	50	25	0
60	375	250	125	50	25	5	0
40	250	125	50	25	5	5	0
20	125	50	25	5	5	5	0
5	50	25	5	5	5	5	0

5.2.2 *Waste characteristics.* Evaluate waste characteristics based on two factors: toxicity and hazardous waste quantity. Evaluate only those hazardous substances that meet the criteria for observed contamination (see section 5.0.1) at areas that can be assigned an attractiveness/accessibility factor value greater than 0.

5.2.2.1 *Toxicity.* Assign a toxicity factor value as specified in section 2.4.1.1 to each hazardous substance meeting the criteria in section 5.2.2. Use the hazardous substance with the highest toxicity factor value to assign the value to the toxicity factor for the nearby population threat. Enter this value in Table 5-1.

5.2.2.2 *Hazardous waste quantity* Assign a value to the hazardous waste quantity factor as specified in section 5.1.2.2, except: consider only those areas of observed contamination that can be assigned an attractiveness/accessibility factor value greater than 0. Enter the value assigned in Table 5-1.

5.2.2.3 *Calculation of waste characteristics factor category value.* Multiply the toxicity and hazardous waste quantity factor values, subject to a maximum product of 1×10^8. Based on this product, assign a value from Table 2-7 (section 2.4.3.1) to the waste characteristics factor category. Enter this value in Table 5-1.

5.2.3 *Targets.* Evaluate the targets factory category for the nearby population threat based on two factors: nearby individual and population within a 1-mile travel distance from the site.

5.2.3.1 *Nearby individual.* If one or more persons meet the section 5.1.3 criteria for a resident individual, assign this factor a value of 0. Enter this value in Table 5-1.

If no person meets the criteria for a resident individual, determine the shortest travel distance from the site to any residence or school. In determining the travel distance, measure the shortest overland distance an individual would travel from a residence or school to the nearest area of observed contamination for the site with an attractiveness/accessibility factor value greater than 0. If there are no natural barriers to travel, measure the travel distance as the shortest straight-line distance from the residence or school to the area of observed contamination. If natural barriers exist (for example, a river), measure the travel distance as the shortest straight-line distance from the residence or school to the nearest crossing point and from there as the shortest straight-line distance to the area of observed contamination. Based on the shortest travel distance, assign a value from Table 5-9 to the nearest individual factor. Enter this value in Table 5-1.

Table 5-9.—Nearby Individual Factor Values

Travel distance for nearby individual (miles)	Assigned value
Greater than 0 to 1/4	1[a]
Greater than 1/4 to 1	0

[a] Assign a value of 0 if one or more persons meet the section 5.1.3 criteria for resident individual.

5.2.3.2 *Population within 1 mile.* Determine the population within each travel distance category of Table 5-10. Count residents and students who attend school within this travel distance. Do not include those people already counted in the resident population threat. Determine travel distances as specified in section 5.2.3.1.

In estimating residential population, when the estimate is based on the number of residences, multiply each residence by the average number of persons per residence for the county in which the residence is located.

Based on the number of people included within a travel distance category, assign a distance-weighted population value for that travel distance from Table 5-10.

Calculate the value for the population within 1 mile factor (PN) as follows:

where:

$$PN = \frac{1}{10} \sum_{i=1}^{3} W_i$$

W_i = Distance-weighted population value from Table 5-10 for travel distance category i.

Table 5-10. – Distance-Weighted Population Values for Nearby Population Threata

Travel distance category (miles)	Number of people within the travel distance category											
	0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000
Greater than 0 to 1/4 ..	0	0.1	0.4	1.0	4	13	41	130	408	1,303	4,081	13,034
Greater than 1/4 to 1/2	0	0.05	0.2	0.7	2	7	20	65	204	652	2,041	6,517
Greater than 1/2 to 1 ..	0	0.02	0.1	0.3	1	3	10	33	102	326	1,020	3,258

[a]Round the number of people present within a travel distance category to nearest integer. Do not round the assigned distance-weighted population value to nearest integer.

If PN is less than 1, do not round it to the nearest integer; if PN is 1 or more, round to the nearest integer. Enter this value in Table 5-1.

5.2.3.3 *Calculation of nearby population targets factor category value.* Sum the values for the nearby individual factor and the population within 1 mile factor. Do not round this sum to the nearest integer. Assign this sum as the targets factor category value for the nearby population threat. Enter this value in Table 5-1.

5.2.4 *Calculation of nearby population threat score.* Multiply the values for likelihood of exposure, waste characteristics, and targets for the nearby population threat, and round the product to the nearest integer. Assign this product as the nearby population threat score. Enter this score in Table 5-1.

5.3 *Calculation of soil exposure pathway score.* Sum the resident population threat score and the nearby population threat score, and divide the sum by 82,500. Assign the resulting value, subject to a maximum of 100, as the soil exposure pathway score (S_s). Enter this score in Table 5-1.

6.0 *Air Migration Pathway*

Evaluate the air migration pathway based on three factor categories: likelihood of release, waste characteristics, and targets. Figure 6-1 indicates the factors included within each factor category.

Determine the air migration pathway score (S_a) in terms of the factor category values as follows:

$$S_a = \frac{(LR)(WC)(T)}{SF}$$

where:

LR = Likelihood of release factor category value.

WC = Waste characteristics factor category value.

T = Targets factor category value.

SF = Scaling factor.

Table 6-1 outlines the specific calculation procedure.

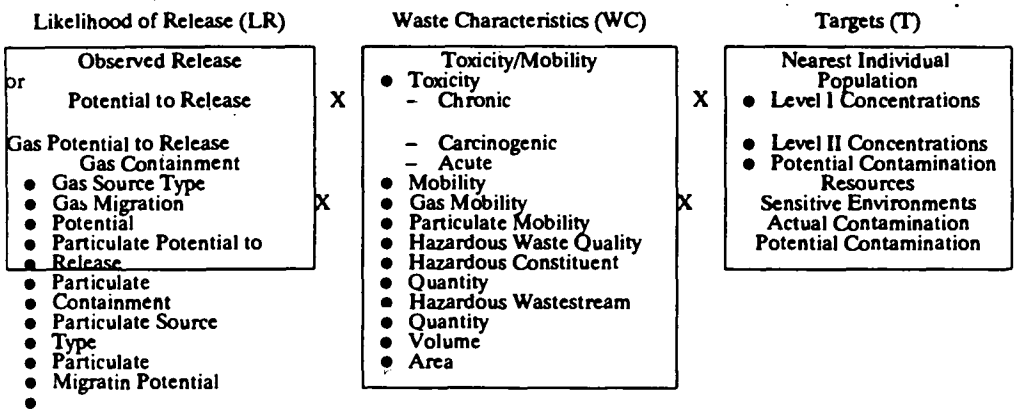


FIGURE 6-1
OVERVIEW OF AIR MIGRATION PATHWAY

Table 6-1.—Air Migration Pathway Scoresheet

Factor categories and factors	Maximum value	Value assigned
Likelihood of Release		
1. Observed Release	550	—
2. Potential to Release:		
2a. Gas Potential to Release	500	—
2b. Particulate Potential to Release	500	—
2c. Potential to Release (higher of lines 2a and 2b)	500	—
3. Likelihood of Release (higher of lines 1 and 2c)	550	—
Waste Characteristics		
4. Toxicity/Mobility	(a)	—
5. Hazardous Waste Quantity	(a)	—
6. Waste Characteristics	100	—
Targets		
7. Nearest Individual	50	—
8. Population:		
8a. Level I Concentrations	(b)	—
8b. Level II Concentrations	(b)	—
8c. Potential Contamination	(b)	—
8d. Population (lines 8a + 8b + 8c)	(b)	—
9. Resources	5	—
10. Sensitive Environments		
10a. Actual Contamination	(c)	—
10b. Potential Contamination	(c)	—
10c. Sensitive Environments (lines 10a + 10b)	(c)	—
11. Targets (lines 7 + 8d + 9 + 10c)	(b)	—
Air Migration Pathway Score		
12. Pathway Score (Sa) [(lines 3 x 6 x 11)/82,500][d]	100	—

[a] Maximum value applies to waste characteristics category.

[b] Maximum value not applicable.

[c] No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to maximum of 60.

[d] Do not round to nearest integer.

6.1 *Likelihood of Release*. Evaluate the likelihood of release factor category in terms of an observed release factor or a potential to release factor.

6.1.1 *Observed release*. Establish an observed release to the atmosphere by demonstrating that the site has released a hazardous substance to the atmosphere. Base this demonstration on either:

- Direct observation—a material (for example, particulate matter) that contains one or more hazardous substances has been seen entering the atmosphere directly. When evidence supports the inference of a release of a material that contains one or more hazardous substances by the site to the atmosphere, demonstrated adverse effects accumulated with that release may be used to establish an observed release.
- Chemical analysis—an analysis of air samples indicates that the concentration of ambient hazardous substance(s) has increased significantly above the background concentration for the site (see section 2.3). Some portion of the significant increase must be attributable to the site to establish the observed release.

If an observed release can be established, assign an observed release factor value of 550, enter this value in Table 6-1, and proceed to section 6.1.3. If an observed release cannot be established, assign an observed release factor value of 0, enter this value in Table 6-1, and proceed to section 6.1.2.

6.1.2 *Potential to release*. Evaluate potential to release only if an observed release cannot be established. Determine the potential to release factor value for the site by separately evaluating the gas potential to release and the particulate potential to release for each source at the site. Select the highest potential to release value (either gas or particulate) calculated for the sources evaluated and assign that value as the site potential to release factor value as specified below.

6.1.2.1 *Gas potential to release*. Evaluate gas potential to release for those sources that contain gaseous hazardous substances—that is, those hazardous substances with a vapor pressure greater than or equal to 10^{-9} torr.

Evaluate gas potential to release for each source based on three factors: gas

containment, gas source type, and gas migration potential. Calculate the gas potential to release value as illustrated in Table 6-2. Combine sources with similar characteristics into a single source in evaluating the gas potential to release factors.

Table 6-2. – Gas Potential to Release Evaluation

Source	Source type[a]	Gas containment factor value[b]	Gas source type factor type[c]	Gas migration potential factor value[d]	Sum	Gas source value
		A	B	C	(B+C)	A(B+C)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
Gas Potential to Release Factor (Select the Highest Gas Source Value)						

[a]Enter a Source Type listed in Table 6-4.

[b]Enter Gas Containment Factor Value from section 6.1.2.1.1.

[c]Enter Gas Source Type Factor Value from section 6.1.2.1.2.

[d]Enter Gas Migration Potential Factor Value from section 6.1.2.1.3.

6.1.2.1.1 *Gas containment.* Assign each source a value from Table 6-3 for gas containment. Use the lowest value from Table 6-3 that applies to the source, except: assign a value of 10 if there is evidence of biogas release or if there is an active fire within the source.

Table 6 3. Gas Containment Factor Values

Gas containment description	Assigned value
All situations except those specifically listed below	10
Evidence of biogas release	10[a]
Active fire within source	10[a]
Gas collection/treatment system functioning, regularly inspected, maintained, and completely covering source	0
Source substantially surrounded by engineering windbreak and no other containment specifically described in this table applies	7
Source covered with essentially impermeable, regularly inspected, maintained cover	0
Uncontaminated soil cover > 3 feet:	
• Source substantially vegetated with little exposed soil	0
• Source lightly vegetated with much exposed soil	3
• Source substantially devoid of vegetation	7
Uncontaminated soil cover ≥ 1 foot and ≤ 3 feet:	
• Source heavily vegetated with essentially no exposed soil	
– Cover soil type resistant to gas migration[b]	3
– Cover soil type not resistant to gas migration b or unknown	7
• Source substantially vegetated with little exposed soil and cover soil type resistant to gas migration[b]	7
• Other	10
Uncontaminated soil cover < 1 foot:	
• Source heavily vegetated with essentially no exposed soil and cover soil type resistant to gas migration[b]	7
• Other	10
Totally or partially enclosed within structurally intact building and no other containment specifically described in this table applies	7
Source consists solely of intact, sealed containers:	
• Totally protected from weather by regularly inspected, maintained cover	0
• Other	3

[a]This value must be used if applicable.

[b]Consider moist fine-grained and saturated coarse-grained soils resistant to gas migration. Consider all other soils nonresistant.

6.1.2.1.2 *Gas source type.* Assign a value for gas source type to each source as follows:

- Determine if the source meets the minimum size requirement based on the source hazardous waste quantity value (see section 2.4.2.1.5). If the source receives a source hazardous waste quantity value of 0.5 or more, consider the source to meet the minimum size requirement.
- If the source meets the minimum size requirement, assign it a value from Table 6-4 for gas source type.
- If the source does not meet the minimum size requirement, assign it a value of 0 for gas source type.

If no source at the site meets the minimum size requirement, assign each source at the site a value from Table 6-4 for gas source type.

Table 6-4.—Source Type Factor Values

Source type	Assigned value	
	Gas	Particulate
Active fire area	14	30
Burn pit	19	22
Containers or tanks (buried/below-ground):		
• Evidence of biogas release	33	22
• No evidence of biogas release	11	22
Containers or tanks, not elsewhere specified	28	14
Contaminated soil (excluding land treatment)	19	22
Landfarm/land treatment	28	22
Landfill:		
• Evidence of biogas release	33	22
• No evidence of biogas release	11	22
Pile:		
• Tailings pile	6	28
• Scrap metal or junk pile	6	17
• Trash pile	6	6
• Chemical waste pile	11	28
• Other waste piles	17	28
Surface impoundments (buried/backfilled):		
• Evidence of biogas release	33	22
• No evidence of biogas release	11	22
Surface impoundment (not buried/backfilled):		
• Dry	19	22
• Other	28	0
Other types of sources, not elsewhere specified	0	0

6.1.2.1.3 *Gas migration potential.* Evaluate this factor for each source as follows:

- Assign a value for gas migration potential to each of the gaseous hazardous substances associated with the source (see section 2.2.2) as follows:
  - Assign values from Table 6-5 for vapor pressure and Henry's constant to each hazardous substance. If Henry's constant cannot be determined for a hazardous substance, assign that hazardous substance a value of 2 for the Henry's constant component.
  - Sum the two values assigned to the hazardous substance.
  - Based on this sum, assign the hazardous substance a value from Table 6- 6 for gas migration potential.
- Assign a value for gas migration potential to each source as follows:
  - Select three hazardous substances associated with the source:
    - If more than three gaseous hazardous substances can be associated with the source, select three that have the highest gas migration potential values.
    - If fewer than three gaseous hazardous substances can be associated with a source, select all of them.
    - Average the gas migration potential values assigned to the selected hazardous substances.
    - Based on this average value, assign the source a gas migration potential value from Table 6-7.

Table 6-5.—Values for Vapor Pressure and Henry's Constant

Vapor pressure (Torr)	Assigned value
Greater than 10	3
Greater than 10^{-3} to 10	2
10^{-5} to 10^{-3}	1
Less than 10^{-5}	0

Table 6-5.—Values for Vapor Pressure and Henry's Constant

Henry's constant (atm-m^3/mol)	Assigned value
Greater than 10^{-3}	3
Greater than 10^{-5} to 10^{-3}	2
10^{-7} to 10^{-5}	1
Less than 10^{-7}	0

Table 6-6.—Gas Migration Potential Values for a Hazardous Substance

Sum of values for vapor pressure and Henry's constant	Assigned value
0	0
1 or 2	6
3 or 4	11
5 or 6	17

Table 6-7.—Gas Migration Potential Values for the Source

Average of gas migration potential values for three hazardous substances[a]	Assigned value
0 to < 3	0
3 to < 8	6
8 to < 14	11
14 to 17	17

[a]If fewer than three hazardous substances can be associated with the source, compute the average based only on those hazardous substances that can be associated.

6.1.2.1.4 *Calculation of gas potential to release value.* Determine the gas potential to release value for each source as illustrated in Table 6-2. For each source, sum the gas source type factor value and gas migration potential factor value and multiply this sum by the gas containment factor value. Select the highest product calculated for the sources evaluated and assign it as the gas potential to release value for the site. Enter this value in Table 6-1.

6.1.2.2 *Particulate potential to release.* Evaluate particulate potential to release for those sources that contain particulate hazardous substances—that is, those hazardous substances with a vapor pressure less than or equal to 10-1 torr.

Evaluate particulate potential to release for each source based on three factors: particulate containment, particulate source type, and particulate migration potential. Calculate the particulate potential to release value as illustrated in Table 6-8. Combine sources with similar characteristics into a single source in evaluating the particulate potential to release factors.

6.1.2.2.1 *Particulate containment.* Assign each source a value from Table 6-9 for particulate containment. Use the lowest value from Table 6-9 that applies to the source.

6.1.2.2.2 *Particulate source type.* Assign a value for particulate source type to each source in the same manner as specified for gas sources in section 6.1.2.1.2.

6.1.2.2.3 *Particulate migration potential.* Based on the site location, assign a value from Figure 6-2 for particulate migration potential. Assign this same value to each source at the site.

Table 6-8.—Particulate Potential to Release Evaluation

Source	Source type[a]	Particulate containment factor value[b]	Particulate type factor value[c]	Particulate migration potential factor value[d]	Sum	Particulate source value
		A	B	C	(B+C)	A(B+C)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
Particulate Potential to Release Factor Value (Select Highest Particulate Source Value)						

[a]Enter a Source Type listed in Table 6-4.

[b]Enter Particulate Containment Factor Value from section 6.1.2.2.1.

[c]Enter Particulate Source Type Factor Value from section 6.1.2.2.2.

Table 6-9.—Particulate Containment Factor Values

Particulate containment description	Assigned value
All situations except those specifically listed below	10
Source contains only particulate hazardous substances totally covered by liquids	0
Source substantially surrounded by engineered windbreak and no other containment specifically described in this table applies	7
Source covered with essentially impermeable, regularly inspected, maintained cover	0
Uncontaminated soil cover > 3 feet:	
• Source substantially vegetated with little or no exposed soil	0
• Source lightly vegetated with much exposed soil	3
• Source substantially devoid of vegetation	7
Uncontaminated soil cover ≥ 1 foot and ≤ 3 feet:	
• Source heavily vegetated with essentially no exposed soil:	
– Cover soil type resistant to gas migration[a]	3
– Cover soil type not resistant to gas migration a or unknown	7
• Source substantially vegetated with little exposed soil and cover soil type resistant to gas migration[a]	7
• Other	10
Uncontaminated soil cover 1 foot:	
• Source heavily vegetated with essentially no exposed soil and cover soil type resistant to gas migration[a]	7
• Other	10
Totally or partially enclosed within structurally intact building and no other containment specifically described in this table applies	7
Source consists solely of containers:	
• All containers contain only liquids	0
• All containers intact, sealed, and totally protected from weather by regularly inspected, maintained cover	0
• All containers intact and sealed	3
• Other	10

[a]Consider moist fine-grained and saturated coarse-grained soils resistant to gas migration. Consider all other soils nonresistant.

Figure 6-2. – Particulate Migration Potential Factor Values – Concluded

Location	Particulate migration potential assigned value
Hawaiian Islands	
Hilo, Hawaii	0
Honolulu, Oahu	17
Kahului, Maui	17
Lanai	17
Lihue, Kauai	11
Molokai	17
Pacific Islands	
Guam	6
Johnston Island	17
Koror Island	0
Kwajalein Island	6
Mujuro, Marshall Islands	0
Pago Pago, American Samoa	0
Ponape Island	0
Truk, Caroline Islands	0
Wake Island	17
Yap Island	0
Alaska	
Anchorage	17
Annette	0
Barrow	17
Barter Island	17
Bethel	17
Bettles	17
Big Delta	17
Cold Bay	6
Fairbanks	17
Gulkana	17
Homer	11
Juneau	0
King Salmon	11
Kodiak	0
Kutzebue	17
McGrath	17
Nome	11
St. Paul Island	11
Talkeetna	6
Unalakleet	17
Valdez	0
Yakutat	0
American Virgin Islands	
St. Croix	17
St. John	11
St. Thomas	11
Puerto Rico	
Arecibo	6
Coloso	6
Fajardo	11
Humacao	6
Isabela Station	11
Ponce	17
San Juan	11

For site locations not on Figure 6-2, and for site locations near the boundary points on Figure 6-2, assign a value as follows. First, calculate a Thornthwaite P-E index using the following equation:

$$PE = \sum_{i-1}^{12} 115\,[P_i / (T_i - 10)]^{10/9}$$

where:

PE = Thornthwaite P-E index.

P_i = Mean monthly precipitation for month i, in inches.

T_i = Mean monthly temperature for month i, in degrees Fahrenheit; for any month having a mean monthly temperature less than 28.4°F, use 28.4°F.

Based on the calculated Thornthwaite P-E index, assign a source particulate migration potential value to the site from Table 6-10. Assign this same value to each source at the site.

Table 6-10. – Particulate Migration Potential Values

Thornthwaite P-E Index	Assigned value
Greater than 150	0
85 to 150	6
50 to less than 85	11
Less than 50	17

6.1.2.2.4 *Calculation of particulate potential to release value.* Determine the particulate potential to release value for each source as illustrated in Table 6-8. For each source, sum its particulate source type factor value and particulate migration potential factor value and multiply this sum by its particulate containment factor value. Select the highest product calculated for the sources evaluated and assign it as the particulate potential to release value for the site. Enter the value in Table 6-1.

6.1.2.3 *Calculation of potential to release factor value for the site.* Select the higher of the gas potential to release value assigned in section 6.1.2.1.4 and the particulate potential to release value assigned in section 6.1.2.2.4. Assign the value selected as the site potential to release factor value. Enter this value in Table 6-1.

6.1.3 *Calculation of likelihood of release factor category value.* If an observed release is established, assign the observed release factor value of 550 as the likelihood of release factor category value. Otherwise, assign the site potential to release factor value as the likelihood of release factor category value. Enter the value in Table 6-1.

6.2 *Waste characteristics.* Evaluate the waste characteristics factor category based on two factors: toxicity/mobility and hazardous waste quantity. Evaluate only those hazardous substances available to migrate from the sources at the site to the atmosphere. Such hazardous substances include:

- Hazardous substances that meet the criteria for an observed release to the atmosphere.

- All gaseous hazardous substances associated with a source that has a gas containment factor value greater than 0 (see section 2.2.2, 2.2.3, and 6.1.2.1.1).
- All particulate hazardous substances associated with a source that has a particulate containment factor value greater than 0 (see section 2.2.2, 2.2.3, and 6.1.2.2.1).

6.2.1 *Toxicity/mobility.* For each hazardous substance, assign a toxicity factor value, a mobility factor value, and a combined toxicity/mobility factor value as specified below. Select the toxicity/mobility factor value for the air migration pathway as specified in section 6.2.1.3.

6.2.1.1 *Toxicity.* Assign a toxicity factor value to each hazardous substance as specified in section 2.4.1.1.

6.2.1.2 *Mobility.* Assign a mobility factor value to each hazardous substance as follows:

- Gaseous hazardous substance.
  - Assign a mobility factor value of 1 to each gaseous hazardous substance that meets the criteria for an observed release to the atmosphere.
  - Assign a mobility factor value from Table 6-11, based on vapor pressure, to each gaseous hazardous substance that does not meet the criteria for an observed release.
- Particulate hazardous substance.
  - Assign a mobility factor value of 0.02 to each particulate hazardous substance that meets the criteria for an observed release to the atmosphere.
  - Assign a mobility factor value from Figure 6-3, based on the site's location, to each particulate hazardous substance that does not meet the criteria for an observed release. (Assign all such particulate hazardous substances this same value.)
  - For site locations not on Figure 6-3 and for site locations near the boundary points on Figure 6-3, assign a mobility factor value to each particulate hazardous substance that does not meet the criteria for an observed release as follows:
    - Calculate a value M:

$$M = 0.0182\ (U^3/[PE]^2)$$

where:

U = Mean average annual wind speed (meters per second).

PE = Thornthwaite P-E index from section 6.1.2.2.3.

- Based on the value M, assign a mobility factor value from Table 6-12 to each particulate hazardous substance.
- Gaseous and particulate hazardous substances.
  - For a hazardous substance potentially present in both gaseous and particulate forms, select the higher of the factor values for gas mobility and particulate mobility for that substance and assign that value as the mobility factor value for the hazardous substance.

6.2.1.3 *Calculation of toxicity/mobility factor value.* Assign each hazardous substance a toxicity/mobility factor value from Table 6-13, based on the values assigned to the hazardous substance for the toxicity and mobility factors. Use the hazardous substance with the highest toxicity/mobility factor value to assign the value to the toxicity/mobility factor for the air migration pathway. Enter this value in Table 6-1.

Table 6-11.—Gas Mobility Factor Values

Vapor pressure (Torr)	Assigned value[a]
Greater than 10^{-1}	1.0
Greater than 10^{-3} to 10^{-1}	0.2
Greater than 10^{-5} to 10^{-3}	0.02
Greater than 10^{-7} to 10^{-5}	0.002
Less than or equal to 10^{-7}	0.0002

[a]Do not round to nearest integer.

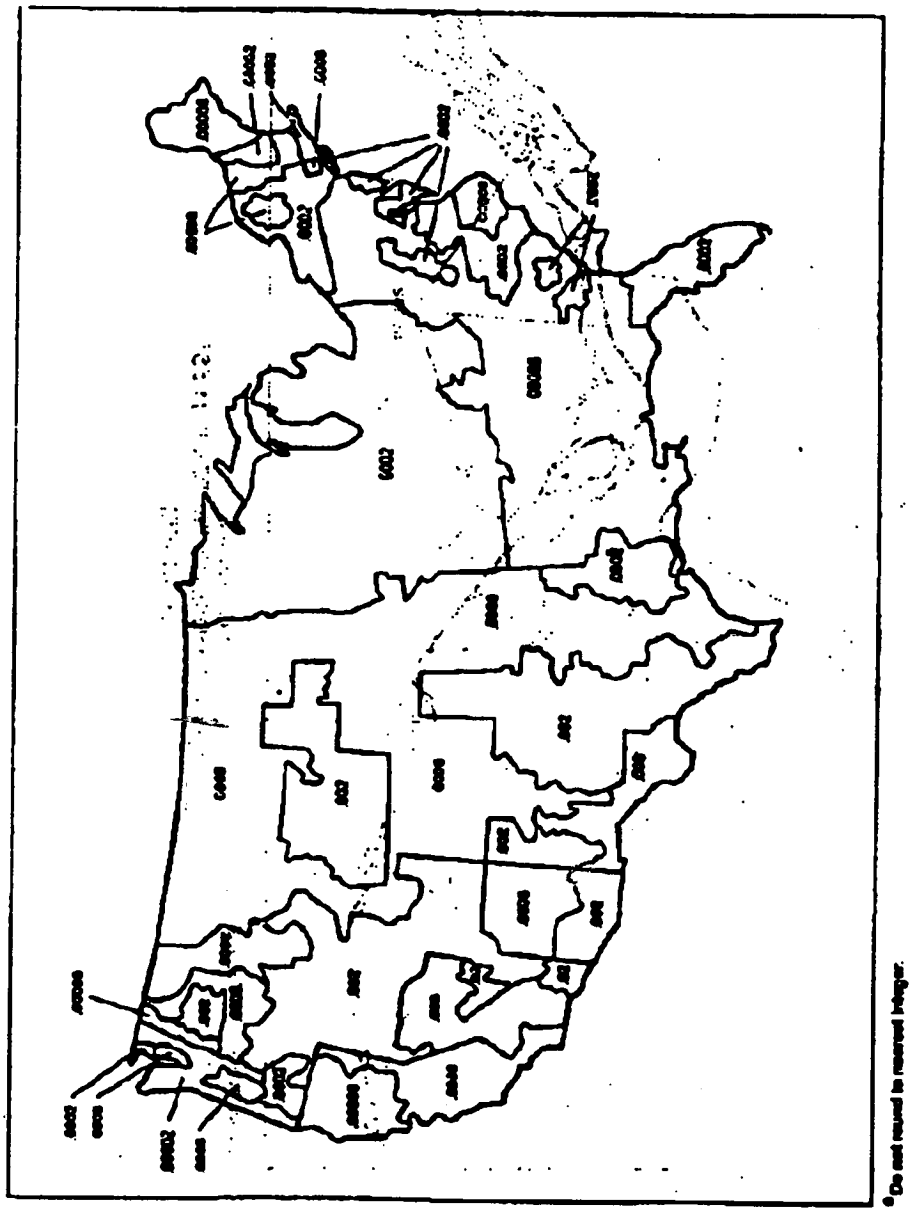


FIGURE 6-3
PARTICULATE MOBILITY FACTOR VALUES*

*Do not round to nearest integer.

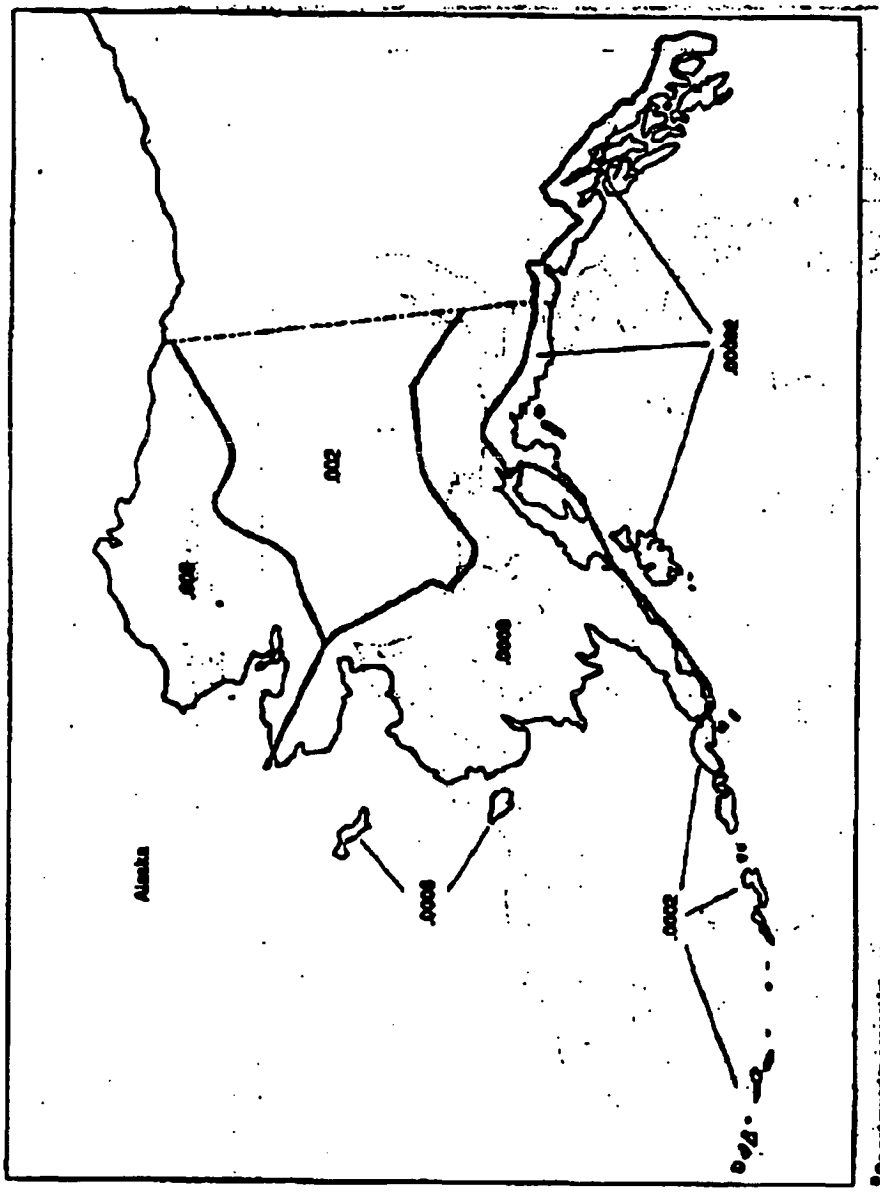
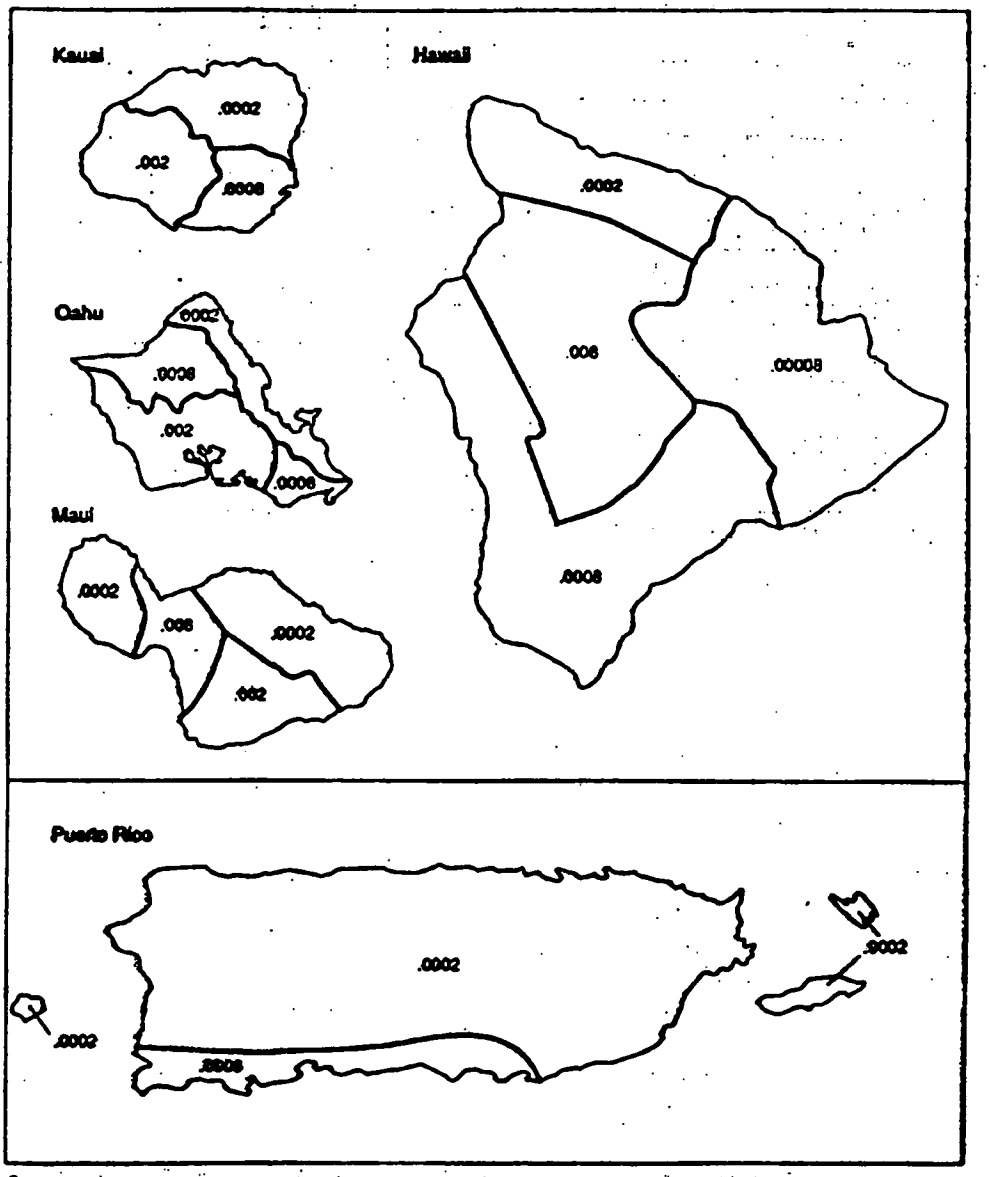


FIGURE E-3
PARTICULATE MOBILITY FACTOR VALUES*
(CONTINUED)

*Do not round to nearest integer.



[a] Do not round to nearest integer.

FIGURE 8-3
PARTICULATE MOBILITY FACTOR VALUES[a]
(CONTINUED)

Figure 6-3. – Particulate Mobility Factor Values

Location	Particulated mobility assigned value
Pacific Islands	
Guam	0.0002
Johnston Island	0.002
Koror Island	0.00008
Kwajalein Island	0.0002
Mujuro, Marshall Islands	0.00008
Pago Pago, American Samoa	0.00008
Ponape Island	0.00002
Truk, Caroline Islands	0.00008
Wake Island	0.002
Yap Island	0.00008
American Virgin Islands	
St. Croix	0.0008
St. John	0.0002
St. Thomas	0.0002

Table 6-12. – Particulate Mobility Factor Values

M	Assigned value[a]
Greater than 1.4×10^{-2}	0.02
Greater than 4.4×10^{-3} to 1.4×10^{-2}	0.008
Greater than 1.4×10^{-3} to 4.4×10^{-3}	0.002
Greater than 4.4×10^{-4} to 1.4×10^{-3}	0.0008
Greater than 1.4×10^{-4} to 4.4×10^{-4}	0.0002
Greater than 4.4×10^{-5} to 1.4×10^{-4}	0.00008
Less than or equal to 4.4×10^{-5}	0.00002

[a]Do not round to nearest integer.

Table 6-13. – Toxicity/Mobility Factor Values[a]

Mobility factor value	Toxicity factor value					
	10,000	1,000	100	10	1	0
1.0	10,000	1,000	100	10	1	0
0.2	2,000	200	20	2	0.2	0
0.02	200	20	2	0.2	0.02	0
0.008	80	8	0.8	0.08	0.008	0
0.002	20	2	0.2	0.02	0.002	0
0.0008	8	0.8	0.08	0.008	0.0008	0
0.0002	2	0.2	0.02	0.002	0.0002	0
0.00008	0.8	0.08	0.008	0.0008	0.00008	0
0.00002	0.2	0.02	0.002	0.0002	0.00002	0

[a]Do not round to nearest integer.

6.2.2 *Hazardous waste quantity.* Assign a hazardous waste quantity factor value for the air migration pathway as specified in section 2.4.2. Enter this value in Table 6-1.

6.2.3 *Calculation of waste characteristics factor category value.* Multiply the toxicity/mobility factor value and the hazardous waste quantity factor value, subject to a maximum product of 1 x 108. Based on this product, assign a value from Table 2-7 (section 2.4.3.1) to the waste characteristics factor category. Enter this value in Table 6-1.

6.3 *Targets.*

Evaluate the targets factor category based on four factors: nearest individual, population, resources, and sensitive environments. Include only those targets (for example, individuals, sensitive environments) located within the 4-mile target distance limit, except: if an observed release is established beyond the 4-mile target distance limit, include those additional targets that are specified below in this section and in section 6.3.4.

Evaluate the nearest individual and population factors based on whether the target populations are subject to Level I concentrations, Level II concentrations, or potential contamination. Determine which applies to a target population as follows.

If no samples meet the criteria for an observed release to air and if there is no observed release by direct observation, consider the entire population within the 4-mile target distance limit to be subject to potential contamination.

If one or more samples meet the criteria for an observed release to air or if there is an observed release by direct observation, evaluate the population as follows:

- Determine the most distant sample location that meets the criteria for Level I concentrations as specified in sections 2.5.1 and 2.5.2 and the most distant location (that is, sample location or direct observation location) that meets the criteria for Level II concentrations. Use the health-based benchmarks from Table 6-14 in determining the level of contamination for sample locations. If the most distant Level II location is closer to a source than

the most distant Level I sample location, do not consider the Level II location.

- Determine the single most distant location (sample location or direct observation location) that meets the criteria for Level I or Level II concentrations.
- If this single most distant location is within the 4-mile target distance limit, identify the distance categories from Table 6-15 in which the selected Level I concentrations sample and Level II concentrations sample (or direct observation location) are located:
  - Consider the target population anywhere within this furthest Level I distance category, or anywhere within a distance category closer to a source at the site, as subject to Level I concentrations.
  - Consider the target population located beyond any Level I distance categories, up to and including the population anywhere within the furthest Level II distance category, as subject to Level II concentrations.
  - Consider the remainder of the target population within the 4-mile target distance limit as subject to potential contamination.
- If the single most distant location is beyond the 4-mile target distance limit, identify the distance at which the selected Level I concentrations sample and Level II concentrations sample (or direct observation location) are located:
  - If the Level I sample location is within the 4-mile target distance limit, identify the target population subject to Level I concentrations as specified above.
  - If the Level I sample location is beyond the 4-mile target distance limit, consider the target population located anywhere within a distance from the sources at the site equal to the distance to this sample location to be subject to Level I concentrations and include them in the evaluation.
  - Consider the target population located beyond the Level I target population, but located anywhere within a distance from the sources at the site equal to the distance to the selected Level II location, to be subject to Level II concentrations and include them in the evaluation.
  - Do not include any target population as subject to potential contamination.

Table 6-14.—Health-Based Benchmarks for Hazardous Substances in Air

- Concentration corresponding to National Ambient Air Quality Standard (NAAQS).
- Concentration corresponding to National Emission Standards for Hazardous Air Pollutants (NESHAPs).
- Screening concentration for cancer corresponding to that concentration that corresponds to the 10^{-6} individual cancer risk for inhalation exposures.
- Screening concentration for noncancer toxicological responses corresponding to the Reference Dose (RfD) for inhalation exposures.

Table 6-15.—Air Migration Pathway Distance Weights

Distance category (miles)	Assigned distance weight[a]
0	1.0
Greater than 0 to 1/4	0.25
Greater than 1/4 to 1/2	0.054
Greater than 1/2 to 1	0.016
Greater than 1 to 2	0.0051
Greater than 2 to 3	0.0023
Greater than 3 to 4	0.0014
Greater than 4	0

[a]Do not round to nearest integer.

6.3.1 *Nearest individual.* Assign the nearest individual factor a value as follows:

- If one or more residences or regularly occupied buildings or areas is subject to Level I concentrations as specified in section 6.3, assign a value of 50.
- If not, but if one or more a residences or regularly occupied buildings or areas is subject to Level II concentrations, assign a value of 45.
- If none of the residences and regularly occupied buildings and areas is subject to Level I or Level II concentrations, assign a value to this factor based on the shortest distance to any residence or regularly occupied building or area, as mea-

sured from any source at the site with an air migration containment factor value greater than 0. Based on this shortest distance, assign a value from Table 6-16 to the nearest individual factor.

Enter the value assigned in Table 6-1.

Table 6-16.—Nearest Individual Factor Values

Distance to nearest individual (miles)	Assigned value
Level I concentrations[a]	50
Level II concentrations[a]	45
0 to 1/8	20
Greater than 1/8 to 1/4	7
Greater than 1/4 to 1/2	2
Greater than 1/2 to 1	1
Greater than 1	0

[a]Distance does not apply.

6.3.2 *Population.* In evaluating the population factor, count residents, students, and workers regularly present within the target distance limit. Do not count transient populations such as customers and travelers passing through the area.

In estimating residential population, when the estimate is based on the number of residences, multiply each residence by the average number of persons per residence for the county in which the residence is located.

6.3.2.1 *Level of contamination.* Evaluate the population factor based on three factors: Level I concentrations, Level II concentrations, and potential contamination.

Evaluate the population subject to Level I concentrations (see section 6.3) as specified in section 6.3.2.2, the population subject to Level II concentrations as specified in section 6.3.2.3, and the population subject to potential contamination as specified in section 6.3.2.4.

For the potential contamination factor, use population ranges in evaluating the factor as specified in section 6.3.2.4. For the Level I and Level II concentrations factors, use the population estimate, not population ranges, in evaluating both factors.

6.3.2.2 *Level I concentrations.* Sum the number of people subject to Level I concentrations. Multiply this sum by 10. Assign the product as the value for this factor. Enter this value in Table 6-1.

6.3.2.3 *Level II concentrations.* Sum the number of people subject to Level II concentrations. Do not include those people already counted under the Level I concentrations factor. Assign this sum as the value for this factor. Enter this value in Table 6-1.

6.3.2.4 *Potential contamination.* Determine the number of people within each distance category of the target distance limit (see Table 6-15) who are subject to potential contamination. Do not include those people already counted under the Level I and Level II concentrations factors.

Based on the number of people present within a distance category, assign a distance-weighted population value for that distance category from Table 6-17. (Note that the distance-weighted population values in Table 6-17 incorporate the distance weights from Table 6-15. Do not multiply the values from Table 6-17 by these distance weights.)

Calculate the potential contamination factor value (PI) as follows:

where:

$$PI = \frac{1}{10_i} \sum_{i=1}^{n} W_i$$

W_i = Distance-weighted population from Table 6-17 for distance category i.

n = Number of distance categories.

If PI is less than 1, do not round it to the nearest integer; if PI is 1 or more, round to the nearest integer. Enter this value in Table 6-1.

6.3.2.5 *Calculation of population factor value.* Sum the factor values for Level I concentrations, Level II concentrations, and potential contamination. Do not round this sum to the nearest integer. Assign this sum as the population factor value. Enter this value in Table 6-1.

Table 6-17. – Distance-Weighted Population Values For Potential Contamination Factor for Air Pathway[a]

Distance category (miles)	Number of people within the distance category												
	0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000
On a source	0	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455
Greater than 0 to 1/4	0	1	4	13	41	131	408	1,304	4,081	13,034	40,812	130,340	408,114
Greater than 1/4 to 1/2	0	0.2	0.9	3	9	28	88	282	882	2,815	8,815	28,153	88,153
Greater than 1/2 to 1	0	0.06	0.3	0.9	3	8	26	83	261	834	2,612	8,342	26,119
Greater than 1 to 2	0	0.02	0.09	0.3	0.8	3	8	27	83	266	833	2,659	8,326
Greater than 2 to 3	0	0.009	0.04	0.1	0.4	1	4	12	38	120	375	1,199	3,755
Greater than 3 to 4	0	0.005	0.02	0.07	0.2	0.7	2	7	23	73	229	730	2,285

[a]Round the number of people present within a distance category to nearest integer. Do not round the assigned distance-weighted population value to nearest integer.

6.3.3 *Resources*. Evaluate the resources factor as follows:

- Assign a value of 5 if one or more of the following resources are present within one-half mile of a source at the site having an air migration containment factor value greater than 0:
  - Commercial agriculture.
  - Commercial silviculture.
  - Major or designated recreation area.
- Assign a value of 0 if none of these resources is present.

Enter the value assigned in Table 6-1.

6.3.4 *Sensitive environments*. Evaluate sensitive environments based on two factors: actual contamination and potential contamination. Determine which factor applies as follows.

If no samples meet the criteria for an observed release to air and if there is no observed release by direct observation, consider all sensitive environments located, partially or wholly, within the target distance limit to be subject to potential contamination.

If one or more samples meet the criteria for an observed release to air or if there is an observed release by direct observation, determine the most distant location (that is, sample location or direct observation location) that meets the criteria for an observed release:

- If the most distant location meeting the criteria for an observed release is within the 4-mile target distance limit, identify the distance category from Table 6-15 in which it is located:
  - Consider sensitive environments located, partially or wholly, anywhere within this distance category or anywhere within a distance category closer to a source at the site as subject to actual contamination.
  - Consider all other sensitive environments located, partially or wholly, within the target distance limit as subject to potential contamination.
- If the most distant location meeting the criteria for an observed release is beyond the 4-mile target distance limit, identify the distance at which it is located:
  - Consider sensitive environments located, partially or wholly, anywhere within a distance from the sources at the site equal to the distance to this location to be subject to actual contamination and include all such sensitive environments in the evaluation.
  - Do not include any sensitive environments as subject to potential contamination.

6.3.4.1 *Actual contamination*. Determine those sensitive environments subject to actual contamination (i.e., those located partially or wholly within a distance category subject to actual contamination). Assign value(s) from Table 4-23 (section 4.1.4.3.1.1) to each sensitive environment subject to actual contamination.

For those sensitive environments that are wetlands, assign an additional value from Table 6-18. In assigning a value from Table 6-18, include only those portions of wetlands located within distance categories subject to actual contamination. If a wetland is located partially in a distance category subject to actual contamination and partially in one subject to potential contamination, then solely for purposes of Table 6-18, count the portion in the distance category subject to potential contamination under the potential contamination factor in section 6.3.4.2. Determine the total acreage of wetlands within those distance categories subject to actual contamination and assign a value from Table 6-18 based on this total acreage.

Calculate the actual contamination factor value (EA) as follows:

$$EA = WA + \sum_{i=1}^{n} S_i$$

where:

WA = Value assigned from Table 6-18 for wetlands in distance categories subject to actual contamination.

S_i = Value(s) assigned from Table 4-23 to sensitive environment i.

n = Number of sensitive environments subject to actual contamination.

Enter the value assigned in Table 6-1.

Table 6-18.—Wetlands Rating Values for Air Migration Pathway[a]

Wetland area (acres)	Assigned value
Less than 1	0
1 to 50	25
Greater than 50 to 100	75
Greater than 100 to 150	125
Greater than 150 to 200	175
Greater than 200 to 300	250
Greater than 300 to 400	350
Greater than 400 to 500	450
Greater than 500	500

[a]Wetlands as defined in 40 CFR section 230.3.

6.3.4.2 *Potential contamination.* Determine those sensitive environments located, partially or wholly, within the target distance limit that are subject to potential contamination. Assign value(s) from Table 4-23 to each sensitive environment subject to potential contamination. Do not include those sensitive environments already counted for Table 4-23 under the actual contamination factor.

For each distance category subject to potential contamination, sum the value(s) assigned from Table 4-23 to the sensitive environments in that distance category. If a sensitive environment is located in more than one distance category, assign the sensitive environment only to that distance category having the highest distance weighting value from Table 6-15.

For those sensitive environments that are wetlands, assign an additional value from Table 6-18. In assigning a value from Table 6-18, include only those portions of wetlands located within distance categories subject to potential contamination, as specified in section 6.3.4.1. Treat the wetlands in each separate distance category as separate sensitive environments solely for purposes of applying Table 6-18. Determine the total acreage of wetlands within each of these distance categories and assign a separate value from Table 6-18 for each distance category.

Calculate the potential contamination factor value (EP) as follows:

$$EP = \frac{1}{10} \sum_{j=1}^{m} ([W_j + S_j]D_j)$$

Where

$$S_j = \sum_{i=1}^{n} S_{ij}$$

S_{ij} = Value(s) assigned from Table 4-23 to sensitive environment in distance category j.

n = Number of sensitive environments subject to potential contamination.

W_j = Value assigned from Table 6-18 for wetland area in distance category j.

D_j = Distance weight from Table 6-15 for distance category j.

m = Number of distance categories subject to potential contamination.

If EP is less than 1, do not round it to the nearest integer; if EP is 1 or more, round to the nearest integer. Enter the value assigned in Table 6-1.

6.3.4.3 *Calculation of sensitive environments factor value.* Sum the factor values for actual contamination and potential contamination. Do not round this

sum, designated as EB, to the nearest integer.

Because the pathway score based solely on sensitive environments is limited to a maximum of 60, use the value EB to determine the value for the sensitive environments factor as follows:

- Multiply the values assigned to likelihood of release (LR), waste characteristics (WC), and EB. Divide the product by 82,500.
  - If the result is 60 or less, assign the value EB as the sensitive environments factor value.
  - If the result exceeds 60, calculate a value EC as follows:

$$EC = \frac{(60)(82{,}500)}{(LR)(WC)}$$

Assign the value EC as the sensitive environments factor value. Do not round this value to the nearest integer.

Enter the value assigned for the sensitive environments factor in Table 6-1.

6.3.5 *Calculation of targets factor category value.* Sum the nearest individual, population, resources, and sensitive environments factor values. Do not round this sum to the nearest integer. Assign this sum as the targets factor category value. Enter this value in Table 6-1.

6.4 *Calculation of air migration pathway score.* Multiply the values for likelihood of release, waste characteristics, and targets, and round the product to the nearest integer. Then divide by 82,500. Assign the resulting value, subject to a maximum value of 100, as the air migration pathway score (Sa). Enter this score in Table 6-1.

7.0 *Sites Containing Radioactive Substances.*

In general, radioactive substances are hazardous substances under CERCLA and should be considered in HRS scoring. Releases of certain radioactive substances are, however, excluded from the definition of "release" in section 101(22) of CERCLA, as amended, and should not be considered in HRS scoring.

Evaluate sites containing radioactive substances using the instructions specified in sections 2 through 6, supplemented by the instructions in this section. Those factors denoted with a "yes" in Table 7-1 are evaluated differently for sites containing radioactive substances than for sites containing only nonradioactive hazardous substances, while those denoted with a "no" are not evaluated differently and are not addressed in this section.

Table 7-1.—HRS Factors Evaluated Differently for Radionuclides

Ground water pathway	Status[a]	Surface water pathway	Status[a]	Soil exposure pathway	Status[a]	Air pathway	Status[a]
Likelihood of Release		Likelihood of Release		Likelihood of Exposure		Likelihood of Release	
Observed Release	Yes	Observed Release	Yes	Observed Contamination	Yes	Observed Release	Yes
Potential to Release	No	Potential to Release	No	Attractiveness/ Accessibility to Nearby Residents	No	Gas Potential to Release	No
Containment	No	Overland Flow Containment	No		Gas Containment	No	
Net Precipitation	No	Runoff	No	Area of Contamination	No	Gas Source Type	No
Depth to Aquifer	No	Distance to Surface Water	No			Gas Migration Potential	No
Travel Time	No	Flood Frequency	No			Particulate Potential to Release	No
		Flood Containment	No			Particulate Containment	No
						Particulate Source Type	No
						Particulate Migration Potential	No
Waste Characteristics		Waste Characteristics		Waste Characteristics		Waste Characteristics	
Toxicity	Yes	Toxicity/Ecotoxicity	Yes/ Yes	Toxicity	Yes	Toxicity	Yes
Mobility	No	Persistence/Mobility	Yes/No	Hazardous Waste Quantity	Yes	Mobility	No

Table 7-1.—HRS Factors Evaluated Differently for Radionuclides

Ground water pathway	Status[a]	Surface water pathway	Status[a]	Soil exposure pathway	Status[a]	Air pathway	Status[a]
Hazardous Waste Quantity	Yes	Bioaccumulation Potential	No			Hazardous Waste Quantity	Yes
		Hazardous Waste Quantity	Yes				
Targets		**Targets**		**Targets**		**Targets**	
Nearest Well	Yes[b]	Nearest Intake	Yes[b]	Resident Individual	Yes[b]	Nearest Individual	Yes[b]
Population	Yes[b]	Drinking Water Population	Yes[b]	Resident Population	Yes[b]	Population	Yes[b]
Resources	No	Resources	No[b]	Workers	No	Resources	No
Wellhead Protection Area	No	Sensitive Environments	Yes[b]	Resources	No	Sensitive Environments	No
		Human Food Chain Individual	Yes[b]	Terrestrial Sensitive Environments	No		
		Human Food Chain Population	Yes[b]				
				Nearby Individual	No		
				Population Within 1 Mile	No		

In general, sites containing mixed radioactive and other hazardous substances involve more evaluation than sites containing only radionuclides. For sites containing mixed radioactive and other hazardous substances, HRS factors are evaluated based on considerations of both the radioactive substances and the other hazardous substances in order to derive a single set of factor values for each factor category in each of the four pathways. Thus, the HRS score for these sites reflects the combined potential hazards posed by both the radioactive and other hazardous substances.

Section 7 is organized by factor category, similar to sections 3 through 6. Pathway-specific differences in evaluation criteria are specified under each factor category, as appropriate. These differences apply largely to the soil exposure pathway and to sites containing mixed radioactive and other hazardous substances. All evaluation criteria specified in sections 2 through 6 must be met, except where modified in section 7.

7.1 *Likelihood of release/likelihood of exposure.* Evaluate likelihood of release for the three migration pathways and likelihood of exposure for the soil exposure pathway as specified in sections 2 through 6, except: establish an observed release and observed contamination as specified in section 7.1.1. When an observed release cannot be established for a migration pathway, evaluate potential to release as specified in section 7.1.2. When observed contamination cannot be established, do not evaluate the soil exposure pathway.

7.1.1 *Observed release/observed contamination.* For radioactive substances, establish an observed release for each migration pathway by demonstrating that the site has released a radioactive substance to the pathway (or watershed or aquifer, as appropriate); establish observed contamination for the soil exposure pathway as indicated below. Base these demonstrations on one or more of the following, as appropriate to the pathway being evaluated:

- Direct observation:
  - For each migration pathway, a material that contains one or more radionuclides has been seen entering the atmosphere, surface water, or ground water, as appropriate, or is known to have entered ground water or surface water through direct deposition, or
  - For the surface water migration pathway, a source area containing radioactive substances has been flooded at a time that radioactive substances were present and one or more radioactive substances were in contact with the flood waters.
- Analysis of radionuclide concentrations in samples appropriate to the pathway (that is, ground water, soil, air, surface water, benthic, or sediment samples):

- For radionuclides that occur naturally and for radionuclides that are ubiquitous in the environment:
  - Measured concentration (in units of activity, for example, pCi per kilogram [pCi/kg], pCi per liter [pCi/l], pCi per cubic meter [pCi/m^3]) of a given radionuclide in the sample are at a level that:
  - Equals or exceeds a value 2 standard deviations above the mean site-specific background concentration for that radionuclide in that type of sample, or
  - Exceeds the upper-limit value of the range of regional background concentration values for that specific radionuclide in that type of sample.
  - Some portion of the increase must be attributable to the site to establish the observed release (or observed contamination), and
  - For the soil exposure pathway only, the radionuclide must also be present at the surface or covered by 2 feet or less of cover material (for example, soil) to establish observed contamination.
- For man-made radionuclides without ubiquitous background concentrations in the environment:
  - Measured concentration (in units of activity) of a given radionuclide in a sample equals or exceeds the sample quantitation limit for that specific radionuclide in that type of media and is attributable to the site.
  - However, if the radionuclide concentration equals or exceeds its sample quantitation limit, but its release can also be attributed to one or more neighboring sites, then the measured concentration of that radionuclide must also equal or exceed a value either 2 standard deviations above the mean concentration of that radionuclide contributed by those neighboring sites or 3 times its background concentration, whichever is lower.
  - If the sample quantitation limit cannot be established:
  - If the sample analysis was performed under the EPA Contract Laboratory Program, use the EPA contract-required quantitation limit (CRQL) in place of the sample quantitation limit in establishing an observed release (or observed contamination).
  - If the sample analysis is not performed under the EPA Contract Laboratory Program, use the detection limit in place of the sample quantitation limit.
  - For the soil exposure pathway only, the radionuclide must also be present at the surface or covered by 2 feet or less of cover material (for example, soil) to establish observed contamination.
- Gamma radiation measurements (applies only to observed contamination for the soil exposure pathway):
  - The gamma radiation exposure rate, as measured in microroentgens per hour (μ-R/hr) using a survey instrument held 1 meter above the ground surface (or 1 meter away from an aboveground source), equals or exceeds 2 times the site-specific background gamma radiation exposure rate.
  - Some portion of the increase must be attributable to the site to establish observed contamination. The gamma-emitting radionuclides do not have to be within 2 feet of the surface of the source.

For the three migration pathways, if an observed release can be established for the pathway (or aquifer or watershed, as appropriate), assign the pathway (or aquifer or watershed) an observed release factor value of 550 and proceed to section 7.2. If an observed release cannot be

established, assign an observed release factor value of 0 and proceed to section 7.1.2.

For the soil exposure pathway, if observed contamination can be established, assign the likelihood of exposure factor for resident population a value of 550 if there is an area of observed contamination in one or more locations listed in section 5.1; evaluate the likelihood of exposure factor for nearby population as specified in section 5.2.1; and proceed to section 7.2. If observed contamination cannot be established, do not evaluate the soil exposure pathway.

At sites containing mixed radioactive and other hazardous substances, evaluate observed release (or observed contamination) separately for radionuclides as described in this section and for other hazardous substances as described in sections 2 through 6.

For the three migration pathways, if an observed release can be established based on either radionuclides or other hazardous substances, or both, assign the pathway (or aquifer or watershed) an observed release factor value of 550 and proceed to section 7.2. If an observed release cannot be established based on either radionuclides or other hazardous substances, assign an observed release factor value of 0 and proceed to section 7.1.2.

For the soil exposure pathway, if observed contamination can be established based on either radionuclides or other hazardous substances, or both, assign the likelihood of exposure factor for resident population a value of 550 if there is an area of observed contamination in one or more locations listed in section 5.1; evaluate the likelihood of exposure factor for nearby population as specified in section 5.2.1; and proceed to section 7.2. If observed contamination cannot be established based on either radionuclides or other hazardous substances, do not evaluate the soil exposure pathway.

7.1.2 *Potential to release.* For the three migration pathways, evaluate potential to release for sites containing radionuclides in the same manner as specified for sites containing other hazardous substances. Base the evaluation on the physical and chemical properties of the radionuclides, not on their level of radioactivity.

For sites containing mixed radioactive and other hazardous substances, evaluate potential to release considering radionuclides and other hazardous substances together. Evaluate potential to release for each migration pathway as specified in sections 3, 4, or 6, as appropriate.

7.2 *Waste characteristics.* For radioactive substances, evaluate the human toxicity factor, the ecosystem toxicity factor, the surface water persistence factor, and the hazardous waste quantity factor as specified in the following sections. Evaluate all other waste characteristic factors as specified in sections 2 through 6.

7.2.1 *Human toxicity.* For radioactive substances, evaluate the human toxicity factor as specified below, not as specified in section 2.4.1.1.

Assign human toxicity factor values to those radionuclides available to the pathway based on quantitative dose-response parameters for cancer risks as follows:

- Evaluate radionuclides only on the basis of carcinogenicity and assign all radionuclides to weight-of-evidence category A.
- Assign a human toxicity factor value from Table 7-2 to each radionuclide based on its slope factor (also referred to as cancer potency factor).
  - For each radionuclide, use the higher of the slope factors for inhalation and ingestion to assign the factor value.
  - If only one slope factor is available for the radionuclide, use it to assign the toxicity factor value.
  - If no slope factor is available for the radionuclide, assign that radionuclide a toxicity factor value of 0 and use other radionuclides for which a slope factor is available to evaluate the pathway.
- If all radionuclides available to a particular pathway are assigned a human toxicity factor value of 0 (that is, no slope factor is available for all the radionuclides), use a default human toxicity factor value of 1,000 as the human toxicity factor value for all radionuclides available to the pathway.

At sites containing mixed radioactive and other hazardous substances, evaluate the toxicity factor separately for the radioactive and other hazardous substances

and assign each a separate toxicity factor value. This applies regardless of whether the radioactive and other hazardous substances are physically separated, combined chemically, or simply mixed together. Assign toxicity factor values to the radionuclides as specified above and to the other hazardous substances as specified in section 2.4.1.1.

At sites containing mixed radioactive and other hazardous substances, if all radionuclides available to a particular pathway are assigned a human toxicity factor value of 0, use a default human toxicity factor value of 1,000 for all those radionuclides even if nonradioactive hazardous substances available to the pathway are assigned human toxicity factor values greater than 0. Similarly, if all nonradioactive hazardous substances available to the pathway are assigned a human toxicity factor value of 0, use a default human toxicity factor value of 100 for all these nonradioactive hazardous substances even if radionuclides available to the pathway are assigned human toxicity factor values greater than 0.

7.2.2 *Ecosystem toxicity.* For the surface water environmental threat (see sections 4.1.4 and 4.2.4). assign an ecosystem toxicity factor value to radionuclides (alone or combined chemically or mixed with other hazardous substances) using the same slope factors and procedures specified for the human toxicity factor in section 7.2.1, except: use a default of 100, not 1,000, if all radionuclides eligible to be evaluated for ecosystem toxicity receive an ecosystem toxicity factor value of 0.

Table 7-2.—Toxicity Factor Values for Radionuclides

Cancer slope factor[a] (SF) $(pCi)^{-1}$	Assigned value
$3x10^{-11} \leq SF$	10,000
$3x10^{-12} \leq SF < 3 x 10^{-11}$	1,000
$SFx10^{-12} < 3 x 10^{-12}$	100
SF not available for the radionuclide	0

[a]Radionuclide slope factors are estimates of age-averaged, individual lifetime total excess cancer risk per picocurie of radionuclide inhaled or ingested.

At sites containing mixed radioactive and other hazardous substances, evaluate the ecosystem toxicity factor separately for the radioactive and other hazardous substances and assign each a separate ecosystem toxicity factor value. This applies regardless of whether the radioactive and other hazardous substances are physically separated, combined chemically, or simply mixed together. Assign ecosystem toxicity factor values to the radionuclides as specified above and to the other hazardous substances as specified in sections 4.1.4.2.1.1 and 4.2.4.2.1.1. If all radionuclides available to a particular pathway are assigned an ecosystem toxicity factor value of 0, use a default ecosystem toxicity factor value of 100 for all these radionuclides even if nonradioactive hazardous substances available to the pathway are assigned ecosystem toxicity factor values greater than 0. Similarly, if all nonradioactive hazardous substances available to the pathway are assigned an ecosystem toxicity factor value of 0, use a default ecosystem toxicity factor value of 100 for all these nonradioactive hazardous substances even if radionuclides available to the pathway are assigned ecosystem toxicity factor values greater than 0.

7.2.3 *Persistence.* For radionuclides, evaluate the surface water persistence factor based solely on half-life; do not include sorption to sediments in the evaluation as is done for nonradioactive hazardous substances. Assign a persistence factor value from Table 4-10 (section 4.1.2.2.1.2) to each radionuclide based on half-life ($t_{1/2}$) calculated as follows:

$$t_{1/2} = \frac{1}{\frac{1}{r} + \frac{1}{v}}$$

where:

r = Radioactive half-life.

v = Volatilization half-life.

If the volatilization half-life cannot be estimated for a radionuclide from available data, delete it from the equation. Select the portion of Table 4-10 to use in assigning the persistence factor value as specified in section 4.1.2.2.1.2.

At sites containing mixed radioactive and other hazardous substances, evaluate the persistence factor separately for each radionuclide and for each nonradioactive hazardous substance, even if the available data indicate that they are combined chemically. Assign a persistence factor

value to each radionuclide as specified in this section and to each nonradioactive hazardous substance as specified in section 4.1.2.2.1.2. When combined chemically, assign a single persistence factor value based on the higher of the two values assigned (individually) to the radioactive and nonradioactive components.

7.2.4 *Selection of substance potentially posing greatest hazard.* For each migration pathway (threat, aquifer, or watershed, as appropriate), select the radioactive substance or nonradioactive hazardous substance that potentially poses the greatest hazard based on its toxicity factor value, combined with the applicable mobility, persistence, and/or bioaccumulation (or ecosystem bioaccumulation) potential factor values. Combine these factor values as specified in sections 2, 3, 4, and 6. For the soil exposure pathway, base the selection on the toxicity factor alone (see sections 2 and 5).

7.2.5 *Hazardous waste quantity.* To calculate the hazardous waste quantity factor value for sites containing radioactive substances, evaluate source hazardous waste quantity (see section 2.4.2.1) using only the following two measures in the following hierarchy (these measures are consistent with Tiers A and B for nonradioactive hazardous substances in sections 2.4.2.1.1 and 2.4.2.1.2):

- Radionuclide constituent quantity (Tier A).
- Radionuclide wastestream quantity (Tier B).

7.2.5.1 *Source hazardous waste quantity for radionuclides.* For each migration pathway, assign a source hazardous waste quantity value to each source having a containment factor value greater than 0 for the pathway being evaluated. For the soil exposure pathway, assign a source hazardous waste quantity value to each area of observed contamination, as applicable to the threat being evaluated. Allocate hazardous substances and hazardous wastestreams to specific sources (or areas of observed contamination) as specified in section 2.4.2.

7.2.5.1.1 *Radionuclide constituent quantity (Tier A).* Evaluate radionuclide constituent quantity for each source (or area of observed contamination) based on the activity content of the radionuclides allocated to the source (or area of observed contamination) as follows:

- Estimate the net activity content (in curies) for the source (or area of observed contamination) based on:
  - Manifests, or
  - Either of the following equations, as applicable:

$$N = 9.1 \times 10^{-7}(V)\sum_{i=1}^{n} AC_i$$

where:

N = Estimated net activity content (in curies) for the source (or area of observed contamination).

V = Total volume of material (in cubic yards) in a source (or area of observed contamination) containing radionuclides.

AC_i = Activity concentration above the respective background concentration (in pCi/g) for each radionuclide i allocated to the source (or area of observed contamination).

n = Number of radionuclides allocated to the source (or area of observed contamination) above the respective background concentrations. or,

$$N = 3.8 \times 10^{-12}(V)\sum_{i=1}^{n} AC_i$$

where:

N = Estimated net activity content (in curies) for the source (or area of observed contamination).

V = Total volume of material (in gallons) in a source (or area of observed contamination) containing radionuclides.

AC_i = Activity concentration above the respective background concentration (in pCi/1) for each radionuclide i allocated to the source (or area of observed contamination).

n = Number of radionuclides allocated to the source (or area of observed contamination) above the respective background concentrations.

  - Estimate volume for the source (or volume for the area of observed contamination) based on records or measurements.
  - For the soil exposure pathway, in estimating the volume for areas of observed contamination, do

not include more than the first 2 feet of depth, except: for those types of areas of observed contamination listed in Tier C of Table 5-2 (section 5.1.2.2), include the entire depth, not just that within 2 feet of the surface.

- Convert from curies of radionuclides to equivalent pounds of nonradioactive hazardous substances by multiplying the activity estimate for the source (or area of observed contamination) by 1,000.
- Assign this resulting product as the radionuclide constituent quantity value for the source (or area of observed contamination).

If the radionuclide constituent quantity for the source (or area of observed contamination) is adequately determined (that is, the total activity of all radionuclides in the source and releases from the source [or in the area of observed contamination] is known or is estimated with reasonable confidence), do not evaluate the radionuclide wastestream quantity measure in section 7.2.5.1.2. Instead, assign radionuclide wastestream quantity a value of 0 and proceed to section 7.2.5.1.3. If the radionuclide constituent quantity is not adequately determined, assign the source (or area of observed contamination) a value for radionuclide constituent quantity based on the available data and proceed to section 7.2.5.1.2.

7.2.5.1.2 *Radionuclide wastestream quantity (Tier B).* Evaluate radionuclide wastestream quantity for the source (or area of observed contamination) based on the activity content of radionuclide wastestreams allocated to the source (or area of observed contamination) as follows:

- Estimate the total volume (in cubic yards or in gallons) of wastestreams containing radionuclides allocated to the source (or area of observed contamination).
- Divide the volume in cubic yards by 0.55 (or the volume in gallons by 110) to convert to the activity content expressed in terms of equivalent pounds of nonradioactive hazardous substances.
- Assign the resulting value as the radionuclide wastestream quantity value for the source (or area of observed contamination).

7.2.5.1.3 *Calculation of source hazardous waste quantity value for radionuclides.* Select the higher of the values assigned to the source (or area of observed contamination) for radionuclide constituent quantity and radionuclide wastestream quantity. Assign this value as the source hazardous waste quantity value for the source (or area of observed contamination). Do not round to the nearest integer.

7.2.5.2 *Calculation of hazardous waste quantity factor value for radionuclides.* Sum the source hazardous waste quantity values assigned to all sources (or areas of observed contamination) for the pathway being evaluated and round this sum to the nearest integer, except: if the sum is greater than 0, but less than 1, round it to 1. Based on this value, select a hazardous waste quantity factor value for this pathway from Table 2-6 (section 2.4.2.2).

For a migration pathway, if the radionuclide constituent quantity is adequately determined (see section 7.2.5.1.1) for all sources (or all portions of sources and releases remaining after a removal action), assign the value from Table 2-6 as the hazardous waste quantity factor value for the pathway. If the radionuclide constituent quantity is not adequately determined for one or more sources (or one or more portions of sources or releases remaining after a removal action), assign a factor value as follows:

- If any target for that migration pathway is subject to Level I or Level II concentrations (see section 7.3), assign either the value from Table 2-6 or a value of 100, whichever is greater, as the hazardous waste quantity factor value for that pathway.
- If none of the targets for that pathway is subject to Level I or Level II concentrations, assign a factor value as follows:
  - If there has been no removal action, assign either the value from Table 2-6 or a value of 10, whichever is greater, as the hazardous waste quantity factor value for that pathway.
  - If there has been a removal action:
    - Determine values from Table 2-6 with and without consideration of the removal action.

- If the value that would be assigned from Table 2-6 without consideration of the removal action would be 100 or greater, assign either the value from Table 2-6 with consideration of the removal action or a value of 100, whichever is greater, as the hazardous waste quantity factor value for the pathway.
- If the value that would be assigned from Table 2-6 without consideration of the removal action would be less than 100, assign a value of 10 as the hazardous waste quantity factor value for the pathway.

For the soil exposure pathway, if the radionuclide constituent quantity is adequately determined for all areas of observed contamination, assign the value from Table 2-6 as the hazardous waste quantity factor value. If the radionuclide constituent quantity is not adequately determined for one or more areas of observed contamination, assign either the value from Table 2-6 or a value of 10, whichever is greater, as the hazardous waste quantity factor value.

7.2.5.3 *Calculation of hazardous waste quantity factor value for sites containing mixed radioactive and other hazardous substances.* For each source (or area of observed contamination) containing mixed radioactive and other hazardous substances, calculate two source hazardous waste quantity values—one based on radionuclides as specified in sections 7.2.5.1 through 7.2.5.1.3 and the other based on the nonradioactive hazardous substances as specified in sections 2.4.2.1 through 2.4.2.1.5 (that is, determine each value as if the other type of substance was not present). Sum the two values to determine a combined source hazardous waste quantity value for the source (or area of observed contamination). Do not round this value to the nearest integer.

Use this combined source hazardous waste quantity value to calculate the hazardous waste quantity factor value for the pathway as specified in section 2.4.2.2, except: if either the hazardous constituent quantity or the radionuclide constituent quantity, or both, are not adequately determined for one or more sources (or one or more portions of sources or releases remaining after a removal action) or for one or more areas of observed contamination, as applicable, assign the value from Table 2-6 or the default value applicable for the pathway, whichever is greater, as the hazardous waste quantity factor value for the pathway.

7.3 *Targets.* For radioactive substances, evaluate the targets factor category as specified in section 2.5 and sections 3 through 6, except: establish Level I and Level II concentrations at sampling locations as specified in sections 7.3.1 and 7.3.2.

For all pathways (and threats), use the same target distance limits for sites containing radioactive substances as is specified in sections 3 through 6 for sites containing nonradioactive hazardous substances. At sites containing mixed radioactive and other hazardous substances, include all sources (or areas of observed contamination) at the site in identifying the applicable targets for the pathway.

7.3.1 *Level of contamination at a sampling location.* Determine whether Level I or Level II concentrations apply at a sampling location (and thus to the associated targets) as follows:

- Select the benchmarks from section 7.3.2 applicable to the pathway (or threat) being evaluated.
- Compare the concentrations of radionuclides in the sample (or comparable samples) to their benchmark concentrations for the pathway (or threat) as specified in section 7.3.2. Treat comparable samples as specified in section 2.5.1.
- Determine which level applies based on this comparison.
- If none of the radionuclides eligible to be evaluated for the sampling location have an applicable benchmark, assign Level II to the actual contamination at that sampling location for the pathway (or threat).
- In making the comparison, consider only those samples, and only those radionuclides in the sample, that meet the criteria for an observed release (or observed contamination) for the pathway, except: tissue samples from aquatic human food chain organisms may also be used for the human food chain threat of

the surface water pathway as specified in sections 4.1.3.3 and 4.2.3.3.

7.3.2 *Comparison to benchmarks.* Use the following media specific benchmarks (expressed in activity units, for example, pCi/l for water, pCi/kg for soil and for aquatic human food chain organisms, and pCi/m^3 for air) for making the comparisons for the indicated pathway (or threat):

- Maximum Contaminant Levels (MCLs)—ground water migration pathway and drinking water threat in surface water migration pathway.
- Uranium Mill Tailings Radiation Control Act (UMTRCA) standards—soil exposure pathway only.
- Screening concentration for cancer corresponding to that concentration that corresponds to the 10^{-6} individual cancer risk for inhalation exposures (air migration pathway) or for oral exposures (ground water migration pathway; drinking water or human food chain threats in surface water migration pathway; and soil exposure pathway).

  For the soil exposure pathway, include two screening concentrations for cancer—one for ingestion of surface materials and one for external radiation exposures from gamma-emitting radionuclides in surface materials.

Select the benchmark(s) applicable to the pathway (or threat) being evaluated. Compare the concentration of each radionuclide from the sampling location to its benchmark concentration(s) for that pathway (or threat). Use only those samples and only those radionuclides in the sample that meet the criteria for an observed release (or observed contamination) for the pathway, except: tissue samples from aquatic human food chain organisms may be used as specified in sections 4.1.3.3 and 4.2.3.3. If the concentration of any applicable radionuclide from any sample equals or exceeds its benchmark concentration, consider the sampling location to be subject to Level I concentrations for that pathway (or threat). If more than one benchmark applies to the radionuclide, assign Level I if the radionuclide concentration equals or exceeds the lowest applicable benchmark concentration. In addition, for the soil exposure pathway, assign Level I concentrations at the sampling location if measured gamma radiation exposure rates equal or exceed 2 times the background level (see section 7.1.1).

If no radionuclide individually equals or exceeds its benchmark concentration, but more than one radionuclide either meets the criteria for an observed release (or observed contamination) for the sample or is eligible to be evaluated for a tissue sample (see sections 4.1.3.3 and 4.2.3.3), calculate a value for index I for these radionuclides as specified in section 2.5.2. If I equals or exceeds 1, assign Level I to the sampling location. If I is less than 1, assign Level II.

At sites containing mixed radioactive and other hazardous substances, establish the level of contamination for each sampling location considering radioactive substances and nonradioactive hazardous substances separately. Compare the concentration of each radionuclide and each nonradioactive hazardous substance from the sampling location to its respective benchmark concentration(s). Use only those samples and only those substances in the sample that meet the criteria for an observed release (or observed contamination) for the pathway except: tissue samples from aquatic human food chain organisms may be used as specified in sections 4.1.3.3 and 4.2.3.3. If the concentration of one or more applicable radionuclides or other hazardous substances from any sample equals or exceeds its benchmark concentration, consider the sampling location to be subject to Level I concentrations. If more than one benchmark applies to a radionuclide or other hazardous substance, assign Level I if

the concentration of the radionuclide or other hazardous substance equals or exceeds its lowest applicable benchmark concentration.

If no radionuclide or other hazardous substance individually exceed a benchmark concentration, but more than one radionuclide or other hazardous substance either meets the criteria for an observed release (or observed contamination) for the sample or is eligible to be evaluated for a tissue sample, calculate an index I for both types of substances as specified in section 2.5.2. Sum the index I values for the two types of substances. If the value, individually or combined, equals or exceeds 1, assign Level I to the sample location. If it is less than 1, calculate an index J for the nonradioactive hazardous substances as specified in section 2.5.2. If J equals or exceeds 1, assign Level I to the sampling location. If J is less than 1, assign Level II.

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R 5606
ruary 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
			Group 1 (HRS Scores 75.60-58.54)	
1	02	NJ	Lipari Landfill	Pitman.
2	03	DE	Tybouts Corner Landfill*	New Castle County.
3	03	PA	Bruin Lagoon	Bruin Borough.
4	02	NJ	Helen Kramer Landfill	Mantua Township.
5	01	MA	Industri-Plex	Woburn.
6	02	NJ	Price Landfill*	Pleasantville.
7	02	NY	Pollution Abatement Services*	Oswego.
8	07	IA	LaBounty Site	Charles City.
9	03	DE	Army Creek Landfill	New Castle County.
10	02	NJ	CPS/Madison Industries	Old Bridge Township.
11	01	MA	Nyanza Chemical Waste Dump	Ashland.
12	02	NJ	GEMS Landfill	Gloucester Township.
13	05	MI	Berlin & Farro	Swartz Creek.
14	01	MA	Baird & McGuire	Holbrook.
15	02	NJ	Lone Pine Landfill	Freehold Township.
16	01	NH	Somersworth Sanitary Landfill	Somersworth.
17	05	MN	FMC Corp. (Fridley Plant)	Fridley.
18	06	AR	Vertac, Inc.	Jacksonville.
19	01	NH	Keefe Environmental Services	Epping.
20	08	MT	Silver Bow Creek/Butte Area	Sil Bow/Deer Lodge.
21	08	SD	Whitewood Creek*	Whitewood.
22	06	TX	French	Ltd
23	05	MI	Liquid Disposal, Inc.	Utica.
24	01	NH	Sylvester*	Nashua.
25	03	PA	Tysons Dump	Upper Merion Twp.
26	03	PA	McAdoo Associates*	McAdoo Borough.
27	06	TX	Motco, Inc.*	La Marque.
28	05	OH	Arcanum Iron & Metal	Darke County.
29	08	MT	East Helena Site	East Helena.
30	06	TX	Sikes Disposal Pits	Crosby.
31	04	AL	Triana/Tennessee River	Limestone/Morgan.
32	09	CA	Stringfellow*	Glen Avon Heights.
33	01	ME	McKin Co.	Gray.
34	06	TX	Crystal Chemical Co.	Houston.
35	02	NJ	Bridgeport Rental & Oil Services	Bridgeport.
36	08	CO	Sand Creek Industrial	Commerce City.
37	06	TX	Geneva Industries/Fuhrmann Energy	Houston.
38	01	MA	W.R. Grace & Co Inc (Acton Plant)	Acton.
39	05	MN	New Brighton/Arden Hills	New Brighton.
40	05	MN	Reilly Tar (St. Louis Park Plant)*	St. Louis Park.
41	02	NJ	Vineland Chemical Co., Inc.	Vineland.
42	02	NJ	Burnt Fly Bog	Marlboro Township.
43	04	FL	Schuylkill Metals Corp.	Plant City.
44	03	PA	Publicker Industries Inc.	Philadelphia.
45	02	NY	Old Bethpage Landfill	Oyster Bay.
46	04	FL	Reeves Southeast Galvanizing Corp.	Tampa.
47	02	NJ	Shieldalloy Corp.	Newfield Borough.
48	08	MT	Anaconda Co. Smelter	Anaconda.
49	10	WA	Western Processing Co., Inc.	Kent.
50	05	WI	Omega Hills North Landfill	Germantown.
			Group 2 (HRS Scores 58.41-57.80, except for State top priority sites)	
51	04	FL	American Creosote (Pensacola Plt)	Pensacola.
52	02	NJ	Caldwell Trucking Co.	Fairfield.
53	02	NY	GE Moreau	South Glen Falls.
54	05	IN	Seymour Recycling Corp.*	Seymour.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
55	04	FL	Peak Oil Co./Bay Drum Co.	Tampa.
56	05	OH	United Scrap Lead Co., Inc.	Troy.
57	07	KS	Cherokee County	Cherokee County.
58	06	OK	Tar Creek (Ottawa County)	Ottawa County.
59	02	NJ	Brick Township Landfill	Brick Township.
60	02	NJ	Brook Industrial Park	Bound Brook.
61	05	MI	American Anodco, Inc.	Ionia.
62	10	WA	Frontier Hard Chrome, Inc.	Vancouver.
63	05	WI	Janesville Old Landfill	Janesville.
64	05	MI	Northernaire Plating	Cadillac.
65	04	SC	Independent Nail Co.	Beaufort.
66	05	WI	Janesville Ash Beds	Janesville.
67	04	SC	Kalama Specialty Chemicals	Beaufort.
68	07	IA	Lehigh Portland Cement Co.	Mason City.
69	04	FL	Davie Landfill	Davie.
70	05	OH	Miami County Incinerator	Troy.
71	10	WA	General Electric (Spokane Shop)	Spokane.
72	10	WA	ALCOA (Vancouver Smelter)	Vancouver.
73	10	ID	Eastern Michaud Flats Contamin	Pocatello.
74	09	AZ	Tucson International Airport Area	Tucson.
75	07	IA	Northwestern States Portland Cem	Mason City.
76	05	WI	Wheeler Pit	La Prairie Township.
77	04	FL	Gold Coast Oil Corp	Miami.
78	03	PA	Salford Quarry	Salford Township.
79	05	MI	Gratiot County Landfill*	St. Louis.
80	01	RI	Picillo Farm*	Coventry.
81	01	MA	New Bedford Site*	New Bedford.
82	06	LA	Old Inger Oil Refinery*	Darrow.
83	05	OH	Chem-Dyne*	Hamilton.
84	04	SC	SCRDI Bluff Road*	Columbia.
85	01	CT	Laurel Park, Inc.*	Naugatuck Borough.
86	08	CO	Marshall Landfill*	Boulder County.
87	05	IL	Outboard Marine Corp.*	Waukegan.
88	06	NM	South Valley*	Albuquerque.
89	01	VT	Pine Street Canal*	Burlington.
90	03	WV	West Virginia Ordnance*	Point Pleasant.
91	07	MO	Ellisville Site*	Ellisville.
92	08	ND	Arsenic Trioxide Site*	Southeastern ND.
93	07	IA	Aidex Corp.*	Council Bluffs.
94	05	WI	N.W. Mauthe Co., Inc.*	Appleton.
95	04	TN	North Hollywood Dump*	Memphis.
96	04	KY	A.L. Taylor (Valley of Drums)*	Brooks.
97	09	GU	Ordot Landfill*	Guam.
98	04	MS	Flowood Site*	Flowood.
99	08	UT	Rose Park Sludge Pit*	Salt Lake City.
100	07	KS	Arkansas City Dump*	Arkansas City.
			Group 3 (HRS Scores 57.22-52.58)	
101	09	CA	Operating Industries, Inc. Lndfil	Monterey Park.
102	02	NY	Wide Beach Development	Brant.
103	09	CA	Iron Mountain Mine	Redding.
104	02	NJ	Scientific Chemical Processing	Carlstadt.
105	08	CO	California Gulch	Leadville.
106	02	NJ	D'Imperio Property	Hamilton Township.
107	05	MN	Oakdale Dump	Oakdale.
108	05	IL	Parsons Casket Hardware Co.	Belvidere.
109	05	IL	A & F Material Reclaiming, Inc.	Greenup.
110	03	PA	Douglassville Disposal	Douglassville.

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FR 5606
ebruary 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
111	05	MN	Koppers Coke	St. Paul.
112	01	MA	Plymouth Harbor/Cannon Eng. Corp.	Plymouth.
113	10	ID	Monsanto Chemical (Soda Springs)	Soda Springs.
114	10	ID	Bunder Hill Mining & Metallurg	Smelterville.
115	02	NY	Hudson River PCBs	Hudson River.
116	02	NJ	Universal Oil Products (Chem Div)	East Rutherford.
117	09	CA	Aerojet General Corp.	Rancho Cordova.
118	10	WA	Com Bay, South Tacoma Channel	Tacoma.
119	03	PA	Osborne Landfill	Grove City.
120	08	UT	Portland Cement (Kiln Dust 2 & 3)	Salt Lake City.
121	01	CT	Old Southington Landfill	Southington.
122	02	NY	Syosset Landfill	Oyster Bay.
123	02	NY	Circuitron Corp	East Farmingdale.
124	09	AZ	Nineteenth Avenue Landfill	Phoenix.
125	10	OR	Teledyne Wah Chang	Albany.
126	10	WA	Midway Landfill	Kent.
127	02	NY	Sinclair Refinery	Wellsville.
128	04	AL	Mowbray Engineering Co.	Greenville.
139	05	MI	Spiegelberg Landfill	Green Oak Township.
130	04	FL	Miami Drum Services	Miami.
131	02	NJ	Reich Farms	Pleasant Plains.
132	10	ID	Union Pacific Railroad Co.	Pocatello.
133	02	NJ	South Brunswick Landfill	South Brunswick.
134	03	PA	Raymark	Hatboro.
135	04	AL	Ciba-Geigy Corp. (McIntosh Plant)	McIntosh.
136	04	FL	Kassauf-Kimerling Battery	Tampa.
137	05	IL	Wauconda Sand & Gravel	Wauconda.
138	05	MI	Bofors Nobel, Inc.	Muskegon.
139	06	TX	Bailey Waste Disposal	Bridge City.
140	01	NH	Ottati & Goss/Kingston Steel Drum	Kingston.
141	05	MI	Ott/Story/Cordova Chemical Co.	Dalton Township.
142	05	MI	Thermo-Chem, Inc.	Muskegon.
143	09	CA	Brown & Bryant, Inc. .(Arvin Plant)	Arvin
144	03	VA	Greenwood Chemical Co.	Newtown.
145	02	NJ	NL Industries	Pedricktown.
146	05	MN	St. Regis Paper Co.	Cass Lake.
147	04	KY	Brantley Landfill	Island.
148	04	NC	Aberdeen Pesticide Dumps	Aberdeen.
149	01	VT	Burgess Brothers Landfill	Woodford.
150	02	NJ	Ringwood Mines/Landfill	Ringwood Borough.
			Group 4 (HRS Scores 52.58-50.19)	
151	04	FL	Whitehouse Oil Pits	Whitehouse.
152	04	GA	Hercules 009 Landfill	Brunswick.
153	02	NY	Jones Sanitation	Hyde Park.
154	01	VT	Parker Sanitary Landfill	Lyndon.
155	05	MI	Velsicol Chemical Corp. (Michigan)	St. Louis.
156	05	OH	Summit National	Deerfield Township.
157	02	NY	Love Canal	Niagara Falls.
158	10	WA	Seattle Mun Lndfil (Kent Hghlnds)	Kent.
159	03	DE	Coker's Sanitation Service Lndfls	Kent County.
160	05	MI	Rockwell International (Allegan)	Allegan.
161	05	MN	Pine Bend Sanitary Landfill	Dakota County.
162	07	IA	Lawrence Todtz Farm	Camanche.
163	05	IL	Beloit Corp.	Rockton.
164	05	IN	Fisher-Calo	LaPorte.
165	04	FL	Pioneer Sand Co	Warrington.
166	05	MI	Springfield Township Dump	Davisburg.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
167	03	PA	Hranica Landfill	Buffalo Township.
168	04	NC	Martin-Marietta, Sodyeco, Inc.	Charlotte.
169	03	DE	E.I. Du Pont (Newport Plant Lf)	Newport.
170	03	PA	Hellertown Manufacturing Co.	Hellertown.
171	04	FL	Zellwood Ground Water Contamin	Zellwood.
172	05	MI	Packaging Corp. of America	Filer City.
173	05	WI	Muskego Sanitary Landfill	Muskego.
174	10	ID	Kerr-McGee Chemical (Soda Springs)	Soda Springs.
175	05	IN	Whiteford Sales & Ser/National Lease	South Bend.
176	02	NY	Hooker (S Area)	Niagara Falls.
177	03	PA	Lindane Dump	Harrison Township.
178	08	CO	Central City-Clear Creek	Idaho Springs.
179	02	NJ	Ventrol/Velsicol	Wood Ridge Borough.
180	04	FL	Taylor Road Landfill	Seffner.
181	01	RI	Western Sand & Gravel	Burrillville.
182	02	NY	Rosen Brothers Scrap Yard/Dump	Cortland.
183	04	SC	Koppers Co Inc (Florence Plant)	Florence.
184	02	NJ	Maywood Chemical Co	Maywood/Rochelle Pk.
185	02	NJ	Nascolite Corp.	Millville.
186	05	OH	Industrial Excess Landfill	Uniontown.
187	09	CA	Industrial Waste Processing	Fresno.
188	06	OK	Hardage/Criner	Criner.
189	05	MI	Rose Township Dump	Rose Township.
190	05	MN	Waste Disposal Engineering	Andover.
191	02	NY	Liberty Industrial Finishing	Farmingdale.
192	02	NJ	Kin-Buc Landfill	Edison Township.
193	05	IN	Waste, Inc.	Landfill
194	05	OH	Bowers Landfill	Circleville.
195	06	TX	Brio Refining, Inc.	Friendswood.
196	02	NJ	Ciba-Geigy Corp.	Toms River.
197	05	MI	Butterworth #2 Landfill	Grand Rapids.
198	02	NJ	American Cyanamid Co.	Bound Brook.
199	03	PA	Heleva Landfill	North Whitehall Twp.
200	02	NJ	Ewan Property	Shamong Township.
			Group 5 (HRS Scores 50.18-47.49)	
201	02	NY	Batavia Landfill	Batavia.
202	05	IL	Woodstock Municipal Landfill	Woodstock.
203	05	MN	Boise Cascade/Onan/Medtronics	Fridley.
204	05	IL	MIG/Dewane Landfill	Belvidere.
205	05	UT	Wasatch Chemical Co. (Lot 6)	Salt Lake City.
206	01	RI	Landfill & Resource Recovery	North Smithfield.
207	05	MI	Hi-Mill Manufacturing Co	Highland.
208	03	PA	Butler Mine Tunnel	Pittston.
209	04	FL	Northwest 58th Street Landfill	Hialeah.
210	02	NJ	Delilah Road	Egg Harbor Township.
211	03	PA	Mill Creek Dump	Erie.
212	02	NJ	Glen Ridge Radium Site	Glen Ridge.
213	02	NJ	Montclair/West Orange Radium Site	Montclair/W Orange.
214	01	CT	Precision Plating Corp	Vernon.
215	04	FL	Sixty-Second Street Dump	Tampa.
216	05	MI	G&H Landfill	Utica.
217	01	VT	Bennington Municipal Sanitary Lfl	Bennington.
218	04	NC	Celanese (Shelby Fiber Operations)	Shelby.
219	02	NJ	Metaltec/Aerosystems	Franklin Borough.
220	05	WI	Schmalz Dump	Harrison.
221	04	TN	Carrier Air Conditioning Co	Collierville.
222	05	MI	Motor Wheel, Inc.	Lansing.

evised
6 FR 5606
ebruary 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
223	05	WI	Better Brite Chrome & Zinc Shops	DePere.
224	09	CA	Southern Calif Edison (Visalia)	Visalia.
225	02	NJ	Lang Property	Pemberton Township.
226	06	TX	Stewco, Inc.	Waskom.
227	02	NJ	Sharkey Landfill	Parsippany/Troy Hls.
228	09	CA	Selma Treating Co.	Selma.
229	06	LA	Cleve Reber	Sorrento.
230	05	IL	Velsicol Chemical Corp. (Illinois)	Marshall.
231	07	MO	Wheeling Disposal Service Co. Lf	Amazonia.
232	05	MI	Tar Lake	Mancelona Township.
233	02	NY	Johnstown City Landfill	Town of Johnstown.
234	04	NC	NC State U (Lot 86	Farm Unit #1)
235	08	CO	Lowry Landfill	Arapahoe County.
236	05	MN	MacGillis & Gibbs/Bell Lumber	New Brighton.
237	03	PA	Hunterstown Road	Straban Township.
238	03	MD	Woodlawn County Landfill	Woodlawn.
239	05	WI	Hechimovich Sanitary Landfill	Williamstown.
240	07	IA	Mid-America Tanning Co.	Sergeant Bluff.
241	07	NE	Lindsay Manufacturing Co.	Lindsay.
242	02	NJ	Combe Fill North Landfill	Mount Olive Twp.
243	01	MA	Re-Solve, Inc.	Dartmouth.
244	02	NJ	Goose Farm	Plumstead Township.
245	04	TN	Velsicol Chem (Hardeman County)	Toone.
246	02	NY	York Oil Co.	Moira.
247	04	FL	Sapp Battery Salvage	Cottondale.
248	04	SC	Wamchem, Inc.	Burton.
249	02	NJ	Chemical Leaman Tank Lines, Inc.	Bridgeport.
250	05	WI	Master Disposal Service Landfill	Brookfield.
			Group 6 (HRS Scores 47.46-45.91)	
251	07	KS	Doepke Disposal (Holliday)	Johnson County.
252	02	NJ	Florence Land Recontouring Landfill	Florence Township.
253	01	RI	Davis Liquid Waste	Smithfield.
254	01	MA	Charles-George Reclamation Landfill	Tyngsborough.
255	02	NJ	King of Prussia	Winslow Township.
256	03	VA	Chisman Creek	York County.
257	05	OH	Nease Chemical	Salem.
258	08	CO	Eagle Mine	Minturn/Redcliff.
259	02	NJ	Chemical Control	Elizabeth.
260	04	NC	Charles Macon Lagoon & Drum Stor	Cordova.
261	04	SC	Leonard Chemical Co., Inc.	Rock Hill.
262	05	OH	Allied Chemical & Ironton Coke	Ironton.
263	05	MI	Verona Well Field	Battle Creek.
264	07	MO	Lee Chemical	Liberty.
265	01	CT	Beacon Heights Landfill	Beacon Falls.
266	04	AL	Stauffer Chem (Cold Creek Plant)	Bucks.
267	05	MN	Burlington Northern (Brainerd)	Brainerd/Baxter.
268	05	MI	Torch Lake	Houghton County.
269	01	RI	Central Landfill	Johnston.
270	03	PA	Malvern TCE	Malvern.
271	02	NY	Facet Enterprises, Inc.	Elmira.
272	03	DE	Delaware Sand & Gravel Landfill	New Castle County.
273	03	PA	Tonolli Corp.	Nesquehoning.
274	04	NC	National Starch & Chemical Corp	Salisbury.
275	03	PA	MW Manufacturing	Valley Township.
276	03	VA	C & R Battery Co., Inc.	Chesterfield County.
277	04	TN	Murray-Ohio Dump	Lawrenceburg.
278	05	IN	Environchem Corp.	Zionsville.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
279	05	IN	MIDCO I	Gary.
280	05	OH	Ormet Corp.	Hannibal.
281	05	OH	South Point Plant	South Point.
282	01	CT	Gallup's Quarry	Plainfield.
283	03	PA	Whitmoyer Laboratories	Jackson Township.
284	07	IA	Peoples Natural Gas Co.	Dubuque.
285	07	MO	Oronogo-Duenweg Mining Belt	Jasper County.
286	04	FL	Coleman-Evans Wood Preserving Co.	Whitehouse.
287	02	NJ	Dayco Corp./L.E. Carpenter Co.	Wharton Borough.
288	03	PA	Shriver's Corner	Straban Township.
289	03	PA	Dorney Road Landfill	Upper Macungie Twp.
290	03	PA	Berks Landfill	Spring Township.
291	05	IN	Northside Sanitary Landfill, Inc.	Zionsville.
292	05	IL	Interstate Pollution Control, Inc.	Rockford.
293	06	AR	Monroe Auto Equip (Paragould Pit)	Paragould.
294	06	OK	Oklahoma Refining Co.	Cyril.
295	07	IA	E.I. Du Pont (County Rd X23)	West Point.
296	09	CA	Pacific Coast Pipe Lines	Fillmore.
297	02	NJ	Global Sanitary Landfill	Old Bridge Township.
298	04	FL	Florida Steel Corp.	Indiantown.
299	03	PA	Occidental Chem/Firestone Tire	Lower Pottsgrove Twp.
300	03	VA	Culpeper Wood Preservers, Inc.	Culpeper.
			Group 7 (HRS Scores 45.91-43.75)	
301	05	IL	Pagel's Pit	Rockford.
302	05	MN	University Minn Rosemount Res Cen	Rosemount.
303	05	MN	Freeway Sanitary Landfill	Burnsville.
304	05	WI	Tomah Municipal Sanitary Landfill	Tomah.
305	09	AZ	Litchfield Airport Area	Goodyear/Avondale.
306	09	CA	Firestone Tire (Salinas Plant)	Salinas.
307	02	NJ	Spence Farm	Plumstead Township.
308	06	AR	Mid-South Wood Products	Mena.
309	04	MS	Newsom Brothers/Old Reichhold	Columbia.
310	09	CA	Atlas Asbestos Mine	Fresno County.
311	09	CA	Coalinga Asbestos Mine	Coalinga.
312	04	FL	Brown Wood Preserving	Live Oak.
313	02	NY	Port Washington Landfill	Port Washington.
314	05	IN	Columbus Old Municipal Lndfll #1	Columbus.
315	02	NJ	Combe Fill South Landfill	Chester Township.
316	02	NJ	JIS Landfill	Jamesburg/S.
317	02	NY	Tronic Plating Co., Inc.	Farmingdale
318	03	PA	Centre County Kepone	State College Boro.
319	04	FL	Agrico Chemical Co	Pensacola.
320	05	OH	Fields Brook	Ashtabula.
321	01	CT	Solvents Recovery Service New Eng	Southington.
322	08	CO	Woodbury Chemical Co.	Commerce City.
323	02	NJ	Waldick Aerospace Devices, Inc.	Wall Township.
324	01	MA	Hocomonco Pond	Westborough.
325	04	KY	Distler Brickyard	West Point.
326	02	NY	Ramapo Landfill	Ramapo.
327	09	CA	Coast Wood Preserving	Ukiah.
328	09	CA	South Bay Asbestos Area	Alviso.
329	02	NY	Mercury Refining, Inc.	Colonie.
330	04	FL	Hollingsworth Solderless Terminal	Fort Lauderdale.
331	02	NY	Olean Well Field	Olean.
332	04	AL	T.H. Agricul & Nutri (Montgomery)	Montgomery.
333	09	CA	Fairchild Semiconduct (S San Jose)	South San Jose.
334	10	WA	Pasco Sanitary Landfill	Pasco.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
335	09	CA	Sulphur Bank Mercury Mine	Clear Lake.
336	05	MN	Joslyn Manufacturing & Supply Co.	Brooklyn Center.
337	03	PA	York County Solid Waste/Refuse Lf	Hopewell Township.
338	05	WI	Spickler Landfill	Spencer.
339	06	MN	Prewitt Abandoned Refinery	Prewitt.
340	08	CO	Denver Radium Site	Denver.
341	02	NY	Tri-Cities Barrel Co., Inc.	Port Crane.
342	03	PA	Route 940 Drum Dump	Pocono Summit.
343	04	FL	Tower Chemical Co.	Clermont.
344	05	MI	Peerless Plating Co.	Muskegon.
345	01	VT	Darling Hill Dump	Lyndon.
346	03	PA	C & D Recycling	Foster Township.
347	04	KY	Fort Hartford Coal Co Stone Qurry	Olaton.
348	07	MO	Syntex Facility	Verona.
349	08	MT	Milltown Reservoir Sediments	Milltown.
350	05	MN	Arrowhead Refinery Co.	Hermantown.
			Group 8 (HRS Scores 43.70-42.33)	
351	10	OR	Martin-Marietta Aluminum Co.	The Dalles.
352	08	CO	Uravan Uranium (Union Carbide)	Uravan.
353	02	NJ	Pijak Farm	Plumstead Township.
354	02	NJ	Syncon Resins	South Kearny.
355	05	MN	Oak Grove Sanitary Landfill	Oak Grove Township.
356	07	IA	White Farm Equipment Co>Dump	Charles City.
357	09	CA	Liquid Gold Oil Corp.	Richmond.
358	09	CA	Purity Oil Sales, Inc.	Malaga.
359	01	NH	Tinkham Garage	Londonderry.
360	04	FL	Alpha Chemical Corp.	Galloway.
361	02	NJ	Bog Creek Farm	Howell Township.
362	01	ME	Saco Tannery Waste Pits	Saco.
363	03	PA	River Road Lf/Waste Mngmnt, Inc.	Hermitage.
364	02	PR	Frontera Creek	Rio Abajo.
365	04	FL	Pickettville Road Landfill	Jacksonville.
366	05	OH	Alsco Anaconda	Gnadenhutten.
367	01	MA	Iron Horse Park	Billerica.
368	03	PA	Palmerton Zinc Pile	Palmerton.
369	05	IN	Neal's Landfill (Bloomington)	Bloomington.
370	05	WI	Kohler Co. Landfill	Kohler.
371	04	AL	Interstate Lead Co. (ILCO)	Leeds.
372	04	FL	Standard Auto Bumper Corp.	Hialeah.
373	07	KS	Hydro-Flex Inc	Topeka.
374	09	AZ	Hassayampa Landfill	Hassayampa.
375	06	LA	Gulf Coast Vacuum Services	Abbeville.
376	05	IL	Tri-County Lf/Waste Mgmt Illinois	South Elgin.
377	01	MA	Silresim Chemical Corp.	Lowell.
378	01	MA	Wells G&H	Woburn.
379	01	CT	Nutmeg Valley Road	Wolcott.
380	02	NJ	Chemsol, Inc.	Piscataway.
381	05	WI	Lauer I Sanitary Landfill	Menomonee Falls.
382	05	MI	Petoskey Municipal Well Field	Petoskey.
~~383~~	~~05~~	~~MN~~	~~Union Scrap Iron & Metal Co.~~	~~Minneapolis.~~
383	01	MA	Atlas Tack Corp.	Fairhaven.
384	02	NJ	Radiation Technology, Inc.	Rockaway Township.
385	02	NJ	Fair Lawn Well Field	Fair Lawn.
386	05	IN	Main Street Well Field	Elkhart.
387	05	MN	Lehillier/Mankato Site	Lehillier/Mankato.
388	01	WA	Lakewood Site	Lakewood.
389	03	PA	Industrial Lane	Williams Township.

Removed
56 FR 46122
September 10, 1991

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: 5606
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Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
390	04	FL	Airco Plating Co.	Miami
391	05	IN	Fort Wayne Reduction Dump	Fort Wayne.
392	05	WI	Onalaska Municipal Landfill	Onalaska.
393	08	UT	Midvale Slag	Midvale.
394	03	PA	A.I.W. Frank/Mid-County Mustang	Exton.
395	05	WI	National Presto Industries, Inc	Eau Claire.
396	02	NJ	Monroe Township Landfill	Monroe Township.
397	03	PA	Commodore Semiconductor Group	Lower Providence Twp.
398	02	NJ	Rockaway Borough Well Field	Rockaway Township.
399	05	IL	Lenz Oil Service, Inc	Lemont.
			Group 9 (HRS Scores 42.33-41.60)	
400	05	IN	Wayne Waste Oil	Columbia City.
401	10	WA	Pacific Car & Foundry Co	Renton.
402	07	IA	John Deere (Ottumwa Works Lndfls)	Ottumwa.
403	03	MD	Mid-Atlantic Wood Preservers, Inc	Harmans.
404	03	PA	Novak Sanitary Landfill	South Whitehall Twp.
405	05	IN	Himco Dump	Elkhart.
406	10	ID	Pacific Hide & Fur Recycling Co	Pocatello.
407	07	IA	Des Moines TCE	Des Moines.
408	02	NJ	Beachwood/Berkley Wells	Berkley Township.
409	02	NJ	South Jersey Clothing Co	Minotala.
410	02	NY	Vestal Water Supply Well 4-2	Vestal.
411	02	PR	Vega Alta Public Supply Wells	Vega Alta.
412	03	PA	Avco Lycoming (Williamsport Div)	Williamsport.
413	03	PA	Ohio River Park	Neville Island.
414	04	GA	Wolfolk Chemical Works, Inc.	Fort Valley.
415	05	IL	Southeast Rockford Grnd Wtr Con	Rockford.
416	05	IN	Tippecanoe Sanitary Landfill, Inc.	Lafayette.
417	05	IN	Conrail Rail Yard (Elkhart)	Elkhart.
418	05	IN	Galen Myers Dump/Drum Salvage	Osceola.
419	05	MI	Sturgis Municipal Wells	Sturgis.
420	05	MI	Barrels, Inc.	Lansing.
421	05	MI	State Disposal Landfill, Inc.	Grand Rapids.
422	05	MN	Washington County Landfill	Lake Elmo
423	05	MN	Dakhue Sanitary Landfill	Cannon Falls.
424	06	TX	Odessa Chromium NZ1	Odessa.
425	06	TX	Odessa Chromium NZ2 (Andrews Hgwy)	Odessa.
426	07	IA	Electro-Coatings, Inc.	Cedar Rapids.
427	07	NE	Hastings Ground Water Contamin	Hastings.
428	08	SD	Williams Pipe Line Disposal Pit	Sioux Falls.
429	09	AZ	Indian Bend Wash Area	Scottsdale/Tempe/Phnx.
430	09	CA	San Gabriel Valley (Area 1)	El Monte.
431	09	CA	San Gabriel Valley (Area 2)	Baldwin Park Area.
432	09	CA	San Fernando Valley (Area 1)	Los Angeles.
433	09	CA	San Fernando Valley (Area 2)	Los Angeles/Glendale.
434	09	CA	San Fernando Valley (Area 3)	Glendale.
435	09	CA	T.H. Agriculture & Nutrition Co	Fresno.
436	10	AK	Arctic Surplus	Fairbanks.
437	10	WA	Com Bay, Near Shore/Tide Flats	Pierce County
438	05	IL	LaSalle Electric Utilities	LaSalle.
439	05	IL	Cross Brothers Pail (Pembroke)	Pembroke Township.
440	04	GA	Cedartown Industries, Inc.	Cedartown.
441	04	NC	Jadco-Hughes Facility	Belmont.
442	05	IN	Southside Sanitary Landfill	Indianapolis.
443	02	NJ	Monitor Devices/Intercircuits Inc	Wall township.
444	01	VT	BFI Sanitary Landfill (Rockingham)	Rockingham.
445	02	PR	Upjohn Facility	Barceloneta.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
446	04	NC	Koppers Co Inc (Morrisville Plnt)	Morrisville.
447	08	UT	Sharon Steel (Midvale Tailings)	Midvale.
448	09	CA	McColl	Fullerton.
449	03	PA	Henderson Road	Upper Merion Twp.
			Group 10 (HRS Scores 41.59-31.89)	
450	02	NY	Hooker Chemical/Ruco Polymer Corp	Hicksville.
451	10	WA	Colbert Landfill	Colbert.
452	06	LA	Petro-Processors of Louisiana Inc	Scotlandville.
453	03	PA	Westinghouse Elec (Sharon Plant)	Sharon.
454	02	NY	Applied Environmental Services	Glenwood Landing.
455	02	PR	Barceloneta Landfill	Florida Afuera.
456	01	NH	Tibbets Road	Barrington.
457	03	MD	Sand Gravel & Stone	Elkton
458	03	PA	Delta Quarries/Stotler Landfill	Antis/Logan Twps.
459	01	CT	Revere Textile Prints Corp	Sterling.
460	05	MI	Spartan Chemical Co	Wyoming.
461	02	NJ	Roebling Steel Co	Florence.
462	03	PA	East Mount Zion	Springettsbury Twp.
463	04	GA	T.H. Agricul & Nutri (Albany)	Albany.
464	04	TN	Amnicola Dump	Chattanooga.
465	02	NJ	Vineland State School	Vineland.
466	09	AZ	Motorola, Inc. (52nd Street Plant)	Phoenix.
467	01	MA	Groveland Wells	Groveland.
468	02	NY	General Motors (Cent Foundry Div)	Massena.
469	01	NH	Mottolo Pig Farm	Raymond.
470	03	VA	Buckingham County Landfill	Buckingham.
471	04	SC	SCRDI Dixiana	Cayce.
472	05	MI	Roto-Finish Co., Inc.	Kalamazoo.
473	05	MN	Olmsted County Sanitary Landfill	Oronoco.
474	07	MO	Quality Plating	Sikeston.
475	05	IN	Prestolite Battery Division	Vincennes.
476	07	MO	Fulbright Landfill	Springfield.
477	02	NJ	Williams Property	Swainton.
478	02	NJ	Renora, Inc.	Edison Township.
479	04	NC	FCX, Inc. (Washington Plant)	Washington.
480	03	PA	Jacks Creek/Sitkin Smelting & Ref	Maitland.
481	06	NM	Cleveland Mill	Silver City.
482	02	NJ	Denzer & Schafer X-Ray Co.	Bayville.
483	02	NJ	Hercules, Inc. (Gibbstown Plant)	Gibbstown.
484	05	IN	Ninth Avenue Dump	Gary.
485	03	MD	Bush Valley Landfill	Abingdon.
486	04	SC	Golden Strip Septic Tank Service	Simpsonville.
487	04	SC	Rock Hill Chemical Co.	Rock Hill.
488	06	TX	Texarkana Wood Preserving Co.	Texarkana.
489	06	AR	Gurley Pit	Edmondson.
490	04	FL	Petroleum Products Corp.	Pembroke Park.
491	01	RI	Peterson/Puritan, Inc.	Lincoln/Cumberland.
492	07	MO	Times Beach Site	Times Beach.
493	05	MI	Wash King Laundry	Pleasant Plains Twp.
494	05	MN	Whittaker Corp	Minneapolis.
495	05	WI	Algoma Municipal Landfill	Algoma.
496	05	MN	NL Industries/Taracorp/Golden	St. Louis Park.
497	09	CA	Westinghouse Elec (Sunnyvale Plt)	Sunnyvale.
498	01	CT	Kellogg-Deering Well Field	Norwalk.
499	03	PA	Boarhead Farms	Bridgeton Township.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
			Group 11 (HRS Scores 39.88-38.20)	
500	01	MA	Cannon Engineering Corp. (CEC)	Bridgewater.
501	05	MI	H. Brown Co., Inc.	Grand Rapids.
502	02	NY	Nepera Chemical Co., Inc.	Maybrook.
503	02	NY	Niagara County Refuse	Wheatfield.
504	04	FL	Sherwood Medical Industries	Deland.
505	09	CA	Western Pacific Railroad Co.	Oroville.
506	04	AL	Olin Corp. (McIntosh Plant)	McIntosh.
507	05	MI	Southwest Ottawa County landfill Park	Township.
508	02	NY	Kentucky Avenue Well Field	Horseheads.
509	02	NY	Pasley Solvents & Chemicals, Inc.	Hempstead.
510	06	TX	Sol Lynn/Industrial Transformers	Houston.
511	02	NJ	Asbestos Dump	Millington.
512	04	KY	Lee's Lane Landfill	Louisville.
513	05	IL	Kerr-McGee (Reed-Keepler Park)	West Chicago.
514	06	AR	Frit Industries	Walnut Ridge.
515	05	IL	Amoco Chemicals (Joliet Landfill)	Joliet.
516	04	FL	Woodbury Chemical (Princeton Plnt)	Princeton.
517	05	OH	Fultz Landfill	Jackson Township.
518	04	NC	New Hanover Cnty Airport Burn Pit	Wilmington.
519	10	OR	Allied Plating, Inc	Portland
520	05	OH	Coshocton Landfill	Franklin Township.
521	09	AZ	Apache Powder Co.	St. David.
522	09	NV	Carson River Mercury Site	Lyon/Churchill Cnty.
523	05	IL	Kerr-McGee (Kress Creek)	DuPage County.
524	03	PA	AMP, Inc. (Glen Rock Facility)	Glen Rock.
525	04	NC	JFD Electronics/Channel Master	Oxford.
526	04	TN	Arlington Blending & Packaging	Arlington.
527	06	LA	PAB Oil & Chemical Service, Inc	Abbeville.
528	04	FL	Sydney Mine Sludge Ponds	Brandon.
529	06	NM	Cimarron Mining Corp	Carrizozo.
530	01	RI	Davis (GSR) Landfill	Glocester.
531	03	PA	Lord-Shope Landfill	Girard township.
532	10	WA	FMC Corp. (Yakima Pit)	Yakima.
533	05	WI	Northern Engraving Co	Sparta.
534	06	TX	South Cavalcade Street	Houston.
535	01	MA	PSC Resources	Palmer.
536	05	MI	Forest Waste Products	Otisville.
537	03	PA	Drake Chemical	Lock Haven.
538	09	CA	United Heckathorn Co	Richmond.
539	01	NH	Kearsarge Metallurgical Corp	Conway.
540	04	SC	Palmetto Wood Preserving	Dixiana.
541	05	MI	Clare Water Supply	Clare.
542	06	TX	Tex-Tin Corp.	Texas City.
543	03	PA	Havertown PCP	Haverford.
544	03	DE	New Castle Spill	New Castle County.
545	07	MO	St Louis Airport/HIS/Fut Coatings	St. Louis County.
546	08	MT	Idaho Pole Co.	Bozeman.
547	03	DE	NCR Corp. (Millsboro Plant)	Millsboro.
548	05	IN	Lake Sandy Jo (M&M Landfill)	Gary.
549	05	IL	Johns-Manville Corp.	Waukegan.
			Group 12 (HRS Scores 38.20-37.63)	
550	05	MI	Chem Central	Wyoming Township.
551	05	MI	Novaco Industries	Temperance.
552	04	FL	Beulah Landfill	Pensacola.
553	05	MN	Windom Dump	Windom.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
554	05	IL	Kerr-McGee (Residential Areas)	W Chic/DuPage Cnty.
555	01	RI	Rose Hill Regional Landfill	South Kingstown.
556	02	NJ	Jackson Township Landfill	Jackson Township.
557	05	IL	NL Industries/Taracorp Lead Smelt	Granite City.
558	04	KY	Red Penn Sanitation Co. Landfill	Peewee Valley.
559	05	MI	K&L Avenue Landfill	Oshtemo township.
560	05	OH	TRW Inc. (Minerva Plant)	Minerva.
561	10	WA	Kaiser Aluminum Mead Works	Mead.
562	06	OK	Mosley Road Sanitary Landfill	Oklahoma City.
563	01	CT	Barkhamsted-New Hartford Landfill	Barkhamsted.
564	07	IA	Fairfield Coal Gasification Plant	Fairfield.
565	05	MN	Perham Arsenic Site	Perham.
566	05	MI	Charlevoix Municipal Well	Charlevoix.
567	02	NJ	Montgomery Township Housing Devl	Montgomery Township.
568	02	NJ	Rocky Hill Municipal Well	Rocky Hill Borough.
569	02	NJ	Cinnaminson Ground Water Contamin	Cinnaminson Township.
570	02	NJ	Chemical Insecticide Corp	Edison Township.
571	02	NY	Brewster Well Field	Putnam County.
572	02	NY	Vestal Water Supply Well 1-1	Vestal.
573	03	DE	Chem-Solv, Inc.	Cheswold.
574	03	MD	Anne Arundel County Landfill	Glen Burnie.
575	03	PA	Bally Ground Water Contamination	Bally Borough.
576	04	FL	Madison County Sanitary Landfill	Madison.
577	04	FL	Chemform, Inc	Pompano Beach.
578	04	FL	Wilson Concepts of Florida, Inc	Pompano Beach.
579	04	NC	Bypass 601 Ground Water Contamin	Concord.
580	04	NC	FCX, Inc. (Statesville Plant)	Statesville.
581	04	SC	Lexington County Landfill Area	Cayce.
582	05	MI	Michigan Disposal (Cork Street Lf)	Kalamazoo.
583	07	MO	Solid State Circuits, Inc	Republic.
584	07	NE	Waverly Ground Water Contamin	Waverly.
585	08	CO	Chemical Sales Co	Denver.
586	08	UT	Utah Power & Light/American Barrel	Salt Lake City.
587	09	CA	Advanced Micro Devices, Inc	Sunnyvale.
588	09	CA	Hexcel Corp	Livermore.
589	09	CA	Crazy Horse Sanitary Landfill	Salinas.
590	10	OR	Union Pacific Railroad Tie Treat	The Dalles.
591	10	WA	Hidden Valley Lndfl (Thun Field)	Pierce County.
592	10	WA	Yakima Plating Co.	Yakima.
593	05	MN	Nutting Truck & Caster Co.	Faribault.
594	02	NJ	U.S. Radium Corp.	Orange.
595	05	MI	Carter Industrials, Inc.	Detroit.
596	06	TX	Highlands Acid Pit	Highlands.
597	03	PA	Resin Disposal	Jefferson Borough.
598	08	MT	Libby Ground Water Contamination	Libby.
599	04	KY	Newport Dump	Newport.
			Group 13 (HRS Scores 37.62-35.79)	
600	04	SC	Sangamo/Twelve-Mile/Hartwell PCB	Pickens.
601	03	PA	Moyers Landfill	Eagleville.
602	01	NH	Savage Municipal Water Supply	Milford.
603	05	MN	LaGrand Sanitary Landfill	LaGrand Township.
604	03	PA	Brown's Battery Breaking	Shoemakersville.
605	02	NY	SMS Instruments, Inc.	Deer Park.
606	05	MI	Hedhlum Industries	Oscoda.
607	06	TX	United Creosoting Co.	Conroe.
608	02	NY	Byron Barrel & Drum	Byron.
609	05	MI	Bendix Corp./Allied Automotive	St. Joseph.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
610	08	WY	Baxter/Union Pacific Tie Treating	Laramie.
611	02	NY	Anchor Chemicals	Hicksville.
612	05	MI	Waste Management – Mich (Holland)	Holland.
613	09	CA	Spectra-Physics, Inc.	Mountain View.
614	03	VA	Arrowhead Assoc/Scovill Corp	Montross.
615	03	VA	Atlantic Wood Industries, Inc.	Portsmouth.
616	06	TX	North Cavalcade Street	Houston.
617	02	NJ	Sayreville Landfill	Sayreville.
618	01	NH	Dover Municipal Landfill	Dover.
619	02	NY	Ludlow Sand & Gravel	Clayville.
620	03	VA	Saunders Supply Co.	Chuckatuck.
621	05	WI	City Disposal Corp. Landfill	Dunn.
622	02	NJ	Tabernacle Drum Dump	Tabernacle Township.
623	07	MO	Minker/Stout/Romaine Creek	Imperial.
624	04	KY	Howe Valley Landfill	Howe Valley.
625	01	CT	Yaworski Waste Lagoon	Canterbury.
626	03	WV	Leetown Pesticide	Leetown.
627	04	SC	Rochester Property	Travelers Rest.
628	04	FL	Cabot/Koppers	Gainesville.
629	02	NJ	Evor Phillips Leasing	Old Bridge Township.
630	03	PA	William Dick Lagoons	West Caln Township.
631	05	IN	Douglass Road/Uniroyal, Inc., Lf	Mishawaka.
632	03	PA	Lackawanna Refuse	Old Forge Borough.
633	06	OK	Compass Industries (Avery Drive)	Tulsa.
634	02	NJ	Mannheim Avenue Dump	Galloway Township.
635	05	IN	Neal's Dump (Spencer)	Spencer.
636	03	VA	Abex Corp.	Portsmouth.
637	02	NY	Fulton Terminals	Fulton.
638	05	MI	Allied Paper/Portage Ck/Kalamaz R	Kalamazoo.
639	06	LA	Dutchtown Treatment Plant	Ascension Parish.
640	03	PA	Westinghouse Elevator Co. Plant	Gettysburg.
641	10	WA	Centralia Municipal Landfill	Centralia.
642	01	NH	Auburn Road Landfill	Londonderry.
643	03	WV	Fike Chemical, Inc.	Nitro.
644	05	MN	General Mills/Henkel Corp.	Minneapolis.
645	04	TN	Wrigley Charcoal Plant	Wrigley.
646	05	OH	Laskin/Poplar Oil Co.	Jefferson Township.
647	05	OH	Old Mill	Rock Creek.
648	04	SC	Townsend Saw Chain Co.	Pontiac.
649	07	KS	Johns' Sludge Pond	Wichita.
			Group 14 (HRS Scores 35.79-35.35)	
650	05	WI	Stoughton City Landfill	Stoughton.
651	09	CA	Del Norte Pesticide Storage	Crescent City.
652	03	VA	Suffolk City Landfill	Suffolk.
653	01	VT	Tansitor Electronics, Inc	Bennington.
654	02	NJ	De Rewa Chemical Co.	Kingwood Township.
655	03	PA	Middletown Air Field	Middletown.
656	02	NJ	Swope Oil & Chemical Co	Pennsauken.
657	04	GA	Monsanto Corp. (Augusta Plant)	Augusta.
658	01	NH	South Municipal Water Supply Well	Peterborough.
659	01	ME	Winthrop Landfill	Winthrop.
660	03	WV	Ordnance Works Disposal Areas	Morgantown.
661	04	GA	Diamond Shamrock Corp. Landfill	Cedartown.
662	05	OH	Zanesville Well Field	Zanesville.
663	01	CT	Cheshire Ground Water Contamin	Cheshire.
664	02	NY	Suffern Village Well Field	Village of Suffern.
665	02	NY	Endicott Village Well Field	Village of Endicott.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
666	03	DE	Dover Gas Light Co	Dover.
667	03	PA	Aladdin Plating	Scott Township.
668	03	PA	North Penn – Area 1	Souderton.
669	03	PA	North Penn – Area 7	North Wales.
670	03	PA	North Penn – Area 6	Lansdale.
671	03	PA	North Penn – Area 2	Hatfield.
672	03	PA	North Penn – Area 5	Montgomery Township.
673	04	FL	Harris Corp. (Palm Bay Plant)	Palm Bay.
674	05	IL	DuPage City Ldf/Blackwell Forest	Warrenville.
675	05	MN	Kummer Sanitary Landfill	Bemidji.
676	05	OH	Sanitary Landfill Co. (IWD)	Dayton.
677	05	WI	Eau Claire Municipal Well Field	Eau Claire.
678	06	NM	Pagano Salvage	Los Lunas.
679	07	MO	Valley Park TCE	Valley Park.
680	09	CA	San Fernando Valley (Area 4)	Los Angeles.
681	09	CA	Monolithic Memories	Sunnyvale.
682	09	CA	National Semiconductor Corp.	Santa Clara.
683	09	CA	Fresno Municipal Sanitary Lndfll	Fresno.
684	09	CA	Newmark Ground Water Contamin	San Bernardino.
685	04	GA	Powersville Site	Peach County.
686	05	MI	Grand Traverse Overall Supply Co.	Greilickville.
687	05	MI	Metamora Landfill	Metamora.
688	02	NY	Niagara Mohawk Power (Saratoga Sp)	Saratoga Springs.
689	03	DE	Standard Chlorine of Delaware, Inc.	Delaware City.
690	05	MN	South Andover Site	Andover.
691	02	NJ	Diamond Alkali Co.	Newark.
692	05	IN	Carter Lee Lumber Co.	Indianapolis.
693	01	NH	Fletcher's Paint Works & Storage	Milford.
694	03	VA	Avtex Fibers, Inc.	Front Royal.
695	05	MI	Kentwood Landfill	Kentwood.
696	05	MI	Electrovoice	Buchanan.
697	09	CA	Jasco Chemical Corp.	Mountain View.
698	02	NY	Katonah Municipal Well	Town of Bedford.
699	04	FL	B&B Chemical Co., Inc	Hialeah.
			Group 15 (HRS Scores 35.35-34.21)	
700	07	KS	29th & Mead Ground Water Contamin	Wichita.
701	09	CA	Teledyne Semiconductor	Mountain View.
702	02	PR	Fibers Public Supply Wells	Jobos.
703	04	FL	BMI-Textron	Lake Park.
704	03	VA	Dixie Caverns County Landfill	Salem.
705	05	IN	Marion (Bragg) Dump	Marion.
706	05	OH	Pristine, Inc.	Reading.
707	05	WI	Mid-State Disposal, Inc. Landfill	Cleveland Township.
708	04	TN	American Creosote (Jackson Plant)	Jackson.
709	05	IL	Kerr-McGee (Sewage Treat Plant)	West Chicago.
710	08	CO	Broderick Wood Products	Denver.
711	02	NY	C & J Disposal Leasing Co. Dump	Hamilton.
712	05	OH	Buckeye Reclamation	St. Clairsville.
713	02	NY	Preferred Plating Corp	Farmingdale.
714	06	TX	Bio-Ecology Systems, Inc	Grand Prarie.
715	08	UT	Monticello Rad Contaminated Props	Monticello.
716	02	NJ	Woodland Route 532 Dump	Woodland Township.
717	05	IN	American Chemical Service, Inc	Griffith
718	01	MA	Salem Acres	Salem.
719	02	NY	Richardson Hill Road Lndfll/Pond	Sidney Center.
720	01	VT	Old Springfield Landfill	Springfield.
721	03	PA	Bell Landfill	Terry Township.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
722	02	NY	Solvent Savers	Lincklaen.
723	03	VA	U.S. Titanium	Piney River.
724	05	IL	Galesburg/Koppers Co	Galesburg.
725	09	CA	J.H. Baxter & Co	Weed.
726	02	NY	Hooker (Hyde Park)	Niagara Falls.
727	05	MI	SCA Independent Landfill	Muskegon Heights.
728	02	NY	Action Anodizing	Plating Polish Copiague.
729	09	CA	MGM Brakes	Cloverdale.
730	06	LA	Bayou Sorrel Site	Bayou Sorrel.
731	05	IL	H.O.D. Landfill	Antioch.
732	05	MI	Duell & Gardner Landfill	Dalton Township.
733	10	WA	Mica Landfill	Mica.
734	02	NJ	Ellis Property	Evesham Township.
735	04	KY	Distler Farm	Jefferson County.
736	09	CA	Waste Disposal, Inc	Sante Fe Springs
737	10	WA	Harbor Island (Lead)	Seattle.
738	05	WI	Lemberger Transport & Recycling	Franklin Township.
739	05	OH	E.H. Schilling Landfill	Hamilton Township.
740	05	MI	Cliff/Dow Dump	Marquette.
741	02	NY	Clothier Disposal	Town of Granby.
742	03	PA	Ambler Asbestos Piles	Ambler.
743	10	WA	Queen City Farms	Maple Valley.
744	02	NJ	Curcio Scrap Metal, Inc.	Saddle Brook Twp.
745	03	VA	L.A. Clarke & Son	Spotsylvania County.
746	05	WI	Scrap Processing Co., Inc	Medford
747	03	MD	Southern Maryland Wood Treating	Hollywood.
748	04	KY	Caldwell Lace Leather Co., Inc	Auburn
749	05	IL	Ilada Energy Co.	East Cape Girardeau.
			Group 16 (HRS Scores 34.21-33.73)	
750	05	IL	Adams County Quincy Landfills 2&3	Quincy.
751	05	MI	Kaydon Corp.	Muskegon.
752	05	WI	Sauk County Landfill	Excelsior.
753	06	NM	Homestake Mining Co	Milan.
754	06	TX	Dixie Oil Processors, Inc.	Friendswood.
755	09	CA	Beckman Instruments (Porterville)	Porterville.
756	05	MI	Muskegon Chemical Co	Whitehall.
757	04	FL	Dubose Oil Products Co	Cantonment.
758	05	MI	Mason County Landfill	Pere Marquette Twp.
759	05	MI	Cemetery Dump	Rose Center.
760	07	IA	Red Oak City Landfill	Red Oak.
761	05	IN	Lakeland Disposal Service, Inc	Claypool.
762	02	NJ	Hopkins Farm	Plumstead Township.
763	04	NC	Cape Fear Wood Preserving	Fayetteville.
764	01	RI	Stamina Mills, Inc	North Smithfield.
765	05	WI	Lemberger Landfill, Inc	Whitelaw.
766	05	IN	Reilly Tar (Indianapolis Plant)	Indianapolis.
767	01	ME	Pinette's Salvage Yard	Washburn.
768	01	CT	Durham Meadows	Durham.
769	03	DE	Tyler Refrigeration Pit	Smyrna.
770	05	MI	Kysor Industrial Corp	Cadillac.
771	09	CA	Lorentz Barrel & Drug Co	San Jose.
772	02	NJ	Wilson Farm	Plumstead township.
773	02	NY	Conklin Dumps	Conklin.
774	03	PA	Old City of York Landfill	Seven Valleys.
775	03	PA	Modern Sanitation Landfill	Lower Windsor Twp.
776	05	IL	Byron Salvage Yard	Byron.
777	05	MI	North Bronson Industrial Area	Bronson.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
778	03	PA	Stanley Kessler	King of Prussia.
779	04	SC	Helena Chemical Co. Landfill	Fairfax.
780	07	MO	Kem-Pest Laboratories	Cape Girardeau.
781	02	NJ	Imperial Oil/Champion Chemicals	Morganville.
782	02	NJ	Cosden Chemical Coatings Corp	Beverly.
783	05	MN	St. Augusta San Lndfll/Engen Dump	St. Augusta Township.
784	02	NJ	Myers Property	Franklin Township.
785	02	NJ	Pepe Field	Boonton.
786	04	KY	Tri-City Disposal Co	Shepherdsville.
787	10	WA	Northwest Transformer	Everson.
788	02	NY	Genzale Plating Co	Franklin Square.
789	05	MI	Albion-Sheridan Township Landfill	Albion.
790	05	WI	Sheboygan Harbor & River	Sheboygan.
791	06	LA	Combustion, Inc.	Denham Springs.
792	05	MI	Ossineke Ground Water Contamin	Ossineke.
793	03	WV	Follansbee Site	Follansbee.
794	03	PA	Keystone Sanitation Landfill	Union Township.
795	04	NC	Carolina Transformer Co	Fayetteville.
796	02	NY	Carroll & Dubies Sewage Disposal	Port Jervis.
797	02	NY	North Sea Municipal Landfill	North Sea.
798	03	PA	Bendix Flight Systems Division	Bridgewater Township.
799	07	IA	Farmers' Mutual Cooperative	Hospers.
				Group 17 (HRS Scores 33.73-32.87)
800	09	CA	Koppers Co. Inc. (Oroville Plant)	Oroville.
801	09	CA	Louisiana-Pacific Corp	Oroville.
802	01	CT	Linemaster Switch Corp	Woodstock.
803	03	VA	H & H Inc.	Burn Pit
804	05	MI	South Macomb Disposal (Lf 9 & 9A)	Macomb Township.
805	05	MI	U.S. Aviex	Howard Township.
806	07	IA	Sheller-Globe Corp. Disposal	Keokuk.
807	03	PA	Walsh Landfill	Honeybrook Township.
808	02	NJ	Landfill & Development Co.	Mount Holly.
809	02	NJ	Upper Deerfield Township San Lndf	Upper Deerfield Twp.
810	02	NY	Hertel Landfill	Plattekill.
811	02	NY	Haviland Complex	Town of Hyde Park
812	02	NY	Malta Rocket Fuel Area	Malta.
813	02	NY	Jones Chemicals, Inc.	Caledonia.
814	03	DE	Kent County Landfill (Houston)	Houston.
815	03	PA	Saegertown Industrial Area	Saegertown.
816	04	GA	Cedartown Municipal Landfill	Cedartown.
817	05	MI	Kent City Mobile Home Park	Kent City.
818	05	MN	Adrian Municipal Well Field	Adrian.
819	06	NM	AT & SF (Clovis)	Clovis.
820	07	KS	Strother Field Industrial Park	Cowley County.
821	07	KS	Obee Road	Hutchinson.
822	09	CA	CTS Printex, Inc.	Mountain View.
823	02	NJ	Fried Industries	East Brunswick Twp.
824	02	NY	American Thermostat Co.	South Cairo.
825	08	ND	Minot Landfill	Minot.
826	03	DE	Koppers Co., Inc. (Newport Plant)	Newport.
827	04	TN	Lewisburg Dump	Lewisburg.
828	05	MI	McGraw Edison Corp	Albion.
829	02	NJ	Lodi Municipal Well	Lodi.
830	02	NY	Goldisc Recordings, Inc.	Holbrook.
831	02	NY	Islip Municipal Sanitary Landfill	Islip.
832	09	CA	Sola Optical USA, Inc.	Petaluma.
833	04	KY	Airco	Calvert City

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
834	03	PA	Metal Banks	Philadelphia.
835	05	IL	Yeoman Creek Landfill	Waukegan.
836	02	NY	Sarney Farm	Amenia.
837	05	MI	Folkertsma Refuse	Grand Rapids.
838	03	DE	Sealand Limited	Mount Pleasant.
839	01	MA	Rose Disposal Pit	Lanesboro.
840	05	OH	Van Dale Junkyard	Marietta.
841	08	MT	Montana Pole and Treating	Butte.
842	04	NC	Geigy Chemical Corp(Aberdeen Plt)	Aberdeen.
843	04	KY	B.F. Goodrich	Calvert City.
844	04	KY	General Tire/Rubber(Mayflied Lnf)	Mayfield.
845	04	SC	Para-Chem Southern, Inc.	Simpsonville.
846	05	MI	Organic Chemicals, Inc.	Grandville.
847	02	NY	BioClinical Laboratories, Inc.	Bohemia.
848	02	NY	Volney Municipal Landfill	Town of Volney.
849	02	NY	FMC Corp. (Dublin Road Landfill)	Town of Shelby.
			Group 18 (HRS Scores 32.77-31.94)	
850	05	WI	Tomah Fairgrounds	Tomah.
851	01	MA	Sullivan's Ledge	New Bedford.
852	04	KY	Smith's Farm	Brooks.
853	05	WI	Madison Metro Sewer District Lag	Blooming Grove.
854	10	WA	North Market Street	Spokane.
855	10	OR	Joseph Forest Products	Joseph.
856	02	PR	Juncos Landfill	Juncos.
857	07	KS	Big River Sand Co	Wichita.
858	05	IN	Bennett Stone Quarry	Bloomington.
859	10	WA	Wyckoff Co./Eagle Harbor	Bainbridge Island.
860	04	SC	Beaunit Corp(Circular Knit & Dye)	Fountain Inn.
861	02	NJ	Industrial Latex Corp	Wallington Borough.
862	04	FL	Munisport Landfill	North Miami.
863	06	LA	D.L. Mud, Inc.	Abbeville.
864	04	AL	Stauffer Chem (LeMoyne Plant)	Axis.
865	06	TX	Crystal City Airport	Crystal City.
866	04	SC	Geiger (C & M Oil)	Rantoules.
867	03	PA	Paoli Rail Yard	Paoli.
868	05	WI	Moss-American(Kerr-McGee Oil Co.)	Milwaukee.
869	05	WI	Waste Research & Reclamation Co.	Eau Claire.
870	10	OR	Gould, Inc.	Portland.
871	01	ME	Union Chemical Co., Inc	South Hope.
872	02	NY	Cortese Landfill	Vil of Narrowsburg.
873	08	WY	Mystery Bridge Rd/U.S. Highway 20	Evansville.
874	09	CA	Montrose Chemical Corp.	Torrance.
875	05	MN	St. Louis River Site	St. Louis County.
876	05	MI	Auto Ion Chemicals, Inc.	Kalamazoo.
877	03	PA	Recticon/Allied Steel Corp	East Coventry Twp
878	05	WI	Hagen Farm	Stoughton.
879	04	SC	Carolawn, Inc.	Fort Lawn.
880	07	IA	Midwest Manufacturing/North Farm	Kellogg.
881	03	PA	Berks Sand Pit	Longswamp Township.
882	09	CA	Valley Wood Preserving, Inc.	Turlock.
883	03	PA	Butz Landfill	Stroudsburg.
884	04	FL	City Industries, Inc	Orlando.
885	05	MI	Sparta Landfill	Sparta Township.
886	05	IL	Acme Solvent (Morristown Plant)	Morristown.
887	01	NH	Holton Circle Ground Water Contam	Londonderry.
888	02	NJ	Pomona Oaks Residential Wells Galloway	Township.
889	02	NY	Rowe Industries Ground Water Cont	Noyack/Sag Harbor.

Revised
56 FR 5606
February 11, 1991

Appendix B—National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
890	03	PA	Hebelka Auto Salvage Yard	Weisenberg Township.
891	04	FL	Hipps Road Landfill	Duval County.
892	05	MN	Long Prairie Ground Water Contam	Long Prairie.
893	05	MN	Waite Park Wells	Waite Park.
894	07	NE	Nebraska Ordnance Plant (Former)	Mead.
895	09	CA	Applied Materials	Santa Clara.
896	09	CA	Intel Magnetics	Santa Clara.
897	09	CA	Intel Corp. (Santa Clara III)	Santa Clara.
898	09	CA	TRW Microwave, Inc. (Building 825)	Sunnyvale.
			Group 19 (HRS Scores 31.94-30.93)	
899	09	CA	Synertek, Inc. (Building 1)	Santa Clara.
900	09	CA	Advanced Micro Devices (Bldg. 915)	Sunnyvale.
901	04	FL	Pepper Steel & Alloys, Inc.	Medley.
902	02	NY	Mattiace Petrochemical Co., Inc.	Glen Cove.
903	01	ME	O'Connor Co.	Augusta.
904	05	WI	Oconomowoc Electroplating Co., Inc.	Ashippin.
905	05	IN	Continental Steel Corp.	Kokomo.
906	05	MI	Rasmussen's Dump	Green Oak Township.
907	02	NY	Kenmark Textile Corp.	Farmingdale.
908	04	FL	Wingate Road Munic Incinerat Dump	Fort Lauderdale.
909	03	PA	Westline Site	Westline.
910	04	KY	Maxey Flats Nuclear Disposal	Hillsboro.
911	04	NC	Benfield Industries, Inc.	Hazelwood.
912	08	MT	Mouat Industries	Columbus.
913	05	MI	J&L Landfill	Rochester Hills.
914	02	NY	Claremont Polychemical	Old Bethpage.
915	05	OH	Powell Road Landfill	Dayton.
916	03	PA	Croydon TCE	Croydon.
917	04	SC	Medley Farm Drum Dump	Gaffney.
918	04	SC	Elmore Waste Disposal	Greer.
919	07	IA	Vogel Paint & Wax Co.	Orange City.
920	05	MN	Kurt Manufacturing Co.	Fridley.
921	05	OH	Reilly Tar & Chemcal (Dover Plnt)	Dover.
922	05	MI	Parsons Chemical Works, Inc.	Grand Ledge.
923	03	PA	Revere Chemical Co.	Nockamixon Township.
924	05	MI	Ionia City Landfill	Ionia.
925	06	TX	Koppers Co., Inc. (Texarkana Plant)	Texarkana.
926	08	CO	Lincoln Park	Canon City.
927	08	CO	Smuggler Mountain	Pitkin County.
~~930~~	~~05~~	~~IN~~	~~Wedzeb Enterprises, Inc.~~	~~Lebanon.~~
928	02	PR	GE Wiring Devices	Juana Diaz.
929	07	MO	Missouri Electric Works	Cape Girardeau.
930	05	MI	Avenue "E" Ground Water Contamin	Traverse City.
931	05	OH	New Lyme Landfill	New Lyme.
932	02	NJ	Woodland Route 72 Dump	Woodland Township.
933	02	PR	RCA Del Caribe	Barceloneta.
934	05	MN	Koch Refining Co./N-Ren Corp	Pine Bend.
935	04	FL	Piper Aircraft/Vero Beach Wtr&Swr	Vero Beach.
936	03	PA	Brodhead Creek	Stroudsburg.
937	05	WI	Fadrowski Drum Disposal	Franklin.
938	10	OR	United Chrome Products, Inc.	Corvallis.
939	04	FL	Anodyne, Inc.	North Miami Beach.
940	04	FL	Anaconda Aluminum/Milgo Electron	Miami.
941	03	PA	Eastern Diversified Metals	Hometown.
942	04	MI	Anderson Development Co	Adrian.
943	05	WI	Hunts Disposal Landfill	Caledonia.
944	05	MI	Shiawassee River	Howell.

Removed
56 FR 46122
September 10, 1991

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56 FR 5606
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Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
945	06	OK	Tenth Street Dump/Junkyard	Oklahoma City.
946	10	AK	Alaska Battery Enterprises	Fairbanks N Star Bor.
947	03	PA	Taylor Borough Dump	Taylor Borough.
			Group 20 (HRS Scores 30.83-29.85)	
948	04	TN	Murray-Ohio Mfg (Horseshoe Bend)	Lawrenceburg.
949	03	DE	Halby Chemical Co	New Castle.
950	02	NJ	Higgins Disposal	Kingston.
951	04	AL	Redwing Carriers, Inc. (Saraland)	Saraland.
952	06	OK	Double Eagle Refinery Co	Oklahoma City.
953	04	GA	Mathis Bros Lf (S Marble Top Rd)	Kensington.
954	03	DE	Harvey & Knott Drum, Inc.	Kirkwood.
955	04	TN	Gallaway Pits	Gallaway.
956	05	OH	Big D Campground	Kingsville.
957	06	AR	Midland Products	Ola/Birta.
958	02	NY	Robintech, Inc./National Pipe Co	Town of Vestal.
959	02	NY	BEC Trucking	Town of Vestal.
960	03	PA	Strasburg Landfill	Newlin Township.
961	06	OK	Fourth Street Abandoned Refinery	Oklahoma City.
962	02	NJ	Witco Chemical Corp. (Oakland Plt)	Oakland.
963	05	WI	Tomah Armory	Tomah.
964	03	DE	Wildcat Landfill	Dover.
965	05	MI	Burrows Sanitation	Hartford.
966	03	PA	Blosenski Landfill	West Cain Township.
967	03	VA	Rhinehart Tire Fire Dump	Frederick County.
968	10	WA	Northwest Transformer (S Harkness)	Everson.
969	03	DE	Delaware City PVC Plant	Delaware City.
970	03	MD	Limestone Road	Cumberland.
971	02	NY	Hooker (102nd Street)	Niagara Falls.
972	02	NJ	Higgins Farm	Franklin Township.
973	10	WA	American Crossarm & Conduit Co	Chehalis.
974	06	NM	United Nuclear Corp	Church Rock.
975	03	VA	Rentokil, Inc. (VA Wood Pres Div)	Richmond.
976	06	AR	Industrial Waste Control	Fort Smith.
977	09	CA	Celtor Chemical Works	Hoopa.
978	01	MA	Haverhill Municipal Landfill	Haverhill.
979	04	AL	Perdido Ground Water Contamin	Perdido.
980	02	NY	Marathon Battery Corp	Cold Springs.
981	02	NY	Colesville Municipal Landfill	Town of Colesville.
982	04	FL	Yellow Water Road Dump	Baldwin.
983	04	GA	Marzone Inc./Chevron Chemical Co	Tifton.
984	05	OH	Skinner Landfill	West Chester.
985	03	VA	First Piedmont Quarry (Route 719)	Pittsylvania County.
986	04	NC	Chemtronics, Inc.	Swannanoa.
987	05	IN	MIDCO II	Gary.
988	05	MI	Cannelton Industries, Inc	Sault Sainte Marie.
989	06	TX	Sheridan Disposal Services	Hempstead.
990	07	KS	Pester Refinery Co	El Dorado.
991	03	MD	Kane & Lombard Street Drums	Baltimore.
992	07	MO	Shenandoah Stables	Moscow Mills.
993	04	GA	Firestone Tire (Albany Plant)	Albany.
994	07	IA	Shaw Avenue Dump	Charles City.
995	03	PA	Berkley Products Co. Dump	Denver.
996	10	WA	Silver Mountain Mine	Loomis.
997	06	TX	Petro-Chemical (Turtle Bayou)	Liberty County.

Revised
56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
			Group 21 (HRS Scores 29.88-28.90)	
998	04	NC	Hevi-Duty Electric Co.	Goldsboro.
999	05	OH	Republic Steel Corp. Quarry	Elyria.
1000	07	MO	Conservation Chemical Co	Kansas City.
1001	07	MO	Westlake Landfill	Bridgeton.
1002	05	MN	Ritari Post & Pole	Sebeka.
1003	06	LA	Bayou Bonfouca	Slidell.
1004	09	CA	Fairchild Semiconduct (Mt View)	Mountain View.
1005	09	CA	Intel Corp. (Mountain View Plant)	Mountain View.
1006	09	CA	Raytheon Corp	Mountain View
1007	09	CA	Hewlett-Packard (620-40 Page Mill)	Palo Alto.
1008	05	MN	Agate Lake Scrapyard	Fairview township.
1009	05	MI	Adam's Plating	Lansing.
1010	06	AR	Jacksonville Municipal Landfill	Jacksonville.
1011	06	AR	Rogers Road Municipal Landfill	Jacksonville.
1012	03	VA	Saltville Waste Disposal Ponds	Saltville.
1013	01	ME	Saco Municipal Landfill	Saco.
1014	04	SC	Palmetto Recycling, Inc	Columbia.
1015	01	MA	Shpack Landfill	Norton/Attleboro.
1016	03	PA	Kimberton Site	Kimberton Borough.
1017	04	TN	Mallory Capacitor Co	Waynesboro.
1018	01	MA	Norwood PCBs	Norwood.
1019	02	NY	Warwick Landfill	Warwick.
1020	02	NY	Sidney Landfill	Sidney.
1021	02	NY	Sealand Restoration, Inc.	Lisbon.
1022	10	WA	Old Inland Pit	Spokane.
1023	10	WA	Pesticide Lab (Yakima)	Yakima.
1024	05	IN	Lemon Lane Landfill	Bloomington.
1025	05	IN	Tri-State Plating	Columbus.
1026	10	ID	Arrcom (Drexler Enterprises)	Rathdrum.
1027	01	NH	Coakley Landfill	North Hampton.
1028	04	NC	Potter's Septic Tank Service Pits	Maco.
1029	04	KY	Green River Disposal, Inc	Maceo.
1030	04	NC	ABC One Hour Cleaners	Jacksonville.
1031	03	PA	Fischer & Porter Co	Warminster.
1032	03	PA	Elizabethtown Landfill	Elizabethtown.
1033	05	IL	Central Illinois Public Serv Co	Taylorville.
1034	06	AR	Arkwood, Inc	Omaha.
~~*1038~~	~~09~~	~~CA~~	~~Jibboom Junkyard~~	~~Sacramento.~~
1035	02	NJ	A. O. Polymer	Sparta Township.
1036	05	WI	Wausau Ground Water Contamination	Wausau.
1037	02	NJ	Dover Municipal Well 4	Dover Township.
1038	02	NJ	Rockaway Township Wells	Rockaway.
1039	02	NJ	Pohatcong Valley Ground Water Con	Warren County.
1040	02	NJ	Garden State Cleaners Co	Minotola.
1041	03	DE	Sussex County Landfill No. 5	Laurel.
1042	03	PA	North Penn – Area 12	Worcester.
1043	03	PA	Dublin TCE Site	Dublin Borough.
1044	05	WI	Delavan Municipal Well #4	Delavan.
1045	05	WI	Waste Management (Brookfield Lfl)	Brookfield.
1046	07	MO	North-U Drive Well Contamination	Springfield.
			Group 22 (HRS Scores 28.90-28.50, except for health-advisory sites)	
1047	07	NE	10th Street Site	Columbus.
1048	09	CA	San Gabriel Valley (Area 3)	Alhambra.
1049	09	CA	San Gabriel Valley (Area 4)	La Puente.
1050	09	CA	Watkins-Johnson Co. (Stewart Div)	Scotts Valley.

Removed
56 FR 46112
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56 FR 5606
February 11, 1991

Appendix B – National Priorities List
National Priorities List (by Rank)
[February 1991]

NPL rank	EPA reg.	St	Site name	City/county
1051	09	CA	Intersil Inc./Siemens Components	Cupertino.
1052	09	CA	Modesto Ground Water Contamin	Modesto.
1053	10	WA	American Lake Gardens	Tacoma.
1054	10	WA	Greenacres Landfill	Spokane County.
1055	10	WA	Northside Landfill	Spokane.
1056	06	OK	Sand Springs Petrochemical Cmplx	Sand Springs.
1057	06	TX	Pesses Chemical Co	Fort Worth.
1058	05	MI	Metal Working Shop	Lake Ann.
1059	05	MN	East Bethel Demolition Landfill	East Bethel Township.
1060	06	TX	Triangle Chemical Co.	Bridge City.
1061	02	NJ	PJP Landfill	Jersey City.
1062	03	PA	Craig Farm Drum	Parker.
1063	05	IL	Belvidere Municipal Landfill	Belvidere.
1064	07	MO	Bee Cee Manufacturing Co.	Malden.
1065	03	PA	CryoChem, Inc.	Worman.
1066	02	NJ	Kauffman & Minteer, Inc.	Jobstown.
~~1069~~	~~03~~	~~PA~~	~~Lansdowne Radiation Site~~	~~Lansdowne.~~
1067	02	NY	Forest Glen Mobile Home Subdivis	Niagara Falls.
1068	02	NY	Radium Chemical Co., Inc.	New York City.

Removed
56 FR 46112
September 10, 1991

Number of NPL Sites: 1068.

* State top priority site.

National Priorities List, Federal Section (by Group)

[February 1991]

NPL Gr[1]	St	Site name	City/County
1	WA	Hanford 200-Area (USDOE)	Benton County.
1	WA	Hanford 300-Area (USDOE)	Benton County.
1	CO	Rocky Flats Plants (USDOE)	Golden.
1	CA	Riverbank Army Ammunition Plant	Riverbank.
1	NM	Cal West Metals (USSBA)	Lemitar.
1	MO	Weldon Spring (USDOE/Army)	St. Charles County.
2	CO	Rocky Mountain Arsenal	Adams County.
2	TN	Milan Army Ammunition Plant	Milan.
2	CA	McClelland AFB (Ground Water Cont)	Sacramento.
2	PA	Naval Air Develop Center (8 Areas)	Warminster Township.
2	OH	Wright-Patterson Air Force Base	Dayton.
3	ID	Mountain Home Air Force Base	Mountain Home.
3	OH	Feed Materials Prod Cent (USDOE)	Fernald.
3	WA	Bangor Naval Submarine Base	Silverdale.
3	UT	Tooele Army Depot (North Area)	Tooele.
3	WA	Bonneville Power Adm Ross (USDOE)	Vancouver.
3	MD	Aber Prov Ground-Edgewood Area	Edgewood.
4	ID	Idaho National Engin Lab (USDOE)	Idaho Falls.
4	AL	Anniston Army Depot (SE Ind Area)	Anniston.
4	GA	Robins AFB (Lndfll NZA/Sludge Lag)	Houston County.
4	TN	Oak Ridge Reservation (USDOE)	Oak Ridge.
4	NE	Cornhusker Army Ammunition Plant	Hall County.
4	NJ	Naval Air Engineering Center	Lakehurst.
5	UT	Hill Air Force Base	Ogden.
5	CA	Treasure Island Nav Sta-Hun Pt An	San Francisco.

Revised
56 FR 5606
February 11, 1991

National Priorities List, Federal Section (by Group)

[February 1991]

NPL Gr[1]	St	Site name	City/County
5	AK	Eielson Air Force Base	Fairbanks N Star Bor.
5	SC	Savannah River Site (USDOE)	Aiken.
5	WA	Naval Air Sta, Whid Is (Ault)	Whidbey Island
6	NJ	W.R. Grace/Wayne Int Stor (USDOE)	Wayne Township.
6	WA	Hanford 100-Area (USDOE)	Benton County.
6	AK	Standard Steel & Met Sal Yd (USDOT)	Anchorage.
6	MA	Otis Air Nat Guard/Camp Edwards	Falmouth.
7	AK	Elmendorf Air Force Base	Greater Anchorage Bor.
7	UT	Ogden Defense Depot	Ogden.
7	GA	Marine Corps Logistics Base	Albany.
7	CA	Sacramento Army Depot	Sacramento.
8	IL	Sangamo/Crab Orchard NWR (USDOI)	Carterville.
8	ME	Brunswick Naval Air Station	Brunswick.
8	CO	Air Force Plant PJKS	Waterton.
8	NJ	Picatinny Arsenal	Rockway Township.
8	FL	Homestead Air Force Base	Homestead.
8	AK	Fort Wainwright	Fairbanks N Star Bor.
8	FL	Pensacola Naval Air Station	Pensacola.
9	CA	Sharpe Army Depot	Lathrop.
9	MA	Fort Devens	Fort Devens.
9	OK	Tinker AFB (Soldier Cr/Bldg 3001)	Oklahoma City.
9	CA	Lawrence Livermore Lab (USDOE)	Livermore.
9	CA	Fort Ord	Marina.
9	WA	McChord AFB (Wash Rack/Treatment)	Tacoma.
9	IL	Savanna Army Depot Activity	Savanna.
10	NY	Brookhaven National Lab (USDOE)	Upton.
10	TX	Air Force Plant NZ4 Gener Dynamics	Fort Worth.
11	TX	Longhorn Army Ammunition Plant	Karnack.
11	CA	Norton Air Force Base	San Bernardino.
11	NJ	Federal Aviation Admin Tech Cent	Atlantic County.
11	WA	Naval Air Sta, Whid Is (Seaplane)	Whidbey Island
11	NH	Pease Air Force Base	Portsmouth/Newington.
11	NM	Lee Acres Landfill (USDOI)	Farmington.
11	WY	F.E. Warren Air Force Base	Cheyenne.
12	CA	Castle Air Force Base	Merced.
12	AZ	Luke Air Force Base	Glendale.
12	AZ	Williams Air Force Base	Chandler.
12	PA	Tobyhanna Army Depot	Tobyhanna.
12	CA	Barstow Marine Corps Logist Base	Barstow.
13	PA	Letterkenny Army Depot (PDO Area)	Franklin County.
13	CA	El Toro Marine Corps Air Station	El Toro.,
13	NJ	Fort Dix (Landfill Site)	Pemberton Township.
13	CA	Tracy Defense Depot	Tracy.
13	AL	Alabama Army Ammunition Plant	Childersburg.
13	CT	New London Submarine Base	New London.
13	WA	Hanford 1100-Area (USDOE)	Benton County.
13	DE	Dover Air Force Base	Dover.
13	UT	Monticello Mill Tailings (USDOE)	Monticello.
14	MA	Fort Devens-Sudbury Training Ann	Middlesex County.
14	NY	Seneca Army Depot	Romulus.
14	WA	Fort Lewis Logistics Center	Tillicum.
15	IL	Joliet Army Ammu Plant (LAP Area)	Joliet.
15	OH	Mound Plant (USDOE)	Miamisburg.
15	RI	Davisville Naval Constr Batt Cent	North Kingstown.
15	ME	Loring Air Force Base	Limestone.
15	PR	Naval Security Group Activity	Sabana Seca.
16	PA	Letterkenny Army Depot (SE Area)	Chambersburg.
16	NY	Griffiss Air Force Base	Rome.
16	VA	Defense General Supply Center	Chesterfield County.
16	KS	Fort Riley	Junction City.

Revised
56 FR 5606
February 11, 1991

National Priorities List, Federal Section (by Group)

[February 1991]

NPL Gr[1]	St	Site name	City/County
16	WA	Fort Lewis (Landfill No. 5)	Tacoma.
16	CA	Camp Pendleton Marine Corps Base	San Diego County.
17	MO	Lake City Army Plant (NW Lagoon)	Independence.
17	MN	Twin Cities Air Force (SAR Lndfll)	Minneapolis.
17	CA	Edwards Air Force Base	Kern County.
17	SD	Ellsworth Air Force Base	Rapid City.
17	CA	George Air Force Base	Victorville.
17	WA	Naval Undersea Warf Sta (4 Areas)	Keyport.
17	NC	Camp Lejeune Military Reservation	Onslow County.
18	RI	Newport Naval Educat/Training Cen	Newport.
18	AZ	Yuma Marine Corps Air Station	Yuma.
18	FL	Jacksonville Naval Air Station	Jacksonville.
18	IL	Joliet Army Ammu Plant (Mfg Area)	Joliet.
18	FL	Cecil Field Naval Air Station	Jacksonville.
18	WA	Fairchild Air Force Base (4 Areas)	Spokane County.
19	CA	March Air Force Base	Riverside.
19	TX	Lone Star Army Ammunition Plant	Texarkana.
19	CA	Lawrence Livermore Lab-300 (USDOE)	Livermore.
19	OR	Umatilla Army Depot (Lagoons)	Hermiston.
19	MD	Aber Prov Ground-Michaelsville Lf	Aberdeen.
20	MN	Naval Industrial Reserve Ordnance	Fridley.
20	WA	Bangor Ordnance Disposal	Bremerton.
20	NY	Plattsburgh Air Force Base	Plattsburgh.
20	LA	Louisiana Army Ammunition Plant	Doyline.
20	MO	Weldon Spring Form Army Ord Works St.	Charles County.
21	IA	Iowa Army Ammunition Plant	Middletown.
21	NJ	Naval Weapons Stat Earle (Site A)	Colts Neck.
21	CA	Travis Air Force Base	Solano County.
21	CA	Moffett Naval Air Station	Sunnyvale.
22	CA	Mather Air Force Base	Sacramento.
22	HI	Schofield Barracks	Oahu.

Number of NPL Federal Facility Sites: 116

* State top priority site.

[1]: Sites are placed in groups (Gr) corresponding to groups of 50 on the final NPL.

[56 FR 5606, Feb. 11, 1991, as amended at 56 FR 11938, Mar. 21, 1991; 56 FR 46122, Sept. 10, 1991]

Appendix C to Part 300 – Revised Standard Dispersant Effectiveness and Toxicity Tests

Table of Contents

1.0 Introduction
2.0 Revised Standard Dispersant Effectiveness Test
3.0 Revised Standard Dispersant Toxicity Test
4.0 Summary Technical Product Test Data Format

References

List of Illustrations

Figure Number

1 Test Tank
2 Suggested Hosing System
3 Schematic Diagram of Automatic Dispensing Pipette System

List of Tables

Table Number

1 Synthetic Seawater (Effectiveness Test)
2 Test Oil Characteristics: No. 6 Fuel Oil
3 Preparation of Standards for Calibration
4 Required Dispersant Effectiveness Tests Results
5 Synthetic Seawater (Toxicity Test)
6 Test Oil Characteristics: No. 2 Fuel Oil

1.0 Introduction

1.1 *Scope and Application.* These methods apply to "dispersants" involving subpart J (Use of Dispersants and Other Chemicals) in 40 CFR part 300 (National Oil and Hazardous Substances Pollution Contingency Plan).

1.2 *Definition.* Dispersants are defined as those chemical agents that emulsify, disperse, or solubilized oil into the water column or act to further the surface spreading of oil slicks in order to facilitate dispersal of oil into the water column.

2.0 Revised Standard Dispersant Effectiveness Test

2.1 *Summary of Method.* The test oil (100 ml) is applied to the surface of synthetic seawater contained in a cylindrical tank. The dispersant (3, 5, or 25 ml) is applied to the oil in a fine stream, and 3.0 minutes are allowed for the dispersant to contact the oil. The oil, dispersant, and seawater are mixed by hosing with a pressurized water stream for 1.0 minute. The contents of the tank are recirculated by a pump, and samples are withdrawn from the recirculation system after 10 minutes and after 2 hours of recirculation. The amount of oil dispersed is determined by measuring the absorbance of visible light after extraction of the dispersed oil with chloroform. Each test is repeated three times.

2.2 *Apparatus. Test Tank.* Construct the cylindrical test tank, 24 inches (600 mm) inside diameter by 28 inches (710 mm) high, of 16-gauge stainless steel. Install, as shown in Figure 1, the associated piping, valve, and pump for recirculation of dispersed oil and for sample collection.

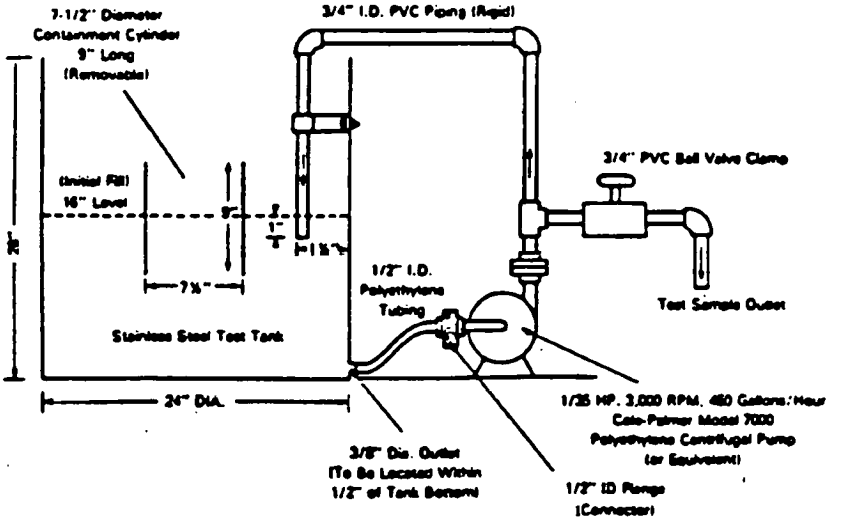


Figure 1. Test Tank

Oil Containment Cylinder. Use a 16-gauge stainless steel containment cylinder 7.5 inches (190 mm) in diameter and 9 inches (229 mm) long to contain the oil while the oil contacts the dispersant. Suspend the cylinder vertically in the center of the test tank with its midpoint 16 inches (406 mm) above the base of the tank. The design should be such that the cylinder can be removed from the tank in less than 10 seconds.

Hosing System. Provide a pressurized hosing system suitable for delivering synthetic seawater to the oil/dispersant mixture in the test tank. A suggested hosing system is shown in Figure 2. Deliver hosing water through a hose with a ½-inch (12.7 mm) inside diameter, which is connected to a shut-off nozzle with a discharge tip approximately with a 3/16-inch (4.8-mm) inside diameter [Akron Brass Company, Style 111 shutoff valve with Style 558, 3/16-inch tip, or equivalent].

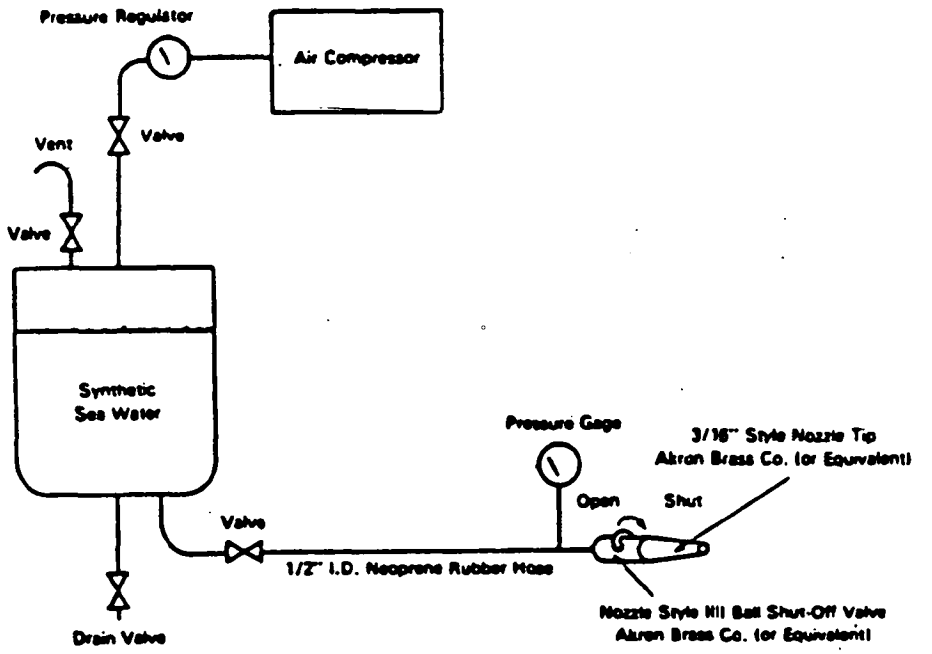


Figure 2. Suggested Hosing System

The hosing system must be adjusted to deliver 15.1 ± 0.8 liters/min at 140 kPa (4.0 ± 0.2 gpm at 20 psig). Measure the flow by hosing synthetic seawater at 23 ± 1°C into a calibrated container for the predetermined time. Set the proper flow rate by adjusting the pressure in the pressurized tank or a suitable valve in the hose line. The delivery pressure should be determined by means of a pressure gauge in the line immediately before the nozzle.

Corrosion buildup within the nozzle may change hosing pressure and alter test results. To prevent this, remove and flush the nozzle with fresh water at the end of each day's tests.

Spectrophotometer. Use a spectrophotometer suitable for measurement at 620 nanometers to determine photochemically the oil concentration of the oil/chloroform mixture. A Bausch and Lomb Spectronic 20 spectrophotometer (or equivalent) is acceptable for this purpose.

Filter Paper. Use a filter paper suitable for filtering the oil/chloroform extract. Whatman No. 1 filter paper (or equivalent) is acceptable for this purpose.

Glassware. Glassware should consist of 5-. 10-, 25-, 100-, and 500-ml graduated cylinders; two 1,000-ml separatory funnels with Teflon stopcocks; 10-, 100-, and 1,000-ml volumetric flasks and two 250-ml Erlenmeyer flasks.

2.3 *Reagents. Synthetic Seawater.* Prepare a batch of concentrated synthetic seawater using the components listed in Table 1, which are added to 379 liters (100 gal) of tap water having a hardness less than 50 mg/liter.

Table 1 – Synthetic Seawater (Effectiveness Test)

Salt[a]	Composition	
	Concentrate[b] (kg/379 liter)	Diluted seawater (g/liter)
NaCl	20.25	17.10
$MgCl_2.6H_2O$	9.17	7.44
Na_2SO_4	3.38	2.85
$CaCl_2$	0.952	0.802
KCl	0.573	0.483
$NaHCO_3$	0.166	0.140

[a] If any salt other than those listed above is used, allowance must be made for water of crystallization.

[b] Concentrate is prepared by dissolving the indicated amount of salt in 379 liters (100 gal.) of tap water.

Chloroform Reagent Grade.

Sodium Sulfate, Anhydrous Reagent Grade.

Oils. Test the dispersant with 100 ml of No. 6 fuel oil that has the characteristics given in Table 2.

Table 2 – Test Oil Characteristics: No. 6 Fuel Oil

Characteristics	No. 6 fuel oil	
	Minimum	Maximum
Gravity (°API)	.....	16.9
Viscosity – Furol at 122°F (SFS).	101	200
Flash Point (°F)	160	.....
Pour Point (°F)	.....	35
Sulfur (wt %)	.....	2.73
Carbon residue (wt %)	.....	12.3
Water (vol %)	.....	0.20
Sediment (wt %)	.....	0.10
Ash (wt %)	.....	0.10
Asphaltenes (wt %)	.....	10.0
Neutralization No	.....	2.5

2.4 *Pretest Preparation. Calibration of Spectrophotometer.* Prepare a stock solution by adding 3.50 g of the test oil to a 1,000-ml volumetric flask. Dissolve the oil in about 900 ml of chloroform, then dilute to the mark with chloroform. The resulting concentration of test oil is 3,500 mg/liter.

Prepare standard solutions of No. 6 fuel oil by pipetting 5, 10, 25, and 50 ml of the test oil stock solution into 10-ml volumetric flasks. Dilute each flask to the mark with chloroform. The concentration of test oil in each flask is given in Table 3:

Table 3 – Preparation of Standards for Calibration

Volume of stock solution used (ml)	Concentration of test oil (mg/liter)
5	175
10	350
25	875
50	1,750
100 (neat)	3,500

Determine the absorbance of the stock solution and the diluted aliquots at a wavelength of 620 nanometers. If a Bausch and Lomb Spectronic 20 spectrophotometer is used, the ½-inch (12.7-mm) cell is recommended. Plot the calibration curve for the test oil as mg/liter of test oil versus absorbance.

Measurement of Specific Gravity of the Test Oils and Dispersant. Equilibrate samples of the test oil and dispersant at 23 ± 1°C.

Weigh two dry 10-ml volumetric flasks on a balance capable of weighing to ± 1 mg or better. Add enough test oil to one flask and enough dispersant to the second flask to fill them to the mark. Reweigh each flask. The density of the oil and dispersant is:

$$Density\ (g/ml) = \frac{weight\ of\ test\ oil\ or\ dispersant\ (g)}{sizeeight\ vovolume\ of\ the\ flask\ (ml)} \quad (1)$$

2.5 *Dispersant Effectiveness Test Procedure.* The dispersant effectiveness test procedures are as follows in steps 1-16:

1. Add 38 ± 1 liters (10 ± 0.25 gal) of the seawater concentrate to the test tank. Dilute the concentrate to a depth of 16 ± 0.25 inches (410 ± 5 mm) with hot and cold water in the proper amounts to bring the temperature of the diluted seawater to 23 ± 1°C. Adjust the pH of the seawater to 8.0 ± 0.1 with concentrated HC1 or NaOH. Thc salinity of the water should be 25.00 ± 0.15 parts per thousand (ppt).

2. Insert the oil containment cylinder into the test tank. Position the cylinder in the center of the tank with its midpoint 16 ± 0.25 inches (410 ± 5 mm) above the base of thc tank.

3. Select one of the following graduated cylinders, a 5-, 10-, or 25-ml graduated cylinder, as appropriate for addition of the dispersant and a 100-ml graduated cylinder for addition of the test oil.

4. Fill the 100-ml graduated cylinder with 100 ml of the test oil. Drain the Cylinder for 3.0 minutes. Weigh the drained cylinder and record the weight. Calculate the weight of 100 ml of test oil [weight (g) = density (g/ml) × volume (ml)] and add this amount of test oil to the drained cylinder. Record the weight of the cylinder and oil.

Note: The precision of the effectiveness test is increased substantially if exactly the same weight of test oil or dispersant is added for each test. The purpose of Step 4 is to determine the amount of test oil or dispersant that will be left in the graduated cylinder after the addition.

5. Slowly and gently add the 100 ml of the test oil from the graduated cylinder directly onto the water surface within the center of the oil containment cylinder. Move the graduated cylinder in a circular motion to distribute the oil uniformly over the surface. Be careful that oil is not lost below the containment cylinder and that oil does not splash, drip onto, or contact the containment cylinder wall above the waterline during application.

Allow the oil to drain from the graduated cylinder for 3.0 minutes.

Weigh the drained graduated cylinder. Calculate the weight of oil actually added to the test tank. Check the weight to be sure that 100.0 ± 0.5 ml of test oil was added to the test tank.

6. Fill either the 5-, 10-, or 25-ml graduated cylinder with 3, 10, or 25 ml of dispersant, respectively. Drain it for 3.0 minutes and weigh the drained cylinder. Calculate the weight of 3, 10, or 25 ml of dispersant required [weight (g) = density (g/ml) × volume (ml)] and add this amount of dispersant to the drained cylinder. Record the weight of the cylinder and dispersant.

7. From the graduated cylinder gently add the dispersant at 23 ± 1°C onto the oil surface within the containment cylinder. Move the graduated cylinder in a circular motion to distribute the dispersant uniformly over the surface. Carefully apply the dispersant onto the oil surface only and not through the oil surface or onto the containment cylinder walls. Allow the dispersant to drain from the graduated cylinder for 3.0 minutes.

Weigh the drained graduated cylinder. Calculate the weight of dispersant added to the test tank. Check the weight to be sure that the correct volume of dispersant, ± 3 percent, was added to the test tank.

8. Activate the hosing system, adjust nozzle pressure to 140 kPa, and apply a stream of synthetic seawater at 23 ± 1°C to the oil/dispersant mixture within the containment cylinder. Immediately lift the cylinder all the way out above the water surface, and simultaneously hose off any oil adhering to the cylinder's inner surface. Remove the cylinder completely and continue to hose and agitate the oil/dispersant mixture for a total hosing period of 1.0 minute. The flow rate of hosing nozzle must be 15.1 ± 0.8 liters/min at 140 kPa (4.0 ± 0.2 gpm at 20 psig).

Note: (1) Removing the containment cylinder must take no longer than 10 seconds. (2) To hose the oil/dispersant mixture, hold the discharge tip of the nozzle approximately level with the top edge of the test tank and pointed vertically downward.

Move the nozzle rapidly in a random manner from side to side, backwards and forwards, and around the inner wall of the tank, as necessary, to facilitate continuous hosing and agitation of the entire oil/dispersant surface.

9. Immediately after hosing, start the recirculation pump and continue recirculation for 2.0 hours.

10. After 10.0 minutes of recirculation, withdraw a 500-ml sample into a 500-ml graduated cylinder and discard. Immediately collect another 500-ml sample for determining "initial dispersion."

11. After 2.0 hours of recirculation, withdraw a 500-ml sample into a 500-ml graduated cylinder and discard. Immediately collect another 500-ml sample for determining "final dispersion."

12. Transfer the 500-ml sample to a 1,000-ml separatory funnel. Add 25 ml of chloroform to the separatory funnel, stopper the funnel, and shake vigorously for 50 strokes. After shaking, place the funnel in a rack, vent, and allow a setting time of 2 to 3 minutes.

After the settling period, lift the funnel from the rack and gently invert it several times. While holding the funnel, allow the contents to settle and then gently swirl with a circular motion to afford additional settling of the oil/chloroform mixture. Transfer the oil/chloroform mixture to a 250-ml Erlenmeyer flask that contains anhydrous Na_2SO_4 for drying the extract.

Repeat the extractions using a total of at least three 25-ml portions of chloroform.

After the oil extraction is complete, filter the combined extracts from the Erlenmeyer flask through dry filter paper into an appropriate volumetric flask (100 ml, 250 ml, or 500 ml depending on the amount of chloroform used to complete the extraction).

Rinse the Na_2SO_4 and filter paper with small portions of chloroform to remove entrained oil. After removing, fill the volumetric flask to the mark with chloroform, invert and thoroughly mix contents.

13. Spectrophotometrically determine the absorbance of the extract using the identical wavelength and cell used to calibrate the spectrophotometer. From the calibration curve, determine the concentration of oil in the chloroform.

Compute the concentration of oil in the sample as follows:

$$C_{do} = \frac{C_1 \times (volume\ of\ chloroform\ used)}{(volume of\ sample)} \quad (2)$$

where:

C_{do} is the concentration of dispersed oil in the sample and C_1 is the measured concentration of oil in the chloroform extract.

Note that the standard sample volume is 500 ml and the volume of chloroform used should also be expressed in ml.

Repeat steps 1 through 13 at least three times for each of the three required volumes of dispersant.

2.6 *Blank Correction Determination.*

14. Clean the test tank and prepare the synthetic seawater at 23 ± 1°C as described in Step 1. Do not install the containment cylinder and do not use any test oil. Add 25 ml of the dispersant to the tank as described in Steps 6 and 7 and continue the test procedure as described in Steps 8 through 12.

15. Spectrophotometrically determine the absorbance of the extract using the identical wavelength and cell used to calibrate the spectrophotometer. From the calibration curve, determine the corresponding concentration of oil in the chloroform. Compute the dispersant blank correction for 25 ml of dispersant as follows:

$$D = \frac{C_2 \times (volume\ of\ sample)}{(volume\ of\ chlorofrom\ used)} \quad (3)$$

where:

D is the blank correction for 25 ml of dispersant, and C_2 is the measured concentration of oil in the chloroform extract.

Note that the standard sample volume is 500 ml and the volume of chloroform used should also be expressed in ml.

The Dispersant Blank Correction (DBC) for other volumes of dispersant used in a test may then be computed as:

$$DBC = \frac{D \times (volume\ in\ ml\ of\ dispersants\ used)}{25ml} \quad (4)$$

16. Clean the test tank and prepare the synthetic seawater at 23 ± 1°C as described in Step 1. Do not install the containment cylinder. Prepare 100 ml of test oil as

described in Steps 4 and 5, and add it to the test tank. Continue the test procedure as described in Steps 8 through 13. The Oil Blank Correction (OBC) is:

$$OBC = \frac{C_o \times (\text{volume of chloroform used})}{(\text{volume of sample})} \quad (5)$$

2.7 *Calculations.* The concentrations of test oil equivalent to 100 percent dispersion is:

$$C_{100} = \frac{(\text{weight of test oil})}{(133.6\ \text{liter synthetic seawater})} \quad (6)$$

The weight of the test oil should be expressed in milligrams, so that resulting C_{100} will be in mg/liter.

The percent of oil dispersed is then:

$$\text{Percent dispersed} = \frac{(C_{do} - OBC - DBC)}{C_{100}} \times 100\% \quad (7)$$

2.8 *Report of the Effectiveness Test Results.* Based on 100 ml of oil, determine the percent dispersion of the test oil caused by 3, 10, and 25 ml of dispersant: (a) after 10 minutes recirculation ("initial dispersion") and (b) after 2 hours recirculation ("final dispersion").

Determine the mean of at least three replicate tests for each of the three dispersant dosages. If the percent dispersion value found (after the 10-minute recirculation period only) for any of the three replicate tests varies from the mean value by more than ± 8 percent, discard that result and run another replicate.

For each test oil, using percent dispersion as the ordinate and dispersant dosage (ml) as the abscissa, plot two curves on one chart, one for "initial dispersion" and the other for "final dispersion." Draw the graphs by plotting mean percent dispersion values for each of the dispersant dosages of 3, 10, and 25 ml and connecting the corresponding data points for each sampling time (10 minutes or 2 hours) with straight lines. From the "initial dispersion" graph, determine the dispersant dosage (ml) causing 50 percent dispersion. From the "final dispersion" graph, determine the dispersant dosage (ml) causing 25 percent dispersion.

Report the data in the format given in Table 4.

Table 4—Required Dispersant Effectiveness Tests Results

Volume Dispersant (ml)	Initial Dispersion (10 minutes)		Final Dispersion (2 hours)	
	Percent dispersion for Replicate Number	Mean Percent Dispersion	Percent Dispersion for Replicate Number	Mean Percent Dispersion
3	1— 2— 3—	— —	1— 2— 3—	— —
10	1— 2— 3—	— —	1— 2— 3—	— —
15	1— 2— 3—	— —	1— 2— 3—	— —
	Dosage (ml) causing 50 percent dispersion (from "initial dispersion" graph) — — ml		Dosage (ml) causing 25 percent dispersion (from "final dispersion" graph) — — ml.	

2.9 *Comments on Revisions to Dispersant Effectiveness Tests.* The comments discussed here refer only to these revisions to the dispersant effectiveness test described by McCarthy et al. (1).

Addition to Test Oil and Dispersant. Rewick et al., (2), (3), found that the method described in the revised method for adding the same amount of test oil and dispersant significantly improved the precision of the test. The percent standard deviation of the initial and final amount of oil dispersed was determined for dispersant C, E, and F using the method described in McCarthy et al., (1). The data for dispersants A, B, and D were obtained using the weighing method for the oil and dispersant described in the revised procedure. The average percent standard deviation was reduced from 41.6 percent to 4.9 percent for No. 6 fuel oil. Additional testing of dispersants on EPA's NCP Product Schedule recently has been initiated to determine the precision of the Revised Standard Dispersant Effectiveness Test Procedures.

Inclusion of the Oil Blank. Rewick et al., (2) found that the optical density of the oil blank was significantly higher than the dispersant blank. Including an oil blank increased the accuracy of the test because it corrects for the light absorption of the water-soluble components of the fuel (amount of test oil dispersed into the water column in the absence of a dispersant is low).

Dispersant-to-Oil Ratio. The maximum effectiveness of many dispersants occurs at dispersant-to-oil (D/O) ratios of less than 0.10 or 0.25 (10 or 25 ml dispersant) [see Figure 1, Rewick et al., (3)]. Furthermore, the manufacturer's recommended application rates are usually less than D/O = 0.10, and the actual application rates in a real spill may be less than a D/O = 0.10 specifically when applied by aircraft. Therefore, the revised method specifies testing the dispersants at D/O = 0.03, 0.10, and 0.25.

3.0 *Revised Standard Dispersant Toxicity Test*

3.1 *Summary of Method.* The standard toxicity test for dispersants involves exposing two species (*Fundulus heteroclitus* and *Artemia salina*) to five concentrations of the test dispersant and No. 2 fuel oil alone and in a 1:10 mixture of dispersant to oil. To aid in comparing results from assays performed by different workers, reference toxicity tests are conducted using dodecyl sodium sulfate as a reference toxicant. The test length is 96 hours for *Fundulus* and 48 hours for *Artemia*. LC50s are calculated based on mortality date at the end of the exposure period (for method of calculation, see section 3.6 of this appendix).

3.2 *Selection and Preparation of test Materials. Test Organisms. Fundulus heteroclitus.* Obtain test fish from a single source for each series of toxicity tests. Report any known unusual condition to which fish were exposed before use (e.g., pesticides or chemotherapeutic agents); avoid if possible. Use small fish 2.5 to 3.8 cm (1 to 1.5 inches) in length and weighing about 1 gram. The longest individual fish should be no more than 1.5 times the length of the smallest.

Acclimate test fish to a temperature of 20 ± 1°C, a pH of 8.0 ± 0.2, and 20 ± 2 ppt salinity for 10 to 14 days before using them for the toxicity tests. Eliminate groups of fish having more than 20 percent mortality during the first 48 hours, and more than five percent thereafter. During acclimation, feed all species a balanced diet. Dry, pelleted, commercially available fishfood containing 30 percent to 45 percent protein is satisfactory. The pellets should be easily consumable by the test fish. Feed the fish twice daily to satiation, but not for 24 hours before or during the bioassay test. Use only those organisms that feed actively and appear to be healthy. Discard any fish injured or dropped while handling.

Artemia Salina. To ensure uniformity of *Artemia* (brine shrimp), use eggs from the San Francisco Bay area. Since the eggs of Artemia may be kept disiccated for long periods in a viable state, required numbers of the organism can be secured at any time for use in the bioassay tests through the use of proper hatching procedures.

A rectangular tray (plastic, glass, or enamel) having 200 square inches of bottom surface is suitable for hatching *Artemia* eggs. Divide this tray into two parts by a partition that extends from the top down to about 1.9 to 1.3 cm (0.75 to 0.5 inch) from the bottom. This partition may be of any opaque, biologically inert material (a pasteboard strip, sealed with paraffin wrapping, is satisfactory). Raise one end of the tray about 1.27 cm (0.5 inch) and add 3 liters of the synthetic seawater formulation (see Table 5).

Table 5 – Synthetic Seawater

[Toxicity test]

Salt	(g) [1]
NaF	1.9
$SrCl_2 \cdot 6H_2O$	13.0
H_3BO_3	20.0
KBr	67.0
KCl	466.0
$CaCl_2 \cdot 2H_2O$	733.0
Na_2SO_4	2,660.0
$MgCl_2 \cdot 6H_2O$	3,330.0
NaCl	15,650.0
$Na_2SiO_3 \cdot 9H_2O$	13.0
EDTA [2]	0.4
$NaHCO_3$	133.0

[1] Amount added to 900 liters of water, as described in the text.

[2] Ethylenediaminetetraacetate tetrasodium salt.

Spread 0.5 gram of *Artemia* eggs in the shallow end of the tray. Cover this end of the tray with a piece of cardboard to keep the eggs in darkness until hatching is complete. About 20 hours after the eggs hatch, direct a narrow beam of light across the uncovered portion of the tray. Since brine shrimp are phototactic, they will swim beneath the partition into the illuminated end of the chamber and congregate in the beam of light. The *Artemia* concentrated in the beam of light can be easily collected with the use of a collecting pipette or siphon connected to a 30-cm (12-inch) rubber tube and mouthpiece. Transfer them to a beaker containing a small amount of the artificial seawater.

An alternative method for hatching *Artemia* eggs is to use a separator funnel. A small air line is placed in the bottom of the funnel and air is bubbled at a rate sufficient to keep the eggs from settling to the bottom. After the eggs hatch, the air line is removed and the newly hatched nauplii will settle to the bottom of the funnel where they can be drawn off without disturbing the empty egg cases, which will have floated to the surface.

Preparation of Experimental Water. Because large quantities of dilution water will be used in these tests, formulate the experimental water in large batches to ensure uniformity and constant conditions for the various tests. To prevent contamination, prepare and store the experimental water in inert containers of suitable size.

Synthetic Seawater Formation. To prepare standard seawater, mix technical-grade salts with 900 liters of distilled or demineralized water in the order and quantities listed in Table 5. These ingredients must be added in the order listed and each ingredient must be dissolved before another is added. Stir constantly after each addition during preparation until dissolution is complete.

Add distilled or demineralized water to make up to 1,000 liters. The pH should now be 8.0 ± 0.2. To attain the desired salinity of 20 ± 1 ppt, dilute again with distilled or demineralized water at time of use.

3.3 *Sampling and Storage of Test Materials.* Toxicity tests are performed with No. 2 fuel oil having the characteristics defined in Table 6. Store oil used in toxicity tests in sealed containers to prevent the loss of volatiles and other changes. For ease in handling and use, it is recommended that 1,000-ml glass containers be used. To ensure comparable results in the bioassay tests, use oils packaged and sealed at the source. Dispose of unused oil in each open container on completion of dosing to prevent its use at a later date when it may have lost some of its volatile components. Run all tests in a bioassay series with oil from the same container and with organisms from the same group collected or secured from the same source.

Table 6 – Test Oil Characteristics: No. 2 Fuel Oil

Characteristic	Minimum	Maximum
Gravity (°API)	32.1	42.8
Viscosity kinematic at 100°F (cs)	2.35	3.00
Flash point (°F)	150	.....
Pour point (°F)	.....	0
Cloud point (°F)	.....	10
Sulfur (wt %)	.....	0.35
Aniline point (°F)	125	180
Carbon residue (wt %)	.....	0.16
Water (vol %)	.....	0
Sediment (wt %)	.....	0
Aromatics (vol %)	10	15
Distillation:	.....	.....
IBP (°F)	347	407
10% (°F)	402	456
50% (°F)	475	530
90% (°F)	542	606
End Point (°F)	596	655
Neutralization No.	.....	0.05

3.4 *General Test Conditions and Procedures for Toxicity Tests. Temperature.* For these toxicity tests, use test solutions with temperatures of 20 ± 1°C.

Dissolved Oxygen and Aeration. Fundulus. Because oils and dispersants contain toxic, volatile materials, and because the toxicity of some water-soluble fractions of oil and degradation products are changed by oxidation, special care must be used in the oxygenation of test solutions.

A 2 liter volume of solution is used for the *Fundulus* test. Initiate aeration to provide dissolved oxygen (DO) and mixing after the fish are added. The DO content of test solutions must not drop below 4 ppm. Aerate at a rate of 100 ± 15 bubbles per minute supplied from a 1-ml serological pipette. At this rate and with the proper weight of fish, DO concentration should remain slightly above 4 ppm over a 96-hour period. Take DO measurements daily.

Artemia. Achieve sufficient DO by ensuring the surface area to volume ratio of the test solution exposed is large enough. Oxygen content should remain high throughout the test because of the small quantity of test substances added and the low oxygen demand of organisms in each dish.

Controls. With each fish or *Artemia* test or each series of simultaneous tests of different solutions, perform a concurrent control test in exactly the same manner as the other tests and under the conditions prescribed or selected for those tests. Use the diluent water alone as the medium in which the controls are held. There must be no more than 10 percent mortality among the controls during the course of any valid test.

Reference Toxicant. To aid in comparing results from tests performed by different workers and to detect changes in the condition of the test organisms that might lead to different results, perform reference toxicity tests with reagent grade dodecyl sodium sulfate (DSS) in addition to the usual control tests. Prepare a stock solution of DSS immediately before use by adding 1 gram of DSS per 500 ml of test water solution. Use exploratory tests before the full scale tests are begun to determine the amount of reference standard to be used in each of the five different concentrations.

Number of Organisms. For the toxicity test procedures using *Fundulus,* place two fish in each jar. For the toxicity tests using *Artemia,* place 20 larvae in each container.

Transfer of Organisms. Transfer *Fundulus* from the acclimatizing aquaria to the test containers only with small-mesh dip nets of soft material, and do not rest the net on any dry surface. Do not hold fish out of the water longer than necessary. Discard any specimen accidentally dropped or otherwise mishandled during transfer.

Artemia can be conveniently handled and transferred with a small pipette connected to a 30-cm (12-inch) length of rubber tubing and mouthpiece or with a Pasteur pipette equipped with a small rubber squeeze bulb. To have the necessary *Artemia* ready for the study, transfer 20 *Artemia* apiece into small beakers containing 20 ml of artificial seawater. Hold these batches of *Artemia* until they are 24 hours old; at that time, place them in the respective series of test concentrations set up for the toxicity test.

To avoid large fluctuations in the metabolic rate of organisms and the fouling of test solutions with metabolic waste products and uneaten food, do not feed organisms during tests.

Test Duration and Observations. Fish. Observe the number of dead fish in each test container and record at the end of each 24-hour period. Fish are considered dead upon cessation of respiratory and all other overt movements, whether spontaneous or in response to mild mechanical prodding. Remove dead fish as soon as observed.

Also note and report when the behavior of test fish deviates from that of control fish. Such behavioral changes would include variations in opercular movement, coloration, body orientation, movement, depth in container, schooling tendencies, and others. Abnormal behavior of the test organisms (especially during the first 24 hours) is a desirable parameter to monitor in a toxicity test because changes in behavior and appearance may precede mortality. Toxicants can reduce an organism's ability to survive natural stresses. In these cases, the mortality is not directly attributed to the toxicant, but most certainly is an indirect effect. Reports on behavioral changes during a toxicity test can give insight into the nonacute effects of the tested material.

At the end of the 96-hour period, terminate the fish tests and determine the LC50 values.

Artemia. Terminate the *Artemia* test after 48 hours of incubation. To count the dead animals accurately and with relative ease, place the test dishes on a black surface and hold a narrow beam of light parallel to the bottom of the dish. Most of the dead *Artemia* will be on the bottom of the test dish and can be readily seen against the black background. Also search the top of the liquid for *Artemia* trapped there by surface tension. Exercise caution when determining death of the animals. Occasionally, an animal appears dead, but closer observation shows slight movement

of an appendage or a periodic spasm of its entire body. For this test, animals exhibiting any movement when touched with a needle are considered alive. Account for all test animals to ensure accuracy since some *Artemia* may disintegrate. Consider individuals not accounted for as dead.

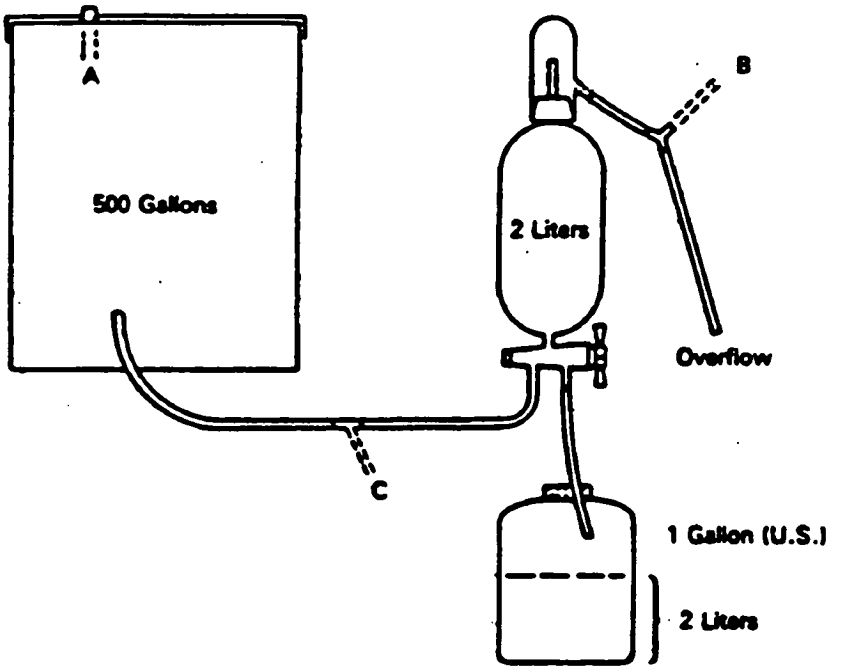
At the end of 48 hours of exposure, terminate the *Artemia* assay and determine the LC50 values.

Physical and Chemical Determinations. Fundulus. Determine the temperature, DO, and pH of the test solutions before the fish are added and at 24-, 72-, and 96-hour exposure intervals. It is necessary to take measurements from only one of the replicates of each of the toxicant series.

Artemia. Determine the temperature, DO, and pH of the test solutions before the nauplii are added and at the 48-hour exposure interval. Measure DO and pH in only one of the replicates of each of the toxicant series.

Testing Laboratory. An ordinary heated or air-conditioned laboratory room with thermostatic controls suitable for maintaining the prescribed test temperatures generally will suffice to conduct the toxicity tests. Where ambient temperatures cannot be controlled to 20 ± 1°C, use water baths with the necessary temperature controls.

Test Containers. For fish tests, use 4-liter glass jars measuring approximately 22.5 cm in height, 15 cm in diameter and 11 cm in diameter at the mouth. The jars are to have screw top lids, lined with Teflon. In conducting the test, add to each of the jars 2 liters of the synthetic seawater formulation aerated to saturation with DO. To add the 2 liters easily and accurately, use a 2-liter-capacity, automatic dispensing pipette (Figure 3).



A = Inflow from Large Holding Reservoir

B = Overflow from Other Units in Series

C = Inflow to Other Units

Figure 3. Schematic Diagram of Automatic Dispensing Pipette System

For the *Artemia* tests, use Carolina culture dishes (or their equivalent) having dimensions approximately 8.9 cm by 3.8 cm (3.5 by 1.5 inches).

Process all required glassware before each test. Immerse in normal hexane for 10 minutes. Follow this with a thorough rinse with hot tap water, three hot detergent scrubs, an additional hot tap-water rinse, and three rinses with distilled water. Oven or air dry the glassware in a reasonably dust-free atmosphere.

3.5 *Preparation of Test Concentrations. Fundulus.* Place the test jars containing 2 liters of synthetic seawater on a reciprocal shaker. The shaker platform should be adapted to hold firmly six of the toxicity test jars. Add the desired amount of the petroleum product under test directly to each test jar. Dispense the appropriate amount of toxicant into the jars with a pipette. Tightly cap the test jars and shake for 5 minutes at approximately 315 to 333 2-cm (0.75-inch) strokes per minute in a reciprocal shaker or at approximately 150 to 160 rpm on orbital shakers. At the completion of shaking, remove the jars from the shaker to a constant-temperature water bath or room, remove the lids, take water quality measurements, add two test fish, and initiate aeration.

Artemia. To prepare test solutions for dispersants and oil/dispersant mixtures, blend or mix the test solutions with an electric blender having: speeds of 10,000 rpm or less, a stainless-steel cutting assembly and a 1-liter borosilicate jar. To minimize foaming, blend at speeds below 10,000 rpm.

For the dispersant test solution, add 550 ml of the synthetic seawater to the jar, then with the use of a gas-tight calibrated glass syringe with a Teflon-tipped plunger, add 0.55 ml of the dispersant and mix for 5 seconds.

For the oil test solution, add 550 ml of the synthetic seawater to the jar, then with the use of a gas-tight calibrated glass syringe equipped with a Teflon-tipped plunger, add 0.55 ml of the oil and mix for 5 seconds.

For the oil/dispersant mixture, add 550 ml of the synthetic seawater to the mixing jar. While the blender is in operation, add 0.5 ml of the oil under study with the use of calibrated syringe with Teflon-tipped plunger and then 0.05 ml of the dispersant as indicated above. Blend for 5 seconds after addition of dispersant. These additions provide test solutions of the dispersant, oil, and the oil/dispersant mixture at concentrations of 1,000 ppm.

Immediately after the test solutions are prepared, draw up the necessary amount of test solution with a gas-tight Teflon-tipped glass syringe of appropriate size and dispense into each of the five containers in each series. If the series of five concentrations to be tested are 10, 18 32, 56, and 100 ppm, the amount of the test solution in the order of the concentrations listed above would be as follows: 1.0, 1.8, 3.2, 5.6, and 10.0 ml.

Each time a syringe is to be filled for dispensing to the series of test containers, start the mixer and withdraw the desired amount in the appropriate syringe while the mixer is in operation. Turn off immediately after the sample is taken to limit the loss of volatiles.

Use exploratory tests before the full-scale test is set up to determine the concentration of toxicant to be used in each of the five different concentrations. After adding the required amounts of liquid, bring the volume in each of the test containers up to 80 ml with the artificial seawater. To ensure keeping each of the series separate, designate on the lid of each container the date, the material under test, and its concentration.

When the desired concentrations are prepared, gently release into each dish the 20 test *Artemia* (previously transferred into 20 ml of medium). This provides a volume of 100 ml in each test chamber. A pair of standard cover glass forceps with flat, bent ends is an ideal tool for handling and tipping the small beaker without risk of contaminating the medium.

After adding the test animals, incubate the test dishes at 20 ± 1°C for 48 hours. Recommended lighting is 2,000 lumens/m^2 (200 ft-c) of diffused, constant, fluorescent illumination coming from beneath the culture dishes during incubation. Because *Artemia* are phototactic, bottom lighting should keep them from direct contact with the oil that sometimes layers on top.

Wash the blender thoroughly after use and repeat the above procedures for each series of tests. Wash the blender as follows: rinse with normal hexane, pour a strong solution of laboratory detergent into the blender to cover the blades, fill the container to about half of its volume with hot tap water, operate the blender for about 30 seconds at high speed, remove and rinse twice with hot tap water, mixing each rinse

for 5 seconds at high speed, and then rinse twice with distilled water, mixing each rinse for 5 seconds at high speed.

3.6 *Calculating and Reporting.* At the end of the test period, the toxicity tests are terminated and the LC50 values are determined.

Calculations. The LC50 is the concentration lethal to 50 percent of the test population. It can be calculated as an interpolated value based on percentages of organisms surviving at two or more concentrations, at which less than half and more than half survived. The LC50 can be estimated with the aid of computer programs or graphic techniques (log probit paper). The 95 percent confidence intervals for the LC50 estimate should also be determined.

Reporting. The test dispersant and oil and their source and storage are described in the toxicity test report. Note any observed changes in the experimental water or the test solutions. Also include the species of fish used; the sources, size, and condition of the fish; data of any known treatment of the fish for disease or infestation with parasites before their use; and any observations on the fish behavior at regular intervals during tests. In addition to the calculated LC50 values, other data necessary for interpretation (e.g., DO, pH, other physical parameters, and the percent survival at the end of each day of exposure at each concentration of toxicant) should be reported.

3.7 *Summary of Procedures.*

Fundulus:

1. Prepare adequate stocks of the appropriate standard dilution water.

2. Add 2 liters of the standard dilution water to the 4-liter test jars. Each test consists of 5 replicates of each of 5 concentrations of the test material, a control series of 5 dishes, and a standard reference series of 5 different concentrations for a total of 35 dishes. Simultaneous performance of toxicity tests on the oil, dispersant, and oil/dispersant mixture requires a total of 105 dishes.

3. Add the determined amount (quarter points on the log scale) of test material to the appropriate jars. Preliminary tests will be necessary to define the range of definitive test concentrations.

4. Cap the jars tightly with the Teflon-lined screw caps and shake for 5 minutes at 315 to 333 2-cm (0.75-inch) strokes per minute on a reciprocal shaker.

5. Remove the jars from the shaker, take water quality data, and add two acclimated fish per jar.

6. Aerate with 100 ± 15 bubbles per minute through a 1-ml serological pipette.

7. Observe and record mortalities, water quality, and behavioral changes each 24 hours.

8. After 96 hours, terminate the test, and calculate LC50 values and corresponding confidence limits.

Artemia:

1. Initiate the procedure for hatching the *Artemia* in sufficient time (approximately 48 hours) before the toxicity test is to be conducted so that 24-hour-old larvae are available.

2. With the use of a small pipette, transfer 20 *Artemia* into small beakers, each containing 20 ml of the proper synthetic seawater.

3. To prepare the test stock dispersant and oil solutions, add 550 ml of the artificial seawater to the prescribed blender jar. By means of a gas-tight glass syringe with a Teflon-tipped plunger, add 0.55 ml of the dispersant (or oil) and mix at 10,000 rpm for 5 seconds. To prepare the test stock oil/dispersant mixture, add 550 ml of the standard seawater to the blender jar. While the blender is in operation (10,000 rpm), add 0.5 ml of the oil, then 0.05 ml of the dispersant with the use of a calibrated syringe with a Teflon-tipped plunger. Blend for 5 seconds after adding the dispersant. One ml of these stock solutions added to the 100 ml of standard seawater in the test containers yields a concentration of 10 ppm dispersant, oil, or oil/dispersant combination (the test will be in a ratio of 1 part dispersant to 10 parts of oil).

4. Each test consists of 5 replications of each of 5 concentrations of the material under study, a control series of 5 dishes, and a standard reference series of 5 different concentrations, a total of 35 dishes. Simultaneous performance of toxicity tests on the oil, dispersant, and oil/dispersant mixture requires a total of 105 dishes. Immediately after preparing the test solution of the dispersant or oil/dispersant solution, and using an appropriately sized syringe, draw up the necessary amount of test solution and dispense into each of the five containers in each series.

Each time a syringe is to be filled for dispensing to the series of test containers, start the mixer and withdraw the desired amount in the appropriate syringe while the

mixer is in operation. Turn mixer off immediately after the sample is taken to limit the loss of volatiles. After adding the required amount of the test oil/dispersant or dispersant mixture, bring the volume of liquid in each of the test containers up to 80 ml with the artificial seawater.

When the desired concentrations have been prepared, gently release into each dish the 20 nauplii previously transferred into 20 ml of medium. This provides a volume of 100 ml in each test chamber. Use a pair of standard cover glass forceps for handling and tipping the small beaker.

5. Wash the blender as prescribed for each series of tests.

6. Incubate the test dishes at 20 ± 1°C for 48 hours with the prescribed lighting.

7. Terminate the experiment after 48 hours, observe and record the mortalities, and determine the LC50s and corresponding confidence limits.

4.0 Summary Technical Product Test Data Format

The purpose of this format is to summarize in a standard and convenient presentation the technical product test data required by the U.S. Environmental Protection Agency (EPA) before a product may be added to EPA's NCP Product Schedule, that may be used in carrying out the National Oil and Hazardous Substances Pollution Contingency Plan. This format, however, is not to preclude the submission of all the laboratory data used to develop the data summarized in this format. Sufficient data should be presented on both the effectiveness and toxicity tests to enable EPA to evaluate the adequacy of the summarized data.

A summary of the technical product test data should be submitted in the following format. The numbered headings should be used in all submissions. The subheadings indicate the kinds of information to be supplied. The listed subheadings, however, are not exhaustive; additional relevant information should be reported where necessary. As noted some subheadings may apply only to particular types of agents.

I. *Name, Brand, or Trademark:*

II. *Name, Address, and Telephone Number of Manufacturer:*

III. *Name, Address, and Telephone Numbers of Primary Distributors:*

IV. *Special Handling and Worker Precautions for Storage and Field Application*

1. Flammability.

2. Ventilation.

3. Skin and eye contact; protective clothing; treatment in case of contact.

4. Maximum and minimum storage temperatures; optimum storage temperature range; temperatures of phase separations and chemical changes.

V. *Shelf Life.*

VI. *Recommended Application Procedure.*

1. Application method.

2. Concentration, application rate (e.g., gallons of dispersant per ton of oil).

3. Conditions for use: water salinity, water temperature, types and ages of pollutants.

VII(a). *Toxicity (Dispersants and Surface Collecting Agents):*

Materials tested	Species	LC50 (ppm)
Product.....	Fundulus heteroclitus.....	– –96-hr.
	Artemia salina.....	– –48-hr.
No. 2 fuel oil.	Fundulus heteroclitus.....	– –96-hr.
	Artemia salina.....	– –48-hr.
Product and No. 2 fuel oil (1:10).....	Fundulus heteroclitus	– –96-hr.
	Artemia salina.....	– –48-hr.

VII(b). *Effective (Dispersants):*

Standard Effectiveness Test With No. 6 Fuel Oil

Volume (ml) dispersant	Initial (10 min) mean percent dispersion	Final (2 hrs) mean percent dispersion
3	.....	
10	.....	
25	.....	

Dosage causing 50 percent dispersion (from initial dispersion graph) is – – ml.

Dosage causing 25 percent dispersion (from initial dispersion graph) is – – ml.

VIII. *Microbiological Analysis (Biological Additives).*

IX. *Physical Properties of Dispersant/Surface Collecting Agent:*

1. Flash Point: (°F)

2. Pour Point: (°F).

3. Viscosity: – – at – – °F (centistokes).

4. Specific Gravity: – – at – – °F.

5. pH: (10 percent solution if hydrocarbon based).

6. Surface Active Agents (Dispersants).1
7. Solvents (Dispersants):1
8. Additives (Dispersants):
9. Solubility (Surface Collecting Agents):

X. *Analysis for Heavy Metals and Chlorinated Hydrocarbons (Dispersants and Surface Collecting Agents):*

Compounds	Concentration (ppm)
Arsenic	
Cadmium	
Chromium	
Copper	
Lead	
Mercury	
Nickel	
Zinc	
Cyanide	
Chlorinated Hydrocarbons	

References

(1) L.T. McCarthy, Jr., I. Wilder, and J.S. Dorrler. *Standard Dispersant Effectiveness and Toxicity Tests.* EPA Report EPA-R2-73-201 (May 1973).

(2) R.T. Rewick, H.C. Bailey, and J.H. Smith. *Evaluation of Oil Spill Dispersant Testing Requirements,* draft report submitted in partial fulfillment of EPA Contract No. 68-03-2621. U.S. Environmental Protection Agency, Oil and Hazardous Materials Spills Branch, Edison, New Jersey (September 1982).

(3) R.T. Rewick, K.A. Sabo, J. Gates, J.H. Smith, and L.T. McCarthy, Jr. "An Evaluation of Oil Spill Dispersant Testing Requirements." *Proceedings, 1981 Oil Spill Conference,* Publication No. 4334. American Petroleum Institute, 1220 L Street, NW., Washington, DC 20005 (1981).

[49 FR 29199, July 18, 1984]

Appendix D to Part 300 – Appropriate Actions and Methods of Remedying Releases

(a) This Appendix D to part 300 describes types of remedial actions generally appropriate for specific situations commonly found at remedial sites and lists methods for remedying releases that may be considered by the lead agency to accomplish a particular response action. This list shall not be considered inclusive of all possible methods of remedying releases and does not limit the lead agency from selecting any other actions deemed necessary in response to any situation.

(b) In response to contaminated soil, sediment, or waste, the following types of response actions shall generally be considered: removal, treatment, or containment of the soil, sediment, or waste to reduce or eliminate the potential for hazardous substances or pollutants or contaminants to contaminate other media (ground water, surface water, or air) and to reduce or eliminate the potential for such substances to be inhaled, absorbed, or ingested.

(1) Techniques for removing contaminated soil, sediment, or waste include the following:

(i) Excavation.
(ii) Hydraulic dredging.
(iii) Mechanical dredging.

(2) Techniques for treating contaminated soil, sediment, or waste include the following:

(i) Biological methods, including the following:

(A) Treatment via modified conventional wastewater treatment techniques.
(B) Anaerobic, aerated, and facultative lagoons.
(C) Supported growth biological reactors.
(D) Microbial biodegradation.

(ii) Chemical methods, including the following:

(A) Chlorination.
(B) Precipitation, flocculation, sedimentation.
(C) Neutralization.
(D) Equalization.
(E) Chemical oxidation.

(iii) Physical methods, including the following:

(A) Air stripping.
(B) Carbon absorption.
(C) Ion exchange.
(D) Reverse osmosis.
(E) Permeable bed treatment.
(F) Wet air oxidation.
(G) Solidification.
(H) Encapsulation.
(I) Soil washing or flushing.
(J) Incineration.

(c) In response to contaminated ground water, the following types of response actions will generally be considered: Elimination or containment of the contamination to prevent further

[1] If the submitter claims that the information presented under this subheading is confidential, this information should be submitted on a separate sheet of paper clearly labeled according to the subheading and entitled "Confidential Information."

contamination, treatment and/or removal of such ground water to reduce or eliminate the contamination, physical containment of such ground water to reduce or eliminate potential exposure to such contamination, and/or restrictions on use of the ground water to eliminate potential exposure to the contamination. (1) Techniques that can be used to contain or restore contaminated ground water include the following:

(i) Impermeable barriers, including the following:

(A) Slurry walls.

(B) Grout curtains.

(C) Sheet pilings.

(ii) Permeable treatment beds.

(iii) Ground-water pumping, including the following:

(A) Water table adjustment.

(B) Plume containment.

(iv) Leachate control, including the following:

(A) Subsurface drains.

(B) Drainage ditches.

(C) Liners.

(2) Techniques suitable for the control of contamination of water and sewer lines include the following:

(i) Grouting.

(ii) Pipe relining and sleeving.

(iii) Sewer relocation.

(d)(1) In response to contaminated surface water, the following types of response actions shall generally be considered: Elimination or containment of the contamination to prevent further pollution, and/or treatment of the contaminated water to reduce or eliminate its hazard potential.

(2) Techniques that can be used to control or remediate surface water include the following:

(i) Surface seals.

(ii) Surface water diversions and collection systems, including the following:

(A) Dikes and berms.

(B) Ditches, diversions, waterways.

(C) Chutes and downpipes.

(D) Levees.

(E) Seepage basins and ditches.

(F) Sedimentation basins and ditches.

(G) Terraces and Benches.

(iii) Grading.

(iv) Revegetation.

(e) In response to air emissions, the following techniques will be considered:

(1) Pipe vents.

(2) Trench vents.

(3) Gas barriers.

(4) Gas collection.

(5) Overpacking.

(6) Treatment for gaseous emissions, including the following:

(i) Vapor phase adsorption.

(ii) Thermal oxidation.

(f) Alternative water supplies can be provided in several ways, including the following:

(i) Individual treatment units.

(ii) Water distribution system.

(iii) New wells in a new location or deeper wells.

(iv) Cisterns.

(v) Bottled or treated water

(vi) Upgraded treatment for existing distribution systems.

(g) Temporary or permanent relocation of residents, businesses, and community facilities may be provided where it is determined necessary to protect human health and the environment.

THE NATIONAL ENVIRONMENTAL POLICY ACT

PURPOSE AND ORGANIZATION OF NEPA

The National Environmental Policy Act (NEPA) of 1969 as implemented by Executive Orders 11514 and 11991 establishes national policies and goals for the protection of the environment. Among the purposes of NEPA are to encourage harmony between people and the environment, to promote efforts to prevent or eliminate damage to the environment and the biosphere, and to enrich the understanding of ecological systems and natural resources important to the country.

Section 102(2) of NEPA contains "action-forcing" provisions which ensure that federal agencies act according to the letter and the spirit of the law. These procedural requirements direct all federal agencies to give appropriate consideration to the environmental effects of their decision making and to prepare detailed environmental statements on recommendations or reports on proposals for legislation and other major federal actions significantly affecting the quality of the environment.

Procedures followed by federal agencies to implement NEPA must insure that environmental information is available to public officials and citizens before decisions are made and actions are taken. NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail.

The Council on Environmental Quality (CEQ), which was established by NEPA, has promulgated regulations to implement Section 102(2) of NEPA. In addition, DOE has prepared guidelines (52 FR 47662) and a DOE order (# 5440.1C) for NEPA compliance. As a result of a notice from the Secretary of DOE (SEN-15-90, 2-5-90), DOE is currently (1) revising its NEPA guidelines and publishing them for public comment as proposed regulations and (2) revising DOE Order 5440.1C to make sure that all DOE activities are carried out in full compliance with the letter and spirit of NEPA.

NEPA COMPLIANCE PLANNING

Although many of the other environmental statutes have unique requirements, coordinating their review requirements with NEPA compliance will avoid delays that can be caused by proceeding separately under each statute. Because of its multi-purpose scope as the basic policy-setting federal law relating to protection of the environment, the NEPA process is an excellent means to accomplish the required coordination among the various environmental laws.

Although coordination of environmental requirements will alleviate some delays, the real key to solving delay and other problems associated with environmental compliance is integrating NEPA and related environmental reviews with other planning at the earliest possible time. In order to help DOE staff plan for and achieve compliance with NEPA and the various related environmental reviews, the Office of NEPA Project Assistance (EH-25) has prepared a NEPA Compliance Guide. This document provides information on the NEPA process, the processes of related environmental statutes that bear on the NEPA process, timing the relationships between NEPA review and review requirements of other environmental statutes, and timing the relationships between the NEPA process and the development process for programs and projects. As a requirement of SEN-15, this guide will be reviewed on a continuing basis and augmented, as necessary.

FURTHER INFORMATION

The CEQ's final regulations implementing the NEPA statute may be found in Title 40 of the Code of Federal Regulations Parts 1500 through 1508. Many federal agencies have also prepared their own regulations implementing NEPA, while some have simply prepared guidelines to be followed. A monthly publication called the "Environmental Regulatory Update Table" summarizes the current status of updates and revisions to the NEPA implementing regulations by CEQ and by other agencies when they may be of interest to DOE. Both the monthly update table and the NEPA Compliance Guide are available to DOE staff and contractors.

PUBLIC NOTICES AND PRESS RELEASES

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)
INFORMATION REPOSITORY FOR THE ST. LOUIS SITES, MISSOURI

D - Public Notices and Press Releases

1. DOE NEWS - DOE Seeks Public Comment on Proposed Cleanup of St. Louis Downtown Site, June 1991

2. Federal Register Notice, Vol. 58 No. 121, June 24, 1991

3. Federal Register Notice, Vol. 57 No. 8, January 9, 1992

4. DOE NEWS - DOE to Hold Public Meeting on Environmental Studies of Contaminated Sites in St. Louis, January 15, 1992

5. DOE NEWS - DOE to Hold Public Meeting on Tuesday, January 28, 1992, January 27, 1992

6. Open house announcment for Hazelwood and Berkeley residents, Tuesday, July 13 from 4:00 to 6:00 p.m.

7. News announcement from Broadcast Information Services, Station KTVI channel 2, 1/14/94

8. Statement of Position, Media Advisory, ST. Louis, Missouri

9. Department of Energy Statement of Position, Media Advisory, St. Louis, Missouri

10. Concerns Re DOE Sites in St. Louis Area, Statement by the Missouri Coalition For The Environment, Circulated at March 14 EMAB Meeting in St. Louis.

11. Westfall Hails DOE Reversal on Bunker, News From St. Louis County Executive Buzz Westfall, March 16, 1994

12. DOE NEWS: DOE To Begin Cleanup of Radioactive Contamination

DOE NEWS

FOR IMMEDIATE RELEASE
June 14, 1991

DOE SEEKS PUBLIC COMMENT ON PROPOSED CLEANUP OF ST. LOUIS DOWNTOWN SITE

OAK RIDGE, TN -- The Department of Energy's (DOE) Field Office, Oak Ridge (OR), is seeking public comment on an Engineering Evaluation/Cost Analysis (EE/CA), for decontamination at the St. Louis Downtown Site (SLDS), in Missouri.

This proposed cleanup plan is being conducted under DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP), which was established to identify and clean up or control sites where radioactive contamination (exceeding DOE guidelines) remains from the early years of the nation's atomic energy program. This is part of Secretary of Energy James D. Watkins' comprehensive Environmental Restoration and Waste Management Five-Year Plan. Releasing the proposed EE/CA to obtain the views of concerned citizens for use in developing the Department's work plans is an important step in the overall cleanup process.

During the 1940's, Mallinckrodt Inc., current owners of the SLDS property, processed and produced various forms of uranium compounds and machined uranium metals for the World War II Manhattan Engineering Project and later for the U.S. Atomic Energy Commission, a DOE predecessor agency. The areas proposed for decontamination are contaminated with uranium, thorium, and radium as a result of this work.

The radioactive contamination at SLDS poses no immediate risk to public health or the environment in its current condition. However, some cleanup activity at SLDS is being proposed as an interim measure because plant activities involving excavation or renovation could result in the generation of dust and other materials, and inadvertent spread of contamination.

The EE/CA summarizes the analysis of cleanup alternatives and the rationale for DOE's preferred interim remedial action alternative. Waste control alternatives considered for soil and structures on site includes removal, reprocessing/treatment, interim storage, disposal, access restriction, and no action. Based on available information, DOE's preferred alternative for SLDS is decontamination and/or removal of contaminated structural material and excavation of contaminated soil, with interim storage on site.

-MORE-

Implementation of comprehensive cleanup measures will be preceded by a complete environmental review process including preparation of Remedial Investigation and Feasibility Study reports as required by the Comprehensive Environmental Response, Compensation, and Liability Act and the National Environmental Policy Act. This long-term cleanup program will include, in addition to the SLDS, the St. Louis Airport Site and vicinity properties, and the Latty Avenue properties, including the Hazelwood Interim Storage Site. The three properties are collectively referred to as the St. Louis Site.

The EE/CA is available for public review during the normal business hours in the Government Information Section at the St. Louis Public Library, 1301 Olive Street, St. Louis, Missouri 63103, telephone (314) 241-2288; the St. Louis County Library, Prairie Commons Branch, 915 Utz Lane, Hazelwood, Missouri 63042, telephone (314) 895-1023; and the DOE Public Information Office, 9200 Latty Avenue, Hazelwood, Missouri 63042, (314) 524-4083.

The public may comment on the proposed plan by submitting written comments no later than July 10, 1991, to:

David G. Adler, Site Manager
U.S. Department of Energy
Former Sites Restoration Division
P.O. Box 2001
Oak Ridge, Tennessee 37831-8723
(615) 576-0948

-DOE-

News Media Contact: Danielle Jones, (615) 576-0885

R-91-017

Dated: June 14, 1991.

L.M. Bynum,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. 91-14576 Filed 6-21-91; 8:45 am]

BILLING CODE 3810-01-M

Department of the Navy

Naval Research Advisory Committee; Closed Meeting

Pursuant to the provisions of the Federal Advisory Committee Act (5 U.S.C. app. 2), notice is hereby given that the Naval Research Advisory Committee Panel on Anti-Tactical Ballistic Missile Requirements in the 2010 Timeframe will meet on June 25–27, 1991. The meeting will be held at the Applied Physics Laboratory, Johns Hopkins University, Johns Hopkins Road, Laurel, Maryland. The meeting will commence at 8 a.m. and terminate at 5 p.m. on June 25, 26, and 27, 1991. All sessions of the meeting will be closed to the public.

The purpose of the meeting is to provide technical briefings for the panel members pertaining to their assessment of the vulnerability of U.S. naval forces to ballistic missile attack employing conventional, chemical, and nuclear munitions; and identifying the key issues related to the Navy ATBM program and the corresponding critical technology requirements. The agenda will include briefings and discussions related to sensors and processors, surveillance and tracking, seeker and technology discrimination, guidance and control, kill mechanism, boosters and propulsion, high temperature structures; and battle management and command, control and communications options in connection with the tactical ballistic missile threat. These briefings and discussions will contain classified information that is specifically authorized under criteria established by Executive Order to be kept secret in the interest of national defense and are in fact properly classified pursuant to such Executive Order. The classified and non-classified matter to be discussed are inextricably intertwined as to preclude opening any portion of the meeting. Accordingly, the Secretary of the Navy has determined in writing that the public interest requires that all sessions of the meeting be closed to the public because they will be concerned with matters, listed in section 552b(c)(1) of title 5, United States Code.

This notice is being published late because of administrative delays which constitute an exceptional circumstance, not allowing Notice to be published in the **Federal Register** at least 15 days before the date of this meeting.

For further information concerning this meeting contact: Commander John Hrenko, USN, Office of the Chief of Naval Research, 800 North Quincy Street, Arlington, VA 22217–5000, Telephone Number: (703) 696–4870.

Dated: June 14, 1991.

W.T. Baucino,

Lieutenant, JAGC, USNR, Alternate Federal Register Liaison Officer.

[FR Doc. 91-15005 Filed 6-21-91; 8:45 am]

BILLING CODE 3810-AE-M

DEPARTMENT OF ENERGY

Floodplain Notification for Proposed Removal Action at Properties Located in Hazelwood and Berkeley, MO

AGENCY: Department of Energy.

ACTION: Notice of floodplain involvement and opportunity for comment.

SUMMARY: The Department of Energy (DOE) proposes to remove radioactively contaminated material from properties in the vicinity of the Hazelwood Interim Storage Site (HISS) and to stabilize and control these materials at the HISS. The HISS is located in northern St. Louis County, approximately 3 km (2 mi) north of Lambert-St. Louis International Airport.

DOE proposes to conduct this removal action under section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act and pursuant to 40 CFR 300.415(b)(2). The removal of radioactively contaminated material from residential, commercial and municipal properties would result in storage of the contaminated material at HISS. The action is necessary to remove contaminated soil that exceeds current DOE criteria for residual radioactivity established for the Formerly Utilized Sites Remedial Action Program.

DOE has determined, on the basis of a review of the National Flood Insurance Program's (Federal Emergency Management Agency) Flood Insurance Rate Maps for the area, that the proposed storage action would involve activities within the floodplain of Coldwater Creek. The proposed action, if implemented, will be carried out with the concurrence of the U.S. Environmental Protection Agency, the Army Corps of Engineers, and the Missouri Department of Health and Environment.

In accordance with DOE regulations, "Compliance with Floodplain/Wetlands Environmental Review Requirements" (10 CFR part 1022), DOE will prepare a floodplain assessment to be incorporated in the Engineering Evaluation/Cost Analysis-Environmental Assessment and publish a statement of findings in accordance with these regulations. Further information is available from DOE at the address shown below. Public comments or suggestions regarding the proposed activities in this floodplain area are invited.

DATES: Any comments are due on or before July 9, 1991.

ADDRESSES: Send comments to: Lester K. Price, Director, Former Sites Restoration Division, U.S. Department of Energy, Oak Ridge Operations Office, Post Office Box E, Oak Ridge, Tennessee 37831, (615–576–0948), Fax comments to: (615)–576–0956.

Leo P. Duffy,

Director, Office of Environmental Restoration and Waste Management.

[FR Doc. 91-14976 Filed 6-21-91; 8:45 am]

BILLING CODE 6450-01-M

Federal Energy Regulatory Commission

[Docket Nos. CP91-2243-000, et al.]

Distrigas of Massachusetts Corp., et al.; Natural Gas Certificate Filings

June 14, 1991.

Take notice that the following filings have been made with the Commission:

1. Distrigas of Massachusetts Corporation

[Docket No. CP91-2243-000]

Take notice that on June 10, 1991, Distrigas of Massachusetts Corporation [DOMAC], a Delaware Corporation with its principal place of business at 200 State Street, Boston, Massachusetts 02109, filed in Docket No. CP91-2243-000 an abbreviated application pursuant to section 7(c) of the Natural Gas Act, for a certificate of public convenience and necessity authorizing DOMAC to install additional vaporization capacity and install and construct additional facilities appurtenant thereto at DOMAC's liquified natural gas (LNG) terminal in Everett, Massachusetts, all as more fully set forth in the application which is on file with the Commission and open to public inspection.

DOMAC states that the additional LNG vaporization facilities will be built wholly within the boundary of its existing Everett Marine Terminal. DOMAC proposes the installation of a single vaporization train with a nominal capacity of 75,000 Mcf/d, which is to be

Announcing Public Meeting in St. Louis on January 28 and DOE's intent to prepare a Remedial Investigation/ Feasibility Study - Environmental Impact Statement

DEPARTMENT OF ENERGY

Intent To Prepare a Remedial Investigation/Feasibility Study-Environmental Impact Statement: Response Actions at Sites in St. Louis, MO

AGENCY: Department of Energy.

ACTION: Notice of intent to prepare a remedial investigation/feasibility study-environmental impact statement.

SUMMARY: Notice is hereby given that the Department of Energy (DOE), under its Formerly Utilized Sites Remedial Action Program (FUSRAP), intends to conduct a comprehensive environmental review and analysis of the "St. Louis Site" (composed of several sites located in and near St Louis, Missouri) to determine the nature and extent of existing contamination and to evaluate alternative response actions. The St Louis Site is composed of the St. Louis Downtown Site (SLDS) and vicinity properties; the St. Louis Airport Site (SLAPS) and vicinity properties; and the Latty Avenue properties consisting of the Hazelwood Interim Storage Site (HISS), the Futura Coatings property, and six commercial or industrial vicinity properties along Latty Avenue. (These vicinity properties are areas not owned or controlled by DOE which are radioactively contaminated above DOE guidelines for residual radioactive material as a result of the previous processing of radioactive materials at the St. Louis Site where DOE is undertaking remedial action.) The environmental review and analysis will integrate the values of the National Environmental Policy Act (NEPA) and requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA)—hereafter referred to as CERCLA. NEPA values under NEPA will be incorporated into the remedial investigation/feasibility study (RI/FS) requirements of CERCLA. The resulting report will be the RI/FS-EIS. Nothing in this Notice of Intent (NOI), or in other documents to be prepared, is intended to represent a statement on the legal applicability of NEPA to remedial actions under CERCLA.

DATES: Written comments or suggestions postmarked on or before February 7, 1992, will be considered in the course of implementing the integrated CERCLA/NEPA process and its documentation. Comments or suggestions postmarked after that date will be considered to the maximum extent practicable. A scoping meeting will be held at the Berkeley Senior High School, 8710 Walter Avenue, Berkeley, Missouri 63134, on January 28, 1992, at 7 p.m. local time. Requests to speak at this meeting should be forwarded to Mr. Lester K. Price by January 22, 1992, at the address indicated below Persons who have not submitted a request to speak in advance may register at the scoping meeting. Those who register to speak at the meeting will be called on to present their comments as time permits.

ADDRESSES: Comments or suggestions on the scope of the RI/FS-EIS and requests to speak at the scoping meeting discussed below in the Scoping section should be addressed to Mr. Lester K. Price, Director, Former Sites Restoration Division, U.S. Department of Energy, DOE Field Office, Oak Ridge, Post Office Box E, Oak Ridge, Tennessee 37831, (815) 576-0948 or 1-800-253-9759 Fax comments to: (615) 576-0956.

Documents are available for inspection at locations set forth later in this notice.

FOR FURTHER INFORMATION CONTACT: For further information on DOE's EIS process, please contact: Ms. Carol Borgstrom, Director, Office of NEPA Oversight, EH-25, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 586-4700 or 1-800-472-2758.

For further information on DOE's RI/FS process, please contact: Ms. Kathleen Taimi, Director, Office of Environmental Compliance, EH-22, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 586-9024.

SUPPLEMENTARY INFORMATION: The St. Louis Site contains residual radioactivity above DOE guidelines, and cleanup of the Site has been designated as part of FUSRAP. FUSRAP was established in 1974 by the Atomic Energy Commission (AEC), a predecessor agency of DOE. The primary objective of FUSRAP is to identify and remediate sites where radioactive contamination remains from the early years of the nations' atomic energy program or from other activities that resulted in conditions that Congress has authorized DOE to remediate. The goals of FUSRAP are to: (1) Control radioactive contamination at the sites, in compliance with applicable or relevant and appropriate requirements for the protection of human health and the environment, and (2) to the extent possible, certify the sites for use without radiological restrictions following decontamination.

Background

The St. Louis Site consists of several noncontiguous areas located in and near St. Louis, Missouri. The St. Louis Site consists of SLDS and vicinity properties; SLAPS and vicinity properties; and the Latty Avenue properties consisting of HISS, the Futura Coatings property, and six commercial or industrial vicinity properties along Latty Avenue. Contamination at these sites is the result of uranium processing and waste management activities that took place from the 1940s, 1950s, and 1960s. All the properties, with the exception of SLDS and its vicinity properties, are on the National Priorities List of the Environmental Protection Agency (EPA).

The SLDS located in an industrialized area on the eastern border of St. Louis, about 90 m (300 ft) west of the Mississippi River and approximately 17.7 km (11 mi) southeast of SLAPS. The SLDS is owned by Mallinckrodt, Inc., and is utilized as an operating plant for the production of various chemical products. The property occupies approximately 18.2 ha (45 acres) and includes numerous buildings and facilities. The SLDS is traversed by the tracks of three railroad lines, and several spurs service the property from the main lines. The property is fenced, and Mallinckrodt, Inc., maintains 24-hour security.

The SLAPS, an 8.8-ha (21.7-acre) property approximately 24 km (15 mi) from downtown St. Louis, lies immediately north of the Lambert-St. Louis International Airport. It is bounded on the south by the Norfolk and Western Railroad and Banshee Road, on the west by Coldwater Creek, on the north by a ball field area, and on the north and east by McDonnell Boulevard. The area is zoned for industrial use, with the nearest residential areas located approximately 0.8 km (0.5 mi) west, 1.8 km (1 mi)

northwest and 2.4 km (1.5 mi) north of SLAPS. The property is currently owned by the city of St. Louis and is managed by the St. Louis Airport Authority. Transfer of SLAPS property back to DOE prior to remediation is being considered. However, this transfer is not a condition for the proposed alternatives to be evaluated as part of the RI/FS-EIS. Currently, the entire site is fenced to restrict public access, and maintenance and routine environmental monitoring are the only activities taking place at the property. The SLAPS vicinity properties include ditches to the north and south of the property, an adjacent athletic field, transportation routes termed as "haul roads" (i.e., McDonnell Boulevard, Latty Avenue, Hazelwood Avenue, Pershall Road, Eva Avenue, and Frost Avenue), and the areas along transportation routes and Coldwater Creek that have been identified as containing residual radioactivity that exceeds DOE guidelines. Seventy-eight such properties along the haul roads and Coldwater Creek have been identified; five of these properties are zoned for residential use, with the rest zoned for commercial use. Bansheed Road on the southern border of SLAPS, a 30-m (100-ft) strip of St. Louis Airport property south of and parallel to Banshee Road, and seven railroad properties in the area of SLAPS are also considered SLAPS vicinity properties.

The Latty Avenue properties consist of HISS and Futural Coatings properties at 9200 Latty Avenue and six additional commercial or industrial vicinity properties along Latty Avenue. These properties are located in northern St. Louis County within the city limits of Hazelwood and Berkeley, Missouri, approximately 1.2 km (0.75 mi) northeast of SLAPS. The HISS and Futura Coatings properties, which are separated by a chain-link fence, occupy the eastern and western halves of 9200 Latty Avenue, respectively. The HISS and Futura Coatings properties are completely fenced to restrict public access.

The Latty Avenue properties are located in an area that is primarily commercial/industrial, with the nearest residential area located approximately 0.5 km (0.3 mi) to the east. Storm-water runoff from the Latty Avenue properties drains into ditches and a storm sewer that empties into Coldwater Creek, which is located to the west of the properties. The HISS property, which is currently leased by DOE, contains a vehicle docontamination facility, two office trailers, and two covered surface storage piles that contain approximately 27,700 m^3 (32,000 yd^3) of radioactive material. The Futura Coatings property is owned by Jarboe Realty and Investment Company and is leased to Futura Coatings, Inc., which currently manufactures plastic coatings on the property.

From 1942 to 1957, the former Maillinckrodt Chemical Works performed work at SLDS under contracts with the Manhattan Engineer District (MED) and AEC. Several operations were performed, including process development and production of various forms of uranium compounds and metal, and recovery of uranium metal from residues and scrap. From 1942 to 1945, MED/AEC activities were carried out in areas designated as Plants 1 and 2 and in the original Plant 4 (now Plant 10). In 1946, manufacturing of uranium dioxide from pitchblende ore began at the newly constructed Plant 6. From 1948 through 1950, decontamination activities were conducted and supervised by Mallinckrodt personnel at Plants 1 and 2. These decontamination efforts were conducted to meet AEC criteria in effect at that time, and the plants were released in 1951 for use without radiological restrictions. During 1950 and 1951, uranium processing operations began at Plant 6E; Plant 4 was modified and used as a metallurgical pilot plant for processing uranium metal until it was closed in 1956. AEC operations in Plant 6E ended in 1957, and AEC managed the decontamination efforts in Plants 4 and 6E, returning them to Mallinckrodt for use without radiological restrictions in 1962. Contaminated buildings, equipment, and soil from Plants 4 and 6E were removed. Some buildings that existed in 1962 have been razed, and some new buildings have been constructed at the former locations of Plants 4 and 6. Plant 7 was used for storing reactor cores, removing metallic uranium from salt by a wet grinding/mill flotation process, and continuous processing of green salt (i.e., production of uranium tetrafluoride). These operations at Plant 7 began in 1950 and 1951, continuing until the plant closed in 1957. Plant 7 was released for use without radiological restrictions in 1962 following decontamination, based on criteria in effect at that time. Plant 7 is now used primarily for storage of materials and equipment related to current chemical plant operations.

The SLAPS was acquired by MED/AEC in 1946. From 1946 until 1966, the property was used to store residues (i.e., uranium-bearing material generated as a by-product of uranium processing) from SLDS. In 1966, the wastes were purchased by the Continental Mining and Milling Company, removed from the SLAPS, and placed in storage at 9200 Latty Avenue. After most of the residues had been removed from SLAPS, the buildings were demolished and buried on-site, and the whole area was covered with 0.3 to 1 m (1 to 3ft) of clean fill material. At 9200 Latty Avenue, all the wastes transferred from SLAPS were deposited directly on the ground surface. During 1967 and 1970, the residues were dried and shipped to Canon City, Colorado, by the Commercial Discount Corporation and Cotter Corporation. The material in the storage piles currently on HISS originated from a 1979 demolition and excavation activity on the Futura Coatings property and remedial action and construction activities on and around the Latty Avenue properties that took place in 1984 and 1986.

Radiological surveys at SLDS indicate that current contamination in structures and radionuclide concentrations in soil exceed DOE limits for release for use without radiological restrictions (as given in DOE Order 5400.5). Radon concentrations in three buildings also exceed DOE nonoccupational radiation exposure guidelines in DOE Order 5400.5. Results of surveys performed by Bechtel National, Inc., indicate that at SLDS, uranium-238, radium-226, thorium-232, and thorium-230 concentrations in the soil range from background levels up to 95,000 pCi/g, 2,800 pCi/g, 440 pCi/g, and 98,000 pCi/g, respectively. The surveys indicated surface contamination on virtually all portions of SLDS that were examined. The volume of contaminated soil at SLDS is estimated to be 220,000 m^3 (288,000 yd^3).

Radiological surveys performed at SLAPS indicate radionuclide concentrations in the soil exceeding DOE guidelines for release for use without radiological restrictions. Contamination was identified as deep as 5.5 m (18 ft) beneath the ground surface. Uranium-238, thorium-230, and radium-226 have been determined to be the primary contaminants, with concentrations ranging up to 1,600 pCi/g, 2,600 pCi/g, and 5,620 pCi/g, respectively. The volume of contaminated soil at SLAPS is estimated to be 191,000 m^3 (250,000 yd^3).

A large portion of the ground surface and subsurface soil at HISS/Futura Coatings property still remains radioactively contaminated in excess of DOE guidelines for release for use without radiological restrictions. Subsurface contamination is as deep as 2 m (6 ft) at HISS, with concentrations of uranium-230, thorium-230, and radium-226 ranging up to 800 pCi/g, 7,900 pCi/g,

and 700 pCi/g, respectively. The estimated volume of contaminated soil at HISS is 53,520 m^3 (70,000 yd^3). At the Futura Coatings property, contamination is as deep as 4.6 m (15 ft) beneath the surface, and the maximum measured concentrations of thorium-230, radium-226, uranium-238, and thorium-232 in the soil were 2,000 pCi/g, 2,300 pCi/g, 2,500 pCi/g, and 26 pCi/g, respectively. The estimated volume of contaminated soil at the Futura Coatings property is 26,000 m^3 (34,000 yd^3).

Radiological surveys have also been conducted at all vicinity properties. The major radioactive contaminant on these properties is thorium-230. The average concentration of thorium-230 measured in soil at these vicinity properties ranges from background levels up to 145 pCi/g.

Surveys for possible chemical contaminants were also performed at various properties considered to be representative of those comprising the St. Louis Site. The purpose of these surveys was to: (1) Identify and quantify any "hazards waste" as defined under the Resource Conservation and Recovery Act (RCRA); (2) to provide a basis for assessing the potential health hazardous from the handling of materials at the Site while performing remedial actions; (3) to ensure proper design and implementation of a health and safety plan; (4) to define chemical characteristics; (5) to investigate potential migration pathways; and (6) to determine any resulting impact on the design criteria for final disposition of the waste. Chemical analyses for metals, anions, organics, and characteristics of RCRA hazardous waste were performed on soil samples collected from SLDS, SLAPS, HISS, Futura Coatings property, and the athletic field. Limited chemical analyses were also performed on groundwater samples from SLDS, SLAPS, HISS, Futura Coatings property, with surface-water samples from Coldwater Creek also analyzed. In conjunction with historical records of activities at the various St. Louis Site properties, chemical surveys at these selected sites can provide indications of maximum chemical contamination. These values are used as conservative, upper level indications of chemical contamination on other vicinity properties where chemical surveys were not taken.

The results of the chemical surveys indicate potential contamination with metals similar to, and thus possibly attributable to, those occurring in the materials processed at SLDS. A few organic compounds commonly found in many industrial areas have also been detected at SLDS. These organic compounds are not related to DOE processing activities conducted at SLDS.

In June 1990, DOE executed a Federal Facility Agreement (FFA) with EPA Region VII. The FFA was made available on July 12, 1990, for public review and comment. The public comment period ended on August 17, 1990, and the final agreement became effective on September 13, 1990. Under the FFA, DOE has assumed responsibility for:

—All contamination, both radioactive and chemical, whether commingled or not, at HISS and SLAPS.

—All radioactive contamination present at SLDS and on any vicinity property that is above DOE guidelines for residual radioactive material and is related to uranium processing at SLDS.

—Any chemical or nonradioactive contamination at SLDS and on vicinity properties that has been mixed or commingled with radioactively contaminated wastes resulting from, or associated with, uranium manufacturing or processing activities conducted at SLDS.

The FFA does not assign responsibility to DOE for managing areas, other than SLAPS and HISS, that are only chemically contaminated with no connection to processing of radioactive materials at SLDS.

Environmental Review Process

DOE intends to conduct a comprehensive environmental review and analysis to meet the requirements of CERCLA and incorporate the values of NEPA for implementing response actions at the St. Louis Site. The St. Louis Site consists of approximately 765,000 m^3 (1,000,000 yd^3) of contaminated materials.

The CERCLA environmental review and analysis process has two major phases: a remedial investigation and a feasibility study, which are also the titles or partial titles of the reports resulting from these phases. It is DOE policy, under DOE Order 5400.4, to integrate the values of NEPA and the requirements of CERCLA for remedial actions at sites for which it is responsible. Under the integration policy, the CERCLA process is supplemented, as appropriate, to incorporate the values of NEPA.

The integrated CERCLA/NEPA process begins with scoping and planning phases that culminate in a series of planning documents, including the RI/FS–EIS work plan. In the work plan, the problems at a site are scoped by analyzing existing data, identifying the contaminants of concern, projecting potential exposure routes, identifying any additional specific information that is available, and specifying tasks required throughout the entire remediation process to fully remediate the site problem(s).

From the work plan, a field sampling plan is written to obtain the remaining required data. Companion documents include the health and safety plan, the quality assurance project plan, and the community relations plan. The health and safety plan specifies the procedures needed to protect workers and the general public. The quality assurance project plan specifies the procedures, detection levels, and data quality checks to be used in the laboratory analyses. The community relations plan outlines procedures to ensure that the public is kept informed and given the opportunity to provide information, suggestions, and comments.

The RI phase of the remediation decisionmaking process includes activities associated with site investigations, sample analyses, and data evaluation, which are performed to characterize the site and to determine the nature and extent of contamination. In addition, applicable or relevant and appropriate requirements must be identified to determine what standards, criteria, regulations, or other constraints should be applied to the proposed action. Bench-scale or pilot studies may be performed to test potentially applicable technologies. The RI phase also includes a baseline risk assessment, which is a quantitative assessment of the primary health and environmental threats under the no action alternative.

The FS phase includes screening of remedial technologies, identification and screening of response alternatives, development of general performance criteria for such alternatives, and detailed evaluation and comparison of alternatives consistent with both CERCLA and NEPA. Alternatives to be considered for the St. Louis Site include: (1) No action; (2) treatment and disposal of wastes either on-site or off-site (off-site disposal would be considered generically, not specifically); and (3) (on-site or off-site) containment or institutional control alternatives that control the threats posed by hazardous substances to prevent exposure. The no action alternative provides an environmental baseline against which the impacts of the other alternatives can be compared.

The data collected during the RI phase will influence the development of the remedial alternatives in the FS phase, which in turn affects the data needs and scope of treatability studies and can result in additional field investigations.

Consistent with DOE policy, the RI/FS process will be supplemented, as necessary, to be consistent with NEPA and the Council on Environmental Quality's regulations (40 CFR parts 1500–1508). DOE has determined that an EIS is the appropriate level of NEPA documentation for the St. Louis Site. DOE will prepare an EIS implementation plan to record the results of the scoping process and to present the approach for preparation of the EIS (i.e., RI/FS–EIS). The EIS implementation plan will be prepared following the scoping meeting and will be appended to the work plan for the St. Louis Site.

Nothing in this NOI, or in other documents to be prepared, is intended to represent a statement on the legal applicability of NEPA to remedial actions under CERCLA.

Preliminary List of Potential Issues

Potential issues related to response actions at the St. Louis Site include environmental impacts, as well as factors that may result from or be influenced by implementation of one or more of the remedial alternatives. The preliminary list that follows is based on issues that have been raised relative to other DOE proposals of this nature. Interested parties are invited to participate in the scoping process discussed below and to help refine this list to arrive at the significant issues to be analyzed in depth in the integrated CERCLA/NEPA process and to eliminate from detailed study the issues that are not significant.

The potential major issues that may arise and therefore require analysis in the integrated CERCLA/NEPA process are as follows:

1. Potential radiological/chemical impacts in terms of both radiation/chemical doses and resulting health risks:

—On people, including workers and the general public (i.e., individuals and the total population, children and adults, present and future generations);

—Along transportation routes relevant to the proposed alternatives;

—Associated with routine remedial operations and accidents;

—Associated with various pathways to humans, including air, soil, surface water, groundwater and biota;

—Due to natural forces, such as erosion and flooding; and

—Associated with human intrusion into the contaminated materials.

2. Potential engineering and technical issues:

—The most reasonable engineering options for each type of waste/residue;

—Probable duration of contamination isolation;

—Rates and magnitude of loss of containment;

—Related to site-specific geohydrology and ecology;

—Related to site-specific wind patterns; and

—Site characterization and research and development work necessary before the decision or before actual implementation of an alternative.

3. Potential issues relative to mitigative measures and monitoring:

—Health-physics and industrial-hygiene procedures for workers; and

—Control measures for erosion, gases, and dusts.

4. Potential institutional issues:

—Project-specific criteria for decontamination, effluents, environmental concentrations, and release of site for use without radiological restrictions;

—Future institutional controls (i.e., monitoring and maintenance); and

—Institutional issues that need to be resolved before an alternative can be implemented.

5. Potential socioeconomic issues:

—Effects on land uses, values, and marketability; and

—Effects on local transportation systems.

6. Cumulative impacts associated with the remedial actions proposed to be taken or reasonably foreseeable at the St. Louis Site.

7. Issues related to CERCLA criteria for selection of a remedial action:

—Overall protection of human health and the environment;

—Compliance with applicable or relevant and appropriate requirements;

—Long-term effectiveness and permanence;

—Reduction of waste toxicity, mobility, and volume through treatment;

—Short-term effectiveness;

—Implementability;

—Cost;

—State acceptance; and

—Community acceptance.

Scoping

The results of the integrated CERCLA/NEPA assessment process for the St. Louis Site will be presented in the draft RI/FS–EIS. The draft work plan and companion documents, fact sheets, technical reports, and other information related to DOE activities at the St. Louis Site have been placed in the repositories at the addresses noted below.

The scoping process will involve all interested government agencies (i.e., Federal, State, and local), groups, and members of the public. Comments are invited on the alternatives and the issues to be considered in the integrated CERCLA/NEPA process, as discussed in this NOI and in the draft RI/FS–EIS work plan. A public scoping meeting is scheduled to start at 7 p.m., to be held on January 28, 1992, in the Berkeley Senior High School, 8710 Walter Avenue, Berkeley, Missouri 63134. This will be an informal meeting, but a complete record will be taken and copies of the transcript will be made available as detailed below.

The meeting will be presided over by an independent facilitator, who will explain DOE procedures for conducting the meeting. The meeting will not be conducted as an evidentiary hearing, and those who choose to make statements will not be subject to cross examination by other speakers. However, to facilitate the exchange of information and to clarify issues, DOE and its representatives may respond by answering questions and making short clarifying statements, as necessary or appropriate. To ensure that everyone who wishes to speak has a chance to do so, 5 minutes will be allotted for each speaker, and speakers are encouraged to submit a written summary of comments.

Depending on the number of persons requesting to be heard, DOE may allow longer times for representatives of organizations; persons wishing to speak on behalf of an organization should identify the organization in their request. Persons who have not submitted a request to speak in advance may register to speak at the scoping meeting; they will be called on to present their comments if time permits. Written comments or suggestions will also be accepted at the meeting or should be sent to Mr. Lester K. Price at the address given above in the Addresses section and should be postmarked no later than February 7, 1992. Comments or suggestions postmarked after that date will be considered to the maximum extent practicable. Oral and written comments will be given equal weight. Copies of the scoping meeting transcript, the draft work plan and companion documents, and major references used in preparing these documents will be available for inspection during normal business hours at the following locations:

St. Louis Public Library, Government Information Section, 1301 Olive Street, St. Louis, MO, 83103, (314) 241–2288.

St. Louis County Library, Prairie Commons Branch, 915 Utz Lane,

Hazelwood, MO, 63042, (314) 895–1023.

DOE Public Information Office, 9200 Latty Avenue, Hazelwood, MO, 63042, (314) 524–4083.

Certain materials have already been placed at the above repositories, including preliminary assessment and site investigation reports, the draft work plan, the community relations plan, and reports on work that has previously been conducted at the Site. Other documents will be added to the repositories as work at the Site progresses. These additional documents may include, but are not limited to, the scoping meeting transcript, implementation plan, major references used in preparing the RI/FS–EIS, other technical reports, comments and new data submitted by interested persons, and DOE responses to comments.

DOE will retain the transcript of the scoping meeting, and, in addition to the locations noted above, will make a copy available for inspection at the Freedom of Information Reading Room, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC, 20585, Monday through Friday during business hours (i.e., 9 a.m. to 4 p.m.). In addition, anyone may make arrangements with the recorder to purchase a copy. When the draft RI/FS–EIS is available, a notice will be published in the Federal Register and local newspapers to announce the locations where the documents can be reviewed.

Persons who do not wish to submit comments or suggestions during the comment period but who would like to receive a copy of the draft RI/FS–EIS for review and comment should notify Mr. Lester K. Price at the address given above in the Addresses section.

DOE expects by the end of 1994 to issue the final RI/FS–EIS, which will include a description of the proposed plan and responses to public comments received on the draft RI/FS–EIS (responsiveness summary). DOE will announce a remedial action selection for the Site in the Record of Decision to be issued no earlier than 30 days after the final RI/FS–EIS is issued.

Issued in Washington, DC, this 3d day of January 1992.

Peter N. Brush,

Acting Assistant Secretary, Environment, Safety and Health.

[FR Doc. 92–531 Filed 1–8–92; 8:45 am]

BILLING CODE 6450–01–M

DOE NEWS

FOR IMMEDIATE RELEASE
January 15, 1992

DOE TO HOLD PUBLIC MEETING ON ENVIRONMENTAL STUDIES OF CONTAMINATED SITES IN ST. LOUIS

ST. LOUIS, MO -- The U.S. Department of Energy (DOE) will hold a public meeting on January 28 to receive comments from the public on environmental studies of three sites in the St. Louis area that are contaminated with residual radioactive materials.

Known collectively as the St. Louis Site, the three separately located sites are designated for cleanup by DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP). The sites are located in an industrial area in downtown St. Louis, on land adjacent to the St. Louis International Airport and on property located on Latty Avenue in Hazelwood, Missouri.

The public meeting will provide an opportunity for residents living in these communities, as well as other interested parties, to participate and comment on the ongoing environmental studies. The meeting will be held in the auditorium of the Berkeley Senior High School, 8710 Walter Avenue, Berkeley, Missouri. The meeting will begin at 7:00 p.m.

FUSRAP is responsible for identifying and restoring sites contaminated with radioactive materials resulting from the early years of the nation's atomic energy program. Contamination at the St. Louis Site resulted from uranium processing and waste management activities performed from 1940 through the 1970's.

DOE's Remedial Investigation/Feasibility Study (RI/FS) is a key step in the cleanup process. The RI/FS is intended to determine the nature, extent, and environmental impacts of existing contamination. The RI/FS also will identify and evaluate a variety of cleanup alternatives, ranging from no action to onsite or offsite disposal of contaminated materials.

DOE's environmental studies will combine the regulatory requirements of the National Environmental Policy Act (NEPA) and the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act (CERCLA/SARA). The environmental impact statement requirements of NEPA will be addressed in the RI/FS documentation.

The St. Louis Site RI/FS is scheduled to be completed in 1995. Before a cleanup alternative is selected, DOE will provide the public opportunity to comment on the proposed action. Under the provisions of a Federal Facilities Agreement between DOE and the U.S. Environmental Protection Agency (EPA), the selected cleanup alternative must be approved by EPA.

-MORE-

Individuals and organizations may submit oral or written questions or suggestions at the January 28 meeting. Anyone wishing to speak at the meeting may either sign up during registration, send a written request to the following address, or call the toll-free telephone number listed below:

Lester K. Price, Director
Former Sites Restoration Division
U.S. Department of Energy
Oak Ridge Field Office
P.O. Box 2001
Oak Ridge, TN 37831-8723
(615) 576-0948 or 1+(800) 253-9759

Written requests to speak at the meeting should be received at the above address by January 22, 1992. Written comments pertaining to the meeting should be submitted to the above address no later than February 7, 1992.

Background information on the St. Louis Site is available in the "Work Plan for the Remedial Investigation/Feasibility Study-Environmental Impact Statement for the St. Louis Site." Copies of the Workplan and other documents related to the St. Louis Site are available to the public in the information repositories and administrative record files located in the Government Information Section of the St. Louis Public Library, 1301 Olive Street, St. Louis, Missouri 63103; the St. Louis County Library-Prairie Commons Branch, 915 Utz Lane, Hazelwood, Missouri 63042; and the DOE Public Information Office, 9200 Latty Avenue, Hazelwood, Missouri 63042.

-DOE-

News Media Contact: Steven Wyatt (615) 576-0885

R-92-002

DOE NEWS

FOR IMMEDIATE RELEASE
January 27, 1992

NOTE TO EDITORS AND ASSIGNMENT DESKS:

ST. LOUIS, MO -- The U.S. Department of Energy (DOE) will hold a public meeting on Tuesday evening, January 28, 1992, to receive comments from the public on environmental studies of three sites in the St. Louis area that are contaminated with residual radioactive materials. The meeting will be held in the auditorium of the Berkeley Senior High School, 871 Walter Avenue, Berkeley, Missouri, beginning at 7:00 p.m. (A news release announcing the public meeting was issued last week).

David Adler, DOE's St. Louis Site Manager, will be present at 6:00 p.m. at the Berkeley Senior High School to meet with members of the news media. For more information, contact the St. Louis Site Information Office at 524-4083 or call the DOE Oak Ridge Field Office Public Information Office at (615) 576-0885.

-DOE-

News Media Contact: Steven Wyatt, (615) 576-0887

N-92-001

106413

Our neighbors in Hazelwood and Berkeley are cordially invited to an Open House and Site Tour

on Tuesday, July 13
from 4:00 – 6:00 p.m.

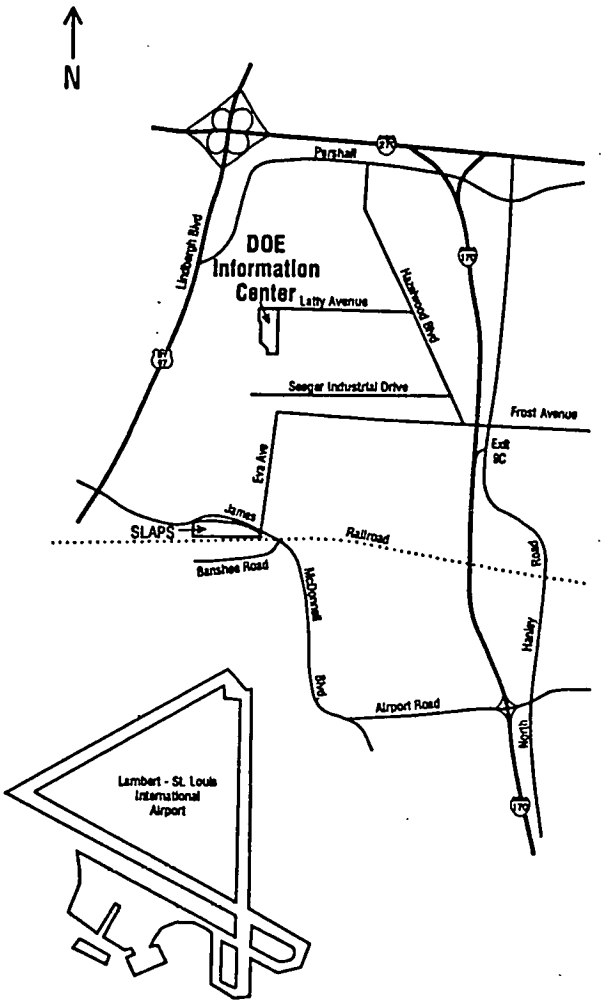
at the DOE
Public Information Center
9200 Latty Avenue
Hazelwood, Missouri 63042

Please come and meet the DOE site manager and other staff working on the St. Louis Formerly Utilized Sites Remedial Action Program. We will have light refreshments, an exhibit, printed material, and a videotape about this environmental restoration program. Feel free to bring a guest.

Space in the Center and parking are limited, so please let us know if you are coming. Telephone 524-4083.

For directions, please see map on reverse.

106413


N
Parshall
DOE
Information
Center
Latty Avenue
Lindbergh Blvd
Hazelwood Blvd
Seeger Industrial Drive
Frost Avenue
Exit
9C
Era Ave
James
SLAPS
Railroad
Banshee Road
McDonnell
Blvd
Airport Road
Hanley
Road
North
Lambert - St. Louis
International
Airport

BROADCAST INFORMATION SERVICES, INC.
NEW YORK PHILADELPHIA ST. LOUIS DENVER

7838 Big Bend Boulevard, St. Louis, Missouri 63119
(314) 961-4113

CLIENT: Becntel National STATION: KTVI Ch. 2

PROGRAM: 2 News TIME: 6:00 P.M.

DATE: 1/14/94 CITY: St. Louis

DONN JOHNSON: "A new announcement tonight that a mountain of radioactive debris may have a permanent home right here in St. Louis if the Department of Energy has its way. The DOE's plans are still hot off the press but 2 NewsTeam's Earthwatch reporter Bruce Gordon says opposition is quickly mounting."

BRUCE GORDON: "The waste is a legacy of the Manhattan Project, America's first attempt to build an atomic bomb. Uranium processing here in St. Louis left behind 850,000 cubic yards of radioactive soil, now buried at three local sites, including a 22 acre plot just north of Lambert Field. The DOE wants to consolidate all threee sites into one at Lambert and cover up the waste at a cost of about $250 million. Shipping the waste to storage facilities in Utah would cost $600 million."

Voice of DAVID ADLER (DOE site manager): "In my opinion it's difficult to justify the expenses of shipping it to a remote site."

CONG. JIM TALENT (Chesterfield): "This is clearly the worst thing to do."

GORDON: "Congressman Jim Talent says he's stunned by the DOE's recommendation. If the debris is a threat to health and safety he wants it shipped to a remote site whatever the cost; and if it isn't a serious threat Talent suggests it be left where it is and monitored."

TALENT: "Why disrupt neighborhoods, scare people, have all the guys in with the moon suits to pick it up and dump it three or four miles away in another populated area? It doesn't make a lot of sense to me."

GORDON: "Nor to many others in St. Louis. Referendum votes and comments from elected officials make it clear the public wants the radioactive waste moved. The DOE's new announcement has activists sounding the alarm."

KAY DREY (nuclear activist): "Every citizen has got to act as if there's no other citizen who's going to do anything.

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7838 Big Bend Boulevard, St. Louis, Missouri 63119
(314) 961-4113

I mean we all have to be sort of a committee of one and try to get through to our elected officials and beg them for help on this."

GORDON: "It is not too late for public action to make a difference. The DOE recommendation's now in the hands of the Environmental Protection Agency. A final ruling on what to do with all of this debris is probably a couple of years and many public hearings away."

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NEW YORK PHILADELPHIA ST. LOUIS DENVER

7838 Big Bend Boulevard, St. Louis, Missouri 63119
(314) 961-4113

CLIENT: Bechtal National STATION: KSDK Ch. 5

PROGRAM: NewsChannel 5 TIME: 6:00 P.M.

DATE: 1/14/94 CITY: St. Louis

DAN GRAY: "Some St. Louis residents are fighting mad tonight because of plans to transform land near Lambert Airport.

"As NewsChannel 5's Michelle Hofland reports the government wants to store atomic waste on the site."

MICHELLE HOFLAND: "The engery department says beneatn the weeds and dirt on this land just north of Lambert Airport is radioactive waste that came from a Mallinckrodt plant in St. Louis. Now the energy department wants to build a bunker here and pump a million more cubic yards of radioactive dirt inside it. It will come from contaminated sites that date back to the development of the atomic bomb in the 1940s.

"Kay Drey has been fighting this for fifteen years."

KAY DREY (environmentalist): "It gives off a certain kind of radioactivity, called alpha particles that are known to be extremely dangerous. We don't want it near people, and we don't want it near water."

HOFLAND: "The Department of Engery says this is the best site for the atomic waste. As the sign says this land is already contaminated, not only that beneath the ground there's already a natural clay barrier and that should be prevent the contaminants from seeping any deeper. Also this site is closer to the other site. The contaminants will not have to hauled a long distance. The soil is contaminated with uranium which will be around for billions of years but the energy department says despite that the site won't pose much of a health risk.

VOICE OF DAVID ALDER (site manager): "We don't think it is very dangerous as long as people don't grow crops in it or engage in activities that would cause them to ingest or inhale large quantities of it."

HOFLAND: "Opponents disagree and insist any site miles away from a large population would be much better than this.

"In north county, Michelle Hofland, NewsChannel 5."

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GRAY: "Now the Department of Energy says the public can comment about the proposed site at a meeting this spring. The DOE will make its final decision and begin cleanup of the atomic waste by next winter."

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STATEMENT OF POSITION

BACKGROUND

A public meeting for the Environmental Management Advisory Board (EMAB) was held in St. Louis on March 15, 1994. Mr. Thomas Grumbly attended and spoke at the public meeting.

DISCUSSION

As a result of Mr. Grumbly's remarks, The St. Louis community, including residents and elected officials, is under the impression that DOE intends to drop onsite consolidation as an alternative under consideration.

The St. Louis County Executive issued a press release (attached) that stated; "The St. Louis community has won a major battle in the fight to clean up the radioactive waste in north county and in the city." It further states that this was in reaction to the news that DOE "reversed its position to build a bunker for permanent disposal of the wastes near Lambert Airport." The County Executive noted special thanks to Assistant Secretary Thomas Grumbly "for listening to our community, for hearing our message, and for having the courage to change the course the Department has been headed in for the last several years." This is indicative of the feedback that the program has been receiving from a variety of stakeholders.

RECOMMENDATION

Issue the following statement of position for use by the department in responding to inquiries.

> The Department of Energy is withdrawing the St. Louis Proposed Plan currently under review and will meet with stakeholders, including political delegations, to develop a long term strategy for instituting an acceptable remedy. This review will re-examine all feasible alternatives, including on-site, off-site, and treatment options, in an effort to define a future management strategy. Everything is on the table, and we will work with all of our stakeholders in the development of the new strategy.

DEPARTMENT OF ENERGY
STATEMENT OF POSITION

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MEDIA ADVISORY, St. Louis, Missouri

CONCERNS RE DOE SITES IN ST. LOUIS AREA

- **DOE has treated the Weldon Spring sites & the St. Louis sites differently, making unfair & unwarranted assumptions about possible actions solutions.**
  - At Weldon, DOE has calmed local fears by promising not to allow outside wastes into the area, while never really considering the option of moving these wastes away -- merely consolidating the wastes onto one site.
  - In St. Louis, DOE has abandoned relocation and/or consolidation in order to keep its original first option -- an airport bunker -- alive; ignoring West Lake Landfill and proposing to leave many other sites still contaminated and uncontrolled.
  - While DOE has established an impressive presence in St. Charles County, the St. Louis sites have been relegated to management by long-distance commute from Oak Ridge.
  - DOE has taken note of original, massive public outcry in St. Charles County and has bludgeoned concern citizens in an avalanche of paper, meetings and flattery -- succeeding in eliciting endorsements from the very public they are shafting.
  - In St. Louis, despite public votes, petitions, pleas from local mayors & other elected officials, DOE has thumbed its Tennessee nose at public concern.
  - About the only thing St. Charles' folks have

gotten for their "model citizenry" is more federal $$: with comparable volumes of wastes on both sides of the Missouri River, DOE is proposing to spend 8 to 9 times more money at Weldon Spring than in St. Louis -- even though many more people & businesses are adjacent to the St. Louis sites.

- **Mallinckrodt Plant Site (St. Louis):** DOE proposes to leave contaminated buildings in place as well as much "inaccessible contaminated soil."
  - Mallinckrodt is an active, ongoing business with many workers -- it deserves a complete clean-up, including removal of all contaminated debris.
  - Some 300,000 people live within 5 miles of this site. The closest neighbors are working class, minority people with little opportunity at relocation. Adjacent businesses are already affected by the site.
- **Latty Avenue Site (Hazelwood):** Again DOE proposes to leave much material in the ground. The many businesses adjacent to this site, the presence of Coldwater Creek, and the cancer cluster on nearby Nyflot all make this a priority site for total clean-up.
- **West Lake Landfill (Bridgeton):** DOE proposes no action at this toxic site adjacent to the Missouri River floodplain. To leave these wastes unaddressed is the single most cavalier aspect of DOE's action.
- **Coldwater Creek (north St. Louis County):** Despite the presence of contamination everywhere testing has occurred, DOE chooses to leave most of the creek unattended. Of course, it will border the proposed bunker.
- **Private Properties:** Most of the St. Louis area sites are private property. If left contaminated, and in

private hands, who will guarantee containment of these wastes in the years ahead?

- **St. Louis Airport Site (Berkeley):** The proposed site of the "bunker" -- this site is partially in the floodplain of Coldwater Creek, is mostly situated on an old lacustrine deposit with a high water table (very prone to earthquake damage).
  - Again, this is a highly populated area of north county including three adjacent municipalities: Bridgeton, Berkeley and Hazelwood. The future viability of these communities is doomed if the bunker option is chosen.
  - Depending on DOE's final strategy, the bunker will take some 30 acres to 90 acres. But if all of the St. Louis area sites are properly cleaned up, there is no way to hold all of this material at the airport.
- **Weldon Spring Quarry (St. Charles County):** While DOE proceeds to "treat" water from the sump pond in the quarry and to remove the solids, there is no plan to mitigate the ground water contamination or to clean up the Femme Osage Slough.
  - In an effort to protect the alluvial wellfield in St. Charles County, DOE has blatantly threatened the drinking water of millions downstream by dumping the "treated" water into the Missouri River.
  - Unanswered questions remain about the water treatment strategy and the lack of adequate information on the presence of various radionuclides in the water both before and after "treatment."
- **Weldon Spring Plant & Raffinate Pits:** the karst topography of this part of St. Charles County makes this a site of dubious integrity for permanent storage.

- The site is perched on the divide between the Mississippi and Missouri rivers smack in the middle of the largest concentration of public recreational lands in the St. Louis area.
- The water from the raffinate pits is also being "treated" and sent downstream to St. Louis water consumers.
- For all the money that DOE is spending at Weldon Spring, the public is getting damn little for its money.
- DOE brags about Weldon Spring as a "success story" because it managed to shmeikel the public, state agencies and elected officials into becoming a national testing ground for untried, unproven and likely unreliable technologies.

- **Army Incinerator at Weldon Spring:** The final insult to the area's environment comes not from DOE but the Army Corps of Engineers as they have proposed a hazardous waste incinerator to burn TNT & DNT wastes along with radioactive materials.

The Missouri Coalition for the Environment believes that the only satisfactory solution is to clean up all these sites & haul routes, consolidate the wastes and relocate them to a more suitable, remote area of highest geologic & hydrologic integrity. Fifty years of this contamination is long enough. DOE is dooming the St. Louis area to fifty centuries and counting.

NEWS

From St. Louis County Executive **Buzz Westfall**

For Release:

Contact: Mac Scott 889-3654
Fax no. 889-3727

WESTFALL HAILS D.O.E. REVERSAL ON BUNKER

FOR IMMEDIATE RELEASE — MARCH 16, 1994
Contact: Lee Brotherton 889-2006

"The St. Louis community has won a major battle in the fight to clean up the radioactive waste in north County and in the City," County Executive Buzz Westfall said today in reaction to the news that the US Department of Energy has reversed its position to build a bunker for permanent disposal of the wastes near Lambert Airport.

"For years, citizens and elected officials from our area have been trying to get our message across to the federal government and now we know that we have been heard," Westfall said, "Our message has always been the same. It has been simple and irrefutable: that it is simply inappropriate for the federal government to permanently locate 900,000 cubic yards of radioactive waste in the middle of a densely populated urban area like ours. We have repeated that message time and again and the hard work has paid off." Westfall noted his special thanks to Assistant Secretary Thomas Grumbly of the US Department of Energy" for listening to our community, for hearing our message, and for having the courage to change the course the Department has been headed in for the last several years."

Westfall congratulated all those who have fought the idea of a permanent bunker over the years. "To the mayors of Berkely and Hazelwood, to the everyday voters who expressed themselves so clearly in the 1990 referendum, this victory is a tribute to your efforts, your unity, and your determination to protect our community and to make sure that the final disposition of this waste is appropriate and safe."

Westfall noted that while this is a major victory in the fight against the nuclear bunker, the war is not over and much work still needs to be done. "Now we must double our efforts to look at the alternative disposal options and try and move the federal government to a speedy disposition of this problem. For the first time, we can now realistically expect that the waste that has been with us for nearly fifty years will be cleaned up and moved out of the heart of our community."

DOE NEWS

FOR IMMEDIATE RELEASE
August 15, 1994

DOE TO BEGIN CLEANUP OF RADIOACTIVE CONTAMINATION

OAK RIDGE, TN -- The U.S. Department of Energy (DOE) has announced plans to clean up a portion of radioactive contamination located at several sites in the St. Louis area.

This announcement was made by Thomas Grumbly, DOE Assistant Secretary for Environmental Management, at a meeting held last week of key stakeholders from the St. Louis metropolitan area.

Grumbly said, "We are pleased to begin this project, which will remove a significant portion of this hazardous material from both residential and industrial areas in St. Louis."

Close to $15 million will be committed to this effort, scheduled to begin in FY 1995. Grumbly emphasized that citizen input will be the key factor determining near term cleanup priorities. Plans for control of the remaining contamination in the St. Louis area will be developed over the next twelve months based on input from stakeholders and the public. The cleanup will include all of the residential properties impacted by radioactive contamination, and other select industrial properties.

Grumbly said, "DOE is committed to a process that will lead to increased stakeholder input and involvement in decisions that affect both the near term cleanup and ultimate disposition of these materials. We acknowledge that there is a general consensus against permanent disposal of these wastes in highly populated areas of the country, such as Lambert Field. We will explore alternatives such as soil treatment and the siting of a disposal facility elsewhere in Missouri."

Radioactive contamination in the St. Louis area is the result of the processing of uranium and other materials associated with the nation's early nuclear weapons program. The site was designated for cleanup in the late 1970s and is administered under the DOE's Formerly Utilized Sites Remedial Action Program.

-DOE-

News Media Contact: Steven L. Wyatt, (615) 576-0885

R-94-053

NEWS ARTICLES

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)
INFORMATION REPOSITORY FOR THE ST. LOUIS SITES, MISSOURI

E - News Articles

News articles related to FUSRAP, the site, and cleanup efforts are periodically added to this information repository in approximately chronological order. No detailed index of specific articles is maintained.

Riverfront Times 12/3/97

IT'S SHIFT CHANGE on Friday afternoon at the Boeing Aircraft plant north of Lambert Field, and workers are fleeing in droves, streaming bumper-to-bumper down McDonnell Boulevard, oblivious to the narrow, 21.7-acre piece of real estate next to the thoroughfare. Until recently, this barren stretch of earth offered little to see besides an abundance of weeds surrounded by a rusty cyclone fence topped with barbed wire. In late September, however, the U.S. Department of Energy (DOE) began rearranging the landscape on the property. From the shoulder of the road, where it crosses Coldwater Creek, a yellow bulldozer and backhoe can now be seen parked near a plywood wall extending across the top of the steep embankment leading down to the creek bed.

It's hard to tell, at a glance, that the work in progress here is part of an overall federal project estimated to cost nearly $800 million. Ordinary building materials — bales of straw, rocks and plastic sheeting — create a setting common to construction sites. But this is no ordinary erosion-control action. Soil at this location, known in regulatory circles as SLAPS (St. Louis airport site), harbors deadly byproducts of the nuclear-weapons industry, which developed during World War II and mushroomed in the Cold War. From 1946 until the mid-1960s, the U.S. Army — and, later, the Atomic Energy Commission (AEC) — dumped hundreds of thousands of cubic yards of radioactive waste, residue from uranium processing at the Mallinckrodt Chemical Works in St. Louis.

As a consequence, the acreage, which is now owned by the St. Louis Airport Authority, has been contaminated with increased levels of uranium-238, radium-226 and thorium-230, according to the DOE. This is no new discovery, of course. Official foot-dragging has been going on for decades. More than 20 years ago the DOE discovered that contaminants had migrated into ditches next to McDonnell Boulevard, where they have settled only inches from the surface. There are still no signs to warn passersby or curious onlookers of this danger.

Coldwater Creek, which is next to the St. Louis airport site, has acted as a convenient vehicle to transport the toxic materials. So far, radioactive contaminants are known to have hitched a ride downstream more than seven miles, according to the Department of Energy.

Failure to inform the public and act in a timely manner has been the hallmark of this case. At the same time, public-health officials have consistently downplayed or ignored the potential health consequences of radiation

(1)

Riverfront Times 12/3/97

THE FEDERAL GOVERNMENT RUSHES TO CLEAN UP A 50-YEAR-OLD RADIOACTIVE-WASTE SITE NEAR THE AIRPORT, BUT ITS "SOLUTION" IS ONLY A STOPGAP AND FAILS TO ADDRESS THE LONG-TERM PUBLIC-HEALTH CONSEQUENCES OF THE CONTAMINATION

BY C.D. STELZER

for more than 50 years, the federal government is now belatedly rushing to deal with the problem in a fashion comparable to its past negligence. In the process, rules have been sidestepped and decisions made without a full understanding of their implications. The powers-that-be first attempted to keep the problem a secret, after World War II, for "national-security reasons." By the late 1970s, however, the festering pollution had become a heated public issue.

The waste itself has proven even more difficult to contain than the controversy over it.

COLDWATER CREEK, which is next to the site, flows through a large section of North St. Louis County and has acted as a convenient vehicle to transport the toxic materials. So far, radioactive contaminants are known to have hitched a ride downstream more than seven miles, according to the DOE. And the migration is continuing. Tests conducted in late 1994 show stormwater runoff at the location still exceeding acceptable radiation levels set by the agency. Drinking-water intakes for the city of St. Louis are located several miles downstream from the site, on the Mississippi River at Chain of Rocks. The radioactive migration by way of groundwater has also been confirmed but is less well understood.

For years, the DOE claimed the waste presented no danger. But the scientific community, which has been moving much more slowly than the waste, has finally concluded that no safe level of radiation exposure exists. By the time this decision was made several years ago, it was also widely accepted that one direct effect of long-term exposure to low-level radiation is cancer.

The $8.3 million cleanup along Coldwater Creek is the first stage of the long-anticipated project. The initial phase involves removing at least 6,000 cubic yards of the contaminated soil to a licensed repository for low-level radioactive waste, located in Utah. The amount is only a small fraction of the contaminated materials that may ultimately be excavated and shipped from the site. The approximate completion date: 2004.

But the entire project now stands in bureaucratic limbo. Less than a month after the DOE started working at the airport site, Congress transferred authority for the cleanup to the U.S. Army Corps of Engineers. The change came about as a part of the latest Energy and Water Appropriations Bill, signed into law by the president in October. Under the legislation, the corps will be handed the remainder of the $5 million already allocated to the DOE for this fiscal year to shore up the small section of Coldwater Creek. The money is in addition to the $140 million appropriation for 1998 that continues funding a nationwide cleanup of low-level radioactive-waste sites. The act also stipulates that the corps must conduct a three-month assessment of the Formerly Utilized Sites Remediation Action Program (FUSRAP), the federal aegis under which the airport site falls.

(2)

For the time being, the cleanup of Coldwater Creek is expected to continue uninterrupted, according to David Leake, project manager for the corps. "Congress has made it fairly clear that they do not want the transfer to result in any delay," says Leake. This pragmatic strategy, however, locks the corps into adopting some of the DOE's prior policies and practices, many of which have fallen into question in the past.

R. Roger Pryor, executive director of the Missouri Coalition for the Environment, says the corps isn't carrying the same baggage as the DOE. "I feel the corps doesn't have the past bias that nuclear waste is somehow good for you," says Pryor. "However, changing horses in midstream is difficult."

Even though the airport site is on the U.S. Environmental Protection Agency's (EPA) National Priorities List (NPL), the DOE, through a regulatory loophole, was allowed to proceed with the Coldwater Creek excavation without formulating any long-range cleanup plan for the entire site. Furthermore, the DOE's interim plan admits the area now being dug up may have to undergo remediation again sometime in the future. In other words, the current work is at best a stopgap measure. The project may also leave some radioactive contaminants behind because the excavation doesn't go deep enough. In addition, the DOE started working on the site before a hydrogeological study, which it commissioned, had been completed. A previous hydrogeological study, published last year, cautioned that the groundwater system underneath the site was not clearly understood. The panel of experts concurred that implementation of any excavation work would necessitate further site characterization.

Specifically, the panel, which comprised government and industry scientists, warned of the existence of large volumes of radioactive contamination in the middle of the 21.7-acre site. The location of those contaminants is uphill from the current excavation work. It doesn't take a nuclear physicist to figure out

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River Front Times 12/3/97

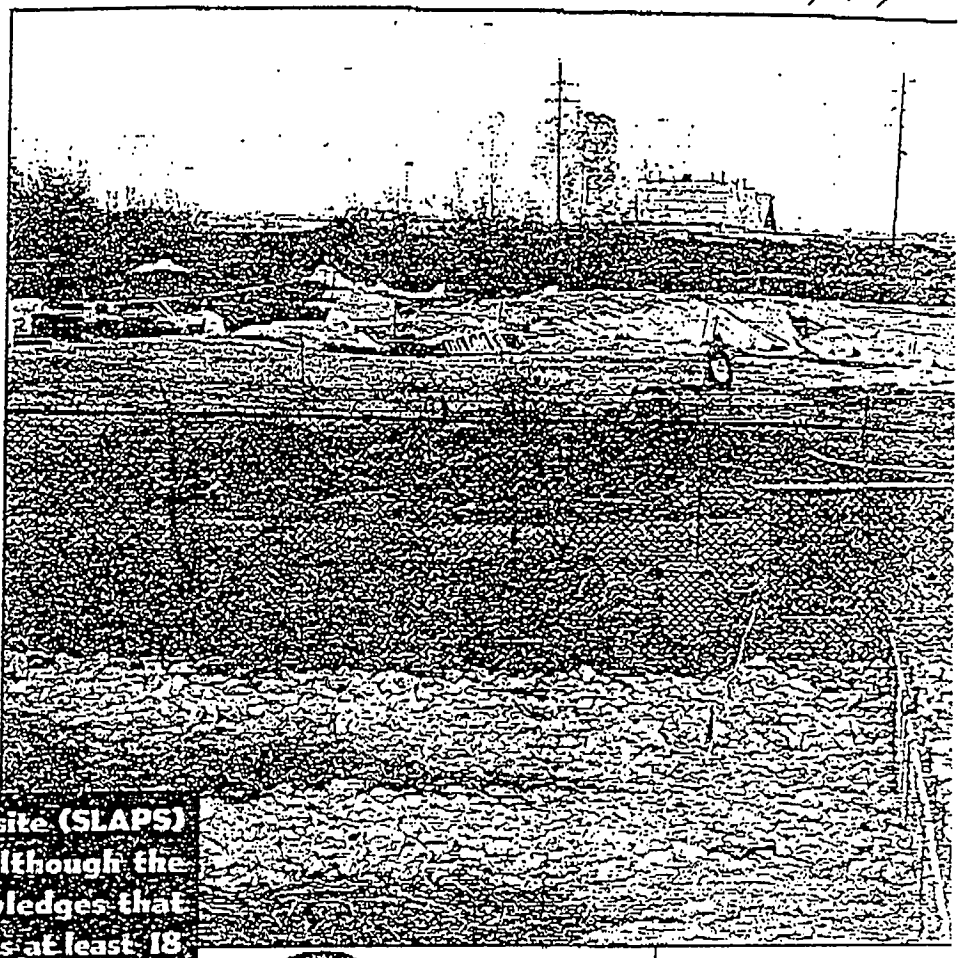
Riverfront Times 12/3/97

SLAPS

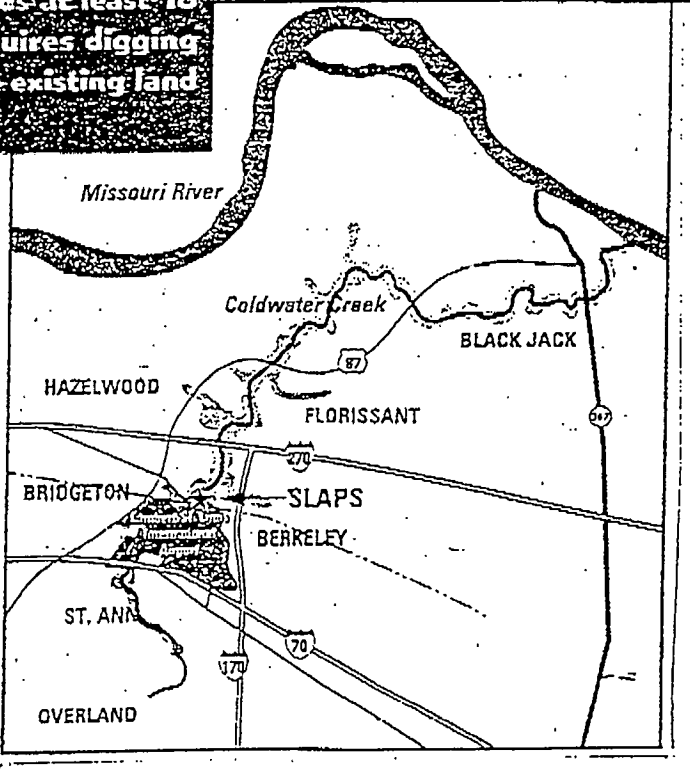
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that water rolls downhill. By beginning the cleanup at the low end of the site, the DOE hoped to create a buffer that would stop or at least slow the migration of the radioactive pollutants into the creeks. But by starting at this point, the department admittedly risks re-contaminating the area it has chosen to clean up. Sheet erosion from rainfall will continue to allow contaminants to move toward the creek. Groundwater will head in the same general direction. Indeed, the subterranean currents may circumvent the DOE's efforts altogether because, according to the experts, the hydrogeological structure beneath the site pushes groundwater both north and west under McDonnell Boulevard.

"I'm delighted that they are beginning to clean up the airport site," says Kay Drey, an environmental activist from University City. "But they're not doing it safely." Drey, who fought for the cleanup for years, resigned from the project's oversight committee on Sept. 18 (see accompanying story). In her resignation letter to St. Louis County Executive George "Buzz" Westfall, she expressed disapproval of the DOE's interim plan, citing what she considers to be inadequate precautions. Before her resignation, she had submitted a detailed eight-page critique of the DOE's plan. To date, she has received no answers to her questions.



A view of the St. Louis airport site (SLAPS) from McDonnell Boulevard. Although the Department of Energy acknowledges that contamination at the site extends at least 18 feet deep, its interim plan requires digging only "eight to 10 feet below the existing land surface."



FROM THE MCDONNELL Boulevard bridge, the turbid waters of Coldwater Creek are visible, flowing past chunks of concrete debris and swirling around a white plastic lawn chair marooned midstream. It is a typical suburban scene, a once-pristine waterway relegated to carrying sewage. Coldwater Creek carries other pollutants, too: Jet fuel from nearby Lambert Field has found its way into the watershed, as have salt, oil and automotive antifreeze, according to a DOE assessment. Another pollutant in the surface water is trichloroethylene, a known carcinogen. No one is certain of the long-term effects of such mixed waste on the environment or human health. It is also unknown how the chemical stew affects the migration of radioactive contaminants in surface and groundwater.

4

Riverfront Times

12/3/97

In essence, the airport site is a very large experiment with few scientific controls attached.

On the basis of data provided to it by cleanup-site contractors, last year's hydrogeological panel decided contamination levels at the site would not pose an imminent risk for the next 100 years, an arbitrary figure imposed by the DOE's guidelines. Yet some radioactive isotopes already discovered in ground and surface water at the site will last for hundreds of thousands of years. Although it downplayed the risks over the next century, the panel nevertheless concluded it would be inappropriate to use the site for long-term storage and repeatedly stated that many questions about the hydrology of the area remain a mystery.

Seepage of radioactivity into groundwater is by no means unique to St. Louis. Last week, the DOE formally admitted that the aquifer underlying the 560-square-mile Hanford nuclear reservation in Washington state has been contaminated. The radioactive waste, which is moving toward the Columbia River, is the result of 40 years of plutonium production at the site. The DOE, which long denied that groundwater contamination existed at Hanford, now claims the Columbia will not be threatened for the proverbial 100 years. However, the independent scientific analysis that forced the DOE to confess to the groundwater contamination calls the DOE's estimates on risks to the river "unreliable."

Tom Aley, a hydrologist who sat on the panel that studied the St. Louis airport site, is sure of one thing: The waste should have never been dumped here in the first place. Similar to Hanford, the waste here is situated on top of an aquifer. "It is a very poor site for disposal of that type," says Aley, who owns Ozark Underground Laboratory Inc. Aley lists population density, groundwater contamination and the proximity of the site to Coldwater Creek as reasons not to store radioactive waste at the airport site.

His tempered approval of the cleanup is based in part on the lack of groundwater use in the area. However, Aley concedes there is much yet to be learned. "We don't really have a good understanding of the vertical contamination," he says. "The waste was deposited in a very haphazard manner, which was typical of that era. That has made cleanup very difficult. Another thing is, you can never totally clean up a site. A lot of these cleanups are real bootstrap operations. You have to pull one boot up, and then you have to pull the other up."

The emperor may have buckled his boots, but he is without clothes. In short, no plan exists as to how to proceed with the remainder of the cleanup. Indeed, according to details of the DOE's interim action, the current $8.3 million creek cleanup may ultimately have to be redone. The DOE's engineering evaluation/cost analysis clearly states: "Although final clean-up criteria have not been established for this site, it is anticipated that the majority of the area cleaned up by this action will not require additional effort. However, final clean-up criteria, once selected, could require additional efforts in areas excavated in this removal action."

(5)

Riverfront Times

12/3/97

Although the DOE acknowledges contamination at the site extends at least 18 feet deep, its interim plan requires digging only "eight to 10 feet below the existing land surface," according to a *Federal Register* notice published in September. The DOE also acknowledges that "soil contaminated with radionuclides is present below (the) water table." If contaminated groundwater is encountered during the dig, the DOE's interim plan calls for it to be pumped onto high ground, which means it will re-enter the aquifer or run back downhill, toward the creek.

To battle this inevitable gravitational pull, the DOE has built a berm to separate the excavation work from the rest of the site. The interim action also calls for a channel to be constructed to reroute stormwater away from the roadside ditch that drains into the creek. In 1985, the DOE constructed a gabion wall — rocks secured by a wire basket — to hold the bank from sliding into the creek. It is a porous structure that by design allows water to percolate through. Whereas the effectiveness of these measures is subject to debate, there is no argument that radioactive sediments can still move downward into the aquifer and flow northwest under McDonnell Boulevard, thereby entering the creek unimpeded.

The hydrogeological study from last year warned about this possibility. "Groundwater monitoring has shown the migration of radionuclides in the direction of groundwater flow across McDonnell Boulevard and under the formerly used ball fields property to the north," according to the study. "This factor raises concern over potential shallow discharge of radionuclides to Coldwater Creek to the west and north and potential vertical migration to the lower aquifer system."

Three thousand people live within a one-mile radius of the airport site, according to DOE estimates. From the airport, Coldwater Creek flows northeast for 15 miles, touching the communities of Berkeley, Hazelwood, Florissant and Black Jack before discharging into the Missouri River. The city of St. Louis drinking-water intakes at Chain of Rocks, which supply water to hundreds of thousands of people, are five miles downstream from where the Missouri joins the Mississippi.

By any standard it is a densely populated watershed. DOE guidelines for thorium and radium concentrations mandate they not exceed 5 picocuries per gram averaged over the first 15 centimeters of soil and 15 picocuries per gram in subsequent soil layers of the same thickness. Analysis conducted for DOE in 1985 indicates that soil next to Coldwater Creek is contaminated with as much as 14,000 picocuries of thorium-230 per gram. The naturally occurring background level for the same radioactive isotope amounts to 0.2 picocuries per gram.

The corresponding guideline for acceptable DOE levels of uranium-238, which is also found at the airport site, is 50 picocuries per gram. In 1981, DOE initiated a two-year groundwater-monitoring program at the site and discovered uranium-238 at concentrations up to 2,230 picocuries per gram. Other evidence shows radioactive waste is spread across the site at levels thousands of times greater than considered acceptable.

A curie is the amount of radiation emitted from one gram of radium, equal to 37 billion decays per second. A picocurie equals a trillionth of a curie. Curies are used to measure the amount of material present; they don't indicate the amount of radiation given off or its biological hazards.

Such DOE standards ignore potential health consequences, according to a 1991 congressional study. "The present regulatory-driven approach ... places far more emphasis on characterizing the contamination than on investigating health impacts and may prove ill-suited to identifying public health concerns, evaluating contamination scenarios according to their potential for adverse health effects, or establishing health-based clean-up priorities," the Office of Technology Assessment report states.

(2)

Riverfront Times
12/3/97

(7)

JOHN W. GOFMAN, a professor emeritus of medical physics at the University of California at Berkeley, has long contended that there is no safe level of radiation exposure. "I concluded it's impossible for such a level to exist given the evidence on how radiation works," says Gofman. The term "low-level radiation" is a political term used by the nuclear industry to lull the public into accepting exposure risks, he says. Similar phrases also downplay the consequences. "The terms 'tolerance level,' 'allowable level,' 'permissible dose' — those are all phenomenal words that are supposed to tell Joe Six-Pack, 'Nothing to worry about — there ain't no harm.' That's why these terms came into existence," he asserts.

The 79-year-old Gofman is in a unique position to advise on such matters because he is a physician and holds a doctorate in nuclear physical chemistry. His research at Berkeley during World War II attracted the attention of J. Robert Oppenheimer, lead scientist in the Manhattan Project. After working on the atomic bomb at Oppenheimer's request, Gofman completed his medical studies. But in 1969, Gofman fell from grace with the atomic establishment when he challenged the "acceptable" levels of radiation exposure then allowed.

After being ostracized by the atomic establishment for years, Gofman's scientific opinions have been widely accepted of late. In 1990, for instance, after years of debate by U.S. scientists, a report by the fifth conference on the Biological Effects of Ionizing Radiation (BEIR V) concluded that radiation effects are proportional to dose in all cases. More recently, says Gofman, "The United Nations Scientific Committee on the Effects of Atomic Radiation said that the weight of evidence comes down on the side of no safe level. And the British National Radiological Protection Board in 1995 published a document in which they have now said that there can be no safe dose."

Studies such as these lead Drey, the environmentalist, to question the logic of allowing further radioactive contamination to flow into Coldwater Creek. "Dilution is not the solution to pollution in reality or legally," says Drey. "When you are dealing with materials that will continue to give off radioactive particles forever into the future, literally billions of years, you have to be very careful with this stuff."

THIS IS NOT THE FIRST TIME Drey has opposed a DOE project. In 1993, she battled the department's plans to clean up radioactive waste at nearby Weldon Spring in St. Charles County ("Rushing Water," *RFT*, Jan. 6, 1993). Her vigilance then temporarily delayed that project, after she exposed the fact that the DOE was going ahead before receiving critical EPA test results.

Stephen H. McCracken, who headed the Weldon Spring cleanup, took over as St. Louis airport-site manager for the DOE earlier this year. Although the circumstances and nature of the radioactive waste may be different at the airport site, McCracken's job switch hasn't seemed to have affected his ability to circumvent government guidelines. If anything, the DOE official's evasive end-runs appear to have improved over time.

Pryor, of the Coalition for the Environment, recalls that the decision was railroaded past the citizens oversight committee on which he sits. "We had hardly seen this darn thing," says Pryor of the recommendation to proceed with work along the creek. "When we asked McCracken in September, he admitted it was just a guess," says Pryor, referring to the point at which the DOE decided to begin excavating. The measure squeaked past the committee on a 4-3 vote. "We thought it was silly to go forward without the geological study," says Pryor.

On Sept. 18, the day Drey resigned, McCracken signed a memorandum, which was immediately filed away. The memo cites an emergency clause that allowed him to waive the DOE's standard 15-day public-review period for such actions. Sept. 18 also just happened to be the day DOE issued its "Flood-

continued on next page

SLAPS

continued from previous page

plain Statement of Findings" in the *Federal Register*. The purpose of the posting was to notify individuals and other government agencies of the pending action at the airport site so they could scrutinize the plan in advance. The notice clearly states: "DOE will endeavor to allow 15 days of public review after publication of the statement of findings before implementation of the proposed action."

Four days later, on Sept. 22, work began at the St. Louis airport site.

Every conceivable government agency — local, state and federal — was left out of the loop. Even the DOE official who has oversight into such matters said he was unaware the emergency clause had been invoked. "I suppose you'd have to ask Steve McCracken about that," drawled James L. Elmore, a National Environmental Policy Act (NEPA) compliance officer for the DOE in Oak Ridge, Tenn. "I don't have anything to do with that. You'd really have to ask him exactly what his total thought process was." Despite his ignorance, Elmore's name appears on the bottom line of the Sept. 18 *Federal Register* notice.

The *RFT* could not initially reach McCracken to explore his "thought process," because, according to the secretary at the DOE site office, he was elk hunting in Colorado. After returning from his expedition, the DOE manager still did not return repeated calls placed to his office for a week. In his Sept. 18 waiver memo, however, McCracken wrote he had expedited the cleanup out of concern that autumn rainfall would make excavating near the creek more difficult. Come hell or high water, McCracken is expected to continue working at the site, at least during the transition period.

The airport site is on the Superfund's NPL list, according to Dan Wall at the EPA regional headquarters in Kansas City. Because of its priority status, the agency is obliged to oversee the cleanup, he says. But it appears the contractors are more in control of the project than anybody else.

Calls placed to the DOE's site office in St. Louis are answered by the cheerful voice of Edna, a secretary who works for Bechtel National Inc., one of the DOE's prime cleanup contractors. She takes messages for McCracken and his assistant. In this case, she took messages for nearly two weeks, and for nearly two weeks the calls went unreturned. Finally, representatives for the DOE's two prime contractors called back.

A secretary for a private company answers the phone at a government office, two corporate managers act as the mouthpieces for a government project, and the government official who is supposed to be in charge is elk hunting. This gives the appearance that the tail is wagging the dog. That may soon change under the new leadership of the corps. "The corps and the DOE operate somewhat differently," says Leake. "The DOE will put very few people on a particular program and rely heavily on large national contractors to do a lot of the things that the Corps of Engineers try to do internally."



"The terms 'tolerance level,' 'allowable level,' 'permissible dose' — those are all phenomenal words that are supposed to tell Joe Six-Pack, 'Nothing to worry about — there ain't no harm.'"
— John W. Gofman

The change in management styles will affect all of FUSRAP, which originated in 1974 under the AEC, the predecessor of the DOE. AEC established FUSRAP to deal with radioactive waste produced as a byproduct of nuclear-weapons-production. Of the 46 FUSRAP sites across the country, 25 have been cleaned up, according to the DOE. Four remaining radioactive hotbeds are in the St. Louis area, with the airport site the largest.

In St. Louis and elsewhere, the DOE has relied on the expertise of Bechtel and Science Applications International Corp. to carry out its mission.

Wayne Johnson, the deputy project manager for Bechtel in St. Louis, is certain the cleanup next to Coldwater Creek is being carried out safely. "These measures have been monitored by the Missouri Department of Natural Resources, which has had representatives on the site routinely to look at our operations to make sure that we are not affecting the creek. In addition to that, St. Louis County, which has advised us on our plans for the work, has been out to the site," says Johnson. "So we feel confident, and we are more than halfway done. We have not had any problems or affected the creek in any way."

Ric Cavanagh of the St. Louis County Health Department, who chairs the citizens oversight commission, agrees with Johnson's assessment. "I'm not a lawyer, but it is my understanding that they (the DOE) did make use of a provision in the rules to move forward. The majority of the oversight committee voted in favor of proceeding with the work," says Cavanaugh. "We are purely advisory. We couldn't have stopped it if we wanted to. The groundwater levels were very low at the time, and this was a very good time to get things going. (St. Louis County's) goal was to get excavation begun and to get work begun at that site. So we were pleased to have it go from that standpoint."

The oversight committee currently has 11 members — five from the city of St. Louis and six from St. Louis County. One seat remains vacant at this time. The board replaces an advisory task force that disbanded last year.

AT ONE TIME, workers toiled night and day to dump the radioactive waste at the airport site. The open pile rose to 20 feet above ground level, according to one DOE document. Altogether the accumulated waste at the site and elsewhere nearby is estimated to have once ranged from 283,700 to 474,000 cubic yards, according to the DOE. In additional to open dumping, Mallinckrodt workers were required to hand-pack waste in 30- or 55-gallon drums. The drums were then stacked on top of each other at the airport site. The barrels then began to leak.

In the process of storing the waste, haul routes and adjacent properties became contaminated. Then in 1966, the AEC sold most of the residues to Continental Mining and Milling Co, which promptly transported the waste to 9200 Latty Ave. in Hazelwood and then went bankrupt. The movement resulted in the contamination of more properties. Cotter Corp., a subsidiary of Commonwealth Edison, subsequently acquired the materials, with an eye toward reclaiming some of the minerals. The bulk of it ended up in Canon City, Colo., but not before one of Cotter's subcontractors dumped thousands of tons of the waste in the West Lake landfill off Old St. Charles Rock Road in North St. Louis County.

More than 50 years after it started, the uranium-processing operation conducted at Mallinckrodt in St. Louis has forced almost $800 million in reparations on U.S. taxpayers — the cost of cleaning up the radioactive vestiges of World War II and the arms race that followed. To the victors go the spoils. It is a small part of the environmental damage wrought by the federal government and the nuclear-weapons industry over the last half-century — damage estimated to cost $200 billion to correct. What can never be measured are the lives cut short because of radiation exposure. Men have been tried for war crimes that did far less. ■

WASTE WATCHER

Kay Drey's quest began with a letter she received from Sister Mary Ann McGivern in the fall of 1978. The Catholic nun and social activist asked her to find out more about a radioactive-waste dump near Lambert Field, which McGivern had learned of through a casual conversation with a scientist during an airline flight.

"So I started looking into it and asking questions," says Drey. She never stopped.

Over the next two decades, Drey, the region's anti-nuke matriarch, attended countless public forums, where her polite but incessant badgering of bureaucrats became the stuff of legend. When her hand wasn't raised in question, Drey, a tall woman with steel-gray hair, could often be seen in the audience, jotting notes. In her spare time, she began scouring scientific journals, fitting bits and pieces of data into a coherent understanding of the overwhelming problem of radioactive waste.



Kay Drey

Drey, now 64 years old, recently turned over much of her wealth of research on the subject to Western Historical Manuscript Collection at the University of Missouri. By no small coincidence, her parting with the files coincided with her growing sense of frustration. Although her persistent determination helped forge the current plan to finally dispose of the nuclear waste near the St. Louis airport, Drey now believes the project is being conducted unsafely.

On Sept. 18, she resigned from a citizens oversight board that advised on the airport cleanup. Drey had contemplated resigning before but always believed her involvement outweighed any qualms. But her attempts at compromise are now over. In her resignation letter to County Executive George "Buzz" Westfall, Drey concluded: "I do not want to be associated in any way with this project."

Drey believes the digging, as it is being carried out, risks exposure of ground and surface water to radioactive isotopes. On Aug. 28, she responded to the U.S. Department of Energy (DOE) plan with an eight-page critique. It was peppered with references to technical data she has collected over the years: "It seems unconscionable to send a dozer or back-hoe in to attack a highly-contaminated creek bank," she wrote. Nevertheless, the agency refused to consider any of her recommendations.

Drey is also concerned about how the DOE and now the Army Corps of Engineers has moved forward, before a panel of hydrologists and geologists had published their study of groundwater at the site. In addition, she believes the health of workers at the site, as well as of nearby residents, may be jeopardized because of a lack of safeguards to minimize air emissions caused by disturbance of the contaminated soils. As a precaution, she suggested pitching a tent around the excavation site to reduce the chance of radioactive particles becoming airborne. She also recommended that workers be equipped with respirators. To eliminate further ground- and surface-water contamination, Drey favored an available technology that prevents soil migration by freezing the surrounding area before excavation.

The cleanup of the St. Louis area's radioactive waste will almost certainly extend into the next millennium. And it now appears that it will transpire without Drey's vigilance. She says she would rather dedicate her time to stopping the generation of new radioactive waste at more than 100 currently operating nuclear-power plants in the United States.

In 1978, when McGivern first informed Drey of the problem, few people even knew about the radioactive waste. On discovering the airport site, the nun wrote: "It is unmarked, unfenced.... Sunflowers bloom galore. But there are no crickets or other animal noises." In the last paragraph of the letter, McGivern implored Drey to help. "Since I stumbled on the data," she wrote, "I feel a responsibility for following up. But I just don't have the time. If you can't do anything please send the stuff back to me. If you do some work, please let me know so I can rest easy."

— *C.D. Stelzer*

ST. LOUIS COUNTY

Work advances on toxic cleanup

The Army Corps of Engineers says it has completed the first phase of removing radioactive material from a fenced-in field near Lambert Field.

The cleanup consisted of removing about 6,000 cubic yards of low-level contaminated material and backfilling the area with clay.

The area is near Coldwater Creek, which previously had been contaminated by the waste. The corps said the project was being conducted to prevent additional contamination of the creek.

The Department of Energy designed the project and began the cleanup in late September, but the federal government then turned the work over to the corps.

The field is one of several sites in St. Louis that were contaminated when the old Mallinckrodt Chemical Works processed uranium for the first atomic bombs and during the Cold War years that followed.

POST-DISPATCH

12/17/97

Corps completes first-phase of radioactive cleanup

The U.S. Army Corps of Engineers has completed the first phase of a plan to clean radioactive material from a site near Lambert Airport.

Now the Corps is analyzing the remainder of the U.S. Department of Energy's plans for cleanup of both the airport site and others in the area, said Lou Dell'Orco, the Corps assistant project manager.

The report on the economic feasibility of the DOE's remediation plan will be presented to Congress in January, Dell'Orco said.

The Corps assumed responsibility for the cleanup from the DOE in October. The DOE began the first phase of cleanup in September.

The contamination resulted from the processing of materials such as uranium used in the United States' early nuclear weapons program.

During the first phase of the cleanup project, about 6,000 cubic yards of low-level contaminated material was removed from the 22-acre airport site. The Corps then filled the excavated area with clay.

No further work will be done on the site until late summer, Dell'Orco said. However, excavation of some ditches along McDonnell Boulevard will resume in the spring, he said.

• Barbara Ponder

North County Journal, December 24 1997

July 21, 1997 - St. Louis Post-Dispatch



Wayne Crosslin/Post-Dispatch

Steve McCracken at a radioactive waste site northeast of Lambert Airport. He is overseeing the cleanup of St. Louis area sites, which are the byproducts of the making of atomic bombs.

On Site: Nuclear Waste Cleanup Progressing

By Tom Uhlenbrock
Of the Post-Dispatch Staff

THE MAN WHO HAS TAKEN over the job of cleaning up the St. Louis area's radioactive waste sites wants work on the 50-year-old problem to begin this fall. He thinks he can finish it in five years.

Steve McCracken directed the Department of Energy's $800 million cleanup of the old Weldon Spring uranium processing plant in St. Charles County. He recently moved his office to a trailer in Hazelwood.

That's the headquarters for cleaning up thousands of tons of radioactive waste left from the making of the original atomic bombs — and the Cold War weapons that followed.

The designation of a full-time, on-site manager is the first sign of progress toward a pledge the government made last December to get the project moving. It was being managed out of the Energy Department's offices in Oak Ridge, Tenn.

McCracken also said that he would request this year's budget of $23 million for the cleanup be doubled next year. The final cost may be as high as $600 million.

In a recent interview, McCracken said he wants excavation of the largest contaminated site — a 21-acre field

See CLEANUP, Page 2

FUSRAP -St. Louis Site, MO *St. Louis Post-Dispatch* 7/21/97
Continued on next page

Cleanup

From page one

north of Lambert Field — to begin this fall. And he wants the entire project completed by 2002 — 2004 at the latest.

McCracken said the St. Louis project was similar to what he found at Weldon Spring when he arrived in 1986. That project is now in its final stages.

"We did not have a decision on how to do the work," he said. "And we had a fairly poor relationship with the Environmental Protection Agency, the state and the public."

At Weldon Spring, McCracken got work started, even before a final decision had been made on what to do with radioactive debris. The public took note of the progress and ultimately agreed to allow construction of an on-site disposal cell to hold the waste.

The St. Louis sites total roughly the same amount of waste as Weldon Spring — about a million cubic yards, enough to fill Busch Stadium. Initial plans were to build a disposal cell near Lambert, but President Bill Clinton's administration bowed to public pressure and agreed to move the waste out of state.

But McCracken faces another controversy: How clean is clean?

The radioactive waste was the result of uranium processing at the Mallinckrodt Chemical Works complex north of the downtown business district. The waste was hauled to the field near the airport. Some waste also was moved years later to a site a half-mile away, on Latty Avenue, in an ill-fated commercial attempt to recover valuable metals. Waste spilled while being hauled, contaminating roads and ditches.

The Energy Department has work under way to clean the roads and ditches and nearby business and residential properties to an "unrestricted" level, meaning the sites would be free for future use as homes.

Mallinckrodt is being cleaned to a lesser "restricted" level, meaning that future use would be limited to parking lots or industrial buildings.

The controversy is over the airport site.

A task force that studied the St. Louis sites recommended that the airport field be cleaned to an unrestricted level. The Energy Department has agreed that two nearby contaminated areas — Coldwater Creek and the old Berkeley ballfields — should get an unrestricted cleaning.

But the department believes that cleaning the airport site to the higher level may be too expensive. That would require hauling perhaps twice as much contaminated material to a commercial landfill in Utah.

"The question becomes: Is it feasible from a cost standpoint?" McCracken said.

"I know I'm going to clean up a lot of material out there, and I want to get started doing that," he added. "We can be doing a lot of work while we come to agreement on a cleanup standard."

Kay Drey, an anti-nuclear activist who was a member of the task force, has pushed for years for the cleanup to start. Now she finds herself urging a cautionary approach.

"These wastes started to be dumped out here in 1946, so the cleanup should be done properly and carefully," she said. "Sure we want things moving fast, but only if it can be done safely and permanently."

'Alternate 3' For Radioactive Disposal Gaining Support

By Sterling Levy
Special to the Post-Dispatch

A decision on the Department of Energy's plan to clean the St. Louis airport site where radioactive waste has been stored since 1946 is expected this fall. Department officials have joined state and area representatives in favoring a plan known as Alternate 3.

Although the department's intent to act after many years is welcomed by some officials and residents, the most staunch advocates still question the effect the disposal methods will have on environmental safety. They want more research and testing.

Up to 850,000 cubic yards of radioactive waste material — enough to fill Busch Stadium — was generated at Mallinckrodt Chemical Works for uranium processing in the manufacture of atomic weapons.

See WASTE, Page 2

ST. LOUIS POST-DISPATCH MONDAY, AUGUST 18, 1997

Waste

From page one

The waste was stored at Mallinckrodt or in various sites in north St. Louis County.

The airport site is in an unincorporated 22-acre area bordered by McDonnell Boulevard, Banshee Road and Coldwater Creek. Its proximity to the creek has prompted concern.

Only this year has the department assigned a full-time, on-site manager and staff to the project, and only in recent years did the department indicate that out-of-state storage rather than area disposal will be the ultimate course of action.

About 80 residents and officials attended a hearing last week at Hazelwood Civic Center. Exhibits, photographs and charts were used in an hourlong session, with questions and comments following.

The project has faced financing restraints, and officials admit that cost is a major factor. Total cleaning is considered impractical, but the relative amount of work for the cost and the public satisfaction that follows are points of contention.

Project manager Steve McCracken has estimated that the cost of cleaning the entire area may be more than $500 million the next several years.

At $8.3 million, Alternate 3 is slightly more expensive than the other plans. It would ship away all material that exceeds a certain contamination guideline. It would include the removal of more moderately contaminated soil than in Alternate 2, but would not include removal of contaminated sediments in a ditch north of McDonnell Boulevard, as is included in Alternate 2.

In addition, Alternate 2 includes temporary stockpiling of moderately contaminated soil on the site until further plans are developed and financed. Alternate 2 is estimated to cost $8.1 million. Alternate 1 would be to take no action.

Alternate 3 has been endorsed by the Missouri Department of Natural Resources and a committee of residents of St. Louis and St. Louis County. Only a few dissenting opinions were heard at the meeting.

Kay Drey, longtime antinuclear activist, said that she had reservations about the potential impact the plan would have on increasing contamination in Coldwater Creek and asked for more testing before either alternate is begun.

"No one drinks from Coldwater Creek, but it goes to the Missouri River, where St. Louis city gets its drinking water," Drey said. "We have that concern, plus the impact of sediment reaching the air as dust and producing radon gases." She recommended alternate removal technology that better addresses the effects of such pollution.

McCracken did not answer Drey directly but said later: "We're not going to jeopardize the health and safety of any residents, but we feel that the project should not be delayed for further testing. We need to get going. We can test as we go along."

Jean Dean of Ferguson has followed the issue closely for a few years. Like most in the audience, she watched the session but did not comment.

"Some people may be overstressing the potential problems, but they want to learn all about this," Dean said later. "We in the area want to be sure we're adequately protected."

Clean-up of waste takes another step

By Barbara Ponder
Staff writer

Kay Drey lives in University City but has spent much of her time for the last 19 years championing the cleanup of radioactive waste in North County.

It has been a slow process, consisting of many tiny steps. The next of those steps will come shortly, when the U.S. Energy Department chooses the method to do preliminary work necessary to clean the St. Louis Airport Storage Site (SLAPS) and Coldwater Creek.

A public meeting will be held Aug. 13 on the federal government's preliminary plan to remove radioactive dirt from 21 acres near Lambert Airport. It was used as a dumping site for both waste during the development of the atomic bomb in World War II and research during the Cold War. The hearing will be from 7 to 9:30 p.m. at the Hazelwood Civic Center, 8969 Dunn Road.

"I'm delighted that it's the Department of Energy's intent to get going," said Drey, a member of the Missouri Coalition for the Environment. "I am also delighted we have our own full-time director, Steve McCracken.

"At the same time, I don't want them to shovel load number one until we're sure Coldwater Creek and that groundwater that flows into Coldwater Creek and the air and the workers are protected."

In July the DOE published an Engineering Evalua-

See WASTE, Page 4A

Public hearing set for Wednesday

A public meeting on the radiocative soil Energy Public Information Center, 9170 Latty clean-up plan will be held from 7 to 9:30 p.m. Ave., Berkeley, Mo. 63134; 81 Aug. 13 at the Hazelwood Civic Center, 8969 Copies of the plan are available at St. Louis Dunn Road. County Library Prairie Commons branch, 915 Written public comments also will be accept- Utz Lane. Copies of the report may also be ed through Aug. 28. Comments should be addressed to Steve required by calling the information center at McCracken, Site Manager, U.S. Department of 524-4083.

North County Journal 08/10/97

Waste

North County Journal
08/10/97

Continued from Page 1A

tion/Cost Analysis (EE/CA) of alternatives for the preliminary work at those sites.

Two alternatives consist of removing the radioactively contaminated soil and disposing it somewhere else, but they differ in the amounts removed.

"It's extremely important for people to attend this meeting even if they don't want to speak," Drey said. "It's very important for live bodies to be there to show that people care."

This phase of clean-up is just "to get us set up for excavation," McCracken said.

Once actual excavation of large areas begins, controlling rain and ground water will become a major factor.

"We have to prepare ourselves for that so contaminated water doesn't discharge into Coldwater Creek," McCracken said. "In the business we're in, one of the more important things is to adequately manage water. After all we're working on the outside."

Runoff will be captured, checked for contamination then either discharged or treated.

Plans call for an old railroad spur to be reinstalled at SLAPS and a materials staging area constructed with appropriate water runoff controls.

McCracken said the facility would be used for disposal of SLAPS soil only. No other hazardous waste would be loaded at the site.

Workers will wear outerwear made from Tyvec, a tough, white material. The material also is used to make large envelopes. The air the workers breathe will be monitored.

Water will be used to moisten soil so it doesn't become part of the air.

> ***"It's extremely important for workers to attend this meeting even if they don't want to speak. It's very important for live bodies to be there to show that people care."***
>
> **Kay Drey**
> Missouri Coalition for the Environment

The U.S. Department of Energy invites interested citizens to a public meeting for the Engineering Evaluation/Cost Analysis (EE/CA) for the removal of contamination at the St. Louis Airport Site (SLAPS)

The U.S. Department of Energy (DOE) will hold a public meeting on Wednesday, August 13, 1997 to receive public comment on an Engineering Evaluation/Cost Analysis (EE/CA) for the removal of radioactive material at the St. Louis Airport Site (SLAPS) in St. Louis, Missouri. This action grew out of interactions DOE has had with stakeholders over the past several months to develop consensus about cleanup solutions and future actions for accelerating cleanup at the St. Louis Site. The proposed interim action is designed to achieve three principle goals:

- **to accelerate work at the St. Louis Airport Site;**
- **to provide a clean buffer zone adjacent to Coldwater Creek; and**
- **to protect Coldwater Creek by further controlling surface water migration of contamination to the creek.**

The public meeting is an opportunity for residents living in the community, as well as other interested parties, to participate and comment on proposed and ongoing activities. A poster board session pertaining to all site activities will be held from 7:00 p.m. - 8:00 p.m. The formal presentation will begin promptly at 8:00 p.m. followed by an opportunity to make statements or ask questions. The meeting will be held at:

Hazelwood Civic Center - East
8969 Dunn Road
Hazelwood, MO 63042
7:00 p.m. - 9:30 p.m.

Anyone wishing to have a written response must submit question(s) in writing during the meeting or during the 30 day comment period, now through August 28, 1997.

For more information, contact the DOE St. Louis Site Office at (314) 524 -4083.

FUSRAP - SLAPS Site , St. Louis, MO *St. Louis Post-Dispatch* 8/11/97

North County Journal Wednesday, August, 20, 1997
NEWS

Decisions expected on cleanup of dirt

By Barbara Ponder
Staff writer

The Department of Energy (DOE) is expected to announce in September which of two alternatives will be implemented to clean up radioactive dirt from 21 acres near Lambert Airport.

About the same time, lawmakers on Capital Hill will be debating whether to transfer authority for the cleanup of all formerly used sites, including the St. Louis site, to the Army Corps of Engineers.

Republican Rep. Joseph McDade of Pennsylvania, chairman of the House Appropriations Subcommittee on Energy and Water, included the provision in the energy and water appropriations bill.

Rep. Jim Talent supports the bill because it would nearly double funding for the cleanup projects nationwide. However, he initially was concerned about the provision's impact upon St. Louis, said Kristin Young of Talent's office.

Young said Talent received assurances during July discussions that if the transfer took place, the Army Corps of Engineers would: proceed with preliminary cleanup work before the issuance of a record of decision; honor existing contracts; accept current site recommendations and studies; target 2004 for completion; and administer the cleanup locally.

Sally Price of Florissant chaired a task force that developed recommendations for cleanup of the formerly utilized sites in St. Louis county and city. Price said she was unsure whether transfering the project to the Corps would be a good move.

However, Price is pleased the bill appropriates $111 million for cleanup of such sites nationwide.

Approximately 65 people attended a public hearing Wednesday concerning cleanup alternatives for the airport site. The area was used a dumping ground from both waste during the development of the atomic bomb in World War II and research during the Cold War.

The two alternatives consist of removing the radioactively contaminated soil and disposing it somewhere else, but they differ in the amounts removed. The alternative that removes the most soil would require some stockpiling of dirt with low levels of contamination.

One alternative would cost $8.1 million and the other, $8.3 million.

During the meeting, officials from St. Louis County, St. Louis city and the Department of Natural Resources expressed support of the $8.1 million alternative, which requires no stockpiling.



Rocky Freese photo

Workers excavate hazardous material along Hazelwood Avenue. For safety, the workers are wearing protective pants over their clothes. Additional protective gear is not required to maintain the safety standard for the ditch excavation.

Activist Is Quitting Cleanup Committee

By Theresa Tighe
Of the Post-Dispatch Staff

Environmental activist Kay Drey says she will resign today from the committee overseeing the cleanup of radioactive waste at several sites in St. Louis and St. Louis County.

Drey, of University City, said she was quitting because she is concerned that U.S. Department of Energy contractors on Monday will begin digging up radioactively contaminated soil within 5 feet of Coldwater Creek, just north of Lambert Field. The creek runs through heavily populated North County to the Missouri River.

Drey wanted to wait for groundwater studies or to install pipes to freeze the soil into a barrier to keep contaminated ground water and soil from getting into the creek.

Steve McCracken, the Energy Department official overseeing the cleanup, said the soil freezing technology was an unnecessary. Contractors will stop digging if they hit ground water, he said.

At a committee meeting Wednesday, three members — including Drey — voted "no" on the Energy Department plans, while four members and the chairman supported those plans.

Drey, who began the public crusade to get the waste cleaned up 19 years ago, said she will continue to monitor the shipment of nuclear waste through St. Louis.

McCracken said, "It's unfortunate she has chosen to resign, she has brought a lot to the work over the years."

Congress Plans To Switch Agency In Charge Of Waste Cleanup Here

By Kristen Ostendorf
Post Dispatch Washington Bureau

WASHINGTON – Congress is about to transfer responsibility for cleaning up a mountain of radioactive waste in the St. Louis area from the Energy Department to the Corps of Engineers.

A House-Senate conference committee approved the change last week, just as the Energy Department began preparations to remove the waste. Although the action will not become final until ratified by both houses, agreement in conference is usually tantamount to passage.

Several area officials were concerned by the action. They noted it took nine years of negotiations with the Department of Energy to agree to the cleanup, which could cost $600 million.

Not only might there be a further delay for the cleanup, but also surrounding may be in jeopardy, said Richard Cavanagh, chairman of the St. Louis oversight committee for the cleanup.

Jan Brown, a lobbyist in Washington for St. Louis and Lambert Field, said, "I'm assuming that we're reinventing the wheel."

The 900,000 cubic yards of contaminated earth is left over from the development of the first atomic bombs during World War II. Heaped up, the earth would be about a fourth the size of the Great Pyramid of Egypt.

In the St. Louis area, three large sites would be affected; those next to the airport, a site north of downtown and a site in north St. Louis County.

Steve McCracken, site manager for the cleanup, said he was surprised at the switch but intended to continue the work during the transition.

Under the Energy Department's schedule, the cleanup would be completed sometime around 2002 to 2004.

Sen. Pete Domenici, R-N.M., pushed to make the switch to the Corps of Engineers. He told the conference committee that the Energy Department's program has been a low priority and that the cleanups were taking too long.

Missouri's senators, Christopher S. Bond and John Ashcroft, both Republicans, asked the conference committee to keep the cleanup program under the Energy Department.

But Bond said Thursday that he would work with the new situation rather than pick a fight on the Senate floor. Bond said corps officials had assured him "the corps will work with the community and all of the stakeholders to ensure a smooth transition of the program."

On Monday, the Energy Department started work on removing about 5,000 cubic yards of contaminated soil from the 22 acre site near Lambert Field. The area is being cleared to create a buffer zone between the rest of the contamination and Coldwater Creek, which runs along the edge of the site.

MARYLAND HEIGHTS • BRIDGETON W-1
SUNDAY, SEPTEMBER 28, 1997 FIFTY CENTS

Radioactive cleanup

DOE begins project but likely will lose responsibility

By Barbara Ponder
Staff writer

North County and Washington, D.C., seem worlds apart, but those worlds seemed headed on a collision course last week.

In unincorporated North County, the Department of Energy (DOE) began the first phase of its plan to remove radioactive material from the 22-acre airport site.

In Washington, D.C., discussions continued over whether to transfer authority for such cleanup efforts from the DOE to the U.S. Army Corps of Engineers.

Richard Cavanagh, St. Louis County's director of health administration, heads a 12-person committee overseeing the DOE's cleanup efforts. The committee consists of representatives from environmental groups and St. Louis county and city.

Cavanagh believes the transfer is nearly a done deal.

"We're concerned it could cause a delay in implementing current and future plans for the cleanup," Cavanagh said. "The Corps is very capable but they're going to be starting at square one."

Kristin Young from the office of U.S. Rep. Jim Talent, R-2nd Dist., expects confirmation of the transfer early next week.

"We've been hustling to ensure the site keeps moving forward . . . ," Young said. "We've received assurances from the Corps that they're going to make sure it doesn't affect the cleanup adversely."

Young said the Corps has a good track record in conducting such remediation projects in cooperation with the community.

However, Talent's office has not received a commitment the Corps will direct the cleanup from its St. Louis office and not from another location, Young said.

The airport site, situated adjacent to McDonnell Boulevard, is one of several sites in North County and St. Louis city contaminated with waste remaining from the development of the atomic bomb in World War II and research during the Cold War.

The first phase of the project to clean up the 22-acre site entails removing contaminated material, such as dirt, to an

See CLEANUP, Page 2A

Public forum set for Wednesday

A public forum on new technologies available for the cleanup of radioactive materials from the St. Louis airport site will be held from 7 until 9:30 p.m. Wednesday at the 24th floor of the St. Louis World Trade Center, 121 South Meramec.

During the forum, the public may view the technologies and/or processes that could be used to reduce the cost, waste volume and risk in the cleanup project.

The vendors' display session will be from 4:30 to 7 p.m. followed by the forum during which vendors will present an overview of their products and answer questions from the public.

Cleanup

Continued from Page 1A

out-of-state disposal site.

Steve McCracken, the DOE's site manager, said the DOE would support the Corps during the transfer, if enacted.

"It (the cleanup) will continue to get done," McCracken said. "I think the momentum is there. The community is still going to be behind the work and they'll keep it moving."

Not everyone was happy to see the cleanup begin last week.

"I think they're rushing into this project and digging at the most vulnerable part of this 22-acre site, near Coldwater Creek Water," said Kay Drey, a member of the Missouri Coalition for the Environment. "They're going to be digging five feet from the creek. It's not very far and every bit of dirt is contaminated."

"Our view on beginning where we are is because it gives us a wider, cleaner buffer zone between the creek and the rest of the area to be excavated," McCracken said.

Drey, of University City, resigned from the oversight committee Sept. 18, citing concerns about the project.

Drey said the DOE should have explored new technologies, such as a frozen soil barrier to protect the creek during excavation, before beginning the project.

The DOE is considering the use of new technologies. A public meeting displaying some of that technology is planned for Wednesday. (See box for details.)

Cavanagh stands by the oversight committee's approval of phase one, which will remove 5,000 cubic yards of soil or about the same amount as would be dug out to build six home foundations. Phase 1 will be completed in about five weeks.

A dry summer and extremely low groundwater levels make it an ideal time to begin the project, Cavanagh said.

"As a resident who lives along Coldwater Creek, I am quite concerned with whether I think it will save the creek from further contamination," Cavanagh said. "By doing this there will be more soil out."

Public forum set for Wednesday

A public forum on new technologies available for the clean-up of radioactive materials from the St. Louis airport site will be held from 7:30 to 9:30 p.m. Wednesday on the 10th floor of the St. Louis World Trade Center, 121 South Meramec.

During the forum, the public may view the technologies and/or processes that could be used to reduce the cost, waste volume and risk in the cleanup project.

The vendor display session will be from 5 to 7 p.m., followed by the forum, during which vendors will present an overview of their products and answer questions from the public.

Department of Energy

CLEANUP: The Department of Energy Monday began the first phase of cleanup of radioactive waste at the St. Louis Site. Completion of the phase is expected to last about six weeks.

An oversight committee, comprised of representatives from St. Louis County and surrounding municipalities, as well as environmental and business interests, last week voted in favor of beginning the cleanup.

The committee now will develop a long-range plan for remediation of all formerly utilized sites in the St. Louis area. Complete remediation is expected to take several years.

Congress Plans To Switch Agency In Charge Of Waste Cleanup Here

By Kristen Ostendorf
Post-Dispatch Washington Bureau

WASHINGTON — Congress is about to transfer responsibility for cleaning up a mountain of radioactive waste in the St. Louis area from the Energy Department to the Corps of Engineers.

A House-Senate conference committee approved the change last week, just as the Energy Department began preparations to remove the waste. Although the action will not become final until ratified by both houses, agreement in conference is usually tantamount to passage.

Several area officials were concerned by the action. They noted it took nine years of negotiations with the Department of Energy to agree to the cleanup, which could cost $600 million.

Not only might there be a further delay for the cleanup, but also future funding may be in jeopardy, said Richard Cavanagh, chairman of the St. Louis oversight committee for the cleanup.

Jim Brown, a lobbyist in Washington for St. Louis and Lambert Field, said, "I'm assuming that we're reinventing the wheel."

The 900,000 cubic yards of contaminated earth is left over from the development of the first atomic bombs during World War II. Heaped up, the earth would be about a fourth the size of the Great Pyramid of Egypt.

In the St. Louis area, three large sites would be affected: those next to the airport, a site north of downtown and a site in north St. Louis County.

Steve McCracken, site manager for the cleanup, said he was surprised at the switch but intended to continue the work during the transition.

Under the Energy Department's schedule, the cleanup would be completed sometime around 2002 to 2004.

Sen. Pete Domenici, R-N.M., pushed to make the switch to the Corps of Engineers. He told the conference committee that the Energy Department's program has been a low priority and that the cleanups were taking too long.

Missouri's senators, Christopher S. Bond and John Ashcroft, both Republicans, asked the conference committee to keep the cleanup program under the Energy Department.

But Bond said Thursday that he would work with the new situation rather than pick a fight on the Senate floor. Bond said corps officials had assured him "the corps will work with the community and all of the stakeholders to ensure a smooth transition of the program."

On Monday, the Energy Department started work on removing about 5,000 cubic yards of contaminated soil from the 22-acre site near Lambert Field. The area is being cleared to create a buffer zone between the rest of the contamination and Coldwater Creek, which runs along the edge of the site.

 North County Journal, Oct. 5, 1997

Army engineers take on soil cleanup

By Chris Lesniak
Correspondent

The U.S. Army Corps of Engineers will assume responsibility for removing radioactive soil from the Coldwater Creek site, but this shouldn't slow the cleanup process.

That was the message from U.S. Department of Energy (DOE) officials at a public forum Wednesday at the St. Louis County Government Center in Clayton. Few residents attended the session.

"We need to fold the corps into the decision-making process," said Steve McCracken, DOE site manager.

The previous week's announcement of congressional budget authority shifting from DOE to the Corps of Engineers in the cleanup project confirmed recent rumors of the Corps assuming responsibility for it.

"The question is, will the local people accept a solution that places clean soil back on the site? That's the most economical solution."

Mike Mann
President of ART Inc.

The current phase of the cleanup is the selection of bids for a demonstration of the technology needed to remove the contamination material. Three firms will receive a combined $5 million.

The purpose of Wednesday's public hearing was to let competing bidders pitch their cleanup methods to the public.

But while nine vendors set up displays previewing the latest in radioactive soil-cleaning technology, few residents attended.

"Probably about four or five true citizens (showed up)," DOE spokeswoman Mary Ann Crate said.

One of them was University City resident Dr. Neville Rapp, a pathology specialist and Sierra Club member.

"I'm optimistic they will investigate the possible technologies and hope they can find a way to get it cleaned up at the lowest cost possible," Rapp said.

One of the vendors at the meeting was Mike Mann, president of ART Inc., a firm that has experience in similar industry cleanups.

"The question is, will the local people accept a solution that places clean soil back on the site? That's the most economical solution," Mann said.

Mann said of resident interest, "If the local people get involved it can be really tremendous. The question is, "Is the interest there?' "

MISSOURI

RADIOACTIVE WASTE

Lawmakers To Scrutinize Cleanup Changes

As the federal government prepares to transfer responsibility for cleaning up radioactive waste in St. Louis to the Corps of Engineers from the Department of Energy, some members of Congress will be watching.

Rep. Jim Talent, R-Chesterfield, along with Rep. Bill Pascrell, D-N.J., are forming a congressional group to oversee the transfer of cleanup responsibilities at 46 radioactive sites around the country.

Talent said he was "cautiously optimistic" that the change would not affect progress at the three large sites in St. Louis, which contain a total of about 900,000 cubic yards of contaminated soil. He said the situation should be watched closely.

The St. Louis contamination is the legacy of the development of the first atomic bombs. The Department of Energy was responsible for cleaning up the sites. However, Congress last month decided to transfer responsibility to the Corps of Engineers.

Post-Dispatch Washington Burea

Waste cleanup moves forward

By Barbara Ponder
Staff writer

A large mound looms outside of Stephen McCracken's office located in a small trailer on Latty Avenue in Hazelwood.

The mound contains about 14,000 cubic yards of radioactive dirt covered with a reinforced green tarp and a black wire mesh to inhibit runoff.

It's a small pile, McCracken said, in comparison with the larger mound behind it.

Disposing of the dirt piles and more like them, is McCracken's mission as the Department of Energy's newly appointed St. Louis site manager for the Formerly Utilized Sites Remedial Action Program.

Establishing the on-site cleanup office was one of the promises made by department undersecretary Thomas P. Grumbly regarding the clean up of contaminated properties in North St. Louis County and St. Louis City. Grumbly visited St. Louis in December.

Grumbly has since left the office. However, the depart-

See CLEANUP, Page 2A

Cleanup

Continued from Page 1A

ment remains committed to Grumbly's plans, McCracken said.

The properties are contaminated with radioactive waste remaining from the Manhattan Project that developed atomic bombs during World War II. St. Louis played a pivotal role in that development.

"(Radioactive material) creates images in our minds that are different from those of other (hazardous) materials," McCracken said. "It makes it that much more important that we take the time to understand the hazards of this material. I mean really understand it."

The department monitors the sites, many of which are located along waste transport routes adjacent to Lambert-St. Louis International Airport.

According to the department's recently released 1996 Environmental Surveillance Report, isolated concentrations of radioactive material was found in Coldwater Creek sediments. However, there are no Environmental Protection Agency (EPA) regulations that define acceptable levels in stream-bed sediment.

McCracken said the department is planning on cleaning Coldwater Creek to residential standards, adding he understands there are no immediate health risks to those living or working near the creek because of the type of material and levels of concentration.

"(Radioactive material) is like every other material considered hazardous to your health," McCracken said. "You're safe if you're at a distance. You're safe if you don't ingest it."

When the Coldwater Creek cleanup will occur has yet to be decided.

"You generally want to try to time your work in conjunction with the rest of the work," McCracken said.

Now the EPA is leading a team of experts in a study of groundwater flows and how the hazardous chemicals react with the flows, information critical in determining acceptable cleanup levels, McCracken said.

Additionally, an expert review panel including department representatives and key stakeholders is being established to review cleanup technologies.

Excavation of materials at the airport site is expected to begin in the fall, McCracken said.

A meeting will be held during the summer to discuss the excavation and solicit feedback. The project is not anticipated to generate controversy.

In addition to attending the meeting, the public may obtain a DOE newsletter, to conduct research in a public resource center, located in the Latty Avenue office.

Nortel Introduces Power Networks!

Nortel Introduces Power Networks!

A -- DEMONSTRATION OF TECHNOLOGIES FOR CLEANUP OF ST. LOUIS AIRPORT SITE

June 18, 1997

Commerce Business Daily via Individual Inc. : SOL DE-RP26-97FT34330 DUE 090597 POC Point of Contact -- Contact Point, D. Denise Riggi, 304/285-4241; Contracting Officer, Randolph L. Kesling The Department of Energy's (DOE) Federal Energy Technology Center (FETC) plans to issue a Request for Proposal No. DE-RP26-97FT34330 entitled "Demonstration of Technologies for Cleanup of St. Louis Airport Site." The objective of the procurement is to identify technologies for the remediation of the St. Louis Airport Site (SLAPS) that have the potential for treating soil contaminated with radium, thorium, and uranium to meet target treatment goals and reduce clean up costs while ensuring no negative impacts on public health, environmental resouces, or economic development in the area. DOE is seeking on-site, cost effective technologies and systems that have clearly shown the potential to reduce cost, waste volume, and risk, during bench scale and pilot studies, or have documented evidence of success in areas such as contaminant characterization/delineation, remediation of radioactive soils, and waste minimization.

This effort is for demonstration only (expected to be completed in fiscal year 1998), full remediation of the site will be the subject of a subsequent procurement. An information package containing additional details on the RFP objectives will be available on the Internet on or around June 17, 1997, at [http://www.fetc.doe.gov/business/solicit/solicit.html]. This package is only available via Internet and will not be distributed in paper form. A Presolicitation Conference will be held on July 1, 1997, at the St. Louis World Trade Center, 1st Floor, 121 South Maramec, St. Louis, Missouri. A 1-hour bus tour of the SLAPS cleanup site will be conducted beginning at 9:00 a.m.(CST) on July 1, 1997, departing from the DOE Information Center, 9170 Latty Avenue, Berkeley, Missouri, 63134. The Presolicitation Conference will begin at 1:00 p.m. (CST) at the St. Louis World Trade Center. SLAPS characterization information will be presented at the Presolicitation Conference. Comments on the proposed objectives are encouraged and welcomed; one of the purposes of this announcement and the Presolicitation Conference is to solicit comments prior to release of the entire solicitation. All comments should be submitted to Mrs. D. Denise Riggi at the address (via mail, email, or fax) above and should identify the Solicitation number. Comments by phone will not be honored. Requests for the entire solicitation package should reference the solicitation number and should be forwarded at this time to the address (via mail, email, or fax) noted above. Official release of the entire solicitation is anticipated on or about August 6, 1997 with proposals being due approximately September 5, 1997. (AC0613036-01) (I-164 SN084603)

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St. Louis County

DOE HEARING: The Department of Energy (DOE) will hold a public meeting from 1 to 3 p.m. July 1 at the St. Louis World Trade Center, 121 S. Meramec.

During this pre-solicitation conference, DOE representatives will discuss an upcoming request for proposals for cleanup technology to be employed at the St. Louis Airport Site. The site is one of several in North County that was contaminated with radioactive waste remaining from the Manhattan Project conducted during World War II.

Another meeting will be scheduled at a later date after vendors have submitted their proposals.

MISSOURI CONGRESSIONAL MEMBERS ARE CONCERNED WITH DOE PLANS for its new office in St. Louis. In a March 5 letter to Under Secretary Thomas Grumbly, the state's senators and three representatives said they are "concerned about the pace and direction of the new St. Louis office," which was recently established to oversee the cleanup of radioactive waste on more than 100 area properties left from Cold War uranium refining activities.

The lawmakers said they were not happy to learn that DOE may staff the new office with employees from its Oak Ridge Operations Office, an action they said may divert funds from actual cleanup activities. In order to ensure strict accountability for cleanup projects, they said, "an effective site manager in St. Louis with Senior Executive Service authority [is] necessary to make major cleanup decisions and manage ongoing activities on a full-time basis."

The congressmen complained that the Oak Ridge Operations Office, which has been responsible for the cleanup, has not involved stakeholders at an early state in the development of a 10-year spending plan and other planning activities.

DOE has earmarked $23 million this year for cleanup of St. Louis sites.

The letter was signed by Republican Sens. Christopher Bond and John Ashcroft, Democratic Reps. Richard Gephardt and William Clay, and Republican Rep. James Talent.

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

Harmon Bounces Bosley

Support From South Side Puts Ex-Chief On Top For Mayor; Green Renominated

By Tim O'Neil, Carolyn Tuft and Lance Williams
Of the Post-Dispatch Staff

Former Police Chief Clarence Harmon defeated Mayor Freeman Bosley Jr. Tuesday night with a surprisingly strong performance in St. Louis' bruising Democratic mayoral primary.

According to complete but unofficial returns, Harmon won with 56,894 votes, or 56.4 percent. Bosley had 43,150, or 42.8 percent, and Bill Haas, who last week said he no longer was campaigning, had 0.7 percent of the vote.

Harmon declared himself the victor about 10 p.m. before a giddy crowd inside Carpenters Hall, 1401 Hampton Avenue. He noted that Bosley outspent him throughout the six-month campaign, including the big final month.

"This is a clear message that the smart money and conventional wisdom aren't worth a plugged nickel," Harmon said. "What's important is all of you. You have made it clear that the power of the people is an awesome thing."

When he mentioned Bosley's name, a few supporters booed. "This is a time of healing, folks," he said. "I know that people who supported Mayor Bosley care deeply about this community. I welcome their support, and together we can seek a better St. Louis."

"It's going to take a lot of healing to put this city back together. I am hoping that people will be able to do that."

Mayor Bosley

Before he walked up to the stage, he was asked for his first priority. "I'm going to mend all the broken fences," he said.

Bosley partisans, meeting at a party at Teamsters Plaza that was notable for loud music and serious faces, held onto hope that the last votes to be counted were from the North Side wards. Those wards gave the mayor his strongest support.

Bosley conceded about 10:30 p.m., opening his concession speech by shouting to his supporters, "I love you!" He told them he was proud to have served the city with them.

When he offered congratulations to Harmon, there were loud boos. "It's going to take a lot of healing to put this city back together," Bosley said. "I am hoping that people will be able to do that."

In the Democratic primary for comptroller, Comptroller Darlene Green easily won renomination with 67.1 percent of the vote over former City Assessor Dennis Hill. In the Republican primary, Jay Dearing

See MAYOR, Page 9

Mayoral Primary Results

100% of the vote counted

DEMOCRATS

CLARENCE HARMON	
56,894	56%
FREEMAN BOSLEY JR.	
43,150	43%
BILL HAAS	
750	1%

REPUBLICANS

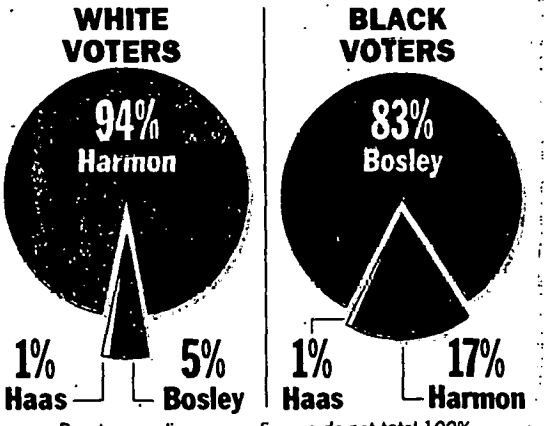
JAY DEARING	
508	38%
TOM BRAFORD	
478	35%
JIM RAPP	
362	27%

INSIDE

- **Republicans:** Jay Dearing wins the Republican mayoral primary.... .....Page 10A
- **5th Ward:** Democrat April Ford Griffin wins a five-way race for alderman..... .....Page 10A
- **Up Next:** Marit Clark says she's up to the challenge.... .....Page 11A
- **Bill McClellan:** Bad day for smart money. ....Page 1B

Exit Poll Results

Based on interviews with 701 voters from 20 precincts



Due to rounding, some figures do not total 100%

More exit polling results on Page 11A

St. Louis Post Dispatch 3/5/97

Continued on next page

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

Mayor

From page one

won the nomination for mayor and former Deputy Comptroller Z. Dwight Billingsly won the nomination for comptroller by 23 votes.

City voters also picked candidates for 15 of the 28 wards. The general election will be April 1. Harmon will face the GOP nominee and Alderman Marit Clark, who says she will file petitions today to be on the April 1 ballot as an independent.

An Election Day poll conducted for the Post-Dispatch at 20 precincts Tuesday morning showed that Harmon got 86 percent of an unusually heavy vote cast in the South Side, 65 percent in the central corridor and 15 percent on the North Side. Citywide, the poll projected a 57 percent Harmon victory.

In 1993, when Bosley won the Democratic primary on his way to becoming the city's first black mayor, he got 52 percent of the vote in the central corridor, an integrated area known as politically liberal.

Bosley, 42, and Harmon, 57, were more than political adversaries; they became bitter rivals. Harmon, who was the city's first black police chief, resigned in November 1995 after a long-running battle with a hostile St. Louis Police Board majority that included Bosley, who sits on that board as part of his duties as mayor.

The core of Harmon's campaign was that Bosley's administration was rife with cronyism and corruption and that a Harmon administration would restore the city's sense of self-respect. Bosley said he has helped the city's neighborhoods, increased participation for black-owned businesses and appointed a more racially diverse Cabinet than any previous mayor.

Four years ago, Bosley ran on a racial-harmony theme that used as its symbol the black-and-white keys of a piano. In the final weeks, Bosley had concentrated his public efforts in winning big within his predominantly black North Side base. He also ran hard-edged ads that alleged wrongdoing by Harmon's two sons, who are police officers.

On Tuesday, Bosley toured polling places with Reps. William L. Clay, D-St. Louis, and Maxine Waters, D-Calif., a native St. Louisan who represents part of Los Angeles.

The post-election parties Tuesday night reflected the racial breakdown of the two candidates' support. Most of Harmon's supporters were whites, and most of Bosley's were blacks. Harmon had the enthusiastic backing of the St. Louis Police Officers Association and Firefighters Local 73.

Those two organizations helped organize a strong turnout on the South Side, where antipathy against Bosley already ran deep.

Heavy Voting Citywide

Turnout was heavy throughout the city — about 50 percent of the city's 204,000 voters took part. Election board officials said the turnout was heaviest on the South Side and in the central corridor.

The high turnout was the result of the mayoral primary's high profile, energetic campaign organizations and near-perfect weather for a late winter day. Sunshine, light breeze and afternoon temperatures that reached the low 60s greatly reduced nature as a factor.

At Carpenters Hall, Don Strate, a former president of the Police Officers Association, said that Harmon "has a lot of integrity. He's an honest man, he's a gentleman. There's a lot of respect here for the guy."

Jeanette Culpepper, head of Families Advocating Safe Streets, said she was impressed by Harmon after one of her sons was murdered. "It was the way he treated me with respect," she said. "He supported me and attended our first vigil."

At Teamsters Plaza, the Rev. Earl Nance Jr., a former member of the St. Louis School Board, said "a lot of healing has to take place. It's going to take a lot to get this back."

Clay said he didn't know whether Harmon could mend the tension with many of the city's black residents. "It depends on whether or not he can lead, you see," Clay said. "You can't lead just half the town and think you're going to be successful."

Comedian Dick Gregory was philosophical.

"Fire trucks will not go slower to a fire under a new administration," Gregory said. "If you had chlorine in your water before the election, there's going to be chlorine in your water after the election."

The defeat was Bosley's first. He has held public office downtown since 1983, after he was elected circuit clerk.

He said he planned to relax a few days and then work to start the proposed northside shopping center. He said he may run for office again. "I like politics," Bosley said.

There were problems at some polling places that had little to do with identification cards.

In the 5th Ward, site of another lively aldermanic contest, voters and campaign workers were frustrated outside the Patrick Henry School, 1220 North 10th Street, just north of downtown. The reports were that two poll workers had taken too long for lunch. That created a long line of increasingly angry voters.

"This is the kind of travesty of justice that happens in these poor, black neighborhoods," said Antoine Johnson, 27, who said he had been waiting in line for more than an hour.

Johnson estimated that 60 people had given up and left while he waited.

Bill Bryan and Lorraine Kee of the Post-Dispatch staff contributed information for this story.

Remove Nuclear Waste — Carefully

At last, the federal government, in the person of Thomas P. Grumbly of the Energy Department, has promised to remove the area's low-level nuclear waste left over from the production of the first atomic bomb. The waste is scattered among sites near Lambert Field, a Mallinckrodt plant north of downtown and along Latty Avenue in Hazelwood. With some caveats, it's the right answer.

For 50 years, 850,000 cubic yards of such waste — enough to fill Busch Stadium — has remained in the area. Reluctant to deal with the problem, Washington long dragged its feet. Just two years ago, the Energy Department wanted to build a storage bunker north of Lambert Field to contain the waste there. No one in the area thought that was a good idea. Storing nuclear waste near high concentrations of people has never made sense.

Responding to opposition, the department came back with the recommendation that a group of citizens meet to suggest what to do. Last week, its 39 members heard Mr. Grumbly accept their recommendation to move the waste out of the area. That's good. Still, two problems remain: Where should it go and how will it get there?

Thus far, the Energy Department has sent most low-level waste to Envirocare in Clive, Utah. Soon, though, there will be other sites that can receive such waste. This issue should not be confused with the more vexing problem of what to do with much hotter radioactive waste, for which Washington hasn't yet found a site, though it still wants to sell Nevada on a facility at Yucca Mountain. So there will be a place to send the region's low-level waste, though precisely where isn't settled yet.

The tougher problem is how to transport it. Area residents are rightly appalled by — and opposed to — the idea of shipping high-level nuclear waste through the city or its near suburbs. They should be similarly concerned about inflicting on some western neighbor the same problem with low-level material. The region's waste should only travel along routes that avoid population centers and under the strictest safeguards. Otherwise, solving our old problems might only create new ones for others.

U.S. Pledges To Remove Atomic Waste By 2004



Larry Williams/Post-Dispatch

Kay Drey, an anti-nuclear activist from University City, at a site near Lambert Field where radioactive waste is stored. It is one of several such sites in the area.

Note: Continued on next page.

Under Plan, Material To Be Disposed Of At Location Out Of State

Timeline

1942: Mallinckrodt Chemical Works begins refining uranium at its downtown St. Louis plant as part of Manhattan Project to build first atomic bomb.

1946: Nearly 22 acres at St. Louis airport condemned as storage area for waste and residue from Mallinckrodt plant.

1957: Mallinckrodt stops processing uranium at downtown plant. Production transferred to Weldon Spring.

1966-1969: Hauling of waste from airport site to Latty Avenue contaminates land along route.

January 1994: Department of Energy proposes building bunker north of Lambert to store waste.

March 1994: In an about-face, Energy Department says it will pursue shipment of St. Louis radioactive waste out of state instead of building bunker.

Dec. 5, 1996: Energy Department announces its pledge to move the radioactive waste out of St. Louis by 2004.

By Tom Uhlenbrock
Of the Post-Dispatch Staff

Radioactive waste left in St. Louis from the making of the first atomic bombs will be removed within eight years and shipped out of state, a top federal official pledged here Thursday.

Thomas P. Grumbly, undersecretary of the Department of Energy, told a citizens task force he agreed with its recommendation that the waste plaguing the area for more than 50 years be moved out of Missouri.

"It's my objective that we have these sites cleaned up by 2004 — in time for the centennial of the World's Fair," Grumbly said. "While eight years is a long time in most people's lives, it's a short time in the wake of what's gone on here."

Grumbly estimated it would cost between $250 million to $600 million to excavate up to 850,000 cubic yards of waste — enough to fill Busch Stadium — and haul it by truck and train to an out-of-state disposal site.

The waste is stored at sites around the St. Louis area, including several areas north and west of Lambert Field, a Mallinckrodt plant north of downtown St. Louis and along Latty Avenue in Hazelwood.

Grumbly renewed the pledge he made on a visit here two years ago. At that time, the Energy Department was leaning toward building a bunker near Lambert Field to hold the waste — a plan citizens and local officials opposed.

"There will never be — at least on my watch — a bunker in the S Louis area to contain nuclea wastes," Grumbly said.

When he first rejected the bur ker proposal, Grumbly also calle

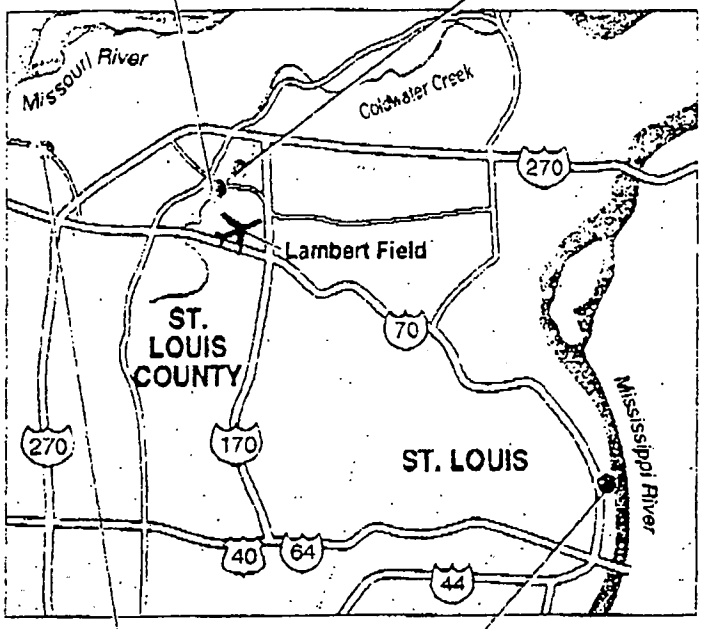
See WASTE, Page 1

Radioactive Waste Leaving Town

Total waste volume at contaminated properties to be cleaned up by the Department of Energy.

Airport Sites
340,000 cubic yards. Radium, thorium and uranium by-products

Latty Avenue Site
211,000 cubic yards. Radium, thorium and uranium by-products



West Lake Landfill
48,000 cubic yards. Radium, thorium and uranium by products

Mallinckrodt Site
246,000 cubic yards. Residues from uranium ore processing

Post-Dispatch ma

■ **Residents have been** dealing with waste concerns for years . . 15

Note: Continued on next page.

Waste

From page one

for the creation of a local task force to decide how to clean up the waste. He met with its 39 members Thursday at the Clayton Community Center and announced he had accepted most of their recommendations.

The task force members joined Rep. James Talent, R-Chesterfield, St. Louis Mayor Freeman Bosley Jr. and St. Louis County Supervisor George R. "Buzz" Westfall in praising Grumbly for listening to the community's concerns.

"St. Louis was here when America needed us in World War II," Westfall said. "Now, the federal government is stepping up to the plate and finally solving the problem."

Kay Drey, a task force member and anti-nuclear activist from University City, said she was more optimistic of a cleanup "than I've been in the 18 years I've been working on this."

Gov. Mel Carnahan, who met with Grumbly earlier in the day, visited Washington this year to lobby President Bill Clinton's administration on behalf of the St. Louis cleanup.

David Shorr, director of the Missouri Department of Natural Resources, credited Grumbly with breaking the logjam.

"We've had a great deal of patience to date," Shorr said. "Now, it's time to get it done."

So far, the Energy Department has removed and shipped some 30,000 cubic yards to Envirocare in Clive, Utah. An official of that firm was at the community center Thursday and said it charged from $150 to $200 per cubic yard to accept low-level wastes like those in St. Louis.

But Grumbly pointed out that Envirocare no longer was the only commercial facility licensed to accept radioactive wastes. "The price is going down as there's beginning to be more competition out there," he said.

The cleanup's price tag could drop as low as $250 million, Grumbly said, especially if a decision is made to clean up some of the sites for light industrial use rather than the more stringent residential use.

haggling.

Grumbly also announced that:

- He wanted a formal record of decision — the final plan for cleaning up the St. Louis sites — signed by Sept. 30.
- The Energy Department will provide staffing by Feb. 1 for a St. Louis office to oversee the cleanup.
- A new task force composed of area leaders and citizens could be set up to decide how the cleanup should proceed.
- The Energy Department has agreed to spend $1.3 million to decide how to clean up radioactive contamination at the West Lake landfill at 13570 St. Charles Rock Road in Bridgeton. It is the first time the department has accepted responsibility for the site.

Under the task force proposal, contaminated areas at the Mallinckrodt plant north of the downtown business district would be cleaned for commercial, industrial or recreational use, as would the West Lake landfill. An area near the plant, on the Riverfront Trail, already has been cleaned to those standards.

Also under the task force proposal, the more stringent, unrestricted cleanup standard would be used for a site near the airport where wastes were stored; at the nearby Berkeley recreational fields; at Coldwater Creek, which flows through the area and was contaminated by erosion; and at the area on Latty where waste also was stored.

Sandy Delcoure, who lives in the Willow Creek subdivision near Florissant, brought photos to the Clayton Community Center for Grumby's visit. They showed neighborhood children playing in Coldwater Creek.

"Here's one of some of the kids fishing in the creek," she said. "Everybody wants it cleaned up. I guess we deserve this attention after 50 years."

Bill Lambrecht of the Post-Dispatch Washington Bureau contributed information for this article.

The undersecretary said he wanted to see more data on ground water before deciding how thoroughly to clean up two of the sites — one near the airport and the other on Latty.

Grumbly said the current annual budget for cleaning up the St. Louis sites was $23 million — up from $8 million in 1993 — and predicted that figure would double by 1998.

The Energy Department's plan could be affected by political winds in Washington. It will be critical, proponents said, to have a new energy secretary who supports the proposal.

Now that Hazel O'Leary has resigned the job, the two candidates most often mentioned are Rep. Bill Richardson, D-N.M., and former Sen. Tim Wirth, D-Colo., who now is undersecretary of state for global affairs. Of the two, Wirth has the strongest pro-environment credentials.

Talent said it would take monitoring by the regional delegation in Congress to make sure the government lives up to its plan. And even with close attention, "the bottom can always fall out" during budget

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

• FRIDAY, DECEMBER 6, 1996

Judge Dismisses Suit On Airport Expansion

Lambert Plan Has Yet To Gain FAA Approval

By Mei-Ling Hopgood
Of the Post-Dispatch Staff

A judge has dismissed a lawsuit aiming to block Lambert Field's expansion plan proposal, known as W-1W, saying it was too soon to hear the case because the plan has not been approved.

In April, Bridgeton sued St. Louis, which owns the airport, to stop W-1W. The expansion plan would take out about 2,000 homes to put a new runway through the southeastern part of Bridgeton. Bridgeton officials argue the airport authority did not seek proper zoning approval from Bridgeton.

Judge Joan M. Berger of Missouri's 22nd Circuit Court dismissed Bridgeton's request for an injunction on the plan Tuesday. She said the court would not hear the case because W-1W still was awaiting approval by the Federal Aviation Administration.

Bridgeton Mayor Conrad Bowers said Thursday that the city would refile the lawsuit after the FAA made its decision.

"We were ready to have the court act now," Bowers said. "If they want to wait, so be it."

Meanwhile, the FAA has extended the public comment period for the Draft Environmental Impact Statement on the expansion plans. The FAA does a draft and a final impact study on expansion plans before it decides which to approve or reject.

The comment period on the draft will last through Jan. 17 because the FAA revised and updated the list of references it used to compile the document.

Officials from the FAA continue to receive thousands of comments since a public hearing in October and want to ensure people have the chance to respond, said FAA spokeswoman Kathleen Burger.

The updated list will be added to copies of the impact statement, which are available for review in city halls and libraries in the St. Louis area.

Additional comments on the draft may be sent to: Moira Keane, Federal Aviation Administration, Airports Division, ACE-615B, 601 East 12th Street, Kansas City, Mo. 64106-2808.

2004: A NUKE ODYSSEY

The Department of Energy finally promises to clean up the St. Louis area's long-neglected radioact waste over the next eight years, but leaves many questions unanswered

BY C.D. STELZER

It took more than 50 years, but last week the federal government finally pledged to clean up the St. Louis area's long-neglected radioactive waste sites by 2004.

Undersecretary of Energy Thomas P. Grumbly made the historic announcement last Thursday at the Clayton Community Center. The 850,000 cubic yards of radioactive waste — located at scores of sites around the area — are a byproduct of nuclear-weapon manufacturing dating back to World War II. Those attending Grumbly's speech included public officials and members of a citizens' task force who submitted recommendations to the Department of Energy (DOE) in September.

Grumbly drew applause when he announced, "There will never be a bunker in the St. Louis area — at least on my watch." The applause echoed the results of a 1990 nonbinding referendum in which city and county voters overwhelmingly disapproved of any plan to permanently store the nuclear waste here.

One result of that public outcry has been bipartisan political support for disposing of the waste outside the area. Republican U.S. Rep. Jim Talent and Democratic St. Louis Mayor Freeman Bosley Jr. and County Executive George "Buzz" Westfall all attended last week's meeting to show support for the DOE's commitment to ship the waste as soon as possible. Some 28,000 cubic yards of contaminated materials from 21 sites have already been sent to a low-level-radioactive-waste dump in Utah. Moreover, Congress allocated an additional $23 million to continue the cleanup in 1997.

But the fate of the remaining nuclear waste is still very much a matter of speculation. "There are some serious issues that remain," says Talent, after the meeting. "It's promising, but I don't want to pretend that it's all worked out, that it's to everybody's satisfaction."

The congressman's reservations may be understated.

One sticking point in completing the project appears to be the 22-acre airport site — the largest in the area. In his speech, Grumbly emphasized that the DOE remains unconvinced of the need to clean up the airport site to the unrestricted-use level recommended by the local task force, the Sierra Club and the Missouri Department of Natural Resources (DNR).

Grumbly "just doesn't feel that a site at the end of a runway needs to be cleaned up the same way you would a residential site," says Talent. "It's a legitimate point, but I don't think that the DOE has looked adequately at the effect on the groundwater. The (waste) is sitting on an aquifer."

Note: Continued on next page.

Leaving any of the radioactive material at the site would risk further contamination of underground and surface water. But earlier this year, a report by a DOE-appointed panel of geologists declared that the water would not miraculously migrate off the site, and, therefore, it would be safe to leave the waste in place. Two of the six panel members — including one from the DNR — took exception to the findings, however. On Thursday, Grumbly suggested that another hydro-geological study be conducted in the next three months to determine what level of safety would be required.

"We all feel like it needs to be cleaned up so it won't continue impacting Coldwater Creek," says environmentalist Kay Drey, a member of the citizens' task force. The creek is on the long list of remediation sites, which also includes haul routes, a former athletic field in Berkeley, a landfill in Bridgeton, and parts of the Mallinckrodt chemical plant on North Broadway, where uranium was first purified in 1942.

The DOE, according to Grumbly, would like the entire mess tidied up within eight years, an optimistic goal given the bureaucratic impediments. Aside from the DOE's lead role, the DNR and the U.S. Environmental Protection Agency (EPA) are mandated by Superfund law to oversee and approve the project. Grumbly, nevertheless, expects a formal record of decision (ROD) for the cleanup by the end of the current fiscal year, next Sept. 30. That gives the DOE a little more than nine months to work out a myriad of details.

One of those details is prefaced by a dollar sign and has a lot of zeros behind it. "We have no money to do this," says Drey. The environmentalist points out that the $23 million earmarked for the cleanup this year represents a significant increase in past funding for the project, but is still only a fraction of what will be needed to complete the job. The uncertainty over future funding is not expected to abate so long as the Clinton administration and the Republican-led Congress try to out-hack each other in deficit reduction. Or, as Grumbly puts it, "We're in a very competitive budget environment." The effect of the imminent departure of Energy Secretary Hazel O'Leary is also unknown.

As recently as July, the DOE estimated that removal and off-site storage of the waste would cost $778 million. A revised estimate cited last week ranges from $250 to $600 million. The wide difference in the bottom line hinges on, among other things, the choice of technology and the level of cleanup specified in the yet-to-be-completed ROD. Contracted to carry out the cleanup is Bechtel National Inc., a subsidiary of the giant engineering corporation. Potential local subcontractors that are queuing up include Sverdrup Environmental, the National Center of Environmental Information and Technology, Clean Earth Technologies and R.M. Wester and Associates.

Despite the expertise and available alternative technologies, Grumbly gave little indication Thursday that the DOE is seriously considering anything more than digging the irradiated dirt up and hauling it away. If the DOE chooses to clean up the airport site to less stringent levels than recommended locally, it will save money. But the legal and ethical question then becomes whether the scaled-back remedy is protective of human health and the environment.

For many Westerners, who will likely be on the receiving end, there is nothing ethical about any of this. The probable final destination for St. Louis' radioactive waste seems to be either Utah or Washington state. The Envirocare low-level-radioactive-waste depository in Clive, Utah, has already received some St. Louis shipments. In 1993, before any of the St. Louis waste arrived, state inspectors found Envirocare in violation of a dozen safety regulations.

But the questionable Utah facility now has competition. Last year, the Washington state Department of Health granted a low-level-radioactive-dump license to the Dawn Mining Co. in Ford, Wash. The majority of Dawn Mining is owned by Denver's Newmont Mining Co., the largest mineral extractor in North America. Rather than pay for filling a 28-acre, 70-foot-deep uranium-tailings pond on the Dawn property, Newmont wants to charge the government $5 a cubic foot to accept low-level radioactive waste. Although the DOE hasn't agreed to the proposal yet, representatives of Dawn Mining have tried to solicit the support of the St. Louis citizens' task force as far back as November 1995.



Undersecretary of Energy Thomas P. Grumbly

The Spokane Indian tribe and Dawn Watch, an environmental group, are opposed to shipping the St. Louis waste to their community. "Our position is the site is still an unacceptable location for a commercial waste dump," says Esther Holmes, a member of Dawn Watch. "(We) have been advocating that the site be cleaned up using clean fill at the company's expense. The tailings pond is located near a tributary of the Columbia River and threatens a nearby Indian fish hatchery.

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The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

Harmon First On City Ballot

23 Other Hopefuls File For Comptroller, Aldermanic Races

By Carolyn Tuft
Of the Post-Dispatch Staff

Former Police Chief Clarence Harmon Jr. led a procession Monday of 24 candidates for St. Louis mayor, comptroller and aldermanic races who signed up on the first day of filing for the city primary on March 4.

Harmon is running as a Democratic candidate for mayor. Neither Mayor Freeman Bosley Jr. nor Bill Haas, both announced candidates, filed Monday.

Filing at the Board of Elections, 208 South Tucker Boulevard, closes Jan. 3 for the primary. The general election is April 1.

Harmon said he kept a volunteer in line at the election board since Oct. 21 to allow him to be the first to file, which will assure his name the first place on the ballot. Some politicians believe that being first on the ballot will win them votes because unsure voters will mark the first name. Harmon said his persistence showed how serious he is about being the city's next mayor.

"It was an important step to make to be first on the ballot because it represents my earnestness in my mayoral effort," Harmon said from his campaign headquarters Monday evening.

At the election board, Harmon answered a question by a radio reporter about whether he believed Bosley's administration was "inept, incompetent or corrupt."

Harmon answered: "I said, 'I regard him as at least inept. As to the issue of corruptness,

See PRIMARY, Page 2

Primary

From page one

well, that is a legal interpretation that I am not prepared to make. The record of this administration is replete with a track record of not knowing what to do and not supplying competent people to do it. Because of that, they always seem to be in hot water.' "

In a prepared statement on City Hall letterhead, Bosley fired back at Harmon. He said Harmon had already broken his campaign promise not to launch a negative campaign.

"It's sad that just seconds after my opponent became an official candidate, he broke his first campaign promise by launching a negative attack. The voters don't want that kind of campaign," Bosley's statement said.

The statement was prepared by Bosley's newest aide, Steve Engelhardt, who worked as a campaign consultant for Comptroller Darlene Green's August and November campaigns. Bosley did not state why he did not file Monday.

The third possible primary candidate, Haas, said he did not file because he could not afford the $974 filing fee. He said he believed he would be second to file and the mayor would wait until the end to get what political insiders claim is the second best place on the ballot.

"This is first time in history that I want to be a middle candidate," Haas said. "It's symbolic of my pledge to bring this city together between the Bosley supporters and the Harmon supporters."

Jim Rapp was the only Republican candidate to file for mayor.

Meanwhile, former St. Louis Assessor Dennis Hill was first to file as a Democratic candidate for comptroller. Green did not file Monday. She must run for a four-year term. On Aug. 6, Green won the race against Alderman James Shrewsbury, D-16th Ward, to fill the unexpired term of former Comptroller Virvus Jones, who left office last year after pleading guilty to federal tax fraud charges.

Joseph Schwan filed as a Republican candidate for comptroller.

In aldermanic races, six incumbents will face opposition in the primary by Democratic challengers. Also, Alderman Mary Ross, D-5th Ward, is not expected to run for reelection. Three Democratic candidates — April Ford Griffin, Loretta Hall and Joseph Simmons — filed for the post.

St. Louis Post-Dispatch Date: November 26, 1996

Hazardous Waste Cleanups Along Roadside

By Monte Reel
Of the Post-Dispatch Staff

Cleanup began quietly this month at three hazardous waste sites along Hazelwood Boulevard. No futuristic robots; no workers dressed like astronauts.

"It's not as high-tech and sexy as some remediation efforts you might see at other ... sites because [the waste] is not considered as risky," said Sarah Snyder, community relations coordinator at the St. Louis site. She is with the U.S. Department of Energy's Formerly Utilized Sites for Remedial Action Program.

That program has excavated radioactive material from 12 other properties in Hazelwood and at the downtown Mallinckrodt Chemical Works plant in the past two years.

The contamination of the Hazelwood Boulevard sites is a product of the early days of the nuclear age. From 1942 to 1957, Mallinckrodt processed uranium, the main source of nuclear fuel, as part of a government-sponsored effort to develop nuclear weapons. In 1966, a private company, Continental Mining and Milling, bought the residues that Mallinckrodt had stored north of Lambert Field. When Continental trucked the residue to another storage site in Hazelwood, some of the radioactive material blew out of the trucks and onto the roadside.

The three roadside sites, which run in front of industrial areas near Frost Avenue, are marked by plastic fencing and orange barrels. The plastic lining that stops the radioactive soil from spreading is the only hint that the excavation is more than routine ditch-digging. The workers are required to wear work boots, hard hats, protective eyeglasses and shirts with sleeves — not the full "moon suits" required on more dangerous excavations.

Chuck Jenkins, community relations specialist for the DOE's cleanup program, said people could walk along the roadside without fear of contamination. Hazards would arise only if a person had direct contact with the soil for a period of several years.

"Someone would have to be exposed to it for long periods of time, and when I say 'exposed to it,' I mean inhaling or eating the dirt," Jenkins said.

Such exposure could result in cancer, according to David Adler, DOE's site manager for St. Louis. No health problems have been linked directly to the St. Louis area sites, but the state health department investigated two years ago potential connections to several leukemia deaths in north St. Louis County. A state report said officials found no proof the contamination contributed to the deaths.

Adler estimates "hundreds" of cubic yards of soil at the three sites will be excavated and shipped to Envirocare, a licensed disposal facility in Clive, Utah. Sally Price, chairwoman of the St. Louis Site Remediation Task Force, said the current cleanup process,

See CLEANUP, Page 6

Cleanup

From page one

which comes with a $1.1 million price tag; fell in line with recommendations the task force made to the DOE on Sept. 24.

"The cleanup provides relief to residents and property owners," Price said.

But John Steuby, who owns property on one of the sites, said the radioactivity had caused no problems for him during his 10 years of ownership.

"I haven't heard one person say anything detrimental about the land because of nuclear waste," Steuby said. "Frankly, I think [the cleanup] is a waste of money."

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

NOTICE OF PUBLIC HEARING

Federal Aviation Administration

Environmental Impact Statement

Lambert-St. Louis International Airport

On September 27,1996, The Federal Aviation Administration published the Draft Environmental Impact Statement for proposed improvements to the Lambert-St. Louis International Airport. It is the purpose of this announcement to let interested parties know that the Draft EIS is available for their review and that a Public Hearing will be held to solicit comments on the document.

Proposed Improvements — The City of St. Louis, owner and operator of the airport, is proposing airside and landside improvements to the Lambert-St. Louis International Airport. The City's preferred alternative for development, known as W-1W, would feature a new parallel runway, 9,000 feet long by 150 feet wide, which would be located at the southwestern side of the airport adjacent to the City of Bridgeton. Other associated proposed actions include property acquisition, terminal expansion, roadway improvents, and relocation of sevreral airport tenant operations. The Draft EIS examined the proposed improvements along with other reasonable alternatives to the proposed improvement plan. Cooperating agencies participating with the FAA in this EIS include the Federal Highway Administration, the U.S. Air Force, the U.S. Navy, and the U.S. Army Corps of Engineers.

Public Hearing — The public hearing is being held by the FAA to afford interested parties the opportunity to provide their comments on the Draft EIS for the purpose of considering the economic, social and environmental effects of the development and its consistency with the goals and objectives of such urban planning as has been carried out by the community. The location and time of the public hearing is:

Monday, October 28, 1996
3:00 p.m. to 8:00 p.m.
The Harley Hotel — Grand Ball Room
3400 Rider Trail South
St. Louis Mo. 63045
314/291-6800

Draft EIS Review and Comment Process — The FAA encourages interested parties to review the Draft EIS and to provide their comments by November 18, 1996, or 45 days after publication of the Federal Register Notice, whichever is later. Individuals may comment in any of three ways: 1) comments may be submitted in writing to Ms. Moira Keane, Federal Aviation Administration, Airports Division, 601 E. 12th St. Kansas City, Mo. 64106, 2) written comments may be submitted at the public hearing, and 3), oral comments will be recorded by a court reporter at the public hearing.

For the convenience of the public, the Draft EIS can be reviewed at the following locations:

The City Halls of: Bel Nor; Bel-Ridge; Berkeley; Bridgeton; Calverton Park; Cool Valley; Edmundson; Ferguson; Greendale; Hazelwood; Kinloch; Maryland Heights; Normandy; Northwoods; Pasadenda Hills; Village of Pasadena Park; St. Ann; St. John; Woodson Terrace; St. Charles City; St. Charles County.

Libraries (St. Louis County): St. Louis County — Main Branch; Bridgeton Trails Branch; Florissant Valley Branch; IndianTrails Branch; Lewis and Clark Branch; Prairie Commons Branch; Rock Road Branch

Libraries (St. Charles County): Kathryn Linnemann Branch; Kisker Road Branch; Spencer Road Branch

Federal Agencies: FAA Kansas City; FAA Washington D.C.

St. Louis Post Dispatch Date: 10/20/96

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

EDITORIALS

Choices For Congress

All but one of the incumbents from congressional districts in and near St. Louis deserve re-election Nov. 5.

The exception is Republican Rep. James M. Talent of Chesterfield, who stands too far to the right on most of the important issues. The *Post-Dispatch* recommends that in the 2nd District, voters return the seat to Democrat **Joan Kelly Horn** of Ladue.

A *National Journal* rating of Mr. Talent's voting record put him among the 28 most conservative Republicans in Congress. Though Mr. Talent's political views are sincerely held, the regrettable fact is that he helped write a welfare bill that was even more punitive than the one Congress enacted. Moreover, he supported the extreme Republican proposals for cutting back on environmental protection; he opposed gun control and the crime bill that put more police on the streets; he favored the Republican plan for extracting $270 billion in savings from Medicare; and he favors a constitutional amendment to permit the states to bar abortion.

Ms. Horn, by contrast, had a progressive record in her one term in Congress, from 1991-93. She helped sponsor the Family Medical Leave Act, supported the Brady gun control bill and worked hard on district problems from MetroLink to Trans World Airlines.

In the 1st District, **William L. Clay**, the senior member of the Missouri congressional delegation, has a strong record in support of workers' rights. He led the successful House efforts that led to passage of the minimum wage bill, Family Medical Leave Act and a revision of the Hatch Act to give federal employees the right to participate in politics. By contrast, Mr. Clay's opponent, Daniel F. O'Sullivan Jr. of Richmond Heights, is untested in politics and inexperienced in government.

That same experience gap exists in the 3rd District where House Minority Leader **Richard A. Gephardt** is the clear choice over novice Deborah Lynn "Debbie" Wheelehan of Lemay. Mr. Gephardt is a good consensus builder and has a progressive record dating back to his days as a "Young Turk" on the St. Louis Board of Aldermen. In the current Congress he has worked effectively to revive the Democratic minority.

In another political era, Kenny Hulshof of Columbia, the Republican candidate in the 9th District, might have been a moderate Republican in the Danforth-Bond mold. And to his credit, Mr. Hulshof criticizes congressional Republicans for shutting down the government and for anti-environmental excesses. But ask him why he should be elected instead of Harold Volkmer of Hannibal, and his answer is that he is more conservative than the conservative Democrat; he favors the balanced budget and term limits amendments and more spending on the military.

During the early days of the 104th Congress, when many liberal Democrats were paralyzed into inaction, Mr. Volkmer was an eloquent critic of the excesses of the Republican majority. **Harold Volkmer** is an important voice in the Congress and should be returned.

In the 8th District in southeast Missouri, the principal contenders are Democrat Emily Firebaugh of Farmington and Jo Ann Emerson of Cape Girardeau, who are seeking the seat of Mrs. Emerson's late husband, Bill Emerson. Ms. Firebaugh, a tree farmer and former small town newspaper publisher, has lived her whole life in the district; by contrast, Ms. Emerson grew up in a suburb of Washington and has spent much of her career working there for business interests seeking to influence Congress.

Ms. Firebaugh supports abortion rights, but she is no liberal Democrat. Like her district, she supports term limits and opposes gun control bills. Two important differences between the candidates: Ms. Firebaugh supported the minimum wage increase, while Ms. Emerson says she did not have a position; Ms. Firebaugh opposed the $270 billion in Medicare budget savings; Ms. Emerson supported the Republican budget. **Emily Firebaugh** is more in touch with the district and deserves election.

A complication in the race is that there will be two elections on Election Day — one in which Ms. Emerson is running as a Republican to fill the unexpired term of her late husband, the other in which Ms. Emerson is the independent candidate to fill the full term in the next Congress. The Republican candidate in the latter election, Richard Kline, is an extremist distraction.

Two of the races in Illinois present voters with easy choices. Neither Rep. **Glenn Poshard** of Carterville in the 19th District nor Rep. **Jerry F. Costello** of Belleville in the 12th has serious opposition.

Mr. Poshard, who styles himself as a conservative Blue Dog Democrat and promises to retire after his next term, faces Republican Brent Winters, who didn't respond to questions from the *Post-Dispatch*. In his public appearances, Mr. Winters focuses his extremely conservative candidacy on gun issues, even though Mr. Poshard says he is a strong supporter of the rights of gun owners.

Similarly, Mr. Costello's most objectionable votes in Congress have been against gun control, but his obscure Republican opponent, Shapley R. Hunter, stresses the rights of gun owners in his campaign.

The race to fill Mr. Durbin's seat in the 20th District is extremely close and features two able candidates from Collinsville — Democrat Jay C. Hoffman, a state representative, and Republican John M. Shimkus, Madison County treasurer. Mr. Shimkus, who has won respect as treasurer of a Democratic county, is an attractive candidate. But he signs on to the Contract With America down to the last period.

Mr. Hoffman has his weaknesses. Some of his anti-crime proposals in the Illinois House have seemed shallow and politically calculated. But his supportive positions on student loans, Medicare, health care and bread-and-butter economic issues make **Jay C. Hoffman** the better candidate.

St. Louis Post-Dispatch Date: 10/06/96

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

Results Delayed On Times Beach Study

Blood Tests Aimed To Find If Incinerator Is Harmful

By Tom Uhlenbrock
Of the Post-Dispatch Staff

Results of a study to determine whether a dioxin incinerator is harming residents around Times Beach are more than a month late because of delays at a federal laboratory.

A spokesman for the lab said late Friday the analysis of the 300 or so blood samples had been completed and could be returned to the state health department by Oct. 21. The state then hopes to have a report for the public by around the end of the month.

The blood tests were designed to determine if emissions from the incinerator caused the toxic chemical to show up in nearby residents. If it did, the project could be halted. But with the burning more than half completed, the results of those tests are still unknown. The samples have been at the federal Centers for Disease Control and Prevention in Atlanta since mid-July.

"The key, of course, was getting the results in plenty of time to show whether the incinerator was having an impact on residents," said Brian Quinn of the Missouri Department of Health. "We were hoping to have that done by now."

The health department took samples before the incinerator started up on March 17, and a second round July

See DIOXIN, Page 4

ST. LOUIS POST-DISPATCH

Dioxin

From page one

15-20. They were immediately sent to Atlanta, with results expected back by the end of August.

Don Patterson, chief of the dioxin laboratory at the centers, said the testing was "a very time-consuming process. It involves many, many calibrations to verify the validity of the data. The samples have all been analyzed, and we're in the quality-control phase. We anticipate transmitting the data back to the state a week from next Monday."

Patterson emphasized that the lab did "blind" testing, looking at each sample independently. It did not know how the samples paired up with an individual. That work will be done by the state health department.

The burning had been projected to be completed by mid-October, but that also has been moved back to the end of January. Originally, officials planned to burn 130,000 tons of material. Now, their estimate has climbed closer to 200,000 tons.

Syntex Agribusiness, which ended up with the liability for Missouri's dioxin problems, is paying for the incinerator. Gary Pendergrass of Syntex said a backup system would show whether dioxin was escaping.

Pendergrass said six air monitors around Times Beach — four checked by Syntex and two by the Environmental Protection Agency — collect samples 24 hours a day. "The monitors have shown that dioxin is at or below normal background levels," he said.

"I'll be glad when the results are back. It'll verify the project's being done properly and safely."

But opponents of the burning say it has been marred by similar problems.

"Nothing about this project has gone as planned, or run as scheduled," said Steve Taylor of the Times Beach Action Group. "This is just another breach of trust with the public in regard to the protection of public health."

St. Louis Post-Dispatch October 14, 1996

BERKELEY

Controversies Fuel Council Meeting

By Carolyn P. Smith
Special to the Post-Dispatch

Berkeley city officials and several residents recently spent much of a five-hour City Council meeting haggling over city expense accounts and other controversies.

Talk about expense accounts dominated more than an hour of the meeting when resident Curt Buchholz criticized several council members' expense reports. He said they did not adequately document their claims with receipts or didn't prove the money was spent for city purposes.

He said Mayor Theodore Hoskins attached no receipts on $923 in expenses he reported from January to August.

Hoskins countered that he had not filed to be reimbursed for the expenses but that he had planned to use them for a deduction on his federal income-tax return. He said Berkeley has not paid him for the expenses.

Councilwoman Judy Ferguson Shaw, 1st Ward, filed for $1,500 in expenses and didn't include all of her receipts. She said Buchholz should have called her "if he wanted to know something about my business. You've never spoken to me about my business. I don't have anything to hide, and I do not apologize for anything."

Buchholz said she should have filed the receipts and not kept them at her home. He also cited the case of another council member, who he said had filed a $600 claim without the proper documents. She was not at the meeting.

Also prompting a dispute at the meeting was discussion regarding Hoskins recently having won the seat of Democratic committeeman of Norwood Township.

Councilman Babatunde Deinbo, 5th Ward, told the mayor he should not accept the job as committeeman if he's going to keep his job as mayor of Berkeley.

"When you take a public office, you take an oath. I have never been sworn in as committeeman," Hoskins responded. He said there was nothing in the city's charter that said he could not keep the second job.

City Attorney Denise Watson-Wesley said her research into the matter supported Hoskins' position.

Also discussed was Eileen Young, the deputy city clerk. Councilman At-Large Kenneth McClendon said she should be replaced because "she has a bad attitude. She works for us, and whenever we call on her to do something, she gives us a hard time."

Deinbo said he recently called Young at home on a Saturday because she had made an error on some documents she had prepared for him. He said she was rude and told him she didn't want to be called at home.

"I was calling her to get her to correct a mistake she made," Deinbo said. "She should give up the job if she does not want the job."

Young said that for $10.90 an hour, she would not be available to work on weekends. Hoskins supported her position.

Deinbo also said he was concerned about city personnel resigning. "He [Hoskins] wants to be a dictator," Deinbo said. "We hire people to do a job, but he won't let them do their job. He interferes and tells them how he wants the job done, even though he doesn't have the expertise to do the job.

"Our public works director is leaving because of your interfering," he said. "I am sick and tired of this. We can't keep good people here because you won't let them do their job. You need to stop. You need to quit. I am here now, and I will find out what you're doing."

Hoskins said he wasn't doing anything wrong and that he wasn't interfering with the workers. "I asked Joshua Richardson, former public works director, in the open meeting if I was responsible for his resigning. He didn't say that I was," Hoskins said.

In his resignation letter to Roosevelt Sims, acting city manager, Richardson said he accepted the job as public works director "based on the opportunities there and the fact that the charter prohibited the council from interfering with staff in day-to-day operations."

He said the only drawback was in the council's not being able to focus on goals that would make the city progress.

The above clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites and issues.

Mother enhanced cleanup task force

By Barbara Ponder
Staff writer

In 1985 Sally Price's son, Tommy, then 9, found Coldwater Creek a really nifty place to play.

However, Tommy's joy was short lived. His mother soon learned through a newspaper article that Coldwater Creek contained radioactive contamination.

"I was working as a nurse with radiation therapy patients," Price said. "I was familiar with the dangers and began to ask a lot of questions."

Today, Price — a registered nurse, wife and mother of three — is still asking questions.

Price serves as chairperson of the St. Louis Site Remediation Task Force. The task force, formed in August 1994 at the direction of the Department of Energy, recently submitted its recommendations for the cleanup of Coldwater Creek and other radioactive sites in North St. Louis County and St. Louis City.

The task force expects to participate in a DOE video conference regarding their recommendations in the near future. At that time, it will be determined if, and in what capacity, the task force should continue to serve.

Nationally, Price has served on the Formerly Utilized Site Remedial Action Program subcommittee of the Environmental Management Advisory Board since 1994. The subcommittee advises the DOE on cleanup standards and other issues concerning contaminated sites.

Price has also attended t
DOE's National Stakeholde
Conference, which is design
to involve from citizens
DEO activities.

"Sally Price is really am
ing — for never having do
anything like this before, s
has remarkable leadersh
skills — and excellent juc
ment'," said Kay Drey, w
has known Price for over t
years.

Drey approached Price ab

See PRICE, Page

Price

Continued from Page 1A

chairing the task force after the original chair — Dr. Alpha Fowler Bryan, then county health department director — left in connection with a job change.

"For one thing she's really eloquent and she has a very strong commitment to having a safe environment for families and people on this planet," Drey said of Price's selection. She added that the task force felt it important the chair be a private citizen.

The task force is comprised of 24 participants including municipal officials, utility companies, environmental groups and other interested parties.

Both Drey and Tom Binz, another task force member, agreed that Price's patience, persistence and knowledge helped move a sometimes divided task force to reach consensus in its recommendations concerning cleanup standards at each of the sites.

The recommendations were delivered to the DEO on Sept. 26.

Price said she is not an activist but a "problem solver."

"I had a concern for the community. As a result of my health background, I understood (the danger)," Price said.

Price admits that becoming involved in a community issue can be frustrating.

Her early efforts consisted of writing to the DOE. Although Price said they always replied to her inquiries, letter writing seemed insufficient to solve the problem.



Price

"What you need is a process . . . this problem here never had a process until the task force," Price said. "The process of the task force allowed for a lot of people to get together and communicate."

To others interested "in become involved in a community concern, Price has a little advice.

"Keep probing and keep interested," Price said. "You'll find a way to be active in an issue."

Price said her efforts to combat hazardous waste have increased her children's environmental awareness. However, environmental concerns sometimes take a back seat with them.

"At this point, we're learning to drive and not get speeding tickets, and going to football games," Price said.

The St. Louis Post-Dispatch September 30, 1996

Horn's Rematch With Congressman Is Basic Liberal-Conservative Fight

By Fred W. Lindecke
Missouri Political Correspondent

"HE HAS continued to vote with Newt Gingrich against the environment, seniors, children, workers, consumers, education. . . . The list goes on and on."

That's Joan Kelly Horn talking about U.S. Rep. James M. Talent, R-Chesterfield.

"The major issue is who wants to change Washington and who wants to keep the status quo. She thinks we've gone too far already. That's what her slogans amount to."

This is Talent talking about Horn.

The battle in the 2nd District in St. Louis and St. Charles counties is a rematch between Horn and Talent, with the roles reversed.

This time, Talent is the incumbent and Horn the challenger.

In 1992, Horn, a Ladue Democrat, was the one-term incumbent; and Talent, former minority leader of the Missouri House, was the challenger. She had won the district by only 54 votes over former Rep. Jack Buechner, R-Kirkwood, in 1990. Then the district was redrawn following the 1990 census.



Areas in the 2nd where Democratic voters live were given to 1st District Rep. William L. Clay, D-St. Louis, and 3rd District Rep. Richard A. Gephardt, D-south St. Louis County.

Talent defeated Horn by more than 8,000 votes in a year when Democrats were winning nationally and in Missouri. This feat was interpreted widely as a demonstration of how Republican the seat had become as a result of redistricting. Talent and Horn agree: The district leans Republican.

It is 94 percent white, mainly middle class, but includes the most affluent neighborhoods in the St. Louis area. The district is framed by fast-growing St. Charles on the west and historic suburbs such as Webster Groves and Kirkwood on the east. The district takes in Missouri's largest employer, defense giant McDonnell-Douglas, the Trans World Airlines hub at Lambert Field, and Chrysler and Ford manufacturing plants in South and North County, respectively.

Where They Stand

Name	Balanced Budget Amend.	Term Limits	Abortion Rights	Welfare Reform
Talent	for	for	against	Let states set benefits
Horn	against	against	for	Fed. government set minimum standards
Stever	for	against	for	Opposed to welfare
Clessler	for	for	for	For as part of balancing the budget

Horn sat out the 1994 election after deciding — correctly — it would be a bad year for Democrats. Talent was re-elected by more than 84,000 votes.

Also on the 2nd District ballot on Nov. 5 are Libertarian Anton Charles Stever of Wildwood and Judith Clessler of west St. Louis County, a candidate of the Natural Law party who got on the ballot by petition.

Talent and Horn each expect to spend about $500,000 on their campaigns. Talent has raised his $500,000. Horn said she's only about halfway there.

A Classic Battle

Linda Kowalcky, assistant professor of political science at the University of Missouri at St. Louis, said the Horn-Talent contest was the classic liberal-conservative conflict.

"In many ways, it's a much more stark contrast than Clinton and Dole, since Clinton is making moves toward the center," Kowalcky said.

She said that due to redistricting after the 1990 campaign, "Talent has demographics on his side. The 2nd District seems a likely Republican district."

Kowalcky thinks Horn is wise to link her campaign against Talent to President Bill Clinton and "tap into voter unease with the direction of the Republican Congress" under House Speaker Newt Gingrich, R-Ga. Kowalcky added that if Clinton's big lead over Bob Dole continued, Talent might have to be concerned about discouraged GOP voters staying away from the polls.

Talent showed no signs of backing away from Gingrich. He said he planned to focus in his next two years in Congress on passing constitutional amendments for a balanced bud-

See CONGRESS, Page 8

116844

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146844

Congress

From page one

get and term limits, as well as a tax relief bill.

Contract Points

He said he was happy with passage of some portions of the House Republican "Contract With America." These were enactment of welfare revisions a health-care bill, reduction of delays in carrying out the death penalty and congressional reforms including cutting its budget and pensions, term limits for committee heads and making Congress obey laws it imposes on others.

Despite the stalemate between Clinton and the Republican Congress over a balanced budget, Talent said, "The bottom line is that we've slowed growth in the rate of federal spending to the rate of inflation. Increases in revenue on this basis will be enough to balance the budget, and that was my goal to start with."

The continuing resolutions used to appropriate funds, which Clinton has been signing, are keeping the federal government on this track, Talent said.

Horn said she agreed with Clinton that the budget should be balanced, "but be careful how we do it."

She attacked Talent's votes "to gut the Environmental Protection Agency to prevent it from enforcing clean water and air" laws. Luckily, she said, his action "did not make it out of the House because moderate Republicans prevented it."

Horn said Talent voted to slash funding for college loans, education in general and to abolish the Department of Education.

"The budget that Talent voted for this year would raise the deficit in the next two years. The budget I support brings the deficit straight down to zero by 2002" without requiring a constitutional amendment, she said.

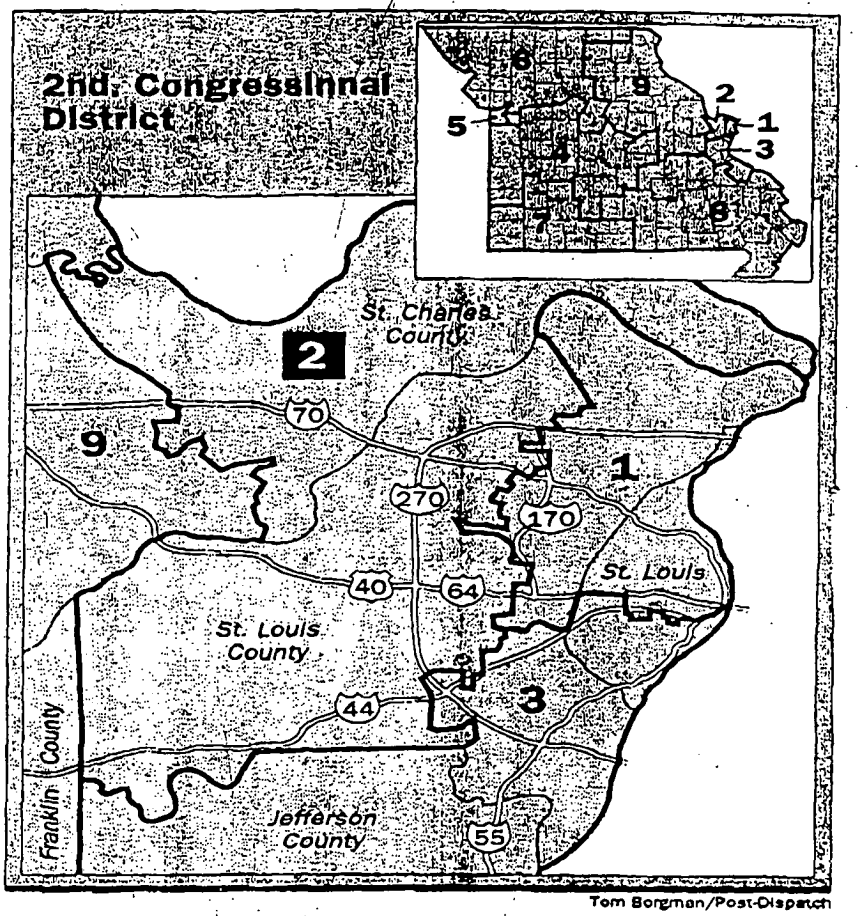
GOP balanced-budget plans hit social programs such as Medicare too hard because they contain excessive tax cuts, spend too much on defense and give tax breaks to corporations, Horn said.

Talent responded that the Medicare plan which Clinton vetoed "would have been the best for senior citizens since it was enacted in 1965." The student loan changes did not reduce loans or increase their cost to students, and struck a compromise between whether banks or colleges should process them, Talent said.

Talent and Horn rode in the annual Greentree Festival parade in early September in Kirkwood. The suburb is Republican territory, but some spectators recalled voting for both of them.

Jim Loomis and his wife, Marcia, voted for Horn in 1990 when she ran against Buechner, but switched to Talent in 1992. They said they would stick with Talent this year. "He's honest," said Marcia Loomis.

James Ward from Oakland also voted for Horn in 1990. "I wasn't a big Buechner fan," he said.



Tom Borgman/Post-Dispatch

Missouri's 2nd Congressional District is 94 percent white, mainly middle class and leans Republican. It includes the most affluent neighborhoods in the St. Louis area.

■ POSTnet links to the candidates' home pages on the Internet. POSTnet details, Page 2A

Ward said he was a Republican and planned to stay with Talent.

Marcia Caciano watched the parade with her children. She said she would go with Talent. She said she remembered when Horn and her husband, Terry Jones, were accused of violating a Ladue ordinance by living together without being married.

"It's important to be married," Caciano said. "It's just the way I was raised."

Diane Engelbart of Shrewsbury said she was a Democrat who would vote for Horn. "I've found Talent to be abrasive and very confrontational on some issues," she said.

Ann and Ken Williams said they were minority Democrats in Kirkwood. "We oppose everything Talent stands for," Ann Williams said. Even though both parties propose reducing the growth of Medicare, "I think we would be more protected under the Democrats," she said.

St. Louis Post-Dispatch Date: September 30, 1996

146579

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

Scandal And Deceit In Dioxin Cleanup

By Steve Taylor

Citizens at odds with the Times Beach incineration policy were recently informed that EPA administrator Carol Browner had removed herself from the Missouri dioxin cleanup. Browner removed herself because her sister, Michelle Browner, is employed by the company responsible for the Times Beach cleanup.

This maneuver places politics over public health. Citizen appeal to the Environmental Protection Agency has been severely restricted for reasons incompatible with the responsibility of safeguarding public health and the environment. Yet, the management of the eastern Missouri dioxin sites and the Times Beach incinerator by federal and state agencies has been embroiled in scandal from Day One.

Shortly after the Times Beach story began to unfold, several EPA officials alleged that authorities did not take action or inform citizens until almost a decade after state and federal authorities were well aware of the contamination. The debate culminated in the controversial replacement of Dan Harris, EPA's regional dioxin coordinator. Harris, who was responsible for initiating the dioxin investigation in the 1980s, stated to the *Post-Dispatch* at that time, "I got the feeling that they [EPA] were trying to bury the whole investigation."

In 1982, as flood waters forced the evacuation of dioxin-contaminated Times Beach, Congress investigated the negligence of the EPA and Centers for Disease Control in responding to dioxin contamination in eastern Missouri. President Ronald Reagan ordered EPA administrator Ann Gorsuch to withhold documents under "executive privilege." Rita Lavelle, head of the hazardous waste program, began to shred documents.

Gorsuch was forced to resign along with 19 other appointees, and Lavelle served six months in jail for perjury and obstruction of justice in an investigation into political use of waste cleanup funds. Pollutant data from many of the Missouri sites remain "lost" according to the EPA.

In 1990, a report by the Committee on Government Operations, "The Agent Orange Coverup," was submitted to Congress. It said: "The Centers for Disease Control study [of exposed veterans] was controlled and obstructed by the White House because the Reagan administration had adopted a legal strategy of refusing liability in military and civilian cases of contamination involving toxic chemicals and nuclear radiation."

Some of Missouri's dioxin contamination resulted from Agent Orange production. The CDC study was investigating the health effects of Agent Orange on Vietnam veterans, in particular the toxic effects of dioxin in the herbicide. This year, President Bill Clinton signed a bill expanding compensation to veterans and their children for debilitating effects of exposure to Agent Orange. To date, there has been no compensation to citizens exposed to the same chemicals as a result of the improper disposal of dioxin in Missouri.



In 1990, metaTrace, a St. Louis-based analytical laboratory in Earth City, was suspended from EPA contracts. The regional EPA official's request for suspension cited many violations including charges that metaTrace "had falsified and fraudulently submitted computer generated pesticide/polychlorinated biphenyls (PCB) test data." The request also said, "EPA has made policy decisions that are potentially life threatening relying on this invalid data."

MetaTrace handled large contracts for work at Times Beach and Weldon Spring, including a dioxin analysis designed specifically for Times Beach. Two former executive vice presidents eventually pleaded guilty; one was sentenced to five years in prison.

On May 2, 1995, a researcher funded by the Agency for Toxic Substance and Disease Registry testified to the St. Louis Dioxin Monitoring Committee that blood levels had decreased in citizens living next to an incinerator in Arkansas. The researcher, Morris Cranmer, reversed his findings after the federally funded report's data were obtained by Greenpeace. In 1988, a federal court had found Cranmer guilty of defrauding the Farmers Home Administration of nearly $10 million.

This August, the EPA met with Missouri citizens to hear evidence that a laboratory owned by the same company that operates the incinerator held for more than a week samples from sensitive trial burns. The samples were later analyzed to determine if the incinerator was performing within EPA guidelines. The laboratory, Quanterra, was 50 percent owned by International Technologies, the owner of the Times Beach incinerator. International Technologies formed Quanterra several years after aquiring metaTrace. MetaTrace was suspended from EPA contracts in 1990. The location and phone number, along with some equipment and employees are the same as metaTrace's. The Department of Natural Resources is investigating a possible conflict of interest.

If all goes as planned, Times Beach will soon be a park with the ash from 27 eastern Missouri dioxin sites buried along the Meramec River. State and federal authorities hope that a blood study soon to be released will allay the concerns of those living near the incinerator. They hope that past indiscretions will be forgotten. But for many of us who have lived through the Times Beach saga, we will know that among the toxic ash is buried the integrity of officials and agencies that the public has entrusted to safeguard our health and environment.

The St. Louis Post Dispatch September 19, 1996

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

146170

Environmental Movement Of '90s Looking For Justice

Leaders Focus On Cleanup Of Minority Communities

By Mary H. Cooper
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WASHINGTON

THE ENVIRONMENTAL movement, which began in the 1970s, reflected the priorities of its prosperous, mostly white leadership.

But in the 1990s, a growing environmental justice movement is calling for special efforts to clean up minority communities, contending that inner-city black and Hispanic residents, as well as American Indians on reservations, are more likely than whites to be exposed to toxic wastes and other pollutants.

The movement's approach differs from that of the superfund program, which identifies specific waste sites and cleans them up.

"We look at the hazards in a community as a whole, rather than each being site-specific," says Charles Lee, director of the United Church of Christ's Commission for Racial Justice. Lee has advised the Environmental Protection Agency on environmental justice issues.

"If you were to take a bunch of sites, all of which may comply with standards, it doesn't mean that cumulatively there is no risk in that community," Lee said. "Moreover, there may be other sites that are completely undocumented."

He says the high incidence of asthma in many minority communities underscores the multiple aspects of environmental problems.

"Asthma is a controllable disease that is caused by several different sources and is exacerbated by many others," he said. "The incidence is so high in minority communities, because of greater exposure to allergens, greater susceptibility to those allergens, because of inferior living conditions, and the inability to address it, because many residents lack adequate health care."

On Feb. 11, 1994, President Bill Clinton lent support to the environmental justice movement by issuing an executive order requiring that all federal agencies include the achievement of environmental equity among their goals.

The same year, the environmental agency set up an Office of Environmental Justice and established the National Environmental Justice Advisory Council to study the impact of environmental policies on different income and racial groups. The council also will provide grants to help communities around the country identify and address local environmental problems.

Some activists say the environmental justice movement is getting a vital boost from efforts to encourage redevelopment of contaminated industrial wastelands in cities across the country. These "brownfields" usually are empty lots that once contained factories, oil-tank farms or smelters.

Because the level of contamination is too high to permit redevelopment, but too low to merit priority treatment under the federal superfund program, brownfields often are left to languish as urban eyesores. Potential buyers are frightened away by fears that they will be held liable for past pollution in future lawsuits, while others give up because bankers and insurers refuse to provide financing and liability coverage for such risky investments.

The Clinton administration is offering a two-year "brownfields initiative" aimed at luring businesses to locate in these lightly polluted areas. The program provides federal grants of $200,000 to industrial developers of polluted sites.

This year, Clinton would expand the program by proposing to grant tax breaks to companies that buy brownfield sites, clean them up and build new businesses on them. Under the proposal, included in the president's plans for the fiscal 1997 budget, businesses could deduct the full cost of cleaning up brownfield sites.

Environmental justice activists praise the initiative as a ray of hope. "The heart of the issue is to bring back to life communities which are distressed," Lee says.

St. Louis Post Dispatch September 7, 1996

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

146170

SUNDAY, SEPTEMBER 8, 199(

Talent Will Bring Waste Through Area, Horn Says

By Fred W. Lindecke
Missouri Political Correspondent

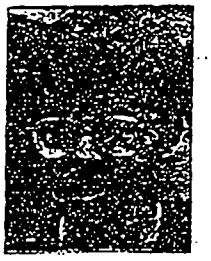
Joan Kelly Horn accused Rep. James M. Talent, R-Chesterfield, Saturday of wanting to send trainloads of nuclear waste through Kirkwood, Webster Groves, Valley Park, Fenton and Eureka.

Horn, Democratic candidate against Talent in the Nov. 5 election, put leaflets attacking Talent on cars parked at Kirkwood Park for the city's annual Greentree parade and festival.

Talent responded in an interview that he is sponsoring legislation that would require transportation of nuclear waste to a storage facility at Yucca Mountain, Nev., and that he has no intention of allowing it to pass through the Second District he represents.

Both Horn and Talent rode cars in the Greentree parade. Talent defeated Horn in 1992 after she had represented the district for two years.

"Talent's toxic train threatens our community," the leaflet said. It said Talent "should be paying more attention to the needs of our community and less to his friends in the nuclear industry."



Talent



Horn

Talent said the bill, if passed, does not identify shipment routes. He said it is intended to direct the Energy Department to get started on a commitment Congress made to help nuclear power plants dispose of their waste.

After the bill is passed, the debate will start over which routes to use. "I don't see why it has to go through any populated area," Talent said.

Horn answered that the likely routes from nuclear plants to the east would be on Union Pacific tracks or trucks on Interstate 70 going through the Second District.

St. Louis Post Dispatch September 8, 1996

Area Residents Want Waste Shipped Out

Area residents, environmentalists and local officials turned out Wednesday night to ask the government to ship radioactive waste out of metropolitan St. Louis to remote areas in other states.

They supported the report of an advisory committee that is asking the Department of Energy to spend hundreds of millions of dollars to remove the waste.

St. Louis Mayor Freeman Bosley Jr., St. Louis County Executive George R. "Buzz" Westfall, Gov. Mel Carnahan, House Minority Leader Richard A. Gephardt and U.S. Reps. William L. Clay, D-St. Louis, and James M. Talent, R-Chesterfield, sent representatives to endorse the plan.

"Now that the Cold War is over, it's time for the federal government to clean up" the waste, Bosley said in a statement read to about 80 people at the Henry VIII Hotel in Bridgeton.

Congressional candidate Joan Kelly Horn, a Democrat, asked why the government has allowed tons of waste to remain in heavily populated and commercial areas for 50 years.

Gephardt, D-south St. Louis County, and Clay sent a letter asking the head of the Department of Energy to come here to accept the report's findings. An energy official at the meeting promised that agency Administrator Thomas P. Grumbly would do just that.

Faced with public outrage two years ago, Grumbly reversed the government's decision to build a $200 million bunker at Lambert Field to store the radioactive waste.

Grumbly then asked a local advisory committee to come up with a better idea. The 40-member committee presented its findings to the public Wednesday. Key points:

- Much — but not all — of the radioactive waste at 90 sites here would be shipped out of state to rural areas.
- The highest priority should be removing waste at the airport. Removal should begin as early as next year.
- The energy department should pay for the removal — which has been estimated at $600 million.

MISSOURI

RADIOACTIVE WASTE

Ship Much Out Of State, Panel Urges

A 40-member committee on Tuesday endorsed a proposal to ship much — but not all — of the radioactive waste at about 90 sites here to remote areas in other states.

The local committee was formed at the request of the U.S. Department of Energy. A public hearing on the $600 million-plus plan will be held at 7 tonight at the Henry VIII Hotel, 4690 North Lindbergh Boulevard in Bridgeton. The plan, worked out by the committee over the past two years, still must be approved by federal agencies and Congress.

The waste is from uranium processing for development of the atomic bomb. Under the proposal, most areas containing the waste would be excavated and cleaned up for unrestricted use.

Less drastic cleanup would occur at and around the old Mallinckrodt Chemical Works plant along the north St. Louis riverfront, where the uranium was processed, and at the West Lake Landfill in Bridgeton.

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1463147

St. Louis Post-Dispatch August 12, 1996

City Urged To Fight For North Runway

Mayor: Plan Would Use Airport Land, Spare Houses

By Linda F. Jarrett
Special to the Post-Dispatch

Former Bridgeton city councilman Bill Otto is encouraging Bridgeton to continue the fight for its proposal to expand Lambert Field by adding a runway to the north.

Bridgeton's plan would add an east-west runway north of Lambert from Interstate 170 to McDonnell Douglas Corp. The plan, which has a total cost of about $970 million and would use airport property, also calls for building another terminal. Bridgeton Mayor Conrad Bowers has said the plan would spare the 1,500 houses targeted in Bridgeton under another proposal, which would extend a new runway westward into Bridgeton.

That plan, endorsed by Lambert Field and St. Louis, would put a third east-west runway west of the airport and displace 5,000 Bridgeton residents and scores of businesses. The proposed cost of $1.78 billion is double that of Bridgeton's plan, but Lambert has said that plan does not provide enough capacity for the future.

The National Air Traffic Controllers Association, of which Otto is president, and the Airline Pilots Association oppose the westward expansion.

> **"We would like to see Bridgeton go to the forefront with this plan."**
>
> BILL OTTO,
> former city councilman

"Our concern is we won't have anything done," Otto told the council. "We need a runway and we would like to see Bridgeton go to the forefront with this plan."

In an interview, Otto said that airport officials had said they "need an all-weather runway, but where they have it laid out, technically by our rules, we can't use it the way they want. We can only land in one direction and depart in one direction, so we're spending millions on a runway we can only use half the time."

Aviation rules require a 3,400-foot separation between runways for simultaneous operation of two runways in bad weather.

Otto said that although Bridgeton's plan separated runways by 2,500 feet, "technology seems to be on the way to allow us to run simultaneous traffic in the worst weather conditions on runways separated by 2,500 feet."

Otto said the airport was at capacity now and Bridgeton's plan could be completed in three years but the westward expansion would require seven years.

"By the time they go through the courts and level the ground, we'll be beyond capacity," he said. "We won't allow the airport to get to an unsafe condition. We [controllers] will hold airplanes on the ground and tell others not to land."

1145460

...is not about FUSRAP but is included because it provides relevant information on FUSRAP sites and issues.

Airport site top priority for radioactive cleanup

By Barbara Ponder
Staff writer

The Manhattan Project hastened the end of World War II by providing the United States with the atomic bomb.

But the project left areas of St. Louis, particularly in North County, contaminated with radioactive waste.

Now after two years of studying those contaminated areas, the St. Louis Remediation Task Force has completed a draft report concerning cleanup priorities and strategies. Members will meet in September to finalize the report for forwarding to the U.S. Department of Energy.

"The Task Force has reached a consensus on a comprehensive cleanup plan designed to address the radioactive wastes which have burdened the St. Louis area for far too long," said Sally Price, the task force chairman. "The group has worked diligently during the past two years to develop these recommendations, and I look forward to a successful outcome of its efforts."

A resolution passed by the task force at its Aug. 20 meeting recommends the Department of Energy begin in the upcoming fiscal year, which begins in October, to test microwave technology (see related story) in cleaning up the St. Louis airport site.

The task force — composed of 24 participants including municipal officials, utility companies and environmental groups — has ranked the airport site as its top priority. The 21.7-acre tract of land is adjacent to the northern edge of Lambert International Airport between McDonnell Boulevard and Banshee Road. It is one of five groups of properties contaminated by radioactive waste generated by the Manhattan Project.

The other sites are: the airport site vicinity properties, which lie along routes used to transport waste to the airport site; Latty Avenue vicinity properties, where some airport-site waste was moved; the West Lake Landfill in Bridgeton, where "clean-fill dirt" was actually 8,700 tons of barium sulfate dispersed in 39,000 tons of topsoil; and the St. Louis downtown site, near the McKinley Bridge.

The Manhattan Project conducted nuclear weapons research during World War II. In St. Louis, Mallinckrodt, then located downtown, played a pivotal role in the project by purifying uranium for U.S. atomic weapons. Mallinckrodt serves specialty markets in human and animal health care and specialty chemicals.

But Mallinckrodt's role in the war effort was not without cost.

In 1974, St. Louis was recognized by the Department of Energy as having the most contaminated acreage and radioactive waste of any U.S. site not owned by the DOE and contaminated by the government's activities involving radioactive materials.

According to the task force's draft report, St. Louis' contamination problems are compounded by: the area's dense population; evidence that the contamination has spread through the air as well as through surface and ground waters; the location of contaminated properties within the flood plain between the Missouri and Mississippi Rivers; and evidence of radioactive contamination of Coldwater Creek.

The draft report also contains recommendations for remediation of the four other sites. These include:

— Clean up the Berkeley ball fields on McDonnell Boulevard, airport site vicinity properties, the Latty Avenue properties and Coldwater Creek to unrestricted-use standards.

— Clean up the West Lake Landfill and St. Louis downtown site to industrial- and commercial-use standards.

— Clean up the City Levee (Riverfront Trail) to industrial-, commercial- and recreational-use standards.

1145920

Radioactive Waste

Task Force To Recommend Shipping Wastes From Missouri Contaminated Sites To Other States

ST. LOUIS—An advisory task force plans to recommend to the Department of Energy that contaminated materials at scores of sites in the St. Louis area be shipped to storage facilities in other states, a member of the panel told BNA.

The 41-member St. Louis Site Remediation Task Force, which was commissioned by DOE and assembled in August 1994, was directed to study issues related to disposal of radioactive wastes that originally were created at a uranium processing plant for the U.S. nuclear weapons program but later ended up in various locations.

In 1990, DOE proposed to excavate the 90 contaminated sites and dispose of 900,000 cubic yards of low-level radioactive waste at a central bunker in the St. Louis area. However, public opposition to DOE's proposal prompted the department to appoint the task force to come up with alternative proposals.

"The task force has reached consensus on a comprehensive cleanup plan designed to address the radioactive wastes which have burdened the St. Louis area for far too long," Sally Price, task force chairwoman, told BNA. "The group has worked diligently during the past two years to develop these recommendations, and I look forward to a successful outcome of its efforts." Price would not speculate on the likelihood that DOE would adopt the task force's recommendations.

The task force released its draft proposal Aug. 18 and will meet Sept. 14 to make final revisions to its report, Price said. The panel will hold a public hearing Sept. 18 before sending the plan to DOE.

The current situation, with wastes located at scores of sites evolved over 50 years, and the aftermath of the U.S. project to build the atomic bomb have left St. Louis with the largest Formerly Utilized Site Remedial Action Program (FUSRAP) in the United States, both in acreage and volume of radioactive waste material, the draft report said.

Uranium Processing

The Mallinckrodt Chemical Co. was the sole source of processed uranium from the inception of the U.S. atomic bomb program in 1942 until 1951, Sarah Snyder, FUSRAP community relations coordinator, told BNA. In 1974, DOE established the program to clean up nongovernment-owned sites contaminated as a result of the government's activities involving radioactive materials, and St. Louis is the largest of the 46 FUSRAP sites, Snyder said.

Mallinckrodt's downtown St. Louis production facility processed uranium until 1957, when the Atomic Energy Commission moved production to a site 30 miles away at the former U.S. Army TNT production facility in Weldon Spring, Mo.

The federal government, however, in 1946 acquired 21.7 acres at Lambert Field, the St. Louis airport, for storing residues from uranium ore processing at Mallinckrodt. The St. Louis Airport Storage Site was a repository for pitchblende raffinate, radium-bearing waste, barium cake residue, and dolomite liners, as well as other waste during cleanup projects undertaken from 1948 through 1962. In 1966, the government sold the waste at the airport site to Continental Mining and Milling Co., which moved some of the materials to a site in nearby Hazelwood, Mo.

Spillage resulting from transport led to additional contamination at vicinity properties. In 1969, the Cotter Corp. assumed ownership of the materials and began shipping them to its processing plant in Colorado. By 1973, all that remained was 8,700 tons of barium sulfate, which was dispersed in 39,000 tons of topsoil and shipped to the West Lake Landfill in Bridgeton, Mo., labeled as "clean fill dirt."

These transport and storage maneuvers also led to contamination of the Mississippi River banks, Coldwater Creek, and numerous roads and rail lines totalling about 90 areas.

Task Force Recommendations

In its draft report, the task force made the following recommendations for the overall cleanup:

- That the airport site, the Coldwater Creek site, and sites near residential areas be cleaned up for unrestricted use, reducing thorium/radium contamination to five picocuries per gram above background levels in the top six inches of soil, and 15 picocuries per gram in each six-inch layer below the top layer;
- That the downtown Mallinckrodt Chemical Co. site, West Lake Landfill, and riverfront areas be cleaned up to levels compatible with industrial uses; and
- That the contaminated soil be transported in sealed containers to remote out-of-state storage facilities in the West, probably including Nevada, Utah, and Washington.

David Farquharson, task force member and mayor of Hazelwood, told BNA that area residents have long championed the idea of shipping the waste to storage sites in other states.

The task force identified cleanup of the airport site as the highest cleanup priority, and will urge its cleanup during fiscal 1997.

Saying that he agrees with task force's recommendations, Rep. James Talent (R-Mo) Aug. 13 requested in a letter to Thomas Grumbly, assistant energy secretary for environmental management, that DOE make available $40 million during fiscal 1997 to allow the cleanup to begin.

David Adler, St. Louis FUSRAP site manager, however, said Aug. 18 that although DOE will give consideration to the task force's recommendations, he is uncertain whether Congress will approve necessary funding to carry out the plan, which he estimated at $600 million to $700 million.

Price said the cost of the panel's recommendations are not far out of line with DOE's proposed construction of a containment bunker at Lambert Field for most of the wastes at an estimated cost of $500 million to $600 million.

The task force consists of local officials, DOE-designated representatives of affected groups, including owners of contaminated properties, congressional field staff, and representative of agencies that have regulatory authority at the St. Louis sites.

St. Louis Post-Dispatch August 12, 1996

Annexation Plan Faces Opposition On Revenue Loss

By Josh Green
Special to the Post-Dispatch

Berkeley ran into opposition from St. Louis County last week on a proposal for annexation of 402 acres of unincorporated land.

Berkeley pressed its case for annexing the land on the western edge of Berkeley at a public hearing conducted by the St. Louis Boundary Commission. The annexation would mean a $550,000 loss in tax revenue for the county.

Berkeley Mayor Ted Hoskins said annexing the tract would give the city much-needed tax revenue. Berkeley's annual budget consistently runs a deficit of $1.7 million to $2.3 million.

But June McAlister Fouler, St. Louis County's director of planning, said the county strongly opposed the annexation.

"This is not a good remedy for economic problems," Fouler said.

Dan King, a resident of Affton, an unincorporated area in south St. Louis County, said at the hearing that he did not want to see municipalities such as Berkeley annexing areas for their own economic health while taking revenue from the county.

"I sympathize with the city's economic plight," King said. "But I don't want them to get well at my expense."

Berkeley estimates it would receive an additional $451,781 the first year the annexation is in effect.

The land is bordered by James S. McDonnell Boulevard to the north and east. Part of the land is used by McDonnell Douglas Corp., which has its headquarters in Berkeley.

Sabreliner Corp., which repairs and services aircraft, and Flight Safety, a training school for pilots, also do business on the property.

The three businesses on the land would be given a large property-tax break by Berkeley, Hoskins said. The businesses will pay 44 cents for each $100 of assessed property

See ANNEX, Page 5

Annex

From page one

value for 12 years, rather than the normal $1.14 for each $100 of assessed value. The higher rate has been in effect since a bond issue passed several years ago.

"I don't think, to be fair, we should assess them the amount of a bond issue passed before they were considered for annexation," Hoskins said.

Berkeley Economic Development Director Christina Flynn said the annexed land would compensate Berkeley for a tax base it lost from airport buyouts of houses, construction of Interstates 70 and 170 and the construction of more non-tax-bearing county buildings.

She said McDonnell Douglas paid for many of its own services, such as police and fire protection, so Berkeley would be relieved of full-time protection of some of the property.

Boundary commission administrator Carl Ramey said there would be a 21-day period for comment. The commission could reach a decision on the annexation by April 1997.

145460

Plan Would Exile Nuclear Bomb Waste

Panel Wants To Send It To Other States

By Mark Schlinkmann
Regional Political Correspondent

Much — but not all — of the radioactive waste at about 90 sites around St. Louis would be shipped to remote areas in other states under a plan expected to be submitted soon to the U.S. Energy Department.

The plan has been developed over two years by a local committee formed at the request of the energy department. The waste is from uranium processing for development of the atomic bomb.

The draft was distributed to committee members at a meeting Tuesday at the Hazelwood Civic Center East. The group will meet again on Aug. 27 to consider changes, then hold a public hearing next month, before sending the plan to Washington.

David Adler, who heads the St. Louis area cleanup effort, said his agency would give serious consideration to the committee's recommendation, but it's uncertain Congress will approve funding.

Adler said the plan would cost $600 million to $700 million — more than $100 million above the cost of a proposed permanent storage bunker at Lambert Field. Several years ago, the energy department championed the bunker, but it shelved that idea because of community opposition.

Congress' willingness to pay for shipping that amount of waste out of Missouri "is untested," Adler said.

A draft version of the plan calls for the most detailed cleanup to occur at interim storage sites at Lambert Field and on Latty Avenue in Hazelwood; at old ball fields in Berkeley across McDonnell Boulevard from the airport site; at 78 other sites in Berkeley and Hazelwood; and along Coldwater Creek, which flows near the airport site.

Richard Cavanagh, one of St. Louis County government's representatives on the

See WASTE, Page 3

Waste

From page one

committee, said the plan calls for those properties to be excavated and cleaned up for unrestricted use. Many are close to residences, he said.

The contaminated soil would be taken to public or commercial sites — probably in Utah, Nevada, Washington state and Tennessee, a committee spokesman said.

The plan recommends a less drastic cleanup in the industrial area along the north St. Louis riverfront at and around the old Mallinckrodt Chemical Works plant, where the uranium was processed.

That would be cleaned up to industrial and commercial use standards, where contamination would be reduced significantly but not eliminated.

The less drastic cleanup also would be recommended for the West Lake Landfill in Bridgeton and for an area along the St. Louis levee being developed for a recreational trail.

Committee chairwoman Sally Price said members believe that they can convince the federal government to finance the plan over 10 years or so.

After all, she said, the expensive bunker idea "evidently was something that was realistic" in federal officials' eyes.

She added that the plan being considered by her committee would be less expensive than complete excavation of all sites.

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1457S9

EDITORIALS

Move Bomb Waste — Carefully

Some 90 sites in and around the St. Louis region contain radioactive waste left over from uranium processing during the development of the atomic bomb. After years of debate, the question of what to do with it remains unanswered. Now comes a plan by a local committee created two years ago at the behest of the U.S. Department of Energy that makes a serious attempt to supply an answer. Though not perfect, the plan is worth a hard look.

Contaminated soil on Latty Avenue in Hazelwood, at several other locations in the same city and in Berkeley and along Coldwater Creek would be completely dug up and shipped out of the area. A less thorough cleanup would occur at the old Mallinckrodt Chemical Works and at the West Lake Landfill in Bridgeton, where only industrial uses would be permitted. The plan's most important element: There would be no permanent storage dump at Lambert Field, as the Energy Department originally wanted but is no longer pressing in deference to community's wishes.

The group that developed the plan unveiled it this week at Hazelwood Civic Center East. Another meeting will be held to consider refinements, and then a public hearing before the results are forwarded to the Energy Department. Two issues need to be considered before any plan is sent to Washington. First, is there a reasonable chance Congress is willing to pay the roughly $700 million it will cost to move the waste, more than a permanent bunker would cost? If not, the current plan needs a backup to avoid becoming irrelevant. Second, can the waste be safely transported out of the area?

Even if the waste were sent to government installations from Utah to Tennessee that are already contaminated, how much risk is there to citizens along the routes it must take to its final destination? Just as St. Louis doesn't want to become the transit point for all nuclear waste moving from east of the Mississippi River to a possible permanent home in Nevada, the region shouldn't try to visit a similar problem on its neighbors.

Still, the new plan is worth considering; leaving nuclear waste scattered about is neither safe nor sane. Something must be done with it, but not at the expense of Missouri's neighbors — and only after everyone is certain that digging up the contaminated soil won't seriously risk spreading the uranium waste around, making many people sick. Those points still need clarification.

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

Dioxin Burning Forecast Extended

By Tom Uhlenbrock
Of the Post-Dispatch Staff

The dioxin incinerator at Times Beach will operate into next year, instead of finishing by October as previously predicted.

When the incinerator began burning on March 17, project manager Gary Pendergrass said the job would take seven months. On Friday, he said the burn would "probably be finished by the end of January."

"The main thing driving it is the additional quantities that we're getting," he said.

The amount of contaminated material to be burned initially was estimated at 130,000 tons. That estimate now has grown to almost 200,000 tons.

The increase is coming from two places — the amount of soil being excavated from contaminated sites, and heavier-than-expected bags that were stored from already cleaned sites.

In addition, the initial estimate of the burn time was based on the incinerator operating at 100 percent capacity, burning 1,000 tons a day in round-the-clock operation. So far, the actual processing has been closer to 75 percent capacity. As of Friday, 70,000 tons had been burned.

"We're disgusted, but not surprised," Steve Taylor, an opponent of the burning, said of the delay. "Nothing about this project has gone according to plan."

See DIOXIN, Page 3

St. Louis Post Dispatch July 15, 1996

Note: Continued on next page.

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

Dioxin

From page one

The risk assessment used to get operating permits for the incinerator is based on an eight-month burn. Will a longer burn mean greater risks?

"That's a very pertinent question right now," said Bob Feild, who is coordinating the project for the Environmental Protection Agency. "As it becomes clearer that eight months will be exceeded, we would recalculate risks."

But Feild emphasized that the current estimate of risk is so low, even a 50 percent increase in the time incinerator is running would not escalate the risk beyond what is permissible.

The EPA estimated the risk of the project to be two additional cancer cases among 10 million people getting maximum exposure to incinerator emissions.

"A 50 percent increase in the duration of the project still would have the risks well below the maximum allowable of one cancer case per million people," Feild said.

Fred Striley, another opponent of the incinerator, said the risk assessment did not include other contaminants in the material being burned and did not figure in "fugitive" emissions coming from sources other than the stack.

"To say the risks are so low that they can easily double and still be within acceptable risk is based upon a number of false assumptions," he said.

The state permit specifies that only material from the 27 dioxin sites in eastern Missouri be burned in the incinerator, and sets a five-year deadline for the project, ending on April 14, 2000.

Eleven sites were excavated earlier and the material stored, and four sites have been cleaned since the incinerator began operation. Two other sites will be capped with soil in place because the dioxin levels are low. That leaves 10 sites awaiting excavation.

■ POSTnet has more on dioxin. POSTnet details, Page 2A

The state Health Department took blood samples from residents living around the incinerator and from a control group that lives in the Manchester area before the burning began.

This week, a second round of samples will be taken to determine whether dioxin levels have increased in the nearby residents while the incinerator is operating.

David Shorr, director of the state Department of Natural Resources, which issued the operating permits, said the fact the project may take longer than earlier estimated was not a concern.

"We are more concerned about making sure that the cleanups are being done thoroughly," Shorr said. "This is our only opportunity for cleanup dollars, and we want to make sure we're cleaning them as best we can."

The following clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites or issues.

Nuclear Waste Proposal Tough Call For Illinois

By Philip Dine
Post-Dispatch Washington Bureau

WASHINGTON

AS THE TRANSPORTATION and storage of waste from nuclear power plants come to the forefront in the Senate, they raise a thorny dilemma for the senators from Illinois.

In considering whether to build a temporary storage site in Nevada's desert and ship the nation's nuclear waste there, Sens. Paul Simon and Carol Moseley-Braun must balance two factors. On the one hand, Illinois contains 13 of the country's 110 nuclear power plants, generates one-sixth of the nation's nuclear power and has 5,000 metric tons of waste — easily topping all other states on each count. So nowhere is it more crucial to rid a state of its spent nuclear fuel.

But that very concentration means that in Illinois more waste would have to be handled, packaged and moved. And, geography dictates that much of the spent fuel of states east of Illinois, where the bulk of nuclear plants happen to be, will pass through Illinois on its way West.

Missouri — with only one nuclear power plant — would also be a major route for the shipments.

"I think it is clear we have to do something with nuclear waste," Simon said Wednesday. He supports the Nevada plan with some reservations. "I really do not contemplate any problems — the people involved say they will go out of their way to be safe — but no one can guarantee that it is risk-free."

Being right on this one is critical, Simon said, because "the repercussions are so great."

The federal government is supposed to take title to the waste by 1998 but has no place to put it, and states are growing increasingly concerned about running out of storage space. The Senate proposal calls for a temporary storage facility and a permanent facility, to be built by 1998, in Nevada's Yucca Mountain.

Illinois ratepayers have spent more than $1 billion, more than any other state, toward the interim Nevada facility.

Moseley-Braun remains reluctant to endorse the plan because so much waste would probably travel through Illinois.

However, after years of study about nuclear waste, Illinois is running out of storage capacity at the nuclear power plants. So she favors moving it but will push for an amendment to clarify accountability during transportation among the Department of Transportation, the Nuclear Regulatory Commission and state nuclear regulatory commissions. "Unlike many areas where everyone wants responsibility, this is one where no one does," she said.

A political battle over the measure appears imminent.

The Senate voted 65-34 on Tuesday to proceed with action on the plan. That vote, an indication of support, called for a second vote Thursday on invoking cloture, which would cut off a filibuster by Nevada's two senators. They vigorously oppose the plan.

But in light of the matter's complexity and the emotions it arouses, Senate leaders decided Wednesday to hold off the vote until this coming Thursday so legislators can move forward on defense appropriation measures. Otherwise, defense spending could have been delayed, with 30 hours set aside for debate on the nuclear plans.

Sister legislation in the House has seen little debate, awaiting Senate action.

The White House has signaled its reservations. Chief of staff Leon Panetta this week noted the president's desire to see more thought given to the temporary site and more "sensitivity" to concerns in Nevada.

And interviews Wednesday with several members of Missouri's delegation showed mixed sentiments.

House Minority Leader Richard A. Gephardt, D-Mo., fears "making St. Louis a highway for the nuclear waste."

Sen. Christopher S. Bond, R-Mo., believes that the legislation offers a prudent approach to solving a mounting problem and that federal regulations would ensure safety. Sen. John Ashcroft, R-Mo., also favors the plan.

Rep. Harold L. Volkmer, D-Mo., is undecided.

Missouri, with one nuclear power plant in Callaway County, near Fulton, would face less transportation of its own waste, but would be a major byway for waste from Eastern states.

In decades of periodic transportation of nuclear fuel containers — 2,400 shipments in all — there have been seven accidents, according to the Nuclear Energy Institute, a trade association in Washington. Four involved highway travel; three, trains. No radiation leaks occurred, and only one accident involved injuries.

In the worst mishap, a quarter-century ago, a tractor-trailer carrying a 25-ton shipping container with spent nuclear fuel swerved on a Tennessee road to avoid a head-on collision. Out of control, the vehicle overturned, and the driver was killed. The trailer and its still-attached container broke away from the tractor, coming to a halt in a rain-filled ditch. No radioactive material was spilled.

Since the bill was first considered in March, it has been tightened as a result of senators' concerns about environmental protection, transportation oversight and the storage facility. But a presidential veto would probably be sustained, Simon said, given the 34 votes already opposed to the measure.

For Rep. Jerry Costello, D-Ill., whose district is served by a nuclear power plant in Clinton, Ill., worry persists, though he realizes something must be done about waste. Potential transportation routes through his Metro East area are along Interstates 270 and 70. "Before I support Yucca or any other location, I want the Department of Transportation to develop a plan of how the waste will get to the site," he said. "I want specific routes."

Despite the contentiousness of the issue, and the political uncertainty, trying to deal with it now is the right thing, Costello said. "I think it's good that it's coming to the forefront. It would be very easy to push it off to future generations and let them make the decision. I think it's our responsibility."

■ POSTnet links to the legislation and the regulators.
POSTnet details, Page 2A

The St. Louis Post Dispatch Date: July 19, 1996

HAZELWOOD

Council Endorses Cleanup Of Sites Tainted With Radioactive Materials

The Hazelwood City Council has endorsed the cleanup of several sites that have been contaminated with uranium and other radioactive materials.

The cleanup was recommended by the St. Louis Site Remediation Task Force, which recommended two levels of cleanup: removal of the contaminants to another storage facility and returning the sites to a green field or a slightly lower level of cleanup of highly contaminated materials so the sites could be used again for industry.

The council says wants all of the sites returned to green fields by removing the contaminated material and shipping it to storage sites in Utah or Washington.

In other business, the council approved a six-month freeze on licensing pawnbrokers. Two other bills on zoning for pawnshops and regulating the shops were postponed until the council's meeting Aug. 7. Mayor David Farquharson said he and the council wanted time to study the bills.

lton Sun Gazette

Fulton, Missouri Sunday, September 17, 1995 50¢

Fulton Sun.

'93 flood aided hazardous waste release in Callaway

By The Associated Press

Two of the few releases of hazardous materials during the Flood of '93 happened in Callaway County, a new study indicates.

Ironically, one release happened as operators at an electrical transformer plant were preparing for the floods.

At ABB Power T&D Co. in north Jefferson City, about 200 gallons of mineral oil were spilled in July 1993 as workers were topping off an underground tank to ensure a steady supply during the disaster.

The mineral oil sloshed into a containment area, but the flood topped a containment berm and sandbags on top of it to wash out much of the oil. The study found residues from the oil in several spots around the plant.

The survey also uncovered petroleum byproducts at the stone gatehouse entrance to the now-abandoned Renz Correctional Center north of Jefferson City, where receding water deposited an underground storage tank. Officials still don't know where the tank came from.

Around Missouri, worse things could have happened to a dozen hazardous waste sites than being battered and covered by water during the 1993 flood, state officials said after reviewing a new report.

"Overall, considering how much water we had and how much damage it did, most of the sites survived relatively well," said Ed Sadler, director of the Hazardous Waste Program for the Missouri Department of Natural Resources.

The department received results last week of a $148,000 study of hazardous waste sites and other areas where state officials were worried floodwaters might have exacerbated environmental problems.

Funded by the U.S. Environmental Protection Agency, the study originally was to have been performed earlier but was delayed to include results from less serious flooding that occurred this past summer, Sadler said.

Some sites showed less contamination after the flood than before.

One dramatic example included several radioactive "hot spots" in sediment in the Mississippi River near a federal hazardous waste site in St. Louis, where radioactive materials had been refined in the production of the first atomic weapons.

The U.S. Department of Energy is conducting the cleanup on the site and found the "hot spots" of radium, uranium and thorium in a survey performed before the 1993 floods.

But the latest survey by a state contractor, BDAT Environmental Inc. of St. Louis, found only background radiation levels in the area of the "hot spots," state environmental engineer Mitch Scherzinger said Friday.

"I believe Mother Nature did us a big favor, because we found less than was found before," Scherzinger said.

Where did the radioactive sediment go? Presumably downstream, but state environmental officials contend the sheer volume of floodwaters diluted the radioactive materials below dangerous levels.

"The floodwaters washed it away," Scherzinger said. "To have the volume of water that passed through during the flood, one could only assume that it was vastly diluted."

FUSRAP - St. Louis site *Sun Gazette* Date: 9/17/95 Page:

Partnership

Continued from Page 1A

north and Lindbergh Boulevard on the east.

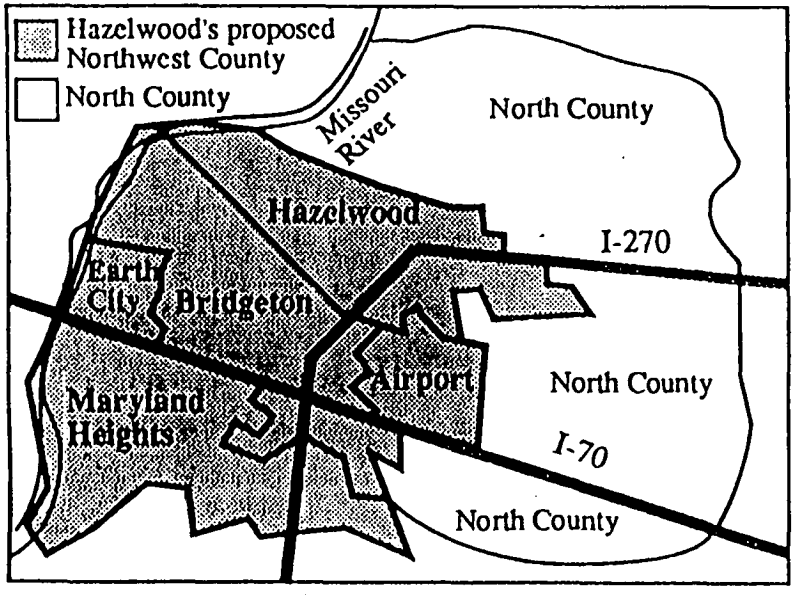
"North and West County are dramatically dissimilar from Northwest County in all the fundamental categories that draw Hazelwood, Bridgeton and Maryland Heights together," the study says. "These three cities are similar in population, income distribution, business and industrial base, economy, housing stock, geography and the potential for future growth."

The report adds that Northwest County is poised to attract not only residential growth, but is also a venue for large-scale commercial and industrial development. Its proximity to major transportation corridors, a high-quality work force and housing stock, and an abundance of vacant land makes the area prime for development, the report says.

Carlstrom said the Northwest County designation could be used as a tool to market Hazelwood and its economic potential. He said he also plans to speak with officials in Bridgeton and Maryland Heights about a partnership that could include sharing costs for an economic development director and an economic development program for the three cities.

Carlstrom said neither the report nor the "Northwest County" designation is intended to shed a negative light on other North County communities.

"I think if they (other community officials) read the report, they'll find it makes sense," Carlstrom said. "We are not saying that we do not belong in North County. We're simply saying we are more similar to Bridgeton and Maryland Heights."



'Northwest County'

Hazelwood proposes new name

By Nancy L. Ide
Staff writer

Hazelwood city officials have proposed forming a partnership with the cities of Bridgeton and Maryland Heights, and renaming the area "Northwest County."

"We are different from some other cities in North County, and the demographics prove that," said Hazelwood City Manager Ed Carlstrom at a City Council meeting last Wednesday. "It's in the best interest of the city to develop an identity and pride in the area in which we live."

Carlstrom said city staff put together a study that compares the populations, income distribution, racial composition, and educational and poverty statistics in the three cities with averages of 43 other North County municipalities. Carlstrom said statistics were compiled from numbers supplied by the St. Louis County Department of Planning in the *1994 St. Louis County Fact Book.*

For example, the study notes that:

- Median income is $38,619 in Bridgeton, $40,757 in Hazelwood and $39,211 in Maryland Heights, as opposed to a North County average, median income of $29,992.
- The percentage of adults with college degrees is 23.2 in Bridgeton, 20.2 in Hazelwood and 33.5 in Maryland Heights, as opposed to a North County average of 16.08 percent.
- Minority population accounts for 5 percent in Bridgeton, 10 percent in Hazelwood and 7 percent in Maryland Heights, as opposed to a North County average of 47 percent.

Since the study was done internally, no outside costs were incurred, Carlstrom said.

The study proposes that "Northwest County" be roughly bounded by Page Avenue on the south, the Missouri River on the west, Charbonier Road on the

See PARTNERSHIP, Page 4A

1330G7

The above clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites and issues.

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1 3 5 6 3 0

St. Louis To Get Cleanup Money

Program Restores Sites For Commercial Use

By Kathleen Best
Post-Dispatch Washington Bureau

WASHINGTON — St. Louis is getting $200,000 from the federal government to lure business back to a blighted, 26-acre section of the city plagued by pollution, high unemployment and a dwindling tax base.

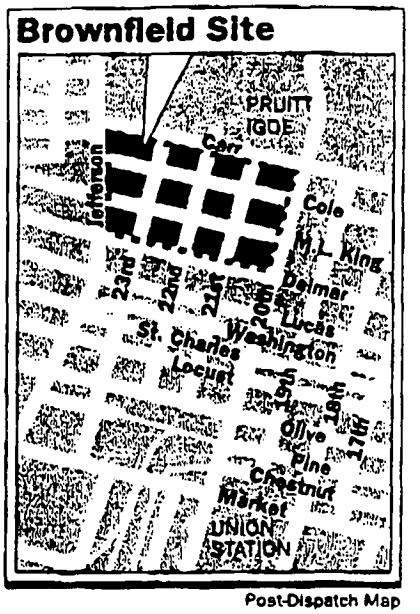
The city was one of 15 areas selected for U.S. Environmental Protection Agency "brownfield" grants designed to help cities cope with the legacy of pollution left behind as industries fled inner cities for the suburbs.

The money will help St. Louis put in place initiatives to lure businesses back to polluted sites, clean them up and assure new business occupants that they will not face financial ruin if additional past pollution is discovered.

The EPA will work with cities and state regulators to set cleanup standards that reflect how the property will be used in the future — a change of approach that could potentially save millions of dollars.

In the past, the EPA generally insisted that polluted sites be restored to standards suitable for residential property, even if the sites were going to be used for industry. "Brownfields means we may say, 'If it's going to stay industrial, then let's clean it up to industrial standards,' " said Glenn Curtis, brownfield coordinator in the EPA regional office in Kansas City.

"It's a change in thinking, in mentality," Curtis said. "We're trying to work with prospective purchasers to overcome their fears about a brownfield site and to assure any employees that the property will be safe. We won't allow them to go in and work if there is an unsafe level of contamination."



Post-Dispatch Map

The EPA grant will allow St. Louis to use the Martin Luther King Business Park as a pilot project that could become a model for restoring other contaminated areas of the city. The business park is bounded by Delmar Boulevard, Jefferson Avenue, Carr Street and 20th Street.

Michele Duffe, director of real estate for the St. Louis Development Corp., said the money would help the city:

- Finish an inventory of environmental problems in the 26-acre business park.
- Pay the administrative expenses of a citizens advisory committee to work with surrounding neighborhoods and a separate committee of experts in environmental law, policy and finance to work with businesses willing to move into the park.
- Explore ways to set up a remediation fund to help businesses if cleanup costs exceed initial estimates.
- Put in place a special taxing district that would allow some of the taxes paid by new businesses in the park to be recycled to help clean up and lure businesses to other contaminated city sites.

The city or its subsidiaries now own all the land in the business park. Eventually, city officials hope to offer a potential purchaser a menu of incentives and other services that would turn a brownfield park into a tax- and job-producing oasis.

Here is an example of how the system would work, says Duffe.

A parcel of ground in the business park is appraised at $1.50 a square foot — the value if the land is cleaned, which it is not.

A business agrees to buy the property for the appraised price. At closing, the purchase price is placed in an escrow account. That money is then used by the business to pay the costs of cleaning up the site. If money is left over once the cleanup is complete, it goes to the city for deposit in a remediation fund.

If the cleanup costs exceed the amount in the escrow account, the city would work with the business to help it qualify for corporate state income tax credits or would use money from the remediation fund to help the company close the financial gap.

The state and the EPA would have to sign off on the cleanup efforts.

Curtis said that if the required environmental standards were met, his agency might be willing to enter binding agreements or issue so-called "comfort letters" limiting or eliminating any future liability for past pollution of the site.

ST. LOUIS POST-DISPATCH

THURSDAY, JULY 27, 1995 •

6A

NEWS ANALYSIS
ST. LOUIS POST-DISPATCH
THURSDAY, JULY 27, 1995

Bill's Cuts May Do Dirt To Missouri's Environment

Ability To Keep Air, Water, Soil Clean Could Be Restricted

By Repps Hudson
Of the Post-Dispatch Staff

WASHINGTON

AT STAKE FOR Missouri in an appropriations bill on the House floor today are cuts for waste-water treatment, pollution runoff and low-interest loans to pay for safe drinking water.

David Shorr, director of the Missouri Department of Natural Resources, said the proposed changes in spending and policy in the Environmental Protection Agency appropriations bill could limit the ability of state government to keep the air, water and soil clean.

"My question is real simple," Shorr said in a telephone interview. "Is this country cleaner, and is this country more prosperous? Yes and yes. The problem is administrative. So we should fix the laws, not get rid of them."

Pro-environment House members are fighting a hurried campaign to save the structure of environmental laws Congress has passed in the last quarter-century.

Meanwhile, members who want to change or halt enforcement of environmental laws promise to fight to keep the revisions they wrote into the funding bill for the Environmental Protection Agency.

The battle is joined this week as House members take up the spending bill for the environmental agency, one that Rep. Jerry Lewis, R-Calif., says is a "regulatory agency completely out of control, an agency that until now has delighted in routinely redefining its mission without proper congressional oversight."

Lewis heads the panel of the Appropriations Committee that wants to make the most changes in the agency's mission since Congress created it in 1970.

The panel recommended cutting the agency's budget by a third, to $4.9 billion in the coming fiscal year from $7.2 billion in this fiscal year.

Shorr noted that several measures in the bill would affect the St. Louis area:

- Missouri's four cement kilns, which burn hazardous wastes, would be exempted from new air-quality regulations to make them meet standards similar to those imposed on incinerators.
- Missouri's pending vehicle inspection and maintenance program to fight ozone would be weakened further by stripping the Environmental Protection Agency of the power to enforce minimum air-quality standards. A similar program for the Metro East area would be affected.
- Though Missouri has no such law yet, the state would be allowed to exempt companies from penalties if those companies disclosed their own illegal pollution.



"Is this country cleaner, and is this country more prosperous? Yes and yes."

DAVID SHORR, state resources chief

- The St. Louis area would lose the enforcement power of the Superfund law, which is requiring the cleanup of dioxin from Times Beach and of the radioactive site at Weldon Spring. Shorr says Superfund now requires polluters to pay the $1 billion in cleanup costs in the greater St. Louis area. The appropriations bill would cancel the polluter-pays liability and shift cleanup costs to taxpayers. Potential Superfund sites in the Metro East area also would be affected.
- Refineries, such as the Clark and Shell operations at Wood River, would not be subjected to tougher air-quality standards for such carcinogens as toluene, xylene and benzene that the Environmental Protection Agency is drafting.
- A freeze on permits for municipal storm-water sewer systems would mean that many smaller cities would not be required to control their pollution from runoff, while many larger cities already have received their operating permits.
- A ban on overflow permits for combined sanitary and storm sewer systems in many older cities, such as St. Louis, would halt a program that environmental agency regulators believed had solved pollution issues raised by the older cities.

The spending bill also would prevent enforcement of the Clean Air and Clean Water acts, as well as other environmental laws, until Congress again passes the blueprint authorizing bills.

The Natural Resources Defense Council, an environmental lobby, said Missouri stands to lose $10.1 million for waste-water treatment, $2.3 million to fight runoff pollution and $31.8 million for low-interest loans to help cities get safe drinking water.

Environmental advocates on Capitol Hill realize they must win a pivotal fight if they are to save a host of laws enacted over 25 years.

Rep. Dick Durbin, D-Ill., believes he has the answer in an amendment to ensure that the Environmental Protection Agency has continuing authority to "protect humans against exposure to arsenic, benzene, dioxin, lead or any known carcinogen."

Other members plan to offer amendments that would wipe out 17 provisions in the funding bill that would prevent the agency from enforcing more than 50 environmental laws and regulations, according to the National Resources Defense Council.

"This is the backstop. This is the bottom line for EPA," Durbin said this week. He said that with a substantial cut in the agency's operating budget, the agency would have difficulty enforcing many laws. The agency would have to set new priorities. He said his amendment would give the agency the legal basis to override other efforts to nullify protection.

Durbin wants to force House members to vote on continuing protection against a variety of environmental risks. He said that when the American people saw how many environmental laws could be curtailed or exempted by the House Appropriations Committee's bill, they would pressure their representatives to keep the protection.

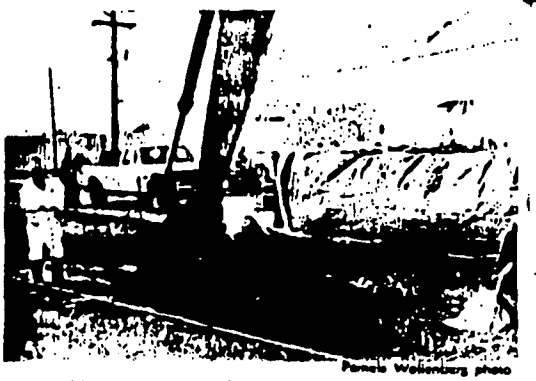
Lewis' panel also approved policy or spending changes in the Clean Air and Clean Water acts, the Safe Drinking Water Act, the Superfund law and the waste control act and other laws enforced by the U.S. Environmental Protection Agency.

A spokeswoman for the appropriations committee said its strategy was to get Congress to write new bills for air, water, hazardous waste cleanup and other environmental laws. "There's a lot of concern among people in industry and in the private sector that EPA has overstepped its bounds," said Elizabeth Morra.

A spokesman for the Chemical Manufacturers Association, Owen Kean, said his trade association, which represents most chemical makers in the United States, "has not been an active player in the process. We need an effective EPA to do a good job so we can do our own job. It's in our self-interest."

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The above clipping is not about FUSRAP but is included because it provides relevant information on FUSRAP sites and issues.



Pamela Wollenberg photo

Andy Kohler, an employee of Remediation Services Inc., directs a backhoe operator as the shovel scoops up contaminated dirt along Nyflot Avenue in Hazelwood.

Soil cleanup under way at residential sites

By Nancy L. Ide
Staff writer

HAZELWOOD/ BERKELEY

Work began last week to clean up six residential sites in the Hazelwood area that are contaminated with radioactive soil.

The project is expected to be completed by the end of December, said David Adler, site manager for the U.S Department of Energy (DOE).

Bechtel Environmental, the contractor for the project, hired Remediation Services Inc. as subcontractor to perform the cleanup.

DOE officials announced in August that $18 million had been set aside for radioactive waste cleanups throughout the St. Louis area. About $3.8 million will be used to clean up the six residential sites — five in Hazelwood and one in Berkeley, Adler said.

"Our highest priority is to have all the residential properties cleaned up," Adler said. "In terms of quantity, the amount of waste is not significant."

The remainder of the $18 million will be used to clean up contaminated industrial sites in the St. Louis area, Adler said. Two waste storage sites are in the North County area — one on Latty Avenue in Hazelwood and one at Lambert-St. Louis International Airport. A third site is located in downtown St. Louis.

Adler said contaminated soil landed at the six residential sites beginning in the late 1960s, when a private company hauled radioactive residue from uranium ore processing in open trucks from the airport storage site to the Latty Avenue site. Radioactive dirt blew off the trucks and contaminated residential yards and ditches along the route.

The contaminated areas will be dug to a depth officials expect to be clean — between 6 and 18 inches — and the dirt will be excavated in 6-inch sections using standard earth-moving equipment, Adler said. Two rounds of samples will be taken from the remaining soil to ensure that all of the contaminated dirt has been removed.

The soil will be transferred to and sealed in an "intermodal container," which is a large, secure storage box designed to transfer easily from an 18-wheeler to a railroad car, Adler said. Each intermodal container can hold 20 cubic yards of dirt, which translates to about two dump-truck loads.

Initially, the containers will be trucked to the airport storage site and stored there for a few weeks until the containers are shipped by rail to Envirocare of Utah, a licensed waste storage facility about 80 miles west of Salt Lake City, Adler said. He estimated about 100 containers would be needed to hold the contaminated dirt from the six residential areas.

After the cleanup is completed, the site will be restored and clean dirt will trucked in to replace what has been taken out, Adler said. Grass and vegetation will be planted.

Adler said workers are taking every precaution in removing the dirt.

"All efforts are focused on eliminating any health risks in removing the dirt," Adler said. "We have air monitors on our personnel and around the excavation site, and the soil is kept moist to reduce dust.

"Our main concern is traffic safety risks (from some traffic lanes being closed)," he added.

The northbound lane of Hazelwood Avenue is closed beginning at Nyflot Avenue and extending about 1,000 feet north while workers clean up four properties on the east side of Hazelwood Avenue. The eastbound lane of Frost Avenue will be blocked when workers clean up two properties on the south side of Frost, east of Eva Avenue, in about two weeks.

FUSRAP, St. Louis Sites, St. Louis, MO, North County Journal, Weekly-6,300, Date 10/26/94 Page 3A

SUPERFUND WEEK

Vol. 8 No. 41 October 21, 1994

FUSRAP funding, cleanups hiked

The Energy Dept. has increased funding for its Formerly Utilized Sites Remedial Action Program in fiscal year 1995 and is increasing its field work by 300%.

Cleanups in FY 1995 are planned for vicinity properties of the St. Louis Airport and Maywood, N.J., sites. Demolition of the Colonie Building in New York and a cleanup in Wayne, N.J., are also on FUSRAP's project list, along with the cleanup of seven World War II-era contaminated sites, which would bring the number of completed sites to 23.

The seven sites are Alba Craft, Associate Aircraft, Baker Brothers and HHM Safe Co. in Ohio, Bliss & Laughlin in New York, Chapman Valve in Massachusetts, and a General Motors site in Michigan.

With three more sites cleaned up in FY 94, FUSRAP has completed remedial actions at 16 of the program's 46 sites. The number of FUSRAP sites has doubled since the program started in 1981, including two new sites added in FY 94. The two sites recently cleaned up are the Aliquippa Forge site, an abandoned factory used for milling uranium billets, and C.H. Schnoor, both in Pennsylvania.

Contact: Sandra Plant, Bechtel Environmental Inc. of Oak Ridge, Tenn., which is managing FUSRAP for DOE, 615-576-5034.

FUSRAP General - Superfund Week. October 21, 1994.

DOE to spend $15 million on St. Louis cleanup

The Energy Dept. has announced plans to start spending $15 million that was allocated to clean up radiological contamination areas in the St. Louis area.

DOE's Formerly Utilized Sites Remedial Action Program is handling the project. Between $4 million and $5 million is planned to be spent cleaning up residential properties contaminated by DOE activities.

What DOE will do with the remaining $10 million or so has not been determined.

"We are pleased to begin this project, which will remove a significant portion of this hazardous material from both residential and industrial areas in St. Louis," said Assistant Secretary for Environmental Management Tom Grumbly earlier this month.

DOE will start by cleaning up six or seven residential properties along haul routes, or stretches of road where trucks once transported hazardous materials in support of uranium processing activities in the St. Louis area that were part of the nuclear weapons program. Over the years, contamination flew off some of the trucks and settled in nearby soil.

The initial work will be overseen by Bechtel National Inc. in Oak Ridge and will mostly involve the removal and disposal of contaminated soil. Envirocare of Utah Inc. has already been contracted to receive the waste from the residential properties.

The cleanup work has already been contracted to two St. Louis firms: B&V Waste Science & Technology and Remediation Services Inc.

The final use of the remaining money will be heavily influenced by stakeholders in the St. Louis area.

"DOE is committed to a process that will lead to increased stakeholder input and involvement in decisions that affect both the near term cleanup and ultimate disposition of these materials," Grumbly said.

"We acknowledge that there is a general consensus against permanent disposal of these wastes in highly populated areas of the country, such as Lambert Field. We will explore alternatives such as soil treatment and siting of a disposal facility elsewhere in Missouri," he said.

There are four sites in St. Louis that are part of the FUSRAP program: the St. Louis Downtown Site, the St. Louis Airport Site, several vicinity properties associated with the airport site, and the Latty Ave. Properties, which include the Hazelwood Interim Storage Site. Contamination includes low levels of thorium, uranium and radium.

Pasha Publications. 1616 N. Fort Myer Drive. Suite 1000. Arlington. Va. 22209 *Defense Cleanup — September 2. 1994*

The above article/item is about FUSRAP, but is not a newspaper clipping. Date: 9/2/94 Page: 2 & 3

MISSOURI

HAZELWOOD — Radioactive soil will be removed from six residential yards here at a cost of $15 million, the Dept. of Energy says. The dirt will be taken to a nuclear waste dump in Utah.

FUSRAP GENERAL NEWS CLIPPING, USA TODAY, 8/17/94, PAGE 8A
Hazelwood, Missouri site

Audit Reveals Some Officials' Problems With Expenses

By Lia Nower
Of the Post-Dispatch Staff

Members of the Berkeley City Council reimbursed themselves for about $30,000 worth of trips, mileage and other expenses, often without proper documentation, according to State Auditor Margaret Kelly.

Some council members charged the city for dry cleaning, cable TV, long-distance phone calls and hundreds of dollars of monthly mileage, although there are only 59 miles of streets in Berkeley.

Last week, Kelly released the findings of an audit of the city's finances, covering a one-year period — through June 30 of last year. About 200 disgruntled residents turned out to question Kelly about what they could do about the council's activities.

"Nothing in the audit was blatantly illegal, but many things were questionable," Kelly told the audience. "If you don't like what your representatives are doing, you can tell them that at the polls."

Many residents said they felt helpless — some council members won reelection in April, before release of the audit.

"There are some councilmen on that board who are telling us they run the city and we don't," said resident Kenneth McClendon.

Kelly devoted a large section of the audit to problems with expense sheets, submitted by council members and the mayor, each of whom receive a yearly salary of $2,100. The auditors provided the following information:

Three of the officials — Councilmen Tony Greene and Ted Hoskins and Mayor William Miller — submitted only monthly estimates rather than expense sheets, then forwarded actual claim sheets at year's end. The other

See AUDIT, Page 3

Audit

From page one

five officials submitted monthly expense sheets.

Hoskins and Councilwoman Judy Ferguson Shaw sought reimbursement for dry cleaning expenses. They also claimed in-home office expenses, along with Greene, Miller, and council members William Marticbink and Louvenia Matheson; the total reimbursement was $6,400 for these expenses. Greene's bill included reimbursement for cable television service for 11 of 18 months.

The audit reported that the city had advanced Hoskins and Shaw $2,000 for combined ward picnics. Greene received a $4,000 advance for a picnic he never held; Greene repaid the money almost a year later, with $160 in interest. The city also advanced $2,000 to ex-Councilwoman Delores Fink for a ward picnic; $304 of the money went toward a "thank-you" luncheon for volunteers.

The audit criticized city officials for claiming largely different amounts of mileage at different rates. Some officials charged the city 26 cents per mile; others charged 28 cents.

On out-of-town trips, Miller and Shaw charged long-distance phone calls to their rooms without indicating whether these calls were for city business, the auditors reported. The auditors also found that officials claimed different amounts of reimbursement for attending the same seminar.

For example, Hoskins, Matheson, Miller and Shaw each attended a National League of Cities convention in New Orleans; they billed the city for registration fees of $460, $560, $460, and $635, respectively. Shaw billed the city $710 for her registration fee for a convention in Orlando, Fla., while Hoskins and Miller charged $475 for the same convention. Kelly said some of these expenses might result in added income to the officials, who would have to pay taxes on those amounts.

The auditors also criticized the city for spending $700 in 1992 and $1,220 last year for food, entertainment, prizes and refreshments at employee Christmas parties. The audit says officials also spent $714 to send flowers to city employees and their ailing family members. The city also spent $2,019 in fiscal year 1993, and $2,535 this fiscal year on banquets for city board and commission members. The expenditures included food and an open bar.

In their response to the audit, officials agreed to standardize mileage, discontinue picnics and adopt better documentation procedures. The officials refused to limit expenditures for employee parties, quit sending flowers or eliminate banquets, though they did agree to stop providing alcohol.

Only three council members attended last week's meeting and spoke to residents. M. Jean Montgomery, Leondus Hall and newly elected Carol Leonard told the residents they supported all of Kelly's recommendations.

Last year, Leonard had canvassed neighborhoods with petitions, requesting the audit. She said she wasn't surprised by the findings. Miller and others were unavailable for

BERKELEY COUNCIL EXPENSES

Council Member	Annual Expenses	Receipts Submitted	Monthly[1] Mileage	Seminars Attended	Total Cost Seminars
William Miller	$11,300	some	202	3	$6,097.46
M. Jean Montgomery	510	none	15	none	N/A
Judy Ferguson Shaw	7,331	some	396	5	6,238.49
Bill Marticbink	998	some	242	none	N/A
Ted Hoskins	7,874	none	319	3	5,578.05
Louvenia Mathison	3,300	some	41	3	4,611.95
Tony Greene	4,992	some[2]	38	none	N/A
Leondus Hall[3]	252	yes	139	none	N/A

[1]On average
[2]Auditor could not tell if all documentation was submitted
[3]Appointed June 1993

I 15842

FUSRAP, St. Louis Sites, St. Louis, ST. LOUIS POST-DISPATCH,
Daily - 345,700 Sunday - 566,095 Date: 4/25/94 Page: 1N

DOE official: Decision on waste not finalized

By Teresa Kaemmerer
Staff writer

The final word is not in on the future of radioactive waste in the North County area, despite media reports the contaminated soil likely would be moved out of state, officials say.

David Adler, Department of Energy manager for the St. Louis sites, said recent reports may have given the impression that the DOE definitely wants to move contaminated soil from three area sites to a commercial waste facility in Utah.

In January, Adler had announced a DOE proposal to build a permanent bunker at a site near Lambert-St. Louis International Airport. On Friday, Adler said that proposal is no longer in effect, but neither is a plan to move all the waste to Utah.

Thomas Grumbly, assistant secretary of environmental restoration and waste management for the DOE, simply wants to find a remedy that is effective and financially viable, Adler said. The DOE is seeking a solution that will gain the approval of all parties involved, including local officials, the DOE, the Environmental Protection Agency, and Congress, he added.

"He (Grumbly) never specifically said that on-site (storage) was out," Adler said. "He also said, 'It's clear we don't have a consensus for the current proposal.' We were getting closer to satisfying regulatory officials, but it was not the remedy the local officials would prefer."

The radioactive soil has been in the area since

See WASTE, Page 8A

Waste

From Page 1A

the 1940s, when the federal government hired Mallinckrodt Chemical Works to process uranium. Some contaminated soil is located at the plant downtown and other waste remains at an original storage site near the airport. In the 1960s, a private company moved some of the waste to the Latty Avenue site. During the relocation, some waste also was spilled from trucks traveling along transportation routes.

Officials had estimated that building a bunker at the Airport Site to contain all the contaminated soil — from that site, Latty Avenue, the downtown site and some private areas — would cost $200 million. DOE officials had planned to present a final proposal for such a bunker this spring, Adler said.

"Clearly, we won't be making a proposal in the next couple of months," he said. "I think it sets back the time line for a final, comprehensive remedy."

Moving the soil to Utah would cost about $650 million, DOE officials have said. DOE officials still believe that option is cost prohibitive, Adler said.

The next step is for federal and local officials to meet and try to develop a viable long-term containment plan for the soil, Adler said. The plan may call for on-site storage, off-site storage or other treatment options, he said.

While the time line for a final plan has been set back, Adler said the DOE will act quickly to address immediate problems, such as cleaning up some of the private property along truck routes, and stabilization at the current storage sites to ensure contaminated soil is disturbed as little as possible.

FUSRAP, St. Louis Site, St. Louis, MO, SUBURBAN JOURNAL, NORTH COUNTY EDITION, Weekly-142,660 Date 3/20/94 Page 1A

THE POST-DISPATCH PLATFORM

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EDITORIALS

A Better Idea For Nuclear Waste

In a major surprise, the Energy Department has reversed itself on what to do with the nuclear waste stored in the St. Louis area as a result of bomb production dating back to World War II. Previously, the department had planned to propose that a permanent storage bunker be built just north of Lambert Field. Now it says there may be economically acceptable ways to remove the waste entirely.

Thomas P. Grumbly, the assistant secretary for environmental restoration and waste management in the Energy Department, recently visited St. Louis to gauge the feelings of both residents and public officials on what to do with the area's nuclear waste. He found nearly universal opposition to building a permanent depository on land in a flood plain that contains one of the state's highest concentrations of people.

Mr. Grumbly thinks he has found a better idea. Previous plans to ship the waste stored at the airport, a site on Latty Avenue and some 85 private properties could cost up to $650 million, and risk spilling toxic waste in the process.

But Mr. Grumbly says new technology suggests the possibility of separating the so-called hot material from the nearly 1 million cubic yards of dirt with which it is mixed. Once separated, the toxic material amounts to only about the size of a hot-dog stand. That's easily removable to the nation's only commercial radioactive disposal site in Utah.

Mr. Grumbly promises to come back with a plan along these lines. That's good news about a problem that until now has defied everyone's attempts to come up with a sensible, cost-effective and safe solution. It's also responsive government.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date: 03/27/94 Page

'Bunker'

U.S. Cleanup Boss: Isolate Hot Waste Here, Ship It Off

By Tom Uhlenbrock
Of the Post-Dispatch Staff
© 1994, St. Louis Post-Dispatch

In a stunning about-face, a top Energy Department official says radioactive waste in the St. Louis area may be moved out of state, rather than stored in a permanent bunker at Lambert Field.

The Energy Department said in January it expected to propose this spring that a $200 million bunker be built on a contaminated field north of the airport.

But the official, Thomas P. Grumbly, said Tuesday that he would like to change those plans. He is in charge of cleaning up the nation's radioactive waste sites.

"Instead of driving a bunker down people's throats, we'd like to come back with a new solution," Grumbly said.

In addition, Grumbly said the department would proceed with plans to build a second bunker for contaminated material at an abandoned uranium-processing plant at Weldon Spring in St. Charles County.

He ordered independent tests to see if releasing treated water from the Weldon Spring site into the Missouri River is safe.

The Energy Department had said it would cost up to $650 million to move the material out of the state. But Grumbly said the costs of moving — rather than burial in a bunker — could be reduced if the waste was treated "to separate the dirty from the clean."

The government would haul the reduced pile to the nation's only commercial radioactive waste disposal site, in the Utah desert, Grumbly said.

He made his comments in an interview after a two-day meeting here of the department's environmental management advisory board. It included a tour of radioactive waste sites and comments from residents.

Those who spoke said it was a bad idea to build a disposal bunker on a flood plain in the state's most populated area.

Kay Drey, an anti-nuclear activist who has been delivering that message for 15 years, was elated — and a bit incredulous — when told of Grumbly's comments.

"It's a big victory for the people of St. Louis," said Drey. "Does he have the authority to do that?"

See WASTE, Page 2

Waste

From page one

Yes, said David Adler, in charge of the cleanup of radioactive material in sites around St. Louis. The sites include the field at the airport, a storage area on Latty Avenue and some 85 private properties.

Grumbly is assistant secretary of environmental restoration and waste management. He is the Clinton administration's point man in handling the radioactive wastes.

"He's the boss," said Adler.

Said Grumbly: "We've heard what the people and the state officials think. Instead of coming to the St. Louis area in May and taking grief about a solution nobody likes, we'd like to come back and start a new dialogue."

Adler said changing the solution did not mean the $50 million spent on the problem was wasted.

Information from those studies will be needed when the wastes are excavated, Adler said.

The department has calculated that the sites hold about 850,000 cubic yards of radioactive material, mostly contaminated dirt. While that total would fill Busch Stadium, the amount of radioactive residues — if isolated — would be a block about the size of a hotdog stand.

Grumbly said new technology might allow just that — removal of the hot material.

"We're going to have to step back and rethink the whole thing," he said. "There's the potential for a new solution there."

Adler said Grumbly also wants to speed up removing contamination from private property, including the Berkeley ball fields across McDonnell Boulevard from the airport site. The material would be moved and stored temporarily at fenced-off areas at the airport or at Latty Avenue.

David Shorr, Missouri's top environmental official, wrote Grumbly two weeks ago, threatening to file suit against the Energy Department because of lack of progress in the cleanup. He welcomed Grumbly's efforts to remove the contamination from areas accessible to the public.

"That's the issue that gives me the most heartburn," said Shorr. "What happens 10 years from now when a guy's tearing up his patio? How does he deal with what he finds?"

But while Grumbly put a new twist on the cleanup of the St. Louis area sites, he said he planned no changes in the $865 million job to decontaminate the uranium-processing plant and quarry at Weldon Spring.

"We have a solution there that seems to be working," he said.

The quarry cleanup has included the discharge into the Missouri River of millions of gallons treated to remove radioactivity and other toxins.

Drey, the anti-nuclear activist, has criticized the release of the water, saying it should be stored rather than released into a river that provides drinking water for the St. Louis area.

Grumbly said he would not halt the discharges, but would order independent testing to determine if the water is safe. Five government agencies already are testing the water, and have pronounced it fit for release.

Waste Plan Does A Flip

Radioactive waste may be moved out of state, rather than stored in a Lambert Field bunker.

1B

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 03/16/94 Page 1,2

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VOLUME 74 - NUMBER 9 (USPS 202-620) TUESDAY, MARCH 1, 1994

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WDS
153

Reynolds Meets With DNR Director "Bunker Design Does Not Meet Missouri's Safety Requirements"



David L. Reynolds (Florissant-Ward One)

Florissant Councilman David L. Reynolds, along with Hazelwood Councilwoman Jeanette Eberlin and Hazelwood City Manager Ed Carlstrom, met with David Shorr, Director of the Missouri Department of Natural Resources to discuss the radioactive waste storage bunker being proposed by the U. S. Department of Energy near Lambert International Airport.

In informal discussions with the officials, Shorr said that the current design of the bunker did not meet the safety criteria of the Department of Natural Resources at that he would be notifying the Department of Energy of these findings.

Although he said if a bunker would be designed to meet all of the state's requirement he would have no reason to block it's location at the airport site.

The cost, however, of redesigning and construction of the bunker to meet the state requirements may be high enough to warrant reconsideariton and the subsequent relocation of the waste material from the area, which officials from Florissant, Berkeley, and Hazelwood have been trying to have the Federal Government to do for years.

Earlier this year Reynolds expressed concern over the plans of the Department of Energy's to construct a permanent bunker for the storage of radioactive and chemical waste on the banks of Coldwater Creek, upstream from the cities of Hazelwood, Florissant, and Black Jack.

In 1989, Reynolds was president of the St. Louis County Municipal League and appointed a select committee of area officials to monitor the remedial action being taken to clean up the radioactive waste materials at the St. Louis Airport site, the Latty Avenue site in Hazelwood, the Berkeley Athletic Fields on McDonnell Boulevard, the Mallinckrodt Chemical facility in North St. Louis, and the adjacent ditches and haul routes.

As a result of actions taken by the committee, a non-binding referendum was presented to the voters of St. Louis City and St. Louis County. Voters in these jurisdictions voted overwhelming against (80% and 85% respectively) the establishment of a permanent facility in the metropolitan area.

According to Reynolds, it seemed that the Department of Energy would begin looking for alternative sites in more sparsely populated regions of the state, but with apparent total disregard for the citizens of the area continued with their original plans".

Representatives of the Department of Energy contractor, have presented the basic risk assessment for the [illegible] said "he was not convinced that the risk to Hazelwood, Florissant, and Black Jack residents was small enough to warrant moving additional waste materials to the location. The high incidents of luekemia in the Latty Avenue area is reason enough to move the material from the region".

Council rebuffs idea to expand waste site

By Nancy L. Ide
Correspondent

Two representatives of the Missouri Department of Natural Resources (DNR) who advocate expanding the Latty Avenue radioactive waste site in Hazelwood were given a cold reception last week by city officials.

Speaking at the City Council meeting, DNR representatives Daniel Tschirgi and Larry Erickson said the DNR's major

Hazelwood

concern currently is the radioactive waste in unrestricted areas, such as in yards and on roadways.

Several area properties and roadways have been identified as contaminated, mainly due to radioactive waste that was spilled 40 years ago from trucks traveling through Hazelwood and Berkeley to the Latty Avenue storage site, DNR officials said.

"Our position is that we need to get that (waste) out of public access ways and into a controlled area until the Department of Energy (DOE) comes up with an acceptable final disposal solution. We feel the waste in unrestricted areas is a threat to citizens," Erickson said.

The City Council has long advocated closing the Latty Avenue site and moving the waste out of the state to a sparsely populated area.

"We want it moved to a non-urban site," said Ward 6 Councilwoman Mollie Rickey. "And we don't want it moved twice. We want it moved all at the same time."

Rickey said DNR officials last year attempted a cleanup of the route sites, but city officials opposed the move. Now state officials again are asking

See WASTE, Page 4A

Waste

From Page 1A

to consolidate the waste from Hazelwood and Berkeley at Latty Avenue, before a permanent storage solution is determined.

Erickson said the DOE has come up with five plans for a permanent storage site, one of which is to move all radioactive waste in the area to a site north of Lambert-St. Louis International Airport. The waste currently is stored at the airport site, Latty Avenue site and the Mallinckrodt plant in the downtown area. Waste also is scattered among routes to these sites.

The DOE is expected to announce preliminary plans for a permanent storage facility for all of the waste in late March or early April, Tschirgi said.

Currently, the DOE is favoring the proposal to add to the radioactive waste already in the ground at the airport site, Erickson said. The 22-acre site is owned by the city of St. Louis.

"If they use this option, we will ask that they totally excavate down to clean soil and put in liners," Tschirgi said. "After trucking in the waste, they will cap the site."

The other four options are:

- Taking no action.
- Instituting controls on land deemed to be contaminated, such as deed and land-use restrictions.
- Moving all the waste to another site in the state.
- Moving the waste to an out-of-state location.

Hazelwood officials said the wishes of area residents should be taken into consideration when DOE officials formulate preliminary plans for permanent storage.

"There was a referendum vote in 1990 and voters were asked if they wanted a radioactive waste storage site here," Rickey said. "In St. Louis (City), 80.7 percent voted 'no' and in St. Louis County, 85.6 percent voted 'no.' "

Ward 6 Councilwoman Jeanette Eberlin added: "We feel it would help us if your department sided with us and the public (and) move it out. We don't want any more movement until it's moved out. It would help if you got behind us and gave us a little clout."

Staff writer Teresa Kaemmerer added some information to this story.

FUSRAP, St. Louis Site, St. Louis, MO, SUBURBAN JOURNAL, NORTH COUNTY EDITION, Weekly-142,660 DATE: 2/23/94 PAGE: 1A 4A

LETTERS FROM THE PEOPLE

How To Handle Dangerous Waste

The important issue of "What To Do With Nuclear Waste?" (Jan. 29 editorial) warrants a more rational consideration. The editorial writer dismisses the option of moving these old nuclear weapons wastes from the various sites in the St. Louis area to the surplus Union Electric-owned land in Callaway County. The grounds for dismissing this alternative? "Because the county won't take it and can't be compelled to."

Not true. Either the state of Missouri or the federal government can exercise the right of eminent domain upon the Union Electric property.

The editorial writer then goes on to tell us, "If the EPA accepts the Energy Department's proposal to build a dump here, local officials can't stop it."

Not logical. If St. Louis County can be compelled to become the permanent site of the waste, then so can Callaway County.

In a non-binding referendum, 85 percent of the voters of St. Louis County overwhelmingly rejected the location of a permanent radioactive waste dump in the heart of a major metropolitan area, next door to our region's largest employer, situated partly in the floodplain of Coldwater Creek and along the New Madrid fault line. The site in Callaway County has none of the above characteristics and, as the editorial writer points out, the UE property "already has its own waste" and is therefore not a pristine site by anybody's standard.

The Callaway Union Electric nuclear plant holds many thousands times more curies of radioactivity than the sum of curies in the weapons waste at all the sites in our metropolitan area. The Callaway County site will have to be monitored in perpetuity anyway.

As the editorial states, when one is dealing with radioactive wastes "all the alternatives are unappealing." But relocating the waste to the Union Electric property adjacent to the nuclear plant is the best of the unappealing alternatives.

Dolores Hoefel
St. Louis

I am writing regarding the Jan. 29 editorial, "What To Do With Nuclear Waste?" On top of the wrongheadedness of insisting that Callaway County cannot be "compelled" to accept a radioactive waste dump in its midst and St. Louis County can, the editorial trots out the old canard that the contaminated "soil is supposed to be safe unless you eat it."

Tell that to the people who live along Nyflot near the Latty Avenue radioactive waste site in Hazelwood. The eight houses on the block (two have since been torn down) have been home to 10 cancers and one genetic disorder.

How many of those victims of radioactively induced illness does the editorial writer suppose went after the two huge, plastic-sheeted piles of radioactive dirt with a spoon?

Margaret Hermes
St. Louis

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date: 02/12/94 Page: 14B

Residents Urged To Actively Oppose Airport Radioactive Waste Site Plan

By Janice Borgschulte

Florissant Councilman David Reynolds urged residents to let the U. S. Department of Energy (DOE) know if they oppose the plan to build a permanent radioactive waste facility in North County.

The Florissant City Council had in the past issued two resolutions opposing such a storage site. And the vast majority of voters in 1990 passed a resolution against the plan.

Speaking at the city council meeting Jan. 24, Reynolds urged citizens to attend a public meeting with DOE on the subject on Feb. 1, at the Hazelwood Civic Center.

The permanent waste facility is proposed for the northern boundary of Lambert-St. Louis Airport, starting at Banshee Road and McDonnell Blvd. along Coldwater Creek.

DOE is proposing to add to the radioactive waste already in the ground--residue from the manufacture of nuclear bombs that were trucked to the area periodically from 1946 to 1957. The waste is at the 22-acre airport site that is in St. Louis County but is owned by the city of St. Louis.

The energy department is expected to call for an expansion of the site onto the adjoining former Berkeley Baseball Fields to include wastes from the Mallinckrodt Chemical Works in St. Louis, Latty Ave. in Hazelwood, the affected Coldwater Creek banks and the old truck and train routes where spillage has been identified. The baseball site is also owned by the city of St. Louis.

Local officials and residents have long voiced opposition to the waste storage here.

SERVING THE COMMUNITIES OF BELLEFONTAINE NEIGHBORS, BERKELEY, I
FERGUSON, FLORISSANT, HAZELWOOD, SPANISH LAKE, AND THE SURROU
VOLUME 74 - NUMBER 5 (USPS 202-520) TUESDAY, FEBRUARY 1, 1994

Reynolds Concerned Over Plans to Build Permanent Waste Bunker on Banks of Coldwater Creek



David L. Reynolds (Florissant Ward One)

Florissant Councilman David L. Reynolds has expressed concern over the apparent plans of the Department of Energy's to construct a permanent bunker for the storage of radioactive and chemical waste on the banks of Coldwater Creek, upstream from the cities of Hazelwood, Florissant, and Black Jack.

In 1989, Reynolds was president of the St. Louis County Municipal League and appointed a select committee of area officials to monitor the remedial action being taken to clean up the radioactive waste materials at the St. Louis Airport site, the Latty Avenue site in, Hazelwood, the Berkeley Athletic Fields on McDonnell Boulevard, the Mallinckrodt Chemical facility in North St. Louis, and the adjacent ditches and haul routes.

As a result of actions taken by the committee, a nonbinding referendum was presented to the voters of St. Louis City and St. Louis County. Voters in these jurisdictions voted overwhelming against (80% and 85% respectively) the establishment of a permanent facility in the metropolitan area.

According to Reyolds, "It seemed that the Department of Energy would begin looking for alternative sites in more sparsely populated regions of the state, but with apparent total disregard for the citizens of the area continued with their original plans".

Reynolds attended a public meeting on Tuesday where representatives of the Department of Energy contractor, presented the basic risk assessment for the project. He said "he was not convinced that the risk to Hazelwood, Florissant, and Black Jack residents was small enough to warrant moving additional waste materials to the location. The high incidents of luekemia in the Latty Avenue area is reason enough to move the material from the region".

He has asked Tim Fischesser, executive director of the St. Louis county Municipal League to forward his concerns to the current league president Lee Berger of Olivette in the hopes that the league committee could be activated.

EDITORIALS

What To Do With Nuclear Waste?

The Energy Department wants to consolidate in one location all the radioactive waste left over from the manufacture of nuclear material in the St. Louis area. The proposed site is just north of Lambert Field, where much of the waste is already stored. The Energy Department plans to recommend this course to the Environmental Protection Agency, which has the final word. St. Louis County and other local officials are strongly opposed. What to do? Unfortunately, no easy answer exists.

Some 1 million cubic yards of radiation-laced soil lies buried in a couple of major sites in the area, as well as in 85 private properties. Much of the soil is pretty well contained — beneath the old Mallinckrodt Chemical Works in the city and at Latty Avenue, where some of it was moved when a private company in 1966 tried to recover minerals from the soil. But the soil buried in numerous private lots is less secure. It certainly should be moved. But where?

One option is to move all nuclear-tainted soil out of Missouri. A metropolitan area is no place to build a nuclear-waste site. But the Energy Department says 85,000 trucks would be required to move the soil to rail cars that could take it to a commercial hazardous waste dump in Utah, at a cost of $600 million. Such a transfer may be neither safe — much soil might be spilled in the transfer — nor economically feasible. Taking it to the Callaway County nuclear plant in mid-Missouri, which already has its own waste, isn't an answer, because the county won't take it and can't be compelled to.

The Energy Department rightly rejects just putting fences around the soil at 85 separate private sites and the handful of larger ones. The region would be honeycombed with relatively unprotected mini-nuclear waste dumps. The Energy Department's preference, to build a permanent repository north of the airport, would be safer.

But can a permanent dump, even one complete with double lining and a 10-foot layer of topsoil, really be expected to last for the billions of years required for the nuclear material to become benign? As technology improves, the dump could be upgraded, but no one knows when that might be.

All the alternatives are unappealing. But one thing is certain. If the EPA accepts the Energy Department's proposal to build a dump here, local officials can't stop it. Their only recourse is to ask the Missouri congressional delegation to press the administration to stop the dump. But before that happens, local officials should decide what they really want. Otherwise, the waste may stay right where it is for a long time while an interminable argument proceeds over what to do with it.

The soil is supposed to be safe unless you eat it, but that's not much comfort, even if true. Letting it stay where it is because moving it to Utah is too expensive and too risky isn't a very good answer either, but no one yet has come up with a better one.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date : 01/29/94 Page : 14B

DOE recommends burying toxic waste

By Teresa Kaemmerer
Staff writer

A recommendation has been made to bury toxic waste near Lambert-St. Louis International Airport, but a final decision will not be made for more than a year, a U.S. Department of Energy official said.

The recommendation is the first step in a process that includes the DOE, the Environmental Protection Agency (EPA), area residents and Congress, said David Adler, manager for DOE sites in North County and St. Louis.

"We really aren't close to a final decision," Adler said at a public meeting last week at the Hazelwood Civic Center East. "We're close to a proposal; that should happen in May."

DOE officials have recommended to the EPA that radioactive waste currently stored at the St. Louis Downtown Site (SLDS), the Hazelwood Interim Storage Site at Latty Avenue (HISS) and the St. Louis Airport Site (SLAPS) all be moved to SLAPS and contained. Some waste also is located along transportation routes between the sites.

The 22-acre SLAPS site lies on airport-owned property in Berkeley and Hazelwood. It is bordered by McDonnell Boulevard and the airport. The waste originally was generated by Mallinckrodt Chemical Co. in downtown St. Louis between 1946 and 1957. The company purified uranium and thorium for U.S. nuclear weapons until it closed in 1987. The waste was transported to the SLAPS site for storage, and later some waste was moved by a private company to Latty Avenue.

The DOE's recommendation calls for all of the waste to be consolidated at the airport site and contained in one of two ways, Adler said. One option would be to leave the contaminated soil currently at the SLAPS site as is, dumping waste from the other sites on top and capping off the pile, Adler said. With an estimated price tag of about $160 million, this is the less expensive option, Adler said.

The alternative is to dig up the waste at the airport site and build a storage cell with a clay liner — anywhere from 3 to 20 feet thick — where the waste from all sites would be dumped and capped off. In addition to a higher price tag of between $250 million and $270 million, this option would use up to 83 acres of land, compared with the 22 acres required for the other plan.

"The one we recommended was to build the smallest cell and would be finished soonest, but it would leave some waste in the ground," Adler said. "Building a large cell with liners is a problem. It can be done, but at that point you are potentially using up all the property."

That solution also would require rerouting McDonnell Boulevard, Adler said.

The recommendation was made to EPA officials in July, Adler said. The agency is expected to announce within the next few months whether it accepts the recommendation.

If the EPA does accept the recommendation, the next step would be a forum to receive public input, Adler said.

"Even once the DOE and EPA think they know what makes sense, there is still a meaningful public discussion," he said. "Typically, there's a lot of fireworks and everyone gets a chance to weigh in."

Unlike the government of 50 years ago, agencies today want to share information and get public input, Adler said.

"Years ago, the government said, 'We know what's good and we'll do it and if you want to talk to us about it in 90 years, go ahead,'" Adler said. "That is no longer the attitude."

While residents' opinions will be taken into account, they will be only one of many factors considered in deciding the ultimate fate of the waste, Adler said.

Solutions divide residents

Residents' impressions of the federal government's efforts to clean up radioactive waste in the St. Louis area range from overkill to negligence.

The U.S. Department of Energy has recommended consolidating up to 1 million cubic yards of contaminated soil from three sites and burying it in an area near Lambert-St. Louis International Airport and McDonnell Boulevard. The proposed burial site lies within the boundaries of Berkeley and Hazelwood, DOE officials said.

Despite DOE assurances that the health risk from the contaminated soil is minimal, after almost 50 years of dealing with that risk, some residents want it eliminated.

"It appears that the government is on the other side of public health," said Ted Hoskins, a Berkeley councilman.

But public health may not necessarily be a concern, said Hazelwood Mayor David Farquharson.

Farquharson said he has heard both DOE and independent experts state there is little health hazard, and he said he is not disputing their claims. Nevertheless, he said Hazelwood officials do not want a permanent waste site that close to home.

"Our hope would be that somewhere along the line, it would be removed from the area altogether," Farquharson said. "If you move it and cap it off, you're going to have more and more waste in here."

Other residents, however, said that if the hazard is minimal, why waste taxpayers' money to move the soil.

"A lot of people, a silent majority, don't want to see the money wasted and another site contaminated," said Marty Buchheit, a Berkeley resident. "Nobody can come up with any figures that say this has been a health hazard. Common sense to me says as long as there's no health hazard, build a container on (each) site."

Information on the history of current storage sites and future plans is available for review by the public at the DOE trailer, 9200 Latty Ave. in Hazelwood. For more information, call 524-4053.

— Teresa Kaemmerer

Department examines four options for handling waste

Four options were considered for containing radioactive waste in North County and north St. Louis, a federal official said last week.

David Adler, site manager with the U.S. Department of Energy (DOE), told area residents at an informational meeting at the Hazelwood Civic Center East, that the options were studied for technological and financial viability before officials decided waste from the three sites should all be stored at one site.

"We are trying to end up with as few contaminated properties as possible," Adler said. "We want to free up as much land as possible for unrestricted use."

The one-site option is the second least expensive, with a price tag of anywhere from $160 million to $270 million, depending on what type of storage method is used, Adler said. The site would be near Lambert-St. Louis International Airport and McDonnell Boulevard.

The three other options were:

- Stabilize the waste at each site: At a cost of about $30 million, the DOE could contain the waste where it currently is, leaving three contaminated sites in the area. Some cleanup also would be required along transportation routes, Adler said.
- Ship waste elsewhere in the state: Waste from all three sites would be removed and contained in a location 80 to 200 miles away from St. Louis, Adler said. The cost is estimated at $350 million. The DOE most likely would run into opposition from residents in out-state Missouri, plus there are other potential problems, Adler said.

"There are transportation risks, with 85,000 truck loads of soil being moved," he said.

- Ship waste to Utah: This most expensive option would involve collection of all contaminated soil and removal to a containment site in Utah. The site already is established, and has been accepting waste from other states, Adler said.

At an estimated cost of $600 million, the price may be a little too high for Congress to swallow, Adler said. Additionally, other states do not take kindly to the DOE shipping radioactive waste across their borders.

"Generally, when DOE tries to ship hazardous material across state lines, we run into trouble, not necessarily in Utah, but in other states crossed," Adler said.

— Teresa Kaemmerer

FUSRAP, St. Louis Site, St. Louis, MO SUBURBAN JOURNAL
NORTH COUNTY EDITION, Weekly-142,660 DATE: 1/23/94 PAGE: 2A

FLORISSANT

Nuclear Waste Site Endangers Areas, Says Council Member

By Arthur Goldgaber
Post-Dispatch Special Correspondent

Florissant City Council member David L. Reynolds is concerned about a U.S. Energy Department plan to build a permanent radioactive waste facility in north St. Louis County.

Reynolds, 1st Ward, said the proposal disregards a November 1990 non-binding vote in which 85 percent of St. County voters and 80 percent of St. Louis city voters opposed establishing a permanent airport waste site.

Because of that vote, Reynolds said, "I was surprised about" the permanent site proposal. "I thought that problem went away two years ago." Reynolds said that he first heard about the energy department's decision through news media reports.

At a public meeting this month, federal officials were to explain the plan to build the permanent facility at a 90-acre site near the northern boundary of Lambert Field, near McDonnell Boulevard.

Reynolds explained that the new site would be in addition to a 22-acre airport waste site, where nuclear bomb waste was deposited from 1946 to 1957. Reynolds said that he had contacted Tim Fischesser, executive director of the St. Louis County Municipal League about the waste site proposal.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 01/27/94 Page 3N

Feds Seeking Atomic Waste Dump Here

North County Bunker Is Choice For Burial Of Radioactive Debris

By Tom Uhlenbrock
Of the Post-Dispatch Staff
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After spending a decade and $50 million studying what to do with radioactive waste left in St. Louis by the birth of The Bomb, the Department of Energy is about to recommend that it be buried here.

Up to a million cubic yards of contaminated soil — enough to fill Busch Stadium — remains at two sites in the metropolitan area and on 85 private properties. The government has concluded that shipping it out of state is too expensive.

Instead, it will propose this spring building a $200 million bunker north of Lambert Field on a site where radioactive waste already is stored. If the department gets its way, construction could begin in about 2½ years. Nobody knows how big the bunker will be or how long it will take to complete.

See WASTE, Page 4

■ **Family near Lalty Avenue** site ready for cleanup of yard to begin 4A



Renyold Ferguson/Post-Dispatch

David Adler, an Energy Department official, stands Thursday in front of covered mounds of radioactive waste at the end of Latty Avenue in Hazelwood. Adler plans to recommend that up to a million cubic yards of the contaminated waste be buried in a bunker north of Lambert Field.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 1/14/94 Page 1,4

EFIM

HAZELWOOD

City Pushed To Move On Excavation Of Radioactive Soil

By Jordan Beitz
Post-Dispatch Special Correspondent

State and federal officials are pushing Hazelwood to move forward on excavation of radioactive soil and expansion of a waste storage facility within city limits.

In a letter dated Dec. 20, state Department of Natural Resources Director David A. Shorr expressed the department's disappointment "with the lack of progress on the cleanup of federal weapons production waste" on property now owned or controlled by the Department of Energy.

Shorr called for Mayor David Farquharson to support the removal of low-level radioactive soil in residential areas and along Hazelwood roads by the federal Department of Energy. The contaminated materials would be temporarily stored at the Hazelwood Interim Storage Site, 9200 Latty Avenue, while the department finds a permanent home. The state has set May 1995 as a target date for a final decision.

In his letter to the mayor, Shorr states, "The Hazelwood site would be expanded to temporarily store a small part of the radiologically contaminated soil near the St. Louis Airport." The storage site currently houses 330,000 cubic tons of radioactive debris. The debris at the storage site and on area property is the result of Mallinckrodt Inc.'s uranium processing during the development of the first nuclear bomb for the World War II Manhattan Project.

The Department of Energy has contacted residents whose yards are contaminated about removing the waste, most recently in early 1993. But the department did not first get approval from city officials.

Farquharson and the City Council oppose moving any contaminated soil within Hazelwood until a permanent storage facility is found. "When these trucks move this kind of thing, there is always going to be spillage and further contamination," the mayor said. "This problem has been with us for years. It's a never ending situation.

"If we've got it and don't want it, no place else is going to want it either."

A state environmental assessment completed in March 1992 supported the need for expansion of the Hazelwood storage site, but asserted it would not be a permanent facility.

"Hazelwood and Berkeley officials are trying to prevent Latty Avenue from becoming a dump site for additional radioactive materials," said Councilwoman Jeanette Eberlin, 6th Ward. The storage site is in Eberlin's ward.

The study concluded that an expanded site would pose no health threat to residents. Moreover, it found that allowing the contaminated soil to remain ungathered would inevitably lead to the spread of contamination.

"What we don't want is proliferation of contamination on additional properties," Shorr said. "Until it's all contained, it has the prospect of being spread."

He cited roadwork, repair and installation of utilities and construction as ways in which contamination could spread.

Clean up of the Hazelwood residential areas and roadways is on the federal Superfund priority list. Shorr said federal money should pay for all the clean up and storage, but the department has not received that assurance.

Farquharson was scheduled to meet on Tuesday with other area officials at the Hazardous Waste Oversight Commission meeting to discuss Shorr's letter.

In other business, the council swore in Bonnie Palmer to the 1st Ward council seat left vacant since the death of Richard Martin in November. Palmer was appointed by the council on Dec. 19. Palmer will face election in April for the final year of the three-year term.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date: 01/13/94 Page:

Waste

From page one

Berkeley Mayor Bill Miller says he is "totally opposed" to the plan. Hazelwood Mayor Dave Farquharson predicts: "I'm sure people will lynch them if they try to leave it here."

Nevertheless, the Energy Department official in charge of the project plans to recommend the bunker to the Environmental Protection Agency, which has the final say on the cleanup.

"This is not a popularity contest," said the official, David Adler.

A third alternative is: leave the waste where it is.

Congress has ordered the Energy Department to clean up radioactivity at power plants and atomic weapons factories. The Defense Department must decontaminate some 2,000 military installations. Add to that the 1,200 private sites on an EPA's priority list.

The result: a cleanup bill into the hundreds of billions.

Pressure is growing from the government and business to start with the sites with the greatest risks. Adler said the contamination here does not present "significant hazards."

"People are beginning to ask tough questions about eliminating all hazards at these sites," Adler said. "It's become a national debate."

One side says it is not economically feasible to return all the sites to a pristine state. The other opposes Band-Aid solutions in which a site is covered or enclosed but not cleaned up.

"It's a good time to ask those questions about this site," Adler said. "We are looking at an enormous potential expense here, so you want to ask those questions before you spend a lot of money."

Problem Began 50 Years Ago

A short history lesson explains how St. Louis got into this predicament.

In August 1942, the government hired Mallinckrodt Chemical Works to process uranium used in the bombs dropped on Japan in World War II. The work continued at Mallinckrodt's plant north of downtown until 1957, when operations moved to a new processing plant in Weldon Spring. (The Energy Department also is cleaning up the Weldon Spring complex and has proposed building a waste bunker there.)

A 22-acre field north of Lambert was used to store radioactive residues from the Mallinckrodt plant. McDonnell Boulevard borders the field on the north and east. Coldwater Creek cuts through it en route to the Missouri River.



Post-Dispatch

In 1966, a private company bought much of the residues in an unsuccessful scheme to recover minerals. When the company moved the material a few miles away to a storage spot on Latty Avenue, trucks spilled the residues along the route, contaminating ditches and nearby property.

The Department of Energy estimates that approximately 200,000 cubic yards of contaminated soil remain at Mallinckrodt's downtown site, much of it buried under buildings and parking lots.

Another 200,000 cubic yards sits in covered piles and spills over onto adjacent properties at the Latty Avenue site. About 250,000 cubic yards are buried in the field near the airport, some up to 18 feet deep.

Adler estimates that 150,000 more cubic yards of radioactive soil sprawls across yards and ditches along the haul route. He said the department might find more contaminated soil, which he estimated could easily put the total at 1 million cubic yards.

85,000 Dump Trucks of Soil

The rubble consists mostly of soil. If the radioactive metal could be consolidated, the Energy Department figures it would make a chunk the size of a hotdog stand.

Adler says it would take 85,000 loads in dump trucks to move the soil to a railyard and ship it out of the state to the nation's only commercial hazardous waste facility, in the Utah desert. The bill: $600 million.

Adler said the department would recommend that it build a "disposal cell" on the already contaminated field near the airport to consolidate the soil and store it permanently.

The state would require that the bunker proposed be double-lined and equipped with a system to collect and treat leachate, water that would percolate through the radioactive rubble.

The Energy Department also must show that the field near Lambert can meet the state's regulations for a hazardous waste site. Those regulations cover possible leaks to ground water.

"They're not required to attain our approval or community acceptance," said Robert Geller of the Department of Natural Resources. "But if they want our support, they're going to have to address our concerns."

Adler said: "It appears that ground water will not be a problem, it's essentially on a clay geology. Technically, it's feasible."

Building the cell might require rerouting of McDonnell Boulevard because the cell would take up more than the 22 acres on the southern side of the street. People would see a gently sloped grassy hill enclosed by a fence. It would have a cap of layers of soil and gravel 10 feet thick.

"We'd have to maintain the cap, mow the grass and have a long-term surveillance program," Adler said on a car tour of the site.

Cleaning Up for the Future

Because most of the contaminated soil is either buried or behind fences, the Department of Energy says it presents no threat to people. The department has found some contamination in ground water that feeds into Coldwater Creek but said the creek dilutes the radioactivity to harmless levels.

Although Adler said the soil is not a threat now, he said it could be for future generations. "The problem is the material lasts for a long time — uranium will be around a few billion years."

The Energy Department wants to free up the land for future development.

"Very clearly there could be health risks," Adler said. "You would not want to see the airport site developed for condominiums or a day-care center.

"The real tough question is how much money should be spent to protect future populations."

While most of the contamination is in areas the public cannot reach, the soil in roadside ditches and private property could be a threat.

Kay Drey, an anti-nuclear activist who favors removing all the soil from the metropolitan area, said: "Until they decide that radiation is good for us, you have to get this stuff out of our air, our water.

"Children play in Coldwater Creek, and the creek runs into the Missouri River, upriver from where the city gets its drinking water."

Family Remembers Children Playing In Radioactive Rubble

Dale and Laverne Lakenburger live near the Latty Avenue site in north St. Louis County. Dale Lakenburger said he remembered neighborhood children playing in the piles of radioactive rubble and the trucks bouncing over the railroad tracks near his home, spilling debris into his yard.

The Lakenburgers live at the corner of Hazelwood and Nyflot avenues. Four residents of Nyflot, including the Lakenburgers' 15-year-old son, have died of leukemia.

Radiation causes cancer, and because only one in every 10,000 Americans develops leukemia, the state health department studied the "cancer cluster" on Nyflot. The department said it could not determine whether the cluster was related to the radiation.

"We're exposed to so many different insults from the environment, it's very difficult to prove that a cancer was caused by exposure to low levels of radiation," said Gale Carlson, a health department official.

"But because it's such an inexact science, the prudent thing to do is to be conservative. Because of that, we don't believe you should leave this material in place unprotected."

Laverne Lakenburger has lived with the situation for 35 years and will be glad when the cleanup of her yard finally begins.

"You really don't worry about it until they bring it up again," she said. "Then you begin to wonder."

— Tom Uhlenbrock

BERKELEY
BULLETIN
May - June 1993

U.S. DEPARTMENT OF ENERGY INFORMATION CENTER WELCOMES VISITORS

Many of you are aware of the radioactively contaminated soil that is located in St. Louis, and would like to know more about where it came from, how it affects you, and what is going to be done about it. That is why the Department of Energy (DOE) opened an Information Center at 9200 Latty Avenue, where some of the soil is stored.

The DOE recognizes the importance of getting St. Louisans involved in the decision-making process and has taken steps to work with the public towards a safe, effective solution.

Recently David Adler, DOE Site Manager, met with Mayor Miller, Berkeley City Council members, and other Berkeley officials, to discuss the cleanup and storage options that are being considered, and to answer their questions. Other DOE representatives attended a meeting of the Berkeley Betterment Commission, where the same information was presented.

In an effort to inform as many people as possible about the St. Louis Site, a Speakers' Bureau has been established. Speakers are available to address schools, groups, clubs and organizations. Meetings may be held in the Conference Room of the Information Center, or at your location.

If you would like to know more about the site, schedule a speaker, or would like to voice your comments about the cleanup and disposal of the contaminated soil, you may call the Information Center at 524-4083. Your comments may also be placed in writing to: David Adler; U.S. Department of Energy Information Center; 9200 Latty Avenue; Hazelwood, MO 63042.



David Adler, DOE site manager discusses possible radioactive waste cleanup measures with members of the Berkeley City Council

Berkeley, MO

Appeals Panel's Dioxin Hearing Could Affect Incinerator Here

By Tim Bryant
Of the Post-Dispatch Staff

In a case that could affect plans to incinerate dioxin in Times Beach, a federal appeals court panel here heard arguments Monday over a dioxin-burning project already under way in Arkansas.

At issue was an injunction issued in February by U.S. District Judge Stephen Reasoner of Little Rock, who ordered a hazardous-waste incinerator in Jacksonville, Ark., to stop burning. Reasoner ruled there were doubts that enough of the toxic chemical was being destroyed.

Reasoner's order could have a direct effect on dioxin incinerators such as the one to be built this year to burn soil from Times Beach and 26 other sites in Missouri.

In April, the 8th U.S. Circuit Court of Appeals in St. Louis halted Reasoner from enforcing his order until it ruled. If the court upholds Reasoner, no incinerator will be built in Times Beach, said Gregory Ferguson, a lawyer who opposed the Jacksonville incinerator.

EPA regulations require that virtually all — 99.9999 percent — of the dioxin burned must be destroyed. This is the so-called six nines rule. Reasoner ordered the shutdown of the Jacksonville incinerator because tests showed that about 99.96 percent of the dioxin was being destroyed.

St. Louis Post-Dispatch
6/8/93 Pg. 5A

The following clippings are not about FUSRAP, but are included because they provide relevant information on FUSRAP sites or issues.

ST. LOUIS POST-DISPATCH

ST. LOUIS/THURSDAY

• THURSDAY, JUNE 10, 1993

Griggs Back On Board As City Airports Directo

By Joe Holleman
Of the Post-Dispatch Staff

After weeks of lobbying and waiting, Leonard L. Griggs Jr. is back as the city's director of airports, a job he held for 10 years before being forced out in 1987.

Mayor Freeman Bosley Jr. announced Griggs' appointment Wednesday and also named a new assessor, supply commissioner and director for the Department of Human Services.

Griggs, 61 and a retired Air Force colonel, will replace Donald W. Bennett and make $84,864 a year.

"I'm delighted. I love St. Louis, and I'm looking forward to serving St. Louis for the rest of my career," Griggs said in an interview Wednesday.

Griggs began stumping for the job shortly after Bosley was elected mayor in April, some two months after Griggs resigned as assistant administrator for airports at the Federal Aviation Administration in Washington.

Bosley and Griggs talked several times and met at least once, sources said.

Bosley said he picked Griggs because of his experience with [illegible]ert Field expansion projects in the early 1980s, when [illegible]x was done on runways, terminals and gates. Bosley said that experience made Griggs the best choice to oversee possible future expansion.

"I just thought Leonard was the man to have driving the airport, the man to have when concrete gets poured," Bosley said.


Griggs


Bennett


Spearman


Hill


Ross

Bosley said the change in no way reflects on Bennett.

"I like Donald Bennett; he's a hell of a guy," Bosley said.

Griggs is no stranger to working with mayors. He was appointed director in 1977 by Mayor James F. Conway. In March 1987, Mayor Vincent C. Schoemehl Jr. forced Griggs to resign and appointed Bennett to the post.

Sources said Griggs fell into disfavor with Schoemehl after Griggs talked with reporters without getting permission from the mayor's office. To reporters, Griggs criticized Schoemehl's policy of having staff members sell tickets to fund-raising events for Schoemehl.

Bennett, 65 and a retired Air Force major general, was unavailable for comment Wednesday. In a written statement, Bennett said he was looking forward to retirement on July 1 and would make himself available to Griggs to ensure a smooth transition.

The only flap that involved Bennett personally arose from his living in O'Fallon, Ill. When hiring Bennett, Schoemehl assured him that he would not have to move to the city, as many believed the city charter required. Schoemehl persuaded the city's Civil Service Commission to grant Bennett a residency waiver.

In 1988, Alderman JoAnne Wayne, D-1st Ward, sued to force Bennett to move. A court ruled that the airport director was exempt from the city residency requirement.

Bosley said also he would ask the Civil Service Commission to grant a residency waiver for Griggs, who lives in west St. Louis County. Griggs got a residency waiver previously. Bosley said Griggs has a "special expertise," wh grounds for a waiver.

The other three appointments are:

■ Elaine Harris Spearman, as Human Services dir which pays $70,148. Spearman is a lawyer and w Bosley's transition team. She succeeds Chester Hine department administers social welfare programs.

■ Dennis A. Hill, as assessor, which pays $67,054 a The assessor's office is responsible for personal anc property assessments and appeals.

■ Anthony J. Ross, as supply commissioner, which $57,746 a year. The supply commissioner's office har the bidding procedures for most city purchases.

The appointments of Griggs and Spearman to dire ships are only the second and third major Cabinet ch Bosley has made since taking office seven weeks ago

Last month, Bosley appointed former state Rep. R White as city counselor, directing the legal departmer

Some City Hall watchers wondered why major Ca appointments took so long. But Bosley and his chief of Lloyd Jordan, said they were more concerned with m good appointments than quick ones.

"It's silly to rush in and replace people," Bosley sai

Jordan said he was looking at ways to streamline munications between city departments and the mayor wny, he said, might be to set up "deputy mayors "division chiefs," who would handle reports from de ments that deal with related issues.

FUSRAP, St. Louis Site, St. Louis, MO, ST. LOUIS POST-DISPATCH, Daily-345,700, Sunday-566,095 Date 6/10/93 Page 3A

The following clippings are not about FUSRAP, but are included because they provide relevant information on FUSRAP sites or issues.

F-4 expansion opponents see hope in hiring of new airport director

By Laura J. Hopper
Staff writer

Opponents of Lambert-St. Louis International Airport's expansion plan hope a change in the airport's leadership will revive discussions about altering the proposal.

Leonard L. Griggs, who headed Lambert Airport from 1977 to 1987, will return to his old post as airport director July 1 after being appointed to the job Wednesday by St. Louis Mayor Freeman Bosley Jr.

Griggs replaces Donald W. Bennett, who took over in 1987 after Griggs resigned in a dispute with former St. Louis Mayor Vincent C. Schoemehl Jr.

Under Bennett's leadership, Lambert officials initiated a major airport expansion plan, called F-4, that involves building three new runways and expanding airport terminals and parking space.

One of the three runways would extend westward into Bridgeton, which has sparked considerable opposition from the municipality's leaders and residents.

The appointment of Griggs might signal an opportunity to reach a compromise on the expansion issue, Bridgeton Mayor Conrad W. Bowers said.

"As new incumbents, both Bosley and Griggs are in positions to bring fresh thinking and new perspectives to the task of

See GRIGGS, Page 5A

From Page 1A

expanding airport capacity," he said.

Bowers said he hopes Griggs will consider a way to expand Lambert that would "serve the needs of all communities (and) will not destroy any community."

Members of the Bridgeton Air Defense, a residents' group formed in opposition to F-4, say they hope to discuss their expansion views with Griggs.

"We think the appointment of Griggs is a positive development, and we look forward to meeting with him," said Jack Taylor, a spokesman for the group.

The F-4 plan is awaiting approval from the Federal Aviation Administration (FAA).

After leaving Lambert in 1987, Griggs was named the FAA's assistant administrator for airports.

He resigned from that post in February and had met with Bosley several times since then to discuss the possibility of returning to his former airport job.

In a statement issued Wednesday, Bosley praised Griggs' experience in handling airport capital improvements.

"Mr. Griggs has a wealth of experience in aviation management and policy development," Bosley said.

Alderman JoAnne Wayne, D-1st Ward, called the change "good for the airport." She added, "Griggs is a person the mayor can work with."

Wayne, who as chairman of the city's Transportation and Commerce Committee handles all airport legislation, said she does not believe a new airport director will change the direction of Lambert's expansion plans.

Bosley has not taken a public position on the F-4 plan, which Schoemehl pushed when he was mayor. However, Griggs was an F-4 supporter as airport director under Schoemehl and during his stint at the FAA.

"I've sure whatever they come up with, it will be agreeable to both sides," Wayne said.

Bennett, who served for 34 years in the U.S. Air Force before being appointed to the Lambert position in 1987, said he plans to retire as of July 1, when Griggs officially takes over.

In a statement released after Bosley's announcement, Bennett said he would work with Griggs "to ensure a smooth transition for Lambert Airport."

Staff writer Paul Thompson contributed information to this story.

FUSRAP, St. Louis Site, St. Louis, MO, SUBURBAN JOURNAL, NORTH COUNTY EDITION, Weekly-142,660 Date 6/13/93 Page 1A

The following clippings are not about FUSRAP, but are included because they provide relevant information on FUSRAP sites or issues.

ST. LOUIS COUNTY

Trash In Landfill Sparks Political Influence Charges

By Mark Schlinkmann
Regional Political Correspondent

Citing a problem with exposed trash over the past nine months at the West County Landfill, a nearby resident has renewed her accusations that county officials are lax in regulating the site because of the owner's political connections.

Angela Dillmon, leader of the West County Citizens Association, has alleged that County Executive George R. "Buzz" Westfall's administration was reluctant to cite the landfill for violations because the owner, James Becker, has donated to the campaigns of Westfall and some Democrats on the County Council.

"They try to elicit his cooperation instead of just going out and saying these are the rules," Dillmon said. "It's the overall attitude" of the county.

County officials deny that they have gone easy on Becker's operation. Moreover, they say the trash in question wasn't covered by soil that is usually required — only because the county and state had required the landfill to do some excavation work beneath it. Thus, they said, there was no violation.

Sue Taylor, who heads the county's waste-management division, said county inspectors first noted the exposed trash last September and had asked Becker to cover the area with a plastic tarp. But the tarp sometimes came off in windy weather, she said, and inspectors again noted the problem on subsequent reports.

"Finally, we were out there in April and said, 'Jim, you've got to do something to solve this problem,' " Taylor said. Late last month, she said, the landfill installed a different, better secured tarp that should keep the area covered until the excavation work is done.

Last month, the landfill installed a different, better secured tarp.

She added that because the waste involved is at least 10 years old, there was no gas migration or odor. She said the issue was an aesthetic concern, not environmental.

Taylor said that although the landfill had made "somewhat of a slow response" to the county's requests, "our office has acted responsibly and sought correction," and in the end obtained it.

The county's treatment of the landfill also surfaced Thursday at a hearing of the council's Public Improvements Committee on the landfill's request for some unrelated changes in its operating rules.

Councilman Greg Quinn of West County, R-7th District, didn't allege a political motivation for the county's actions. But he said the landfill "probably should have been cited" for a violation "a long time ago." He spoke against the changes.

After Quinn and county officials fenced on that issue, the committee chairman, Councilman Geri Rothman-Serot of Frontenac, D-3rd District, said it appeared to her that the landfill was trying to comply with county restrictions.

But Rothman-Serot said she would oppose a key change sought by the landfill. That change would have removed a requirement for fencing along the site's northeast property line, much of which is heavily wooded. She said she felt uncomfortable deleting something that could enhance the safety of nearby children. The committee voted 2-1 against dropping the fence, overriding the county Planning Commission.

The committee agreed with the planning commission's refusal to allow excavation work on Saturdays and after regular weekday closing hours, and with its support for changing the landfill's letter of credit and extending a deadline for constructing some drainage ditches.

Becker, in an interview as Thursday's meeting was ending, said he had never gotten any special treatment from the county because of his political donations.

Campaign finance reports on file with the County Election Board showed Becker and West County Disposal Ltd. donated $14,750 to Westfall's campaign committee since 1989. He and/or the company donated lesser amounts to four of the council's five Democratic members.

Last year, Dillmon appeared in a TV ad for Sen. Christopher S. Bond, R-Mo., ripping Rothman-Serot, Bond's Democratic opponent, for voting for earlier changes in the landfill's regulations after getting donations from Becker.

FUSRAP, St. Louis Site, St. Louis, MO, ST. LOUIS POST-DISPATCH, Daily-345,700, Sunday-566,095 Date 6/14/93 Page 13N

The following clippings are not about FUSRAP, but are included because they provide relevant information on FUSRAP sites or issues.

Radon Gas Releases At Quarry Called No Cause For Concern

By Judith VandeWater
Of the St. Charles Post

Solid contaminated wastes are being moved from a quarry at the Weldon Spring Superfund clean-up site — increasing the potential for the release of radon gas into the atmosphere — but the project director says there is no cause for concern.

Steve McCracken, the manager of the $650 million clean-up of the defense-plant site for the Department of Energy, says radon levels as monitored at the fenceline along Highway 94 have been at or below three to four picocuries a liter.

The monitors have measured at least one instance where radon levels reached four picocuries a liter.

The Environmental Protection Agency recommends that people ventilate their basements if radon levels exceed four picocuries a liter. McCracken says the emission levels measured at the fenceline are not cause for significant concern because the gas is not being released in a populated area and because it dissipates rapidly outdoors.

Radon gas is a carcinogen created in the decay cycle of radium. The gas is trapped in pockets in the solid waste in the quarry. Moving the waste can release the radon. Most of the waste in the quarry pit was created when the site was used to make munitions and en-

See RADON, Page 5

Radon

From page one

rich uranium for weapons.

McCracken says that if radon levels begin to rise, the contractor can use tarpaulins or foaming devices to limit the amount of quarry area exposed to the air at any given time.

Workers from OHM Corp., the contractor in charge of moving the waste, will remove about 100,000 cubic yards of old equipment, soil, debris and drums from the quarry in 30 months. The contaminated waste will be transported to the chemical plant and temporarily stored in sealed containers.

"Officially we have begun quarry bulk-waste removal with the removal of some vegetation," McCracken said. "We'll begin removing the most contaminated material about a month from now."

Water from the quarry is being treated in a nearby water-treatment plant, one of two such plants in operation at the site. Treated water from both plants is being pumped into the Missouri River.

The second water-treatment plant was erected to treat waste water in raffinate pits nearer the chemical plant. McCracken said the plant is also being used to purify rainwater that is contaminated as it filters through the soil. The water leaks into an old sewer line that served the chemical plant. Workers have capped the pipe.

"In this way we have been able to capture some of the water which had been going off the site," McCracken said.

Workers also have begun taking down one of the largest and most contaminated of the chemical-plant buildings.

"It is one of the more visible activities out here," McCracken said.

Last week, the Department of Energy made public its annual report on emissions and effluents at the site. The inch-thick report concludes that all releases were within national health and safety guidelines and posed no threat to human health.

Ken Meyer, an environmental safety and health management official for the project, said the biggest danger associated with the site was construction safety.

As part of the analysis, biologists monitor levels of radioactive materials in plants and wildlife in the area by testing the bones and tissues of fish and deer at the adjacent Busch Wildlife Area. None of the levels posed a threat to human health, Meyer said.

FUSRAP, St. Louis Site, St. Louis, MO, ST. CHARLES POST DISPATCH, Daily-33,000 Date 6/21/93 Page 1

The following clippings are not about FUSRAP, but are included because they provide relevant information on FUSRAP sites or issues.

Hull wins Ward 2 seat on Berkeley council

By Dennis R. Heinze
Staff writer

The overwhelming support Leondus Hull received last week in his successful bid to represent Ward 2 as a Berkeley councilman is a message that residents want to see change in the city, Hull said.

"I think that the citizens of Ward 2 really spoke that they are tired of business as usual and that they're looking for a change and a trend that can turn it around," Hull said Thursday. "We can take a good city and make it better."

Hull, a retired district manager with Clean Industrial Services, garnered nearly 80 percent of the votes in last Tuesday's special election to defeat Carol Black, according to unofficial figures released by the St. Louis County Board of Election Commissioners. Both candidates are political newcomers.

Hull, 64, will fill the unexpired term of William Martchink, who was elected in April 1992 but died on Jan. 9, 1993. The term will end in April 1996.

"I think that the citizens of Ward 2 really spoke that they are tired of business as usual...."

Leondus Hull

As a councilman, Hull said he will work to enhance public safety by beefing up patrols in certain areas of Berkeley.

"I want to utilize the police in a more efficient manner," he said. "We need to make them more visible, and we need to make sure the ordinances of Berkeley are enforced."

Hull said police officers also need to slow down when patrolling neighborhoods to keep a closer eye on activities in the area. He said police need to have more positive contact with residents and get to know them better so they can work together to combat crime.

FUSRAP, St. Louis Site, St. Louis, MO, SUBURBAN JOURNAL, NORTH COUNTY EDITION, Weekly-142,660 Date 6/13/93 Page

The following clippings are not about FUSRAP, but are included because they provide relevant information on FUSRAP sites or issues.

Sewer Systems Badly Polluted, Area Consumer Groups Warn

By Christine Bertelson
and Estela Villanueva
Of the Post-Dispatch Staff

THINKING OF GOING fishing or swimming in a local lake, river or stream this summer?

Better think again, says Heidi Hill, a clean-water activist with the Missouri Public Interest Research Group.

The sewer systems of Illinois and Missouri — which ultimately discharge treated water into rivers and streams — are among the most heavily polluted in the nation, according to reports issued Monday by the Illinois and Missouri public interest research groups.

"For consumers' health this summer, they should find out what chemicals have been dumped into the rivers," Hill said. "Find out if there are any fishing or swimming advisories."

The research group's studies were based on 1991 pollution reports that industries must file each year with the federal Environmental Protection Agency. The figures are the most recent available.

Illinois industries reported discharging the most toxic releases (59 million pounds) in the nation to sewage treatment plants in 1991, according to the report. Three industries in the Metro East area were among the worst polluters in the state. They are:

- Monsanto Co.'s chemical plant in Sauget, which ranked first in the state and second in the nation with 20.5 million pounds of toxic material sent to sewage treatment plants.
- Harcros Pigments Inc. of East St. Louis, which ranked fourth in the state by releasing 2.5 million pounds.
- Amoco Petroleum Additives Co. in Wood River, which was fifth with 2.4 million pounds.

Between 1989 and 1991, the Harcros plant reduced release of the chemical to its treatment facility by 80 percent, said spokesman James Valentino.

"We're trying to reduce those releases that are considered to be toxic," Valentino said. "Through 1995 we should continue to see reductions to get at or below the level allowed by the EPA."

Missouri ranked sixth in the nation, with more than 26 million pounds of industrial chemicals released to sewage-treatment plants.

Columbian Chemicals Co. led the list, discharging 14.4 million pounds of toxic waste. Columbian Chemicals operates two plants in St. Louis.

"All our permanent discharges go to the sewer system," where they are treated, said Gary Juno, senior counsel for Columbian Chemicals in Atlanta. "They do not go to the waters of the U.S. The goal of the company is to be environmentally responsible."

Columbian Chemicals makes iron oxide, a pigment used for paint and building materials.

Gary Barton, director of environmental communications for Monsanto Co., said the discharges from its Krummrich plant in Sauget are acids that are neutralized before they end up in the Mississippi.

"What goes into the Mississippi is really not a problem," Barton said. "The water is treated and rendered non-toxic, and treated a second time."

Ammonia discharged from Monsanto's Queeny plant in St. Louis is treated by the Metropolitan St. Louis Sewer District before it goes into the river, Barton said.

Illinois industries discharged more than 6 million pounds of pollutants to surface waters. In Missouri, industries dumped more than 1.2 million pounds of pollutants to surface waters.

The consumer groups urged industries to cut the amount of chemicals they use, rather than dump them into sewage systems that were not designed to handle toxic chemicals.

The consumer groups in more than 30 states have joined forces with the Sierra Club, the Audubon Society and the Nature Conservancy to lobby for a stronger Clean Water Act. The law is up for reauthorization this year, and hearings are under way in Congress.

TOP POLLUTERS LISTED

Illinois

Top Five Polluters of Sewer Systems
Monsanto Co., Sauget
Rockford Wire Technology, Rockford
Corn Products and Best Foods, Bedford Park
Harcros Pigments, East St. Louis
Amoco Petroleum Additives Co., Wood River

Top Five Polluters of Surface Water
3M, Cordova
IBP Inc., Geneseo
B.F. Goodrich, Henry
Phoenix Chemical Co., East Dubuque
Allied-Signal Inc., Metropolis

Missouri

Top Five Polluters of Sewer Systems
Columbian Chemicals Co., St. Louis
Mallinckrodt Specialty, St. Louis
Monsanto Co., St. Louis
Blue Side Cos. Inc., St. Joseph
Chrysler Motors Corp., Fenton

Top Five Polluters of Surface Water
Ireco Inc., Louisiana
ICI Explosives USA Inc., Joplin
Biokyowa Inc., Cape Girardeau
LaRoche Industries Inc., Crystal City
Miles Inc., Kansas City

In Missouri, information on health, swimming or fishing advisories for streams is available from the Department of Health at (314) 751-6062 or the Department of Natural Resources at (314) 751-1300.

In Illinois, information on pollution in waterways is available from the Department of Public Health at (217) 782-4977 or the Illinois Environmental Protection Agency at (217) 782-3397.

FUSRAP, St. Louis Site, St. Louis, MO, ST. LOUIS POST-DISPATCH, Daily-345,700, Sunday-566,095 Date 6/22/93 Page 1C

Nevada Warns Region About Nuclear Waste

The following clippings are not about FUSRAP but are included because they provide relevant information on FUSRAP sites or issues.

By Tom Uhlenbrock
Of the Post-Dispatch Staff

As many as 31,160 truck shipments of high-level radioactive waste would roll through the St. Louis metropolitan area — one every eight hours for 28 years — if the government locates a nuclear dump in Nevada, officials of that state said Wednesday.

If all shipments were made by highway, about 40 percent of the waste would come through St. Louis, said Bob Halstead of the Nevada Nuclear Waste Project. If shipped by rail, about 25 to 30 percent would come through here.

The Department of Energy has proposed building a nuclear waste burial site on Yucca Mountain, a desert ridge about 70 miles northwest of Las Vegas. Waste from the country's 127 commercial nuclear reactors would be shipped by truck and by rail to the remote site.

That would total some 70,000 metric tons of radioactive waste by 1998, when the government is required by law to take title to the waste, said Kathleen Grassmeier, transportation manager for the Department of Energy's Yucca Mountain Project.

Grassmeier — and the Missouri Department of Natural

See WASTE, Page 16

ST. LOUIS POS

Waste

From page one

Resources — said it would be up to the federal Department of Transportation to determine how the waste gets from the reactors to the dump.

"We have a 30-year safety record, not only in the United States but around the world, where our waste has never been released into the environment," she said.

"It's very easy to go out and pose the question, 'How safe is safe?' We are safe, and we've proven it."

The state of Nevada, which has no nuclear power plants, opposes construction of the Yucca Mountain facility. Halstead is visiting cities along the potential haul routes this week to tell them what they might expect.

Halstead said the Department of Energy had failed to outline its transportation strategy because it fears the protests that may follow from residents along the routes.

"There are some obvious political reasons why they're dragging their heels," Halstead said at a news conference at City Hall. "We did our own study, and if these shipments were starting today, this is the way they would travel."

Waste from nuclear reactors in the East would come into St. Louis on Interstate 70, and then take 270 across the northern edge of the metropolitan area before rejoining 70, he said. Shipments from the southeast would approach the city on Interstate 64, taking Interstate 255 north to Interstate 270.

If coming by rail, the shipments would enter East St. Louis and then take one of three lines west, including the Union Pacific line that runs through Webster Groves and Kirkwood.

"High-level nuclear waste is an extremely hazardous material," Halstead said. "Transporting nuclear waste involves real risks, including the possibility of severe accidents and terrorist attacks."

Halstead said Yucca Mountain is a poor geologic choice for a nuclear dump. But Grassmeier said it is the only place under consideration by the Department of Energy.

"Right now, with the studies we've done so far, there is nothing identified as a show stopper," said the DOE's transportation manager. "It's a good looking place with all the tests we've done so far."

If the site is approved, the construction schedule calls for the facility to be opened in the year 2010, she said. However, the transportation of waste could begin as early as 1998 for storage on site.

Halstead said Nevada "is going to fight the decision to build a dump at Yucca Mountain. We'd love to have you join us because your citizens have a vested interest."

Kay Drey, an anti-nuclear activist from University City, who attended the news conference, said Nevada should not face the problem alone.

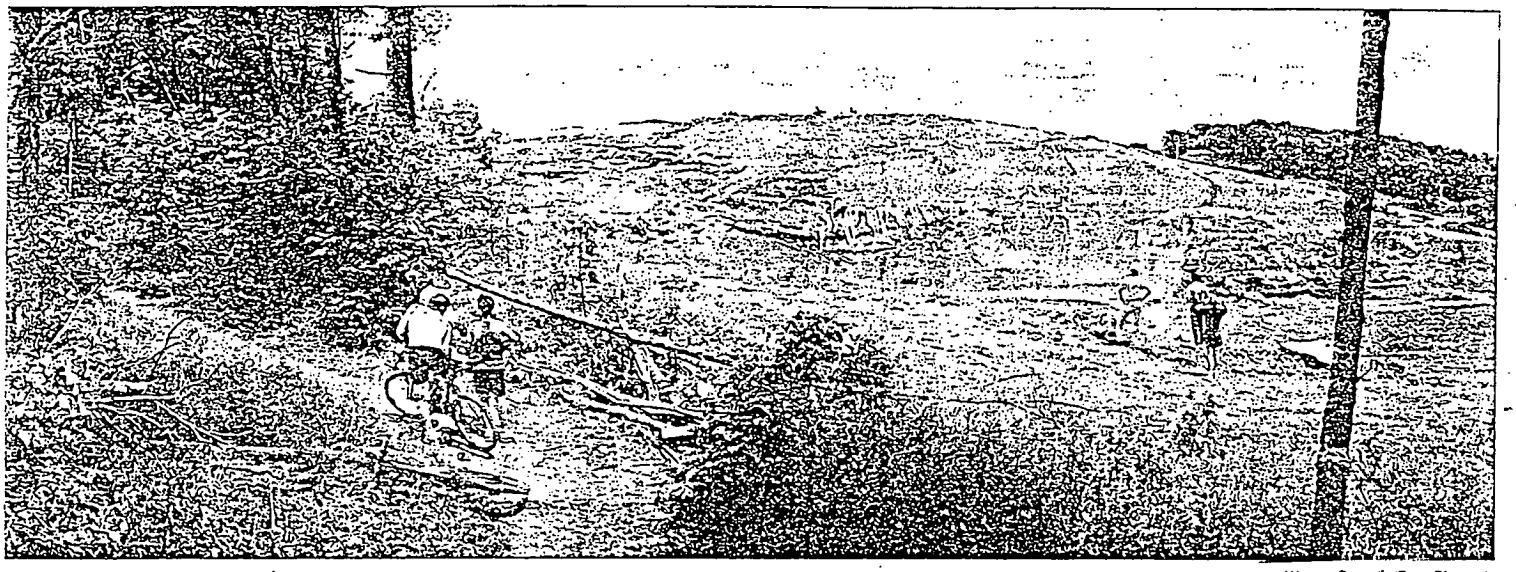
"It's a problem for anybody who would travel the routes where these shipments go," she said. "We call it mobile Chernobyl."

ST. LOUIS POST-DISPATCH

ST. LOUIS

SECTION D

SUNDAY, MAY 30, 1993



Wayne Crosslin/Post-Dispatch

Hikers and hikers on the Grotpeter trail last week in Castlewood State Park. The three-mile path skirts the West County Landfill.

Landfill Called Too Close To Beaten Path

By Tom Uhlenbrock
Of the Post-Dispatch Staff

Noel Taylor took his son hiking at Castlewood State Park in west St. Louis County and was moved to write about their experience:

"Within 100 yards we found ourselves in a cloud of something which smelled like the old chlordane termite sprays, and which burned our eyes and lungs.

"The odor was soon joined by other odors, like turpentine, diesel exhaust and rotting garbage. As we rounded the bend, we found an area of hundreds of dead trees.

"We could soon see a man-made embankment ... dotted with shredded plastic sheeting and sporting large pipes which gave out continuous flames. We didn't hang around long."

Homeowners Complain; State Suit Pending

Welcome to Grotpeter trail, a three-mile footpath that winds through upland forest in the park. The path also skirts West County Landfill on Sulphur Springs Road off Big Bend Boulevard, and that's what Taylor was describing in an essay he sent out on a national computer bulletin board.

The landfill and park have been feuding for years. The landfill was there first, opening in 1972, when the area was mostly forest and farms. But now the 630-foot mountain of waste is surrounded by the park and pricey subdivisions.

Homeowners and hikers complain of the stench, and state officials say the landfill violates its permit. But the landfill's owner insists he's complying with all rules and blames the developers for building so close.

"We have a subdivision with common ground right up to the landfill," James Becker, owner of the landfill, "It creates problems."

The feud is just one of many environmental skirmishes as suburbs sprawl into isolated areas, bumping into the nation's 6,600 licensed landfills.

"And it's not only landfills," said Allen Blakey of the National Solid Wastes Management Association. "You have the same thing happening with other types of commercial and industrial facilities — and with airports."

The conflict in West County dates to 1979, when Castlewood Park opened near the landfill. A building boom that started in the mid-1980s has made it worse.

West County Landfill accepts about 6,000 cubic yards of trash a week. About 100 garbage trucks travel to the landfill each work day.

Complaints Fatten Files

Scott Gates knows about the problems. He is among the homeowners whose names are in two thick complaint files at the county's landfill offices.

See PARK, Page 6

Park

From page one

Most of the complaints concern odor from the landfill. Others tell of [redacted]ge left uncovered by the mandated 12 inches of soil, heavy machinery noise at odd hours or speeding trash trucks.

When he bought his house, Gates said, a real estate saleswoman told him that the landfill would close soon. He complained to the Department of Natural Resources when he found out differently.

"The DNR said I was kind of stupid to believe her," said Gates. "I said, 'Hey, I took her word.' "

There may be confusion — intentional and unintentional — over the closing of a portion of the landfill. The north face of the landfill has closed, but operations moved to the south side of the 140-acre dump. The landfill is expected to continue taking trash for more than a decade.

"We get calls from people who say the real estate agent told them the landfill was going to close in six months," said Sue Taylor, who heads the county's waste management division. "People have to do their homework."

Signs in the neighborhood advertise homes ranging "from the low $110,000's" up to almost $200,000.

One builder in the area, McBride & Sons, requires buyers to sign a clause in their closing contract that says they know a working landfill is close by their dream home.

[redacted]o be honest, it hasn't affected our sales," said John Eilermann, manager of the Stoney Creek project.

Homeowners near the landfill have formed a group, the West County Citizens' Association, to monitor its operations.

"There's never been a fight over the existence of the landfill — it's there and needs to operate," said association president Angela Dillmon. "Our biggest beef is that it's not monitored well.

"There's been a wall of trash exposed on the south face since October of 1992, and the county is doing absolutely nothing."

Buffer Zone Conceals Little

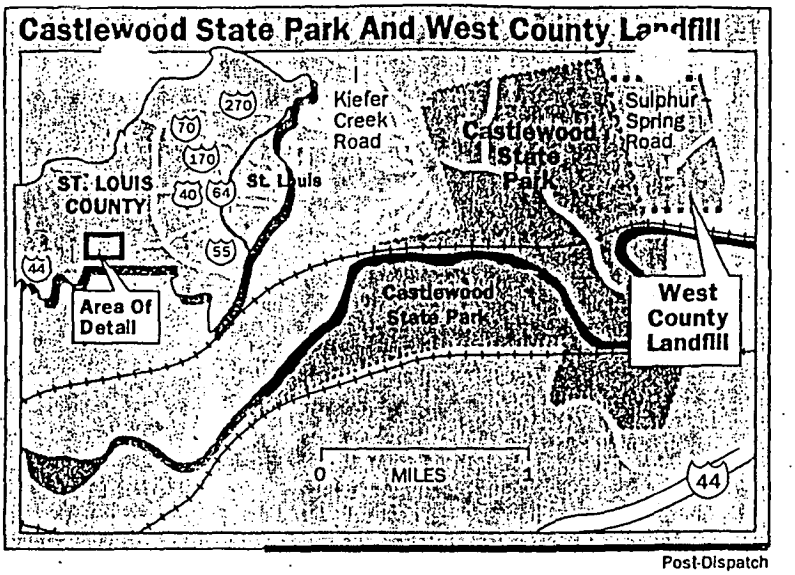
If prospective homebuyers want a good look at a potentially undesirable neighbor, they might hike Grotpeter Trail, which begins near the Castlewood visitors center. The first hint of something unusual is the drone of heavy machinery accompanying the songbirds in the forest.

Looking through the bare branches of a grove of dead trees set in barren earth, they would see white plastic pipes protruding from the ground 100 feet away. The pipes spout fire like flamethrowers, burning gases sucked up by the landfill's methane collection system.

A 10-minute walk later, the trail emerges from the woods and gives a clear, unobstructed view of the landfill a stone's throw away. Large sheets of plastic, apparently a liner to collect leachate, stick out from the hillside of buried trash. Comments Joe Vujnich, chief of planning for St. Louis County: "It's like a bomb went off."

Vujnich said the dead trees were killed by methane gas that traveled underground from the landfill into the park. A new collection system has corrected the problem, and should curb odors, he said.

The landfill is required to maintain a 20-foot visual buffer of trees and vegetation between it and the park. Vujnich and park officials differ on whether the trail, or the landfill, has infiltrated the buffer zone. In winter when the leaves have fallen, the argument is moot.



Post-Dispatch

The county says that the landfill meets all environmental regulations. The state disagrees. "As it stands now, they are legal under county ordinance but in violation of their state permit," Vujnich said.

State Has Lawsuit Pending

One builder in the area requires buyers to sign a clause in their contract that says they know a working landfill is close by their dream home.

Officials of the Department of Natural Resources declined to comment on the landfill because of a pending lawsuit filed by the state. But Richard Love, superintendent of Castlewood State Park, pointed out that the section of trail close to the landfill is just a tiny part of the park's 1,778 acres.

Noel Taylor's essay "compared us to a Superfund site — he's way out of bounds," Love said. "There are some odors on certain parts of the trail where it's closest to the landfill. But it only affects a small portion of our total acreage."

Castlewood, on the Meramec River, is popular with hikers and mountain bikers who use trails that wind through bottomland forests or along a bluff offering splendid views, especially in fall. Visitors to these areas get nary a glimpse or whiff of the neighbor to the east. The park draws nearly 300,000 visitors a year.

The state's major complaint is that the landfill has grown to 680 feet tall, 40 feet beyond its permitted elevation. The suit seeks a fine of $1,000 a day for each day the violation exists.

Tim Duggan of the Missouri attorney general's office said the suit, filed in November 1991, is winding its way through the system. "If we can figure out at what point they went over 640 feet, we could seek a fine from that time," he said. "We believe that may have occurred in October of 1990."

Duggan also said it was "entirely possible" that the state could require the landfill to remove the top 40 feet of the trash mountain.

Vujnich, however, believes that removing the grass-seeded earth to exhume the top 40 feet of garbage would cause even bigger problems, especially for nearby homeowners.

"What you'd get is a lot more odor," he said. "You take 40 feet off — talk about smell."

Closing Would Boost Values

West County Landfill's permit is in effect until 2001. How long the landfill will stay open after that is hard to estimate. The goal of Missouri's new solid waste law is to extend landfill life by banning certain materials, including yard waste.

An estimated 18 percent of the county's garbage goes to West County; that may increase when the Missouri Pass landfill at Page Avenue and Lindbergh Boulevard closes in the next few years. The county has five sanitary landfills.

"In the real long-term look, West County will reach capacity and close," said Vujnich. "The area will be restored back to native grasses and pasture. Give it 15 years, and maybe we'll be seeing something different."

Homeowners such as Scott Gates eagerly await that day. He envisions a park, or perhaps a ski slope, where the landfill now stands.

"I've heard where real estate around a closed landfill has tripled in value," said Gates. "That's what I'm banking on.

Meanwhile, officials of Castlewood State Park are considering retooling Grotpeter Trail to move it away from its noxious neighbor.

That would be fine with mountain biker Paul Weiss, who sweated up one of Grotpeter's steeper hills last week — only to be surprised by a commanding view of the dump.

"What's this?" he exclaimed. "It's an abomination!"

St. Charles Journal Sunday, May 30, 1993

DOE begins removing debris from Weldon Spring Quarry

By Dennis Miller
Staff writer

A three-phased project to clear vegetation and remove radioactive debris from the Weldon Spring Quarry "officially" got under way Thursday, said a U.S. Department of Energy official.

The first four or five weeks of the job will entail clearing and hauling away logs and vegetation, then several thousand cubic yards of soil piled up at the mouth of the quarry. The excavation of contaminated debris is scheduled to begin in late June or early July.

The work is expected to take 18 to 30 months to complete and cost an estimated $18 million, said Steve McCracken, project manager of the cleanup of the Weldon Spring Chemical Plant site.

From 1942 to 1969, debris from the production of explosives and processing of uranium was dumped into the quarry, located near Highway 94 about four

(See QUARRY, Page 10)

Quarry

(Continued from Page 1)

miles south of the former uranium-processing plant.

McCracken estimated that the quarry contains 110,000 to 120,000 cubic yards of radioactive materials.

A contractor will haul the materials to the plant site, where it will be kept in a specially designed temporary storage area until federal agencies adopt and implement a permanent storage plan. Materials will be hauled in trucks using a gravel road that passes beneath Highway 94 between the quarry and the plant site.

The DOE contracted the job to OHM Remediation Services Corp., an Ohio-based firm with a branch office in O'Fallon. The contract does not specify a fixed price for the work because the department wanted the flexibility of being able to interrupt the project, if necessary.

For example, if the contractor discovers an unknown material in one of the drums in the quarry, "we would want to stop the work until we have a chance to study that," McCracken explained.

In bidding out the job, McCracken said the DOE emphasized technical qualifications to perform such work. OHM is also a partner with another firm in one of the contracts for dismantling some of the buildings on the plant site.

"They are well-qualified to do the work," he said.

The removal of debris from the quarry will proceed as the DOE continues to remove, treat and release water from the quarry. Treatment of the water began in January and is expected to continue for several years. Each batch of up to 800,000 gallons of water is treated to remove or reduce contaminants and then tested before being released into the Missouri River.

The quarry sits above St. Charles County's water wells located in the Missouri River floodplain.

ST. LOUIS POST-DISPATCH

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EPA Calls Pollution Numbers Disturbing

By Bill Lambrecht
Post-Dispatch Washington Bureau

WASHINGTON — If a toxics tour of Missouri is what you wanted, you'd start at the lead mining spots in Jefferson and Iron counties and then swing by the auto assembly plants in St. Louis.

In Illinois, you would drive by Granite City Steel and head north toward Tuscola, home of the Cabot Corp., Illinois' biggest producer of hazardous materials.

If you wanted to travel farther in search of wastes, you'd head to Louisiana, which produces the most air, water and land pollution. Next on the biggest producers list is Texas, followed by Tennessee, Ohio, Indiana. And then you would return to Illinois.

This road map of toxic chemicals came to you on Tuesday as part of the U.S. Environmental Protection Agency's annual toxics release inventory for companies in the United States.

The national total of nearly 3.4 billion pounds of wastes represented a 9 percent drop from the year before. The figures were compiled for 1991.

Nonetheless, EPA administrator Carol M. Browner asserted that companies are generating "huge volumes of hazardous waste," and that recent numbers suggest that the total may rise again.

"If these projections are true, this is a disturbing trend," Browner said.

The EPA's toxic release inventory is compiled from reports that companies are required to file with the federal government.

Missouri dropped in the rankings to 22nd from 20th, generating 60 million pounds. Illinois advanced to sixth nationally from the ninth position, with an output of about 123 million pounds.

The Doe Run Co.'s mining and milling smelter at Herculaneum, in Jefferson County, once again topped Missouri's list. The report shows that the company produced about 16.5 million pounds of hazardous materials — slag and smelting leftovers — roughly 2 million more than the previous year.

Jeffrey L. Zelms, president of Doe Run, said Tuesday that his company is committed to deep reductions in the amount of its waste. He

See WASTES, Page 10

Wastes

From page one

promised that the next EPA report would show just 6.2 million pounds, a cut due partly to a downturn in business and partly because of more effective ways of extracting lead, copper and zinc from ore.

"We're tickled to death about the progress we have made," Zelms said.

Second on Missouri's list was Asarco Inc., a mining company in Glover, with 6.7 million pounds, followed by the Ford plant in Claycomo (1.8 million); the Ford plant in Hazelwood (1.7 million); and the Chrysler plant in Fenton (1.6 million).

The Cabot Corp., Illinois' main generator of wastes, makes fumed silicon dioxide, a powdery substance used in cosmetics, paint and rubber. One by-product is hydrochloric acid, which Cabot tries to sell. Sales of the chemical fell in 1991, and Cabot injected the excess underground, the company said. It said it injected more than 14 million pounds of hydrochloric acid into wells about 140 miles northeast of St. Louis.

The company also produced about 4.5 million pounds of air pollution, much of it chlorine, according to the Illinois Environmental Protection Agency.

Monsanto Co. of St. Louis ranked fifth in the total of toxic releases from its plants around the country. According to the report, Monsanto is among the top 10 generators of wastes in Texas, Florida, Alabama, Iowa and Massachusetts.

In Texas, Monsanto's Chocolate Bayou chemical plant at Alvin, in the Gulf Coast area, injected over 54 million pounds of ammonium sulfate into three, 6,000-feet-deep wells, according to the Texas Water Commission.

Diane G. Herndon, Monsanto's manager of corporate communications, observed that ammonium sulfate is not among the most toxic chemicals.

She noted also that Monsanto has pledged to work toward eliminating all of its discharges. Since last year, she said, the company had cut about two-thirds of its air pollution, a reduction that will show up in the next EPA report.

Councilman Shear To Seek State Senate Seat

By Mark Schlinkmann
Regional Political Correspondent

SQUEEZED OUT of his district by reapportionment, County Councilman John R. Shear said Saturday he would not seek a third term next year.

Instead, Shear expects to run for the state Senate against a fellow Democrat, 24-year incumbent John D. Schneider of Florissant.

Shear also endorsed Mayor Charlie Dooley of Northwoods to succeed him in the 1st District council seat in the 1994 election.

Dooley, who also is Normandy Township Democratic committeeman, is vying to be the county's first black councilman.

"The Afro-American population of St. Louis County now represents about one-seventh of the county," said Shear, of Ferguson.

"It is time for a change. It is time for an Afro-American . . . on the County Council."

Shear and Dooley, 45, made a joint announcement at the St. Louis County Democratic Party's annual Thomas Jefferson Days gathering at the Holiday Inn Airport-North in Bridgeton.

Shear was put in a political quandary last year by a redistricting map imposed by U.S. District Judge Jean Hamilton. Shear's home was put in the nearby 4th District, represented by fellow Democrat Jim O'Mara of North County.


Shear

The 1st District, which Shear has represented since 1987, was redrawn so that its black population increased to 65 percent from 45 percent.

To stay on the council, Shear's choices were:

- To run last year against O'Mara, when elections in the even-numbered districts were held.
- To move his home into the new 1st District to run next year in a black-majority district. Dooley had been among those mentioned as likely black challengers.

Shear, 37, said he would make a final decision on running for Schneider's seat by the end of the summer. He said he disagrees with Schneider on "just about everything."

For example, Shear said, he takes more of a middle-ground approach on abortion than does Schneider, long known for his strong anti-abortion views. Shear said he wanted neither to tighten nor to loosen Missouri's abortion laws.

Shear also contrasted his support for term limits for legislators with Schneider's role as the longest-serving state senator.

Schneider, 56, said Saturday that he intended to seek a seventh four-year term next year and charged that Southwestern Bell Corp. had encouraged Shear to run against him because of Schneider's opposition to legislation pushed by the company.

A measure barring state regulators from considering Yellow Pages profits in setting telephone rates died earlier this month when Schneider threatened a filibuster against it.

Schneider contended that the measure would have spurred higher consumer rates, an accusation disputed by Bell.

Shear denied that Bell officials had urged him to challenge Schneider and said he had not taken a position on the Yellow Pages bill because he had not studied its details.

But he added that the Legislature should be "real careful" about not doing anything to drive Missouri companies out of the state.

Clean Up Illinois' Hazardous Waste

Incredible as it may seem in this age of increasing environmental awareness, Illinois' Hazardous Waste Cleanup Fund does not have a permanent source of funding. If the Legislature would only pass Senate Bill 534 before the session ends, such a source of funding will be secured. But the Legislature may not do so.

Last year, and again in this session, the powers-that-be in the Illinois House of Representatives have been reluctant to put Senate Bill 534 on the floor, where a clear majority favors it. Gov. Jim Edgar not only endorsed the bill, but came out for increased expenditures for the Hazardous Waste Cleanup Fund during his 1990 campaign for governor. The state Chamber of Commerce and the Illinois Manufacturers Association favor the bill, too. So do almost all environmental groups. But waste haulers, who will see their tipping fees raised, strenuously oppose the bill.

The legislation is desperately needed. At present, more than 120 toxic waste sites in the state need immediate cleanup. Several of the sites are situated in metropolitan St. Louis — in East St. Louis, Sauget, New Athens, Fairmont City, Alton, Granite City, Eagle Park and Collinsville. They contain everything from poisonous metals, solvents, creosote and PCBs to perchloroethylene. They are hardly good for the health of nearby residents.

The Illinois Environmental Protection Agency estimates the cleanup will cost a total of $143 million. Senate Bill 534 would allocate $8 million annually for the task on a continuing basis. Until now, funding for hazardous waste cleanup has come from parts of the revenue of various state bonds issued for other purposes. It is time to put the Illinois Hazardous Waste Cleanup Fund on a solid basis. The Legislature should be permitted to vote on — and should pass — Senate Bill 534, which would do just that.

Sunday, May 23, 1993 St. Louis Post Dispatch

St. Louis Post Dispatch • THURSDAY, MAY 20, 1993

New Rules May Delay Dioxin Incinerator

By Tom Uhlenbrock
Of the Post-Dispatch Staff

A new federal policy on licensing hazardous waste incinerators has confused Missouri officials and angered environmentalists. Both are wondering how the rules affect a dioxin incinerator proposed at Times Beach.

"It's a game of smoke and mirrors," said Charlie Cray of Greenpeace, an environmental group.

Ed Sadler, Missouri's top hazardous waste official, said he is in a "holding pattern" while he waits for the Environmental Protection Agency to explain whether the rules will affect Times Beach.

At a news conference in Washington on Tuesday, EPA administrator Carol Browner announced "rigorous new controls" on the incineration of hazardous wastes.

She said the government would freeze toxic waste burning levels at 5 million tons for the next 18 months while the EPA overhauls incineration rules. Any new operations, she said, would be held to strict standards for emitting dioxin.

But those new restrictions apply only to permanent industrial and utility boilers and cement kilns that burn hazardous waste, not to temporary incinerators built at Superfund sites, the EPA said Wednesday.

"I really see very little impact on Times Beach," said David Wagoner, the regional EPA official in charge of Missouri's Superfund sites, including Times Beach. Referring to Browner, Wagoner said, "She's not talking about temporary facilities like the one at Times Beach."

The Missouri Department of Natural Resources, which is overseeing the cleanup of Times Beach, is not so sure.

Sadler said Browner's 15-page statement does not mention incinerators used in Superfund cleanups, like the one at Times Beach. He said the freeze in allowing new incinerators to begin operations may well include so-called remediation incinerators.

"We're waiting for more information," he said.

Cray said Browner's announcement was the result of public protest over incineration of dioxin and other hazardous wastes at Superfund sites, especially at the Vertac incinerator in Jacksonville, Ark.

"They started out reacting to citizen pressure and made this new policy statement," Cray said. "The EPA wants to create the appearance of doing something while, in reality, they have to go further.

"To leave the universe of dioxin burners out of this new policy is a cynical admission that their program is ineffective."

Syntex Agribusiness, which ended up with the liability for cleaning up Times Beach, plans to build an incinerator to burn the 100,000 cubic yards of dioxin-contaminated soil from Times Beach and 26 other dioxin sites in eastern Missouri.

The Missouri Department of Natural Resources would have to issue a construction permit for the incinerator. Wagoner said Syntex's permit application is imminent.

But a second permit would be needed to burn dioxin, and the Department of Natural Resources has said the Times Beach incinerator will have to meet the so-called "six-nines" rule before that permit will be granted.

The EPA has said dioxin incinerators must destroy 99.9999 percent of the dioxin they burn. But the agency also concedes that no incinerator has demonstrated that efficiency when burning low concentrations of dioxin, like those at Times Beach.

There currently are legal challenges to the permits to burn dioxin in Arkansas and Ohio because of the failure to demonstrate "six-nines" success. Wagoner said those suits "could have an impact on Times Beach."



AP

Actor Martin Sheen being arrested in front of the White House in a demonstration Monday by opponents of a hazardous waste incinerator in East Liverpool, Ohio.

U.S. To Put Freeze On Building Hazardous Waste Incinerators

© 1993, New York Times News Service

WASHINGTON — Reacting to protests about the burning of toxic chemical wastes in Ohio, Arkansas and more than a dozen other states, the administration of President Bill Clinton plans to bar the development of new hazardous waste incinerators for 18 months.

The policy was developed under Carol M. Browner, the administrator of the Environmental Protection Agency. It calls for freezing the capacity of the nation's hazardous waste incinerators, forbidding them to burn more than the current level of chemical byproducts a year, EPA officials said Monday.

There are 184 hazardous waste incinerators in the United States. Under the order, no more could be built unless old ones were closed. This would probably result in a temporary halt in the development and construction of incinerators, the officials said, giving the agency more time to develop tougher health, safety and environmental requirements for current plants.

The policy, which Browner is scheduled to describe at a news conference today, would require officials in the agency's regional offices to study more carefully the effects of air pollution from incinerators on local food supplies. The issue arose last year in East Liverpool, Ohio, where the environmental group Greenpeace and some residents have been battling the owners of the nation's newest hazardous waste incinerator and the government to close it down.

EPA officials said the order was also meant to enforce a provision in the federal hazardous waste law that requires manufacturers to reduce the amount of wastes to be incinerated. This approach would eliminate the need for more incinerators and could prompt the closing of older ones, said EPA officials.

Officials said the plan was aimed less at the country's 20 commercial incinerators than at the 164 plants that burn hazardous wastes as fuel in cement kilns, boilers and industrial furnaces.

In December, Vice President-elect Al Gore announced that the new administration would prevent the Ohio plant from opening until Congress investigated its safety. But despite that pledge, in March the administration permitted the plant, operated by Waste Technologies Industries, to begin operation.

In reaction, the residents and Greenpeace mounted a nationwide bus tour in the past month accusing the president of reneging on the pledge. The bus tour arrived in Washington Monday, and members of the group chained themselves to concrete blocks inside a truck in front of the White House, shutting down the westbound lanes of Pennsylvania Avenue for hours. The Washington police said more than 50 people were arrested, including actor Martin Sheen.

WELDON SPRING

Cleanup Of Asbestos Re-examined

Investigation Is Reopened After Workers Say They Saw Torn Bags Put In Containers

By Judith VandeWater
Of the St. Charles Post

The Department of Energy and the primary contractors at the $650 million Weldon Spring Super Fund cleanup project have reopened an investigation into charges that sloppy procedures were used in the removal of asbestos at the site.

Stephen H. McCracken, the project manager, said that last month two employees of Kimmins Industrial Service Corp. alleged that they had seen several violations of safety rules between early October 1992 and early February 1993.

Kimmins, a major subcontractor at the site, is responsible for decontaminating and demolishing buildings once used to manufacture DNT and TNT, and, later, to enrich uranium for the defense department.

The employees charged that clean-up workers did not repair torn bags containing asbestos before disposing of those bags in five large metal containers. The workers estimated that 10 to 20 bags of the 1,200 bags in each metal container were torn before they went inside the containers.

McCracken said investigators had not opened the containers during the investigation because they would have no way of knowing which bags were torn before storage and which broke under the weight of other bags in the containers.

The workers also charged that they had been warned by radio of the approach of safety inspectors.

"The allegations were that the workers had been told to take some short cuts. There was never any question that the workers' health was at risk. They were wearing respirators," McCracken said.

The investigators found no physical evidence to support or deny the allegations that safety procedures were not being followed, McCracken said.

John P. Schmerber, assistant director of safety and environmental services for Morrison-Knudsen Corp. of Boise, Idaho, headed the investigation, which cost an estimated $30,000.

Morrison-Knudsen is the parent of M.K. Ferguson, the general contractor on the Weldon Spring clean-up.

Schmerber also headed the investigative team that responded to an earlier allegation of improper asbestos removal at Weldon Spring. That investigation focused on the work practices of a crew employed by Ecologic Inc. of St. Charles during two weeks last fall.

The investigators concluded that the safety records kept by site inspectors were too general to either refute or support the allegations. They said that even if the most serious of the allegations were true, the dangerous practices would have been done clandestinely for a

See ASBESTOS, Page 2

Friday, April 16, 1993
St. Charles Post

St. Char

Asbestos

From page one

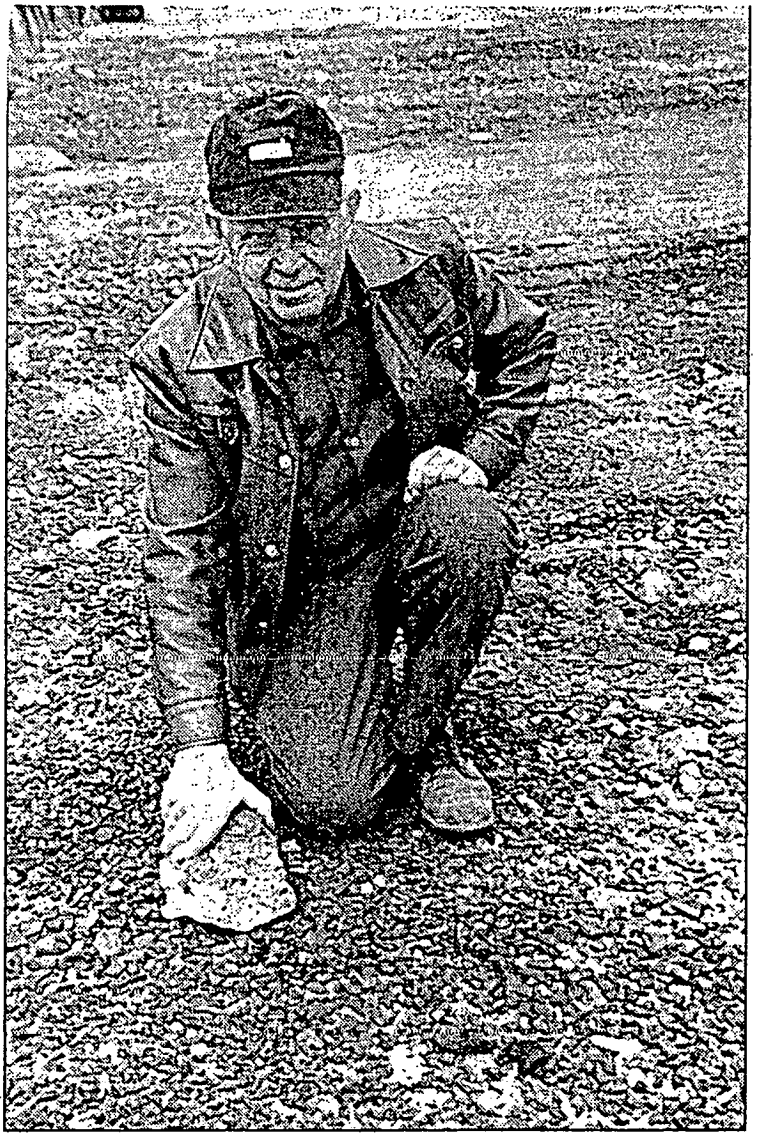
short time on a relatively small scale. Schmerber had estimated earlier that the investigation cost the Department of Energy about $80,000 to $90,000.

McCracken said that although both investigations were costly and inconclusive, they resulted in some suggestions for ways to improve safety procedures. After the first investigation, site safety inspectors began keeping more detailed records of inspections, he said.

The latest investigation has underscored the benefit of convincing workers, even workers on the site for a short time, that they can report safety violations immediately without fear of retribution, McCracken said.

"If we can do that, we can immediately fix the problem, and there does not have to be these long, drawn-out, expensive investigations which may or may not prove anything."

To: Dave Adler
Jerry Palaia
Joe Williams
Sandra Blunt



James A. Finley/AP

Contaminated 'Gravel'

Norman Soechtig kneeling Monday in a lot near his home in Granite City. He is at one of the sites where crushed rubber battery casings were used as gravel. The lead-contaminated rubber is now part of a $4 million cleanup.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 4.13.97 Page 6A

The following clippings are not about FUSRAP but are included because they provide relevant information on FUSRAP Sites or issues.

St. Louis Post Dispatch
April 22, 1993

Nevada Warns Region About Nuclear Waste

By Tom Uhlenbrock
Of the Post-Dispatch Staff

As many as 31,160 truck shipments of high-level radioactive waste would roll through the St. Louis metropolitan area — one every eight hours for 28 years — if the government locates a nuclear dump in Nevada, officials of that state said Wednesday.

If all shipments were made by highway, about 40 percent of the waste would come through St. Louis, said Bob Halstead of the Nevada Nuclear Waste Project. If shipped by rail, about 25 to 30 percent would come through here.

The Department of Energy has proposed building a nuclear waste burial site on Yucca Mountain, a desert ridge about 70 miles northwest of Las Vegas. Waste from the country's 127 commercial nuclear reactors would be shipped by truck and by rail to the remote site.

That would total some 70,000 metric tons of radioactive waste by 1998, when the government is required by law to take title to the waste, said Kathleen Grassmeier, transportation manager for the Department of Energy's Yucca Mountain Project.

Grassmeier — and the Missouri Department of Natural

See WASTE, Page 10

Waste

From page one

Resources — said it would be up to the federal Department of Transportation to determine how the waste gets from the reactors to the dump.

"We have a 30-year safety record, not only in the United States but around the world, where our waste has never been released into the environment," she said.

"It's very easy to go out and pose the question, 'How safe is safe?' We are safe, and we've proven it."

The state of Nevada, which has no nuclear power plants, opposes construction of the Yucca Mountain facility. Halstead is visiting cities along the potential haul routes this weekto tell them what they might expect.

Halstead said the Department of Energy had failed to outline its transportation strategy because it fears the protests that may follow from residents along the routes.

"There are some obvious political reasons why they're dragging their heels," Halstead said at a news conference at City Hall. "We did our own study, and if these shipments were starting today, this is the way they would travel."

Waste from nuclear reactors in the East would come into St. Louis on Interstate 70, and then take 270 across the northern edge of the metropolitan area before rejoining 70, he said. Shipments from the southeast would approach the city on Interstate 64, taking Interstate 255 north to Interstate 270.

If coming by rail, the shipments would enter East St. Louis and then take one of three lines west, including the Union Pacific line that runs through Webster Groves and Kirkwood.

"High-level nuclear waste is an extremely hazardous material," Halstead said. "Transporting nuclear waste involves real risks, including the possibility of severe accidents and terrorist attacks."

Halstead said Yucca Mountain is a poor geologic choice for a nuclear dump. But Grassmeier said it is the only place under consideration by the Department of Energy.

"Right now, with the studies we've done so far, there is nothing identified as a show stopper," said the DOE's transportation manager. "It's a good looking place with all the tests we've done so far."

If the site is approved, the construction schedule calls for the facility to be opened in the year 2010, she said. However, the transportation of waste could begin as early as 1998 for storage on site.

Halstead said Nevada "is going to fight the decision to build a dump at Yucca Mountain. We'd love to have you join us because your citizens have a vested interest."

Kay Drey, an anti-nuclear activist from University City, who attended the news conference, said Nevada should not face the problem alone.

"It's a problem for anybody who would travel the routes where these shipments go," she said. "We call it mobile Chernobyl."

Plant

From page one

in more modern technology. He said the state ultimately would spend more than $2 million to help the plant stay open and expand.

"We believe that the state will get that money back many times over" in higher spending by plant employees and a better tax base in Granite City, Edgar said.

"This is the kind of employment that is so important in the state of Illinois," the governor added. "These are good-paying jobs."

The jobs at the plant, with an average wage of $12 to $13 an hour plus health insurance and other benefits, are going first by seniority to workers furloughed previously. Extra vacancies will be filled by offering transfers to workers who have lost similar jobs at a plant in Ohio, and finally by new hiring.

Outgoing Granite City Mayor Von Dee Cruse, who decided not to seek a third term this year, called the plant's reopening "a shot in the arm for the whole community. What a way to go out!

"The most important thing in my eight years as mayor has been the reopening of American Steel," Cruse said.

St. Louis Post Dispatch 4/29/93

Problems With Yucca Mountain

The Nevada Nuclear Waste Project Office is asking the Department of Energy to drop its plan to build a national repository for nuclear waste at Yucca Mountain, 70 miles north of Las Vegas. Officials of the Waste Project Office, an agency of the state of Nevada, argue that the site isn't safe, that transportation of the material cannot be managed safely and that there are better alternatives. They appear to be right on all three counts.

The Nevada group believes DOE studies of Yucca Mountain's safety are inadequate and it has undertaken its own examination to determine the facts. Its initial findings make a persuasive case for killing the Yucca Mountain project outright.

Waste Project studies point out that the mountain is located in a range of volcanos, and that as recently as last June the area experienced an earthquake registering 5.6 on the Richter scale. Since Yucca Mountain would hold nuclear waste on site for some 50 years while the repository is being built and thereafter store it for 10,000 years, it had better be safe. Waste Project's studies suggest it isn't.

Even if it were, Waste Project studies suggest there aren't any truly safe ways to transport nuclear material from 76 sites around the nation. Accidents, not to mention terrorist attacks, can't be ruled out, whether the cargo is shipped by rail or truck. Some 40 percent of the waste would come through St. Louis over interstate highways, only a little less than that if it were shipped by rail. And the St. Louis region is only one of many heavily populated areas that would be exposed to the hazards of nuclear waste if anything went wrong.

Finally, Waste Project officials point out that the development of dry cast storage technology in the last decade makes it possible to leave nuclear waste at individual reactor sites for some 140 years while better technology to handle it is perfected. Of course, much tighter security at the plants would be required. But on-site storage is the most sensible policy now that the technology can handle it.

DOE should listen to what the Nevada Nuclear Waste Project has to say, and modify its plans accordingly. It is time DOE reconsider its fixation with the Yucca Mountain project.

Illinois town fighting EPA lead cleanup

The Associated Press

GRANITE CITY, Ill. — Norman Soechtig picked out some small, hard pieces of black rubber mixed in with the gravel in his driveway and wondered why the government wanted so badly to take the stuff off his hands.

"Shoot, ain't nothing wrong with it. They're just going to come in here and spend a whole lot of money," said Soechtig, who hauled in the shredded rubber by the truckload more than 30 years ago, when a lead smelting company gave it away for the asking.

The driveway of the home where Soechtig raised two children became the starting point Monday in a $35 million Superfund cleanup that eventually will involve the scraping away of 6 inches of topsoil from a 55-block area.

The Environmental Protection Agency also is trying to figure out what to do with a 250,000-ton mountain of lead tailing, or mining waste, left behind by National Lead Industries, the lead smelter and automotive-battery recycling company that gave Soechtig and dozens others their landfill material.

In the first phase of the cleanup, Soechtig's driveway and 15 other driveways, alleys and parking lots in Granite City and nearby Madison and Venice will be excavated because they contain crushed rubber battery casings contaminated with lead.

No one will be evacuated during this cleanup, which is expected to remove 13,000 cubic yards of dirt, cost $4 million and last four to six weeks. The waste will be put in a landfill in Peoria.

But Granite City is fighting the EPA's plans.

City officials fear property values will plummet because of the publicity.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 4-13-93 Page 15

Safety check

Agencies test new batches of treated water at Weldon Spring

By Dennis Miller
Staff writer

Local, state and federal agencies will test samples of treated water drawn Monday from two treatment plants at the Weldon Spring chemical plant complex.

The samples will be analyzed at various laboratories to determine if the treated water is safe for release into the Missouri River.

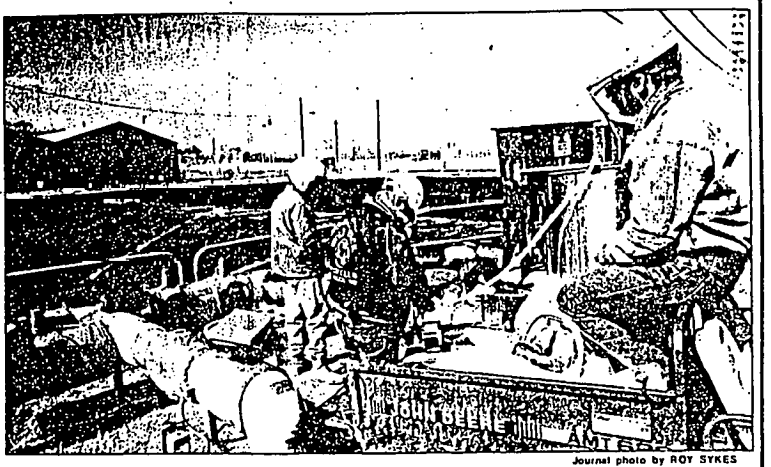
"We've asked everybody to have their results back in about two weeks," said Bruce Bailew, an environmental engineer at the Weldon Spring site.

The treatment of radioactive wastewater is part of the U.S. Department of Energy's $800 million cleanup of the former uranium- and thorium-processing plant and a nearby quarry.

Samples will be tested for the DOE, the Environmental Protection Agency, the Missouri Department of Natural Resources, the health departments of St. Charles and St. Louis counties, and the St. Louis city and county water departments.

About 55 gallons of samples were collected Monday from retention ponds at each of two water-treatment plants — one at the site of the former chemical plant and the other at the Weldon Spring Quarry, on Highway 94 about four miles south of the plant site.

Water in the quarry and in raffinate pits on the site of the chemical plant is being treated to remove, or reduce to safe levels, contaminants such as uranium, thorium and heavy metals.



Journal photo by ROY SYKES

Engineers at the Weldon Spring chemical plant site collect samples of treated water for tests to determine levels of contamination.

At each site, samples of treated water were drawn at multiple depths at each of the synthetically lined effluent pond's four corners to provide representative samples for testing.

Bailew said the procedures used in the sampling were the same as those used in November, when the same agencies had tests made of the first batch of treated water from the quarry.

In January, the first batch of 54t,000 gallons of treated quarry water was released into the river after officials with the various agencies concurred that tests had shown the water safe for discharge.

The samples taken Monday are from a second batch of 720,000 gallons of treated quarry water and the first batch of 680,000 gallons of treated water from the raffinate pits.

Bailew said performance tests of the site water-treat-

(See WATER, Page 16)

Water

(Continued from Page 1)

ment plant had shown it was working properly.

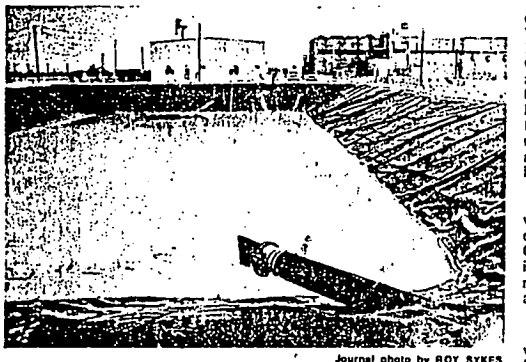
The DOE plans to release both batches into the river if all of the testing agencies, after receiving the lab results, agree that the water meets state and federal clean water requirements.

But officials said they did not know if the batches of treated water from both sites would be released simultaneously.

The timing of discharging water from the site treatment plant will also depend on completion of a pipeline to carry the water to the river, said Steve McCracken, the DOE's project manager at Weldon Spring.

The pipeline is expected to be completed in about two weeks.

The U.S. Army used the Weldon Spring site during World War II to produce explosives. In 1955, the Atomic Energy Commission acquired 205 acres at the site for construction of the Weldon Spring Uranium Feed Materials Plant, which the Mallinckrodt Chemical Co. used for processing of uranium and thorium until it was closed in 1966.



Journal photo by ROY SYKES

The U.S. Department of Energy recently began operating this water treatment plant, built on the site of the former uranium-processing plant at Weldon Spring.

The raffinate pits contain wastes from processing and decontamination activities. Contaminants in the pits include uranium, radium, arsenic, selenium, fluoride, nitrate and cyanide.

From 1942 to 1969, the quarry was a dump site for debris from the production of explosives and the processing of uranium and thorium at the chemical plant site.

APR-06-'93 TUE 12:49 ID:BNI/DOE HISS TEL NO:314-524-6044 #749 P02

Environmentalist Rips Radioactive Cleanup

By Tom Uhlenbrock
Of the Post-Dispatch Staff

Missouri's top environmental official says the federal Department of Energy is treating the cleanup of radioactive waste in the St. Louis area as a "low-budget, low-priority" item.

David Shorr, director of the Department of Natural Resources, said he was "completely opposed" to the proposed method for cleaning up the sites because it would leave the radioactive waste in contact with groundwater.

"We do not believe the Department of Energy's current direction adequately responds to the problem," Shorr said Monday.

"The current strategies only postpone the problems and place the burden in the hands of future generations."

In a letter sent to the department, Shorr praised its handling of another major cleanup in the St. Louis area, that of the Weldon Spring chemical plant site in St. Charles County.

"The Department of Energy has made a sound commitment to a safe and lasting cleanup at Weldon Spring... but I do not see that same commitment to these sites," he said.

Shorr said his criticism referred to the contamination at the Mallinckrodt plant in downtown St. Louis, at Lambert Field, at Latty Avenue, in the nearby Coldwater Creek and on adjacent roads.

Those sites are said to contain 876,000 cubic yards of contaminated material. Radioactivity also has been found in groundwater at the airport site.

Shorr's letter said his department had been calling for the cleanup of the sites for more than 15 years.

The waste at Weldon Spring and the other sites all comes from uranium processing for nuclear weapons. The work began in 1942 at the old Mallinckrodt Chemical Works plant in north St. Louis under a government contract and was shifted to Weldon Spring.

Shorr's letter said his department had been calling for the cleanup of the sites for more than 15 years. "Unlike many other states, we have worked to maintain a constructive relationship and we have tried to avoid litigation or a confrontational approach," he said.

David Adler, the Energy Department official managing the cleanup of the St. Louis sites, said he was surprised at the letter's reference to the "low-budget, low-priority" program.

"We are meeting all our deadlines," he said. "It's as high-priority as all of our Superfund sites, and, unfortunately, we've got quite a few."

Shorr said the Energy Department was considering combining all the contaminated materials under a cap on top of the soil at the airport site, with no liner between the waste and the soil.

"Under this strategy, contaminated soil would remain in contact with groundwater at the airport site," he said.

Adler replied that tests had shown that the radioactive groundwater was not flowing from the site.

"Not restoring every drop of groundwater is not the same thing as saying people are at risk from contaminated groundwater," he said. "The groundwater is not being used, nor is it going to be used."

Because the cleanup is still in the feasibility stage, the government has no estimate of the total cost.

Shorr also was critical of proposals to leave contamination under certain roads in Hazelwood and Berkeley.

"This area is an active industrial area with constant development and redevelopment, which potentially disturbs the contaminated soil under these roads," he said.

He said that Missouri "will be faced with a continuing problem of monitoring the soil and groundwater in the area."

Adler said tearing up the roads, redirecting traffic and excavating the contaminated soil underneath could be potentially more hazardous than leaving it in place.

Women of Achievement

Journals honor those whose work has bettered St. Louis

The *Suburban Journals* and radio station KMOX-AM (1120) are proud to announce the selection of the 1992 Women of Achievement, who typify the service and dedication that add greatly to the quality of life in St. Louis.

These women join 371 other Women of Achievement who have been honored since the program started in 1955.

The awards will be presented to the 1992 winners during a noon luncheon May 13 at the Ritz-Carlton Hotel in Clayton.

Reservations for luncheon tickets, which are $18 per person, may be ordered by sending a check to Women of Achievement, *Suburban Journals*, P.O. Box 411215, St. Louis, 63141. The deadline for reservations is April 23.

Seating will be at tables of 10. If you wish to be seated together, the reservations and payment should be sent in at the same time. If you are attending on behalf of a specific honoree, please put the name of the specific Woman of Achievement on your reservation and you will be seated with others attending for that honoree.

Kathe Hartley, traffic and news reporter for KMOX, will be mistress of ceremonies at the luncheon.

The 1991 Women of Achievement honored at last year's luncheon were: Cynthia Thompson, community betterment; Mildred Winter, education; Christine Chadwick, volunteerism; Susan Uchitelle, equality in education; Sister Eileen Donovan, human welfare; Joan Newman, youth dedication; Mary Kane, economic development; Theresa Loveless, community service; Harriett Woods, political advocacy; and Julia Goldstein, early childhood education.

Environmental Concern

Kay Drey



Working for a cleaner environment for future generations is a cause to which Kay Drey of University City has devoted nearly 20 years.

"It is nice to know that the work I have done for the last 18 to 20 years for the environment is appreciated," said Drey, 60.

Her drive to better the environment comes in part from her husband, Leo, a tree farmer. His interest in environmental matters sparked a similar interest in her.

Since then Drey has turned her attention toward preserving parks and open spaces in University City, St. Louis County and the entire country. She also is a strong advocate of the shut-down of all nuclear power plants worldwide.

"I am concerned about the radioactive water in Weldon Spring being dumped into the Missouri River just nine miles upstream from where the city and county get its drinking water," she said. "They say it is treated but you have to wonder just how much."

Drey, a dedicated member of Coalition for the Environment, says one of her most significant accomplishments was the coordination of "A Mountain of Waste 50 Years High," a national symposium on nuclear waste held last spring in Clayton.

"I won't rest on the issue of a cleaner environment until every nuclear plant is shut down," Drey says.

Monday 3/22/93

Sweeping Pollution Under Rug

Panel Examines How St. Louisans Deal With Waste

By Virginia Baldwin Hick
Of the Post-Dispatch Staff

St. Louisans have typically dealt with pollution by moving it somewhere else, the members of a panel on environmental problems said Sunday.

More than 100 years ago, St. Louis drained festering sink holes and emptied the sewage and sludge into the Mississippi River, said Andrew Hurley, an environmental historian with the University of Missouri at St. Louis.

Hurley moderated the panel, sponsored by the Missouri Historical Society.

And today, authorities in charge of St. Louis' nuclear waste move it from one spot to another instead of developing ways to decontaminate it, said Kay Drey, a local environmental activist.

She cited as the latest example the treatment and release of contaminated water from Weldon Spring into the Mississippi River — upstream from the region's water supply intakes.


Drey

The St. Louis area is home to 2.5 million cubic yards of "some of the oldest atomic waste in the country," Drey said. "And 50 years after they started creating it, they still don't know where to put the first cupful."

The panel, which met in the History Museum at Forest Park, was the first in a series to discuss current area problems in a historical perspective.

Sunday's topic: "Is Cleanliness Next to Impossible? Environmental Crisis and Response in St. Louis History."

Also on the panel were John Lodderhose, an environmental engineer with the Metropolitan Sewer District, and Max McCombs, manager of environmental protection for Monsanto Co.

Lodderhose said St. Louis was still dumping some raw sewage into the Mississippi in the early 1970s — until the Clean Water Act required cities to quit such dumping and provided money to build improved treatment plants.

The last such improved plant began operation in St. Louis in 1986.

But a better solution than cleaning up sewage is not to put so much waste into the system, McCombs said.

"I call it keeping the chemical in the equipment, not in the air or landfill," McCombs said.

For example, until 1988, Monsanto released 1 million pounds of pollutants into the air a year from its manufacture of mothballs.

With new technology, the company has turned the pollutants into marketable products, he said.

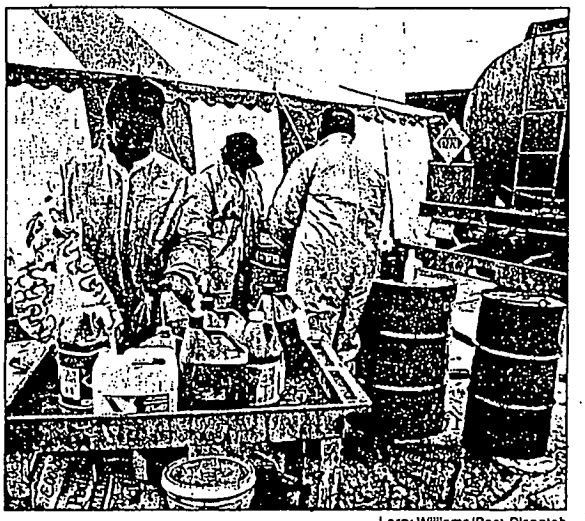
The panelists generally agreed with the 40 or so people in the audience that fines and court cases to make companies clean up pollution are not enough.

And neither are voluntary efforts by companies working in their own interest.

McCombs suggested a third approach, in which consumers reward environmentally progressive companies by choosing their products.

Drey countered that all three approaches are only as good as the systems that monitor them.

The laboratory tests and procedures for careful monitoring are beyond the pocketbook and access of the average consumer, Drey said.


Larry Williams/Post-Dispatch

Employees of Heritage Environmental Services Inc., a hazardous waste hauler, sorting various waste materials into proper containers Saturday at the Shell Oil Co. refinery in Wood River.

Illinoisans Unload Hazardous Garbage

By Tom Uhlenbrock
Of the Post-Dispatch Staff

While workers in protective clothing took a witch's brew of poisons from the trunk of her car, Pauline Newcome, of Godfrey, Ill., watched with the relieved look of a person who had just unloaded a heavy burden.

"There's a box of lead arsenic in there that was in our house when we bought it," she said in a hushed voice. "I think they used it for rat poison.

"We've had it 35 years, been moving it from one shelf to another in the basement. We didn't know what to do with it."

Newcome was among the hundreds of Illinois residents who took advantage of a free household hazardous waste collection day Saturday, sponsored by the Illinois Environmental Protection Agency.

The workers slammed Newcome's trunk lid after filling a cart with the rat poison, jugs of used motor oil, half-empty paint cans, containers of floor polishes and bags of pesticides.

"This is a good thing," Newcome said before leaving the parking lot at the Shell Oil Co. refinery in Wood River.

Illinois plans to hold about 30 of the collections around the state this year. Rhett Rossi has worked 16 of the drop-offs for the agency and was managing Saturday's event.

Like other veterans of the collections, he had his favorite war story.

"We had a bottle of snake venom brought in by the local police department," he said. "Some kid was going to mix it with sodium cyanide. The police thought he might be planning to hurt somebody."

Rossi said Illinois has been holding the drop-offs since 1989 and routinely collects from 75 to 175 55-gallon drums of hazardous waste at each one, depending on the size of the community.

"That's stuff that typically would be poured down the drain or put into the garbage, where it'd end up in a landfill," he said. "None of that is environmentally safe, but it's not illegal."

Laws in Illinois and Missouri strictly regulate what a business can dump in a landfill. But no law — state or federal — covers what a homeowner puts into the trash or down the sewer.

Toxic household waste can cause problems for landfills and municipal water treatment plants.

The Illinois EPA, obviously, wants only waste coming from homes in Illinois.

For residents on the other side of the Mississippi in the St. Louis area, there is no household hazardous waste program. In Missouri, only the city of Columbia has a permanent disposal facility.

Rossi said Illinois pays for its collections through the tipping fee levied on commercial waste haulers at landfills. A single collection day, he said, can cost from $75,000 to $100,000.

The state EPA oversees the collections, but contracts with a specialist to handle and dispose of the material. Heritage Environmental Services Inc. of Hazelwood was hired to run the Wood River collection.

"When we do one in southern Illinois, we usually get 300 to 400 cars a day," said Mike Dixon of Heritage. "Most of what we get is paint and used oil. Thirty percent is some type of pesticide or herbicide. Ten or 20 percent is the oddball poison, oxidizer or corrosive.

"But we'll get everything — live ammunition, photography chemicals. We got some smokeless gun powder today. Another guy brought in shoes, and another brought in a razor."

The shoes and razor, Dixon said, went into a nonhazardous waste bin. The paint and oil is used as supplemental fuel in cement kilns. The pesticides and other poisons go to a hazardous waste incinerator, he said.

"All that would have ended up in a landfill — guaranteed," said Dixon.

St. Louis Post Dispatch Sunday 2/28/93

Few Signals From Clinton On Nuclear Waste

By Bill Lambrecht
Post-Dispatch Washington Bureau

WASHINGTON

DAVID H. LEROY has the title U.S. Nuclear Waste Negotiator, a staff of 10 and a mission from Congress to find a home for some of the most dangerous material on the planet.

But he can't find out where he stands in the new administration, which seems wary of anybody or anything connected with nuclear materials.

"If the government appears to waver in its commitment," Leroy said, "it will potentially destroy all that we've built in the last two years."

President Bill Clinton has been clear on his views about nuclear power: He said last week that it should not be part of America's future, a statement he has since backed up by proposing deep cuts for research on the subject.

But Clinton has given few signals about what his administration will do about nuclear waste, which ranges from the low-level materials used at hospitals to the highly radioactive remains from nuclear weapons production.

The Department of Energy, which is in charge of nuclear waste clean-up at defense plants, has yet to spell out its priorities or plans in dealing with cost-overruns and problems with contractors. Several key energy appointments have not yet been made, among them an assistant secretary for nuclear issues.

Nor has the administration offered ideas for dealing with low-level nuclear waste. In January, a deadline passed for states to set up agreements to provide regional storage sites for these materials.

While it may be too early to judge Clinton's efforts, past critics of government delays are hoping that he spells out his views on radioactive wastes soon.

The fate of Leroy's office is among choices awaiting the president.

"If the government appears to waver in its commitment, it will potentially destroy all that we've built in the last two years."

DAVID H. LEROY, U.S. Nuclear Waste Negotiator

The waste negotiator's office was set up by Congress as yet another attempt to figure out what to do with the highly radioactive remains from the cores of nuclear reactors. The country has accumulated about 20,000 metric tons of spent fuel from its 110 commercial nuclear power plants, an amount that will double by the year 2000.

Leroy is trying to negotiate a contract with local governments for a waste site in return for tens of millions of dollars in grants.

Leroy has been negotiating mainly with Indian tribes, who have received hundreds of thousands of dollars in federal grants to consider storing these materials. Because of their self-governing status and authoritarian tribal councils, Indians are viewed by some in the nuclear industry as having the means to overcome political obstacles that others would face.

But environmental advocates and many Indians themselves are offended by this prospect. Vice President Al Gore is among those who have warned in general terms about the dangers of exploiting the Indians' poverty to find a dump site.

Yet Leroy's work has shown promise amid many government failures. Leroy calls it the "latest best hope" for dealing with the difficult problem.

"It will be a national tragedy if we don't emphasize this way of doing business," he said.

But since Clinton has become president, Leroy has only two routine conversations with the administration. Neither of them has shed any light on the future of his agency, he said.

Cleaning up the waste from defense plants could be one of the most challenging tasks of Clinton's presidency. Department of Energy officials have spent about $16 billion over the last four years and, according to the General Accounting Office, have little to show for their efforts.

A devastating report issued last week by the Energy Department itself confirmed fears about one of its most dangerous sites, at Hanford, Wash. Since the 1950s, Hanford produced plutonium for nuclear weapons.

The report admitted that the department had no ability to detect leaks in tanks of explosive radioactive waste and had insufficient equipment to handle problems.

Stephen Schwartz, Washington representative for the Military Production Network, a private group, said that he is waiting for Clinton to take charge.

"I don't think they really know yet how big the problem is," Schwartz said. "It was the government that created these problems, and now people are saying it is time time to clean up the land and the air and the water."

Others are eager for the White House to turn its attention to low-level nuclear waste, perhaps by forming a White House commission aimed at overhauling federal law covering radioactive waste.

Clinton's skepticism of commercial nuclear power has showed in recommended cuts under his economic program.

The administration plans to spend about $120 million over the next two years on research for a so-called light-water reactor and more than $150 million this year for other advanced reactor designs, according to analysis by congressional aides.

But Clinton wants more than $1 billion in cuts after that, which likely means that the government would spend little or nothing after next year for commercial nuclear power.

Meanwhile, the administration is seeking to spend an additional $1.3 billion on renewable energy and conservation programs during the next few years and $263 million more for research on natural gas.

Steve Unglesbee, a spokesman in Washington for the nuclear power industry, insisted that the proposed cuts "are not as draconian as they might seem."

He noted that the added federal spending would lead to federal certification of the water-cooled reactor, an important step in making it more attractive to utilities in the future.

Ralph Cavanagh, an energy specialist with the Natural Resources Defense Council in San Francisco, said that the Clinton administration might achieve the most by giving nuclear power utilities incentives to conserve.

He said that by strictly enforcing the Clean Air Act and by encouraging use of pollution credits under that law, the administration "could create a nationwide competition among utilities as to who could achieve the most conservation the quickest."

Clinton's view stands in stark contrast to his predecessor's. Just a year ago, President George Bush's administration succeeded in passing legislation to streamline licensing for new nuclear power plants.

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VOLUME 73 - NUMBER 8 (USPS 202-520) TUESDAY, FEBRUARY 23, 1993 12 PAGES - 40 CENTS PER COPY

DOE Opens Door To Communication on Radioactive Waste Problem
Officials Pleased, But Berkeley Mayor Urges Safety For Residents

By Jeanette Eberlin, Special Correspondent for the Reporter

The U.S. Department of Energy's philosophy of meeting with small groups interested persons and organizations to discuss the radioactive waste problem is paying off as a means of meaningful communication.

David Adler, DOE site manager, had invited the Berkeley and Hazelwood City Councils to a meeting at the field office at 9200 Latty Ave., Hazelwood on Feb. 9. The purpose was to discuss alternatives and to get input from the officials as to their preferences for the method of disposal of the 740,000 cubic tons of radioactive material on the Latty Avenue, Airport and Mallinckrodt sites.

"This was the most organized meeting (with the DOE) I've been to, and one of the most informative sessions we have had. He (Adler) did advance some new alternatives; I'm encouraged to see they have been working, "Hazelwood Councilwoman Mollie C. Rickey said after the meeting. Rickey had chaired a countywide committee a few years ago to study the problem.

Berkeley Mayor William Miller also was impressed with the amount of information and candor of the DOE staff and officials. However, he expressed a strong commitment to his preference of moving the dirt away for the safety of the people in the area.

The radioactive material is the debris left from the processing of uranium for the United States' first nuclear bomb and warheads during World War II.

Adler described in detail three major alternatives to dispose of the waste: placing the waste on the SLAPS (St. Louis Airport Site) and building a bunker over it; moving the waste to Hanford, Washington where the DOE has a facility for storing such material, and waiting until the airport's expansion plan is in operation and using the waste and fill-dirt under the runways.

"Sending it to the Hanford Reservation, technically, is an alternative," Adler told the group. "Although, at present, small amounts of material are sent to this facility, such as can be transported on one or two trucks.

"This much material would have to be loaded on a train, and it is predictable that there will be an accident on the long way out there."

Building a bunker over the 22-acre apportion of the airport where some of the dirt is stored underground would require relocating McDonnell Boulevard and moving North into the area where the former Khoury League ballfields are.

This would result in a large hill of radioactive waste which then would be secured, covered and sodded, and it would have an unattractive appearance, he said.

Placing it underneath the airport runways has some "attractive features" Adler said. "The airport needs fill-dirt, it could be an above ground monument to the war; also, a lot of this area has clay under it, a good layer of clay."

In answer to a question from Rickey, Adler said the Record of Decision remains at May 1995. The Hazelwood and airport sites are on the federal Superfund priority list, and the term means the final decision on the method of cleanup and disposal.

"95 is far enough," Rickey said. "We've begged, done everything in our power to get the decision date moved forward. We want it taken care of sooner than that." She said waiting for the airport expansion plan to begin, the moving the dirt there was too far in the future.

Mayor Miller told the DOE officials, "Reuse (placing it under the runways) isn't going to fly. Just taking it from one place to another (here isn't right.

"Our cities are being punished enough for something that happened many years ago. It's not our problem.

"Let's move it out of here and make the area safer. Think about the general public," he stressed.



Listening to DOE sit manager David Adler's discussion of site-wide alternatives being considered for cleanup of the St. Louis FUSRAP sites are, from left to right, Hazelwood mayor David Farquharson; Mollie Rickey, Hazelwood city council; Joe Williams, deputy manager of the St. Louis FUSRAP site Carol Stroker, Hazelwood city council; and Edwin Carlstrom, Hazelwood City Manager.



David Adler (center), U.S. Department of Energy site manager, discusses the site-wide alternatives being considered for cleanup of the St. Louis FUSRAP sites at a workshop on Feb. 8 for mayors and city councils of Hazelwood and Berkeley. This was the first workshop in the community. Adler would be pleased to do similar workshops for other community groups of 10-12 individuals. To request a workshop, contact Patti Hazel at the DOE Information Center on Latty Avenue in Hazelwood, telephone 524-1083.



David Adler (center), DOE site manager, discusses site-side alternatives being considered for cleanup of the St. Louis FUSRAP sites. At left is Theodore Hoskins, Berkeley council member, and at right is Arbon Hairston, Berkeley City manager.

E-WIDE AWARDS, INCLUDING MISSOURI BLUE RIBBON NEWSPAPER

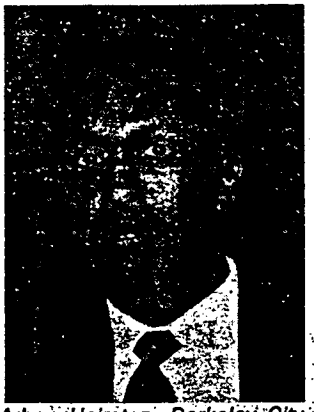
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Berkeley Selects City Manager



Arbon Hairston, Berkeley City Manager

The City of Berkeley has announced the selection of Arbon Hairston as city manager effective January 7, 1993. Hairston has served as finance director for the city since December of 1989.

After reviewing more than 175 applications for the position, the City Council conducted interviews and determined that Hairston was the most qualified, and his familiarity with the city was an additional attribute. In a letter to city employees, the Mayor and Council noted that Hairston brings professionalism, interest and energy to the position. They also stated "We have placed complete confidence in Mr. Hairston's ability to manage the city."

Prior to joining the City of Berkeley, Hairston served as district manager for the Department of Commerce. He had previously worked as corporate planner for Houston Lighting and Power, and assistant director of finance for the City of Springfield, IL. Hairston is a graduate of the University of Illinois, with a bachelor of science degree in finance.

As finance director for the City of Berkeley, Hairston has been recognized as a recipient of the Certificate of Achievement in Financial Reporting and the Distinguished Budget Presentation Award, presented by the Government Finance Officers Association. Hairston's goals for the administration include a long range plan, maintaining financial stability and close working relationship with business and residents in the city. As city manager, Hairston will oversee all municipal departments including police, fire and public works. He is also responsible for maintaining the $6.9 million annual budget.

St. Charles Post Dispatch 1/20/93

PUBLIC NOTICE

THE UNITED STATES DEPARTMENT OF ENERGY ANNOUNCES A 30-DAY EXTENSION TO THE PUBLIC COMMENT PERIOD FOR THE REVIEW OF PUBLIC DOCUMENTS CONCERNING THE WELDON SPRING SITE REMEDIAL ACTION PROJECT CLEANUP.

The Weldon Spring Chemical Plant, located on Highway 94 South, approximately two miles south of Highway 40/61, and the Weldon Spring Quarry, on Highway 94, six miles south of Highway 40/61, are designated for cleanup as part of the Weldon Spring Site Remedial Action Project. The treatment and final disposal alternatives for the waste from the chemical plant and the quarry are discussed in documents which comprise the Remedial Investigation/Feasibility Study-Environmental Impact Statement (RI/FS-EIS) for the Weldon Spring Site. These documents are:

- Remedial Investigation for the Chemical Plant Area of the Weldon Spring site, Volumes I-II — provides site characterization data
- Baseline Assessment (BA) for the Chemical Plant Area of the Weldon Spring Site — describes the risks associated with the site as it currently exists and under hypothetical future conditions
- Feasibility Study for Remedial Action at the Chemical Plant Area of the Weldon Spring Site. Volumes I-II evaluates cleanup alternatives, risks and environmental impacts of taking or not taking remedial action
- Proposed Plan for Remedial Action at the Chemical Plant Area of the Weldon Spring Site — summarizes key information from the RI, BA and FS and identifies the preferred alternative which includes treatment using chemical solidification/stabilization followed by on-site disposal

These documents, which have been prepared in accordance with the comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA), will form the basis for a Record of Decision, (ROD) that will define the selected alternative for managing the site's waste. The documents were made available November 20, 1992 for public review and comment.

The initial 60-day comment period has been extended for an additional 30 days. Comments postmarked or facsimiled by February 19, 1993 will become a part of the Administrative Record and will be considered in the Responsiveness summary for the RI/FS-EIS. Comments received after that date will be considered to the extent practicable.

Written comments should be sent to:

Mr. Stephen H. McCracken, Project Manager
Weldon Spring Site Remedial Action Project
U.S. Department of Energy
7295 Highway 94 south
St. Charles, Missouri 63304
Fax: 314 447-0739

An informational Bulletin outlining plans described in the documents and copies of the documents is available for review at the Spencer Creek Library, the Kathryn Linneman Library, the Kisker Road Library, the Francis Howell High School Library and the Public Reading Room at the Weldon Spring Site Remedial Action Project.

Callers are wary of treated Weldon Spring quarry water

PARTY LINE

1-800-
477-NEWS



Most callers to the Party Line this week opposed the release of water treated at the Weldon Spring Chemical Plant into the Missouri River. Some comments:

"I love that idea. I think it's a great idea. I think we should do that."

Andrea, Lake Saint Louis

"It scares me to death, but I guess they have to do something with it. Any which way you slice it, it's a hazard. They went about it all wrong; they should have given it a name and told us it would be good for us; prevent blindness or hearing loss or something. After all, the aluminum fertilizer companies have been paid dearly to have their waste products drift into our drinking water for nearly half a century, and the people bought that deceit."

Mary, St. Charles

"I think this is horrible. I'm not drinking this water. Why do we have to pay a water bill when we can't even drink the water? What are they trying to do, kill us all?"

Kathy, St. Peters

"I'm totally against it. I'm no scientist, but they can't convince me that water that has been radioactive in the past is totally safe to put in the Missouri River for us and our children to be drinking."

Diann, St. Peters

"I think there should be more testing done. Specifically, testing done when the water is put in the river and it mixes up with what's already in the river, what is it going to produce? They say it's safer than the levels in the river, but if you take a certain level that's present and add to it, if you add two components you get twice as much. I believe people need to study this and there's no excuse to be putting it that close to inlets of water intakes for our cities. It could be taken farther downstream and dumped to where it could be filtered out better. If this turns out to be another failed government experiment, we've got a catastrophe on our hands because we've got a poisoned water system."

Alan, St. Peters

"It's just like everything else. Government of the people, for the people, for the government."

No name given, St. Peters

"I think it's ludicrous to dump that Weldon Spring wastewater into our intake valves in the Missouri River. The unexplained cancer rate in the Weldon Spring area is already out of proportion according to the national average. To dump these pollutants into our drinking water is beyond anybody's comprehension. It ought to be stopped and there ought to be a governmental investigation. EPA ought to have a hearing on this."

No name given

"I think it is not right unless they can totally prove that there's nothing wrong with the water they're putting in because right down the river is our water plant. I live in St. Peters, and I don't think it's right unless they can totally confirm that there is nothing wrong with the water."

No name given

St. Louis Post 1/15/93

Agency Director Approved

'Positive Attitude' Pledged For DNR

By Virginia Young
Post-Dispatch Jefferson City Bureau

JEFFERSON CITY — After he promised to bring "a positive attitude" to the Missouri Department of Natural Resources, David Shorr won Senate approval Thursday to lead the regulatory agency.

Shorr said all employees who deal with the public would take a course in public relations. The department also will hire more staff members whose job will be solely to "give a helping hand" to businesses trying to comply with environmental laws.

"Like any enforcement agency, we're got some people who need an attitude adjustment," Shorr said. He said he wanted to eliminate complaints that people had been "treated like dirt."

Shorr made the comments after members of the Senate Gubernatorial Appointments Committee demanded such a change. Senate President Pro Tem James Mathewson, D-Sedalia, led the charge.

"The attitude of people at DNR has reached a new low," Mathewson told Shorr. "The perception is that people at DNR are there to get you, rather than to resolve the problem. You scare people more than the IRS."

Gov. Mel Carnahan nominated Shorr, who has been director of the Division of Environmental Quality, to head the department. Shorr replaces Dan Kucera, who took over last summer when Director Tracy Mehan left for a job in Washington.

Shorr has said that he hopes Kucera will remain in the department. If so, said Sen. Mike Lybyer, D-Huggins, Kucera should be the first to take the course in interpersonal relations.

Lybyer said that when he disagreed with Kucera last year, Kucera was "very crude, very profane. I've never been talked to by a director like that before." Kucera was ill Thursday and could not be reached for comment.



David Shorr
Appointment confirmed

The Senate has long had antagonistic relations with agency directors. Last year, senators censured Mehan, complaining that he was dictatorial.

One bone of contention has been whether the Legislature's Joint Committee on Administrative Rules should have the power to review and overturn environmental regulations. A lawsuit contesting the committee's power is pending.

Shorr told the committee that he questioned whether the committee was constitutional. But he softened his comments by pledging to open communications with legislators so that regulations mirror legislative intent.

Sen. Fred Dyer, R-St. Charles, defended the role legislators play. Regulators "look at us as being people who protect the crooks. We represent constituencies that run into problems" with unreasonable rules or actions by the department, Dyer said.

The committee voted unanimously to confirm Shorr's appointment. The full Senate later followed suit.

Curt Long, a lobbyist for Associated Industries of Missouri, said he supported Shorr. "We really believe he'll be a welcome change."

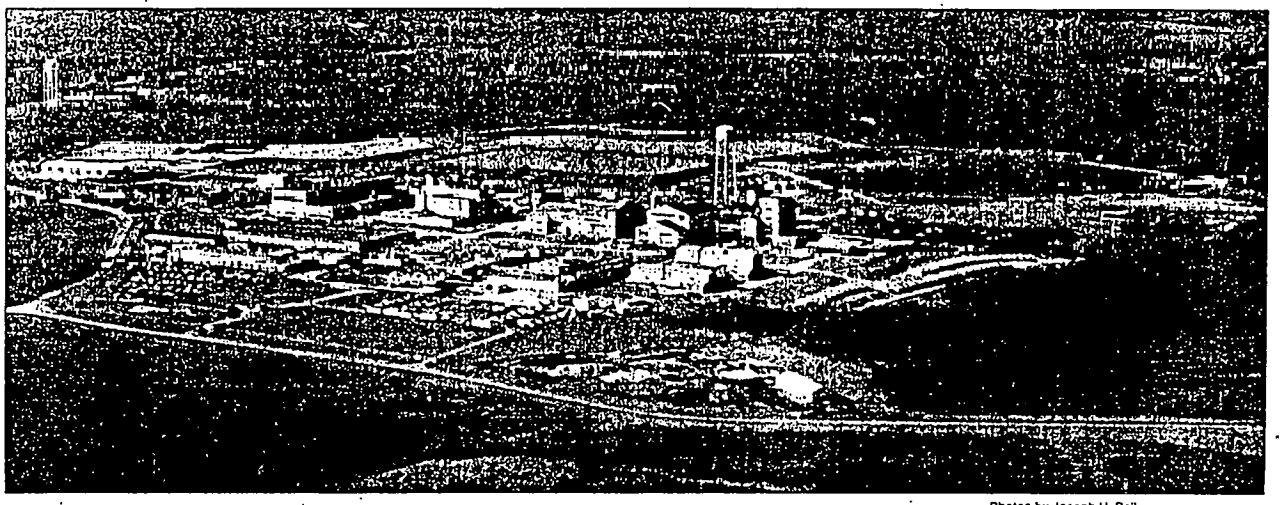
The Senate also confirmed Dora Schriro as director of the Missouri Department of Corrections and Richard Hanson as commissioner of the Office of Administration. Schriro has been superintendent of the City Workhouse in St. Louis. Hanson has been assistant state treasurer.

ST. LOUIS POST-DISPATCH

ST. LOUIS

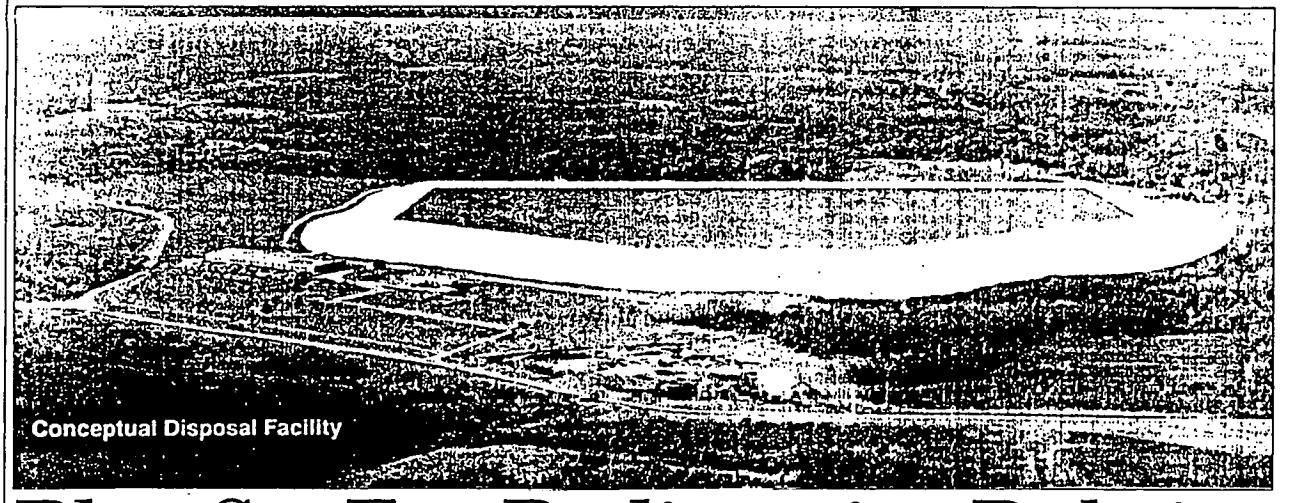
SECTION D

SUNDAY, JANUARY 10, 1993



Photos by Joseph H. Bell

ABOVE: The uranium processing plant at Weldon Spring being dismantled by the Department of Energy, which wants to build a "disposal cell" on the site to hold radioactive rubble and other debris. BELOW: The disposal cell would be about 42 feet high and cover some 100 acres directly over the site of the razed plant. The remaining building near the cell is the department's office.



Plan Set For Radioactive Debris

Weldon Spring Is Cleanup Target

By Tom Uhlenbrock
Of the Post-Dispatch Staff

The Department of Energy has a monumental problem: How to dispose of a mound of radioactive debris that's almost large enough to fill Busch Stadium.

"I think it's a little shy when you hit the upper deck; it doesn't quite make the cheap seats," says Ken Warbritton, a geological engineer working on the cleanup of the abandoned uranium processing plant at Weldon Spring.

The department's answer: Building a "disposal cell" that would reach 42 feet high and cover 100 acres on the site of the old Mallinckrodt Chemical Works plant on Highway 94 in St. Charles County.

The cell, or bunker, would be the final resting place for the steel beams, siding, concrete foundations, asbestos and equipment used in the 40 buildings now being dismantled.

It also would hold contaminated soil, sludge and sediment from the ponds used as dumps on the site — and the barrels of radioactive waste and other debris excavated from the quarry that is being drained.

"To date, our best estimate is we've got nearly one million cubic yards," said Jerry Van Fossen, deputy manager of the cleanup. "We're talking about a tremendous number of drums from the quarry."

The cost estimate of building the cell is $157 million, which is included in the $800 million projected as the total cost of cleaning up the Weldon Spring site. That's in 1992 dollars, meaning that inflation could pump up the price.

If START II is the death knell to the nuclear arms race, the Weldon Spring bunker would serve as a costly memorial, built at the place of its birth.

Mallinckrodt Chemical Works, working under a contract with the old Atomic Energy Commission, processed the uranium used in the first atomic bombs and later by the nuclear industry.

But not all the radioactive waste and debris produced under the contract will be housed in the Weldon Spring bunker. A twin cell may be built in St. Louis County for wastes that lie at other sites in the area.

"Because of the very significant negative reaction by people in St. Charles County, the Department of Energy has made a commitment not to take in outside waste," said Steve McCracken, manager of the Weldon Spring cleanup.

Public meetings still must be held before a final "record of decision" will allow the department to build the bunker. That decision is expected by late this summer, but it could be held up by opposition from the public.

"The state is taking the position that no outside waste comes in," said McCracken. "It's our intent to put that in the record of decision."

Left out in the cold will be David Adler, who is looking for a home for a like amount of radioac-

See BUNKER, Page 3

Bunker

From page one

tive debris. Adler is the department's manager of the cleanup for the so-called St. Louis sites.

"We have a little less than Weldon Spring, about 900,000 cubic yards," Adler said. "That's at Lambert Field, on Latty Avenue, at the Mallinckrodt site (in north St. Louis) and on associated properties."

Adler said the Department of Energy would keep the debris from St. Louis and St. Louis County away from the Weldon Spring bunker "primarily because of the possibility that the controversy could kill that project."

Thus, a similar disposal cell may have to be built in St. Louis County.

"We expect to publish a proposed plan, exactly what Steve just did," he said, referring to Steve McCracken, director of the Weldon Spring cleanup. "One option we're considering is consolidating all the waste at one site, as is being done at Weldon Spring."

The reason the Department of Energy wants to build the twin bunkers is simple. More than 50 years after the first nuclear waste was generated, the country still has no national disposal site licensed to take the hodgepodge of wastes produced at Mallinckrodt.

"Not at this point, there isn't," said Van Fossen.

With noplace else to go, the department wants to build a Weldon Spring bunker with gently sloping top and sides, meant to shed water and prevent erosion. The top will be planted, and the sides lined with limestone rock.

The bottom will have a multi-layered floor with clay and plastic liners and a system to collect, drain and treat any leaking fluids or invading water.

"It will not be below grade; in other words, we won't dig a hole and dump things in it," Van Fossen said, "the idea being you avoid the bathtub effect, where water could leach down into it and be held there."

The walls also will be lined with clay and surrounded by dikes filled with "clean" soil. "A key point in this is: The majority of the material is natural, because it lasts longer," said Van Fossen. "Concrete cracks."

The roof also would be multi-layered and include a radon barrier, a layer of clay topped by plastic and a "biointrusion" layer of rocks and boulders to prevent man, animals and vegetation from digging into the cell. The roof will be covered with topsoil and planted with prairie grasses.

Inside, the beams, barrels and other contaminated material will be compacted and stacked. A grout-like mixture that includes cement will be poured over each layer to "encapsulate" the debris and fill in any voids. The result will be a solid chunk of radioactive rubble.

Construction is expected to start next year, with the top going on and the cell sealed by 1999.

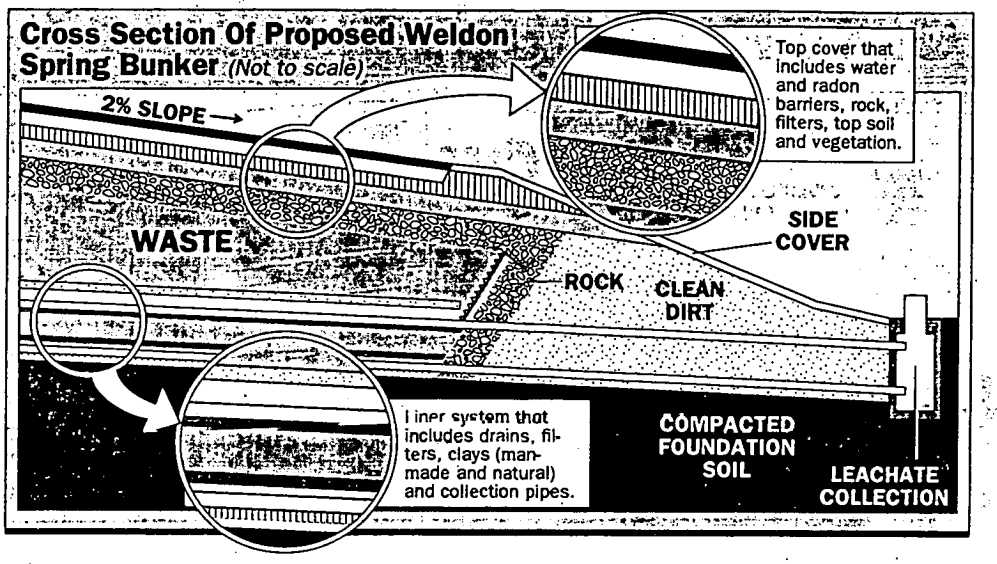
"There would be a fence around it, a small building for maintenance staff and a water-treatment facility," Van Fossen said. "With the prairie grass on top blowing in the breeze, maybe we could get some buffalo up there."

The bunker is meant to last from 200 to 1,000 years, Van Fossen said.

The radioactivity inside will not decay for hundreds of thousands of years.

"You're not doing away with the radioactivity," said Van Fossen. "It's still radioactive until it decays down to lead.

"But one of the things to keep in mind is the materials we're encasing are low-level. We're not talking about something you'd find at a nuclear power plant. If someone digs into it in the future, it's not going to kill them."



Serving St. Peters, Cottleville, Harvester, Weldon Spring, Weldon Spring Heights

Sunday Home ST. PETERS Journal

35 CENTS

Member of the Suburban Newspapers of Greater St. Louis

SUNDAY, JANUARY 10, 1993
ST. CHARLES COUNTY, MISSOURI

First batch of quarry water flows into river

By Dennis Miller
Staff writer

WELDON SPRING — After two delays, the first batch of treated water from the contaminated Weldon Spring Quarry was sent flowing to the Missouri River on Thursday.

The release of 541,000 gallons was expected to take about 48 hours. The water has been treated to remove uranium, thorium, arsenic, heavy metals and other contaminants.

Treatment of a second batch of water from the quarry is expected to begin in late January, said Steve McCracken, manager of the U.S. Department of Energy's $650 million cleanup of the Weldon Spring Chemical Plant site.

Before a crowd of reporters, photographers and television-camera crews, McCracken and James Powers, project director for MK-Ferguson Co., unlocked the pumps, sending the water to the river. MK-Ferguson is a general contractor at the plant site.

Officials had delayed the release Monday after Kay Drey of the Coalition for the Environment objected to discharging the water before the U.S. Environmental Protection Agency completed its tests for thorium in samples of the water.

The EPA had expected to complete its testing on Wednesday, but the results were delayed by a power failure at the agency's laboratory in Montgomery, Ala. McCracken said he received the EPA's final data on Thursday.

"Their uranium and thorium analytical data is the same as everyone else's," he said.

(See WATER, Page 6)



Journal photo by LINDA KINZEL

Steve McCracken of the U.S. Department of Energy unlocks a valve to release treated water from the Weldon Spring Quarry into the Missouri River. James Powers of MK-Ferguson Co., contractor for the DOE, looks on.

Water

(Continued from Page 1)

Samples of treated water were analyzed at various laboratories for the EPA, DOE, the Missouri Department of Natural Resources, St. Charles and St. Louis counties, and the city of St. Louis. All of the agencies said the tests show the water safe for release.

"This water has been treated to levels actually below drinking-water standards. There is less radioactive material in this water than exists naturally in the river, so it will not harm anyone downstream," McCracken said.

From 1942 to 1969, debris from the production of explosives and uranium processing at the chemical plant site was dumped into the quarry, which is near St. Charles County's drinking-water wells. The DOE has said the quarry is leaking but that so far no contamination has been detected in the wells.

Ken Gronewald, president of St. Charles Countians Against Hazardous Wastes, said he was pleased that the quarry is being cleaned up. "Every day that this is prolonged, the contaminants are getting closer to our wells," he said.

The quarry is about 10 miles upstream from intakes for St. Louis city and county water-treatment plants. But McCracken said, "It's such a small discharge, compared to the river's total volume of water, that it's hard to say whether they will get any of our water or not."

The treated water was being pumped at a rate of 200 gallons per minute.

"For perspective, the river is flowing at about a million gallons per second right now," said Ken Meyer, deputy environmental safety and health manager for Jacobs Engineering Group, a contractor for the DOE.

Officials expect to discharge about 20 million gallons of treated water into the river in the next four or five years. The DOE's permit from the state requires testing before each release as well as monitoring of samples from the river.

St. Louis Post • TUESDAY, JANUARY 12, 1993

Browner Urges EPA-Business Partnership

Nominee Vows To End Adversarial Relationship

Compiled From News Services

WASHINGTON

CAROL BROWNER, chosen by President-elect Bill Clinton to head the Environmental Protection Agency, said Monday that she wanted to end the agency's "adversarial relationship" with the business world.

Although her appointment was cheered by environmentalists, Browner assured a Senate hearing that "I have not been dictated to or driven by the alarmists."

"I also hope my tenure will mark a new era in communication between the EPA and America's business community, between environmentalists and business people," she said.

Browner declared that pollution prevention would be her top priority, along with developing new technology to achieve it.

"I think there are many pro-business environmentalists," she added. She said her tenure as director of Florida's Department of Environmental Regulation showed that "we can ease the regulatory burden on businesses without compromising the environment."

In Florida, Browner was considered a strong environmental advocate who worked with the federal government to require sugar cane growers to protect the Everglades with a costly network of manmade marshes. She also was credited with forging a landmark agreement with the Walt Disney Co. in which Disney won a permit to develop 400 acres of wetlands in exchange for spending $40 million to buy and restore an 8,500-acre ranch to wetlands status.

Browner underwent a friendly hearing before the Senate Public Works and Environment Committee. Members questioned her gently on thorny problems, including wetlands, hazardous chemical spills, Superfund waste cleanup sites, clean water and safe drinking-water laws, and gasoline taxes.

She said she wanted the EPA to make decisions more quickly on such matters as Superfund sites, to recognize the special problems of small businesses and to listen more to special concerns of communities and businesses trying to comply with environmental laws.

The EPA also should promote, encourage and reward pollution prevention and recycling efforts, she said.

"We must restore voluntary compliance with the nation's environmental laws by making them fair and efficient, by forcefully executing them and by increasing public disclosure of environmental practices," she said.

She also pledged to use cost-benefit analyses to ensure that environmental protection programs achieved the greatest benefit for the least cost.

Browner said that reviewing the Superfund law, which covers the clean-up of the nation's worst hazardous waste sites, would be one of her first projects.

She gave the Superfund program a passing grade of seven on a scale of one to 10 but said it had not been as successful a program as many had hoped.

Browner echoed Clinton's stance on nuclear energy, saying that no further nuclear power plants should be built until adequate disposal of the resulting wastes had been ensured.

Most praised Browner and supported plans to transform the EPA into a Cabinet-level Department of the Environment.

But Browner declined to comment on the North American Free Trade Agreement and the EPA's decision Friday to allow a test burn at a toxic waste incinerator in East Liverpool, Ohio, in direct defiance of the new administration.

Every Senator on the committee praised Browner and welcomed Clinton's designation of her for the top EPA post. Most also said they supported Clinton's plans to transform the EPA, an independent agency, into a Cabinet-level Department of the Environment.

Sen. Frank Lautenberg, a Democrat from New Jersey, the state with the most hazardous waste clean-up sites, said, "The selection of a committed environmentalist with a knack for aggressively crafting creative solutions to environmental problems sends an unmistakable signal that this administration means business on the environment."

Sen. John W. Warner, R-Va., called the EPA "one of the most critical balancing responsibilities" in government. He said Browner should ask herself daily not only, "What have I done for the environment?" but also "What have I done to the nation's economy?"



Agence France-Presse

Carol Browner, nominated to lead the EPA, testifying Monday before a Senate panel. She said pollution prevention would be her top priority.

and to make Missouri's workers better equipped to meet the competition from Illinois, Kansas, California, Germany, Japan and other places around the globe. Those points are central to his success as governor and, more important, the success of Missouri in the first half of the 21st century.

Mr. Carnahan has rightly chosen to lead the charge to reverse those two debilitating trends in the state's public affairs. May he do well by doing good. Missouri needs such leadership more than anything else now. Its future hinges on changing direction.

St. Louis Post 1/13/93 Editorial Page

Testing The Waters

Treated water from the Weldon Spring uranium-processing complex has at last begun to be released into the Missouri River. Testing of the water by the Environmental Protection Agency, the Missouri Department of Natural Resources and officials of St. Louis and St. Charles counties all indicate it is safe. Steven McCracken, manager of the cleanup for the Energy Department, asserts the water is cleaner than normal drinking water. Is it?

Government routinely makes mistakes. The Energy Department, in particular, has a dim record when it comes to guarding the public against toxic waste. Even EPA has sometimes endorsed as safe some cleanup methods in the environment that subsequent scientific findings indicate were inadequate.

Though procedures are available that were not employed — such as building a full-scale pilot plant to test the technology used to treat the water — the cleanup and study of the purity of the water contaminated many years ago by the weapons-manufacturing plant appear to have been quite thorough. The Energy Department has not been permitted to retain sole control of the process. The counties affected have examined the water, as has the EPA. All tests indicate the water is pure.

The Missouri River flow is 800,000 gallons a second, and the St. Louis city water division takes in 100 million gallons a day. Releasing 20 million gallons in relatively small amounts simply can't threaten the health of city and county residents unless it was highly toxic. It isn't.

Despite the concerns of some that not all conceivable questions regarding the water-treatment process have been answered, the Energy Department was right to proceed. All questions can never be answered when it comes to science. But in this case, enough of them have been, by a variety of different individuals and agencies, to justify the release.

The U.S. Response To Haitian Refugees

Bill Clinton is right smack between the proverbial rock and a hard place. During the campaign, he quite justly criticized President Bush's heartless policy of returning Haitian refugees to their island home. He noted that this policy gave Haitians no chance to apply for asylum in the United States or anywhere else. President Clinton cannot retreat from candidate Clinton's position on this issue without appearing profoundly hypocritical and unethical.

But neither does President Clinton wish to be overwhelmed in the pivotal first months of his term by a flood of up to possibly 100,000 Haitian refugees. Jan. 20, Inauguration Day, has become in Haiti a kind of D-Day, or departure day, for the unknown number of Haitians who have sold all they own to book passage on one of the rickety vessels that they hope will carry them away from their hellish existence.

How can President Clinton discourage Haitians from embarking on a mass exodus? Ultimately, only by restoring democracy — and Jean-Bertrand Aristide, that country's first democratically elected president — to Haiti. That, of course, won't happen overnight, but President Clinton must give Haiti more attention than President Bush ever did.

At the very least, he should enlist the involvement of the United Nations. Fortunately, U.N participation is shaping up. And since the Haitian military hasn't been starved out of power by the embargo, perhaps it's time to consider buying them out — with promises of development aid for one of this hemisphere's poorest nations.

The prospect of a real turnaround in their nation's fortunes may inspire some Haitians to stay home. But, realistically, President Clinton will have to be prepared for an upsurge in refugees. On a practical level, he must ensure that their applications are processed swiftly and humanely. On a moral level, he should consider that the United States has an obligation to shelter these people until Haiti is a less treacherous place to live.

In recognition of the fuzzy line dividing political oppression and economic repression, the United States should extend to Haitians the same treatment it now offers Cubans.

Wipe The Slate Clean

The Illinois Supreme Court has rightly struck down a law that required all motorists to take an alcohol or drug test if they were involved in an accident that resulted in death or personal injury. Refusal to take the test led to suspension of their licenses, and about 400 drivers currently under suspension are getting their licenses back. But the state says it will not wipe clean the records of more than 950 drivers whose suspensions were completed. That decision is wrong.

The law in question should never have been passed. If drivers who are involved in an accident give police reason to suspect they are under the search and seizure. The state Supreme Court came to that conclusion in a 5-2 decision last month.

In reaction, Secretary of State George Ryan said that 400 Illinois drivers who had lost their licenses for refusing the tests should have them restored. But another 950 drivers who had already served their penalty will not be able to clear their driving records. Mike Murphy, a spokesman for the secretary of state, said the penalty was legal when it was imposed and served, and the state has no obligation to change the records for those drivers involved.

Drivers who were caught in that unfair trap fear

Goes in St Louis IN not mounted

JANUARY 5, 1993

FLORISSANT VALLEY REPORTER

Hazelwood Appoints Board Member



Bernard Nachtmann and Mayor Pro Tem Jeanette M. Eberlin.

At a recent Hazelwood City Council meeting, the Oath of Office was administered by City Clerk Norma Caldwell to Bernard Nachtmann, 7815 Guhman Court, who was appointed to the Hazelwood Civil Service Board.

Mayor Pro Tem Jeanette M. Eberlin presented Nachtmann with a Certificate of Commission and a memento bearing the emblem of the City and thanked him for his willingness to serve the community in this capacity.

DOE delays release of water from quarry

By Dennis Miller
Staff writer

ST. CHARLES COUNTY — The U.S. Department of Energy is waiting for more test results before releasing treated water from the contaminated Weldon Spring Quarry into the Missouri River.

The Environmental Protection Agency expected to have those results available today (Wednesday, Jan. 6).

If the additional tests show the treated water is safe, then the first batch of 540,000 gallons will be released into the river, said Steve McCracken, DOE's project manager at the Weldon Spring Chemical Plant site.

Besides the EPA, the DOE, the Missouri Department of Natural Resources, St. Charles County, St. Louis County and the city of St. Louis have tested samples of the water after it was processed through a treatment plant built near the quarry.

"The results show that both the chemical and radioactive

(See WATER, Page 11)

Journal News

Water

(Continued from Page 1)

contaminants have been removed to levels well below the standards set by the state or below standards necessary to protect the human health," McCracken said.

"I am 100 percent confident that this water will not harm any downstream users of Missouri River water."

The DOE had planned to begin releasing the water on Monday following a meeting with representatives of the various governmental agencies.

Kay Drey of the Coalition for the Environment objected to releasing the water before the EPA completed its testing for thorium levels.

John Broadway, chief of the EPA laboratory in Montgomery, Ala., said in a telephone hook-up at the meeting that he does not expect the thorium tests to produce any surprises.

"There is no way that I could imagine thorium being a problem," Broadway said.

David Bedan of the DNR agreed with that assessment.

But McCracken said, "There is no compelling reason why we can't wait another day or two." He said he wanted to give the public "an opportunity to understand and perhaps relieve their fear" about release of the water into the river.

Drey asked McCracken to delay the discharge even further so that the Coalition could have samples of its own drawn and tested.

McCracken responded: "She had an opportunity, like everyone else, to do that in November and chose not to. All she's trying to do is delay this for a few more months when everybody else who did the analytical work said (the treated water) is safe."

The nine-acre quarry is four miles south of the chemical plant site and near St. Charles County's drinking-water wells. Water-treatment plants for St. Louis and St. Louis County are about 10 miles downstream from the quarry.

From 1942 to 1969, the quarry was a dump site for debris from the production of explosives and processing of uranium and thorium at the chemical plant site.

Water must be removed from the quarry so that the debris can be hauled to a temporary storage area on the chemical plant site. Officials have said the quarry is leaking and threatening St. Charles County's drinking-water wells, but so far no contamination has been detected in the wells.

McCracken said the DOE had agreed to maintain an average 30 picocuries, or radioactive particles, per liter of treated water and to never exceed 100 picocuries per liter. The tests show levels 30 times better than that, he said.

Stanley Remington, a consultant hired by St. Charles County, agreed that the tests show the treated water is safe for discharge into the river. Remington said St. Charles County's test results are remarkably similar to the other agencies' results, "especially considering the very low detectable limits required by the DNR."

St. Charles County Journal
Wednesday 1/13/93

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VOLUME 73 - NUMBER 2 (USPS 202-520) TUESDAY, JANUARY 12, 1993 12 PAGES - 40 CENTS PER COPY

Officials Predict a Bright Future for St. Louis County

Corcoran Says, "Voice of the People Will be Heard"

By Jeanette Eberlin, Special Correspondent for the Florissant Valley Reporter



Happy smiles for a happy occasion. County Council members, from left, Jerry Corcoran, Deborah Kersting and Jim O'Mara pose for the camera as they greet friends and relatives immediately following their swearing-in ceremonies. (Photo by Jeanette Eberlin)

Smiles were the order of the day, and predictions of a brightened future for St. Louis County abounded as three newly elected County Council members were sworn into office on only New Year's Day.

Holiday decorations still filled the council chambers, the seats were lined with a standing-room-only crowd as three Democrats – George M. "Jerry" Corcoran, District 2, James E. "Jim" O'Mara, District 4 and Deborah Kersting, District 6 took the oath of office.

County Councilman John R. Shear, District 1, was the master of ceremonies, the featured speaker was Robert F. McCullough, St. Louis County Prosecuting Attorney, and the invocation was given by the Rev. Robert Javanovic, pastor of Kersting's church, Queen of All Saints Catholic Church.

Before last November's election Corcoran had served on the council 14 years, O'Mara two years and Kersting was elected to her first term in office.

Each council member was sworn in by county judge of his or her choice; Corcoran by Judge Dennis J. Quillin, O'Mara by Judge Daniel J. O'Toole and Kersting by Judge Susan A. Block.

The ceremonies were traditionally brief and impressive. However, some of the light-hearted remarks obviously pleased the crowd, such as when Judge O'Toole asked that all the members of O'Mara's family come to the podium to stand with him

SEE CEREMONY, PAGE 5

CEREMONY, FROM PAGE 1

while he was being sworn in. No doubt every member of the O'Mara clan was there, as a very large group came forward and filled the front portion of the chambers.

"Now you can see why it's easy for me to be elected," O'Mara said with a smile.

After being sworn in, Corcoran said, "When you have had a complete turnaround (the Democratic party in St. Louis County) and you are near the top, there is only one direction you can go - up.

"I will continue to hear the voice of the people."

In an interview later, Corcoran said, "I am very optimistic about the future of St. Louis County. We have the confidence of the people and this cooperation will bring about solutions to our problems."

He said there are plans for a bond issue early this year for a new jail and other improvements, with no tax increase. "This will show how the people feel," he said.

McCulloch also expressed optimism about the future in his address.

"We are starting a new era in our county, the state and the nation. We certainly will be better of as this new decade leads us into the next century," he said.

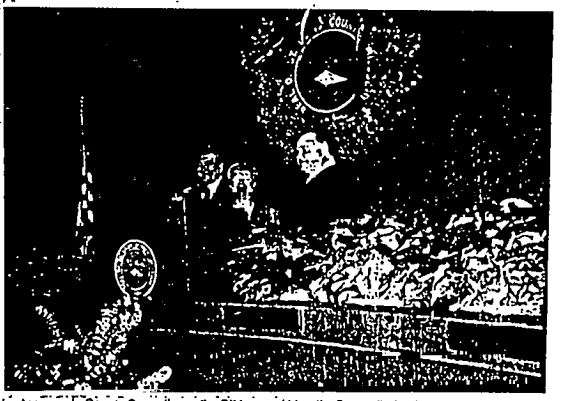
"There are many issues facing us; our highways, infrastructure, jobs, the jail situation and tax redistribution."

Referring to Carceran, McCulloch said, "Jerry is the dean of the council. His leadership has always been ahead of his time.

"O'Mara has brought us ideas, and lead us where we haven't been before. Debbie (Kersting) is typical of the new generation, fresh with new ideas."

As to the number of Democrats now on the county council, he said, "Although there are five, there will be five different opinions. This will make for great debate."

Summarizing the feeling predominant at the occasion, he said, "St. Louis County will be in good hands for a long, long time."



Newly sworn in County Councilman Jim O'Mara and his wife, Pat, smile for the crowd as Judge Daniel J. O'Toole, on right, looks on. (Photo by Jeanette Eberlin)

Quarry Release Delayed

St. Louis Post
Tuesday
1/5/93

Weldon Spring Awaits EPA's Thorium Test

By Tom Uhlenbrock
Of the Post-Dispatch Staff

Kay Drey may not be able to prevent the discharge into the Missouri River of treated water from the quarry at the Weldon Spring chemical complex, but she has won a delay until later this week.

Drey is the anti-nuclear activist who has argued that the water should be stored rather than dumped into the river nine miles upstream from the public water intakes for St. Louis and St. Louis County.

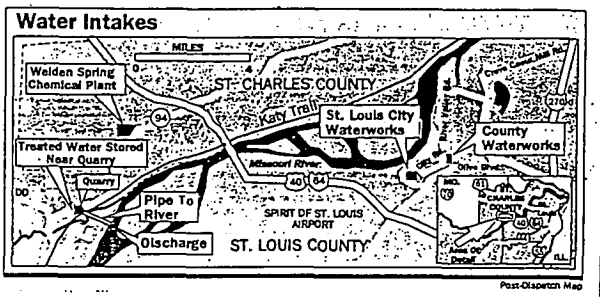
The Department of Energy held a news conference Monday afternoon to announce the result of tests done on treated water taken from the quarry. The quarry is contaminated with radioactivity, arsenic, heavy metals and explosives.

The scheduled climax of the news conference was to be the immediate release of the water, but Drey, who arrived late, objected.

Drey said old inventories indicate that a large amount of thorium, a radioactive element, was dumped into the quarry. She said the water should not be released until the Environmental Protecton Agency completes tests for thorium.

Steve McCracken, manager of the $650 million cleanup of the Weldon Spring site, then asked Drey: "If we

See WATER, Page 7



Post-Dispatch Map



Wanda Fitzgerald/Post-Dispatch

Kay Drey (right), who won a delay Monday in the release of water from Weldon Spring, Roberta Gutwein of Clayton is at le

Water

From page one

get this analysis in from EPA, will you agree this is a safe discharge, yes or no?"

She did not reply.

When John Broadway, an EPA official who took part in the news conference through a telephone hookup, said the EPA's thorium testing should be ready by Wednesday afternoon, McCracken agreed to postpone the release until then.

"There's no compelling reason why I can't wait another day or so," he said. "There's not a technical expert in this room or on the phone who thinks that's necessary, but I do believe it'll help alleviate fear."

Some 42 gallons of the treated water were distributed Nov. 19 to the EPA, the Missouri Department of Natural Resources and representatives of St. Louis County and St. Charles County.

McCracken said the four government agencies had reported back with laboratory results that confirmed the water was safe to release.

"The contaminants in the water have been removed to where they are at, or below, drinking water standards," McCracken said. "All questions that have been raised have been answered."

The four government agencies had representives at the news conference, and McCracken asked if any had objections to the release of the water. None spoke up.

A reporter questioned why the EPA's lab results were incomplete in that the tests for radium, thorium and uranium were missing. The three elements were included in the radioactive waste dumped into the quarry by the Atomic Energy Commission.

Broadway replied that the EPA's labs had been working on a holiday schedule. He said the results were delayed, but would be ready later this week.

However, he added that the tests had been completed for overall radioactivity — known as gross alpha and gross beta — and indicated the treated water was well below permit limits.

"Since the numbers for these indicators are so small, we would expect the individual analysis would be less," he said. "Even under the worst case scenario, I cannot see it being significant."

Drey said after the news conference that she had "made a mistake" in not taking a sample for testing. She said she would use her own money to have additional testing done because the Coalition for the Environment, which she represents, could not afford the $1,000 tab for such testing.

However, McCracken refused Drey's request that the discharge be halted until she obtained results of her own testing, a process that could take six weeks or more.

"I will not wait for her results," McCracken said. "All she's trying to do is delay this thing a few more months. The opportunity was given for anyone to test this water in November,

and those interested did."

McCracken said he would release the first batch of treated water — some 541,000 gallons — immediately upon receiving the EPA results.

"When I get that information, it my intent to go to the quarry a discharge that water," he said.

Carnahan Picks Chief Of Natural Resources

State's Chief Environmental Regulator Tapped

By Virginia Young
Post-Dispatch Jefferson City Bureau

JEFFERSON CITY — Gov.-elect Mel Carnahan promoted the state's chief environmental regulator Wednesday to be director of the Missouri Department of Natural Resources.

David Shorr, 37, will head the department. He is director of the department's Division of Environmental Quality.

Both Carnahan and Shorr stressed that they wanted to change the department so that it cooperated more with the businesses it regulates.

Instead of being punitive, Carnahan said, the department will try to provide "technical assistance" so that companies can comply with environmental standards.

Shorr has "the uncanny ability to work with the business people he regulates, and yet be able to preserve the environment and enforce the rules," Carnahan said.

As a Cabinet official, Shorr will be paid $72,327. He will replace Ron Kucera, a longtime department employee who became director last summer. Shorr said he hoped to keep Kucera on the staff. "I would be lost without his advice," Shorr said.



David Shorr
DNR nominee

Sen. Wayne Goode, D-Normandy and chairman of the Senate's Energy and Environment Committee, said he had worked with Shorr on several major pieces of legislation.

Goode predicted a smooth working relationship between Shorr and the Legislature. He noted that this wasn't the case with Kucera's predecessor, Tracy Mehan.

"Tracy Mehan was kind of flamboyant, and that led to confrontational situations," Goode said. "David appears to be more of a hands-on, nuts-and-bolts person. He's been well-received."

Shorr, who lives in Columbia, began working at the Department of Natural Resources in 1990. His previous jobs included assistant general counsel to the Northeast Ohio Regional Sewer District and environmental planner for an engineering and consulting firm in Ohio.

He has a law degree and a master's degree in urban studies and planning, both from Cleveland State University. His bachelor's degree is in conservation and environmental sciences from Kent State University.

Hazelwood City Council Filing Opens

Persons interested in filing as candidates for election to the Hazelwood City Council may obtain nominating petitions from Mrs. Norma Caldwell, City Clerk, at the Hazelwood City Hall, 415 Elm Grove Lane. Council positions to be filed for full three year terms at the election on Tuesday, April 6, 1993, are for Wards 2, 4, and 6.

Candidates must be at least 21 years of age and a registered voter. They must also have lived in the City or in area annexed to the City for at least two years immediately prior to the election, and must reside in the Ward for which the office is sought.

Filing for the election opens on Tuesday, January 5, 1993, at 8 a.m., and closes on Tuesday, February 2, 1992, at 4:30 p.m.

Nominating petitions for Ward Council members shall be signed by not less than 25 and no more 50 registered voters eligible to vote for the candidates. These petitions must then be filed with the City Clerk by February 4.

Council members whose terms will expire in 1993 are Ward 2 Councilwoman Carol A. Stroker, 527 Holiday Avenue; Ward 4 Councilman Joseph H. Eulentrop, #3 Mary Rose Court; and Ward 6 Councilwoman Jeanette M. Eberlin, 7314 Boellner Drive.

St. Louis Post Dispatch
Wed. 12/16/92

Reid Beats Steinmetz For Senate

GOP Candidate Posts Win In Special Race

By Phil Sutin
Of the Post-Dispatch Staff

State Rep. Michael J. Reid, R-Hazelwood, continued his career of political upsets Tuesday when he narrowly defeated a Democrat in a state Senate district that traditionally has been Democratic.

Reid defeated Rep. Kaye H. Steinmetz, D-Florissant, by 151 votes, according to final but unofficial results. The totals showed Reid with 4,903 votes, and Steinmetz, 4,752.

Reid will serve the remaining two years of the unexpired term of state Sen. Edwin Dirck, D-St. Ann, who resigned to take a state job. Reid and Steinmetz have adjoining legislative districts.

The district includes all of Hazelwood, St. Ann and Edmundson and parts of Berkeley, Breckenridge Hills, Bridgeton, Calverton Park, Florissant, Overland and St. John.

On Nov. 3, Reid was elected to a second term in the House. In 1990, he ousted veteran Rep. James "Jay" Russell, D-Florissant, by 2,300 votes. Russell had been in the House 28 years.



Michael J. Reid
Defeats Democrat

Steinmetz also won re-election to her House seat Nov. 3. She will remain in the House, where she has served since 1977.

Reid and Matthew B. Weyerich, his campaign manager, said a last-minute spurt of telephone calls and door-to-door visits by volunteers played a key role in the victory.

Heavy rain Tuesday and confusion about the election because of redistricting kept down voter turnout and helped Reid, Weyerich said.

"We didn't get the huge voter turnout that would have crushed us," Weyerich said.

He said the campaign sent out 25,000 letters to Republicans in the

See SENATE, Page 9

Wednesday, November 25, 1992 Member: New Jersey Press Association

Suburban Trends Newspaper

Sunlight more dangerous than soil, study says

By DONNA ROLANDO
Staff Writer

WAYNE — Recent testing shows that sunlight is more dangerous than the potential human exposure from the Wayne Interim Storage Site (WISS) for radioactive soil.

The site, managed by the federal Department of Energy (DOE), is a temporary storage area for thorium left over from the W.R. Grace plant on Black Oak Ridge Road.

Tests are conducted yearly to ensure that Wayne-area residents' air and water supplies are in no way endangered by the monitored storage of tainted soil at WISS.

Even with these assurances, Wayne officials are eager to see the soil removed from the township. And Pequannock municipal leaders, with their own tainted soil in some Pompton Plains yards, share this concern.

DOE efforts to group the soil from both townships at WISS to hasten ultimate disposal have not been successful, with Wayne leaders resisting such a move.

While the wait goes on for a permanent solution, Wayne residents are being assured that no threat to their health exists.

The federal Department of Energy (DOE), in unveiling the results of 1991 testing, concludes: "that potential human exposures are well below protection guidelines established by the National Council on Radiation Protection and DOE."

The report goes on to say that "predicted potential human exposures are less than 1 percent of the dose that all of us receive from naturally occurring sources present in our environment, such as sunlight, natural soils and bedrock."

DOE makes this conclusion on the basis of sampling and analysis of ground water, surface water, air, and sediment samples for various radiological and chemical parameters. Also considered are meterological data, local land usage and site monitoring data.

A complete report on 1991 results consists of 150 pages. While for the past six years DOE has mailed this report to many Wayne residents, this year only summary information will be sent.

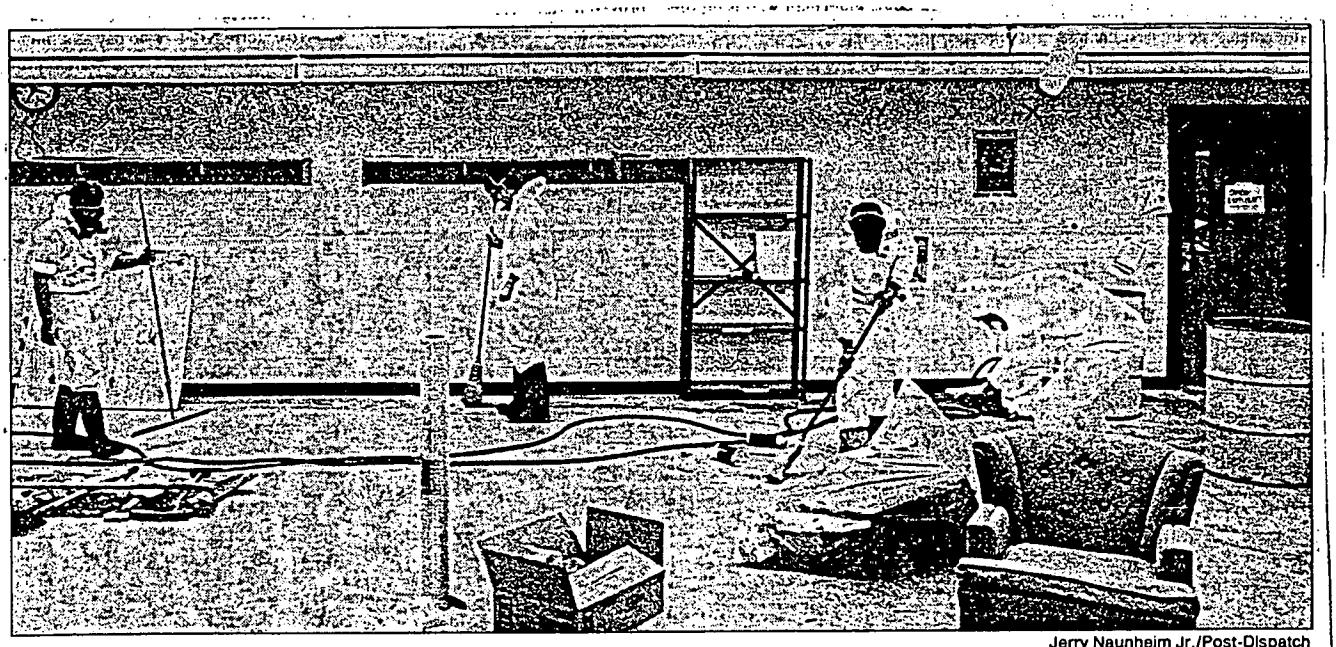
Susan M. Cange, DOE site manager, explains that the change is intended as a "conservation effort."

Anyone interested in receiving more detailed information on the WISS environmental monitoring program (including copies of this report) can write to the DOE Public Information Center, 43 West Pleasant Ave., Maywood, NJ 07607 or call (201) 843-7466. DOE's toll-free information number is (800) 253-9759. The complete title of the report is Wayne Interim Storage Site Annual Environmental Report for Calendar Year 1991.

The public is still waiting for the results of a separate study conducted to evaluate the extent of contamination and cleanup alternatives.

Mike Redmon, deputy project manager for Bechtel, a contractor to DOE, could not give a date for final results. But he said the study will address concerns that the tainted soil may have spread to other Wayne properties.

The study, completed in February or March, will be reviewed by the Environmental Protection Agency before its release, Redmon added.



Jerry Naunheim Jr./Post-Dispatch

Environmental technicians working Monday at Wirtz School, 1832 Schuetz Road, where a test revealed asbestos fibers near a repair project. The school, which serves 180 disabled students, is closed for the week.

Asbestos Found; School Shut For Week

By Virginia Hick
Of the Post-Dispatch Staff

The Special School District of St. Louis County has closed one of its schools all this week because a test found a few asbestos fibers near a repair project.

Engineers were testing on Monday to see if the asbestos got into the school's ventilation system.

Ronald Rebore, Special District superintendent, said the situation caused him to question whether a consultant's audit four years ago really found all of the asbestos in the district's buildings.

The problem is in Wirtz School, 1832 Schuetz Road in West County, which serves 180 disabled pupils. School officials learned late Friday of the possible release of a low level of asbestos.

An air quality test Thursday measured 15 asbestos fibers or bundles per square millimeter in one part of the building, Rebore said. That is well below the 70 per square millimeter that is considered dangerous, he said.

No classes have been held in that part of the building since repairs began, and tests in two other areas turned up negative for asbestos, Rebore said.

But Rebore was waiting for the results of more extensive tests Monday before saying with assurance that no children had been exposed to asbestos.

"We decided to play it safe and call off school," Rebore said. School officials hope to reopen the school by Monday.

School officials estimated that the tests and any necessary cleanup could cost $10,000 to $15,000.

The problem began when workers broke up some tile and concrete with a jackhammer to get at a ventilation duct in the floor. The 1988 audit of all of the district's 11 buildings incorrectly showed that the tile had no asbestos.

"Now we have to question the audit in all our buildings," Rebore said.

Special School District provides services for disabled students in 23 school districts in St. Louis County, including 1,500 who attend schools operated by Special District.

Early-Bird Candidates Get Top Spots In Ballot Filings

By Tim O'Neil
Of the Post-Dispatch Staff

Early-bird candidates claimed top spots on the ballot Monday as filing opened for St. Louis mayor, comptroller and half of the aldermanic seats.

The more difficult task of winning the hearts of voters will be decided in party primaries on March 2. The general election will follow one month later, but the Democratic primary traditionally is the big show in the city.

Filing for the primaries opened Monday and will continue until Dec. 31. On Monday, 22 candidates signed on.

In Missouri, candidates' names are listed on the ballot in the order in which they file. The St. Louis Election Board allows candidates to claim spots in line by warming chairs daily in a designated room on its fourth floor.

State Rep. Anthony D. Ribaudo, D-St. Louis, secured first place on the mayoral ballot when he arrived at 7:30 a.m. to take over the spot held faithfully for 8½ months by Rochelle Froesel, a campaign worker.

"It shows we are well-organized," Ribaudo said of Froesel's long wait. "In a multicandidate race, it's a lot easier to sell yourself with the top spot."

Former alderman Steven C. Roberts was the second Democrat to file for mayor. He claimed a chair in the waiting room last Friday afternoon.

Aldermanic President Thomas A. Villa and Circuit Clerk Freeman Bosley Jr. also have said they will file for mayor.

Comptroller Virvus Jones assured himself first spot in the comptroller's race by having taken first place in the waiting room on Sept. 9. Alderman James F. Shrewsbury, D-16th Ward, his only announced challenger, had maintained the second spot since Sept. 19, hoping forlornly that Jones' sit-in would slip and miss a day.

"If you believe what the pundits say, the top spot is worth one to five (percentage) points," Jones said. "I think it's more useful as a psychological advantage."

Shrewsbury said he happily settled for second berth because, "Given that we're going to have a busy political season, I didn't want to be seventh in a field of 10."

Shrewsbury also announced he had raised $100,000 in campaign contributions. Jones said he would wait until Jan. 13, when candidates must file their first disclosure reports.

"I don't care what he has," Jones said. "Money isn't everything."

Voters in 14 of the city's 28 wards will elect their aldermen next April.

As of Monday, five incumbents had filed without opposition. They were Aldermen JoAnne Wayne, D-1st Ward; Phyllis Young, D-7th; Marie J. Aboussie, D-9th; Alfred Wessels Jr., D-13th, and Geraldine Osborn, D-15th.

Aldermen who didn't file Monday but who already have challengers were Freeman Bosley Sr., D-3rd Ward, and Velma Bailey, D-19th. The Rev. Albert E. Anderson Jr. filed against Bosley, and Calvin Harris, who barely lost two previous attempts to become 19th Ward alderman, filed against Bailey.

Here are the contests that already have formed:

11th Ward: Edward W. Koetter, who ran for alderman in 1991, filed first, followed five hours later by Alderman Daniel M. Gruen.

17th Ward: Alderman Joseph D. Roddy filed first, James E. Carson, who unsuccessfully challenged the Roddy family political organization in the committee race last August, also filed.

21st Ward: Bennice Jones filed first, followed by Alderman Willie Williams Sr. and Bryant T. Butler, a son of 21st Ward Committeewoman Jackie Butler.

23rd Ward: Alderman Francis G. Slay filed first, followed by Joseph A. Vaccaro Jr., owner of a service station and car wash.

27th Ward: Gregory A. Carter filed first, followed by former alderman Jimmie Matthews. Carter is a son of state Rep. Paula Carter. Matthews was ousted from office in a recall referendum in 1988. Alderman Clarke Taylor is not seeking re-election.

Tests Begin On Treated Water At Weldon Spring Site

[redacted]h VandeWater
[redacted]t-Dispatch Staff

[redacted]rst samples of treated water drawn Thursday from a treatment plant at the Weldon Spring chemical plant complex in St. Charles County showed uranium levels far below what which the state of Missouri allows.

U.S. Energy Department officials are treating radioactive waste water in a preliminary test at the plant. Eventually, 15 million to 20 million gallons of the treated water will be flushed into the Missouri river over the next five to six years.

Officials of the U.S. Department of Energy have begun treating radioactive waste water in a preliminary test of a treatment plant at the Weldon Spring chemical plant complex in St. Charles County.

On Thursday, the treated water was being channeled back into the contaminated quarry where it originated. The quarry was used as a dump for government-managed plants that produced explosives in the 1940s and processed uranium in the 1950s.

Butch Freeman, a process and start-up engineer at the plant, said early samples showed the radioactivity in the treated water to be far below acceptable levels.

For instance, the state of Missouri will allow 100 picocuries, or radioactive particles, per liter of treated water to be released into the river.

The first sample of treated water, drawn at 6:35 a.m. Thursday, had 6 picocuries of uranium per liter; at 7:35 a.m., the reading was 7 picocuries; at 8:30 a.m., the reading was 1.5 picocuries and the sample pulled at 9:30 a.m. contained 1.3 picocuries per liter, Freeman said.

"We're extremely happy about that," Freeman said.

McCracken said that levels of other target contaminants in the treated water will not be know until sometime today. Managers of the cleanup site expect the draining of the quarry to take from five to six years. Workers will then begin disposing of the contaminated equipment and building materials mired at the quarry bottom.

Steve McCracken, clean-up manager, said engineers were fine-tuning the processing equipment in the water treatment plant. When all systems are honed, the treated water will be collected in one of two containment ponds.

McCracken expects that inspectors from St. Charles County, St. Louis County, the Environmental Protection Agency and the state of Missouri will be able to draw samples of the processed water by next week.

If the agencies agree that processing has reduced the levels of uranium, arsenic, manganese and nitroaromatics in the water below the maximum levels established by the state, plant operators will begin dumping the water into the river. McCracken said that could begin as soon as early December.

Kay Drey, an environmental activist and spokeswoman for the Coalition for the Environment, said she was concerned about the plan to dump treated water into the river.

"This is all of real significance for those of us who live downstream," Drey said. "If they put contaminated water in the river, you don't take it out again."

She noted that the Missouri River was the primary source of drinking water in St. Louis County. The city's primary intake for water is on the Mississippi River near and below the river's confluence with the Missouri, she said.

The St. Louis County Council commissioned Anderson and Associates, an engineering consulting firm based in Rolla, Mo., to study the waste water decontamination plant.



AP

Charles Springer (left), and Merle Brewer of St. Joseph, Mo., are among the residents concerned about a high cancer death rate in the Kirschner-Purtell neighborhood.

Cancer Rate High In Area Of St. Joseph

By Maria Sudekum Fisher
Of The Associated Press

ST. JOSEPH, Mo. — "Nobody grows old in this neighborhood," says one resident. "Everybody dies of cancer before his time."

Merle Brewer has been in the Kirschner-Purtell neighborhood 20 years. And he's giving his view of the five-block area, with about 40 small homes, where a Missouri Department of Health study recently found a cancer death rate twice that of the rest of the state.

Residents say the cause is the heavy industry that surrounds the homes, that the people living there are being robbed of the "right to a healthy life."

"I can take you to each house around here and show you someone who's died of cancer," says another resident, Charles Springer. "This is a question of jobs being more important than people, and officials telling us we don't have a right to a healthy life."

But officials for St. Joseph and the state Department of Natural Resources dispute those claims. They say the factories that surround the neighborhood comply with federal and state regulations on hazardous waste and pollution.

The companies say they cannot be blamed for elevated cancer rates.

City officials also point to claims that the high incidence of cancer in the area could also be attributed to lifestyle and genetics.

Kirschner-Purtell's homes are on quiet, narrow streets, situated on a flood plain about one mile from the Missouri River. Some of the homes appear to have been built within the last 20 years. Others were constructed well before 1972, when the city zoned the land around the homes for heavy manufacturing.

Most of the 300 residents are middle-aged or elderly. Only a handful worked for the 14 nearby plants, which include Farmland Industries, a chemical manufacturer; St. Joseph Light & Power Co.; Stone Container Corp.; Albaugh Chemical Co.; and Schurpack, which makes plastic packaging.

The state Health Department's study was coordinated by Kathleen Anger for the agency's bureau of smoking, tobacco and cancer. Anger said the study found 18 confirmed cancer deaths from 1980 to 1990. Given the size and age of the population, 8.8 such deaths would have been expected, Anger said.

The study also found more than twice as many deaths from leukemia and breast cancer as expected, more than three times the number of expected cases of lung cancer among men and more than three times the expected cases of colorectal cancer in women.

The comparison area was the state of Missouri for death data, and a combination of several areas in the United States for the new cases.

Some of the residents say they want the government to buy their homes. One such plan, which would have given residents $35,000 an acre, was turned down by the Chamber of Commerce and the city last year, Hair said.

City Manager R. Patt Lilly said St. Joseph hopes to find a way to determine what is causing the elevated rates, but without a cause the city doesn't plan to buy the homes. St. Joseph has about 75,000 people and is about 50 miles north of Kansas City.

ST. LOUIS POST-DISPATCH

ST. LOUIS/THURSDAY

THURSDAY, NOVEMBER 5, 1992 3A

Out-Of-Court Settlement Reached In Dioxin Suit

By William Allen
and Tim Bryant
Of the Post-Dispatch Staff

Several hundred former residents of dioxin-tainted areas in eastern Missouri have settled a lawsuit with companies that handled the toxic substance, lawyers for the residents said Wednesday.

Those involved in the case, including former residents of Times Beach, declined to give the amount of the out-of-court settlement. All parties to the settlement signed a confidentiality agreement, they said.

The residents are "just happy that it's over," said Marilyn Leistner, former mayor of Times Beach and one of the plaintiffs.

"I've always said that there isn't any amount of money to compensate for what they've been through," Leistner said. "We will never put it behind us. But this makes it a little bit easier."

Dioxin is an industrial waste product that has been linked to cancer in animals and other ailments.

The defendants in the suit were Syntex USA, Syntex Agribusiness Inc., Northeastern Pharmaceutical and Chemical Co., and Independent Petrochemical Co.

The 381 former residents of Times Beach and other areas charged that the companies had been negligent in handling dioxin, resulting in "health problems and other personal tragedies," said Gerson Smoger, a lawyer in Walnut Creek, Calif.

Smoger and St. Louis lawyer Mark Bronson represented the residents.

Jan Potts, a spokeswoman for Syntex in Palo Alto, Calif., declined to comment on the case.

"All I can tell you is that the terms were confidential," she said.

The settlement involved 17 separate lawsuits against the companies since 1987, Smoger and Bronson said.

More than 2,000 residents of Times Beach were evacuated in 1983 after dioxin was discovered on town roads.

Syntex inherited the dioxin problem in the late 1960s when it bought Hoffman Taff Inc., manufacturers of the herbicide Agent Orange. Hoffman-Taff had rented a building to another company, Northeastern Pharmaceutical and Chemical Co.

Northeastern produced dioxin as an unwanted byproduct of the manufacture of hexachlorophene, an ingredient in toiletries.

The dioxin became mixed with waste oil that later was sprayed on dirt roads in Times Beach and 27 other sites in eastern Missouri to control dust. Independent Petrochemical was accused of disposing of dioxin-laced waste oil.

The case was scheduled to go trial in July in St. Louis Circuit Court. But Judge Robert H. Dierker Jr. urged the parties to reach an out-of-court settlement, Bronson said.

Bronson said that among the cases included in the settlement was one involving the cancer death of a truck driver, Alvin J. Overmann of north St. Louis County.

The case had been on appeal since St. Louis Circuit Court jurors in July 1991 awarded Overmann's family $1.5 million in damages.

Overmann died in 1984 of soft-tissue sarcoma, a cancer alleged to have resulted, at least in part, from his exposure to dioxin at the north St. Louis truck terminal where he worked.

ST. LOUIS POST-DISPATCH • THURSDAY, OCTOBER 15, 1992



Jerry Neunheim Jr./Post-Dispatch

Chemical Spill

Firefighters waiting Wednesday night for word on a chemical spill at the Mallinckrodt Inc. plant at 3600 North Second Street. Four people were evacuated; none was injured. From left: Michael Gerran, Mike Merchant, Ron Schroeder and Kevin Sheer.

The spill occurred at night and the St. Louis Downtown Site was in no way affected.

Key Panel Rejects Dump Site

Nuclear Storage Choice Laid To Politics Alone

By Charles Bosworth Jr.
Of the Post-Dispatch Staff

MARTINSVILLE, ILL. — A state agency that recommended a farm field in Martinsville for a dump for low-level nuclear waste was so determined to put the dump there that it conducted a safety review that was "fraught with errors, sloppiness and carelessness," the chairman of a special state commission said Friday.

The three-member commission voted unanimously Friday night to overrule the Illinois Department of Nuclear Safety and reject Martinsville as a site for the dump. More than $80 million had been spent on the selection process that recommended the site.

Martinsville is in eastern Illinois, about 140 miles from St. Louis.

The commissinn's vote followed a blistering critique by the commission's chairman of the actions of the Nuclear Safety Department. The chairman, former Illinois Supreme Court Justice Seymor Simon, said in a two-hour opening address Friday morning that:

- The state had settled on Martinsville as the dump site and then tried to rule the site safe. Simon said Martinsville was the only community in Illi-

See DUMP, Page 4

St. Louis Post Dispatch
Saturday, 10-10-92

Dump

From page one

nois where local officials had agreed to accept the dump.

"Politics presented a site that science was asked to justify," Simon said. "Politics was the engine that drove the site selection."

- Scientists and companies working on the safety study had been pressured to submit favorable findings and "toe the company line." Simon said scientists and companies apparently had succumbed to the pressure.

"Portions of the scientific work, I submit, should fail to earn the confidence of this commission," he said.

Illinois Gov. Jim Edgar said Friday night that the state has abandoned efforts to put the dump in Martinsville.

"We will now begin considering what the next step should be in our efforts to provide a safe and secure disposal site for low-level radioactive waste generated in Illinois," Edgar said in a statement. "I will assure the people of our state that we will not repeat the ineffective, outrageously expensive siting process that was set in motion before I became governor."

Prisciila Wieck of Martinsville, who was among the leaders of those opposing the plan, said she was surprised by the decision and had gone to the commission's meeting Friday prepared to hear that the site had been approved.

"I really have had my faith restored in government," she said. "I guess the system does work sometimes ... It's taken five years of my life, and I kind of resent that."

She said she had been conditioned to expect the worst because of the way the process had been handled by the Nuclear Safety Department.

Mayor Truman Dean of Martinsville called the commission's decision a loss for his community of about 1,300 people. The City Council had approved the site in return for more than $1 million a year in income and more than 100 jobs.

Thomas Ortciger, director of the Department of Nuclear Safety, said he was surprised by the decision; he, too, had expected approval — with conditions to address safety concerns.

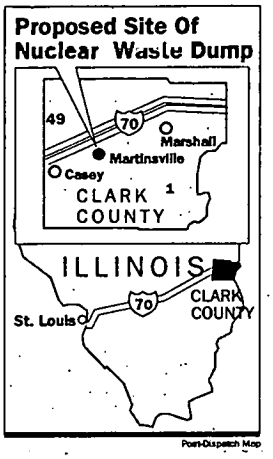
Ortciger said the process for choosing a site would be reviewed in light of the commission's criticism about the way it was handled.

The three commissioners took almost 11 hours Friday to review the evidence they heard in 71 days of hearings that produced 20,000 pages of transcripts.

In the end, they said, the site failed to provide a safe storage site for radioactive waste because it was over underground water supplies, because it was almost surrounded by water and because it was too small.

Commissioners also expressed fear that the design of the dump and its use of concrete bunkers would not contain the waste safely.

Commissioner Carolyn Raffensperger, former director of the Great Lakes Chapter of the Sierra Club, said



contradictory testimony presented by scientists about the degree to which underground layers were cracked left her convinced that the layers were "fractured" enough to allow radioactive contamination to leak into underground water supplies.

Commissioner William Hall, a professor of civil engineering at the University of Illinois, also complained that some of the evidence provided to the commission by the Nuclear Safety Department was "oversimplified and misleading."

He said he was unconvinced by experts' assurances that the concrete storage structure proposed would withstand leaking and earthquake damage for the 500 years required by federal law. He said the site had water on three sides and was not far above the underground water table.

The battle over the site has gone on for almost five years and has included the resignation of the previous director of the Nuclear Safety Department. A disclosure that damaging information about the link between the site and the underground water supply was omitted from a department report was among the reasons criticized by a state Senate study. That study had harshly criticized the department's conduct.

Ortciger, the state official, said that the process had cost more than $80 million; some of the money came from Commonwealth Edison Co. and Illinois Power Co., which operate a total of 13 nuclear reactors in Illinois.

"I will assure the people ... we will not repeat the ineffective, outrageously expensive siting process."

JIM EDGAR,
governor

Congress Passes Major Energy Bill

2nd Bill Targets Water In West

Compiled From News Services

WASHINGTON — The 102nd Congress finished its work Thursday, passing measures on water usage in the West and energy.

Later, the Senate sent the White House a stack of other bills on voice votes — including measures to make armed auto hijackings a federal crime, to raise the ceiling on Federal Housing Administration mortgages and to aid Desert Storm veterans experiencing environmentally related illnesses.

Then, shortly before 9 p.m. St. Louis time, the Senate adjourned for the year. The House is scheduled to meet in "pro forma" session today, but leaders in both parties have said it will adjourn, too, with no more action on legislation this year.

Supporters called the energy bill the most important energy package to be approved since the 1970s. It is the first since then to address the need to improve energy efficiency and gradually shift from oil and coal to renewable and other energy sources.

Bush was expected to sign the bill.

The water bill will affect 17 Western states. It would limit sales of federally subsidized water to Western farmers, while allowing extra supplies for wildlife and drought-parched California cities. The vote in the Senate was 83-8. Bush's stance on the measure isn't known.

Energy Secretary James Watkins said in a statement that the energy bill could reduce oil imports by 4.7 million barrels per day by 2010.

"This is the most comprehensive energy bill that has ever been passed," said Sen. Bennett Johnston, D-La., who began crafting the package nearly two years ago.

The bill, which covers nearly 1,300 pages, was the result of months of negotiations to try to balance the concerns of dozens of interest groups, from environmentalists to power companies and independent oil and gas producers.

At the heart of the package are several measures to foster energy conservation and make it easier for alternative energy sources to compete with traditional fuels.

The measures:

- Require new efficiency standards for lights, electric motors and commercial heating and cooling systems and efforts to encourage utilities to provide energy conservation rebates.
- Provide tax incentives for developers of renewable energy sources such as solar and wind power.
- Let private companies own the government's uranium enrichment program.
- Require utilities with nuclear power plants to help pay for environmental cleanup.
- Force government and private auto fleets to buy vehicles that run on fuels other than gasoline, or on electricity and give them tax breaks for buying such vehicles.

The legislation gives the nuclear power industry a long-sought streamlining of reactor licensing, which utilities have argued is the only way any nuclear power plants will be built. In the past, companies first got a federal license to build a reactor, then a license to operate it. Now they will need approval just once.

The bill also eases the way for the eventual approval of a permanent storage site in Nevada for highly radioactive used reactor fuel.

The water reclamation bill may face problems. Several of Bush's advisers, including Interior Secretary Manuel Lujan, have urged him to veto it.

Bush, while courting California farmers, had criticized the change in the state's water policy, but a veto might raise strong criticism in several other Western states where important water projects are held in the balance.

The bill authorizes spending for water projects throughout the West, including an additional $922 million for completion of the huge Central Utah Project, critical to meeting water needs in that state. It also imposes water flow controls through the Glen Canyon Dam in Arizona to protect the nearby Grand Canyon from erosion.

But the thorniest issue involved billions of gallons of water distributed through California's massive Central Valley Project, a series of dams and canals that provides one-fifth of the developed water in the state and is vital for irrigating thousands of farms.

The legislation requires the government to shift more water to municipalities, to end the practice of automatically renewing long-term water contracts and to impose new pricing policies that encourage water conservation.

The bill also requires that 800,000 acre-feet of water go to help wildlife. An acre-foot is the amount of water that will cover an acre of land to a depth of one foot. Critics have charged that too much cheap, subsidized federal water has been provided to large corporate farmers, while municipalities suffer through water shortages and little water is provided for fish and wildlife protection.

On another matter, Congress has sent Bush a bill designed to ban the sale of scanner radios that can pick up cellular telephone conversations. It has been illegal to listen in on cellular phone calls since 1986, but sale of scanners used for that purpose continued.

The Energy Bill

Key energy bill provisions:



Streamlines licensing of commercial nuclear power plants, allowing "one-stop" permit for construction and operation.



Establishes new energy efficiency standards for lights, electric motors, shower heads and other products.



Provides tax breaks for the development of renewable energy sources such as solar and wind power.



Requires federal and private fleets to buy more vehicles that run on fuels such as natural gas or on electricity; provides tax breaks for purchase of alternative fuel vehicles.

SOURCE: Associated Press

Knight-Ridder Tribune graphic



AP

Sen. Bennett Johnston, D-La., (left) and Sen. Malcolm Wallop, R-Wyo., discussing the energy bill, which was passed Thursday by Congress. The bill promotes conservation.

St. Louis Post Dispatch Tuesday, Sept. 29, 1992

Pollution Bias

It is shocking, though not surprising, that the Environmental Protection Agency moves far more slowly and assesses significantly lower fines on poiluters in non-white communities as opposed to majority white communities, as reported in a Sept. 14 article.

The *National Law Journal* found that penalties for hazardous waste violaters are an incredible 500 percent higher in predominately white areas versus minority communities.

That's no surprise to north and south St. Louisans who are living in the midst of toxic waste. We deserve better protection from heedless corporate poiluters.

We challenge the EPA to account for such differences and to make environmental cleanup a priority for all communities, not just white and upper-class communities.

Dominique Dallmayr
Staff member
Missouri Public Research
Interest Group
Alversie Mitchell
Chairperson
Association of Community
Organizations for Reform Now
St. Louis

HAZARDOUS WASTE

EPA Drops Hazardous-Waste Plan

The Environmental Protection Agency backed away Monday from a proposal that critics charged would have allowed tons of hazardous wastes to go into common garbage dumps.

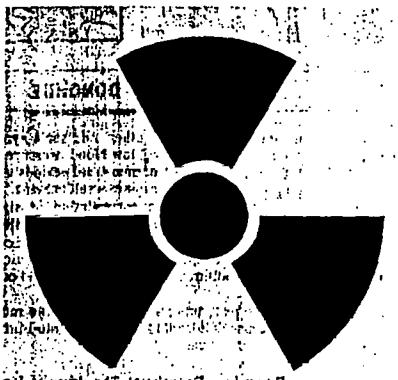
The proposal, which would have changed how hazardous waste is defined, was withdrawn after sharp critics maintained it would have gutted federal hazardous-waste laws.

The EPA said it would develop a new hazardous-waste proposal after further public hearings and comment in an effort to address concerns by industry that the definition is too broad.

Under current regulations, the EPA requires that hazardous wastes such as refinery wastes, heavy metal sludge, pesticide residues and toxic solvents, be given special treatment and not disposed of in landfills used for conventional garbage.

AP

Nuclear Family



Scientists at Mizzou call their research reactor one of the state's best-kept scientific secrets.

By William Allen
Post-Dispatch Science Writer

COLUMBIA, Mo.

CALL IT the land of the neutron.

A neutron is one of the components of the atom's nucleus. Its name comes from the fact that neutrons have no electrical charge. The neutrons of Columbia are produced in the university's nuclear reactor.

The reactor, known as MURR (Missouri University Research Reactor), has been controversial at times during its 25 year history. Opponents have charged that the reactor and its programs are hazardous and threaten the surrounding area.

But scientists at the reactor say the facility and its research projects are safe and tightly regulated. They add that the public isn't aware of or doesn't understand the reactor's research and education mission.

"MURR is one of the major success stories among research reactors anywhere in the nation," said James Rhyne, director of the reactor and a physicist. "It is the highest power, most versatile and most reliable research reactor on a university campus."

Rhyne and other scientists said the story of the reactor's research programs hasn't been told. In recent interviews, they talked about what they described as one of Missouri's best-kept scientific secrets.

MURR began operating in 1966. It has become a scientific magnet, drawing hundreds of researchers from many scientific fields. Research ranges from archaeology and chemistry to materials science and veterinary medicine.

"This center has developed a breadth of research programs unequaled anywhere, even the national labs," Rhyne said.

The reason: neutrons.

"You just can't do many of the same things without this source of neutrons," Rhyne said.

Where do neutrons come from and what do they do for researchers?

Neutrons are a product of the reactor's nuclear fission process. When atoms are split in the reactor during this process, among the components they release are neutrons.

Neutrons are useful because when they strike other atoms, they cause desirable changes or produce telltale particles that help scientists unlock the secrets of unidentified materials.

Objects are exposed to neutrons in three main ways. They are lowered to a point in or near the reactor core. They are moved into the same region via a system of pneumatic tubes. Or they are placed at the end of one of six "beam tubes" that carry neutrons from the reactor core to a nearby research bay.

The neutrons of MURR are used in four ways: as activators and probes, for chemical fingerprinting and to introduce beneficial impurities in materials.

Activators. Neutron exposure puts a material into an "excited state" so that it emits beneficial radiation, scientists said. These excited materials are called isotopes.

One of the most practical examples of this use is production of radioactive drugs that deliver radiation to cancer sites. These drugs have been used to kill cancer cells in liver, bone, ovarian and other kinds of cancers.

"The idea is to get the radiation to the tumor cells and away from normal cells," said Gary Ehrhardt, a chemist working on the problem.

Among other inventions, Mizzou scientists developed tiny glass spheres, called microspheres, which are irradiated in the reactor. They are now used commercially in Canada to treat liver cancer. Human trials of a related bone-cancer treatment are scheduled to begin soon.

The fact that the radioactivity dissipates within a few days allows doctors to give a higher dose of radiation more rapidly, said Alan Ketring, a chemist.

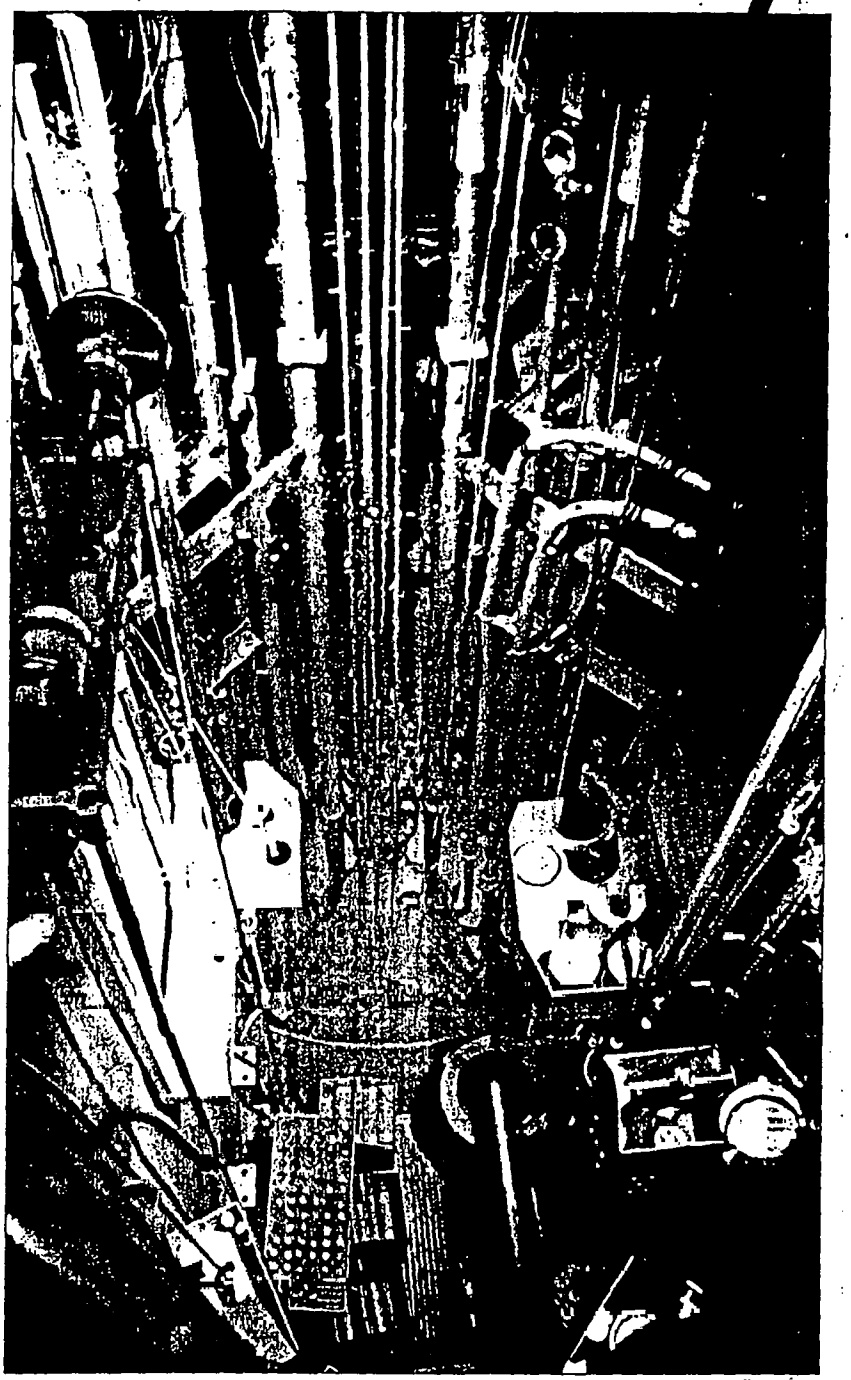
"The main advantage is that the cancer cells don't have a chance to recover as rapidly," Ketring said.

The reactor's neutron exposure produces 70 percent of the radioactive isotopes made in the United States for medical and other research purposes, Rhyne said.

Chemical fingerprinting. Also known as trace analysis, this technique helps scientists determine the composition of unknown materials, even revealing the tiniest traces of unusual impurities.

Impurities are often the key. Archaeologists match the impurities in a newly discovered piece of pottery or other artifact with impurities in known specimens. This helps them find out where the artifact originated, since clay,

See REACTOR, Page 4.



Gary Ehrhardt/University of Missouri

The core of the University of Missouri Research Reactor. Hundreds of scientists around the nation use the neutrons produced by the reactor for study in fields from archaeology to veterinary medicine.

Reactor

From page one

rocks and other materials contain impurities found only in the area where they were made.

"Using this information, we are able to trace ancient trade routes," said Michael Glascock, an MURR nuclear physicist who works with archaeologists. "This method gives you information about prehistoric man that isn't written down anywhere."

Researchers from more than 50 institutions around the world use the reactor to analyze samples of pottery and other ancient materials, Glascock said.

"This is a tremendous tool for archaeologists," said Hector Neff, an archaeologist with the reactor's National Archaeometry Center.

Among its accomplishments, the center maintains a data base of obsidian, a volcanic glass, found at thousands of archeological sites from Mexico and Central America.

"It's so good that when someone sends us an artifact of obsidian, there's better than a 99 percent chance of success in sourcing it," Glascock said.

Probes. In this case, neutrons are used to study materials in a similar fashion as X-rays, only they're better than X-rays, MURR scientists said.

The way a neutron behaves as it passes through and out of a material helps scientists find the arrangement of atoms in the material.

"We use neutrons to find what strains and stresses in a material may lead to its failure," said Andy Winholtz, a materials scientist.

One focus of such studies is finding how welds weaken a material.

A weld is basically a hot, liquid area that solidifies as it cools. During the cooling process, the material contracts, and stresses build near the weld. Neutrons allow researchers to measure these stresses.

That's just what Mizzou scientists will do in a NASA-funded study announced July 20. They will study stresses in a new generation of space shuttle booster rockets.

The space agency plans to re-use the rockets several times, and agency officials fear that exposure to salt water after the rockets fall into the ocean may lead to corrosion and cracking.

Researchers will expose scaled-down sections of the rocket to a small beam of neutrons from the reactor, Winholtz said. That will allow scientists to analyze how much stress exists in the material before and after a heat treatment that they think may prevent the problem.

The result will help NASA determine the best way to build the rockets.

Introducing impurities. In research that benefits the microelectronics and computer industry, MURR researchers have pioneered techniques that use neutrons to change the properties of materials.

MURR is now the main source of what is called "neutron-transmutation-doped silicon." This is the starting material in the manufacture of many kinds of computer chips and other electronic devices.

The reactor also is helping to improve electronic materials called high-temperature superconductors. These materials — which can carry electrical current with no resistance — may be the key to producing high-speed levitated trains, faster computer chips and better medical-imaging devices, researchers say.

In February, MURR physicist John Farmer reported progress in using the reactor's neutrons to introduce defects into tiny crystals of superconducting material. The technique neutralized the magnetic fields that hamper the material's performance when electricity moves through it.

"Figuring out the right defects to put into these materials may allow them to carry more current," said David Bradford, a physics graduate student who works with Farmer.

Anniversary, Opposition Can't Stop Reactor

By William Allen
Post-Dispatch Science Writer

COLUMBIA, Mo.

SCIENTISTS at the Missouri University Research Reactor say they were just plain too busy doing research and teaching to stop and celebrate the reactor's 25th anniversary last year.

Nor has opposition from anti-nuclear groups stopped them.

MURR runs seven days a week, 24 hours a day, except for a 12-hour maintenance shutdown each Monday.

The annual budget for the reactor is about $7 million. About one-fourth of the money comes from the state, another fourth from federal grants and contracts, and half from "service applications," said MURR director James Rhyne said.

Service applications involve exposing materials to the reactor's neutrons. They include:

- Supplying radioactive materials for medical use, which earns about $1.5 million a year.
- Changing the composition of materials for the electronics industry, which earns $1 million.
- Irradiating gemstone to produce blue topaz, which earns about $1.5 million. Gem dealers pay the university to put inexpensive white topaz near the reactor core, which turns them dark blue.

Questions were raised a few years ago about whether university employees profited from the gemstone program. A 1989 state auditor's report concluded that two reactor officials were involved in "significant instances of potential conflicts of interest" and "apparent violations of state laws," but no charges were filed.

Controversy also surrounds TRUMP-S, an acronym for a continuing study of ways to separate spent nuclear fuel.

The project is paid for by the Japanese nuclear industry. Its goal is to reduce the volume of hazardous nuclear reactor waste that must be stored in isolation for thousands of years.

The project, announced in April 1990 by the university, was tied up for several months. Opponents, fearing a release of radioactive material, appealed to an administrative judge with the Nuclear Regulatory Commission.

The judge first shut down the project. But he later reversed that decision, saying the university had satisfied concerns about safety.

Asked whether Missourians are getting from the reactor what they pay for, Rhyne said:

"The record — in publications, patents, research output and numbers of students — speaks for itself. Missourians are getting more than their money's worth. They're putting in one-quarter of the money and getting most of the pie.

"In many ways, this reactor is much better known outside the state of Missouri than it is inside," Rhyne said. "The international scientific community knows of MURR, even if some in the community don't know about the university or the state."

Reactors: Research Vs. Commercial

COLUMBIA, Mo.

WHAT MAKES the Missouri University Research Reactor different from a commercial nuclear reactor, like Union Electric Co.'s Callaway nuclear plant?

The bottom line is the purpose to which the nuclear reaction is put, scientists say.

Callaway's reaction exists to heat water, producing steam that drives turbines and generates electricity. MURR's reaction exists to produce neutrons for research and education.

"For us, heat is a nuisance," said James Rhyne, MURR director. "For them, neutrons are a nuisance."

Said J. Charles McKibben, MURR associate director: "Comparing Callaway to MURR is like comparing an 18-wheel semi to a Ferrari. They both roll down the road on tires, but there's a great difference in how you use them."

Rhyne emphasized that "this is not a safety comparison. Callaway is clearly one of the best operating nuclear reactors in the country."

Here are other major differences between MURR and the Callaway nuclear power plant:

- Temperature. The water temperature in the core of the Callaway reactor is 600 degrees Fahrenheit, while MURR's is about 120 degrees.
- Pressure. The water pressure in Callaway's core is about 2,250 pounds per square inch, while MURR runs at 80, or "city water pressure," Rhyne said.
- Energy output. Callaway puts out 3,300 million watts of heat energy, while MURR puts out only 10 million watts. Callaway puts out 1,100 million watts of electrical energy, while MURR produces none.

— William Allen

ST. LOUIS POST-DISPATCH

EDITORIALS 2
COMMENTARY 3
OBITUARIES 4
GENERAL NEWS 4
CLASSIFIED 5-22

NEWS ANALYSIS

SECTION E

MONDAY, MAY 25, 1992

More Opposing Nuclear Dumps On Indian Land

Doubts Surface In Congress

By Dill Lambrecht
Post-Dispatch Washington Bureau
WASHINGTON

CHIEF GERONIMO AND Jim Thorpe came from different tribes a generation apart, but their descendants have teamed up to block storage of high-level nuclear waste on Indian land.

Some members of Congress are beginning to worry as much as the Indians that federal authorities are sniffing too close to home as they scout out space for used and dangerous nuclear-plant fuel.

The combination of defiant Indians and jittery politicians is presenting the Office of the Nuclear Waste Negotiator with its first concerted outbreak of NIMBY — Not in My Back Yard.

Geronimo's Apache tribe in New Mexico and Thorpe's Sac and Fox Nation in Oklahoma were among 15 Indian councils or native corporations that accepted the government's offer to study the storage idea. The Sac and Fox backed out recently, after pressure from Grace Thorpe, 70, daughter of the famous Indian athlete.

"Nuclear waste is not the legacy that we want to leave to our future generations — if Indians have any future generations," Grace Thorpe said.

But the proposal remains alive elsewhere in Indian country, thanks to efforts of the Office of the Nuclear Waste Negotiator and grants from the Department of Energy. Their aim is to find a home for a so-called monitored retrievable storage facility for the highly radioactive fuel from nuclear power plants. About 40,000 metric tons of that material stored at 70 nuclear power plants will become federal property in 1998.

Indian councils make up 15 of the 19 entities agreeing to study the plan. Tribes have been awarded the brunt of almost $1 million awarded by the federal government so far. If a tribe or a county agrees to take the waste, they could extract about $100 million or more over a period of years.

Despite such a bounty, many Indians have become alarmed at the process. After seeing traditional lands taken away by the government or become polluted, they view the nuclear waste proposal as a potential capstone of a century of exploitation.

Some of them, like Lance Hughes, a Creek Indian from Oklahoma and director of the Native Americans for a Clean Environment, worry that other Indians "are selling us down the river."

Critics traveled a week ago to Albuquerque, N.M., and formed the Native American Energy Network to fight the nuclear plan. Among them were Grace Thorpe and Harlyn Geronimo, great-grandson of the Apache Indian chief.

"Back when Chief Geronimo was alive, people would be shot or kicked out of the tribe if they had anything to do with desecration of the environment," said Harlyn Geronimo, 43, a sculptor on the Mescalero Apache reservation. The Apaches and Wendell Chino, their president for 25 years, are furthest along in studying the federal proposal.

At an Indian conference in Oregon next month, the nuclear waste plan is listed as the first order of business.

In addition, Congress, which gave the Office of the Waste Negotiator its power, has begun to pay closer attention. Sen. Tom Daschle, D-S.D., labeled the overtures to tribes "tantamount to bribery and the worst type of policy for the United States to be involved in. . . . My concern is that Indian people will be abused here."

Sen. Pete V. Domenici, R-N.M., irked that the Apaches have continued to plan, summoned Waste Negotiator David H. Leroy and Frederick Peso, the Mescalero Apache secretary, to a meeting in Washington this month.

"It was an important moment intended to make it crystal clear for all parties where things stand," said Ari Fleischer, spokesman for Domenici.

Domenici and other members of New Mexico's congressional delegation promise to prevent the Apaches from becoming the waste repository. Leroy knows this and told members of Congress months ago that the Apaches would not advance to late stages in the grant process unless the delegation changes its mind.

Nevertheless, on April 21, the Apaches were awarded an additional $200,000 by the Department of Energy for so-called Phase B study of the proposal, bringing to $300,000 the amount of money they have received. The next level of grants would bring them an additional $2.8 million.

The Office of the Waste Negotiator also is coming under scrutiny in the House. Rep. Wayne Owens, D-Utah, has asked the House Interior energy and environment subcommittee to hold hearings next month on the office's activities.

"I find it degrading and debilitating to think of taking other people's waste. It should stay where it is," said Owens, who is a candidate in his party's primary for the U.S. Senate.

Such attitudes could be putting Congress on a collision course with self-governing Indian tribes, who expect to deal with the United States on a government-to-government basis. Congress is supposed to consider what Leroy negotiates.

The Mescalero Apaches, especially, believe that they are well within their rights to proceed. "We can't help it that some people are opposed to it," said Peso, the tribal secretary.

In dealing with tribes, the federal government might succeed in minimizing red tape and dissent down the line, because tribes often are governed in authoritarian, undemocratic ways. In Grant County, N.D., by contrast, voters recalled commissioners this year after they had accepted a $100,000 award to study the plan.

Peso declined to say whether the Mescalero Apache tribe would submit the proposal to its 3,000 members for a vote if it decides to pursue the project.

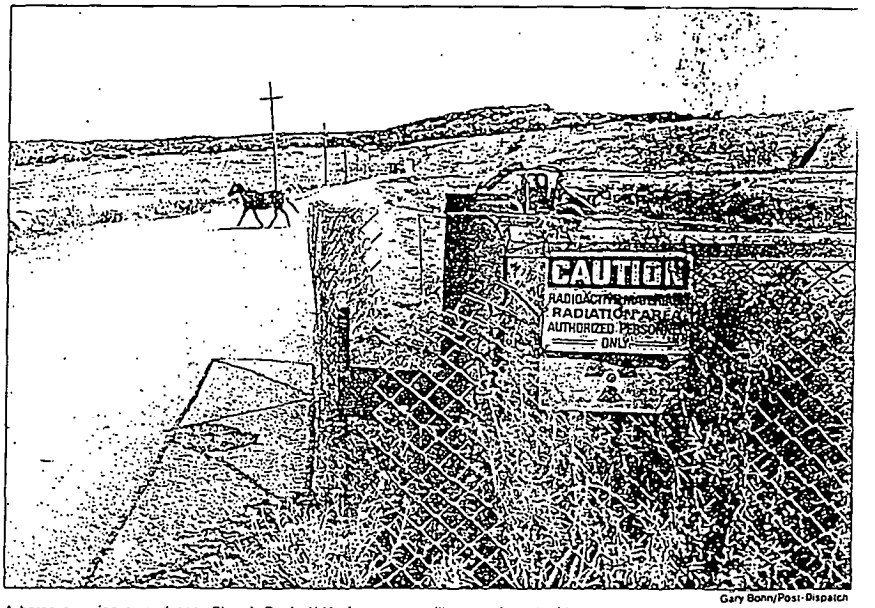
For now, the Mescaleros are content to collect government money that comes from utility ratepayers and pass it on to consultants and public relations advisers. Among the consultants hired is Miller Hudson of Colorado, the former Denver Democratic chairman. In a telephone interview, Hudson blamed "alleged Indian groups and professional Indian objectors" for opposition.

"Clearly, the tribe thinks this still might happen," he said.

Despite the developing clouds, Leroy asserted that his mission was off to a "very, very strong beginning." In addition to the tribes and counties publicly studying the proposal, others are doing so privately, he said.

Leroy, 44, a former attorney general from Idaho who was almost elected governor in 1986, disputes those who say he is targeting Indians and speaks cynically of growing opposition.

"We don't fear NIMBY, and we don't feel NIMBY is bad; we feel like it's a natural process. Our challenge is to use that emotion for involvement and participation," he said.



Gary Bonn/Post-Dispatch

A horse crossing a road near Church Rock, N.M., in an area still contaminated with low-level radiation from a uranium mine disaster in 1979. In the spill, 94 million gallons of contaminated water flowed onto Navajo grazing land.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page

Curbs On Waste Struck Down

Supreme Court Rules Against 2 States On Restrictions On Dumpig

WASHINGTON (AP) — The Supreme Court made it more difficult in two decisions Monday for states to keep out garbage and hazardous waste from other states.

The court voted 8-1 to strike down a disposal fee that Alabama has imposed on out-of-state hazardous waste while exempting such waste generated within its borders.

By a 7-2 vote, the justices invalidated a law in Michigan that barred private landfill operators from accepting solid waste generated anywhere but in the county where a dump is located.

The court said both states had unconstitutionally interfered with interstate commerce.

Alabama has imposed the fee on out-of-state waste shipped to the nation's largest hazardous waste dump, a privately owned site near Emelle, Ala.

The court said Alabama may not charge a $72-a-ton fee on hazardous waste shipped from outside the state if the same fee is not charged for in-state hazardous waste.

"No state may attempt to isolate itself from a problem common to the several states by raising barriers to the free flow of interstate commerce," Justice Byron R. White wrote for the court.

The court said state officials should have considered "less discriminatory alternatives," such as "a generally applicable per-ton additional fee on all hazardous waste disposed of within Alabama or a per-mile tax on all vehicles transporting hazardous waste across Alabama roads, or an even-handed cap on the total tonnage landfilled at Emelle."

Chief Justice William H. Rehnquist was the sole dissenter.

The decision was a victory for Chemical Waste Management Inc., which is based in Illinois and runs the Emelle facility.

OTHER SUPREME COURT ACTION

The Supreme Court took action Monday in other areas:

- **Redistricting:** The court agreed to study a tangled legislative redistricting battle in Ohio, a dispute that could lead to an important ruling on minority voting rights. The court will consider reinstating for the rest of this decade a redistricting plan adopted by a Republican-controlled board for the Ohio General Assembly.
- **Holocaust Suit:** The court refused to kill a suit against Jewish groups and Los Angeles officials accused of preventing a man who claimed the Holocaust was a hoax from taking part in a library conference.
- **Racketeering:** The court rejected an appeal by Minnesota consumers who accused Northwestern Bell Telephone Co. of racketeering by bribing public officials to secure phone rate increases. The court, without comment, let stand a ruling that said the company is shielded from such allegations by a doctrine aimed at protecting the independence of agencies setting public utility rates.
- **Labor Bargaining:** The justices rejected an attempt by the Chicago Tribune Co. to avoid bargaining with a union that the newspaper accused of racial bias.
- **Nuclear Shipments:** The court rejected an Idaho challenge to the shipment into that state of spent nuclear fuel from a now-inactive reactor in Colorado. The justices rejected arguments that shipping the waste from Fort St. Vrain, Colo., to the Idaho National Engineering Laboratory in the state's south-central desert area violated federal law.

The justices told the Alabama Supreme Court to determine what remedy Chemical Waste Management should receive, raising the possibility that refunds could be ordered.

Writing for the court in the Michigan case, Justice John Paul Stevens said the state law was prohibited under a Supreme Court ruling of 1978.

In it, the court barred New Jersey from discriminating against out-of-state solid waste — garbage — by banning its shipment into the state.

The 1988 Michigan law barred counties with privately owned and operated landfills from accepting ny solid waste generated outside ie county. The law, Stevens said, effectively authorized "each of (the state) 83 counties to isolate itself from ie national economy."

The law must fail "in view of he fact that Michigan has not identified any reason, apart from its origin, why solid waste coming from outside he county should be treated differetly from solid waste within the county," the court said.

Rehnquist and Justice Harry A. Blackmun dissented.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page

Illinois Town Is Expected To OK Nuclear Dump

By Daniel R. Browning
Of the Post-Dispatch Staff

The city of Martinsville, Ill., is expected to sign an agreement Wednesday to allow the construction of a site for low-level radioactive waste in exchange for at least 100 permanent jobs, a new water system, price supports for local crops, products and real estate, and other economic incentives valued at more $2.2 million a year.

Thomas W. Ortciger, director of the Illinois Department of Nuclear Safety, said in a telephone interview Monday that the final draft of the 36-page agreement would be presented to the Martinsville City Council.

"My indication, based on the way they had us write it up, with all their signature [lines] in place, was that they will sign it," Ortciger said.

Martinsville Mayor Truman Dean was quoted in a press release prepared by Ortciger's office as saying the proposal "gives the city the oversight we need, and will help us build a better city of Martinsville for future generations."

A copy of the document was obtained by the Post-Dispatch. It lists the prime contractor as Chem-Nuclear Systems Inc.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page

1-25-92 8-A

U.S. Cancels New Nuclear Warheads

$1 Billion May Be Saved

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WASHINGTON — President George Bush's administration has decided to cancel production of the only nuclear warhead that had remained on the U.S. military's order books, halting the nation's nuclear bomb-building indefinitely, senior U.S. officials disclosed Friday.

The decision, scheduled to be announced Wednesday by Energy Secretary James D. Watkins, reflects what the officials described as waning concern about the nuclear threat to the United States and a desire to cut defense expenditures further.

The officials said the move to cancel production of the warhead, known as the W-88, was consistent with other recent steps to shrink the nation's nuclear weapons production complex. They said some of the savings, estimated at more than $1 billion, was likely to be shifted to cleaning up environmental damage wrought by decades of nuclear bomb-building.

No U.S. nuclear warheads with new triggers have been manufactured since July 1990. Experts said cancellation of the W-88 marked the first time since the dawn of the nuclear age that the United States had no warheads in production, on order or under development.

The officials said the move would lead to a partial shutdown of the nuclear weapons plant at Rocky Flats, Colo., outside Denver, where plutonium triggers for the warhead were to have been made later this year.

The government has spent more than $1 billion since 1989 to repair environmental and safety problems there in the expectation that nuclear warhead manufacturing would resume.

Watkins said last month that "we've just about identified the (W-88) . . . as the only thing left for Rocky Flats to do." But officials said Friday that some of the plant's operations, not directly tied to production of plutonium triggers, would proceed amid cutbacks there of more than 1,000 workers.

The W-88 was developed by Los Alamos National Laboratory, under Energy Department supervision, for use with the Trident II ballistic missile deployed aboard strategic submarines. It has a nuclear explosive force equivalent to 475,000 tons of TNT, compared with 15,000 tons packed by the U.S. atomic bomb that was dropped on Hiroshima.

Officials said an existing, much less powerful warhead known as the W-76 now would be used on missiles slated for deployment aboard strategic submarines.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 1/25/92 Page 8-A

THE U.S. DEPARTMENT OF ENERGY INVITES INTERESTED CITIZENS TO A PUBLIC MEETING for the ENVIRONMENTAL REVIEW AND ANALYSIS OF THE ST. LOUIS SITE

7:00 p.m., Tuesday, January 28, 1992
Berkeley Senior High School Auditorium
8710 Walter Avenue
Berkeley, Missouri

The U.S. Department of Energy (DOE) will hold a public meeting on January 28 to receive public comments on environmental studies of three radioactively contaminated sites in the St. Louis area.

Known collectively as the St. Louis Site, the three separate sites are designated for cleanup by DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP). The sites are located in an industrial area in downtown St. Louis, on land adjacent to the Lambert-St. Louis International Airport, and on property located on Latty Avenue in Hazelwood.

The public meeting is an opportunity for residents living in these communities, as well as other interested parties, to participate and comment on the ongoing environmental studies. The meeting will be held in the auditorium of the Berkeley Senior High School, 8710 Walter Avenue, Berkeley, Missouri. The meeting will begin at 7:00 p.m.

FUSRAP is responsible for identifying and restoring sites contaminated with radioactive materials resulting from the early years of the nation's atomic energy program. Contamination at the St. Louis Site resulted from uranium processing and waste management activities from the 1940s through the 1970s.

DOE's Remedial Investigation/Feasibility Study (RI/FS) is a key step in the cleanup process. The RI/FS is intended to determine the nature, extent, and environmental impacts of existing contamination. The RI/FS will also identify and evaluate a variety of cleanup alternatives, ranging from *no action* to *onsite* or *offsite disposal* of contaminated materials.

DOE's environmental studies will combine the regulatory requirements of the National Environmental Policy Act (NEPA) and the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act (CERCLA/SARA). The environmental impact statement requirements of NEPA will be addressed in the RI/FS documentation.

The St. Louis Site RI/FS is scheduled to be completed in 1995. Before a cleanup alternative is selected, DOE will provide the public an opportunity to comment on the proposed action. Under the provisions of a Federal Facilities Agreement between DOE and the U.S. Environmental Protection Agency (EPA), the selected cleanup alternative must be approved by EPA.

Individuals and organizations may submit oral or written questions or suggestions at the January 28 meeting. Anyone wishing to speak at the meeting may either sign up during registration, send a written request to the following address, or call the toll-free number listed below:

Lester K. Price, Director
Former Sites Restoration Division
U.S. Department of Energy
Oak Ridge Field Office
P.O. Box 2001
Oak Ridge, TN 37831-8723
(615) 576-0948 or 1-(800) 253-9759

Written requests to speak at the meeting should be received at the above address by January 22, 1992. Written comments pertaining to the meeting should be submitted to the above address not later than February 7, 1992.

Background information on the St. Louis Site is available in the *Work Plan for the Remedial Investigation/Feasibility Study-Environmental Impact Statement for the St. Louis Site*. Copies of this work plan and other documents related to the St. Louis Site are available to the public in the information repositories and administrative record files located in the Government Information section of the St. Louis Public Library, 1301 Olive Street, St. Louis, Missouri 63103; the St. Louis County Library-Prairie Commons Branch, 915 Utz Lane, Hazelwood, Missouri 63042; and the DOE Public Information Office, 9200 Latty Avenue, Hazelwood, Missouri 63042.

St. Louis Post Dispatch Wednesday, January 15, 1992 Section 3, Page 1

The Energy Department Bungles Again

Two years ago, the Savannah River nuclear weapons plant spilled small but dangerous amounts of tritium into the river. The Department of Energy admitted at the time that it needed to develop a more effective way to monitor potential leaks. But last month, yet another tritium spill occurred — because the monitoring system failed yet again.

Energy Secretary James D. Watkins, who authorized restarting the plant's K Reactor after nearly four years of cleanup and repair, has now temporarily delayed its resumption while a new system for monitoring leaks is put in place. But given the department's record, why should anyone trust that the new system will be any better than the old one?

In fact, the source of the trouble was old-fashioned human error. While the tritium leaked because of defective heat exchangers within the reactor, the 150 gallons of highly radioactive tritium that spilled into the Savannah River went unnoticed for days because the employee responsible for testing the water was out with the flu. There was no back-up employee. As a result, a utility downstream and two food companies had to close their drinking water intake systems.

Secretary Watkins' new monitoring equipment may turn out to be only as good as the engineers who oversee the machinery itself — and the department's record in that regard has been poor for decades. The Savannah tritium plant had to be shut down several years ago for massive repairs because of the enormous contamination that existing monitoring procedures had failed to prevent.

Why restart the plant at all? The need for a massive nuclear arsenal has ended with the demise of the Cold War. In any case, enough tritium is on hand to last three to four years, and extracting tritium from deactivated warheads could extend the supply. The administration should address the need for restarting the plant before it lets the Energy Department experiment yet again with systems for monitoring leaks that never quite seem to work.

Editorials 2C
1-16-92

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 1/16/92 Page 2C

HN 8/12

DOE preparing for lab-site cleanup

By RAYMOND FAZZI
Home News staff writer

NEW BRUNSWICK — The U.S. Department of Energy will be taking soil from the site of a former Jersey Avenue nuclear chemistry lab this week to prepare for an environmental cleanup.

It will still be years, however, before the industrial property is cleansed of the low-level radioactive material that is contaminating the soil.

"The actual cleanup is a ways down the road. It probably wouldn't be until the end of this decade," said Steven Liedle, a project manager in Oak Ridge, Tenn., who will be overseeing the work for the DOE.

The site of the cleanup is 906 Jersey Ave., a five-and-a-half-acre piece of land near Triangle Road that was used for a nuclear chemistry laboratory between 1948 and 1977. The lab was demolished and decontaminated between 1981 and 1983, but officials say there are still contaminants at the fenced-in site that emit low-level radiation.

City Business Administrator Gregory Fahrenbach, who has been updated on the DOE's cleanup, said that as the situation has been described to him, a person who camped out overnight in a tent on the worst section of the site would be exposed to the same amount of radiation as someone flying from New York City to Los Angeles.

Yet an early DOE estimate of the cleanup puts the total project cost at $18.4 million, much of which would involve the removal of tainted soil at the site.

Liedle said the cleanup is not expected to tak place until the latter part of the decade, because th New Brunswick site is not considered to be a threat t the community, and because the DOE has still n established a national facility for the disposal of radi active wastes. The site is in the city's industrial zon and not in the immediate vicinity of any residences.

"The material that's on that site right now do not represent an imminent health risk to anyone o the site or anyone adjacent to the site," he said.

Five sites in N.J.

Susan Crange, the DOE's New Jersey site manag er, said the department is responsible for cleaning u 33 sites across the nation, including five in New Je sey. One of these sites is the former Middlesex Sam pling Plant, a Middlesex site that was used for sam pling, weighing and storing uranium ores between 19 and 1963.

The other sites are in Maywood, Wayne and th Deepwater section of Pennsville, Salem County Crange said.

Liedle said radiological testing was done at th site when the lab was demolished in the early 1980 and the samples taken from the New Brunswick si this week are for a "broad sweep" of laboratory tes that will determine if there is chemical contaminati of the soils.

The work is expected to take several days and w involve some drilling work by crews clad in protecti clothing, officials said.

Weight Loss Surprises Researchers

WASHINGTON – A nutrition organization was hopeful that a nutritionally complete "hi-tech" food tablet would help erase world hunger problems, until a study revealed that one of the ingredients could cause significant weight loss.

Although other studies and scientists may not agree, researchers in Europe found that the ingredient, a natural plant colloid, actually caused people to lose weight, even though specifically instructed not to alter

Director's portrait joins predecessors

By TED SERRILL
Home News staff writer

NEW BRUNSWICK — A photograph of Middlesex County Freeholder Director Ronald Roman of Metuchen was unveiled yesterday at a 6 p.m. reception conducted in

"For the first time in 62 years, we have a portrait of a Republican

Cancer Cause Not Found In EPA Test

By Robert Kelly
Of the Post-Dispatch Staff

No toxic PCBs have been found in soil tests conducted by the federal Environmental Protection Agency in the Alta Sita neighborhood in East St. Louis, an EPA official said Tuesday.

A community activist has said he feared an apparently high rate of cancer in the neighborhood was linked to chemical contamination from an abandoned industrial site.

Even so, Brad Benning, an emergency response coordinator with the EPA, said Tuesday that tests conducted by his agency on soil taken from around six homes in the neighborhood had found no trace of PCBs.

He said earlier this month that some ground water at the old Lanson Chemical Co. plant site had been contaminated with PCBs, but that contamination appeared to be contained on the site and had not leaked into the surrounding neighborhood.

He said he could not explain why the rate of cancer might be much higher in the area near the Lanson plant, at Piggott Avenue and 31st Street.

A community activist, the Rev. Buck Jones, said Tuesday that he had some doubts about the EPA's soil testing. "I'm really not convinced that there's not a serious problem there," Jones said.

He said a recent survey of the neighborhood done by volunteers for his Project HOPE organization indicated that 22 people who lived on just one block near the plant site had died of cancer in 10 years.

He said the survey also showed that 42 percent of the residents of the Alta Sita neighborhood who participated had indicated that at least one family member had developed cancer.

Jones has speculated that the incidence of cancer was caused by toxic PCBs leaking from the abandoned industrial site.

In June, the U.S. EPA began an emergency cleanup of a recent spill of hazardous resin and PCBs at the Lanson plant site. That spill was said to have been caused by vandals.



Ted Dargan/Post-Dispatch

Workers standing outside the Mallinckrodt chemical plant near downtown where a cloud of escaping chlorine gas injured five people early Friday.

5 Injured By Chlorine Gas Leak At Plant

By Margaret Gillerman
Of the Post-Dispatch Staff

A cloud of escaping chlorine gas at a Mallinckrodt chemical plant near downtown injured five employees early Friday and forced the evacuation of about 30 to 40 workers at the plant.

This was the 24th time the city Fire Department responded to an accident at the plant this year, said Fire Capt. Ralph Break. Last year, the department responded to calls at the plant 18 times. The plant, which has about 1,000 employees, is on Mallinckrodt Street and Broadway.

Break said that while the chemical release Friday was "the largest in recent memory" at the plant, it posed "no threat to the community outside the plant."

"I don't want to be alarmist — the vast majority were insignificant releases — but we requested Mallinckrodt notify us of all spills because we're responsible for public safety," said Break.

The gas leaked Friday from a valve on a one-ton cylinder that stores the chemical, he said. Mallinckrodt uses the chlorine in making pharmaceuticals.

Break said the chlorine gas was washed out of the air with water sprays after the gas settled. Because chlorine gas is heavier than air, it seeks low spots and stays in those spots rather than spreading throughout the neighborhood, he said.

About 40 city firefighters helped Mallinckrodt's own fire department. They were able to contain the gas and cap the leak within a half hour, Break said.

Keith Pickett, the company's director of communications, said that Mallinckrodt maintains its own fire department on the site and that the company's firefighters work very closely with the city. He said that very few of the calls to which city firefighters had responded to were emergencies.

The five workers injured Friday were taken by ambulance to Barnes Hospital. Four were in stable condition and remained for observation at least through Friday, said Pickett. A fifth person had some respiratory difficulties and was admitted to the hospital for a longer stay, he said.

Denver Holt, area director in St. Louis for the U.S. Occupational Safety and Health Administration, said his agency was investigating the accident.

Sat., Sept. 19, 1992 Pg. 3A St. Louis Post Dispatch

Law Group's Study Shows EPA Action And Fines Lessen In Non-White Areas

WASHINGTON (AP) — The government moves more slowly and imposes lesser penalties against polluters in minority communities, a published report said Sunday.

The National Law Journal reported that penalties imposed by the Environmental Protection Agency and the speed in which the problems of hazardous-waste sites are addressed varied widely, depending on whether the communities involved were populated by whites or by minorities.

The publication outlined its findings after examining thousands of environmental lawsuits filed by the U.S. government over the last seven years, as well as administrative enforcement actions by the EPA and the agency's record in dealing with 1,777 Superfund toxic-waste sites.

EPA officials could not be reached for comment.

Among the publication's findings were:

■ Penalties under the hazardous-waste laws were as much as 500 percent greater at sites in largely white communities than at sites in largely minority neighborhoods.

"The average fine in areas with the greatest white population was $333,556 versus $55,318 in areas with the greatest minority population," the report said.

■ The differences were not so dramatic for penalties involving other pollution laws, but fines still were on average 46 percent greater in largely white communities than in minority areas.

■ Under the Superfund law, hazardous-waste sites in largely minority areas took 20 percent longer to be placed on a national priority action list than sites in largely white areas. The start of Superfund cleanup efforts also generally were delayed longer in minority areas.

■ The EPA more often chose less-preferred methods of dealing with hazardous-waste sites when the sites were in minority areas.

For example, the report said, the so-called containment method of dealing with a hazardous-waste site was used 7 percent more frequently in minority communities than in largely white communities. The so-called treatment procedure, where wastes would be eliminated altogether, was used 22 percent more often in sites in white communities.

"The life-threatening consequences of these policies are visible in the day-to-day struggles of minority communities throughout the country," the report said.

The National Law Journal is the most widely distributed general-interest publication for lawyers in the United States.

St. Louis Post Dispatch Monday, 9-14-92 Pg. 6A

ST. LOUIS POST-DISPATCH
'OUIS/SAT'
SATURDAY, AUGUST 15, 1992

St. Charles Firm Fencing Off Area With Tainted Soil

By Susan K. Brown
Of the Post-Dispatch Staff

St. Charles Metal Finishing Co. is fencing off a block of overgrown hillside where the U.S. Environmental Protection Agency has found hazardous levels of metals in the soil.

The fence will keep people out until the area can be cleaned, said Ruben B. McCullers, a scientist who headed EPA testing at the plant.

Metals detected in the soil include lead, chrome, cadmium and antimony, McCullers said Thursday. In May, the EPA collected samples from the soil and from old drums at the metal finishing company.

The hillside lies behind the plant in an industrial area along an unpaved stretch of Fifth Street north of Olive Street in St. Charles. Old beer cans and trails show that people use the hillside, even though it is full of poison ivy. Other parts of the plant also have high levels of hazardous materials, but they have been fenced, McCullers said.

St. Charles Metal Finishing so far has agreed to meet the cost of the cleanup, but negotiations are still going on with the company and officials from St. Charles, McCullers said. "We're trying to draw the line on how clean is clean," he said.

J. Quince Parker, who founded the company in a garage in 1966, declined to comment Friday on the cleanup.

As a finisher of aircraft parts, the company generated many kinds of hazardous waste. It was fined $8,750 by the Missouri Department of Natural Resources after an inspection in September 1990 turned up repeat violations of hazardous-waste regulations.

In May, three of Parker's sons, who run the company, were sentenced to prison after the company falsified inspection reports for parts used on 1,000 fighters built by McDonnell Douglas Corp.

During the federal investigation of the company, the U.S. attorney's office notified the EPA that the old drums were on the property, said Dale Armstrong, an EPA spokesman.

Deal Worth $43 Million To Wetteraus

By Jerri Stroud
Of the Post-Dispatch Staff

The Wetterau family will receive at least $43.9 million for its stock in Wetterau Inc. when the company merges with SuperValu Stores Inc., according to documents filed recently.

The Wetterau family founded the company in 1869, and Wetteraus have led the company throughout its 123-year history. Ted C. Wetterau, the current chairman and chief executive, is a grandson of the founder.

Wetterau and SuperValu, two giant food distributors, plan to merge in October, pending approval by shareholders and federal regulators. SuperValu will pay Wetterau shareholders $30.25 a share, a total of $1.2 billion, for their stock.

Wetterau directors and officers, including the family members, will receive $120 million for their 3.97 million shares, which represents about 7.6 percent of the shares outstanding.

The stock holdings and certain payments to officers and former directors are listed in the company's Form 10K annual report, which was filed this month. Wetterau and SuperValu signed a definitive agreement to merge on July 27.

The documents also show that:

- One Wetterau executive will retire with a special pension payment of more than $6 million before the merger becomes effective.
- The company paid more than $9 million to a trust controlled by a former director in April, about two months before the merger was announced on June 9.

The report shows that Wetterau family members own 1.45 million shares either individually or as beneficiaries of various trusts. Together, those shares are worth $43.9 million.

Ted C. Wetterau, chairman and chief executive, owns 646,478 shares outright plus 6,170 shares held through an employee stock plan. In addition, he has voting power over 404,206 shares held in a trust for his mother. His wife, Helen, owns 87,506 shares.

The total comes to 1.144 million shares or 5.3 percent of Wetterau's stock, worth $34.6 million in the merger.

Wetterau's two sons, T. Conrad Wetterau and Mark S. Wetterau, are both corporate officers. Conrad Wetterau, senior executive vice president, owns 141,299 shares worth $4.2 million. Mark Wetterau, who is president and chief operating officer, owns 146,649 shares worth $4.4 million.

In addition, Conrad and Mark Wetterau are beneficiaries of a trust that owns 18,112 shares worth $548,000. Their sister, Elizabeth Wetterau Harbison, also is a beneficiary of the trust.

Other significant shareholders listed in the report are Metropolitan Life Insurance Co., which owns 2.42 million shares or 11.4 percent of the stock, and the Wetterau employee stock plan, which owns 2.27 million shares or 10.7 percent. Metropolitan's shares are worth $73.2 million. The stock plan shares are worth $68.7 million.

John B. Higdon, a director and former employee, owns 939,994 shares or 4.4 percent of the stock. His shares are worth $28.4 million under the merger agreement.

The merger agreement says that Ted Wetterau will stay on with SuperValu for a couple of years as vice chairman and a director.

But little has been said about the future of other corporate officers and directors. Analysts and other observers believe that the corporate staff of 300 is most vulnerable to layoffs after the merger.

At least one officer plans to leave

See WETTERAU, Page 8

Wetterau, Inc. Officers

Shares owned, 1992 salary and stock options

Officer and title	Ted C. Wetterau — chairman and chief executive	Robert E. Crutsinger — vice chairman	Robert E. Mohrmann — vice chairman	Robert J. Livingston — executive vice president, chairman of Hazelwood Farms Bakeries	William H. Moran Jr. — first vice president (1978 photo)
Shares owned	1,144,360	164,956	205,727	97,863	118,648
Value	$34.62 million	$4.99 million	$6.22 million	$2.96 million	$3.59 million
Stock options	0	6,000	10,002	4,500**	3,000
Salary	$1.035 million	$350,000	$509,000	$341,000	$284,246

* Fiscal year ended March 28, 1992, options granted at $14.50 a share.
** Livingston also gained $200,441 on options exercised during the year. No other officers exercised options in the fiscal year.

Source: Wetterau, Inc. reports

Post-Dispatch graphic

Wetterau

From page one

the company before the merger occurs, the report shows.

Robert K. Crutsinger, vice chairman, will retire on his 62nd birthday, Sept. 2. Under Wetterau's supplemental pension plan, Crutsinger will receive $6.2 million as a lump sum when he retires. The payment was included in a footnote in the 10K report.

The supplemental pension plan covers only Ted Wetterau, Crutsinger, Robert E. Mohrmann, who also is a vice chairman, and Robert J. Livingston. Livingston is executive vice president and chairman and chief executive of Hazelwood Farms Bakeries Inc., a Wetterau subsidiary that makes frozen dough and baked goods for supermarkets.

The supplemental plan provides for a lump-sum payment as soon as possible after the covered employee leaves the company. Payments are based on an employee's service with the company and the employee's monthly salary.

As of March 28, the present value of the four executives' benefits under the supplemental plan was $10.7 million.

In addition to the supplemental plan, Crutsinger will be eligible for regular pension benefits of at least $125,000 to $250,000 a year, according to a table of estimated retirement benefits in the annual report. Crutsinger has been with the company for 22 years.

In another matter, the report says the company paid $9.15 million on April 1 to redeem 339 preferred shares owned by a trust for its former director, Raymond A. Bartolacci and his wife, Emily R. Bartolacci. The price does not include accrued dividends on the shares, which the company also paid.

Raymond Bartolacci was chairman of Laneco Inc., a regional retailer that Wetterau bought in 1983. He retired from Laneco in 1990 and left the board last year.

St. Louis Post-Dispatch 8/16/92 P. 2D

Toxic Liquid Spills At Warehouse; No Injuries

Most of the contents of two 55-gallon drums containing a toxic, inflammable liquid were accidentally spilled Saturday on the concrete floor of a warehouse at Mallinckrodt Specialty Chemicals Co., 3600 North Second Street, the St. Louis Fire Department reported.

The drums were inadvertently punctured by a forklift about 10 a.m. No one was injured, and there was no evacuation, a company spokesman said.

He said the spilled chemical, fluoro-aniline — an intermediate agent used in the manufacture of other chemicals and toxic to the eyes and mucous membranes if inhaled — was contained and cleaned up by the plant fire department. Several city Fire Department vehicles responded and stood by but were not needed, according to the department spokesman, Capt. Ralph Break.

ST. LOUIS POST-DISPATCH

ST. LOUIS/TUESDAY

• TUESDAY, AUGUST 11, 1992

Hazardous Waste Cleanup Under Way Near Downtown

By Tim Bryant
Of the Post-Dispatch Staff

The Environmental Protection Agency began Monday to remove about 1,000 barrels of hazardous waste from a condemned building just north of downtown St. Louis.

The building is in an industrial area, although a supermarket is about two blocks away. An EPA official said his main concern was that the waste could ignite.

Removal of the metal barrels will begin this week, said Donald Sandifer, an engineer from the EPA's regional office in Kansas City, Kan.

The drums are stored inside a brick building in the 1500 block of Hadley Street. Fire heavily damaged the two- and three-story building twice last year; city officials condemned the structure in March 1991.

Workers entered the building to put plywood on floors weakened by fire and water. Barrels of waste will be stored temporarily on a vacant lot just west of the building.

The government will complete the cleanup and then try to recover the expense from Neese Coated Fabrics Inc.

Sandifer said the government would complete the cleanup and then — under authority of the federal Superfund law — try to recover the expense from Neese Coated Fabrics Inc.

Cleanup work is to be done by Riedel Environmental Services Inc. Sandifer estimated the job could cost more than $1 million.

Documents that have been filed in U.S. District Court said Neese made tents and other equipment at the site until Jan. 10, 1991.

Waste material at the site includes toluene, ketone, xylene and other solvents, according to the EPA. The waste is stored in barrels and vats.

Steve Schrang, identified in court documents as the president of Neese, was unavailable for comment.

Sandifer said the EPA began investigating at the request of the Missouri Department of Natural Resources.

In April, department workers sampled the waste and found that it could catch fire. Many of the drums were deteriorated, court records said.

No evacuation of neighborhood residents will be necessary unless fire breaks out again at the Neese site, Sandifer said.

Neese owns the southern portion of the site and leased the northern part from Hadley Street Development Co., officials said.

Officials of the development company are negotiating with the government over paying for part of the cleanup. Neese did not respond to the EPA's request about payment, Sandifer said.



Wendi Fitzgerald/Post-Dispatch

Donald Sandifer, an EPA engineer, inspecting drums of hazardous waste on Monday that are being removed from a condemned building in the 1500 block of Hadley Street.

Toxic Waste Incinerator Is Safe, EPA Says

8/1/92

MARION, Ill. (AP) — The U.S. Environmental Protection Agency is defending the safety of plans for a toxic waste incinerator about three miles from Marion.

Schulmberger Corp., which is responsible for the cleanup of PCBs in Crab Orchard National Wildlife Refuge, wants to build the incinerator as a means of destroying the toxic chemicals.

At a meeting Wednesday night, area residents questioned the safety of the incinerator. But EPA spokeswoman Mary Logan said the incinerator would be safe and the most effective method of disposing of the 30,000 cubic yards of contaminated soil.

P. 5A

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 8-1-92 Page 5A

ST. LOUIS POST-DISPATCH

SUNDAY, JULY 26, 1992

Lobbyists Are Too Powerful, Mehan Asserts

By Tom Uhlenbrock
Of the Post-Dispatch Staff

G. Tracy Mehan III, who resigned last week as Missouri's top environmental official, says the state suffers because veteran legislators spend too much time listening to lobbyists instead of constituents.

Mehan quit to take a position as associate deputy administrator of the U.S. Environmental Protection Agency. He will begin his new job on Monday.

"They are more receptive to lobbyists, who are there day in and day out."

G. TRACY MEHAN III
Leaving for Washington

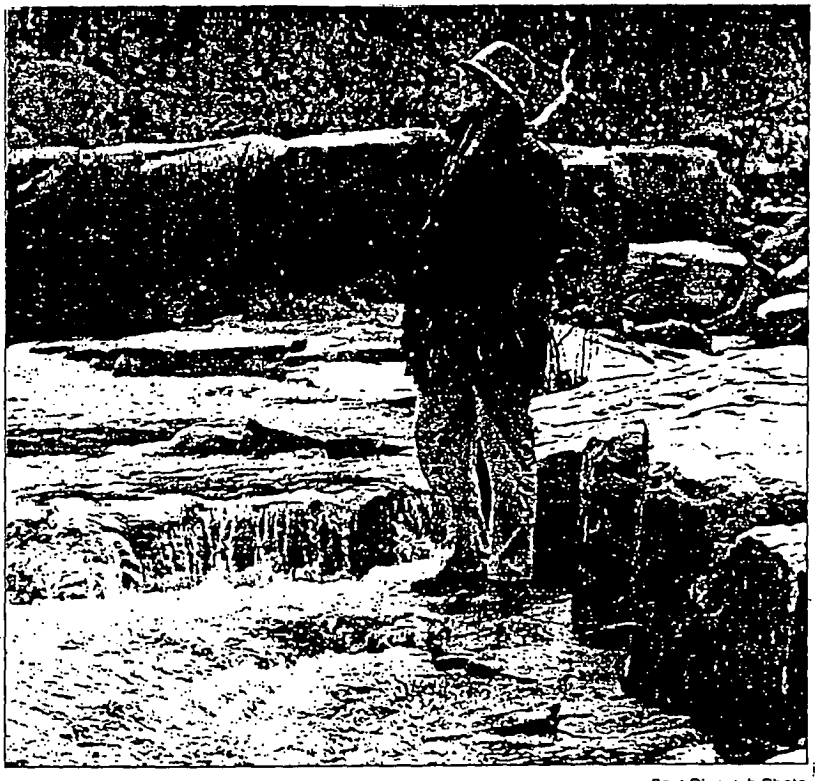
In an interview before he left for Washington, Mehan said he favored limits on the number of terms a legislator could serve.

"We have a system made up of long-tenured legislators, who are insulated from public input," he said. "They are more receptive to lobbyists, who are there day in and day out, year in and year out."

Mehan often butted heads with lawmakers during his four years as director of the Missouri Department of Natural Resources.

"The fact is, you've got entrenched committee chairmen,

See MEHAN, Page 3



Post Dispatch Photo

G. Tracy Mehan III, former director of the Department of Natural Resources, in Pickle Creek at Hawn State Park. Mehan, who resigned last week, says the state suffers because legislators listen more to lobbyists than to constituents.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 7/26/92 Page

Mehan

From page one

entrenched leadership — these people are not going to go away," Mehan said.

"I've come to the conclusion that the only way to change this is term limits on state legislators and national legislators as well."

State Sen. Roger B. Wilson of Columbia, a Democrat who has served 13 years in the Senate, said in response: "I think Mr. Michel would be interested in hearing that."

Wilson said he was referring to Rep. Robert H. Michel, R-Ill., who is in his 18th term in Congress and has served as the minority leader.

"I would encourage Tracy to contact him directly after he gets to the EPA," Wilson said.

"Actually, I introduced a term-limitation bill twice," said Wilson. "Unfortunately, the bill made me as popular as leprosy, and it never got out of committee."

Mehan said, "When I'd go out around the state, I found high interest in environmental and natural resource issues. Yet when you come to the Missouri Legislature, it is a very low priority.

"There is an outright hostility to environmental and natural resource issues in some quarters of the Missouri Legislature."

Meban was censured by the Missouri Senate in May because of his objections to the Legislature's Joint Committee on Administrative Rules.

He said the committee had the power to veto environmental rules and regulations that it found objectionable.

Mehan said the department's mission was to protect natural resources — not to build recreational facilities.

Often, those objections are first raised by lobbyists for the businesses that would be regulated, Mehan said.

The committee, Mehan said, is "clearly unconstitutional; it's a kangaroo court. Right now, you've got a Gang of 10 who, in a relatively low-profile meeting, can undermine a whole body of regulations."

Mehan also wrangled with legislators over appropriations to expand state parks or create new ones.

Although the Department of Natural Resources has a dedicated sales tax for such purchases, it first must get legislative approval.

The department's requests were rejected last year, when one veteran legislator pushed for a golf course in his district and another argued that a man-made lake in his would make a dandy state park.

Mehan said he "jumped through all the hoops" this year to get legislative approval of the department's requests.

The problem, Mehan said, is caused by a misconception of what the department is supposed to be doing.

He said the mission is to protect the state's natural resources and not to build recreational facilities.

"A lot of people confuse us with municipal parks," Mehan said. "They think of the state park system and think of ball diamonds, tennis courts, things like that.

"We allow recreation, but recreation consistent with our mission as opposed to, say, putting in go-cart tracks."

Despite the differences, Mehan said, the state parks had fared well under his tenure.

"The bottom line is the Legislature has added 7,000 acres since I've been here, and there's more coming down the pike from the last appropriations run," he said. "We've been successful in expanding Hawn State Park and Johnson Shut-ins despite the conflict, despite the debate."

Meban also listed among the department's recent victories the establishment of the Katy Trail and passage of the Clean Air Act and solid-waste law.

"On the unfinished side of the agenda, we're still behind the curve on drinking water." The department doesn't do as much water testing as it used to, he said, "because our department really doesn't have the resources to do adequate testing and monitoring."

Meban also pointed to so-called non-point source water pollution — the herbicides and pesticides that come from farm fields, and the heavy metals and other toxins contained in runoff from municipal areas.

"It's becoming more complex because you're not talking about point source — a pipe in the water," he said. "In the long run, water quality will be our biggest challenge."

Maine homeowners this year in- "Fi-

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 7/26/92 Page

ST. LOUIS POST-DISPATCH

WEDNESDAY, JULY 22, 1992

Mehan Quits State Job For Washington's EPA

He Ran Natural Resources Dept.



Mehan

By William Allen
Post-Dispatch Science Writer

G. Tracy Mehan III, rebuked by state senators but praised by environmentalists, resigned Tuesday as director of the Missouri Department of Natural Resources.

Mehan, Missouri's chief environmental official for the past three years, said he would join the U.S. Environmental Protection Agency in Washington.

He will begin Monday as associate deputy administrator, one of the agency's top jobs.

"The position that was offered is at a very high level in the agency," Mehan said in a telephone interview. "For good or ill, EPA drives national environmental policy, and this was an opportunity that I just could not say 'no' to."

Mehan, a lawyer and GOP activist, was appointed by Gov. John Ashcroft to head the Department of Natural Resources in 1989.

Ashcroft praised Mehan's efforts in gaining passage of the Missouri Clean Air Act, Solid Waste Law and other "major environmental achievements."

In May, the Missouri Senate issued a rare "remonstrance" — a censure — against Mehan. Some senators said Mehan was arrogant and uncooperative in enforcing the department's rules and should quit or be fired.

Mehan denied that the Senate censure had played a role in his departure.

"Politics is a contact sport," he said. "I'm a player. I enjoyed it. I'm not going to a 'lower 40' pasture here. This is probably going to be more of a firing line than I've been on to date."

In a statement announcing Mehan's resignation, Ashcroft said Mehan had been "an effective leader in a department that faces numerous and difficult challenges each day."

Mehan has done "an outstanding job of fulfilling the mandate I gave him to protect Missouri's natural resources" while reconciling that mandate with the need for economic growth, Ashcroft said.

Mehan's resignation becomes effective Friday. Ron Kucera, deputy director of the department, will serve as acting director.

Roger Pryor, executive director of the Missouri Coalition for the Environment, said, "I'm sorry to see him leave Missouri, but EPA can certainly use a shot in the arm. He set the pace for engaging communications among all sides on these issues."

Senate leaders who mounted the attack on Mehan could not be reached for comment. In May, Senate Minority Leader Tom McCarthy, R-Chesterfield, accused Mehan of running the department "ineptly" and "dictatorially."

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 7/22/92 Page 5A

S. Plant FV1

Cleanup May Need 2nd Pipeline

Way Is Sought To Discharge Treated Water Safely At Weldon Spring

By Tom Uhlenbrock
Of the Post-Dispatch Staff

The cleanup of the radioactively contaminated Weldon Spring chemical plant complex in St. Charles County may include a second pipeline to discharge treated water into the Missouri River, a Department of Energy official says.

The state already has granted a permit that allows the department to treat water from a nearby quarry and release it into the river. The quarry, which is four miles south of the plant and a short distance from the river, was used as a dump for wastes from the uranium processing.

A second water-treatment system also is being built at the plant, and originally was to discharge into a drainage ditch at the southeast corner of the site. The ditch, which normally is dry, runs a mile and a half to the river.

However, the department asked the state this week to modify its permit and allow for the possibility of building a pipeline to carry the water from the plant directly to the river.

Steve McCracken, who is managing the cleanup, said the pipeline is being considered because tests have shown the drainage ditch is contaminated with uranium. He said the uranium could dissolve and enter the treated water as it moves through the ditch to the river.

"We knew there was some uranium in the ditch," he said. "Will our discharge dissolve the uranium and pick it up and carry it downstream?"

He said further testing would be done to determine whether the uranium found in the ditch is coming from rain runoff from the plant. If it's from rainfall, the contamination would decrease once a water collection system is built at the plant site to treat runoff, he said.

"The question is whether we're getting a constant contamination or if it's left from the last rainfall, and thus would go rapidly down," McCracken said.

Once the plant site is cleaned up, the department will decide whether the ditch also should be excavated, he said. "We haven't concluded yet that the drainage is contaminated enough that would require cleanup," he said.

"It isn't clear whether that actual cleanup would be worse than leaving the contaminants alone," he said. "From a cost standpoint, it isn't any big deal to clean that valley up. But it certainly would destroy a lot of natural area."

The valley runs through the Weldon Spring Wildlife Area, which is operated by the Missouri Department of Conservation. If a pipeline is built, McCracken said, construction crews will "go out of their way to stay on existing paths, so we don't have to rip the forest up."

The Coalition for the Environment has pointed out that the release sites for the treated water are upstream from the intakes for the St. Louis City Water Division and St. Louis County Water Co.

"We still have problems whether the stuff can be treated properly to the point that it can be safely discharged into the river," said the coalition's Roger Pryor.

"One of the issues we raised before was the contamination of the ditch," Pryor said. "We wondered whether they'd clean the water and it would pick up lots of contamination in the sediment in the creek valley, negating the whole cleanup process up above."

"This seems to be confirming that," he said of the pipeline proposal. "This is probably an improvement over what they were planning to do before."

McCracken said the treatment plant at the quarry should be ready for testing with clean water next week. Testing with quarry water to determine whether the contamination is being removed could begin in September, he said.

St. Louis Post-Dispatch
7/23/92

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 7/23/92 Page

Plaintiffs In Monsanto Case Collect From Other Firms

By Robert Steyer
Of the Post-Dispatch Staff

Texas residents who received $39 million from Monsanto Co. last week to settle a legal dispute over a toxic waste site also have collected $168.5 million from other companies.

None of the companies admitted wrongdoing in settling suits filed by residents of — and workers in — a suburban Houston subdivision built near the waste site.

The biggest settlement — $128 million — was paid by Farm & Home Savings of Nevada, Mo., a savings and loan institution that financed a subdivision built near a former refinery for chemical wastes.

The settlement was revealed Thursday by Farm & Home's insurer, Crum & Forster of Basking Ridge, N.J., which will cover the full amount. Crum & Forster also is covering a $32 million settlement made by Farm & Home late last year.

The insurer said the settlement resolves claims of approximately 1,300 people. Last week, Monsanto said that its settlement and agreements made by others in the disputes covered more than 1,700 people.

Plaintiffs include homeowners, children who attended school near the waste site and people who worked at the school or the subdivision. They said the toxic wastes nearby damaged their health and hurt property values.

In addition to Monsanto, several other companies paid a total of $8.5 million to the plaintiffs. They are: Atlantic Richfield Co., Chevron Corp., Cos-Mar Co., Amoco Corp., Union Carbide Corp. and Hoechst Celanese.

Farm & Home also agreed to a $32 million payment in late 1991, according to the Houston Post. Farm & Home agreed to buy the mortgages of homeowners so they could move, the newspaper said.

Monsanto and several dozen companies sold chemical wastes to the Brio Refining Co. and several predecessor companies between 1957 and 1982. Then, the refinery went bankrupt and closed.

The Brio site was later declared a Superfund site by the Environmental Protection Agency, identifying it as one of the worst U.S. toxic dumps.

Monsanto and 20 other companies are responsible for cleaning up the Brio site, a task that Monsanto says could be completed by late 1995.

Last week, a Monsanto spokesman said companies have spent $6 million to $7 million for the clean-up. The final bill will be another $40 million to $60 million.

Monsanto will take an after-tax charge of $27 million, or 21 cents, in the quarter ending June 30 to account for the Brio settlement.

St. Louis-Post...Mon. 6/22/92

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 6-22-92 Page

St. Louis Post Dispatch Sunday, 6/21/92

Monsanto, Other Companies Settle Houston Toxic-Waste Suit

Two Missouri companies, Monsanto Co. of St. Louis and Farm & Home Savings Association of Nevada, Mo., are part of a $207.5 million settlement in Texas that is believed to be the largest ever made in a toxic-waste case.

Monsanto agreed to pay $39 million to settle suits involving more than 1,700 residents of a subdivision near Houston who contended that the company's involvement with the defunct Brio Refining Inc. toxic-waste site damaged their health and the property values of their nearby homes.

Monsanto and six other chemical firms that sold byproducts to the company also agreed to pay to clean up the site.

The $207.5 million payout is the sum of the agreement reached Thursday — just as the suit consolidating most of the claims was about to go to trial — and previous settlements with companies involved in the dispute.

As part of the separate settlement, Farm & Home and its insurer, Crum & Forster Inc., agreed to pay their homeowners $128 million, including the buyout of mortgages of 212 families still living in the subdivision, plus their moving costs and annuities to pay for the college educations of 700 children in the subdivision.

Farm & Home financed the subdivision's development.

The homeowners contended that they and their children suffered health problems, including leukemia and birth defects, after being exposed to toxic chemicals leaking from the site.

They charged that Farm & Home was negligent in failing to inform them that the subdivision was next to a toxic-waste refinery. The fate of the other 430 houses in the subdivision is uncertain.

Officials of Farm & Home could not be reached for comment.

The Brio site is on the Environmental Protection Agency's Superfund list for cleanup.

The settlement brings to a close one of the most contentious disputes in the history of the Superfund program, which was set up by Congress to clean up the nation's worst toxic sites.

The homeowners contended that they and their children suffered health problems, including leukemia and birth defects.

The $207.5 million total is the largest ever in a pollution case, according to Lois Gibbs of the Citizens Clearing House for Hazardous Waste. Residents of upstate New York's Love Canal, including Gibbs, received $20 million in 1985.

Loren Wassell, a Monsanto spokesman, said the company would have preferred to settle only on the matter of the cleanup, which he said has been estimated will cost Monsanto and 20 other chemical companies up to $60 million.

He said Monsanto admits to no wrongdoing and maintains that there was no evidence that anyone was injured by exposure to the chemicals from the Brio site.

Wassell said Monsanto wanted to avoid the costs of protracted litigation and to "get on with cleanup."

Although Monsanto won a Texas appeals court decision last month against 222 homeowners near the Brio site and four developers of a subdivision near the site, the tort system is such that the company could not apply this finding and would be required to defend itself over and over again against each new plaintiff, he said.

Monsanto admits to no wrongdoing and says there was no evidence that anyone was injured by exposure to the chemicals from the site.

The legal costs could end up nearly as much as the settlement, Wassell said.

"Monsanto concluded it was prudent to settle for a reasonable amount," he said.

Wassell said the Monsanto chemical byproducts shipped to the Brio site were refined substances from petroleum, such as styrene tars.

The other companies brought plastic and chemical wastes. By law, Monsanto as a contributor was liable with them for any toxicity, Wassell said.

The companies have already paid $6 million to $7 million toward the cleanup.

The additional $40 million to $60 million will be used to hire a waste-disposal company to build an incinerator at the site that will burn the plastic, chemical and petroleum wastes.

"There isn't any happiness in this," said attorney Joseph D. Jamail, who represented many of the families. "How can they be happy with sick children?"

The EPA contends that there is no danger to residents or to students at a nearby elementary school.

"If there were any kind of contamination problem or public health threat, we would have been the first people to call for closure of the school and other actions," said Roger Meacham, an EPA spokesman in Dallas.

But the 10-year-old school was closed in March after experts hired by the school district found health risks to the children and teachers.

And the EPA reassurances still sound hollow to parents such as Donna Black, whose son has severe illnesses she associates with the toxic dump 250 yards from their house in the Southbend subdivision.

"We couldn't, in moral consciousness, sell this house to another family," said Black. "On top of that, we couldn't afford to move because of the tremendous medical bills for our son."

Some information for this article was provided by The Los Angeles Times News Service

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 6-21-92 Page

Court Cuts Provision On Nuclear Disposal

Compiled From News Services

WASHINGTON — Striking down part of a federal environmental law, the Supreme Court said Friday that Congress cannot order states to deal with disposal of their low-level radioactive waste.

In a 6-3 ruling, the justices declared unconstitutional a provision that required states to "take title" of their own waste if they have not joined federally endorsed regional disposal compacts by 1996.

But the court upheld parts of the 1985 law providing federal incentives for states to comply with the waste disposal plan.

"We conclude that while Congress has substantial power under the Constitution to encourage the states to provide for the disposal of the radioactive waste generated within their borders, the Constitution does not confer upon Congress the ability simply to compel the states to do so," wrote Justice Sandra Day O'Connor for the court.

Environmentalists and nuclear industry representatives agreed, however, that most of the federal law had survived.

The court upheld the provision establishing regional compacts in which states with disposal sites can raise the price of dumping in their sites and eventually deny access completely to states outside the compact. So states not in the regional groups will have to find ways to deal with their own waste.

Most states formed regional compacts to build facilities. Missouri is in a compact with Indiana, Iowa, Minnesota, Ohio and Wisconsin, with Ohio as the host state for the dump site. Illinois is in a compact with Kentucky in which Illinois will be the host state.

Director of the Illinois Department of Nuclear Safety, Thomas W. Ortciger, said the court decision "strengthens Illinois' ability to prevent other states from forcing their waste on Illinois."

Gov. Mario Cuomo of New York, which had filed the suit, called the ruling a victory for all states.

Other actions by the court Friday:

Tax Collection: Ruled 6-3 in a victory for state tax collectors that the Wrigley chewing gum company must pay a Wisconsin state income tax.

Red Cross: Ruled that all suits against the Red Cross over transfusions of blood allegedly tainted with the AIDS virus must be filed in federal courts. The 5-4 decision barred a New Hampshire couple from suing in state court.

Mob Boss: Ruled 8-1, that a federal appeals court mistakenly overturned the 1988 racketeering convictions of reputed former mob boss Anthony "Fat Tony" Salerno and seven other men. The court gave prosecutors more leeway in excluding from criminal trials evidence that could favor defendants.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page

Westfall Seeks $29,600 To Test Equipment

St. Louis County Executive George R. "Buzz" Westfall is seeking County Council approval for $29,600 to test equipment used in cleaning contaminated water at the Weldon Spring quarry. Depending on what the consultant discovers, the county may spend as much as $78,600 more on further tests, an aide to Westfall said.

At issue is a plan by the federal Department of Energy to clean 3 million gallons of water contaminated with radioactive chemicals and other substances, then to discharge the treated water into the Missouri River.

Westfall's proposal calls for Anderson & Associates of Rolla, Mo., to test the equipment.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 6-19-92 Page

JUN 17 1992

Radioactive Cleanup Watch

Neighborhood Leaders Planning To Monitor Work At Old Chemical Works

By Mark Schlinkmann
Of the St. Charles Post

Community leaders in neighborhoods north of downtown St. Louis may form a new group to monitor radioactive waste from the old atomic bomb program at the nearby Mallinckrodt Chemical Works.

Representatives of North Side Concerned Citizens, the Trinity Square Association and Grace Hill Neighborhood Services met Thursday with David Adler, a U.S. Department of Energy official.

The group met in the district office of state Rep. Louis Ford, D-St. Louis.

Also present were Ford and Kay Drey of University City, who has led the fight to clean up various radioactive waste sites in the metropolitan area.

Drey noted that citizen groups in north St. Louis County had been the key to keeping the pressure on against development of a permanent storage site at Lambert Field.

Similarly, "it's got to be the people around here" who closely follow Mallinckrodt, she said.

Adler is in charge of coming up with a plan by 1995 to clean up the Mallinckrodt plant area near the riverfront and the other sites.

Drey and her allies want all the material taken out of the St. Louis area to a low-population locale.

Adler said most contaminated soil and debris at the Mallinckrodt site was low risk and not a danger to nearby residents.

He said a safety program was under way to ensure that workers in the area were aware of the danger.

"On a normal workday, you're not going to run into significant exposure opportunity," Adler said.

"The potential exists [for danger] if they ingest or inhale large quantities of soil.'

Adler said a cleanup could cost as much as $100 million.

That prompted Ford to ask: "Why spend $100 million if it's no danger?"

Adler responded: "While there is not a significant current health threat, the area is sufficiently contaminated [that] we could not walk away" from the site to allow further development.

Drey disputed Adler's comments. "I don't think it's right for you to tell people it's not dangerous," she said.

George Eberle, Grace Hill president, said he was interested in forming a new group but wanted to know first if it could have a real impact.

He asked Adler to provide a timetable for the federal agency's study.

"I don't want to get them more distressed about something they can't do anything about," Eberle said of residents.

He said he believed lead paint may be a more serious health problem in the immediate area.

In response, Drey said homes in the area near the plant might have radioactive lead paint.

ST. CHARLES POST M-F 32,000

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 6-17-92 Page

Wednesday, June 17, 1992
North County Metro Post

same article as appeared 6/12/92

ST. LOUIS

Radioactive Waste May Be Monitored

By Mark Schlinkmann
Regional Political Correspondent

Community leaders in neighborhoods north of downtown may form a new group to monitor radioactive waste from the old atomic bomb program at the nearby Mallinckrodt Chemical Works.

Representatives of North Side Concerned Citizens, the Trinity Square Association and Grace Hill Neighborhood Services met Thursday with David Adler, a U.S. Department of Energy official, in the district office of state Rep. Louis Ford, D-St. Louis.

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Drey disputed Adler's comments. "I don't think it's right for you to tell people it's not dangerous," she said.

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FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 6-17-92 Page

Warming Up To Ecoscares

The more you read and investigate to secure the truth about issues involving the environment, the more appalled you will become by all the misinformation being fed to the public by the media and environmental extremists. Nothing gets their creative juices flowing more than stories of impending catastrophes.

They overreacted and misrepresented the facts about such predicted disasters such as Alar, acid rain, asbestos, dioxin, nuclear reactor meltdowns, ozone depletion and now the latest, global warming.



There is no conclusive scientific evidence to support the theory of global warming. In fact, the opinion of the vast majority of the scientific community, along with studies by the Massachusetts Institute of Technology, can find no evidence to support this premise. Most scientific evidence I've read or heard about actually proves the opposite. Over the past 38 years we have been getting cooler, not warmer.

A paltry 13 percent of the environmental scientists say there may be evidence of global warming. The Sierra Club and other environmentalists want us to come up with $1 trillion (with our deficit problem), on a chance there may be global warming. President Bush wants to spend $1.4 billion over the next two years to study whether the scientific evidence actually supports these claims.

However, the environmental extremists seem unable to wait for the facts. Why are they so afraid to wait to see if the scientific evidence proves there is global warming?

Americans had better wake up to what is happening if they cherish their current lifestyles. If the liberals in government and these environmental groups get their way, and if treaties like those at the Rio summit are signed, our sovereignty could be in jeopardy, with the United Nations telling us what to do to clean up the environment and then make us pay the lion's share of the clean-up costs. It's time Congress learned to spend our tax dollars more wisely.

Sara Hall
St. Louis

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page

Lawmaker Alleges Dioxin Coverup

By Robert L. Koenig
Post-Dispatch Washington Bureau

WASHINGTON — The chairman of a House panel charged Wednesday that industry and government groups have engaged in a misinformation campaign to play down the dangers of dioxin, the toxic chemical that spurred the evacuation of Times Beach, Mo.

"The public has been duped by an industry propaganda campaign and a handful of federal scientists who have carried the industry's message to the highest levels of government," said Rep. Ted Weiss, D-N.Y., chairman of a Government Operations subcommittee.

Weiss alleged, "The latest scientific research indicates that [dioxin] causes even more harm than previously believed. New studies have found it not only to be [cancer-causing], but toxic to the immune system, a cause of birth defects and an inducer of unhealthful biochemical effects."

But federal environmental officials and some House members took issue with Weiss' assertions at a subcommittee hearing Wednesday. They argued that conclusions about the dangers of dioxin should not be drawn until after an ongoing scientific review is completed.

"The toxicity to laboratory animals and human health effects of dioxin remain the subject of active scientific investigation," said Barry L. Johnson, vice chairman of the

See DIOXIN, Page 10

Dioxin

From page one

Public Health Service's environmental health committee.

Johnson said, "The agencies of the Public Health Service remain concerned about the human health implications of dioxins." But he added, "There remain some critical gaps in our knowledge."

The House hearing added fuel to the scientific and policy debate over the dangers of dioxin. A year ago, Dr. Vernon N. Houk — the public health official who recommended evacuating dioxin-contaminated Times Beach in December 1982 — said that in retrospect, the move was an overreaction to assessments of dioxin's dangers.

Houk argued last year that dioxin risks to human health, especially low doses, had been exaggerated. H is the director of the Center for Environmental Health and Injury Contr at the Centers for Disease Control.

Federal regulators are now re-a sessing dioxin's risks and may consi er lifting some restrictions on exp sure to it.

But some scientists argued Wedne day that dioxin's risks may be great — not less — than previously thougl Ellen K. Silbergeld, a toxicologist ar dioxin expert, told Weiss' subcommi tee that some recent studies ha heightened her concerns about dioxi

Silbergeld argued that evacuatir Times Beach made sense in 1982 – and would be the right move today.

"Unless we devised other measure to contain dioxin under condition similar to Times Beach, evacuatic would be a prudent choice," Silbergeld said.

"Nothing we have learned since 1986 provides any scientific basis for reducing our concerns over the potential hazards" of dioxins.

Times Beach, a former town of 2,242 in southwestern St. Louis County, was bought by the government after the evacuation. Experts estimate that the cleanup of dioxin-tainted soil in Times Beach will cost about $200 million by the time it is completed in 2000.

Citing the second-guessing about dioxin's dangers and Times Beach, Rep. Rosa L. DeLauro, D-Conn., expressed concerns about "the influence of dioxin-producing industries in the decisions of federal agencies charged with protecting public health."

DeLauro argued that recent evidence "seems to indicate that dioxin standards should be strengthened — not relaxed."

But industry groups — and two Republicans on the House panel — contended that the risks of dioxin exposure had been exaggerated.

"We don't want this to be a political issue," warned Rep. Craig Thomas, R-Wyo.

Dr. Robert Wilson Morgan, an environmental health specialist, expressed "disappointment and concern about the [subcommittee's] rush to judgment regarding dioxin." He said studies of workers who had been exposed to dioxin-containing products had found no consistent health effect other than a skin condition called chloracne.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 6-11-92 Page

St. Louis Post-Dispatch

Monday, June 15, 1992

ST. LOUIS

Radioactive Waste May Be Monitored

By Mark Schlinkmann
Regional Political Correspondent

Community leaders in neighborhoods north of downtown may form a new group to monitor radioactive waste from the old atomic bomb program at the nearby Mallinckrodt Chemical Works.

Representatives of North Side Concerned Citizens, the Trinity Square Association and Grace Hill Neighborhood Services met Thursday with David Adler, a U.S. Department of Energy official, in the district office of state Rep. Louis Ford, D-St. Louis.

Also present were Ford and Kay Drey of University City, who has led the fight to clean up various radioactive waste sites in the metropolitan area.

Drey noted that citizen groups in north St. Louis County had been the key to keeping the pressure on against development of a permanent storage site at Lambert Field.

Similarly, "it's got to be the people around here" who closely follow Mallinckrodt, she said.

Adler is in charge of coming up with a plan by 1995 to clean up the Mallinckrodt plant area near the riverfront and the other sites.

Drey and her allies want all the material taken out of the St. Louis area to a low-population locale.

Adler said most contaminated soil and debris at the Mallinckrodt site is low risk and not a danger to nearby residents.

He said a safety program is under way to ensure that workers in the area are aware of the danger.

"On a normal workday, you're not going to run into significant exposure opportunity," Adler said. "The potential exists (for danger) if they ingest or inhale large quantities of soil."

Adler said a cleanup could cost as much as $100 million. That prompted Ford to ask: "Why spend $100 million if it's no danger?"

Adler responded: "While there is not a significant current health threat, the area is sufficiently contaminated (that) we could not walk away" from the site to allow further development.

Drey disputed Adler's comments. "I don't think it's right for you to tell people it's not dangerous," she said.

George Eberle, Grace Hill president, said he was interested in forming a new group but wanted to know first if it could have a real impact. He asked Adler to provide a timetable for the federal agency's study.

"I don't want to get them more distressed about something they can't do anything about," Eberle said of residents. He said he believed lead paint may be a more serious health problem in the immediate area.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 6-15 Page 7N

6/10/92

Granite City Mayor Blasts Cleanup

EPA Accused Of Strong-Arm Tactics In Plan For Lead-Tainted Soil

By Robert L. Koenig
Post-Dispatch Washington Bureau

WASHINGTON — The mayor of Granite City, Ill., accused federal officials Tuesday of using "ram-it-down-your-throat" tactics in pushing for a lead cleanup plan that he said could result in a "Mount Granite City" of contaminated soil.

Calling the federal Environmental Protection Agency "out of control," Mayor Von Dee Cruse told a House panel that the $30 million EPA plan to clean up lead waste in Granite City "will likely increase the health, social and economic risks to our community."

But EPA officials defended their plan to scrape away the top layer of soil across a wide swath of lead-contaminated land in Granite City.

The 160,000 cubic yards of soil would be added to a 20-foot-high waste pile at the old Taracorp plant. The EPA plans to cover the waste pile with soil and grass.

"We have experienced problems, but we have tried to solve them in the spirit of protecting the people who live and work in the area," said Jo Lynn Traub, associate director of Superfund waste management at the EPA's regional office in Chicago.

Rep. Jerry Costello, D-Belleville, ripped into Traub and another EPA official at Tuesday's hearing of the House Public Works Committee's investigations subcommittee. The hearing focused on problems in managing the EPA's Superfund cleanup programs at Granite City and two sites in other states.

"We cannot displace an entire community where the level of the health threat does not warrant it," Costello told Richard J. Guimond, a public health expert who is the EPA's National Superfund Director.

"The people in [Granite City] will have to live with EPA's decision for many years to come. My constituents feel that their concerns about the proposed cleanup fall on deaf ears."

Much of the hearing focused on the EPA's techniques of assessing health risks. EPA officials have warned of risks from the lead contamination near the Taracorp site. But a preliminary health study by the Illinois Department of Public Health indicated that lead problems were no worse in Granite City than in many other urban areas.

"Lead in the soil, although perhaps a contributing source in some cases, does not per se explain elevated blood lead levels in young children in the Granite City area," said Dr. Renate Kimbrough, senior medical associate with the Institute for Evaluating Health Risks.

Kimbrough said that 78 children — out of the 827 children tested in the Granite City area — showed blood-lead levels above the present level of concern. She said the "predominant sources of lead were paint in houses and lead in soil."

Lead has been found to be the cause of developmental problems in children. Costello said the Illinois study had found that children in East St. Louis had a higher accumulation of lead in their bodies than children in Granite City, most likely from lead-based paint.



Mayor Von Dee Cruse
EPA "out of control"

Guimond, of the EPA, said the health study was valuable but was only "a snapshot in time" — and did not reflect longer-term dangers from the lead contamination. "We're trying to protect people down the road," Guimond said.

Cruse takes the position that the level of lead contamination in the soil in Granite City does not warrant the action of the magnitude proposed by the EPA. He believes that normal precautions by residents can avoid health problems caused by lead.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 6-10-92 Page

ST. LOUIS POST-DISPATCH WEDNESDAY, JUNE 3, 1992

5 Agencies To Test Water At Weldon Spring Quarry

Five agencies will test treated water from the quarry at the abandoned Weldon Spring chemical plant to make sure radioactivity and other contaminants have been removed before it is discharged into the Missouri River.

The discharge point on the river is in St. Charles County, about nine miles upstream from intakes for the St. Louis City Water Division and St. Louis County Water Co.

At a meeting Tuesday to discuss the discharge, the Department of Energy said the treatment plant would be completed by mid-June, with the first batch of treated water ready for sampling in late August.

A meeting to interpret the results will be held when all the laboratory tests are back, which is expected to take two to three weeks.

Besides the Department of Energy, sampling also will be done by the U.S. Environmental Protection Agency, the Missouri Department of Natural Resources and health officials from St. Louis and St. Charles counties.

The quarry contains about three million gallons of water contaminated by radioactivity, explosives, heavy metals and other toxic substances. That water, plus any seepage back into the quarry from the surrounding area, will be treated and released in batches of about 800,000 gallons, McCracken said.

The Energy Department also will test samples from the river upstream and downstream of the discharge.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 6-3-92 Page

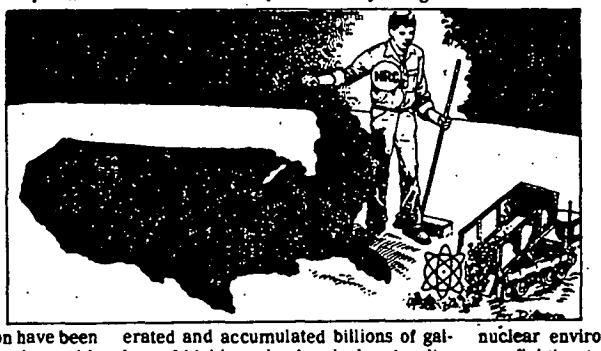
Cleanups Should Begin At Home

Bush Plan To Aid Europe, Russia Overlooks 3,700 Contaminated Nuclear Sites Here

By Eugene J. Carroll Jr.

President Bush may soon order financial aid for a safety program to shut down and clean up dangerous nuclear reactors in Europe and the former Soviet Union. Commendable as his use of American dollars may be for this good cause in Europe, his action flies in the face of one of the best-known teachings of the gospels.

As Matthew wrote: "Why do you look at the speck of sawdust in your brother's eye and pay no attention to the plank in your own eye? ... First take the plank out of your own eye and then you will see clearly to remove the speck from our brother's eye."



One need look no further than the Savannah River site in South Carolina to find a huge plank — one of the most poliuted, unsafe nuclear reactor complexes in the world. Five obsolete reactors there have been shut down since 1988 for safety reasons. Approximately $3 billion have been spent attempting repairs to date with three restart failures as the only results.

An attempt to restart the L reactor in August 1988 resulted in an extremely hazardous condition and emergency shutdown due to technical and procedural errors. In December 1991, an attempt to restart the K reactor resulted in the release of radioactive contamination due to various equipment and safety procedure failures. The latest restart attempt in May 1992 was again shut down for a tritium leak. Now Energy Secretary James Watkins insists on yet another restart to demonstrate that it can produce tritium we don't need for nuclear weapons we plan to dismantle. Talk about a plank in your own eye!

Unfortunately, the Savannah River reactors are only a minimal part of the poisonous legacy of the nuclear arms race here at home. The Department of Energy has identified more than 3,700 hazardous sites at nuclear weapons production facilities spread among 13 states. Just within the past three years, the General Accounting Office has published nearly 100 reports on environmental, safety and health problems stemming from unsafe operation of these facilities.

In the course of producing nearly 70,000 nuclear warheads since 1943, the U.S. nuclear weapons industry has generated and accumulated billions of gallons of highly toxic chemical and radioactive wastes. The Atomic Energy Agency and then the Department of Energy dumped, poured, released, haphazardly stored and injected these deadly materials into the ground, water and air. With the Cold War over, fears of death from a nuclear attack are being surpassed by fears of slow death from cancer due to exposure to military contamination.

Watkins recently told the Senate Armed Services Committee that cleaning up toxic and radioactive wastes and restoring the environment around nuclear weapons production facilities could cost $150 billion to $200 billion. The Department of Energy hopes to complete the cleanup in 30 years, but a recent report by the Office of Technology Assessment concluded that "the prospects for effective cleanup of the weapons complex in the next several decades are poor." Some sites, such as the Hanford Reservation in Washington state, are so severely contaminated that they may be sealed off and designated — euphemistically — "national sacrifice zones."

Perhaps the worst hypocrisy concerning nuclear safety and cleanup is Defense Secretary Dick Cheney's insistence on continuing nuclear testing, saying it is necessary for safety and reliability of U.S. nuclear weapons. His own description of the latest U.S. nuclear test, Diamond Fortune, conducted in Nevada on April 30, refutes that claim. Under "effectiveness," he states that the test is "to better understand the airblast effects of nuclear weapons." Another test, Hunters Trophy, is reported under "survivability" as intended to "examine the survivability of sophisticated space systems in a disturbed nuclear environment." These are pure war-fighting tests having nothing to do with safety or reliability. We are spending billions of dollars a year to design and test weapons that only add to nuclear danger and pollution in America.

It is bad enough to spend taxpayers' dollars to clean up Europe while we suffer the hazards of 3,700 contaminated nuclear sites. It is criminal to continue to add to that contamination with unnecessary nuclear tests and by operating unsafe reactors to produce unneeded nuclear weapons material. We desperately need to remove the plank in our eye before we look for specks in other eyes.

Eugene J. Carroll Jr., retired rear admiral, is deputy director of the Center for Defense Information, Washington.

Commentary Page B3
St Louis Post-Dispatch

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page B3

Curbs On Waste Struck Down

Supreme Court Rules Against 2 States On Restrictions On Dumping

WASHINGTON (AP) — The Supreme Court made it more difficult in two decisions Monday for states to keep out garbage and hazardous waste from other states.

The court voted 8-1 to strike down a disposal fee that Alabama has imposed on out-of-state hazardous waste while exempting such waste generated within its borders.

By a 7-2 vote, the justices invalidated a law in Michigan that barred private landfill operators from accepting solid waste generated anywhere but in the county where a dump is located.

The court said both states had unconstitutionally interfered with interstate commerce.

Alabama has imposed the fee on out-of-state waste shipped to the nation's largest hazardous waste dump, a privately owned site near Emelle, Ala.

The court said Alabama may not charge a $72-a-ton fee on hazardous waste shipped from outside the state if the same fee is not charged for in-state hazardous waste.

"No state may attempt to isolate itself from a problem common to the several states by raising barriers to the free flow of interstate commerce," Justice Byron R. White wrote for the court.

The court said state officials should have considered "less discriminatory alternatives," such as "a generally applicable per-ton additional fee on all hazardous waste disposed of within Alabama or a per-mile tax on all vehicles transporting hazardous waste across Alabama roads, or an even-handed cap on the total tonnage landfilled at Emelle."

Chief Justice William H. Rehnquist was the sole dissenter.

The decision was a victory for Chemical Waste Management Inc., which is based in Illinois and runs the Emelle facility.

OTHER SUPREME COURT ACTION

The Supreme Court took action Monday in other areas:

- **Redistricting:** The court agreed to study a tangled legislative redistricting battle in Ohio, a dispute that could lead to an important ruling on minority voting rights. The court will consider reinstating for the rest of this decade a redistricting plan adopted by a Republican controlled board for the Ohio General Assembly.
- **Holocaust Suit:** The court refused to kill a suit against Jewish groups and Los Angeles officials accused of preventing a man who claimed the Holocaust was a hoax from taking part in a library conference.
- **Racketeering:** The court rejected an appeal by Minnesota consumers who accused Northwestern Bell Telephone Co. of racketeering by bribing public officials to secure phone rate increases. The court, without comment, let stand a ruling that said the company is shielded from such allegations by a doctrine aimed at protecting the independence of agencies setting public utility rates.
- **Labor Bargaining:** The justices rejected an attempt by the Chicago Tribune Co. to avoid bargaining with a union that the newspaper accused of racial bias.
- **Nuclear Shipments:** The court rejected an Idaho challenge to the shipment into that state of spent nuclear fuel from a now-inactive reactor in Colorado. The justices rejected arguments that shipping the waste from Fort St. Vrain, Colo., to the Idaho National Engineering Laboratory in the state's south-central desert area violated federal law.

The justices told the Alabama Supreme Court to determine what remedy Chemical Waste Management should receive, raising the possibility that refunds could be ordered.

Writing for the court in the Michigan case, Justice John Paul Stevens said the state law was prohibited under a Supreme Court ruling of 1978.

In it, the court barred New Jersey from discriminating against out-of-state solid waste — garbage — by banning its shipment into the state.

The 1988 Michigan law barred counties with privately owned and operated landfills from accepting ny solid waste generated outside ie county. The law, Stevens said, effectively authorized "each of (the state) 83 counties to isolate itself from ie national economy."

The law must fail "in view of he fact that Michigan has not identified any reason, apart from its origin, why solid waste coming from outside he county should be treated differetly from solid waste within the coun," the court said.

Rehnquist and Justice Harry A. Blackmun dissented.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page

ST.LOUIS POST-DISPATCH

EDITORIALS 2
COMMENTARY 3
OBITUARIES 4
GENERAL NEWS 4
CLASSIFIED 5-22

NEWS ANALYSIS

SECTION E

MONDAY, MAY 25, 1992

More Opposing Nuclear Dumps On Indian Land

Doubts Surface In Congress

By Bill Lambrecht
Post-Dispatch Washington Bureau
WASHINGTON

CHIEF GERONIMO AND Jim Thorpe came from different tribes a generation apart, but their descendants have teamed up to block storage of high-level nuclear waste on Indian land.

Some members of Congress are beginning to worry as much as the Indians that federal authorities are sniffing too close to home as they scout out space for used and dangerous nuclear-plant fuel.

The combination of defiant Indians and jittery politicians is presenting the Office of the Nuclear Waste Negotiator with its first concerted outbreak of NIMBY — Not in My Back Yard.

Geronimo's Apache tribe in New Mexico and Thorpe's Sac and Fox Nation in Oklahoma were among 15 Indian councils or native corporations that accepted the government's offer to study the storage idea. The Sac and Fox backed out recently, after pressure from Grace Thorpe, 70, daughter of the famous Indian athlete.

"Nuclear waste is not the legacy that we want to leave to our future generations — if Indians have any future generations," Grace Thorpe said.

But the proposal remains alive elsewhere in Indian country, thanks to efforts of the Office of the Nuclear Waste Negotiator and grants from the Department of Energy. Their aim is to find a home for a so-called monitored retrievable storage facility for the highly radioactive fuel from nuclear power plants. About 40,000 metric tons of that material stored at 70 nuclear power plants will become federal property in 1998.

Indian councils make up 15 of the 19 entities agreeing to study the plan. Tribes have been awarded the brunt of almost $1 million awarded by the federal government so far. If a tribe or a county agrees to take the waste, they could extract about $100 million or more over a period of years.

Despite such a bounty, many Indians have become alarmed at the process. After seeing traditional lands taken away by the government or become polluted, they view the nuclear waste proposal as a potential capstone of a century of exploitation.

Some of them, like Lance Hughes, a Creek Indian from Oklahoma and director of the Native Americans for a Clean Environment, worry that other Indians "are selling us down the river."

Critics traveled a week ago to Albuquerque, N.M., and formed the Native American Energy Network to fight the nuclear plan. Among them were Grace Thorpe and Harlyn Geronimo, great-grandson of the Apache Indian chief.

"Back when Chief Geronimo was alive, people would be shot or kicked out of the tribe if they had anything to do with desecration of the environment," said Harlyn Geronimo, 43, a sculptor on the Mescalero Apache reservation. The Apaches and Wendell Chino, their president for 25 years, are furthest along in studying the federal proposal.

At an Indian conference in Oregon next month, the nuclear waste plan is listed as the first order of business.

In addition, Congress, which gave the Office of the Waste Negotiator its power, has begun to pay closer attention. Sen. Tom Daschle, D-S.D., labeled the overtures to tribes "tantamount to bribery and the worst type of policy for the United States to be involved in. ...My concern is that Indian people will be abused here."

Sen. Pete V. Domenici, R-N.M., irked that the Apaches have continued to plan, summoned Waste Negotiator David H. Leroy and Frederick Peso, the Mescalero Apache secretary, to a meeting in Washington this month.

"It was an important moment intended to make it crystal clear for all parties where things stand," said Ari Fleischer, spokesman for Domenici.

Domenici and other members of New Mexico's congressional delegation promise to prevent the Apaches from becoming the waste repository. Leroy knows this and told members of Congress months ago that the Apaches would not advance to late stages in the grant process unless the delegation changes its mind.

Nevertheless, on April 21, the Apaches were awarded an additional $700,000 by the Department of Energy for so-called Phase B study of the proposal, bringing to $300,000 the amount of money they have received. The next level of grants would bring them an additional $2.8 million.

The Office of the Waste Negotiator also is coming under scrutiny in the House. Rep. Wayne Owens, D-Utah, has asked the House Interior energy and environment subcommittee to hold hearings next month on the office's activities.

"I find it degrading and debilitating to think of taking other people's waste. It should stay where it is," said Owens, who is a candidate in his party's primary for the U.S. Senate.

Such attitudes could be putting Congress on a collision course with self-governing Indian tribes, who expect to deal with the United States on a government-to-government basis. Congress is supposed to consider what Leroy negotiates.

The Mescalero Apaches, especially, believe that they are well within their rights to proceed. "We can't help it that some people are opposed to it," said Peso, the tribal secretary.

In dealing with tribes, the federal government might succeed in minimizing red tape and dissent down the line, because tribes often are governed in authoritarian, undemocratic ways. In Grant County, N.D., by contrast, voters recalled commissioners this year after they had accepted a $100,000 award to study the plan.

Peso declined to say whether the Mescalero Apache tribe would submit the proposal to its 3,000 members for a vote if it decides to pursue the project.

For now, the Mescaleros are content to collect government money that comes from utility ratepayers and pass it on to consultants and public relations advisers. Among the consultants hired is Miller Hudson of Colorado, the former Denver Democratic chairman. In a telephone interview, Hudson blamed "alleged Indian groups and professional Indian objectors" for opposition.

"Clearly, the tribe thinks this still might happen," he said.

Despite the developing clouds, Leroy asserted that his mission was off to a "very, very strong beginning." In addition to the tribes and counties publicly studying the proposal, others are doing so privately, he said.

Leroy, 44, a former attorney general from Idaho who was almost elected governor in 1986, disputes those who say he is targeting Indians and speaks cliches of growing opposition.

"We don't fear NIMBY, and we don't feel NIMBY is bad; we feel like it's a natural process. Our challenge is to use that emotion for involvement and participation," he said.



Gary Bohn/Post-Dispatch

A horse crossing a road near Church Rock, N.M., in an area still contaminated with low-level radiation from a uranium mine disaster in 1979. In the spill, 94 million gallons of contaminated water flowed onto Navajo grazing land.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page

Illinois Town Is Expected To OK Nuclear Dump

By Daniel R. Browning
Of the Post-Dispatch Staff

The city of Martinsville, Ill., is expected to sign an agreement Wednesday to allow the construction of a site for low-level radioactive waste in exchange for at least 100 permanent jobs, a new water system, price supports for local crops, products and real estate, and other economic incentives valued at more $2.2 million a year.

Thomas W. Ortciger, director of the Illinois Department of Nuclear Safety, said in a telephone interview Monday that the final draft of the 36-page agreement would be presented to the Martinsville City Council.

"My indication, based on the way they had us write it up, with all their signature [lines] in place, was that they will sign it," Ortciger said.

Martinsville Mayor Truman Dean was quoted in a press release prepared by Ortciger's office as saying the proposal "gives the city the oversight we need, and will help us build a better city of Martinsville for future generations."

A copy of the document was obtained by the Post-Dispatch. It lists the prime contractor as Chem-Nuclear Systems Inc.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page

Waste storage plan worries local officials

By Dennis R. Heinze
Staff writer

Although the Department of Energy has proposed to remove radioactive waste from some area residential properties and temporarily store it in Hazelwood, local officials are worried the plan will be permanent.

Several St. Louis County and municipal officials and residents said at a hearing of the County Justice and Health Committee last Thursday that the plan would benefit the five Hazelwood and Berkeley residents who have radioactive waste on their property. But they expressed concern that the waste might be left in North County.

The department was collecting public comment about the plan to store the waste temporarily at the Hazelwood Interim Storage Site (HISS) on Latty Avenue. The plan would not be implemented if the public is dissatisfied with it, DOE officials say.

"I'm appreciative of the fact that we're going to finally see a shovel hit the ground and start picking up some of the dirt," said St. Louis County Councilman John Shear, who called the hearing. He added, however, that he is worried about "creating a permanent situation."

On Thursday, the County Council unanimously passed a resolution drafted by Shear and Councilwoman Geri Rothman-Serot, chair of the committee, urging the DOE to place the contaminated soil in double-hulled containers instead of on top of the existing pile of waste at HISS as proposed.

The resolution also urges St. Louis County Executive George R. "Buzz" Westfall to establish an oversight committee within two weeks to seek a permanent solution in cleaning up all county sites and to oversee the interim cleanup. The DOE also would fund the oversight committee and an independent study of the radioactive sites, according to the resolution.

David Adler, a site manager for the DOE, said the department probably would accept the tenets established in the resolution.

Placing the residential waste, about 3,000 cubic yards, in a container would be technically possible, but Adler said the department's engineers would have to study such a plan.

A decision on what to do with the waste is not expected until 1995. Proposals range from storing the waste in a bunker at the airport site to trucking it out of state.

ST. LOUIS COUNTY

Council Members Approve Temporary Waste Cleanup

Two members of the St. Louis County Council say they will go along with a plan for a temporary cleanup and storage of radioactive dirt in North County if the material is stored in double-walled containers.

At a meeting of the council's Justice and Health Committee, John R. Shear of Ferguson and Geri Rothman-Serot of Frontenac also told a representative from the federal Department of Energy that they wanted the material taken out of the St. Louis area permanently.

At issue is radioactive dirt on Lally Avenue, at Lambert Field and at other sites in the St. Louis area.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 5-8-92 Page

Tuesday 5/5/92 Pg. 6A ST. LOUIS POST-DISPATCH

U.S. To Pay Consultant To Monitor Cleanup

By Virgil Tipton
Of the Post-Dispatch Staff

St. Louis County will get enough money to pay for a private consultant to monitor a cleanup of radioactive waste in the county, but the federal government will retain control of the cleanup, a federal official said Monday.

The news is a mixed response to a request from County Councilman John R. Shear of Ferguson, D-1st District, the council's chairman. Shear had asked the federal Department of Energy for promises regarding its interim cleanup of sites in Berkeley and Hazelwood that are contaminated with radioactivity.

The federal official, David Adler, said the Department of Energy would give the county money for a consultant, as it has done in other areas of the country. Typically, the Energy Department gives local officials about $50,000, Adler said.

"It's a good idea, and we'd like to proceed with setting it up," said Adler, the Energy Department official managing the cleanup of the St. Louis sites.

Adler said he also was willing to help set up a local committee to monitor the cleanup. The committee would be a more formal version of a local group that Adler called the St. Louis County Roundtable.

Local officials or their representatives, health officials and others would serve on the committee.

But Adler said he would not grant the group the power to call a halt to the cleanup, as Shear had asked. Adler said that doing so would be an abdication of the department's oversight role. Adler also said he would reject Shear's request for the department to provide a bond of $250 million to ensure that the waste eventually will be moved from the St. Louis area.

The interim cleanup will involve removing contaminated dirt in Hazelwood and Berkeley and storing it at a current storage area on Latty Avenue.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 5/5/92 Page 6A

Shear Seeks Promises On Radioactive Waste

Consultant, Monitoring Of Cleanup Sought

By Virgil Tipton
Of the Post-Dispatch Staff

The chairman of the St. Louis County Council is asking for promises from the federal government on its plans to clean up radioactive waste in the county, but he doubts that Washington will agree to all of the requests.

At issue is the Department of Energy's plan to clean up the radioactive waste that is contaminating several sites in the area — including one near Lambert Field and one on Latty Avenue in Hazelwood. The Energy Department has been holding hearings and wants to decide by 1995 how the cleanup will be done.

The council's chairman, Councilman John R. Shear of Ferguson, D-1st District, has made three requests in a letter to the Department of Energy. He asks the department to:

- Give the county enough money to hire a consultant on the cleanup.
- Allow a group of local officials and residents to monitor the cleanup. Shear also wants the group to have the power to stop the cleanup.
- Provide a performance bond worth $250 million to ensure that the waste will be moved from the St. Louis area.

Shear said he doubted that the Energy Department would put up the performance bond. But he said he thought it would consider the other measures.

Shear conceded that the county had no authority to force the Energy Department to meet the requests.

Although the Energy Department has said it is considering moving the material permanently out of the state or into rural Missouri, Shear said that he wanted more assurance than that.

"I still don't trust them," he said. "I'm sure they made promises and commitments 40 years ago."

The sites were contaminated by wastes produced by the old Mallinckrodt Chemical Works, which had a government contract to process uranium.

An Energy Department official in charge of the cleanup could not be reached for comment.

ST. LOUIS POST-DISPATCH FRIDAY, MAY 1, 1992

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 5/1 Page

ST. LOUIS POST-DISPATCH

BUSINESS

SECTION B

THURSDAY, APRIL 30, 1992

Sverdrup 'Disappointed' About Lambert Job

By Margaret Gillerman
Of the Post-Dispatch Staff

Sverdrup Corp. officials say they believe their firm was "by far the best qualified" for the job of project manager for the $1.5 billion e[illegible]sion of Lambert Field, and that they are "[illegible] disappointed" the company was bypassed for the job.

Top officials at the St. Louis-based company declined to speculate as to why they were overlooked by the selection committee, which was dominated by appointees of Mayor Vincent C. Schoemehl Jr.

Milton F. Svetanics, chief of staff to Schoemehl and a member of the selection committee, said the choice of New York-based Turner Construction Co. "says nothing derogatory about any of the other applicants."

Sverdrup is "an outstanding company and we had four very outstanding groups of companies that were vying for this unique task," Svetanics said.

He declined to discuss allegations Turner was being rewarded for its support for Schoemehl in his gubernatorial race or for its involvement in any fundraisers.

Others on the Turner team are Burns & McDonnell of Kansas City and Unzelman-DuBose of Chicago. Four minority or women-owned firms have been proposed. The team will be paid about $25.5 million.

The city selection committee rejected three other teams, including the one headed by Sverdrup. The team will help recommend firms to receive some of the millions of dollars in construction and engineering work for the expansion.

Sverdrup spokesman Jerry Bryan said Wednesday he did not want to discuss "reasons or motivations" for the committee's decision.

"So far as basic facts are concerned, we competed very strongly for this project based on our qualifications and our credentials," Bryan said. "Sverdrup is one of the largest program management firms in the United States in the field of airport development and airport expansion. We believe we were by far the best qualified firm in this competition ... and we are deeply disappointed that we were not selected."

Norbert Groppe, head of the city's Board of Public Service, said that the teams were evaluated fairly and that the mayor did not intercede.

"We followed our procedure and, as far as we're concerned, the best qualified and best experienced team was awarded the contract," he said.

Both Turner and Sverdrup had contributed to Schoemehl's campaign for governor. Some have speculated Schoemehl has been trying to tap new money from firms in other cities.

Sverdrup and the mayor have a bumpy history over the last few years. They tangled in the mid-1980s when Sverdrup proposed developing a county football stadium at Riverport; that plan was backed by then-County Executive Gene McNary. Svetanics declined to comment on that history.

Michael Palumbo, with Turner's offices here, could not be reached for comment Wednesday.

A spokesman for Comptroller Virvus Jones said the selection of any team as project manager was "premature and unwarranted."

The Federal Aviation Administration "has not approved any — I emphasize any — master plan for the expansion of Lambert Airport," said Ivy Neyland-Pinkston, strategic planning manager for J[illegible]nes.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page

ST. LOUIS POST-DISPATCH

ST. LOUIS/MONDAY

MONDAY, APRIL 27, 1992

State Gets Title To Times Beach

Takeover Part Of Dioxin Cleanup

By Virgil Tipton
Of the Post-Dispatch Staff

The state of Missouri has become the owner of a contaminated ghost town that may someday become a park.

Earlier this month, the state acquired title to Times Beach, a one-time suburb in west St. Louis County that was abandoned in the early 1980s after the discovery that the town was contaminated with dioxin.

Having the state take title to Times Beach was part of an agreement with the EPA several years ago, said John Young of the Missouri Department of Natural Resources.

The town had been held in trust by Marilyn Leistner, the last mayor of Times Beach, whom Gov. John Ashcroft had appointed as trustee.

Ownership of the town will give the state more control over the cleanup there, said Young, deputy division director of the department's division of environmental quality.

"It's especially important during the remediation phase for the state to have control of the property so that we can make sure this remediation goes on in a safe manner," Young said.

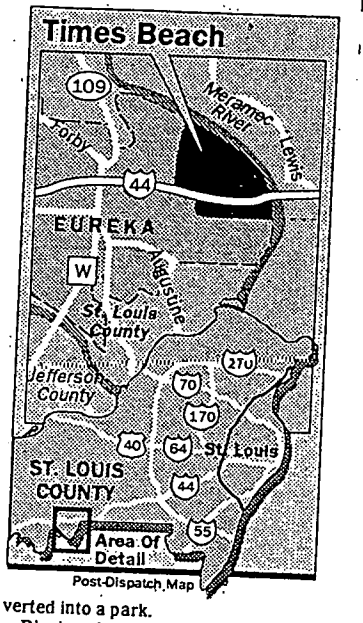
Lee Brotherton, director of transportation and environmental policy for St. Louis County, said the transfer simplified the questions of ownership and oversight

"We're glad it's finally gone over to them," Brotherton said. "Now, in the future, we know who we're going to be talking to."

Agribusiness Technologies Inc., which has the job of cleaning up dioxin contamination at Times Beach, says the project is on schedule. Earlier this month, the company said it had completed demolition of buildings there.

The company is getting ready to choose a subcontractor to build a temporary incinerator to burn dioxin-contaminated dirt from Times Beach and 26 other contaminated sites in eastern Missouri. A levee also will be built around the incinerator to protect it from flooding.

The state says that after the seven-year cleanup, the town may be converted into a park.



Post-Dispatch Map

Dioxin, a byproduct in the manufacture of other chemicals, has been linked to cancer and to liver, kidney, bladder and nervous system disorders in laboratory animals. Dioxin was in waste oil sprayed on Times Beach's unpaved streets in the 1970s to keep dust down.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 4/27 Page

The U.S. Department of Energy is seeking public comment on an Engineering Evaluation/Cost Analysis-Environmental Assessment (EE/CA-EA) for the proposed decontamination of properties in the vicinity of the Hazelwood Interim Storage Site (HISS).

The EE/CA-EA report has been prepared in support of the removal of radioactively contaminated soil from residential, commercial, and municipal properties in the communities of Hazelwood and Berkeley in the North County area.

The report analyzes the waste control alternatives for cleanup of the Hazelwood and Berkeley properties and the rationale for selection of removal/excavation of the contaminated soil as the preferred action.

The removal action currently being proposed is an interim action pending completion in 1995 of a comprehensive environmental review of the St. Louis sites that were contaminated during the early days of the government's atomic energy program. The interim plan and the long-term review are part of DOE's Formerly Utilized Sites Remedial Action Program.

Implementation of comprehensive cleanup measures will be preceded by a complete environmental review process including preparation of a remedial investigation/feasibility study-environmental impact statement. This review is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA).

The properties slated for cleanup pose no immediate threat to the public or the environment, but DOE is concerned that contaminated soil could be inadvertently moved by property owners. The targeted properties are those where business expansion, development, or even routine maintenance has been slowed because of the possibility of further spread of contamination.

The properties included in the cleanup were contaminated during the 1960s and 70s when uranium processing residues created during World War II were bought by a private company and transported between the St. Louis Airport Site and the Latty Avenue properties.

The DOE proposal includes transporting the contaminated soils to the Hazelwood Interim Storage Site for temporary storage until the environmental review process is completed. Following approval of a long-term waste management plan, the waste would then be shipped to an appropriate facility for permanent disposal.

During the next 30 days through May 8, 1992, DOE is looking forward to receiving written comments. The address is:

David G. Adler, Site Manager
U.S. Department of Energy
Oak Ridge Field Office
Former Sites Restoration Division
P.O. Box 2001
Oak Ridge, TN 37831-8723.

The EE/CA-EA report may be viewed by the public in the administrative record along with other documents related to the environmental review process. The administrative record is available during normal business hours at the following locations:

Government Information Section
St. Louis Public Library
1301 Olive Street
St. Louis, MO

St. Louis County Library
Prairie Commons Branch
915 Utz Lane
Hazelwood, MO

DOE Public Information Center
9200 Latty Ave.
Hazelwood, MO

Copies of the EE/CA-EA may also be requested through the DOE Public Information Center at 9200 Latty Avenue, Hazelwood, MO 63042, telephone (314) 524-4083. Or requestors may call the DOE toll-free information number, 1-(800)253-9759, and leave a message which will be answered promptly.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 4/8/92 Page P 14A

ST. LOUIS POST-DISPATCH

ST. LOUIS

SECTION

SUNDAY, FEBRUARY 9, 1992

35 Years Later, Radiation Worry Linger

'Cluster' Of Cancer Deaths Followed Contaminated Dust Spills

By Tom Uhlenbrock
Of the Post-Dispatch Staff

Dale Lakenburger remembers the dump trucks that rumbled past his family's property on Hazelwood Avenue, dust billowing and debris dropping from the beds in back.

"They'd hit the railroad tracks right there — the tracks were higher then — and a lot of the dirt bounced off," Lakenburger said. "We didn't know what was in the trucks. We thought it was fill dirt."

The year was 1956, and the cargo was radioactively contaminated debris from the Mallinckrodt Chemical Works off North Broadway in St. Louis.

Some 35 years later, it still haunts Lakenburger.

The U.S. Department of Energy has announced it is about to clean up the contamination in Lakenburger's yard, on the corner of Hazelwood and Nyflot avenues in Hazelwood, and at four other residential sites.

The contaminated soil from the yards and ditches will be excavated and added to another Mallinckrodt waste storage site monitored by the department. The areas then will be covered with fresh topsoil and replanted with grass.

"We recognize it was unusual to have that many [cancer cases] near a waste site, but it could be random chance."

JIM DAVIS,
Missouri Health Department

That was the good news that came out of a meeting last month at Berkeley High School. David Adler, a department official, said the excavation of contaminated soil from the residential areas could begin this spring.

In the 1950s, Mallinckrodt Inc. had a government contract to process uranium for nuclear weapons. The trucks were taking low-level waste materials from that processing to a dump site north of Lambert Field.

The cleanup of the Mallinckrodt plant, the dump site near the airport and a third storage area on Latty Avenue, where covered piles are within eyesight of Lakenburger's field, is still more than three years off, Adler said.

Lakenburger is thankful for the quicker action on his property.

In an interview in his home, Lakenburger thumbed through a folder full of correspondence with the Energy Department.

Among the papers is a grid of a 200-foot-by-50-foot strip of his property closest to Hazelwood Avenue. The diagram was marked where 20 soil samples had been taken to depths of three feet.

Several had radiation levels of thorium-230 that exceeded the government guidelines for residual concentrations in soil.

See DEBRIS, Page



Gary Bohn/Post-Disp

Dale Lakenburger of Hazelwo standing on his contaminated land.

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VOLUME 72 - NUMBER 5 (USPS 202-520) TUESDAY, FEBRUARY 4, 1992 12 PAGES - 40 CENTS PER COPY

DOE Gets the Message:

Move the Radioactive Dirt Out; "St. Louis County Tires Of It," Says Westfall

By Jeanette Eberlin, Special Correspondent for the Reporter

More than 200 people crammed into Berkeley Senior High School auditorium last Tuesday to bombard Department of Energy officials with one strong message. Passions were stirred as the message was delivered: Stop the delays, and move the contaminated material out - now.

The public meeting had been called by DOE officials to air their plans for the cleanup of the radioactive waste stored on Latty Avenue in Hazelwood, some stored at a site near Lambert Field and the contaminated material at the Mallinckrodt Inc. complex in North St. [illegible]

turbed for sewer work, or other kinds of activity. This soil will be taken to the Hazelwood site.

There are approximately one million cubic yards of material in the St. Louis area, Adler said. About 30,000 cubic yards are stored on Latty Avenue in the two large piles, and about 70,000 under the piles in the ground. At the airport site there are about 250,000 cubic yards, and at Mallinckrodt, 288,000 cubic yards.

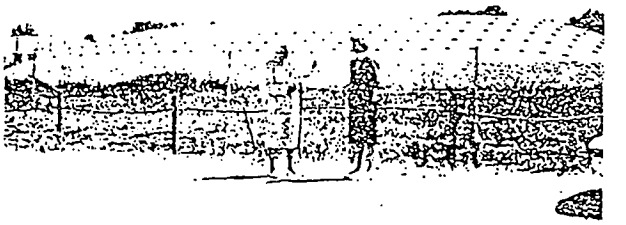
All elected officials were given the opportunity to address the panel first. Some "big guns" from the state and county took aim at the panel and vented their frustrations.

percent of the voters asked that the material not be store permanently in a bunker near the airport.

"Nine out of ten people voted to get rid of this stuff; it was a message from the people," Shear said.

When his turn at bat came, Berkeley Mayor Bill Miller pointed out to the panelists, "This type of hearing has been held at least five times. Now, if the EPA (Environmental Protection Agency) does not agree with your plans, we could go on for 10 more years. This is unacceptable; we want it out of here so we can move on with our lives."

Miller called upon mem-



After a 30 minute presentation by David Adler, site manager for the DOE, the three member panel heard more than 50 speakers whose major complaint was that the [illegible]y "is taking too much [illegible]o solve the problem."

Adler told the crowd the comprehensive plan will be announced in 1995. "Then a plan will be decided upon," he said.

He listed three alternatives the agency might consider: permanently store the contaminated material on the site at the airport location; building a dedicated facility somewhere else in Missouri, in a rural area, or taking it out of state to a commercial facility.

In an interview later Adler said there is one more alternative, that is taking it out of state to an existing federal facility, or a commercial facility.

"We are also looking at the possibility of somehow treating the waste to remove the radioactivity; this would diminish the volume greatly, but at present there is no proven technology to do this. But, we are researching the possibility," he said. He added that this research won't stall the process.

"If the technology is not quickly available, we'll dis[illegible]e the option,"

[illegible] told the crowd the DOE also plans to clean up the yards in residences immediately in the vicinity of the Hazelwood site. Also, on the grounds of businesses in that area on an "as needed" basis; the soil has to be dissistant to St. Louis County Executive George "Buzz" Westfall read a statement from the executive who was in Jefferson City.

The statement charged, "The people of St. Louis County are adamantly opposed to any solution which leaves this waste in our community. Quite simply, this community will not accept the permanent storage of radioactive waste in a densely populated urbanized area. Any remedy that allows this waste to remain in the heart of St. Louis County is inappropriate and a threat to the health of our citizens. The county executive will oppose any such proposal.

"As everyone knows, this waste was produced as the result of wartime production on behalf of the United States government. This community played its part in the war effort, but the war has been over for decades and the federal government alone is responsible for the waste it produced."

"St Louis County is tired of waiting and requests that this process be accelerated as much as possible," the statement said.

St. Louis County Council President John Shear seemed to shake the walls when he thundered, "All you're doing is delaying, delaying and delaying. If you continue doing that, 100 years from now we'll still have those 'temporary' sites."

Shear had been active in organizing a referendum in St. Louis City and Count in November 1990 in which 80

[illegible] of Congress and the U. [illegible] Senate to initiate new legislation to "accomplish this goal."

Joan Bray, U. S. Rep. Joan Kelly Horn's district director, read a prepare statement from the Congresswoman that suggested the waste be moved to a commercial facility in a rural area of a western state. She pointed out that there is such a facility that has been used for this purpose, and it soon will come under the auspices of the EPA.

Horn has been working with U. S. and local officials for the past 13 months to solve this problem. On June 14, 1991 Horn had asked Admiral James Watkins, U. S. Secretary of Energy, that the target date for the complete feasibility study be moved forward from March 31 of next year to September 30 of this year; also, that the record of decision be moved to March 31 of next year instead of September 30, 1994.

Hazelwood Councilwoman Mollie Rickey gave her address on a softer note, but her message was as determined as the previous speakers.

She began by commending the DOE on the studies made as a prerequisite for the cleanup of the three groups of properties.

Quoting from the DOE's work plan dated December 1991, she said, "Because of the extensive amount of information already known about the St. Louis site, extensive additional sampling should not be required to begin evaluation of alternatives for remedial action.

"The time for study and discussion is passed," she stressed. "We must act now. Please, I implore you to reschedule the issuance of the record of decision from 1995 to 1992."

In a dynamic presentation, Gilda Evans, whose family resides on a street in the immediate vicinity of the Latty Avenue site, told the panelists that there have been 14 cases of cancer reported in that area.

She said she feels that being exposed to the radiation since his birth has caused her son's Leukemia.

"For years this pile was exposed and this dirt has blown all over this area.

"My wish is that all the waste sites be transported in a safe manner to some 'No Man's Land' not to endanger anyone or ruin anyone else's neighborhood and be stored safely."

[illegible] Hazelwood Council[illegible] Mollie Rickey and Congreswoman Joan Kelly Horn discussing radioactive [illegible]pile (in background) on Latty Avenue site in Hazelwood

Jeanne Russell King Files for State Representative



Jeanne Russell King, Democratic Candidate for State Representative, 78th District

On January 14, 1992, Jeanne Russell King, filed for State Representative in the 78th district.

Jeanne King has lived in Florissant for 34 years and as the daughter of former State Representative James (Jay) Russell has spent the greater part of here life in the business of state government.

She is married to Richard King and is the mother of five children.

She attended St. Ferdinand Grade School, St. Mary's Academy, the St. Louis Community College at Florissant Valley., and the University of Missouri-St. Louis where she earned her degree in Communication Broadcasting.

Her campaign opened on Thursday, January 30, at luncheon held at Sherwood Forest Restaurant in Hazelwood.

A large group of supporters and area business leaders were in attendance as Ms. King announced her candidacy and her goals for the residents of the district.

Foremost in here remarks were education and jobs for Missouri citizens.

Florissant Elks Host Drug Awareness Day

The Florissant Elks Lodge #2316 will host its third annual "Drug Awareness Day" Sunday, February 9, 1992 at the Elks Lodge, 16400 New Halls Ferry Road, Florissant.

The events of the day are to arouse awareness in identifying drugs and the effects of drug abuse. Activities are scheduled to begin at 2:00 p.m. for families and their children.

Many community leaders, including "Buzz" Westfall and Bob McCulloch, St. Louis Prosecuting Attorney, will officiate over the afternoon activities.

The Overland Police Department will do a demonstration with "Smoke" the drug-sniffing dog. They will also display their drug identification kit.

Students from Brown Elementary School trained

SEE DRUG AWARENESS, PAGE 2

ST. LOUIS POST-DISPATCH
FRIDAY February 7, 1992
SECTION C-PAGE 3

Finding The Energy (Dept.) To Clean Up

By Henry D. Royal

The Department of Energy has earned the distrust of most St. Louisans and most Americans. Rather than serving as role models for the nuclear industry, the department's facilities have been run more like hoodlum organizations. Historically, the department has flouted the law and polluted our land. Understandably, St. Louisans are angry and they demand that the department's nuclear mess be cleaned up.

Anger can cloud our judgment. We may seek retribution or revenge and forget our real goals: To keep this from happening we must list the things that we hope to achieve by cleaning up St. Louis' nuclear waste. Two important goals should be protecting the health of the public and protecting the environment.

How is the health of the public being damaged by St. Louis' nuclear waste? To know what health effects to expect, we need to know the radiation dose to members of the public. The department estimates that the maximum credible exposure to a member of the general public would be less than 20 millirems of radiation each year. This maximum radiation dose from this waste compares to the 360 millirems the average American is exposed to annually from various sources. The department estimates that the average radiation dose to members of the general public is too small to measure.

If we believe the department's radiation dose estimates, the effect on the public health of the radiation from St. Louis' nuclear waste would be much less than the effect of radon on the public health. If we don't believe the estimates, our first priority should be to calculate a radiation dose that we can believe so we can estimate the public health effects.

How is the environment being damaged by St. Louis' nuclear waste? How likely is it that animals and plants will be harmed by the radiation dose? How will this harm express itself? Will extensive excavation of the waste cause more environmental harm than good? What exactly are our environmental goals?

Some things are certain. The cleanup will be very expensive. Depending on the option that St. Louisans choose, the local cleanup could cost well over $1.5 billion. After all is done, will there be any measurable improvement in the health of the public? If so, what will these improvements be? Will they be worth the cost? Could a greater improvement in our health be achieved by opting to spend less on the clean-up and more on health care for the poor?

If we are to prevent the most deaths and illnesses, we must spend our limited public health dollars wisely. Diverting a large share of our resources to protect ourselves from small risks will necessarily condemn many others to preventable deaths from much bigger health risks.

The cost-effectiveness of the different options for cleaning up St. Louis' nuclear waste sites is rarely discussed. The argument goes, "The Department of Energy is responsible for the nuclear waste. It should clean it up regardless of the costs."

The problem is that its money is our money. We should see to it that it is spent wisely and responsibly. We should not allow our anger to cloud our judgment.

Henry D. Royal, M.D., is an associate professor of radiology at Washington University School of Medicine.

Debris

From page one

"The highest readings were right there near the railroad tracks," said Lakenburger.

Although the field was designated for cleanup because of the test results, an official follow-up letter told Lakenburger that "the contamination on your property poses no foreseeable hazard."

Said Lakenburger: "They told me I'd have to eat the ground for 50 years to die from it."

Radiation can cause cancer. Four residents on Nyflot — two adults and two children living in four houses in a row — have been stricken over the years by leukemia, which is cancer of the white blood cells. Two were related to Lakenburger.

He said his elderly mother was diagnosed with leukemia in the weeks before her death. But the most stunning blow to Lakenburger and his wife, LaVerne, was the death of their son, Michael, 15, from leukemia in 1970.

Because only one in every 10,000 Americans develops leukemia, the Missouri Department of Health in 1989 began a study of the "cancer cluster" on Nyflot to see whether it was related to the Mallinckrodt debris.

"The numbers were too small to come to a firm conclusion on that issue," said Jim Davis of the agency's Bureau of Cancer Epidemiology and Control. "We recognize it was unusual to have that many near a waste site, but it could be random chance."

Lakenburger, 64 and retired, has three other grown children. He remains unsure about the health threat.

"I had horses in the field where the contamination is, and one lived to be 32 years old," he said. "Friends with horses would come out and ride down there where the piles are on Latty. The kids next door would dig caves in it.

"I had two friends who had boys die of the same thing, but they weren't around here. But if there's one-millionth of a chance."

Lakenburger owns two homes on 4.5 acres at the corner of Nyflot and Hazelwood. He tried unsuccessfully to sell the property a couple of years ago. He was required by law to disclose the radioactive contamination to prospective buyers.

"We had a lot of callers," he said. "I really don't know if that scared them off or not."

Much of the area nearby now is commercial. Warehouses, trucking firms and light industrial operations sit across the street from Lakenburger's fenced-in field.

"None of this was here when we first moved here," Lakenburger said. "It was all farm ground. I liked it the way it was."

And Lakenburger said he would be glad to have his property the way it was before the big trucks moved through decades ago — before the contamination.

"I'll be glad to see it go," he said. "Everybody in the neighborhood will be glad to see it go."

OUTDOORS

Volunteers Aplenty For Missouri's Stream Team Program



TIM RENKEN

Sandy Delcoure joined the Stream Team because she wanted to preserve the little patch of woods behind her house in Florissant where her kids liked to play.

Ron Kathman joined because he was looking for something his south county Indian Guides could do to "give something to the community."

John Headrick joined because he and his family enjoyed Castlewood State Park and wanted to do something to "make it even more beautiful"

Theirs are among the dozens, maybe hundreds, of reasons that people have given for joining a volunteer program to do nice things for Missouri rivers and streams. Many people have "adopted" streams or stretches of streams. Delcoure's adoptee is Coldwater Creek, which flows through the Florissant Valley. Kathman's South County YMCA Indians concentrate on Gravois Creek in Crestwood. Headrick's family patrols Keifer Creek.

The efforts of these people and thousands like them from all over the state range from the highly technical, such as chemical monitoring, to the basic, such as once-a-year cleanups; from the physical, such as planting trees, to the political, such as hounding city fathers to better manage local waterways.

Some of the groups are established organizations, such as the Open Space Council, Boy Scouts, Missouri Whitewater Association, Kiwanis, 4-H. Many are ad hoc, such as The Friends of Big Creek and River Rescue Rangers. Some aren't organizations at all, merely family members or friends. Some are just individual stream landowners.

The Stream Team program was begun in 1989 by the Conservation Federation of Missouri during a burst of concern statewide about Missouri's waterways. That was the year that Leo Drey launched his noble campaign for the Natural Streams Act, that the Department of Conservation created its Operation Streams program and that Gov. John Ashcroft signed a proclamation declaring 1989 the "[illegible]e stream."

[illegible]tural Streams Act went down to humiliating de[illegible]e governor's proclamation added slightly to the paper waste stream, but the Stream Team program thrives. Though much of it has now become part of the Department of Conservation's program for streams.

The adoption of Stream Team by the state agency was forced by Stream Team's explosive growth.

"Not only did we have so many volunteers, but right away they wanted to do much more than we were capable of helping them with," said Charles Davidson, the CFM's administrative assistant. "If people had only wanted to do cleanups, and things like that, we'd probably still be managing it. Now we are involved mostly in promoting the program, signing people up and referring them to the department."

Just six months after the program was announced in the spring of 1989, 63 groups had signed up to adopt streams. For a while, groups were adopting streams at the rate of 10 a month, though that rate has slowed.

Today all of the major streams and many minor ones in the state have been "adopted" in one way or another by 273 teams with more than 9,500 people.

All of the entire Meramec River system, including all of the Bourbeuse, Big, Courtois and Huzzah rivers, has been adopted. Most of the state's best canoe streams, such as the Current, Jacks Fork, Eleven Point, are signed-up for.

Joe Bachant, the Department of Conservation's manager for the program, said that interest in the float streams was expected, "but we've also had people who want to adopt tiny, little-known creeks, such as Tinkle, Hog, half a dozen Cedars and about 100 Turkeys," he said. "And while we expected a lot of interest in this thing among urbanites, 50 percent of our teams are from rural Missouri. Actually, all parts of the state are represented."

Most surprising, Bachant said, was the diversity of the things people wanted to do for the streams. Efforts range from the highly scientific to the primarily recreational.

"Stream Team has become part of the curriculum at Southwest Missouri State's Geosciences Department in their continuing studies of Piney Creek, which flows through a national wilderness" he said. "They are studying the entire riparian corridor, with students inventorying the relationships between the physical variables, vegetation and water quality. . . . Meanwhile, the Roubidoux Fly Fishers helped stock brown trout in their adopted reach of the Roubidoux, near Waynesville."

Some of the teams, Bachant said, are landowners intent on improving creeks flowing through their property. Some local lobby groups, even individual property owners, are working to prevent damage to streams by city fathers, road builders, other landowners, etc.

"The efforts of some teams are pretty confrontational," Bachant said. "Sometimes they win, sometimes they don't."

The department primarily provides technical assistance and education, he said. "If a group wants to stabilize banks through tree plantings, or whatever, we show them how. If they want to do environmental monitoring, we help them set up a data form.

"But everything we do is aimed at education. People can be a whole lot more effective if, through education, we send them off in the right direction."

The Stream Team program is attracting attention in other states now, Bachant said.

"Kansas has sent people here to study the program with the aim of adopting some or all of it there," he said. "Other states, Arkansas, Tennessee, Mississippi, are interested."

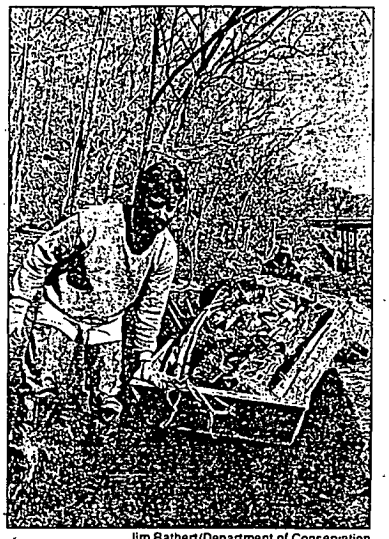
The diversity of the interest of volunteers makes Stream Team unique in the nation, Bachant said.

"When we got into this we decided that we wanted it to lead us where people wanted to go.

"Frankly, we had no idea how deeply people wanted to get involved in their streams — how deeply they cared."

St. Louisan Marty King, chairman of the CFM permanent Streams Committee, which sets policy for the program, said that the broad purposes of the Stream effort are 1 — Advocacy, 2 — Stewardship, 3 — Education.

"This thing has grown a lot faster than we thought it would and we hope it continues to grow," he said. "Maybe soon we'll have 15,000 volunteers, then, who knows . . ."



Jim Rathert/Department of Conservation

Jeff Koppelman of Columbia, Mo., with a boat full of junk pulled from Hinkson Creek near Columbia.

Reasons Vary For Joining Stream Team

Sandy Delcoure, a Florissant home maker and leader of the Coldwater Creek Stream Team, publishes a newsletter, the Stream Song, and distributes it herself, door to door, "a couple times a year.

"It started with just our subdivision here, Willow Creek, but it's gone beyond that, up and down Coldwater Creek," she said. "I try to keep people abreast of what's happening to the creek, from the airport all the way down to the Mississippi River."

She and her group have done cleanups. She does a periodic environmental assessment of the creek, ranking it for water quality, scenic features, aquatic habitat, watershed, etc. Lately she has been working to get the Metropolitan Sewer District, which controls much of the land along the creek, to modify some of its practices.

Delcoure is one of more than 9,500 persons involved in Missouri in the Stream Team program of the Conservation Federation of Missouri and the Department of Conservation. The huge volunteer effort is aimed at preserving and improving the state's 56,000 miles of stream channels, large and small. Delcoure and her group have "adopted" Coldwater Creek.

"You know, stretches of the creek are still beautiful. That's what got me started," she said. "There's a little patch of woods just behind the house that our kids and other kids in the neighborhood loved to play in. I want to preserve that and the other nice places along the creek that remain.

"Coldwater Creek, with its many springs, is the reason the Florissant Valley was settled so early. It's an important part of our history and important part of the community.

"My big dream is a green belt, a corridor park along the entire 17 miles of the creek, with trees and walkways. That was tried 17 years ago, but it just kind of fell apart.

"I think it can happen, but it won't be easy. There's so many different groups involved, Florissant, Hazelwood, MSD, St. Louis County."

John W. Headrick, a Monsanto research biologist, his son, Jeff, daughter, Sarah, and, sometimes, his brother, Jason, once a month clean up the trash in Keifer Creek in Castlewood State Park near their home in Ballwin.

"We'll spend three or four hours at it if we get the whole crew, picking up tires, cardboard, carpeting and other stuff that mostly comes down from Castlewood Village, upstream," Headrick said. "We put the stuff in a dumpster in the park and the park employes haul it away.

"It's not a big deal, we enjoy it. "We can see, though, that other stuff needs doing. Some of the banks are eroding and falling in and we'd like to maybe plant some trees or do something to get that to heal"

Have any of the people visiting the park when the cleanups are under way offered to help?

"Not yet, but when they see us in waders out there dragging up a big piece of soggy cardboard, they do give us some strange looks."

Ron Kathman was looking for some kind of community-improvement activity for his Indian Guides group at the South County YMCA when Stream Team was brought to his attention.

"It isn't easy finding something kids as young as 5-years-old can do, so we decided to do this on Gravois Creek," he said. "Twice a year, spring and fall. We do the one-mile stretch from Whitecliff Park almost to Watson Road in Crestwood.

"Last September we had a good turnout of 75 people, almost all parents and kids. We got eight pickups full of trash and took it up to a dumpster in Whitecliff Park. We're going to do another June 7 — if anybody wants to help."

— Tim Renken

the shopper NEWS

Zone 3: Lodi ▼ Hasbrouck Heights ▼ Wood-Ridge ▼ Maywood ▼ Rochelle Park

April 1, 199

'Stop work' order lifted

By CHRIS NEIDENBERG
Of The Shopper News

MAYWOOD — Construction Code Official Joseph Mellone has lifted a stop work order he placed on a West Pleasant Avenue building, to be run by the U.S. Department of Energy (DOE), after developer George Haag took out the proper plumbing permits for the facility.

Mellone said the order, issued March 13 was lifted on March 20, after Haag cooperated by having a certified plumber take out the permit and inspect and correct work which he said Haag performed as an unlicensed plumber.

"The plumber picked up the permit, visited the site and discussed with Mr. Haag what had to be done," Mellone reported on March 25. "He (plumber) opened up several walls, removed all the piping which was put in and put in new piping to conform with the code. I've met with Bechtel (representatives) and they're on top of the situation."

Mellone, who reviewed the situation with Plumbing Inspector Leonard Falato, said the borough is "very happy" with the work the licensed plumber performed. He had contended that Haag engaged in improper plumbing installation work in connecting a sink and a toilet.

Haag could not be reached for comment last week. He previously denied that he did any extensive plumbing work requiring permits, and vowed to fight a $175 Mellone has assessed by appealing to the Bergen County Board of Construction Appeals.

Haag, a school board member, has maintained that Mellone treated him unfairly because he opposed his appointment. But Mellone has said he gave Haag time to correct the situation before levying the $50 fine (the only amount Haag has paid), and could have levied a maximum fine of $500.

At the council's March 24 meeting, Democratic Councilwoman Joan Winnie, denied Haag is being pestered.

"There was no harrassment involved," said Winnie, liaison to Mellone's department.

Once all work is completed, the facility will be staffed by DOE contractor Bechtel National Corporation.

FUSRAP, Maywood Site, Maywood, NJ, **The Shopper News**, Weekly- 2,000,
Date 4/1/92 Page

ST. LOUIS POST-DISPATCH
FRIDAY February 7, 1992
SECTION C-PAGE 3

Finding The Energy (Dept.) To Clean Up

By Henry D. Royal

The Department of Energy has earned the distrust of most St. Louisans and most Americans. Rather than serving as role models for the nuclear industry, the department's facilities have been run more like hoodlum organizations. Historically, the department has flouted the law and polluted our land. Understandably, St. Louisans are angry and they demand that the department's nuclear mess be cleaned up.

Anger can cloud our judgment. We may seek retribution or revenge and forget our real goals: To keep this from happening we must list the things that we hope to achieve by cleaning up St. Louis' nuclear waste. Two important goals should be protecting the health of the public and protecting the environment.

How is the health of the public being damaged by St. Louis' nuclear waste? To know what health effects to expect, we need to know the radiation dose to members of the public. The department estimates that the maximum credible exposure to a member of the general public would be less than 20 millirems of radiation each year. This maximum radiation dose from this waste compares to the 360 millirems the average American is exposed to annually from various sources. The department estimates that the average radiation dose to members of the general public is too small to measure.

If we believe the department's radiation dose estimates, the effect on the public health of the radiation from St. Louis' nuclear waste would be much less than the effect of radon on the public health. If we don't believe the estimates, our first priority should be to calculate a radiation dose that we can believe so we can estimate the public health effects.

How is the environment being damaged by St. Louis' nuclear waste? How likely is it that animals and plants will be harmed by the radiation dose? How will this harm express itself? Will extensive excavation of the waste cause more environmental harm than good? What exactly are our environmental goals?

Some things are certain. The cleanup will be very expensive. Depending on the option that St. Louisans choose, the local cleanup could cost well over $1.0 billion. After all is done, will there be any measurable improvement in the health of the public? If so, what will these improvements be? Will they be worth the cost? Could a greater improvement in our health be achieved by opting to spend less on the clean-up and more on health care for the poor?

If we are to prevent the most deaths and illnesses, we must spend our limited public health dollars wisely. Diverting a large share of our resources to protect ourselves from small risks will necessarily condemn many others to preventable deaths from much bigger health risks.

The cost-effectiveness of the different options for cleaning up St. Louis' nuclear waste sites is rarely discussed. The argument goes, "The Department of Energy is responsible for the nuclear waste. It should clean it up regardless of the costs."

The problem is that its money is our money. We should see to it that it is spent wisely and responsibly. We should not allow our anger to cloud our judgment.

Henry D. Royal, M.D., is an associate professor of radiology at Washington University School of Medicine.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 2/7/92 Page C,3

THE FLORISSANT VALLEY
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DOE Gets the Message:
Move the Radioactive Dirt Out;
"St. Louis County Tires Of It," Says Westfal

By Jeanette Eberlin, Special Correspondent for the Reporter

More [illegible] 200 people cramme[illegible]to Berkeley Senior High School auditorium last Tuesday to bombard Department of Energy officials with one strong message. Passions were stirred as the message was delivered: Stop the delays, and move the contaminated material out - now.

The public meeting had been called by DOE officials to air their plans for the cleanup of the radioactive waste stored on Latty Avenue in Hazelwood, some stored at a site near Lambert Field and the contaminated material at the Mallinckrodt Inc. complex in North St. Louis.

After a 30 minute presentation by David Adler, site manager for the DOE, the three member panel heard more than 50 speakers whose major complaint was that the agency "is taking too much time to solve the problem."

Adler told the crowd the comprehensive plan will be announced in 1995. "Then a plan will be decided upon," he said.

He listed three alternatives the agency might consider: permanently store the contaminated material on the site at the airport location; building a dedicated facility somewhere else in Missouri, in a rural area, or taking it out of state to a commercial facility.

In an interview later Adler said there is one more alternative, that is taking it out of state to an existing federal facility, or a commercial facility.

"We are also looking at the possibility of somehow treating the waste to remove the radioactivity; this would diminish the volume greatly, but at present there is no proven technology to do this. But, we are researching the possibility," he said. He added that this research won't stall the process.

"If the technology is not quickly available, we'll discontinue the option,"

Adler told the crowd the DOE also plans to clean up the yards in residences immediately in the vicinity of the Hazelwood site. Also, on the grounds of businesses in that area on an "as needed" basis; the soil has to be disturbed for sewer work, or other kinds of activity. This soil will be taken to the Hazelwood site.

There are approximately one million cubic yards of material in the St. Louis area, Adler said. About 30,000 cubic yards are stored on Latty Avenue in the two large piles, and about 70,000 under the piles in the ground. At the airport site there are about 250,000 cubic yards, and at Mallinckrodt, 288,000 cubic yards.

All elected officials were given the opportunity to address the panel first. Some "big guns" from the state and county took aim at the panel and vented their frustrations.

Lee Brotherton, special assistant to St. Louis County Executive George "Buzz" Westfall read a statement from the executive who was in Jefferson City.

The statement charged, "The people of St. Louis County are adamantly opposed to any solution which leaves this waste in our community. Quite simply, this community will not accept the permanent storage of radioactive waste in a densely populated urbanized area. Any remedy that allows this waste to remain in the heart of St. Louis County is inappropriate and a threat to the health of our citizens. The county executive will oppose any such proposal.

"As everyone knows, this waste was produced as the result of wartime production on behalf of the United States government. This community played its part in the war effort, but the war has been over for decades and the federal government alone is responsible for the waste it produced."

"St Louis County is tired of waiting and requests that this process be accelerated as much as possible," the statement said.

St. Louis County Council President John Shear seemed to shake the walls when he thundered, "All you're doing is delaying, delaying and delaying. If you continue doing that, 100 years from now we'll still have those 'temporary' sites."

Shear had been active in organizing a referendum in St. Louis City and Count in November 1990 in which 80 percent o[illegible] voters asked that the m[illegible]al not be store permanently in a bunker near the airport.

"Nine out of ten people voted to get rid of this stuff; it was a message from the people," Shear said.

When his turn at bat came, Berkeley Mayor Bill Miller pointed out to the panelists, "This type of hearing has been held at least five times. Now, if the EPA (Environmental Protection Agency) does not agree with your plans, we could go on for 10 more years. This is unacceptable; we want it out of here so we can move on with our lives."

Miller called upon members of Congress and the U. S. Senate to initiate new legislation to "accomplish this goal."

Joan Bray, U. S. Rep. Joan Kelly Horn's district director, read a prepare statement from the Congresswoman that suggested the waste be moved to a commercial facility in a rural area of a western state. She pointed out that there is such a facility that has been used for this purpose, and it soon will come under the auspices of the EPA.

Horn has been working with U. S. and local officials for the past 13 months to solve this problem. On June 14, 1991 Horn had asked Admiral James Watkins, U. S. Secretary of Energy, that the target date for the complete feasibility study be moved forward from March 31 of next year to September 30 of this year; also, that the record of decision be moved to March 31 of next year instead of September 30, 1994.

Hazelwood Councilwoman Mollie Rickey gave her address on a softer note, but her message was as determined as the previous speakers.

She began by commending the DOE on the studies made as a prerequisite for the cleanup of the three groups of properties.

Quoting from the DOE's work plan dated December 1991, she said, "Because of the extensive amount of information already known about the St. Louis site, extensive additional sampling should not be required to begin evaluation of alterna-

FUSRAP, St. Louis Sites, St. Louis, MO
THE FLORISSANT VALLEY REPORTER
DATE 2/4/92 PAGE 1



Hazelwood Councilwoman Mollie Rickey and Congresswoman Joan Kelly Horn discussing radioactive waste pile (in background) on Latty Avenue site in Hazelwood

tives for remedial action.

"The time for study and discussion is passed," she stressed. "We must act now. Please, I implore you to reschedule the issuance of the record of decision from 1995 to 1992."

In a dynamic presentation, Gilda Evans, whose family resides on a street in the immediate vicinity of the Latty Avenue site, told the panelists that there have been 14 cases of cancer reported in that area.

She said she feels that being exposed to the radiation since his birth has caused her son's Leukemia.

"For years this pile was exposed and this dirt has blown all over this area.

"My wish is that all the waste sites be transported in a safe manner to some 'No Man's Land' not to endanger anyone or ruin anyone else's neighborhood and be stored safely."

FUSRAP, St. Louis Sites, St. Louis, MO
THE FLORISSANT VALLEY REPORTER
DATE 2/4/92 PAGE 1

Outlay: Flood-Control, Waste

By Robert L. Koenig
Post-Dispatch Washington Bureau

WASHINGTON

PRESIDENT GEORGE BUSH's new budget offers mixed news for Missouri and Southern Illinois — from an increase in money for flood-control projects at Valley Park and East St. Louis to cutbacks in heating-aid programs for poor families across the states.

While exact budget numbers were not available for many programs, the losers in the budget appeared to include light-rail systems, such as the Metro Link project in the St. Louis area, and agricultural research programs such as those at the University of Missouri.

The local winners in the budget included continuing federal construction projects — including the replacement of Lock and Dam 26 on the Mississippi River near Alton, which would get about $47.5 million under the Army Corps of Engineers' proposed budget.

Here are some areas — highlighted in budget documents and in analysis by members and staffers from the bi-state congressional delegation — where Bush's proposed budget for the federal fiscal year that begins Oct. 1 are expected to affect Missouri and Illinois:

- Federal money for the new Melvin Price Lock and Dam 26 at Alton includes $9.7 million to complete work on the dam project and $37.8 million for work on the facility's second lock.
- $6.9 million for continued work on improvements to the flood-control system along the Mississippi in East St. Louis.
- $3.1 million for construction on the new levee along the flood-prone Meramec River at Valley Park and $7.8 million for a major flood-control project in Cape Girardeau, Mo.

But one project that is missing from the corps' plan is more money for work to solve the siltation problems at St. Louis Harbor, on the Mississippi just north of downtown St. Louis. Last year, Congress appropriated $900,000 for the project.

A ray of good news in the budget — a 34 percent increase (to $1.9 billion) in the federal money for a group of radioactive-waste cleanup programs — could bode well for the continuing cleanup of the Weldon Spring site in St.

FEDERAL BUDGET

St. Louis Post-Dispatch 1-29-92 21C

Cleanup Are Local Winners

Charles County, staff members said.

Meanwhile, several big projects or programs in the St. Louis area are expected to face possible cutbacks as a result of the budget:

- Federal money for new light-rail programs would decrease to about $400 million (from $537 million this year), meaning that the 18-mile Metro Link project from Lambert Field to East St. Louis would face greater competition for federal transit dollars.
- A proposal to cut back the HOME grant program for low-income housing could mean that St. Louis would expect to get only about half of the $7 million that it is getting this year under the program.

In addition, Bush's plan to cut modernization money for public housing — to $2.3 billion, down from this year's $2.8 billion — could spell further trouble for the St. Louis Housing Authority, which lost millions of dollars in modernization money last year because of a mixup in its application for the money.

- Tens of thousands of needy families in Missouri and Illinois that get help under the Low-Income Home Energy Assistance program could face cutbacks in aid as a result of Bush's plan to reduce the LIHEAP budget by about $500 million — to $1.06 billion.

Meanwhile, congressional aides said Bush's proposed cutbacks in agricultural research and rural study programs could lead to reductions at the University of Missouri and at Lincoln University's Bennett Living and Learning Center in Jefferson City.

In a boost for Northern Illinois, Bush's budget proposed $30 million for a high-energy physics project at Fermi National Laboratory in suburban Chicago. Last fall, the Energy Department had appeared to be reluctant to support the project.

At Fermilab, the money sought by Bush would pay for construction of the main injector, a ring that stores particles before injection into another four-mile ring. The particles collide so researchers can study high-energy research.

In one controversial proposal, the budget proposes that inmates of federal prisons, including the maximum-security prison in Marion, Ill., be forced to pay a fine equal to the first year's cost of incarceration. The proposed fine would apply to all federal prisons and would raise $48 million a year, the administration said.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 1/29/92 Page 1C

Residents want waste removed

By Dennis R. Holnze
Staff writer

Not long after one of the nuclear reactors at Pennsylvania's Three Mile Island experienced a breakdown in 1979, Anne Kennedy decided to move home to Berkeley, away from the threat of radiation.

"I was very frightened at that time," she said. "I had a newborn child, and I wanted out. I came back to what I called home, but what I call home now scares me."

Kennedy's concern stems from living in the same area as two radioactive waste storage sites. At a public hearing organized by the Department of Energy last Tuesday at Berkeley High School, Kennedy was one of more than 35 local residents and public officials to demand the agency get rid of the waste.

See WASTE, Page 5A



Ted Faulhaber phot

John Shear, St. Louis County Council chairman, asking Department o Energy officials to remove radioactive waste stored at several sites in the St. Louis area.

Waste

From Page 1A

"I think it is the most incredibly lousy location for a temporary storage, permanent storage or any other possibility that you may come up with," Kennedy said. "I think it needs to be out of this state. It needs to be in an area that is not populated."

The radioactive waste, which was generated during the production of atomic weapons and fuel from the 1940s to the 1960s, is stored at three St. Louis sites: an industrial area in downtown St. Louis, a parcel of land adjacent to Lambert-St. Louis International Airport and property located on Latty Avenue in Hazelwood. Some transportation routes and residences between the sites also are contaminated.

The DOE is studying the sites to identify the extent of the contamination and to evaluate clean-up alternatives. Comments from the hearing, which was attended by more than 200 people, also will be used by the agency to decide in 1995 what action it will take, said David Adler, DOE site manager.

If it were up to the residents, the DOE would move the waste either to a rural area in the state or to another state. Most citizens also vehemently opposed a proposal to consolidate the waste in a bunker at the airport site.

"My wish is that all the waste sites all over be transferred in a safe manner to some no-man's land not to endanger anyone or ruin anyone else's neighborhood," said Gilda Evans, who lives a quarter-mile from the Latty Avenue site.

Evans blames the radiation a the site for the breast cancer she i recovering from as well as he 6-year-old son's leukemia an Down's syndrome.

Lee Brotherton, special assis tant to St. Louis County Executiv George "Buzz" Westfall, said th cleanup has taken too long and th waste should be removed.

"The people of St. Louis Count are adamantly opposed to an solution which leaves this waste i our community," he said. "Th community will not accept perma nent storage of radioactive wast in a densely populated, urbanize area."

John Shear, chairman of th County Council, added: "Al you're doing is delaying and delay ing and delaying. Put all th charts and graphs and plans asid and listen to what the people ar saying in this area and get thi stuff out of here."

However, Berkeley resider Martin Buchheit told the audienc that other areas in the state an country will not want to accept th waste either. He said local res dents should study the clean-u proposals instead of reacting neg atively to them on a purely emo tional level.

North County Journal
February 2, 1992
P. 1

FUSRAP, St. Louis Sites, St. Louis, MO, North County Journal, Weekly-6,300, Date 2/2/92 Page 1

DOE organizing clean-up plan

The Department of Energy has developed a schedule for clean-up of the three radioactive contaminated sites in St. Louis and the other contaminated sites in the vicinity.

- **Spring 1992:** Complete clean-up proposal for some residential, commercial and municipal properties in Berkeley and Hazelwood. The public will have a chance to review and comment on the proposal prior to its implementation.
- **Spring 1992:** Complete the study of the sites concerning the extent of the contamination and the nature of the health risks at the three sites.
- **Spring 1992 to late 1993:** Evaluate practical alternatives of cleaning up the sites, such as removal of the contaminated soil and debris to a site in rural Missouri or to a site elsewhere in the country. Another option would be to consolidate the waste at the airport site.
- **Late 1993 or early 1994:** Propose a plan for cleaning up the waste and give the public the opportunity to review and comment.
- **1995:** Finalize the plan, continuing to work with other agencies such as the Environmental Protection Agency and the state Department of Natural Resources, and begin implementation.

Chairman Shear goads scientists

Not all opposition to a controversial proposal has to take the form of an angry demand.

It can be a light-hearted remark as well.

When 200 local residents and public officials had a chance to comment at a public forum about radioactive waste stored at three sites in the St. Louis area since the 1940s, most angrily asked the Department of Energy to remove the waste.

But John Shear, St. Louis County Council chairman, summed up the opposition with a facetious comment. Shear said the radioactive material has been in St. Louis so long that he wonders whether the scientists working on the problem now are related to the original producers of the waste.

"Are those scientists and experts the sons and grandsons and granddaughters and daughters of the scientists who 40 years ago said it was OK to store this stuff out here and it would never be a problem?" he questioned, eliciting laughter and applause from the audience.

"If they are, then four years from now, they're going to have a solution that isn't going to work either," Shear concluded, demanding: "Get this stuff out of here!"

— **Dennis R. Heinze**

FUSRAP, St. Louis Sites, St. Louis, MO, North County Journal, Weekly-6,300, Date 2/3/92 Page 1

Move Radioactive Waste, Panel Told

Hearing On Cleanup Held

By Tom Uhlenbrock
Of the Post-Dispatch Staff

More than 50 people signed up to tell the Department of Energy what to do with the radioactive waste contaminating several sites in St. Louis, but few said it more succinctly than Berkeley City Councilman Ted Hoskins.

"I'm not concerned about where you take it, and I'm not even going to give you a suggestion," Hoskins said. "I just want you to take it."

Department officials, led by David Adler, called the public meeting Tuesday night at Berkeley High School to begin what they said would be a three-year process for deciding how to clean up three contaminated sites.

The sites are Mallinckrodt Inc.'s 45-acre complex north of downtown St. Louis and two areas in north St. Louis County — near Lambert Field and on Latty Avenue in Hazelwood. Roads linking the county sites, and nearby Coldwater Creek, also are contaminated and will be cleaned up.

The sites hold up to 1 million cubic yards of contaminated soil and rubble, Adler said.

He proposed three alternatives: consolidating the material at the airport site, moving it to a rural Missouri site or moving it out of the state.

St. Louis County Executive Buzz Westfall, in a statement read by aide Lee Brotherton, said city and county voters had rejected the airport alternative in a vote in November 1990.

Rep. Joan Kelly Horn, D-Ladue, also had a prepared statement read on her behalf and suggested the material be moved to a commercial hazardous waste facility in Clive, Utah.

County Councilman John Shear complained that the waste had been in the St. Louis area since World War II. "All you're doing is delaying and delaying and delaying," he said. "Put all the charts and graphs aside, and get this stuff out of here."

About 200 people attended the session.

Two speakers questioned whether the low-level radioactive waste presented a danger. One of them was Dr. Henry Royal, who said he worked in nuclear medicine at Washington University. He said he had been told the final cost for cleaning up the sites could be $1.5 billion. He suggested that money would be better spent on health care for the poor.

"We should not allow our anger to cloud our judgment," he said to scattered boos.

Martin Pion, who said he was a scientist who had worked for McDonnell Douglas, said 500,000 people would die this year from smoking, while not one death in the St. Louis area could be blamed on the low-level radiation.



Gary Bohn/Post-Dispatch

St. Louis County Councilman John Shear speaking to federal officials about radioactive waste at a meeting Tuesday night.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 4/27/92 Page 3A

Waste Storage Site Is Concern To Activists

Some Fear Facility May Be Long-term

By Tom Uhlenbrock
Of the Post-Dispatch Staff

Anti-nuclear activists fear that a radioactive waste storage site being prepared just north of downtown may be more than the interim structure the Department of Energy is promising.

"Will it become permament, or at least very long-term?" asked Kay Drey, who has led the fight to clean up radioactive waste sites in the metropolitan area. "I'm worried that it won't be 'interim.'"

The department is renovating an old warehouse at the Mallinckrodt Inc. complex to hold contaminated soil and other debris found on the plant grounds.

The radioactive rubble is left over from Mallinckrodt Chemical Works, which began making pure uranium for the government's atomic-bomb program in 1942 and continued the processing at the north St. Louis plant until 1958.

On Tuesday, the Energy Department will hold a public meeting to discuss the cleanup of Mallinckrodt's plant and two other sites — one near Lambert Field and the other on Latty Avenue in Hazelwood — where contaminated material from the plant is being stored.

The meeting will be at 7 p.m. at Berkeley High School, 8710 Walter Avenue.

David Adler is the Energy Department's official in charge of coming up with a plan to clean up the St. Louis sites. But that deadline is 1995. Meanwhile, he said, something must be done to deal with the waste at Mallinckrodt.

Adler said most of the contaminated soil and debris — estimated at 246,000 cubic yards — was under the concrete floors of buildings or in other areas where exposure was limited.

"Right now, they have a situation that is stable and low risk," he said. "But Mallinckrodt is continuously engaged in efforts to maintain their facility. They replace sewer lines, repair roofs and do other things that, unfortunately, cause them to work in areas where contamination is present.

"What the department is doing is establishing an on-site storage area and associated decontamination facilities that would allow us store those materials in a safe way."

Adler said the old concrete-block warehouse was being updated with sealed flooring and windows. "We're using a building that is already contaminated on the site and retrofitting it," he said.

"I would estimate less than 10,000 cubic yards would physically fit inside the building," he added. "This isn't a proposal to go into a full-scale remediation at Mallinckrodt and then store the waste on site.

"We don't have a facility big enough for that. This is simply a proposal to deal with the odds and ends as they are generated."

Drey said that attitude was long overdue.

"I'm delighted that they're beginning to pay attention to where they take contaminated building parts," she said. "It's extremely important that they don't disappear off site to undisclosed locations, which was happening as late as last year, when part of a roof from Building 51 was sent off somewhere."

Jack Frauenhoffer, a spokesman for Mallinckrodt, denied that contaminated material was leaving the premises.

"We did have an instance where we thought that could have happened last year, but we checked, and it didn't," he said. "That's the purpose of making the building available to the Department of Energy for storage — to make sure those kinds of things don't happen."

Frauenhoffer also said that letting the warehouse become a permanent storage site wouldn't be in his company's best interests. "No one likes a storage facility located on their property, or to be a neighbor to it," he said.

Anti-nuclear activists fear that a radioactive waste storage site being prepared just north of downtown St. Louis may be more than the interim structure the Department of Energy is promising. The department is renovating an old warehouse at the Mallinckrodt Inc. complex to hold contaminated soil and other debris found on the plant grounds 3A

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 1/27/92 Page 3A

Officials urge residents to attend DOE forum

By Dennie R. Heinze
Staff writer

When the U.S. Department of Energy holds a public forum next week to gather comments about cleaning up locally stored radioactive waste, federal officials likely will get an earful.



Meyer

"I think all of us are discouraged, disgruntled and aggravated that everybody's dragged their feet on this for so long," said Bridgeton Councilwoman Peggy Meyer, Ward 1. "Anybody who's interested in cleaning up the environment should come out to this and speak their piece."

The DOE currently is studying three radioactive waste sites, known collectively as the "St. Louis Site," for cleanup. The sites include an industrial area in downtown St. Louis, a parcel

See DOE, Page 8A

DOE

From Page 1A

adjacent to Lambert-St. Louis International Airport and property located on Latty Avenue in Hazelwood.

The studies, which should be completed by 1995, will be used to determine the nature, extent and environmental effects of the contamination. While the investigation will identify and evaluate cleanup alternatives, the DOE wants residents in surrounding communities to participate in the process.

The public meeting will be held 7 p.m. Jan. 28 in the auditorium at Berkeley Senior High School, 8710 Walter Ave.

"I'm looking forward to this meeting; it's been a long time in coming," said Nancy Lublewski, a member of Florissant's Environmental Quality Commission. "We really need people there. Any decision the Department of Energy makes will depend very much on the public."

Lubiewski, who has been vocal in her push for the DOE to remove the waste, said Coldwater Creek — located next to the airport site and near the Latty Avenue site — poses a problem for all of North County. The waste can seep into the creek and contaminate ground water and soil throughout the area.

"Who knows how far it can go?" Lublewski said.

The DOE has proposed several options for dealing with the waste, including hauling it to a storage facility somewhere else in Missouri or somewhere else in the country, or building permanent bunkers near Lambert Airport.

Journal Staff Writer Laura J. Hopper contributed information to this report.

COUNTY STAR/MARYLAND HEIGHTS JOURNAL
PAGE 8A DATE 1/22/92

Waste

Meeting Jan. 28 Will Start Effort To Solve Problem

By Tom Uhlenbrock
Of the Post-Dispatch Staff

David Adler admits it's been a long time in coming, but he says a meeting scheduled for later this month is the beginning of the end for the St. Louis area's legacy as a radioactive waste hot spot.

"I expect there will be a lot of folks wanting to vent their frustration with the whole thing," Adler said. "The waste has been around for 40 years, and they'll want to know why it's taken so long for the Department of Energy to deal with it."

Adler is the department official managing the cleanup of three contaminated areas referred to collectively as "the St. Louis site." The Energy Department wants a decision by 1995 on how the cleanup will be conducted.

The problem is that, 40 years later, nuclear waste is still a hot potato. Nobody wants it, and there is no private or government repository for it.

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See WASTE, Page 4

St. Louis Post-Dispatch
January 19, 1992

Waste

From page one

Atomic Energy Commission when it contracted with Mallinckrodt Chemical Works in the 1940s to make pure uranium to be used in the first atomic bombs.

For the next 25 years, Mallinckrodt produced fuel for the nuclear industry. The wastes from that process now are stashed from the company's plant in downtown St. Louis to its abandoned facility at Weldon Spring in St. Charles County.

Adler's responsibilities include cleaning up the downtown Mallinckrodt site and areas near Lambert Field and on Latty Avenue in Hazelwood where radioactive debris was deposited.

Adler estimated there are 246,000 cubic yards of contaminated material on the Mallinckrodt grounds.

"It is generally underneath concrete or asphalt as new buildings were built over it," he said. "There's also a fair number of building interiors and exterior soils that became contaminated."

Rubble from Mallinckrodt was transported to the airport and later to Latty Avenue. Routes along the way, and Coldwater Creek, were contaminated from spills and runoff. Some of the waste also found its way to West Lake landfill in Bridgeton.

The last official tally by the Energy Department estimated that about 2.3 million cubic yards of contaminated material was scattered across the St. Louis area.

At 7 p.m. Jan. 28, the Energy Department will hold a public meeting in the auditorium at Berkeley Senior High School, 8710 Walter Avenue. The meeting was called to glean what St. Louisans want the department to do with the waste.

Adler described the meeting as the kickoff to the department's three-year schedule for rendering a decision on a final resting place for the contaminated material.

"We'll probably hear lots of classic 'get it out of here' arguments. Solve the problem, but don't solve it by leaving it near me," said Adler. "One alternative, which is highly controversial, is to consolidate the waste at the St. Louis airport site."

The Energy Department previously proposed building permanent storage bunkers at the airport site, but Adler now says, "There is no bias toward that alternative."

That plan became "highly controversial" when St. Louis and St. Louis County voters in November 1990 were asked their opinion on building the permanent bunkers near Lambert Field. The answer was loud and clear from more than 80 percent of the voters — no way.

A second alternative, Adler said, would be to "construct a dedicated facility somewhere else in Missouri." That plan, he conceded, probably would face the opposition of local residents.

A third option — hauling it out of Missouri to a facility elsewhere — faces the same problem of where to go.

"As we speak, there are no private or commercial facilities that are permitted to receive waste of this type," Adler said.

The Energy Department is conducting an unrelated cleanup of the Weldon Spring site. Radioactive material is being placed on temporary storage pads there, with a permanent site to be decided upon sometime this year.

Kay Drey, the anti-nuclear activist who has led the battle to get the contaminated sites cleaned up, has another idea.

"I think they should consider the surplus 6,500 acres that Union Electric owns contiguous to its nuclear power plant in Callaway County," Drey said. "It's already partly contaminated from emissions from the plant, and could be used for an above-ground storage facility."

UE, as might be expected, balked at that idea.

Drey is doing her part to assure the Energy Department's meeting is well attended. She has sent invitations to corporate leaders and politicians in the area that say: "You are invited to perform in the longest running dog-and-pony show in the Midwest — yet another Department of Energy hearing on the St. Louis radioactive waste sites."

Drey said she doubted whether the area's leaders would show up for the session.

"These are the people who need to say something about it," she said. "But they are taught not to talk about anything controversial, and maybe it'll go away."

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 1/19/92 Page

Forum Seeks Answer To Waste Problem

By Tom Uhlenbrock
Of the Post-Dispatch Staff

David Adler admits it's been a long time in coming, but he says a meeting scheduled for later this month is the beginning of the end for the St. Louis area's legacy as a radioactive waste hot spot.

"I expect there will be a lot of folks wanting to vent their frustration with the whole thing," Adler said. "The waste has been around for 40 years, and they'll want to know why it's taken so long for the Department of Energy to deal with it."

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FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 1/19/92 Page Sec. 4D, 1

Westfall Selects Nine Advisers

Panel To Help Draw Up Proposal For Expanding County Council

By Virgil Tipton
Of the Post-Dispatch Staff

Nine St. Louis County residents, including three blacks, will advise County Executive George R. "Buzz" Westfall on how many new members should be added to the St. Louis County Council.

Westfall said Wednesday that he had picked the committee, which will act as an informal advisory board.

"The charge is to examine the issue of the County Council as to whether it should be expanded and to what number," Westfall said, who supports an expansion. "I will defer to their recommendation as to what the number should be."

The council now has seven members. Westfall, the Democratic members of the council and some black officials in the county favor enlarging the council to give black candidates a better chance to win a seat. A black has never served on the council.

The vice president of Black Elected County Officials and an alderman in Rock Hill, Matthew Knuckles, called the appointment of the committee "a step forward from what's been done in the past. It's a positive point showing that Buzz Westfall is working with the minority community."

But many Republicans oppose the idea of enlarging the council.

Said H.C. Milford, Westfall's predecessor: "Why do we want to increase the cost of government now, when literally there's less for them [council members] to do?"

Milford, a Republican and a member of the County Council Reapportionment Commission, said he thought blacks would have more representation on the council if one of the seven districts were redrawn to include more blacks.

Westfall's group will be chaired by E. Terrence Jones of Ladue, dean of arts and sciences at the University of Missouri at St. Louis and the husband of Rep. Joan Kelly Horn, a Democrat. Jones is with Confluence St. Louis, a group that favors expansion of the council.

Westfall's group includes the chairman of the County Council, George M. "Jerry" Corcoran of St. Ann, D-2nd District.

The other members are:

- Dorothy Davis of University City, a member of the University City School Board.
- Richard Brunk of an unincorporated part of West County, a lawyer.
- Errol S. Bush, a Northwoods alderman and the financial secretary of Black Elected County officials.
- Brender Moore of Bellefontaine Neighbors, branch manager for the Florissant office of ADIA Personnel Services, a temporary employement agency.
- Linda Behlmann of Florissant, president of Behlmann Properties.
- State Rep. May Scheve, D-South County.
- Daniel Fowler of South County, a member of the Mehlville School Board.

Davis, Bush and Moore, who are black, were suggested by Black Elected County Officials, Westfall said.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page

Weldon Spring Plant Is Opened To Public

Former Workers Get One Final Look

By Tom Uhlenbrock
Of the Post-Dispatch Staff

George Stuckenschneider still had his identification badge. It showed a much younger Stuckenschneider and said: "Mallinckrodt Chemical Works Uranium Division. No. 1418."

"I was the No. 1 security guard out here — from '56 until they closed it in '66," said Stuckenschneider. "It costs $75 million to build it."

"And 10 times that to tear it down," added his wife, Mary.

The Department of Energy held an open house Saturday at the abandoned Weldon Spring Chemical Plant in St. Charles County to allow the public a look before work begins to raze the complex of some 40 rusting buildings.

The Army owned the site in the 1940s and used it to make explosives. Mallinckrodt, which had the contract to make uranium for the Atomic Energy Commission, took over 205 acres in 1955 to build a processing plant.

The open house turned into a reunion of sorts as many former employees, mostly now in their 60s and 70s, returned to pay a final visit.

They sat on the tour buses, pointing out the sights to their wives, children and grandchildren.

"I used to work in the 'green salt' building," said George Toben, referring to one of the five main processing buildings where radioactivity levels are said to be the highest.

"Back in those days, we used to sit on those barrels of uranium and never thought anything of it," said Toben. "This was heaven. The pay was outstanding compared to other factories in the area."

Gil Wahlmann was supervisor of engineering standards at the plant.

"I didn't think they'd allow us to go in because they're making such a big deal about contamination, but I'd love to go through those buildings," Wahlmann said.

"I used to give tours of the plant for dignitaries. One guy was a Turkish general. You wouldn't believe the gaudy stuff hanging from his chest."

Like the other former workers, Wahlmann shook his head at the cost estimate for cleaning up the complex and a nearby quarry, where contaminated material was dumped. The figure ranges from $500 million to $800 million.

"I don't know whether or not we were just stupid then about what this stuff would do to the environment, or if they just kept lowering the limits to the point that now they're overly conscious about it," he said.

"But you've got to do something about this place sooner or later. You can't just leave it like this for another 25 years."

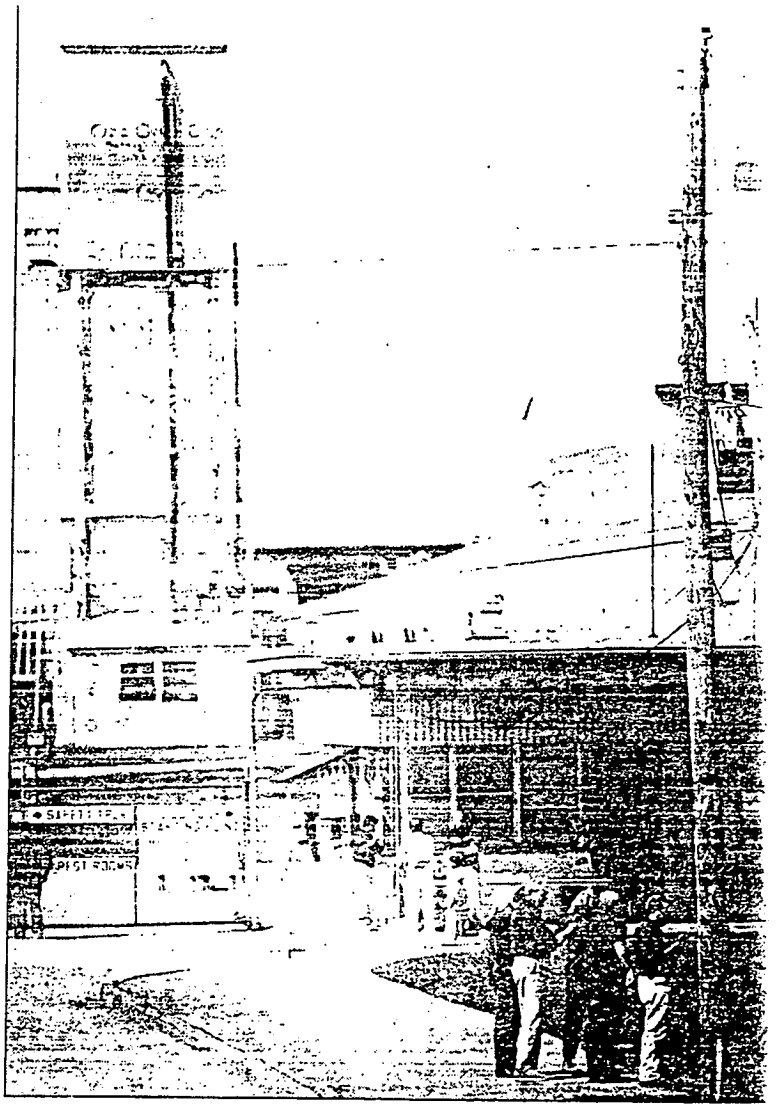
Richard Bozarth, 57, said he worked in maintenance until 1966, when the plant was closed.

"We just walked out, the last ones turned off the lights and left behind newspapers and coffee cups on the tables," Bozarth said.

"I wouldn't be afraid to walk anywhere in that plant right now," he said. "They said it made you sterile, but I had three kids while I was working here. And I'm still healthy as a horse."

Said Stuckenschneider, who is 77: "A lot of people I know have died from cancer, but anybody can get cancer. I'm still here."

Steve McCracken, the Energy Department official managing the cleanup of the site, said the open house, which included exhibits and lectures, was held to answer any questions about the project.



Kevin Mannin

Staff members of of the Weldon Spring Remedial Action Project waiting Saturday for people on a tour of the abandoned chemical plant.

"People are going to be looking over our shoulder — we expect that and invite it," said McCracken. "What we want to do is achieve understanding, and let the people decide for themselves if they want to fea. it."

P5C

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date ? Page ?

Tailings Called Risk To Water

By Leo Fitzmaurice
Of the Post-Dispatch Staff

Anything that knocks tailings of lead and barite into the Big River could threaten the water supply for many Jefferson County residents, an official of the Army Corps of Engineers told county commissioners on Monday.

The warning came from Dave Rahubka, a corps official working on a study of the water supply of the St. Louis area. He was reporting on the study's progress in its first six months.

"The mine tailings are a significant environmental disaster waiting to happen," he said.

In an earthquake or other natural disaster, the tailings would, in effect, liquefy, flowing mainly into the Big River, he said.

Eight ponds that include lead tailings and 50 barite mines and tailing piles are near the Big River, Mike Klosterman, a corps geologist in St. Louis, said in an interview. The mines are in Jefferson County and also to its south.

The lead and barite tailings are the residue of mining. Rahubka said the piles were like "a desert" where nothing grows.

He recalled that a barite pile flowed into the Dig River in the mid-1970s. Nature took several years to restore the balance of the environment, he said.

Presiding Commissioner Elizabeth Faulkenberry said she was particularly concerned. "When we have an earthquake," the release of the tailings "could be an ecological disaster" for the county, she said in an interview.

The cleanup cost could run into the tens of millions of dollars, Rahubka said. In the early 1980s, the corps estimated that $75 million would be needed to dispose of lead-mine tailings.

Among the possible solutions, he said, are:

- Separating the traces of minerals from their sandlike structures that form the piles.
- Placing nutrients in the piles of tailings so that vegetation would grow.
- Using the sites as compost piles for such materials as yard waste.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date ~ Page ~

Innovation 2B

clear plants have produced some of the nation's most difficult waste, including some waste that mixes radiation and toxic hazards.

"I am very optimistic about this," Rofer said. "There is a potential for this technology to be an alternative to incineration, at least for many hazardous wastes."

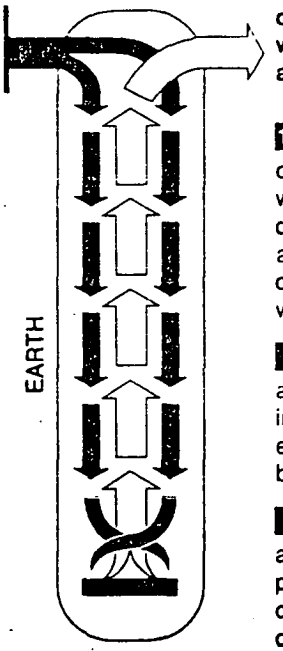
ST. LOUIS POST-DISPATCH

New Waste Disposal Idea

Scientists are working to develop a new waste disposal process that relies on gravity pressure to transform hazardous waste into harmless products. The process, called ***supercritical water oxidation***, involves a closed vessel extending a mile or more below the earth's surface.

1 Water containing up to 10 percent solids or additives is fed into the top of the closed vessel.

Hazardous waste, sewage, PCBs, old chemical weapons



11 The finished water may be engineered for filtration, off gas cleaning, or production of products such as methane, ammonia, or alcohol.

carbon dioxide, water, salts and ammonia

2 The water is directed down the sides of the vessel. As it descends, it gains pressure due to the weight of the water above it.

3 The water also picks up heat from the water rising up through the center from the bottom of the vessel.

4 The earth acts as insulation, keeping most of the heat in the vessel.

5 Under 3,200 lbs. per square inch of pressure, heated to 705°F, water becomes "supercritical". Its properties change dramatically.

6 At the bottom, water is recirculated and mixed with oxygen to burn the wastes out of it.

7 The ascending water is warmer and lighter than the descending water, providing the force to move the water without pumping.

8 As the water ascends, it loses pressure and is cooled by the descending water.

9 Small stones and grit are broken into powder that is easily carried along by the moving water.

10 Metals are oxidized to a point where they do not dissolve in water and can be filtered out of the treated water stream.

Source: Inventor, James Titmas

AP

Editorial

Use Caution At Weldon Spring

The Department of Energy is preparing to clean up millions of gallons of toxic water produced as waste by the old Mallinckrodt Chemical plant in its work on atomic bombs during and after World War II. But the procedures that the department proposes to use have never been tried and remain to be fully tested. As St. Louis County Councilwoman Geri Rothman-Serot said last week, "Let's rush to clean (it) up, but let's not rush to make another problem for someone else."

She was referring to the department's plan to treat contaminated water now held in the Weldon Spring quarry in St. Charles County, then release it into the Missouri River only a few miles upstream from area drinking water intakes. Despite assurances from the Energy Department that the water will be tested in batches, then treated again if it fails to meet acceptable standards, there appear to be reasonable doubts as to whether the plan has been fully perfected.

The Energy Department itself acknowledges the need to develop more sophisticated filtering technology and monitoring instruments to meet at least one crucial problem: effectively treating mixed waste — that is, uranium mixed with thorium and radium, which are also present in the Weldon Spring quarry. Current plans appear adequate for treating uranium, but not necessarily when other chemicals are present.

What's more, if the department's methods don't succeed, it will have been cheaper to follow standard procedure by constructing a pilot plant to perfect the required technology than to attempt to re-treat the contaminated water, perhaps many times. The department should review its plans to be certain they represent the safest and least expensive method to clean up Weldon Spring before proceeding.

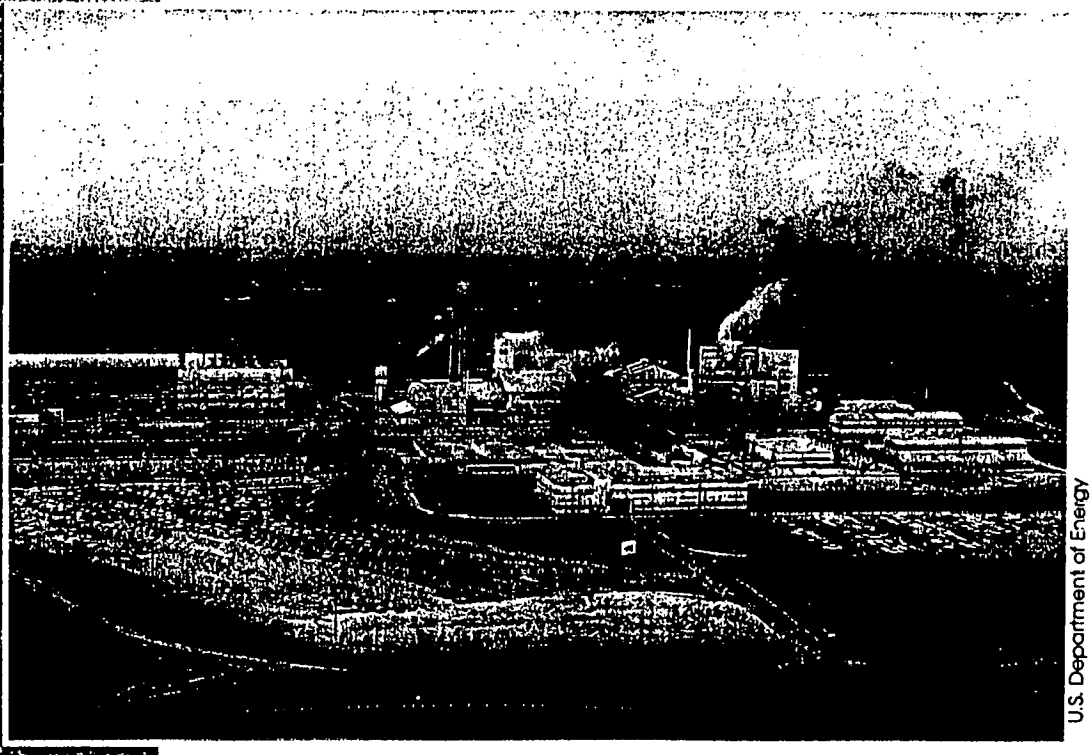
FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date Page 2B

Nearly 50 buildings, including the one a t, will be carefully dismantled during the cleanup of the Weldon Spring site in St. Charles County. The Weldon Spring Chemical Plant, below, processed uranium ore from 1957 to 1966.

Cleaning Up the Weldon Spring Site:

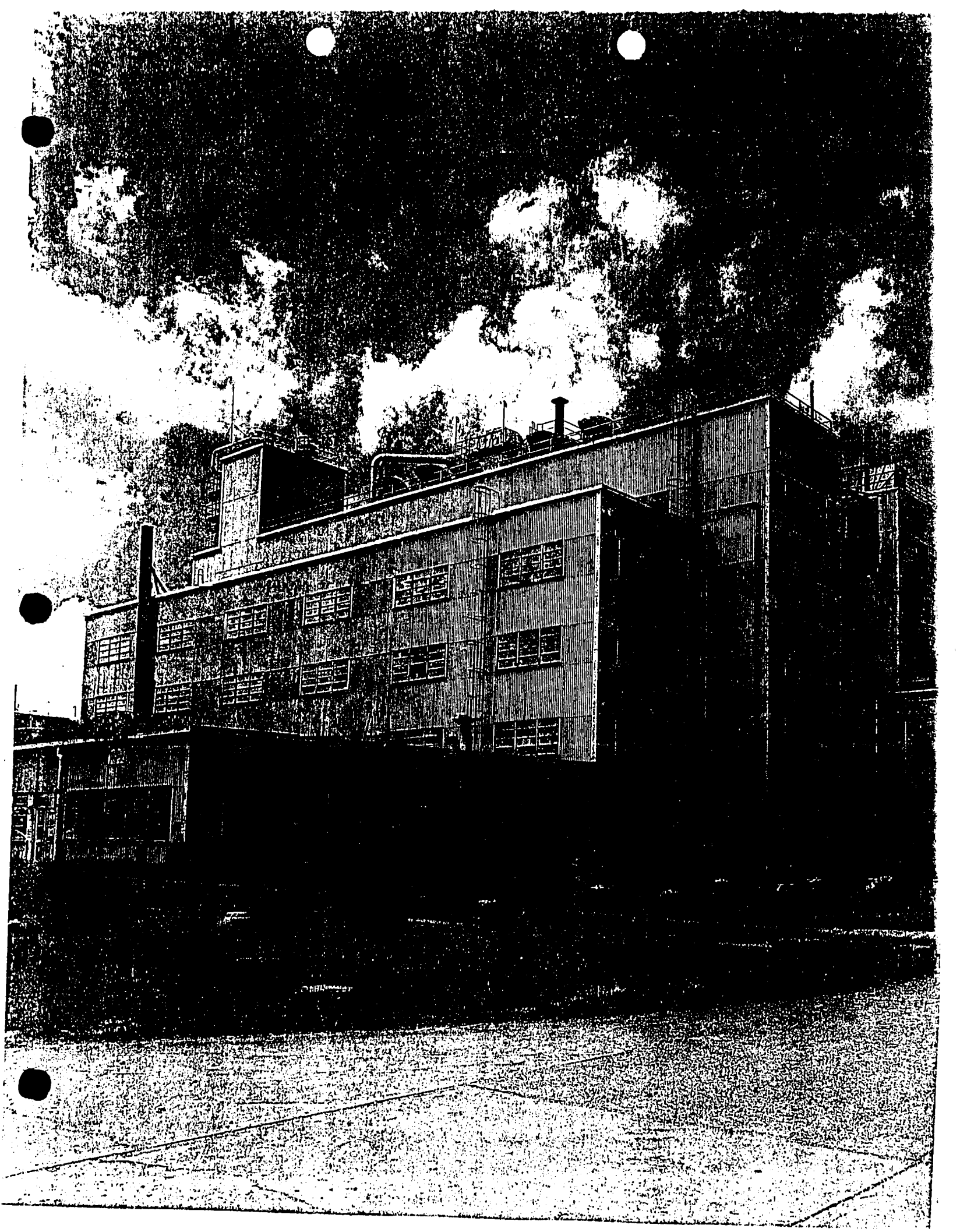
MISSOURI'S LEGACY FROM THE NUCLEAR AGE

by David Bedan



U.S. Department of Energy

Nick Decker



The nuclear age came early to Missouri. It began in April of 1942 when the American scientific community was convinced that German scientists were making rapid progress toward the development of an atomic bomb. Arthur Holly Compton, the Nobel Prize-winning physicist from Washington University in St. Louis, asked chemical manufacturer Edward Mallinckrodt to join him in a luncheon meeting.

The Americans had outmaneuvered the Germans in a race to secure high-grade Belgian Congo pitchblende, a mineral containing high percentages of uranium. Only Mallinckrodt's chemical plant had experience with the dangerous ether extraction methods, which could be adapted for processing uranium ores into a usable form.

Compton urged Mallinckrodt to assist the war effort by processing large quantities of uranium ore in order to build the first atomic bombs. But the first task was to prove that a sustained nuclear reaction was indeed possible. The U.S. Army had gathered some of the nation's finest scientific and technical talent in a super-secret project code-named the "Manhattan Project." Compton was a part of the group that was laboring day and night in the secret laboratory under the football stadium at the University of Chicago to produce a sustained but controlled nuclear fission reaction. They needed lots of uranium metal quickly.

Mallinckrodt agreed to process the uranium and thus began 15 years of such work at his chemical plant near downtown St. Louis. This work was carried out originally under the Army's Manhattan Project and later by the Atomic Energy Commission. In 1957, a new plant was opened at Weldon Spring in St. Charles County, on the site of an old Army trinitrotoluene (TNT) plant, and Mallinckrodt processed uranium there for 10 more years.

Missouri's legacy from this work is the wastes and residues from that processing. At five locations in the St. Louis area, almost two million cubic yards of waste and contaminated materials still await decisions on their disposition. These are the first wastes of the Atomic Age.

THE SCOPE OF THE PROBLEM

The primary contaminants in this waste are low levels of natural uranium and thorium and their radioactive decay products. The most highly radioactive wastes are fenced and secured from public access. Under these current conditions, the primary potential risk to the occasional visitor or passerby is from breathing alpha- or beta-emitting isotopes. A person who spent long periods of time near the more highly concentrated wastes would have a greater risk of being exposed to gamma radiation. There is no enriched uranium nor are there any reactor fission products in these wastes; that is, there is no risk of a nuclear reaction due to the presence of a critical mass of uranium and there are no high-level wastes.

However, the volumes of this waste were large in the beginning and have become even larger over the past years as wastes were hauled to various locations and some waste was evidently spilled along the roads. Because the waste was simply dumped and was not properly contained, erosion and leaching have spread the waste even farther, contaminating ground water and large volumes of soil. Over the years, even more waste has been spread by road, bridge, sewer, and other utility and construction projects, especially in the Hazelwood and Berkeley areas of north St. Louis County. And, many contaminated buildings still remain at the Mallinckrodt plant north of downtown St. Louis and at the Weldon Spring site in St. Charles County.

"The handling of this material was incredibly sloppy," said Ron Kucera, deputy director of the Missouri Department of Natural Resources (DNR). "This can only be understood in the context of the extreme secrecy and urgency of the atomic weapons program during World War II and the subsequent Cold War. In addition, radioactive waste management was given a very low priority and radiation protection standards were much less strict than those of today."

This secrecy and the government's overriding commitment to weapons production goals became a habit and persisted well into the 1980s. Almost 50 years since this uranium processing began, Missouri is now faced with nearly two million cubic yards of waste, contaminated soil, buildings, and rubble remaining at five major sites in the St. Louis region (the Mallinckrodt plant, the St. Louis Airport site, the Latty Avenue site, the Westlake Landfill, and the Weldon Spring site). Proper management of this waste at the time of its generation would have probably cost a few tens of millions of dollars. Now the total remedial cost for the Missouri sites will probably be at least $1.5 billion, and more likely close to $2 billion. And the cleanup of all of these sites will probably require 15 more years to complete.

Although the radioactive waste sites in Missouri are among the largest and oldest, they are only part of the U. S. Department of Energy's (DOE) national cleanup problem. More than 100 sites nationally are competing for cleanup resources. These sites include the active nuclear weapons facilities, uranium mill tailings sites, and formerly used or surplus sites such as the sites in the St. Louis area. U. S. Secretary of Energy James Watkins has committed the DOE to a massive cleanup of these sites across the country, which will cost $200 billion and take approximately 30 years. Many



U.S. Department of Energy

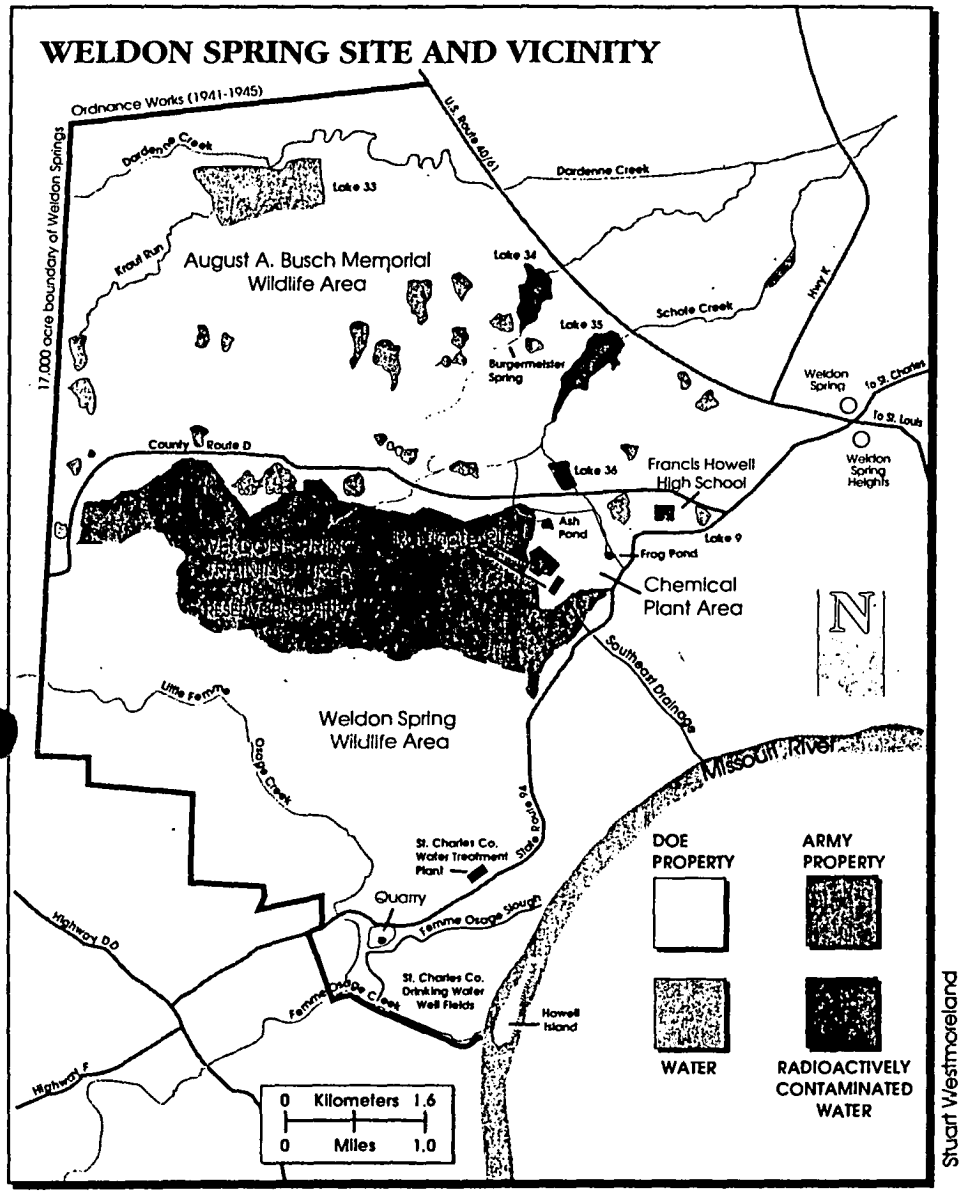
TNT and uranium-processing wastes were dumped into the Weldon Springs Quarry from 1942 to 1946.

states feel that this commitment should be shaped into law and such a proposal will be debated in the U.S. Congress.

THE WELDON SPRING SITE

The federal government's involvement at Weldon Spring in St. Charles County began in April 1941 when the Army forcibly acquired more than 17,000 acres of land in order to build a TNT and dinitrotoluene (DNT) explosives production facility known as the Weldon Spring Ordnance Works. The Weldon Spring Ordnance Works was operated by the Atlas Powder Co., an old-line explosives company that employed approximately 3,000 workers. Between 1942 and 1945, the company produced an estimated 10 million pounds of TNT.

Significant contamination of surface water and ground water occurred during the years of TNT production. These contaminants were primarily TNT and other members of the family of chemicals known as nitroaromatics. Many local residents still remember when the local creeks ran red with these contaminants. Between 1945 and 1955, the government demolished the buildings and attempted to clean up the site several times but nitroaromatic contaminants still remained in the soil and ground water at the site of the old ordnance works. In 1949 about 15,000 acres of the original ordnance works was transferred to state and local agencies. The remaining 1,875 acres contained the area of the actual TNT production facilities.



In 1956, the eastern portion of the TNT production area was transferred to the U.S. Atomic Energy Commission to build a uranium processing plant. This plant, which produced uranium metal, was operated under contract with the Mallinckrodt Chemical Works. The Atomic Energy Commission also acquired an old quarry from the Army, about four miles south of the production area that had been used for the disposal of both TNT production and uranium processing wastes. The uranium plant operated from 1957 until 1966.

During plant operations, uranium ore concentrates and recycled scrap were processed to produce uranium trioxide, uranium tetrafluoride, and uranium metal. An average of 16,000 tons of uranium materials was processed each year. In addition, a limited amount of thorium ore concentrates was processed at the plant. These processes generated several chemical and radioactive waste streams including uranium-bearing wastes called "raffinates" from the refinery operation and magnesium fluoride slurry (washed slag) from the uranium recovery process. These waste streams were slurried to four lagoons (known as the "raffinate pits") where the solids settled out and the liquids were drained to the Missouri River.

"In 1986, the DOE initiated a major investigation and cleanup at the site," said Steve McCracken, DOE's project manager for the Weldon Spring cleanup. "The DOE recognizes that there is a problem here that needs to be fixed. We have committed significant technical and financial resources to the project. We have also committed ourselves to an open and honest relationship with the public, the state, and the EPA on this project. I invite anyone to visit with us and discuss the project."

The Army also has initiated a separate investigation and cleanup of the remaining 1,600 acres still under its control. The Army's area, known as the Weldon Spring Training Area, is primarily contaminated by nitroaromatics and has also been placed on the National Priority List of Superfund sites by the U.S. Environmental Protection Agency (EPA).

The DOE portion of the Weldon Spring site consists of a large number of contaminated buildings, the raffinate pits, and the quarry. The primary contaminants are uranium, nitrates, and nitroaromatics. Leakage from the raffinate pits is causing surface-water and shallow ground-water contamination in the Missouri Department of Conservation's Busch Wildlife Area and the Weldon Spring Wildlife Area. Three lakes and several springs are contaminated in these wildlife areas.

The quarry has been the focus of public concern for many years because it is

leaking wastes toward St. Charles County's public drinking water well field.

"The residents of the area and the DNR have long been concerned about potential contamination of the St. Charles County well field," said Jerry Lane, the director of the department's public drinking water program. "Although extensive monitoring by DNR and several other agencies and organizations has shown that the contamination has not reached the well field, we want the waste removed as soon as possible to prevent any possible problems. This has to be the first priority in the cleanup project."

THE CLEANUP BEGINS

In 1986, the DOE and the EPA agreed that the DOE would clean up the Weldon Spring site. In 1987, the EPA placed the quarry on the National Priority List and added the chemical plant and the raffinate pits in 1989.

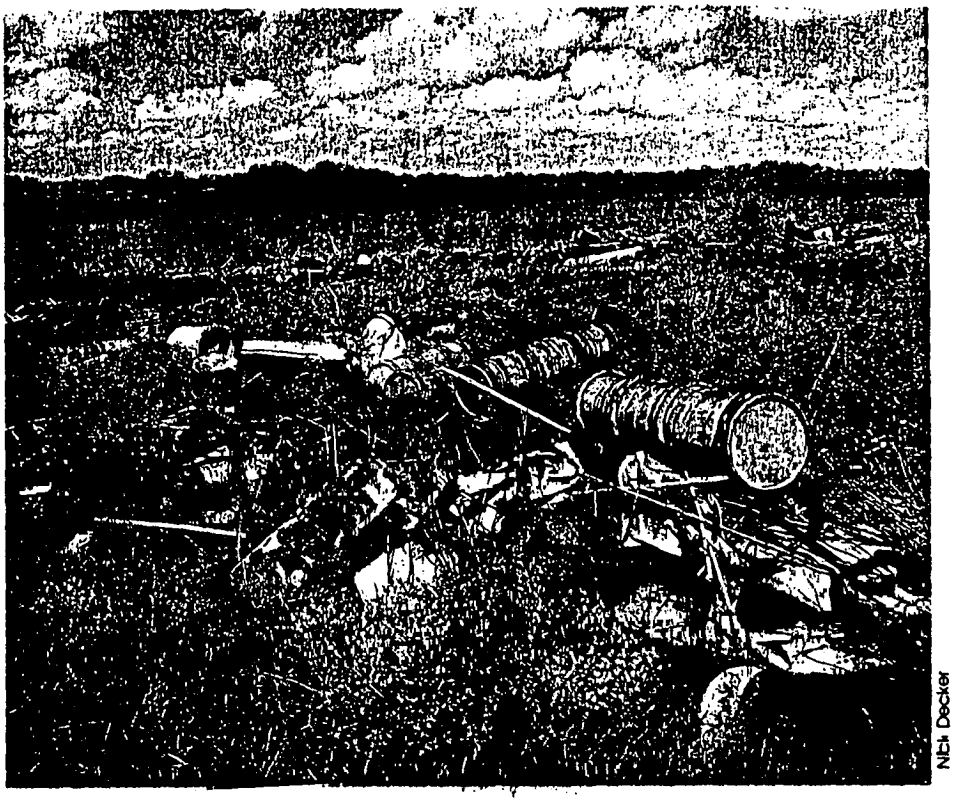
The Department of Energy's characterization of the site, that is the investigation and assessment of the scope of the problem, is now essentially complete. The estimated total volume of waste, contaminated soil, and demolition material is approximately 800,000 cubic yards. The estimated cost of the cleanup is $650 million.

The DOE is now preparing a feasibility study or environmental impact statement, which will consider all feasible options for remedial action and the environmental and economic impacts of each alternative. The DOE also will propose a specific alternative as the preferred cleanup plan. This plan will be presented to the public in early 1992. Later in 1992, after receiving and considering input from the public and the state, the DOE and EPA will sign a Record of Decision, thus officially adopting a specific cleanup plan.

The remedial action will start in 1993 and the project should be completed by 1999. This schedule assumes that there are no significant delays due to budget reductions or legal challenges.

INTERIM ACTIONS

Meanwhile, several interim actions have been completed or initiated by DOE at the Weldon Spring site. Several buildings have been removed and the non-contaminated material removed from the site. The radioactively contaminated materials are stored on site. Chemically hazardous wastes have been inventoried and stored in a secure building; polychlorinated biphenyl (PCB) and asbestos have been removed.



Nick Decker

Raffinate Pit No. 4 is one of the areas awaiting cleanup at the U.S. Department of Energy's Weldon Spring site in St. Charles County.

The most important interim action that has been proposed at the Weldon Spring site is the removal of the water and the bulk waste from the quarry. After having obtained a permit from the state, DOE is building a treatment plant to treat the quarry water before it is discharged to the Missouri River.

"This treatment plant will include the best available technology to treat the water to near drinking water standards," said Robert Hentges, chief of the permits section of the Department of Natural Resources' water pollution program. "Then, to ensure protection of the downstream water supplies, the treated water will be collected in two side-by-side holding ponds and tested before it is released to the Missouri River. If the water does not meet the standards, it will be run through the treatment system again. This guarantees that the water meets our requirements. Monitoring of the river and the downstream drinking water plants will also be conducted before and during the discharge of treated water to add an additional measure of assurance. The discharge of this treated water to the Missouri River will have no impact on the quality of the drinking water in St. Louis."

After the water is removed from the quarry, the bulk waste will be removed, sorted, and transported to a temporary storage area near the raffinate pits. Covered trucks will transport the waste on a dedicated haul road completely separate from local traffic.

"DNR will require that the temporary storage area and all other facilities at the site be built to stringent engineering and environmental standards," said Nick Di Pasquale, director of the Department of Natural Resources' hazardous waste management program. "The department will review all engineering plans to ensure that these standards are met."

Treatment of the quarry water is scheduled to begin this year and bulk waste removal should begin next year; a second water treatment plant is being built to treat the water in the raffinate pits and the storm-water runoff from the temporary storage area.

WHY MUST THESE SITES BE CLEANED UP?

The wastes at the Missouri sites do not present an extreme risk in their present condition, and they are not particularly mobile since the radionuclides tend to bind with soil particles.

"These materials are primarily alpha-particle emitters so for the general public the primary risk is from the ingestion or inhalation of contaminated materials, which means that dust control is important," said John Bagby, Ph. D., director of the Missouri Department of Health

"Some specific areas at these sites are fairly hazardous, for example, the pilot plant building at the Weldon Spring site where indoor radon is a problem and portions of several sites where gamma radiation is a problem if a person is subjected to prolonged exposure. However, these areas are presently secured from public access. The off-site contamination could present a hazard if it is disturbed; it is important to contact the DOE or the state before disturbing any of the contaminated soil."

Natural Resources staff regularly consult with the Health Department staff to assess new data and to ensure that all reasonable precautions are being taken. During remedial actions, simply dampening the materials with water will keep contaminated dust out of the air. An elaborate monitoring network will detect any off-site releases of the contaminants. The DOE also has given the Francis Howell School District funds to hire their own experts to review DOE's activities and ensure the safety of the students and staff at the nearby Francis Howell High School.

If the current risk from these materials is low, why should government spend millions of dollars on their cleanup? The problems follow:

- These wastes, for all practical purposes, last forever, since the half-life of uranium is 4.5 billion years. This means half of the radioactivity will still be present at end of that period.
- There is a huge volume of wastes and contaminated soil.
- The wastes are scattered over a large area in many separate places, some of which are accessible to the public, particularly in St. Louis County.
- Wastes continue to be spread by human activities and natural processes.
- Some buildings are deteriorating.
- Long-term control of land-use changes cannot be guaranteed.

BASICS OF RADIOACTIVITY

Radioactivity is a phenomenon by which energy and subatomic particles are released by the disintegration of certain unstable elements called radionuclides. The resulting ionizing radiation is and always has been present on earth and everywhere in the universe; however, since the discovery of radioactivity in 1896 by Henri Becquerel, various uses and misuses of this property of matter have stimulated concerns about its impact on human health.

Ionizing radiation is capable of damaging living cells and thereby causing cancer or genetic effects. There are three basic forms of radiation emitted by natural elements such as uranium, thorium, and radium (the primary radioactive elements at the Missouri sites).

Alpha radiation is the most energetic (the most ionizing) but the least penetrating form of radiation. Even a piece of paper or human skin is a barrier to alpha particles. But they can be very harmful if they enter the body through a cut, through ingestion of food or water, or by inhalation. The uranium at the Weldon Spring site is primarily an alpha emitter.

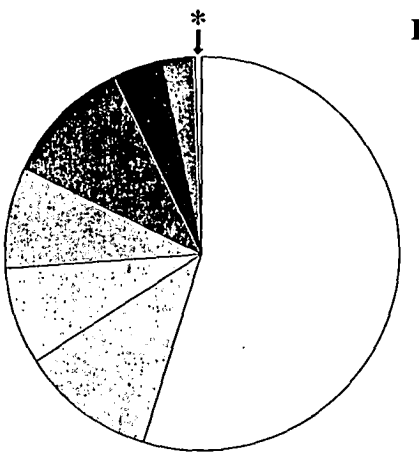
Beta radiation is a more penetrating type of ionizing radiation. As in the case of alpha particles, beta emitters can cause their most serious effects when they are ingested or inhaled. Fission products from nuclear reactors and nuclear weapons are strong beta emitters.

Gamma radiation (also called "direct radiation") is very penetrating and requires lead, thick clay, or concrete shielding to protect living organisms. The gamma levels of the materials at the Missouri sites are generally very low except in areas with the more concentrated wastes.

The radioactivity of a radioactive element is measured in a unit called a "curie," which is related to the number of atomic disintegrations per unit of time. In describing the levels of activity in environmental samples, the most frequently used unit is the "picocurie" or one trillionth of a curie. Public drinking water standards, for example, state that "finished water," or water distributed to the public, should not have more than 15 picocuries of alpha activity per liter of water.

Environmental radiation also can be considered from the point of view of the biological effect of a dose of radiation, which is measured in a unit called a "rem." Radiation protection standards are often expressed in terms of "millirems" (thousandths of a rem). In the United States, the average person is exposed to about 300 millirems (mrem) per year of background radiation including about 200 mrem from indoor radon. Medical diagnostic tests and radiopharmaceuticals contribute another 53 mrem of radiation. Fallout from nuclear weapons testing adds about 1 mrem per year.

SOURCES OF RADIATION: *Average* Annual Dose Per Person in the U.S.



NATURAL RADIATION

55%	Natural radon
11%	Internal radiation
8.2%	Rocks/soil
8.2%	Cosmic radiation

MAN-MADE RADIATION

10.7%	X-Rays
3.8%	Nuclear medicine
2.7%	Consumer products
.27%	Weapons testing fallout*
.20%	Occupational*
.05%	Nuclear fuel cycle*

Stuart Westmoreland

While the short term risks are . . imal, the long-term, accumulative risks could be significant.

"We must act quickly to reduce the spread of these wastes and minimize potential hazards," said Tracy Mehan, director of the Department of Natural Resources. "I believe that these materials can be safely cleaned up and contained. The state insists that the federal government continue to commit the necessary resources to properly conduct the long overdue cleanup of these sites.

"No one can guarantee that the government and other landowners will continue current uses of the land during the hazardous life of the radioactive materials," Mehan continued. "A loss of institutional or governmental control and the security it provides could result in much greater risks than those present now. For example, future uses of the land could include residential or agricultural activities which could present a long-term hazard. The wastes need to be physically secured in a manner that does not depend on institutional or governmental controls."

Mehan believes that the longer the cleanup is postponed, the more the waste will be spread, the more difficult and costly the job will become, and the chances of someone receiving an unacceptable exposure increases. "But we should not delude ourselves with the idea that there are any quick and simple solutions. Any solution will be controversial and costly."

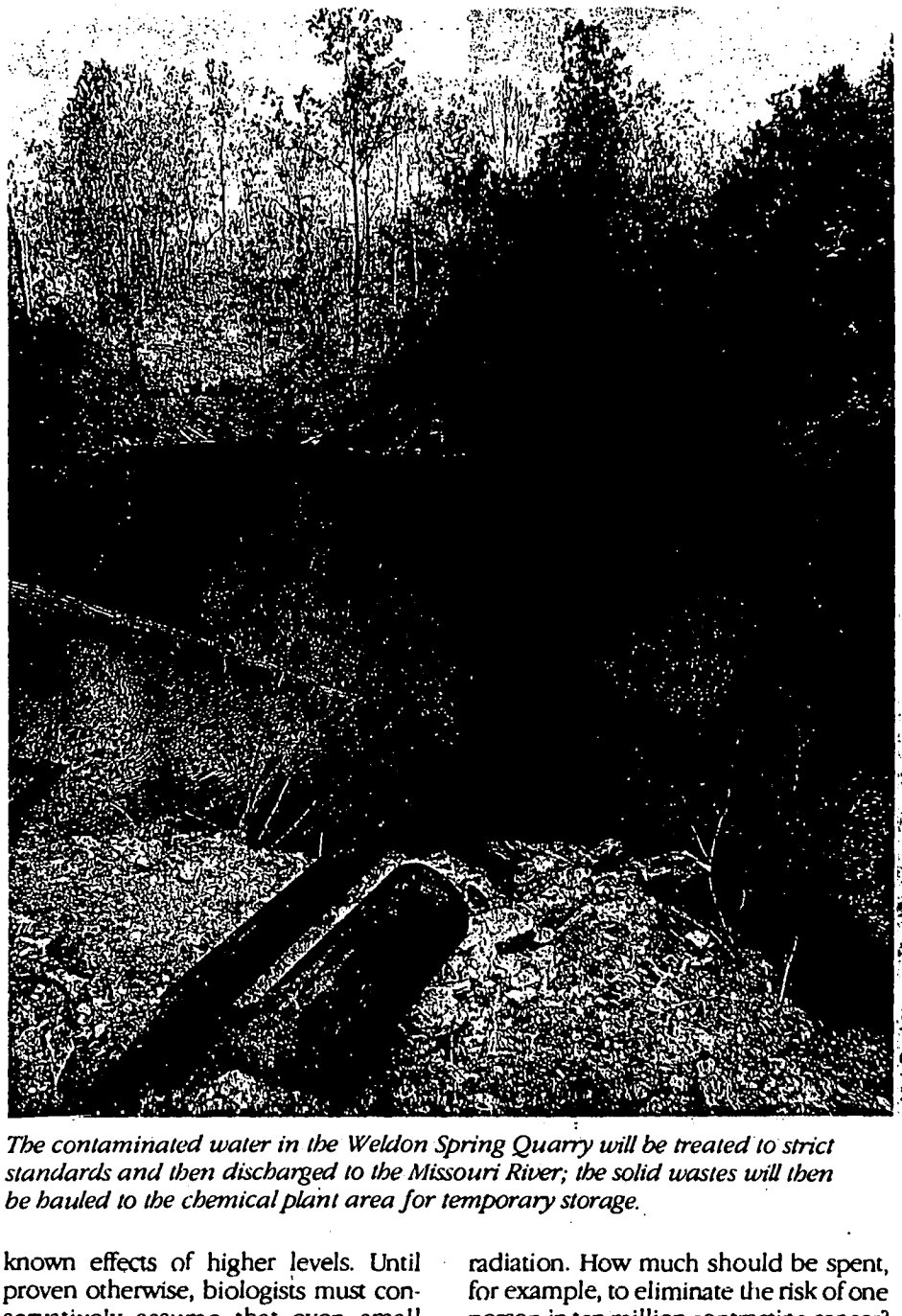
The debate about the management of radioactive waste carries with it all of the controversies surrounding any hazardous waste: How does the material contaminate the environment? How does it affect human health? How clean is clean? What is an acceptable risk? How much should be spent to reduce the risk? Who should bear the costs?

When the waste is radioactive, an additional and disturbing dimension is added. Because radioactivity is associated with the horror of nuclear weapons, it is very difficult for us to think unemotionally about the risks associated with radiation. Yet radioactivity is one of the oldest and most pervasive aspects of the planet Earth. Radiation is everywhere; our own bodies are radioactive and we are immersed in cosmic and terrestrial radiation at this very moment. There is no way to avoid these relatively low levels of radiation.

Data on the health effects of these low levels of radiation are inconclusive, so scientists must extrapolate from the known effects of higher levels. Until proven otherwise, biologists must conservatively assume that even small amounts of radiation can be harmful; therefore society has adopted a policy of keeping unnecessary radiation to a minimum. Most of us agree that, while we cannot avoid all natural sources of radiation, we should not be unnecessarily exposed to additional man-made sources of radiation. We may voluntarily decide to be exposed to radiation for a specific personal benefit, for example, a medical X-ray. But we are far less willing to be involuntarily exposed to radiation from military or industrial activities even when benefits to society are claimed.

Much of the debate about risk in regard to radiation relates to the cost of reducing small amounts of man-made radiation. How much should be spent, for example, to eliminate the risk of one person in ten million contracting cancer? Society has been willing to spend far more to protect its members against cancer risks, and particularly radiation, than most other risks.

Some argue that risk from environmental contaminants should be reduced to zero and that cost should not be a factor. Others argue that resources will always be limited and that society should make use of comparative risk assessment to allocated resources and to decide how to manage environmental risk. Focusing on trivial risks may divert attention from significant risks. This debate will become more intense in the 1990s and decisions regarding radioactive waste management will play a major role.



Nick Decker

The contaminated water in the Weldon Spring Quarry will be treated to strict standards and then discharged to the Missouri River; the solid wastes will then be hauled to the chemical plant area for temporary storage.

THE STATE'S INVOLVEMENT

The state of Missouri and its citizens have been aggressively pushing for action at Weldon Spring and the other sites for at least 15 years. "Significant progress has been made only in the last five years," said Mary Halliday, a resident of Defiance, a small hamlet near the Weldon Spring site and a leader in the St. Charles Countians Against Hazardous Waste since the group was formed. "In the early 1980s, it was frustrating because the DOE didn't want to admit that there really was a problem that needed fixing. It's good to see things starting to happen, but we want the state to continue to push the project and to keep an eye on activities at the site."

The state has always taken the position that the federal government is the principal responsible party at the Weldon Spring Site. The DOE and EPA now have made firm commitments to clean up Weldon Spring and most of the other Missouri sites.

"The interagency agreement signed by both DOE and EPA guarantees that the federal government will fulfill its obligations at the site," said Bob Morby, the head of EPA's Superfund Branch in Kansas City.

The DOE will implement and pay for the remedial action, and EPA will supervise the project and make the final decision on the choice of remedial action. Public participation will be conducted on all interim and final remedial actions. In addition, Natural Resources will conduct its own independent oversight of the project.

"While some interim remedial actions are being taken, no decisions have been made yet at Weldon Spring or any of the other sites regarding the long-term or final remedial actions," stressed David Shorr, director of the Department of Natural Resources' Division of Environmental Quality. "DNR will insist that the sites are adequately studied and that the cleanups meet all state environmental requirements. The department will insist that the public be informed and be given an opportunity to comment on activities at these sites."

MONITORING THE SITES

DOE has an extensive monitoring program at the Missouri sites. However, state and local agencies are also conducting oversight monitoring in certain areas related to the sites.

"The DNR has been conducting monitoring for several years at the Weldon Spring site, especially in the drinking water well-field area," said the Department of Natural Resources' Jerry Lane. "Based on this monitoring, we are confident that the Weldon Spring Quarry has not affected the public drinking water of St. Charles County."

The Department of Health also has been monitoring approximately 50 private wells in the Weldon Spring area. The Health Department has found the only instance of contamination due to the Weldon Spring sites at a nearby resort, where nitroaromatic contamination from the Army's Weldon Spring Training Area was found in several wells. The Army has furnished a new water supply to the resort.

In the past year, the Department of Natural Resources has extended its monitoring program to the Missouri River itself, and to the four major St. Louis area drinking water treatment plants.

"Again, based on our monitoring data, we can find no impact from these radioactive waste sites on drinking water in St. Louis. However, we do plan to continue our monitoring program," Lane said. (Citizens may obtain a summary of the results of this monitoring by contacting the department.)

The Department of Natural Resources also has been involved in an extensive study of the shallow ground-water system at the Weldon Spring site. Using dye tracing methods, the department's staff has been able to determine the pattern of ground-water movement in the chemical plant and raffinate pits area.

"This work is very important in determining the best way to clean up and monitor the ground water at the site," said Jim Williams, Ph. D., director of the department's Division of Geology and Land Survey. "Department of Natural Resources geologists have also been involved in studying the site's geology for many years and will continue to carefully review DOE's geological work."

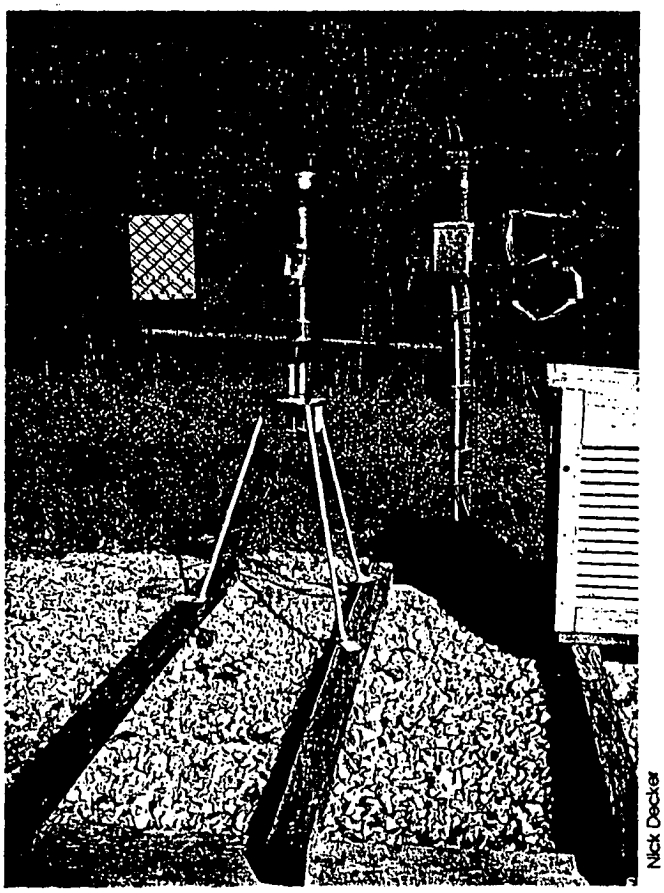
DECIDING THE MAJOR ISSUES

Policies for these sites should be developed in the context of three time frames. First, are any immediate actions necessary to protect the public health? So far, no such situations have come up but the state will continue to review relevant information as it becomes available.

Second, should any interim actions be taken to reduce potential human exposure, improve safety conditions, facilitate local improvements, or facilitate the final cleanup? At Weldon Spring, the department has supported several interim actions and some interim actions might also be feasible at the St. Louis sites.

Third, what are the best alternatives for long-term storage or disposal of the wastes?

The proposals on long-term waste disposal have not yet been made. All Missourians will have the opportunity to review and comment on these proposals. We need to make these decisions and close out this chapter of Missouri's history that began in 1942.



Nick Decker

Air monitoring stations are placed at strategic locations around the Weldon Spring site to verify that no contaminated dust or radon gas is leaving the site.

David Bedan is the Department of Natural Resources' radioactive waste cleanup action coordinator.

Monsanto Hits Cleanup Costs

Contractor's Demands Called 'Unreasonable'

By Robert Steyer
Of the Post-Dispatch Staff

Monsanto Co. and four other companies paying to clean up a toxic waste site in Texas say the demands made by a waste management firm are "staggering" and "unreasonable."

The five companies commented Thursday in response to a suit by International Technology Corp., the waste management firm they had hired to clean up the 11.3-acre Motco site near Galveston, Texas.

International Technology filed suit Dec. 3 in a federal court in Houston, saying the five companies owe it $56 million. The firm also stopped work at the site.

The Motco site is a top priority on the Environmental Protection Agency's Superfund list of sites most needing cleanup. The site has been on the list for 10 years.

Monsanto and four other users of the site formed the Motco Trust Group to pay for the cleanup after signing a consent order with the EPA.

International Technology, based in Torrance, Calif., began working at the site last year after being hired in 1988. It says its expenses have more than tripled above the original contract price of $30 million.

It alleges that the Motco Trust companies failed to disclose the true amount of pollution at the site. An International Technology executive said earlier this month that the cleanup cost had risen to $95 million.

The Motco Trust said Thursday that International Technology's claims are now more than $100 million.

"The amounts are patently unreasonable," the Motco Trust said. International Technology "made continuing threats that it would discontinue its performance . . . if such exorbitant sums . . . were not paid."

The five companies said International Technology was encouraged to assess the wastes at the site and was not bound by the Motco Trust's estimates. They said the firm could not be paid for cost overruns "because it failed to control its costs and failed to mitigate any damages."

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 12/27/91 Page 3B

St. Louis Post-Dispatch Tues, Dec. 24, 1991 p. 1

Waste Charges Settled

E. St. Louis To Benefit In $4.3 Million Penalty

By Roy Malone
Of the Post-Dispatch Staff

The operator of a hazardous waste incinerator in Sauget agreed Monday to pay $4.3 million in fines — including $1 million that will be used to clean up trash in East St. Louis — for violating state environmental standards.

The settlement was announced Monday by the Illinois Environmental Protection Agency and Chemical Waste Management Inc., based in Oak Brook, Ill.

The company agreed to pay fines totaling $3.3 million for its Sauget operations and a $1 million penalty for operations at its hazardous waste and polychlorinated biphenyl (PCB) incinerator on the south side of Chicago.

Chemical Waste Management runs four incinerators in Sauget under the name of Trade Waste Incineration and a single incinerator in Chicago under the Chemical Waste name.

The firm operates the only commercial hazardous waste incinerators in Illinois.

Hazardous waste from throughout the Midwest is brought to the Sauget site, which Chemical Waste Management acquired more than 10 years ago. It has added three incinerators to the original one.

An assortment of violations at the Sauget incinerators were cited by the IEPA and the Illinois attorney general's office. Included were:

- Improper mixing of hazardous wastes on Jan. 16, 1990, which resulted in a plume of contaminants that became airborne for six hours and traveled off the site.
- Discovery during an inspection in August 1990 that containers of hazardous waste were not marked with date and contents.
- A steam explosion Feb. 5, 1991, when molten slag dropped into water

See FINES, Page 4

Fines

From page one

carrying ash, causing the release of hazardous particles. Waste Management failed to notify IEPA within the required 24 hours.

- Failure in February 1991 to transfer hazardous waste in leaking containers to other containers.
- A visible airborne ash particulate emission that crossed the firm's property line on March 4, 1991.
- An explosion on Jan, 25, 1991, involving hazardous waste that caused vapors or particulate matter to be released into the air.

Joe Pokorny, vice president for communications at Waste Management, said the firm was neither admitting nor denying the IEPA allegations. He noted that IEPA did not say that the Sauget or Chicago incinerators posed any threat to health or the environment. He said the emissions did harm anyone.

Pokorny said the firm destroys waste products that federal regulations require to be incinerated rather than be buried in landfills. These may include pesticides, pharmaceuticals, materials from perfume and fragrances and spent laboratory materials.

Consent decrees outlining the penalties and violations were filed Monday in circuit courts in St. Clair County and Cook County.

In Sauget, the company will pay $1.6 million in civil penalties to the state, $200,000 to set up a computer link allowing constant monitoring by IEPA, $240,000 to pay for one year of IEPA oversight and $1 million to finance a trash pickup program in East St. Louis.

The million dollars will provide cash and services to help East St. Louis clear away thousands of truckloads of trash that have built up over the past few years because the city lacked the money to pay waste haulers.

In Chicago, the firm was assessed for delays in compieting trial refuse burns and for accepting containers of laboratory chemicals that the IEPA said were not properly identified by shippers. The Chicago incinerator has been shut down since an explosion occurred in the rotary kiln on Feb. 13.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 12/24/91 Page 1

Group Flunks St. Louis On 'Green' Test Study

By Christine Bertelson
Of the Post-Dispatch Staff

St. Louis ranked a dismal 63 out of 64 major U.S. cities in a survey of environmental quality disclosed this week by the World Resources Institute in Washington.

The survey of cities with more than 250,000 people was included in the 1992 Information Please Environmental Almanac published by the Institute, a non-profit public policy research organization.

St. Louis's ranking brought an angry rebuttal from William Kuehling, director of public safety for the city.

"I find that incredible," Kuehling said. "It's beyond belief. This is a lovely area."

But St. Louis's poor showing came as no surprise to environmental groups here.

"The more that is brought out on the environmental problems here, the better," said Mike Burke of the Coalition for the Environment. "The average person needs to be more aware of what they can do to change them."

The study looked at environmental problems closer to home than global warming and ozone layer depletion, said almanac editor Allen Hammond.

"Our basic purpose was not to be judgmental but to try to hold up a mirror and see how we behave environmentally," said Hammond in a

See STUDY, Page 9

From page one

telephone interview from his Maryland home.

Eight areas were measured: waste disposal, water use and water source, energy use and cost, air quality, transportation measures, toxic chemical accident risk, environmental amenities (the percentage of city budgets spent on parks and recreation) and environmental stress. Environmental stress included population change, air and water quality, water availability, sewage treatment and chronic toxic releases.

High per capita water use indicated poor conservation and perhaps a strain on limited ground water supplies. Low per capita energy use was good for the environment, no matter what the cause, Hammond said.

The information was gathered from sources including the U.S. Census Bureau, Environmental Protection Agency, and Department of Transportation, Hammond said.

Santa Ana, Calif., had the worst environmental record in the United States — worse than those of St. Louis, Los Angeles, Chicago, Newark, N.J., and Detroit. Honolulu ranked best.

St. Louis's rankings were:

- Waste expenditures — 62 (of the 64 cities in the survey)
- Water use per capita — 52.
- Energy use per capita — 48.
- Energy cost — 49.
- Air quality: ozone — 40; particulates — 60; sulfur oxides — 52; nitrogen oxides — 24; carbon monoxide — 26.
- Transportation impact — 29 (percentage of population using mass transit, length of commute, car pool use, etc.).
- Toxic chemical accident risk — 51 (based on chemical accidents from 1980-1989).
- Environmental amenities — 52.
- Environmental stress — 54.

Kuehling says environmental rankings often "compare apples and oranges," making them invalid. Kuehling said that St. Louis's air quality had improved dramatically in the last decade and that its water quality was good.

"It is worse than worthless," Kuehling said of the report. "These groups out of Washington that attempt to garner publicity by these scattershot rankings do a disservice not only to the [environmental] movement as a whole, but to themselves."

Burke said many of the environmental problems in the St. Louis area were the result of inadequate planning for development and the fragmentation of government in the city and county.

"Unless we change the way business is done here, we will stay at that rank, and it will get worse," Burke said.

Laura Barrett, director of the Missouri Public Interest Research Group, said the group planned to put pressure on electric utilities like Union Electric Co. to significantly boost their spending on energy conservation.

The Los Angeles Times and the Associated Press provided information for this story.

GREEN CITIES INDEX

BEST Rank	City	WORST Rank	City
1.	Honolulu	60.	Chicago
2.	Austin, Texas	61.	Los Angeles
3.	Jacksonville, Fla.	62.	Long Beach, Cal.
4.	Oklahoma City	63.	St. Louis
5.	Fort Worth, Texas	64.	Santa Ana, Cal.

SOURCE: World Resources Institute — Post-Dispatch chart

12/4/91

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 12/4/91 Page 1, 9

LETTERS FROM THE PEOPLE

Don't Drink The Water

The Coalition for the Environment is right to question the effectiveness of the treatment plant being constructed for the contaminated water at the Weldon Spring quarry in St. Charles County. This water, once treated, will be discharged into the Missouri River just upstream from the intakes for both the St. Louis city and St. Louis County water supply.

The quarry water is a thick soup of radioactive and toxic materials, dissolved from the many drums of waste and loads of debris deposited in the quarry long ago. The list of pollutants known to be there is long and varied, and no one knows if the list is complete.

Murray Underwood, a professor of chemical engineering at Washington University, doubts that any process can really work against all these substances. He knows enough to point out that the methods that will be used are untested against all but a few of the substances known to be present. He also says that good engineering practice would dictate the construction of a pilot plant to test and perfect the process before any discharge begins.

That this is not being done makes one wonder whether the treatment plant isn't just an expensive eyewash for the public with real reliance on the Missouri River's ability to dilute the discharge beyond the detection abilities of the St. Louis City Water Division and the County Water Co. One wonders whether the real process involved won't be simply to declare the "treated" water clean and let it go.

The authorities in charge owe us more than a bland assurance that they know what they are doing. What's at stake is no less than the integrity of our drinking and washing water. Exposure to small amounts of radioactive or toxic substances every day can injure us. People with small children should be especially concerned.

J. Peter Schmitz
Clayton

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 10/6/91 Page 2B

Corcoran's Remap Plan Jumps Gun, Critics Say

Councilman Seeks To Add 3 New Townships In County

By Virgil Tipton
Of the Post-Dispatch Staff

A plan by St. Louis County Council Chairman George M. "Jerry" Corcoran to establish three new townships has prompted some criticism for his solo approach and for his timing.

At issue is his proposal to add three new political townships to the current 20. To do that, he has proposed dividing the Meramec, Missouri River and Queeny townships into five townships. The new areas would be named Maryland Heights and Chesterfield townships.

Another township, dubbed Mehlville, would be carved out of pieces of Concord and Lemay townships in South County.

Townships are used to organize election precincts. Members of the county Democratic and Republican committees are elected by township. Corcoran said the township lines needed to be redrawn because wide disparities in population had developed since the last redrawing in 1971.

Corcoran, D-2nd District, said he planned to introduce his map at a meeting of the County Council next week or the week after that. He will then let members of the Election Board and leaders in both parties offer suggestions. The changes need only the approval of the County Council.

Councilman Greg Quinn of West County, R-7th District, questioned Corcoran's decision to draw the new map on his own.

Councilman Greg Quinn of West County, R-7th District, questioned Corcoran's decision to draw the new map on his own. "I would have preferred that we would have had a bipartisan commission look into this," said Quinn.

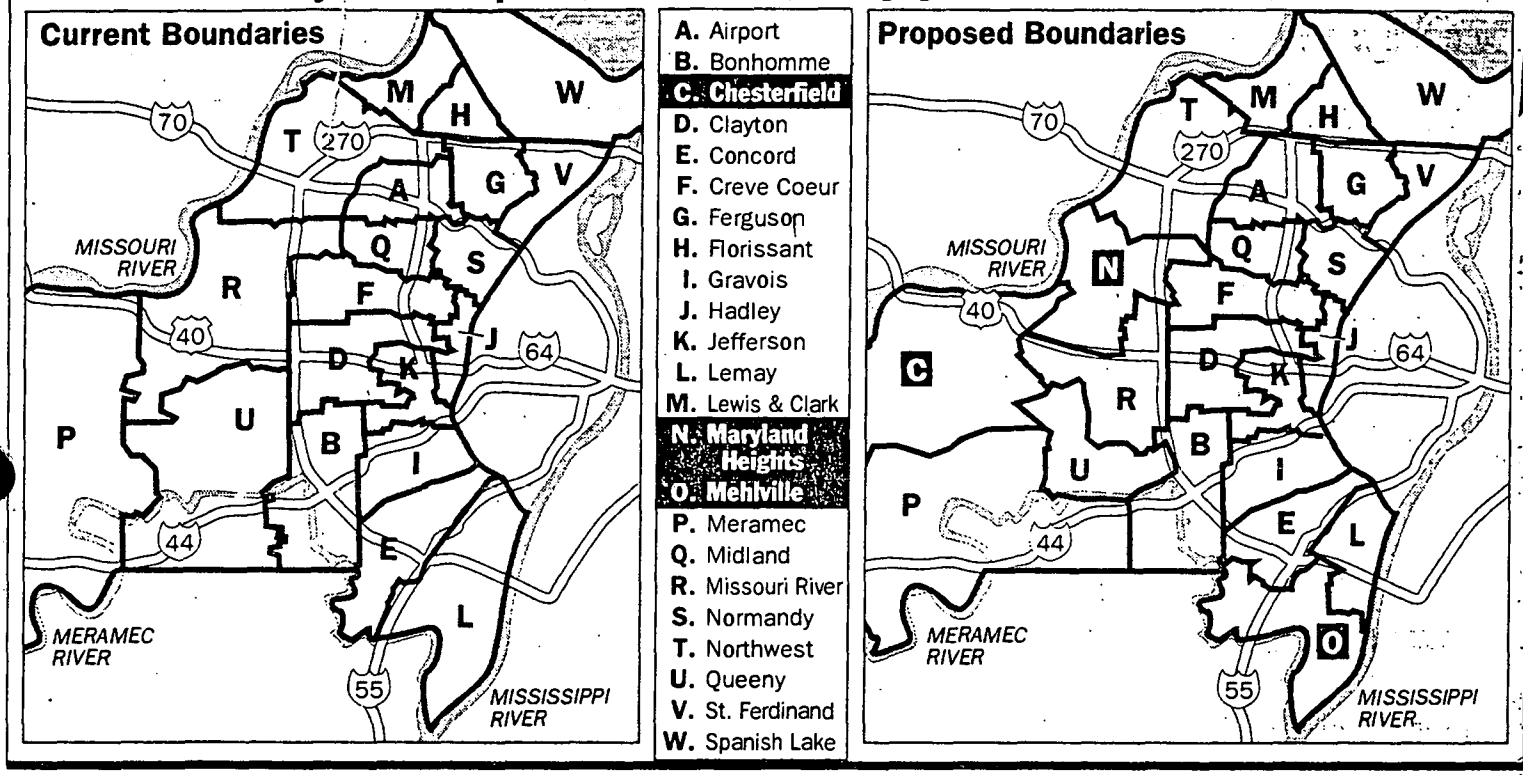
In addition, Quinn said, drawing township lines now is doing the job too early. He said it would make more sense to wait for new district lines for congressional, County Council and state legislative seats. That way, the township lines would follow the new district lines, making it easier for the Election Board to establish precincts, he said.

Otherwise, odd pockets might develop as the township and district lines overlap, Quinn said. For example, under current lines, Northwest

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 10/4/91 Page 6A

St. Louis County Townships

Proposed new townships are highlighted in the list.



Tom Borgman/Post-Dispatch

Township overlaps the 7th District by just one house, Quinn said.

Paul S. DeGregorio, the county's Republican director of elections, agreed that drawing township lines could wait, "so we don't have a situation where we have to create precincts of two people, which has happened in the past."

Meanwhile, Corcoran, of St. Ann, said he had given some thought to the names of the three districts.

"I thought about 'Truman', but I thought that might create some controversy," he said.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 10/4/91 Page 6A

ST.LOUIS POST-DISPATCH

ST. LOUIS/MONDAY

• MONDAY, SEPTEMBER 30, 1991

Effect Of Weldon Spring Waste Feared

Group Is Concerned About Area's Drinking Water

By Christine Bertelson
Of the Post-Dispatch Staff

The Coalition for the Environment called on the St. Louis County Water Company on Sunday to protect St. Louis drinking water from radioactive and hazardous wastes from the Weldon Spring quarry in St. Charles.

The group says it is concerned that waste from the quarry will be dumped into the Missouri River about 9 miles upstream of the major St. Louis drinking water intakes.

Roger Pryor, executive director of the Coalition for the Environment, said a pilot plant should be built first to see whether the treatment methods actually were able to remove the waste. The treated water should be kept in tanks or lined ponds for at least a year for thorough testing, Pryor said.

The group held a news conference outside the St. Louis County Water Co. plant on Hog Hollow Road in west St. Louis County on Sunday afternoon. About 30 protesters attended.

In the next few months the Department of Energy will begin cleaning up 3 million gallons of water contaminated by radioactivity, explosives and other wastes in the Weldon Spring quarry near St. Charles. Wastes leaking from the quarry are endangering ground water in St. Charles.

The quarry was used as a waste pit by the old Mallinckrodt Chemical Works which produced pure uranium for the atomic bombs used in World War II. The Army also produced explosives on the site, dumping drums of TNT into the quarry. The plant was closed in 1966.

The Department of Energy is building a new water treatment plant that may begin operating in December. The plant will use a process involving a resin to remove uranium, and charcoal to remove organic chemicals. The treated water will be discharged into the Missouri River.

The old Mallinckrodt Chemical Works put waste in the quarry.

"I think concern is always justifiable when there is something brand new going on upstream of a water intake," said Terry Gloriod, vice-president of production for St. Louis County Water Co. "But I don't think there is any cause for alarm."

Gloriod said the greatest safeguard at the new plant is that water can be tested in batches. If some water samples fail to meet local, state and federal standards it can then be retreated until it does meet safe standards.

The water company plans to monitor the water from the Department of Energy's treatment plant for radioactivity, using laboratory facilities at the St. Louis County Health Department, Gloriod said.

St. Louis County Councilwoman Geri Rothman-Serot said at the news conference that she would ask city and county officials to apply pressure jointly on Missouri's members of Congress to find a safer solution to the problem.

"This water has to be cleaned up immediately," Rothman-Serot said. "Let's rush to clean it up but for God's sake let's not rush to make another problem for someone else."

Murray Underwood, a chemical engineer who also was at the water company plant, said it was not known whether the methods planned to clean up the Weldon Spring water would work.

Underwood is an associate professor of chemical engineering and director of undergraduate laboratories at Washington University.

"The process has not been tried out," Underwood said. "There are a lot of questions that need to be answered. Building a pilot plant would be a lot cheaper than building the full-scale plant, which is what they are doing now."

Beatrice Buder Clemens, 30, of Richmond Heights said she was worried about the health of her 2-year-old son, Nicholas.

"We have little ones and they will be drinking the water longer than anyone else," Clemens said. "I'm not willing to live with trace amounts of possible dangerous chemicals in the water."

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 9/30/91 Page 3A

Radiation Leaks Investigated

Data Missing At Nuclear Weapons Plant In Washington

WASHINGTON (AP) — Energy Department inspectors will investigate why documents about radiation leaks are missing from a nuclear-weapons facility in Washington state, congressional auditors say.

The General Accounting Office said in a report Thursday that the Energy Department and Westinghouse Corp. had greatly underreported hundreds of thousands of gallons of radioactive liquids that officials knew had leaked from waste tanks at the Hanford Nuclear Reservation in Washington.

The GAO report also says officials of Westinghouse Hanford Co. bypassed a safety engineer who refused to sign off on storage-tank data prepared for Congress in 1989.

GAO investigators said they had found no evidence that the disappearance of the records was an attempt to conceal the leakage of contaminated cooling water, which could approach 1 million gallons.

But leaders of a watchdog group in Seattle disagreed. And Sen. John Glenn, D-Ohio, said the report's findings indicated neglect in health and safety issues throughout the U.S. nuclear weapons complex.

Former Rep. Don Bonker of Washington, a board member of Heart of America Northwest, said, "The Columbia River is being poisoned by the U.S. Department of Energy's Hanford tank leaks and illegal discharges."

The nuclear reservation at Richland, Wash., covers 560 square miles along the Columbia River. Established in the 1940s to aid in the Manhattan Project, the reservation contains about half the nation's radioactive waste.

Glenn, chairman of the Senate Government Affairs Committee, said the report showed "a continuing pattern of behavior by [the Energy Department] and its contractors to downplay the seriousness of contamination problems at Hanford."

Leo Duffy, who heads the department's national waste cleanup effort, called the report outdated.

Plant Rebuked

The Rocky Flats nuclear-weapons plant at Golden, Colo., has come under sharp criticism from the Energy Department for safety problems.

In documents obtained by The Associated Press, the department cited "numerous problems" in a program to prevent runaway nuclear reactions.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 9/22/91 Page 15A

20 Protest Times Beach Incinerator

Groups Seeking Another Method Of Dioxin Disposal

By Judith VandeWater
Of the Post-Dispatch Staff

About 20 protesters stood on an overpass above Interstate 44 in the rain Sunday to try to reignite opposition to a proposal for a dioxin incinerator at Times Beach.

In addition to solids from Times Beach, the incinerator will burn dirt from 27 other dioxin-contaminated sites in Missouri. Once begun, the cleanup will take about seven years and cost $80 million.

The incinerator can still be stopped, said Don Fitz, a spokesman for the Gateway Green Alliance, one of the groups at the protest. Before construction can begin, the state must issue a building permit, he said.

Environmental groups under the umbrella of the St. Louis Area Incinerator Network view the public hearings required by the permit process as another opportunity to block construction.

"If people believe that nothing can be done to stop the incinerator, that will be a self-fulfilling prophecy," Fitz said.

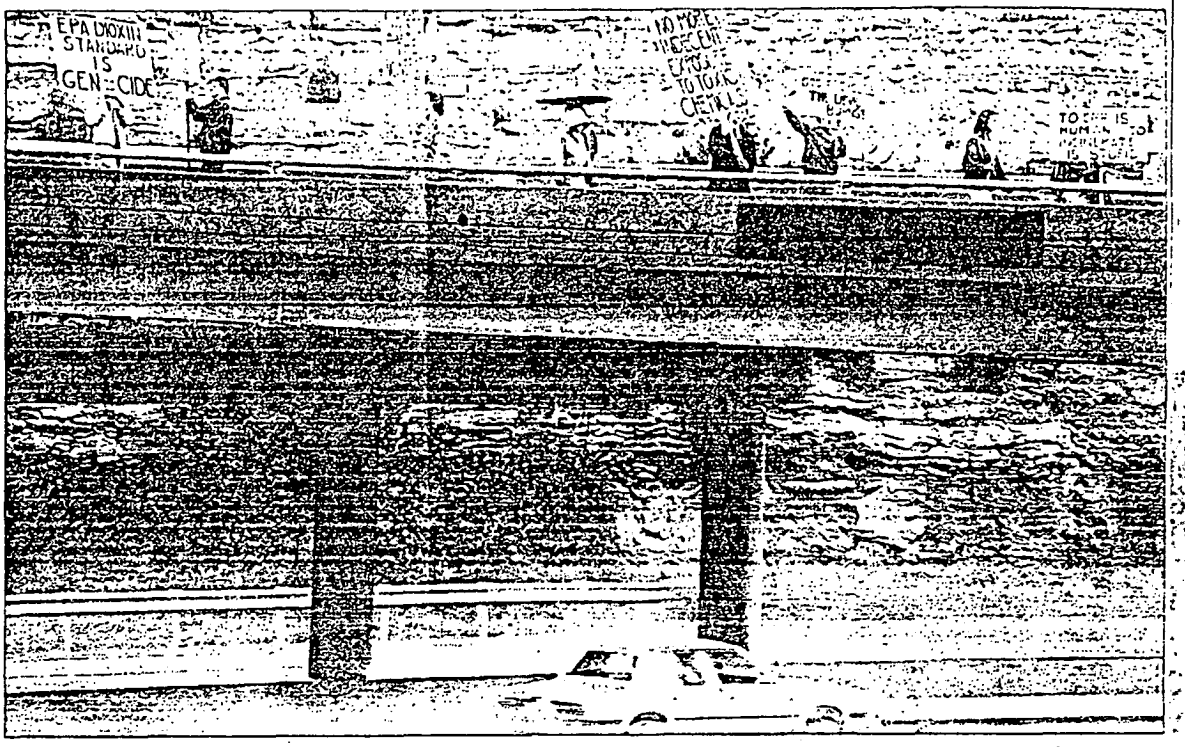
Fitz, 43, is a research psychologist from University City. He said protesters planned to demonstrate on the Lewis Road overpass near Eureka on the second Sunday of each month to demand that plans for the incinerator be halted and that a method to dispose of the dioxin be developed with input from the community.

Unofficial votes on a non-binding referendum in St. Louis County last November showed 55 percent of county residents opposed to the Times Beach incinerator.

"The EPA and the Missouri Department of Natural Resources and Syntex have ignored what the people have said," Fitz said.

The cleanup agreement by the U.S. Environmental Protection Agency, the Missouri Department of Natural Resources and Syntex Agribusiness Inc. — the company responsible for much of the cleanup — was approved in January by U.S. District Judge John F. Nangle.

The dioxin that was spread in road oil in Times Beach and the other sites was produced by Northeastern Pharmaceutical and Chemical Co. at a plant in Verona, Mo. The plant was leased from a company later acquired by Syntex.



Wes Paz/Post-Dispatch

Opponents of a plan to incinerate toxic waste at Times Beach protesting Sunday on the Lewis Road overpass over Interstate 44, near the abandoned town.

Barbara Chicherio, 42, a member of Gateway Greens, said the residents of Fenton and Eureka and the former residents of Times Beach had fought long and hard against the incinerator, but that many now felt powerless to oppose it.

"I think they came to a point of exhaustion," she said. "We really want to re-energize people.

"We're focusing on trying to get in touch with community groups in this area. We want to involve groups close to the site."

Lori Weber, 30, a spokeswoman for the St. Louis Area Incinerator Network, said she feared for her family's health and the health of other residents if the incinerator was built.

"The reality is that incinerators pollute," she said.

"Every time an incinerator shuts down, there are emissions called fugitive emissions. Anything in there just goes right up the stack unburned."

Weber said she had begun working against the incinerator out of concern for her 3-year-old son. The family lives in Ballwin, about 10 miles from the incinerator site.

"The dioxin is in the ground and not moving anywhere," Weber said. "If the incinerator is built, we will have to worry about the water our children are drinking, the air they are breathing and the ground they are playing on, because the emissions from the incinerator are going to be evenly spread across the St. Louis area. That terrifies me."

Syntex has called the incinerator a safe and effective solution to the disposal of the contaminated soil.

Weber said Syntex and environmental officials should wait until science develops a safer way to detoxify Times Beach.

"Very soon a way will become clear," Weber said, referring to efforts to neutralize dioxin through the process of dechlorination.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 9/23/91 Page 3A

Times Beach Dioxin Plan Unchanged

Westfall, Others Asked For Risk Assessment

By Virgil Tipton
Of the Post-Dispatch Staff

If dioxin is considered a less serious threat than it once was, should the plan to burn dioxin-contaminated soil at Times Beach be scrapped in favor of burying it?

St. Louis County Executive George R. "Buzz" Westfall and other local officials have asked the Missouri Department of Natural Resources for clear answers on the federal government's current assessment of the danger of dioxin —and on whether the cleanup plan should be changed.

The answer, delivered last week: Nothing will change.

Westfall and the officials sent a letter in July, asking for some answers on questions raised after a top federal health official said the danger of dioxin had been overestimated.

The federal official, Dr. Vernon N. Houk of the Centers For Disease Control in Atlanta, said in May that if dioxin was a carcinogen "it is, in my view, a weak one that is associated only with high-dose exposures."

The federal Environmental Protection Agency once called dioxin "the most toxic man-made chemical."

Houk's comments — and the way they were reported by the press — raised questions about the wisdom of continuing with a plan to burn dioxin-contaminated soil at Times Beach, said Lee Brotherton, Westfall's spokesman.

Westfall and the other officials asked whether Houk's conclusions represented those of the federal agencies involved. And, if that's the case, should officials look at another method of cleaning up the dioxin rather than burning it?

Residents and local officials wonder "if incineration and the products of incineration may be more hazardous to our community than the dioxin soil risk itself," the officials said.

The officials who signed that letter are Mayor Barney Nelson of Eureka; Mayor James Graham of Fenton; state Reps. Jim Murphy, R-Crestwood, and William Linton, R-West County; and state Sens. Walter Mueller, R-Kirkwood, and Thomas W. McCarthy, R-Chesterfield.

The letter in response was signed by John R. Bagby, director of the state Department of Health, and by G. Tracy Mehan III, director of the Department of Natural Resources. Their letter makes these points:

- Neither federal agency involved in measuring the risk of dioxin — the Public Health Service or the Centers for Disease Control — has changed its position on the risk of dioxin.
- Even if the risk assessments were changed, Times Beach and other sites in Eastern Missouri still would have to be cleaned up.
- Burning remains the best way to deal with the contamination. Saying that dioxin is not as toxic as it was once thought to be "does not necessarily mean that the chemical no longer poses a threat to human health, nor does it mean that it should remain in the environment."

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 9/19/91 Page 11A

Lead Waste May Be Hazard, Experts Warn

By Tom Uhlenbrock
Of the Post-Dispatch Staff

Thousands of people may be exposed to hazardous lead levels as a result of mining waste products near their homes in the Joplin area, say two researchers at St. Louis University Medical Center.

R. Gregory Evans and Dr. Ana Maria Murgueytio are coordinating the research for the federal Agency for Toxic Substances and Disease Registry and the Missouri Department of Health.

In an interview Tuesday, Evans stressed that he was talking of "potential exposure" levels because test results have yet to be analyzed. But he said thousands of people, including up to a 1,000 children, live in the mining area where the lead wastes are situated.

The researchers have taken blood samples from 400 residents of the Joplin-Neosho-Webb City area — including 150 children under the age of 6, 150 from 6 to 18 years old and 100 adults.

Those tested were chosen randomly, and paid $10 to take part. "Their only exposure is what they had in everyday life," Evans said.

The testing is completed, but the results have yet to be analyzed and most likely will not be announced until early next year, Evans said.

Several lead mines operated in the area in the pre-1940s and left behind mounds of lead tailings when they closed, Evans said. The waste was used for a variety of purposes, including fill on residential lots.

The lead wastes have broken down and mixed with the area's soil and gravel, Evans said. "The dust can be inhaled and can be on food and get ingested — that's the two primary sources," he said.

Exposure to lead can cause anemia, stomach problems and learning disabilities. Lead exposure can cause problems with fetal brain development.

In children, lead poisoning is said to cause a decrease of as much as six points in IQ levels.

Because of the risk, the federal Centers for Disease Control in Atlanta recently lowered its official recommendation of blood levels at which children are said to be at risk for brain damage. The level was decreased to 10 micrograms per deciliter from 25 micrograms.

If elevated levels of lead are found in the blood of those tested, it could have implications for similar areas throughout the nation, Evans said.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 9/12/91 Page 8A

NEWS ANALYSIS

SECTION B

WEDNESDAY, SEPTEMBER 18, 1991

GOP County Map 'Dead On Arrival'

Democrats Fear Loss Of Majority

By Virgil Tipton
Of the Post-Dispatch Staff

REPUBLICANS SAID Tuesday that they had black voters in mind when they drew a map for the St. Louis County Council giving blacks a 63 percent total in the council's 1st District.

But Democrats accused the Republicans of looking out for another minority: Republicans on the County Council.

"This map is dead on arrival," said Cary Hammond, a Democrat and the chairman of the county's redistricting commission. "This is not a plan for a minority district. This is a plan for Republican control of the County Council."

H.C. Milford, a former county executive and the lead Republican on the redistricting commission, denied that Republicans planned to create a Republican majority.

"Our first challenge was to draw a district that could be won by a minority," Milford said.

At issue is a map disclosed Tuesday by the seven Republicans on the county's redistricting commission. The commission's job is to redraw the boundary lines for the seven County Council districts to reflect changes in population in the past 10 years.

For the past 10 years, three seats have been considered generally safe for Republicans and three safe for Democrats, with the remaining seat a swing district. Right now, four Democrats and three Republicans serve on the council.

But the Republican map pushes the 3rd District — the swing district — westward into the heavily Republican territory of Missouri River and Queeny townships.

Councilwoman Geri Rothman-Serot of Frontenac, a Democrat and the incumbent in that district, said the result is that the district would become "extremely Republican. It no longer is a swing district."

That contention leads to the Democratic charge that Republicans are using the issue of a minority district as a smokescreen.

Republicans are using the issue "as a pretext to achieve their true ambition in this reapportionment process," Hammond said. "And that's to draw a Republican majority in the County Council."

Milford acknowledged that Republicans might have an easier time in that district under the Republican plan. But he contended that the change was a consequence of drawing a black district — not a goal.

The Republican map draws district boundary lines in such a way that the 1st District in North County would have a population that's 63.3 percent black, or a total minority population of 64.3 percent, compared with the current black population of 44 percent.

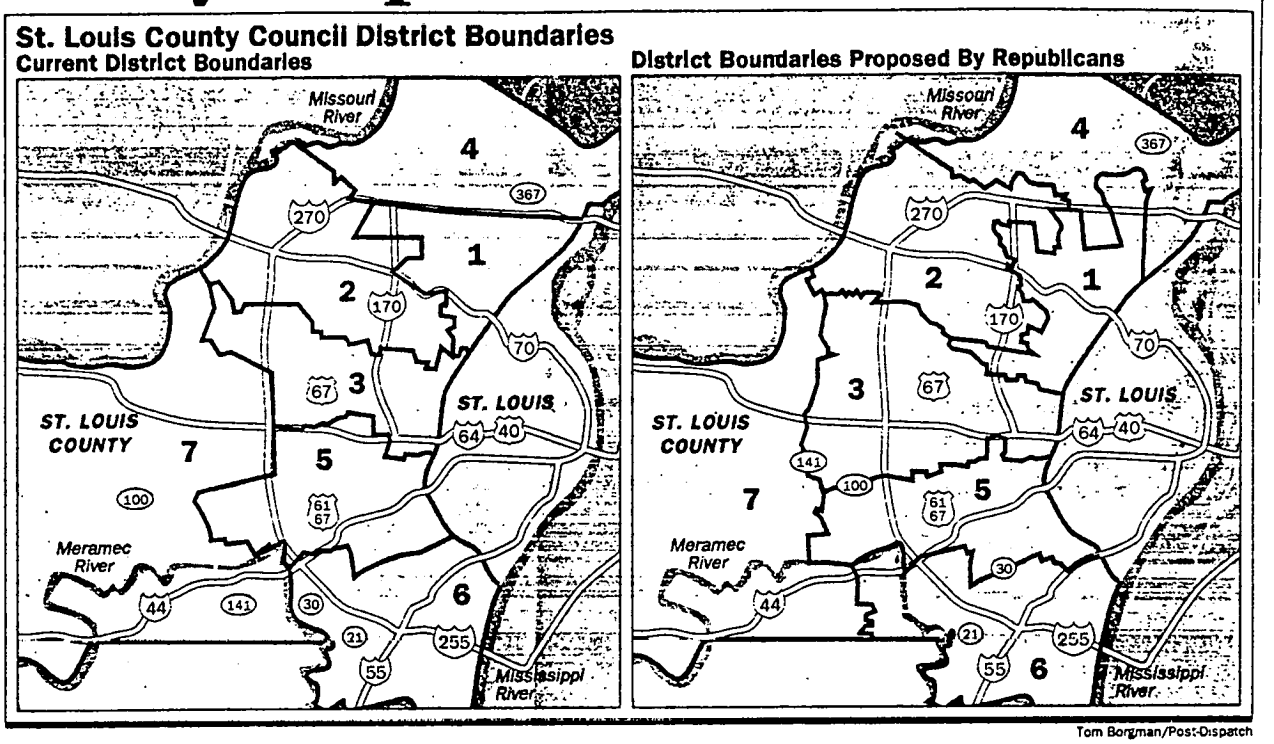
A Democratic plan proposed last week showed a black population of 56 percent.

Republicans and some black political leaders say that for a black to have a reasonable chance of winning a district, the district must have a minority population of close to 65 percent. Democrats contend that a black could have a chance of winning with a lower black population.

Despite the disagreement Tuesday, both sides said they were ready to negotiate.

One detail of the Republican map amused both sides. Turned upside down, the 1st District somewhat resembles an elephant — the symbol of the Republican Party.

"There's no way an elephant's going to win in that 1st District," Milford said.



Tom Borgman/Post-Dispatch



H. C. Milford
Republican member

The Republican map pushes the 3rd District — the swing district — westward into heavily Republican territory.



Geri Rothman-Serot
Democratic incumbent

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Cost Figures Explode For Nuclear Cleanups

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WASHINGTON — The Department of Energy has sharply raised its estimate of how much cleaning up pollution at nuclear weapons plants will cost.

And the department suggests that it does not expect to receive enough money to do the job on schedule.

On Thursday, the department released a report that showed a gap of nearly $12 billion over the next five years between the $40.3 billion it said was necessary and the $28.6 billion it was likely to receive.

The department stopped short of retreating from its commitments to state agencies and to the Environmental Protection Agency to clean up 30 years of waste and to comply with laws on the polluting of soil and water.

But the report seemed to be laying out a rationale for doing less, or at least for letting the cleanup schedule slip substantially.

Painting a still-grimmer picture, a top Energy Department official said he had far less to show for the money spent than he would like, and that tens of millions of dollars had been wasted on relatively simple tasks, like mixing dangerous liquids with cement to immobilize them.

At Rocky Flats, Colo., near Denver, wastes from an old disposal pond, set in blocks, failed to solidify; and at Oak Ridge, Tenn., many of 25,000 barrels are still a slurry or have liquids in them.

The official, Leo P. Duffy Jr., the department's top environmental officer, released a detailed five-year plan with two cost estimates. The first, a "preliminary unvalidated case," was the amount of money the department believes is needed to protect the health and safety of workers and the public, to comply with federal laws and to honor the cleanup agreements. That came to $40.3 billion over the fiscal years 1993 through 1996.

The second figure, called a "validated target level," was the current budget raised by 10 percent a year, as specified under last year's congressional budget agreement. That came to $28.6 billion.

Asked if the department could honor its promises to states to clean up at the lower level, Duffy said, "It's going to be very difficult." But he added that the department's budget was still not ready for submission to Congress.

Environmentalists were less circumspect. "If the president's budget request contains the lower level of funding, then this plan sabotages cleanup commitments instead of honoring them," said Shira Flax, a lobbyist with the Sierra Club.

State officials were pessimistic. At the Colorado Department of Health, David C. Shelton, the director of the hazardous materials and waste management division, said that for the Rocky Flats plant, "We've heard that on the one hand they need about $85 million, and that they may only get $25 or $30 mllllon."

Jeffery P. Breckel, who represents the governors of Washington and Oregon in negotiations with the Energy Department over the Hanford nuclear reservation, said, "Our agreement says you committed yourself to ask for the money, and we expect them to comply."

The schedules listed in the agreement to clean up Hanford, which is probably the most expensive site, "was not unilaterally imposed on the Department of Energy," he said.

Breckel said he had compared last year's five-year plan with the one issued Thursday, and for the four years the two plans have in common, found that the validated target level was $1 billion smaller.

"I have some real questions as to whether or not they could keep the agreement" at that level, he said.

Duffy, in contrast, concentrated on how much the program had grown in recent years, and, even at the validated target level, how much faster it would grow than other defense programs at a time of fiscal stringency and a shift away from military spending generally.

In 1989, he said, his office had 58 people in the department's headquarters, but now it has 315, along with 1,000 people in the field. He also raised the question of how fast environmental restoration and waste management could continue to grow. "Have we digested what we're doing?" he said. "I don't really think so."

In addition, he said, final costs will depend on decisions yet to be made, like how many parts per billion of a hazardous chemical should be left in the ground, or how much radioactive material should be left in place.

Another uncertainty is the cost of technologies yet to be invented. For example, Duffy said, the department has a problem with polychlorinatedbiphenyl, a carcinogenic chemical, 240 feet in the ground, in Portsmouth, Ohio, and Paducah, Tenn., for which no method yet exists for retrieval.

And in at some sites, he said, investigations of the extent of the contamination are still incomplete. "In many cases we know the volume of material, know the contaminant, but don't know the concentration of that contaminant," he said.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 9-7-91 Page 1B

Innovation

Big 'Pressure Cooker' Touted In Destruction Of Toxic Waste

By Charles Campbell
Of The Associated Press

WASHINGTON — Here's the idea: You take hazardous waste — sewage sludge, PCBs, old chemical weapons, almost anything — and stuff it into what amounts to an enormous pressure cooker, possibly one drilled deep beneath the Earth's surface.

And presto! Instead of toxic crud, you've got carbon dioxide, water, maybe some salts and ammonia.

The process, called supercritical water oxidation, can break down any organic compound. You filter out possibly dangerous heavy metals from the waste stream, and what's left is harmless. It can even be resold or released without damaging the environment.

With opposition growing to landfills and incinerators — especially for hazardous wastes — researchers say this new technology could prove to be an appealing alternative.

"It's an extraordinarily attractive and economic solution to some vexing problems," said Earnest Gloyna, professor of engineering at the University of Texas at Austin. "I am very enthusiastic about the whole operation."

Gloyna leads a team that has built the largest supercritical waste oxidation plant to date, a 30-foot-tall unit that can cleanse 40 gallons of waste an hour.

In tests at Texas and elsewhere, various toxic wastes have been destroyed safely and efficiently.

But governments and investors have been wary about putting up the millions of dollars necessary to build the first full-scale production facility.

"What we're looking at now is how to get it commercialized," said Ron Turner of the Environmental Protection Agency's risk reduction engineering lab in Cincinnati. "Right now, it's not commercially viable."

The process was developed beginning in the 1970s by Michael Modell, then an engineering professor at the Massachusetts Institute of Technology.

By now, there is a handful of small companies working on variations of Modell's idea, including his own in Framingham, Mass.

"We're looking for our first production customer right now," said Charles Hayes, vice president of Modell Development Co. "There have been some problems along the way. We think we have overcome them."

They haven't yet found a catchier name than supercritical water oxidation. But here's how it works:

When water is put under 3,200 pounds per square inch of pressure and heated to 705 degrees Fahrenheit, it becomes "supercritical" — that is, its properties change dramatically.

Organic compounds, ranging from plastics to petroleum to PCBs, dissolve readily in supercritical water. When oxygen is added, the pollutants will oxidize — a process akin to burning, but much slower and better controlled. Nasty chemicals are reduced to simple, harmless substances.

"It's a process that is very environmentally pure," Hayes said.

The environmental group Greenpeace has urged the Defense Department to consider supercritical water oxidation — and other emerging technology — as a better way to destroy chemical weapons. The Pentagon is sticking to incineration, arguing that it needs a proven method rather than something experimental.

A particularly daring version of the supercritical water idea is being promoted by James Titmas, an inventor and engineer from Hudson, Ohio. He proposes to drill a well a mile deep or more, making use of the natural pressure at the bottom to make the supercritical reaction happen.

In the Titmas system, a tube within the tube would separate wet sludge or other watery waste flowing down from the treated, purified stuff flowing back up.

At the bottom, the water would be under enough pressure to turn "supercritical," needing only sources of heat and oxygen to start the reaction. Once started, the process would generate enough heat to be self-sustaining.

"It's a pressure cooker, but very efficient," Titmas said in an interview. "It's not cheaper than ocean dumping, but it's cheaper than incineration or composting."

He believes it would cost his company, GeneSyst Inc., between $15 million and $50 million to build such a system, big enough to handle a medium-sized city's output of sewage sludge — what's left over from a sewage treatment plant's operations.

He has been talking with officials in several large cities, but he hasn't received any commitments.

"We're looking the idea over. It has the potential to destroy sewage in astronomical amounts," said Ben Benjamin, deputy director of Detroit's water and sewage department. "But until you run a full-scale test on it, you can't be 100 percent sure."

To date, most research has focused on much smaller above-ground systems — some of them portable — suitable for cleaning up toxic messes.

"We've been looking at some fairly specialized wastes," said Cheryl K. Rofer, program coordinator for supercritical water oxidation at Los Alamos National Laboratory in New Mexico.

Los Alamos is doing experiments for the Air Force, which needs to dispose of rocket fuel and explosives, and for the Energy Department, whose nu-

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 9-1-91 Page 2B

Ruling Affects Cost Of Dioxin Cleanup

Insurance Firms Would Be Liable

9-14-91

By Tim Poor
Of the Post-Dispatch Staff

A federal appellate ruling Friday could make it easier for governments to collect up to $96 million to pay for dioxin cleanup at Times Beach and other sites in Missouri.

The ruling by the U.S. Court of Appeals in Washington held that cleanup costs are "damages" that insurance companies are liable for under Missouri law. The three-judge panel made its finding despite an opinion by the 8th U.S. Circuit Court of Appeals that came to the opposite conclusion, setting up a potential showdown in the Supreme Court.

The issue is important because some of the companies responsible for dioxin contamination in Missouri have gone bankrupt and cannot reimburse local, state and federal governments.

If it stands, the ruling in Washington could pave the way for government to go after dozens of insurance companies to recover cleanup costs.

In 1988, the St. Louis-based 8th Circuit held, in a 5-3 ruling, that cleanup costs were not "damages" for which insurance companies were responsible under Missouri law. That ruling applied to the Continental Insurance Co., which insured the Northeastern Pharmaceutical & Chemical Co. (NEPACCO), a company that made hexachlorophene in a factory in Verona, Mo., from 1970 to 1972. Dioxin was one of the hazardous wastes produced.

NEPACCO hired Independent Petrochemical Corp. to dispose of the wastes; that company in turn hired Russell Bliss, who sprayed waste oil mixed with the wastes on the roads of Times Beach and at other sites.

Friday's ruling concerned Independent Petrochemical and its 28 insurance companies. A suit over the insurers' liability was filed in federal court in Washington, where a judge agreed to take jurisdiction of the case.

That judge deferred to the 8th Circuit opinion, but his decision was overturned Friday by the appellate panel. It found that the 8th Circuit had misinterpreted Missouri law and relied on a too-technical definition of "damages." It said that a more common sense reading of the law would find the insurance companies liable.

The Washington ruling will not affect the 8th Circuit's decision regarding NEPACCO because the two appeals courts have equal standing.

Because the companies have been held jointly liable for dioxin contamination, the ruling could mean that Independent Petrochemical's insurers would have to reimburse the government for the entire $96 million, according to John H. Gross, an attorney for Independent Petrochemical.

NEPACCO has been out of business since 1974; Independent Petrochemical has gone bankrupt, although its parent company, the Charter Co., has paid $6 million to Missouri and to the federal government in reimbursement for cleanup costs. Friday's ruling enables Charter to continue its court battle to recover the $6 million from its insurance companies, Gross said. He said it also cleared the way for the government to seek the rest of the cleanup costs from the insurers.

James E. Rocap III, a lawyer who represented one insurance company, Aetna Casualty and Surety Co., said it had not decided whether to appeal to the full appeals court or, if that fails, to the Supreme Court.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 9/14/91 Page

EDITORIALS

Falling Behind On Weapons' Waste

Little progress has been made on cleaning up the mountains of contaminated waste at the nation's nuclear weapons plants. The Department of Energy first admitted the cleanup to be a problem of major dimensions five years ago; now it appears to be a task of much greater magnitude than previously imagined. Yet the department says it lacks the money and expertise to be confident of resolving it.

The department has issued a report indicating that in the next five years there will be a large gap between what is estimated as necessary to maintain a timely cleanup program and the amount allocated by Congress to do so. So far, a mere $26 billion has been budgeted for the problem. The Energy Department thinks the true cost will be closer to $40 billion — or more. The affected states, which are relying on federal help to clean up the contaminated sites in their territory, are expressing well-founded concern that the federal government may renege on its commitment to do the job right.

Worse, the dimensions of the problem keep growing. For instance, while the volume and nature of material at the sites is pretty well known, in many cases its concentration — or toxicity — remains completely unknown. This important detail will dramatically affect the cost of cleaning it up. In addition, while methods exist for handling both radioactive and chemical contaminants, no adequate treatment and disposal system presently is available for treating wastes that are a mixture of the two. Indeed, for some toxic chemicals at the sites, there is no known method for retrieval and handling at all.

Thus not only is the money committed to cleaning up the weapons sites inadequate, the true dimensions of the problem have yet to be fully assessed. More money, especially for more scientists and engineers, is essential to eliminate these hot spots around the country in any reasonable period of time.

FUSRAP, St. Louis Sites, St. Louis, MO, St. Louis Post-Dispatch, Daily-376,000, Sunday-558,000, Date 9-16-91 Page 2B