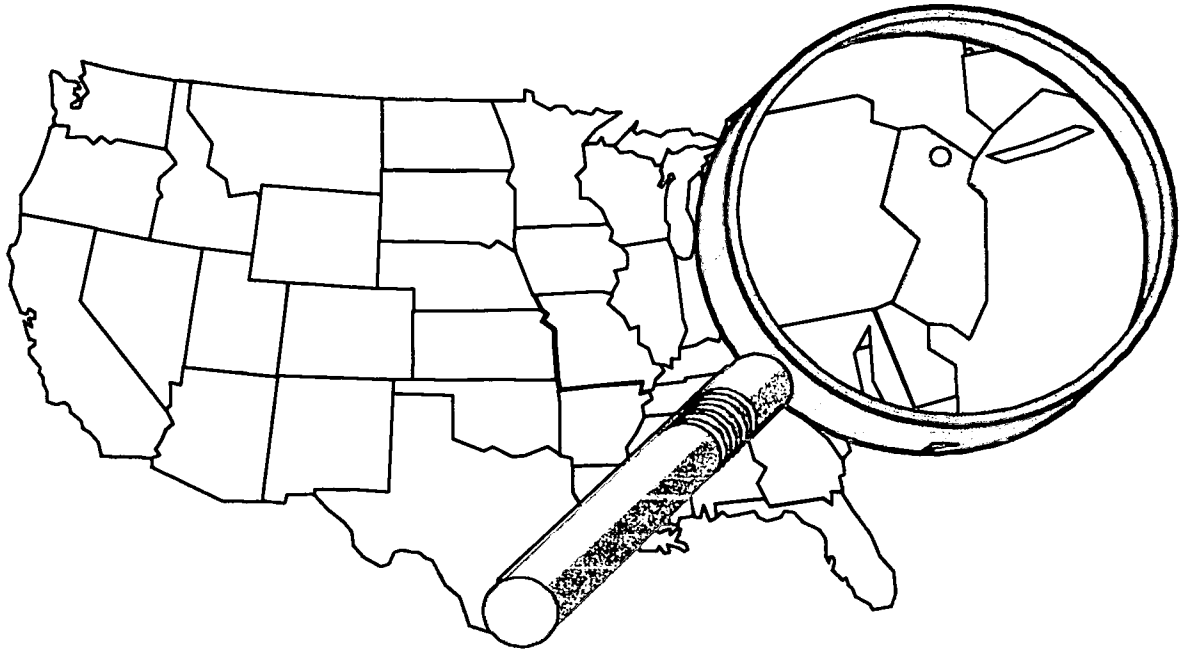
Management Action Process Document for the Wayne, New Jersey, FUSRAP Site



May 1996

U.S. Department of Energy

Formerly Utilized Sites Remedial Action Program (FUSRAP)

WAYNE SITE AT A GLANCE

[Reference Sections in Brackets]

Background

- Site includes Wayne Interim Storage Site and 24 vicinity properties (VPs) [2.1]
- 1950 — Contract between Rare Earths, Inc. and AEC to extract thorium from monazite sand [2.1]
- 1957 — AEC license transferred to Davison Chemical Division of W.R. Grace & Company [2.1]
- 1957–71 — W.R. Grace continued to process monazite sands for commercial purposes
- 1974 — Site partially decontaminated by W.R. Grace — buildings razed or decontaminated [2.1]
- 1975 — Nuclear Regulatory Commission terminated storage license; site released without radiological restrictions
- 1980–84 — NJDEP, ORAU, and ORNL surveys identified elevated rad levels at plant and areas west of plant
- 1984 — Site placed on NPL; DOE took ownership for storage of waste from VP cleanups [2.1]

Waste Volume and Primary Radioative Contaminants

- Volume: 108,500 yd^3
- Primary contaminant is thorium — uranium and radium also present

Major Environmental Restoration Activities to Date

- 1974 — Site partially decontaminated by W.R. Grace; buildings razed or decontaminated [2.1]
- 1986–88 — Cleaned up nearby Sheffield Brook, Wayne Township Park, school bus facility, and 24 VPs; Wayne storage pile completed
- 1994 — Completed remediation at Pompton Plains railroad spur and Peck Avenue VPs

Regulatory Drivers and Other Requirements

- CERCLA (SARA)/NEPA; NESHAPs; NPDES; Safe Drinking Water Act; Clean Water Act; Clean Air Act
- DOE Orders; DOE ER Strategic Plan
- Executive Order 12580; state and local regulations

Key Regulators and Other Stakeholders

- EPA Region II
- New Jersey Department of Environmental Protection (NJDEP)
- Wayne Thorium Committee
- Environmental Management Advisory Board (EMAB)

Key Issues

- New Jersey Public Law S-1070 has stricter cleanup standards than those used by DOE
- Schedule for record of decision (ROD) development
- Cost recovery from W.R. Grace, original owner of site
- Community is reluctant to accept soil treatment; would prefer cleanup to residential standards

Risk

- See Table 4.2

Environmental Restoration Strategy

- Work with community groups such as Wayne Thorium Committee [5.2.1] and coordination with EPA Region II and NJDEP under CERCLA
- Interim removal actions continue
- FUSRAP National Stakeholder Summit (May 1995) attended by Wayne stakeholders — 5 major issues identified:
  – Funding – Cleanup criteria – Risk management – Remedy selection – Community acceptance

Contacts

- **John Michael Japp** — DOE Site Manager, Wayne Site
- **Congressman Bill Martini**
- **Senators Bill Bradley** and **Frank Lautenberg**
- **Heather Vitz-Del Rio** — Chairwoman, Wayne Thorium Committee

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Formerly Utilized Sites Remedial Action Program (FUSRAP)

MANAGEMENT ACTION PROCESS (MAP) DOCUMENT

FOR THE WAYNE, NEW JERSEY, FUSRAP SITE

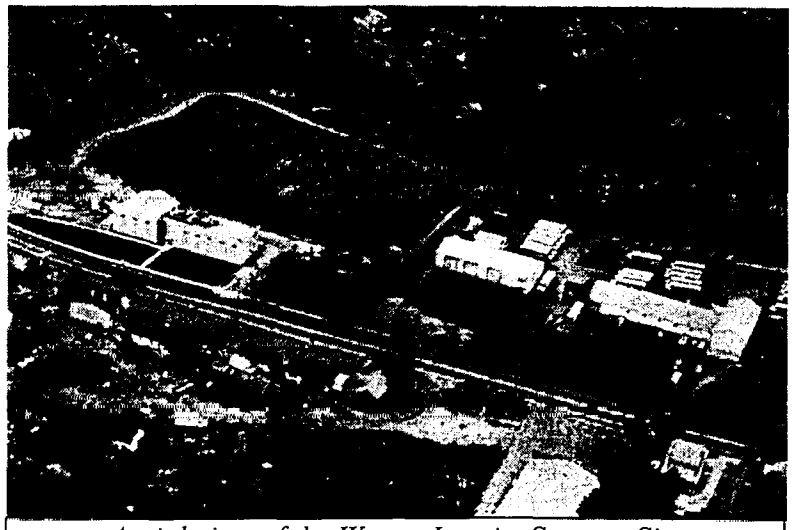
MANAGEMENT ACTION PROCESS (MAP) DOCUMENT
FOR THE WAYNE, NEW JERSEY, FUSRAP SITE

TABLES

FIGURES

ACRONYMS

AEA	Atomic Energy Act
AEC	Atomic Energy Commission
ANL	Argonne National Laboratory
ARAR	applicable or relevant and appropriate requirement
BNI	Bechtel National, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
DOE-HQ	U.S. Department of Energy-Headquarters
DOE-OR	U.S. Department of Energy-Oak Ridge Operations
EE/CA	engineering evaluation/cost analysis
EMAB	Environmental Management Advisory Board
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
FFA	Federal Facilities Agreement
FSRD	Former Sites Restoration Division
FS/PP	Feasibility Study/Proposed Plan
FUSRAP	Formerly Utilized Sites Remedial Action Program
FY	Fiscal Year
MAP	Managemcnt Action Process
MED	Manhattan Engineer District
NEPA	National Environmental Policy Act
NJDEP	New Jersey Department of Environmental Protection
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
ORAU	Oak Ridge Associated Universities
ORISE	Oak Ridge Institute for Science and Education
ORNL	Oak Ridge National Laboratory
PDCC	Project Document Control Center
PF	Pathway Factor
RCRA	Resource Conservation and Recovery Act
RDS	Risk Data Sheet
RF	Receptor Factor
ROD	Record of Decision
SAIC	Science Applications International Corporation
SHF	Source Hazard Factor
S/RID	Standards/Requirements Identification Document
UMTRA	Uranium Mill Tailings Remedial Action
WBS	work breakdown structure
WISS	Wayne Interim Storage Site



Aerial view of the Wayne Interim Storage Site

1. INTRODUCTION

The Formerly Utilized Sites Remedial Action Program (FUSRAP) was established in 1974 by the U.S. Atomic Energy Commission (AEC) under authorities granted by the Atomic Energy Act of 1954, as amended. FUSRAP encompasses 46 sites in 14 states and is funded through the U.S. Department of Energy (DOE) Oak Ridge Operations Office. Its mission is to identify, investigate, and clean up or control 1) sites where residual radioactivity exceeding current guidelines remains from the early years of the nation's atomic energy program, or 2) other sites assigned to DOE by Congress. The Wayne Site was assigned to DOE by Congress in 1984 and is being cleaned up under FUSRAP.

1.1 PURPOSE OF MAP

The Management Action Process (MAP) document serves as a record of interaction among the FUSRAP team of community, regulators, other stakeholders, and DOE. The MAP document is not a decision document, nor is MAP a new process. Instead, MAP is a tool to facilitate decision making and stakeholder involvement.

This MAP document is intended for use as a tool by all stakeholders at the Wayne Site. The MAP will concisely identify the environmental assessment and cleanup that has occurred to date and will provide the status of current and planned activities for the Wayne Site. DOE will also use the MAP document to develop a comprehensive strategy for cleanup, waste management, and subsequent land use. Similar documents have been prepared for all other FUSRAP sites.

1.2 MAP DOCUMENT ORGANIZATION

The organization of the MAP document for the Wayne Site is presented in Table 1.1.

1.3 OBJECTIVES

FUSRAP is a part of DOE's environmental restoration (ER) program, the primary mission of which is to determine the risks posed by inactive and surplus facilities and to protect human health and the environment from unacceptable risks. Cleaning up sites and facilities in the most cost-effective and

Table 1.1 Organization of MAP Document

Chapter	Title	Description
1	Introduction	Purpose and organization of the MAP document; FUSRAP objectives and strategies
2	Site Description and Comprehensive Planning	Operational history; environmental setting; site facilities, equipment, and infrastructure; and projected future site use
3	Status of Wayne Site Activities	Status of activities
4	Relative Ranking	Relative risk from contaminants to the public, workers, and the environment
5	Strategy	Key assumptions and process for formulating strategy
6	Master Schedule	Presents master schedule and compliance milestones.
7	Issues and Initiatives	Identifies issues affecting project performance and describes initiatives to address these issues.
Appendix A	Fiscal Year Funding Requirements/Costs	Cost baseline for activities.
Appendix B	Deliverables	List of documents
Appendix C	Decision Document Summaries	Abstracts of decision documents
Appendix D	Conceptual Site Model Data Summaries	Models depicting contaminant sources and transport mechanisms, exposure routes and pathways, and receptors.
Appendix E	Project Controls	Responsibility matrices, change control thresholds, and reporting requirements
Appendix F	Property List for Wayne Site	Lists site and vicinity properties
References	References	Literature cited/source references

responsible manner possible and optimizing opportunities for future beneficial reuse are objectives of the program. These objectives are accomplished by adhering to the ER Program core values:

- Ensure protection of worker and public health and safety and protection of the environment
- Serve as a model steward of natural and cultural resources
- Comply with federal, state, and local statutes
- Prudently use taxpayers' money in achieving tangible results
- Focus on customer satisfaction and collaborative decision making
- Demonstrate a commitment to excellence

FUSRAP and other DOE cleanup programs are driven by eight program priorities [listed in order of emphasis (DOE 1995)], which are used to set budget priorities and to plan and sequence work activities:

- **Reduce offsite contamination** that may pose risk to the public and the environment.
- **Prevent contaminant migration** through timely identification, reporting, assessment, application of best technologies, and safe storage.
- **Remediate non-DOE sites and facilities** formerly used by DOE and its contractors (the majority of these sites are included in FUSRAP and the Uranium Mill Tailings Remedial Action Program [UMTRA]).
- **Reduce onsite contamination** that may pose a risk to the public and the environment during future use of the site.
- **Cost-effectively maintain the essential infrastructure** by responsibly investing in site safety, security, utilities, maintenance, support services, and other activities to reduce or eliminate conditions that create the need for unnecessary expenditures.
- **Make prudent business decisions** such as investing in capital projects that upgrade efficiency.
- **Release facilities and land for beneficial use** and involve the public in land and facility decisions.
- **Reduce uncertainty through characterization** to allow more accurate determination of relative risk, scope, cost, and schedule for site remediation activities.

The major objectives of FUSRAP, which are in accordance with the mission and priorities of DOE's nationwide cleanup program, are to

- Find and evaluate sites that supported Manhattan Engineer District (MED) or AEC nuclear work (or evaluate sites assigned by Congress) and determine whether they need cleanup and/or control.
- Clean up or maintain these sites so that they meet current guidelines.
- Dispose of or stabilize radioactive material in a way that is safe for the public and the environment.
- Perform all work in compliance with appropriate federal, state, and local laws and regulations.
- Certify the sites for appropriate future use.

Strategic goals of the FUSRAP program are as follows:

- Address immediate risk concerns and prevent increases in relative risk at all sites.
- Complete 50 percent of current FUSRAP sites (23 of 46) by end of 1996.
- Reach agreement with regulators and stakeholders on site-wide cleanup approach at larger sites by end of FY 1999.
- Complete an aggressive interim action program at large sites by end of FY 2000.
- Complete cleanup at small sites by end of FY 2008.
- Complete cleanup of all sites and related vicinity properties by end of FY 2016.

Key assumptions on which the cleanup strategy for the Wayne Site is based are:

- Only the storage pile and the former factory subsurface disposal areas remain to be remediated; all offsite remediation is complete
- Pile removal will be completed by end of 1999
- Site-wide Record of Decision (ROD) to be issued pending schedule negotiation with U.S. Environmental Protection Agency (EPA) Region II
- Subpile may be amenable to treatment
- Additional subsurface characterization is necessary for site-wide remedy selection
- Subpile materials to be characterized after a portion of pile or all of pile is removed

The ultimate objective of the FUSRAP program is to remediate all contaminated sites in a safe, cost-effective, and timely manner and to optimize opportunities for beneficial reuse. Subsidiary objectives established to accomplish this overall goal are linked to the Environmental Restoration Strategic Plan (DOE 1995) and reflect health and safety, regulatory, technical, and operational performance goals.

A key component of the cleanup decision-making process at FUSRAP sites is input from the Environmental Management Advisory Board (EMAB). EMAB was established in 1992 as a board of advisors to assist the Assistant Secretary of the Office of Environmental Management on various program issues. EMAB established several committees, including the FUSRAP Committee. It was established by DOE to provide guiding principles under which the program should operate. These principles are to be developed using current scientific knowledge and extensive stakeholder input and will promote consistent and cost-effective remedies for FUSRAP sites. EMAB includes representatives of state and local governments, environmental and citizen groups, labor organizations, federal agencies, and the scientific and academic communities. National and local meetings provide a forum for public input to EMAB.

A stakeholder group that provides a significant voice for the community surrounding the Wayne Site is the Wayne Thorium Committee. The committee, which is made up of citizens and local officials, was formed in fall 1993. In December 1993 the committee hired a private consultant to review DOE activities. In April 1994 DOE awarded Wayne Township a $50,000 grant for use in reviewing documents and iterpreting technical information about the Wayne Site. An additional $10,000 was subsequently awarded. Local officials belonging to the committee include Heather Vitz-DelRio, chairperson; Neil Bellet, Business Administrator for Wayne Township; Michael Krause, Wayne Township Council Member; and Mary Ann Orapello, Health Officer for Wayne Township.

1.4 PROJECT TEAM

The Wayne Site project organization is outlined in Figure 1.1. The MAP project team is identified in Table 1.2.

1.5 ORGANIZATIONAL INTERFACES

Table 1.3 outlines the organizational interfaces among levels of DOE organization, core and technical members of the MAP project team, regulatory agencies, and stakeholder groups; it summarizes the relationships of these interfaces for the Wayne Site.

The remedy selection process will include working with community groups such as the Wayne Thorium Committee to identify acceptable and technically sound cleanup alternatives.

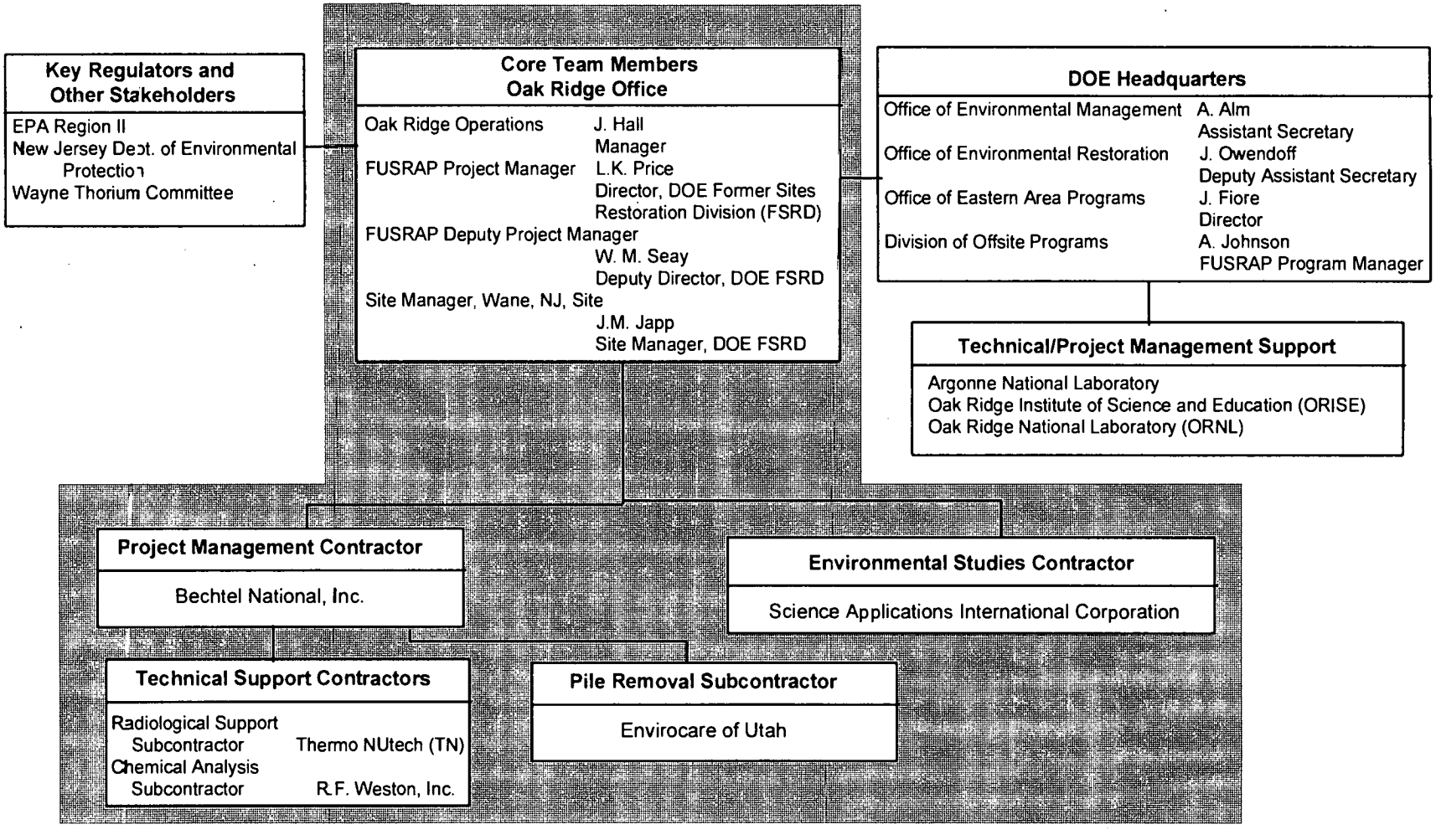


Figure 1.1
Wayne Site Organization Chart

Table 1.2 MAP Project Team

DOE HEADQUARTERS			
Organization	**Name**	**Title**	
Office of Environmental Management	A. Alm	Assistant Secretary	
Office of Environmental Restoration	J. Owendoff	Deputy Assistant Secretary	
Office of Eastern Area Programs	J. Fiore	Director	
Division of Offsite Programs	A Johnson	FUSRAP Program Manager	
CORE TEAM MEMBERS - OAK RIDGE, TENNESSEE			
Role/Responsibility	**Name**	**Title**	**Organization**
Director, Oak Ridge Operations	J. Hall	Manager	DOE ORO
FUSRAP Project Manager	L.K. Price	Director	DOE FSRD
Site Manager, Wayne Site	J.M. Japp	Site Manager	DOE FSRD
CONTRACTORS			
Role/Responsibility	**Organization**		
Project Management Contractor	Bechtel National, Inc. (BNI)		
Environmental Studies Contractor	Science Applications International Corporation (SAIC)		
Designation, Verification, and Technical Support	Oak Ridge National Laboratory (ORNL)		
Verification and Technical Support	Oak Ridge Institute for Science and Education (ORISE)		
Technical Support	Argonne National Laboratory (ANL)		
Radiological Sampling and Analysis; Chemical Sampling	ThermoNUtech		
Chemical Analysis	R.F. Weston, Inc.		
KEY REGULATORS AND OTHER STAKEHOLDERS			
Agency/Organization	**Primary Contacts**	**Telephone**	
EPA Region II	A. Carpenter	(212) 637-4433	
New Jersey Department of Environmental Protection (NJDEP)	N. Marton	(609) 633-1495	
U.S. Senate	B. Bradley F. Lautenberg	(202) 224-3224 (202) 224-4744	
U.S. House of Representatives	B. Martini	(202) 225-5751	
New Jersey State Senate	R. Martin J. Bubba	(201) 984-0922 (201) 473-1755	
New Jersey State Assembly	A. DeCroce C. Murphy M. Crecco G. Zecker	(201) 984-0922 (201) 984-0922 (201) 338-7552 (201) 256-5363	
Wayne Thorium Committee	H. Vitz-Del Rio	(201) 694-1800	
Passaic County County Freeholder Director	C. Delahanty	(201) 881-4402	
Township of Wayne Mayor Business Administrator	D. Waks N. Bellet	(201) 694-1800	

Table 1.3 Organizational Interfaces

Organization	Role/Responsibility
DOE-HQ, Office of Environmental Restoration (EM-40), within Office of Environmental Management	Oversight responsibility for attaining FUSRAP goals (implemented through Office of Eastern Area Programs and designated Program Manager in Division of Off-Site Programs, who establish overall program direction, policies, milestones, and budget).
DOE Oak Ridge Operations Office, Former Sites Restoration Division (FSRD)	Responsibility for accomplishing FUSRAP mission; day-to-day technical, administrative, and financial management of FUSRAP activities; oversight and management of BNI and SAIC contracts. Director is FUSRAP Program Manager, who has primary responsibility, accountability, and authority to direct and manage FUSRAP in accordance with the project charter and the Project Plan.
Bechtel National, Inc. (BNI)	Project Management Contractor. Manages field activities and construction required for remedial action; administers subcontracts; coordinates sequence of operations; executes response actions as required; defines/implements quality assurance procedures, environmental compliance activities, and safety programs to meet DOE requirements; ensures completion of remedial action in accordance with DOE goals.
Science Applications International Corporation (SAIC)	Environmental Studies Contractor. Responsible for planning, managing, and executing the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, integrating National Environmental Policy Act (NEPA) values, and meeting Resource Conservation and Recovery Act (RCRA) requirements. Provides technical support to DOE to plan site investigations, evaluate cleanup alternatives, conduct hazard assessments, and coordinate laboratory treatability studies and treatment strategy.
Oak Ridge National Laboratory (ORNL)	Technical support to DOE-HQ and FSRD including radiological scoping, designation, characterization, and verification services; conducts environmental audits of FUSRAP site activities.
Oak Ridge Institute for Science and Education (ORISE)	Technical support to DOE-HQ including independent verification activities.
Argonne National Laboratory (ANL)	Technical support to DOE-HQ and FSRD including technical review of analyses and documents and assistance to the FUSRAP self-assessment program.
DOE Waste Management Program	Oversees management of wastes generated during remediation projects, including notification of projected needs for waste treatment, storage, and disposal.
DOE Technology Development Program	Ensures use of safest, fastest, most cost-effective cleanup technologies.
EPA Region II	Regulatory oversight of cleanup at FUSRAP sites under CERCLA.
NJDEP	Key state regulatory agency with coordination of remedial action at the New Jersey FUSRAP sites.
Wayne Thorium Committee	Task force of local officials and residents. Currently funded with a DOE grant, which they have used to hire a consultant to review DOE work and documents.

1.6 MAP PROGRESS, ACCOMPLISHMENTS, AND STRATEGY

Table 1.4 identifies efforts at Wayne to promote stakeholder input in remedy selection and decision making and summarizes progress toward consensus through the EMAB/National Stakeholder Summit process and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) community relations activities.

On May 2-3, 1995, more than 60 FUSRAP stakeholders from communities throughout the United States convened in Washington, D.C., to attend the first annual FUSRAP National Stakeholder Summit. Participants discussed issues affecting cleanup at FUSRAP sites and identified funding, cleanup criteria, risk management, remedy selection, and community acceptance as major issues. The EMAB FUSRAP Committee used the issues and information from the National Stakeholder Summit to develop guiding principles. The next National Stakeholder Summit, at which FUSRAP stakeholders will review draft EMAB principles, is scheduled for 1996.

Table 1.4 Review of Stakeholder Involvement History and MAP Progress

Fiscal Year	Activities Completed/Accomplishments
1984	• Congress directed DOE to add the Wayne Site to its purview for cleanup • DOE representatives began meeting with residents and local officials to address concerns
1985-88	• Regular meetings between DOE and stakeholders regarding vicinity property cleanups
1989	• Federal Facility Agreement (FFA) agreement negotiations continued
1990	• FFA finalized and issued for public comment
1991	• Public scoping meeting for draft Feasibility Study (FS) alternatives held at Wayne Site; response made to public comments • FFA signed by DOE and EPA
1992	• DOE notified property owners and Pequannock officials of radioactive contamination on five residential properties on Peck Avenue; Wayne residents and officials were opposed to storing materials at WISS from cleanups outside Wayne • Draft work plan issued to public • Public scoping meeting held
1993	• DOE opened public information center at WISS • Regular communication between DOE and stakeholders regarding Peck Avenue cleanups • DOE held availability session to provide site information and address questions and concerns of local residents • Issued Engineering Evaluation/Cost Analysis (EE/CA) for remediation of Wayne Site vicinity properties; responded to public comments
1994	• DOE awarded township $50,000 grant for use in overseeing DOE work at Wayne Site • Issued draft final FS/Proposed Plan (PP) to EPA and NJDEP
1995	• DOE awarded the township an additional $10,000 in grant funds • Issued EE/CA for pile removal; responded to public comments • Placed air monitors at local day-care center at request of community members
Ongoing Stakeholder Involvement	• Information sessions held prior to beginning any new work • Public comment periods held for all decision documents • Issue approximately two newsletters per year • Meet periodically with local oversight group, Wayne Thorium Committee • Regular responses made to calls to FUSRAP 1-800 number • Wayne Thorium Committee uses a consultant to review DOE work at the site via a DOE assistance grant

2. SITE DESCRIPTION AND COMPREHENSIVE PLANNING

The Wayne Site is located in New Jersey in the townships of Wayne and Pequannock. The general location within New Jersey, site location within Wayne, and a site map are shown in Figure 2.1. A detailed listing of properties is provided in Appendix F.

2.1 OPERATIONAL HISTORY

The operational history of the Wayne Site is summarized in Table 2.1.

2.2 ENVIRONMENTAL SETTING

A summary of the Wayne Site environmental setting, including location, geology, hydrogeology, ecological resources, environmental factors, climate, and meteorology is presented in Table 2.2. No delineated wetlands or floodplains exist in near proximity to the site. The nearest floodplains are the Pompton River and Sheffield Brook. Figure 2.2 shows the Sheffield Brook drainage basin. Figure 2.3 shows the drainage basin at WISS. Figure 2.4 shows 100- and 500-year flood zones near the site.

2.3 CURRENT LAND USE

The 6.4-acre Wayne Interim Storage Site (WISS) is owned by DOE and is used for interim storage of 37,300 cubic yards (as of April 1996) of contaminated soils removed from all of the associated vicinity properties. The site is in an area presently zoned for residential purposes. Properties surrounding WISS are used for a combination of agricultural, residential, and commercial purposes.

Land in the WISS area is highly populated and includes agricultural, commercial, recreational, and residential properties. Figure 2.5 shows land uses and habitat patterns near the Wayne Site.

2.4 LOCAL AND REGIONAL FACTORS INFLUENCING CLEANUP STRATEGY

Local and regional factors influencing cleanup strategy are summarized in Table 2.3. These factors are considered when a cleanup strategy is proposed.

2.5 FACILITIES, EQUIPMENT, AND INFRASTRUCTURE

The facilities, equipment, and infrastructure for the Wayne Site are presented in Table 2.4. Figure 2.6 shows the basic infrastructure of WISS.

2.6 FUTURE USES FOR LAND, FACILITIES, AND EQUIPMENT

Future land use, according to the Wayne Township Master Plan, is to remain residential in the area surrounding WISS. An active public participation program elicits input from the community regarding current cleanup activities as well as possible future uses of the site. The community has expressed a desire to use the property for residential purposes following remediation. After the property has been fully remediated, it will be released for land use in accordance with the Record of Decision. Following remediation, no DOE use is intended for the site. DOE-initiated cost recovery activities against W.R. Grace, the former site owner, may influence final land disposition.

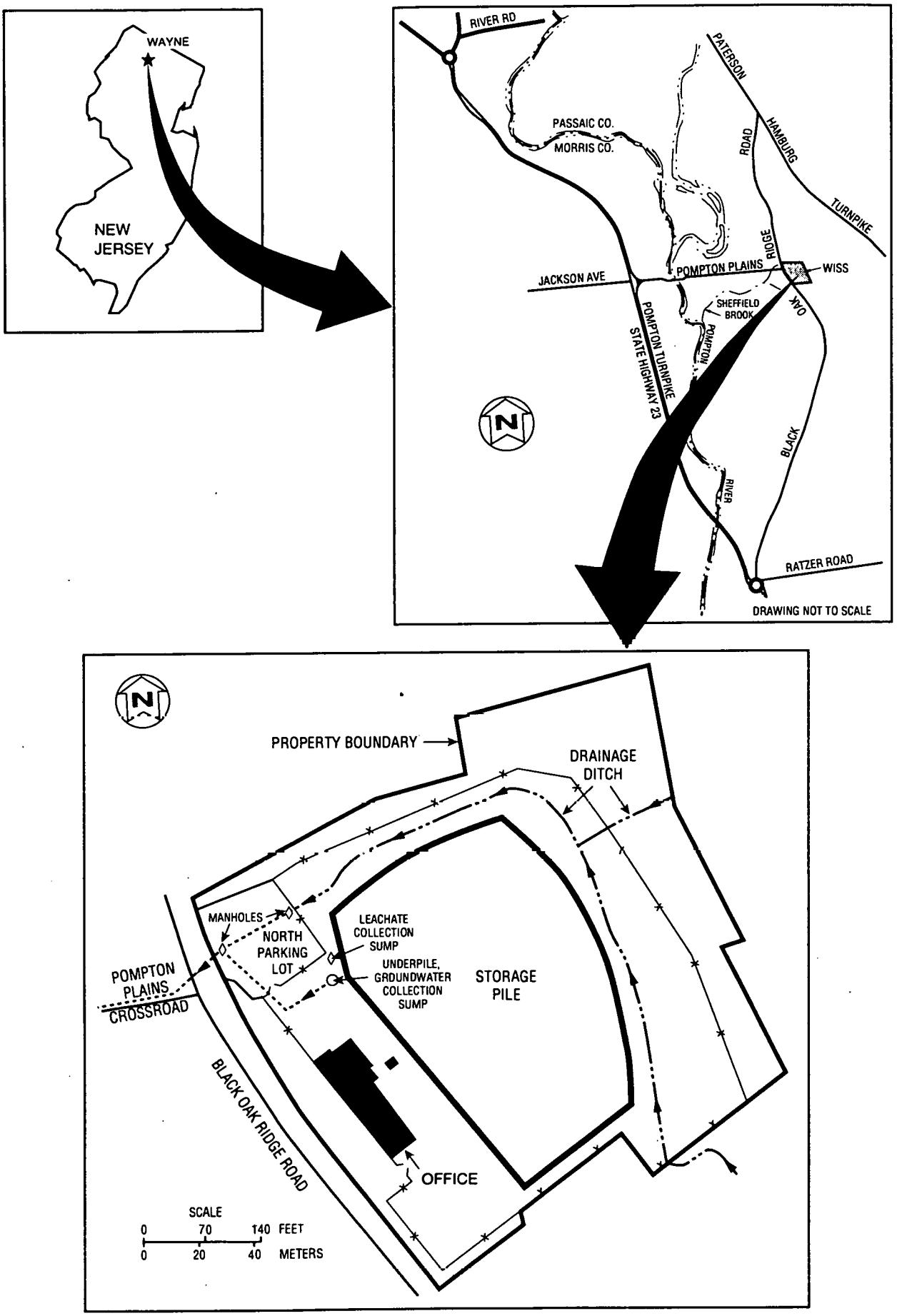


Figure 2.1 Wayne Site, Site Location, and Site Map

Table 2.1 Operational History of the Wayne Site

Period	Activity	Previous/Current Owners
1948	Historical documents suggest a contract was signed between Rare Earths, Inc. and AEC to extract thorium and rare earth metals from monazite sand.	Rare Earths, Inc.
1950	AEC entered into contract with Rare Earths, Inc., for production of thorium oxide.	Rare Earths, Inc.
1954	Rare Earths obtains a license under the Atomic Energy Act (AEA) to possess, transfer, and use radioactive material (i.e., thorium)	Rare Earths, Inc.
1957	AEA license transferred to Davison Chemical Division of W.R. Grace and Company, which bought Rare Earths, Inc.	W.R. Grace and Company
1957-71	W.R. Grace continued to process monazite sands for commercial purposes at the rate of 1.25 tons per day.	W.R. Grace and Company
1948-71	Contaminants from plant operations migrated offsite to nearby properties, primarily via Sheffield Brook	W.R. Grace and Company*
1974	Site partially decontaminated by W.R. Grace. Some buildings were razed; rubble and processing equipment were buried on the property. Remaining buildings were decontaminated.	W.R. Grace and Company
1975	Nuclear Regulatory Commission terminated storage license for radioactive materials following site decommissioning; site released without radiological restriction (with stipulation that property deed state radioactive materials buried onsite).	W.R. Grace and Company
1980	NJDEP radiological survey identified elevated radiation levels at plant site and in areas west of plant.	W.R. Grace and Company
1982-84	Additional surveys conducted by EG&G, Oak Ridge Associated Universities, NJDEP, and ORNL to more precisely delineate the contaminated areas.	W.R. Grace and Company*
1984	• Site placed on EPA National Priorities List (NPL) • DOE was authorized under the 1984 Energy and Water Development Appropriations Act (Public Law 98-50) to conduct a decontamination research and development project at Wayne in order to clean up the radioactive materials. DOE assigned the site to FUSRAP and obtained ownership of 6.5-acre site (WISS) for interim storage of materials from vicinity property cleanups.	DOE/FUSRAP
Cleanup history following DOE involvement may be found in Table 3.1; Stakeholder involvement history and MAP progress may be found in Table 1.4.		

* Other vicinity properties at the Wayne Site are owned by private citizens, commercial businesses, and municipalities

Table 2.2 Environmental Setting

Location	Site is located at 868 Black Oak Ridge Road in Wayne Township in a highly developed area of Passaic County. This area is in northern New Jersey, approximately 36 miles northwest of New York City.
Properties	All Wayne Site vicinity properties have been cleaned up.
Site Topography	Topography is generally level and slopes gently to the east toward the Pompton River. Elevation ranges from 197 ft to 250 ft above MSL.
Soil Condition	Soils are sandy, typically with 10 percent or less clay, and are primarily composed of quartz and feldspar minerals.
Subsurface Geology	Sections of sand and gravel with scattered boulders are commonly overlain by finer-grained sediments and stratified silts and sands. Bedrock consists of sand-stones, siltstones, conglomerates, and a large basalt unit.
Aquifer	Two primary aquifers: 1) bedrock aquifer system, composed of Jurassic sedimentary and igneous rocks of the Brunswick Group underlies entire basin; 2) Buried-Valley aquifer system of unconsolidated sediments.
Groundwater Flow, Discharge, and Recharge	Flow in the bedrock aquifer system is primarily internal to the Central Passaic River Basin. Recharge to the bedrock aquifer system occurs in higher elevations along the margins of the basin, with flow toward the center of the basin and discharge to the Buried-Valley aquifer system. Flow in the Buried-Valley aquifer system generally toward surface wetlands and down-valley.
Surface Water	Runoff from WISS drains into Sheffield Brook, which discharges into the Pompton River.
Erosion	1.2 tons/yr
Surface Vegetation	Trees, shrubs, grasses
Wildlife	Birds, mammals, other vertebrate fauna, invertebrates
Floodplains/Wetlands	The Wayne site is not located in the 500-year flood zone; wetlands are present at Sheffield Brook, in the vicinity of the site; floodplains and wetlands near the site were remediated during cleanup activities in 1986.
Threatened/Endangered Species	Applicable consultations have been addressed. No threatened or endangered species are expected to be affected by remedial activities.
Farmlands	No farmland preservation programs apply
Type of Climate	Humid
Seasonal Averages	Annual temp. 54.2°F; Avg. Jan. low: 31.3°F; Avg. July high: 76.8°F
Avg. Annual Snowfall	30 in.
Avg. Annual Precipitation	47.0 in.; 120 days/yr; Avg. August high: 4.7 in
Avg. Wind Speed/Direction	8.7 to 12 mph; From SW

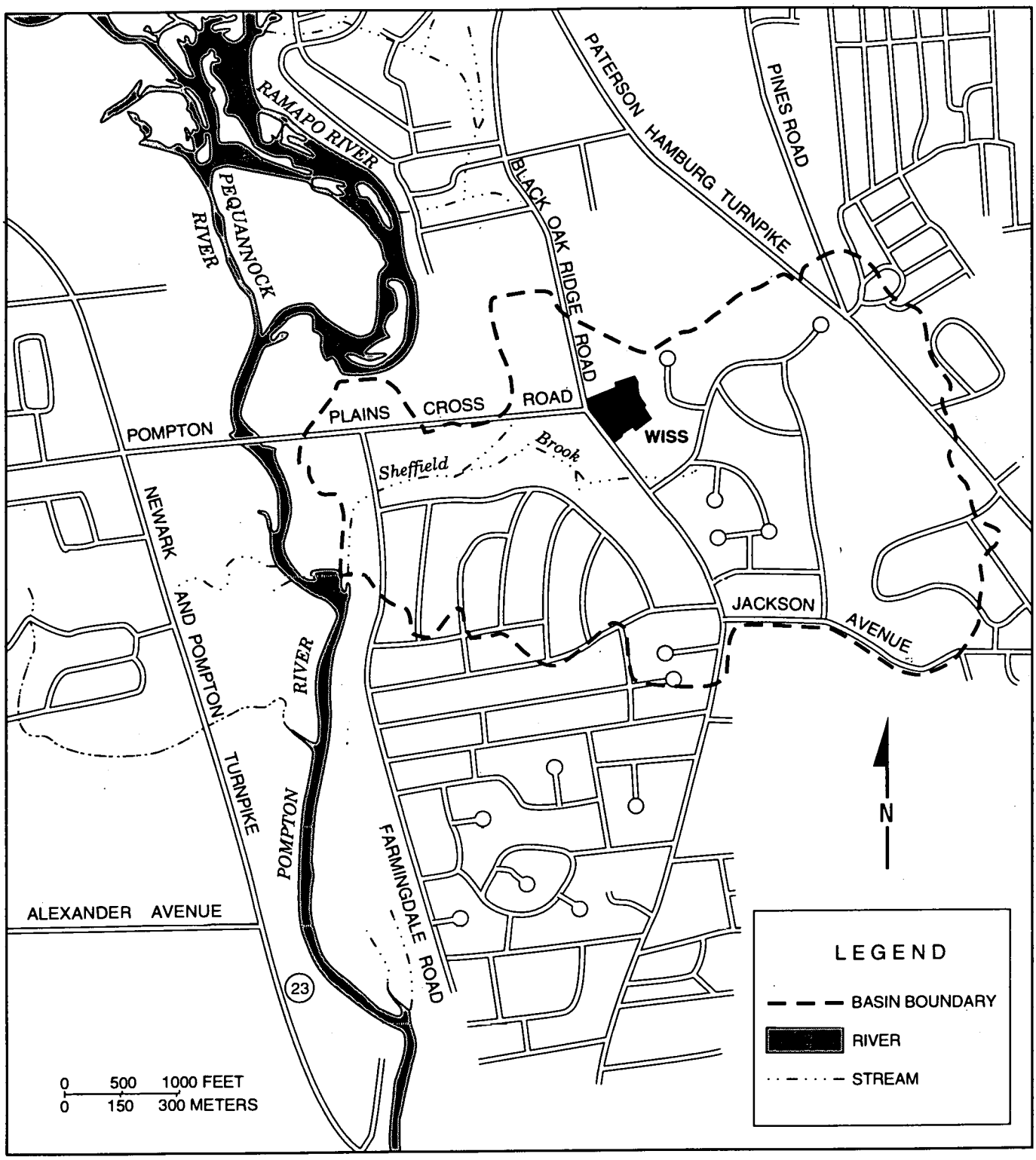


Figure 2.2 Sheffield Brook Drainage Basin

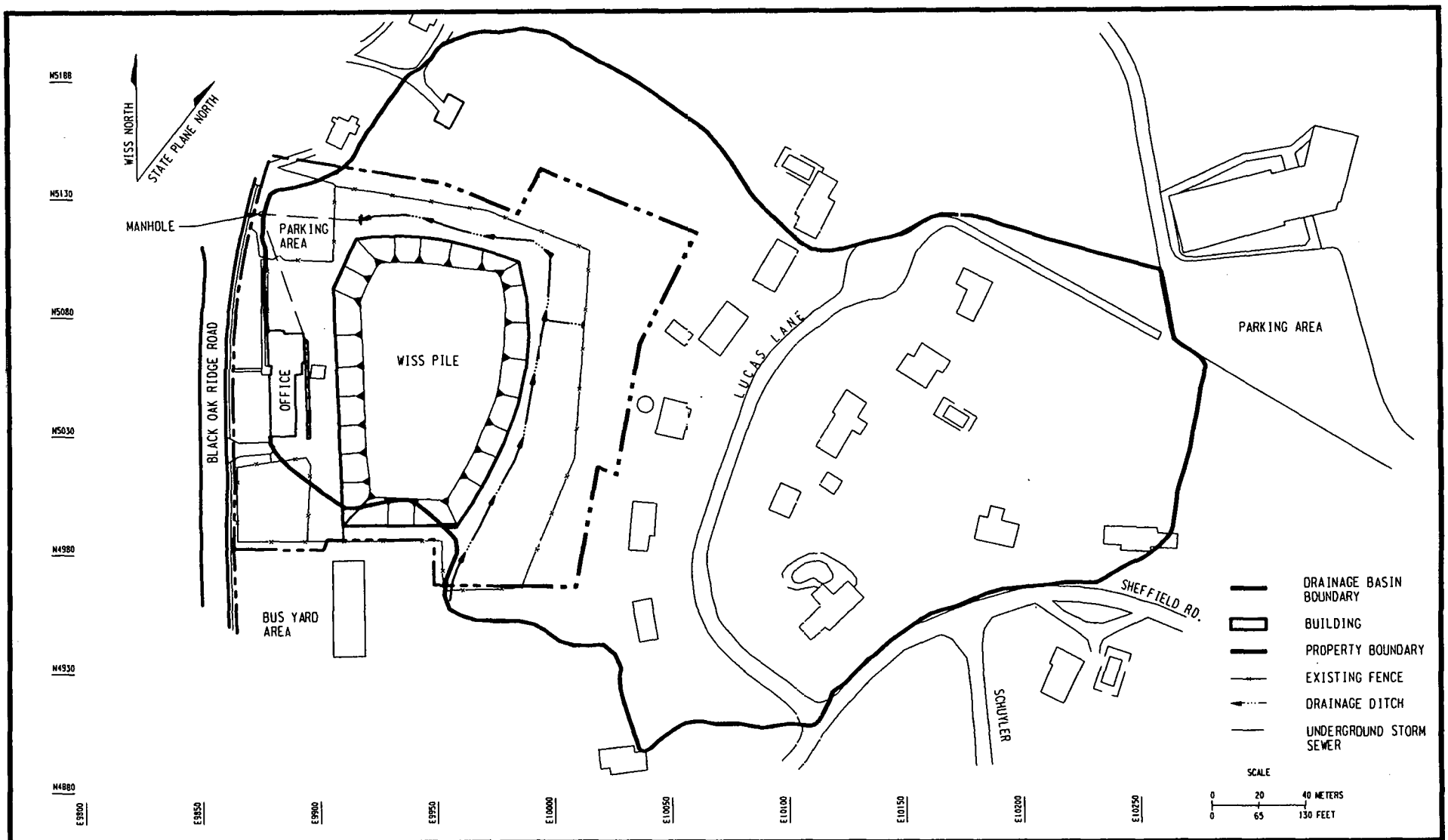


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FIGURE 2.3
WISS DRAINAGE BASIN

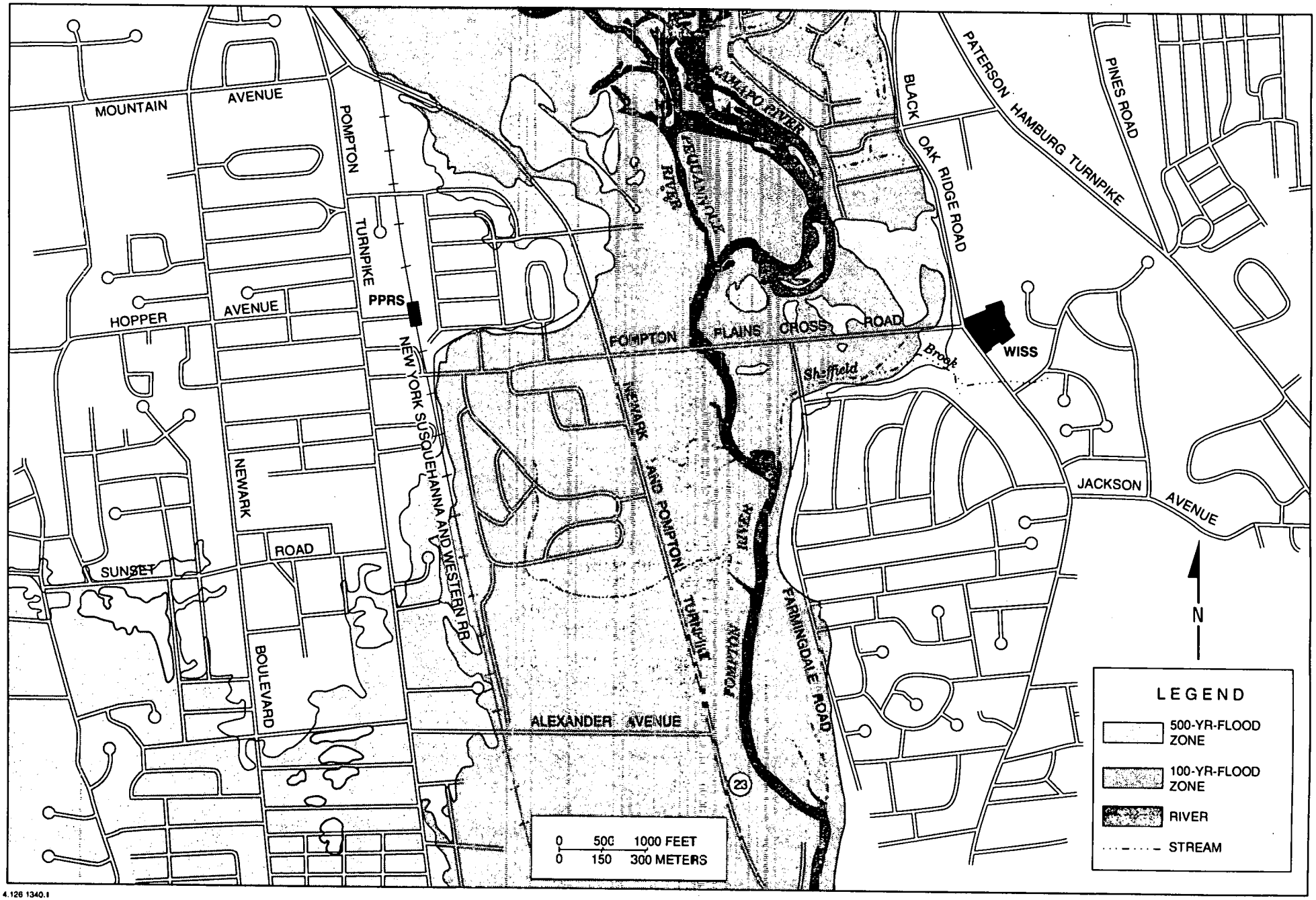

Figure 2.4 100- and 500-Year Flood Zones in the Wayne Site Area

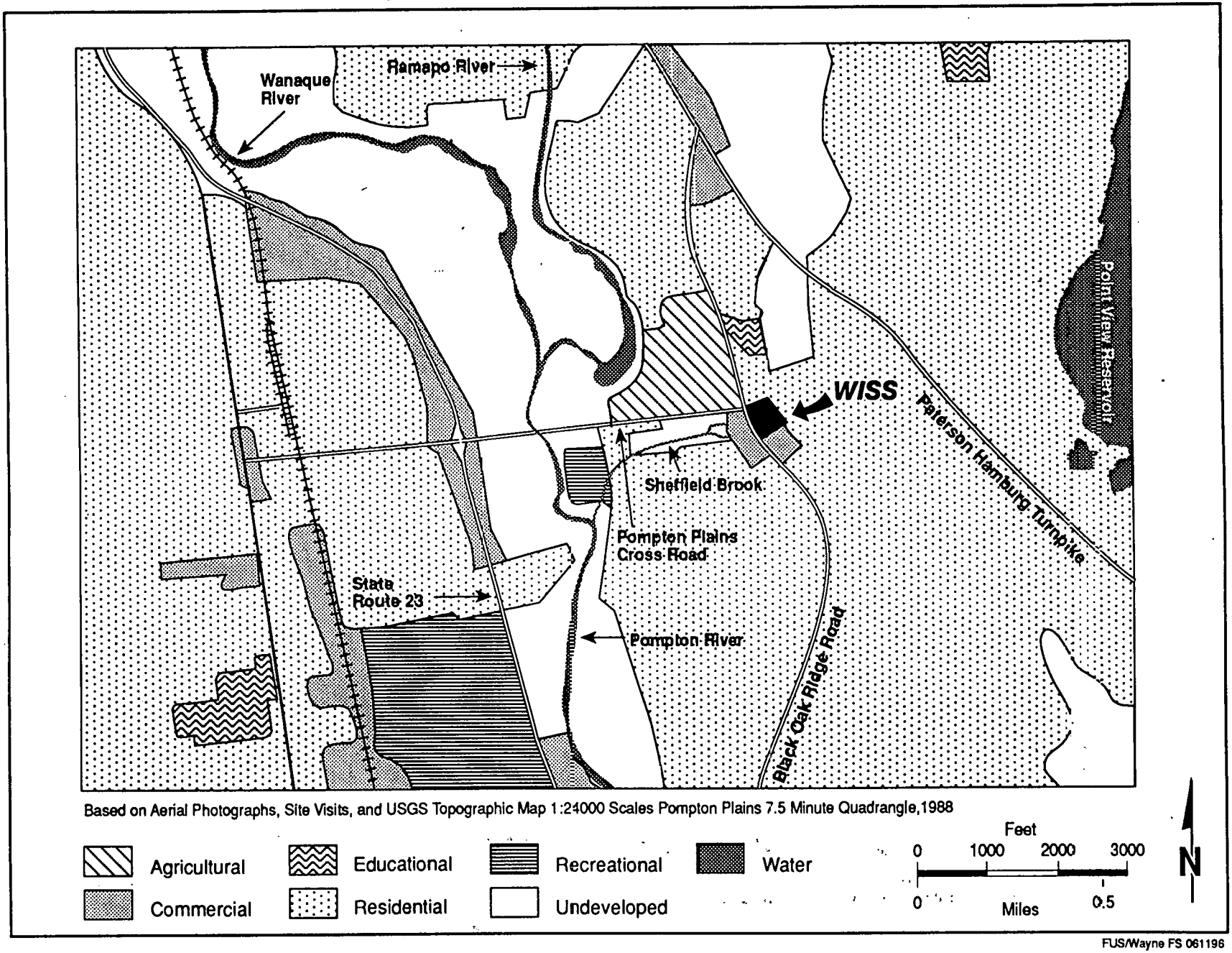

Figure 2.5 Land Use and Habitat Pattern of the Wayne Area

Table 2.3 Local And Regional Factors Influencing Cleanup Strategy

Demographic Factors	Demographic factors that have been considered include: • 1990 Wayne Township population: 47,025 • 1990 Pequannock Township population: 12,844 • Estimated nonurban population density: 452/mi^2 • Site is at western edge of highly urbanized New York/Newark Metropolitan area • WISS area includes agricultural, commercial, recreational, and residential properties
Historical, Archaeological, Cultural Factors	• Stage IA historical and archaeological study completed.
Environmental Factors	• No endangered species is known to inhabit the Wayne Site • No critical habitat has been identified at the site • The site does not fall within the 100-year flood zone; floodplains near the site were remediated during cleanup activities in 1986. • Wetlands are present at Sheffield Brook, in the vicinity of the site; wetlands near the site were remediated during cleanup activities in 1986.
Other Factors	• long-term safety • effectiveness of available technology over time • long-term monitoring • short-term risks • onsite disposal requirements • transportation and offsite disposal requirements • impacts/risk to communities along transportation routes to permanent disposal facility • community impacts and benefits of site cleanup • total cost of cleanup to taxpayers

Table 2.4 Facilities, Equipment, and Infrastructure at the Wayne Site

Buildings	Office building
Storage Pile	Interim storage pile occupying approximately 2.5 acres at the site (as of 4/96)
Utilities	Electric, water, sewer, phone
R/R Access	No
Waterways	No
Major Roads	State Route 23 ~1 mile from site; Black Oak Ridge Road adjacent to site
Security	Chain-link fence surrounding WISS
Water Runoff Controls	Drainage ditch, erosion control
Decontamination Pad	Yes

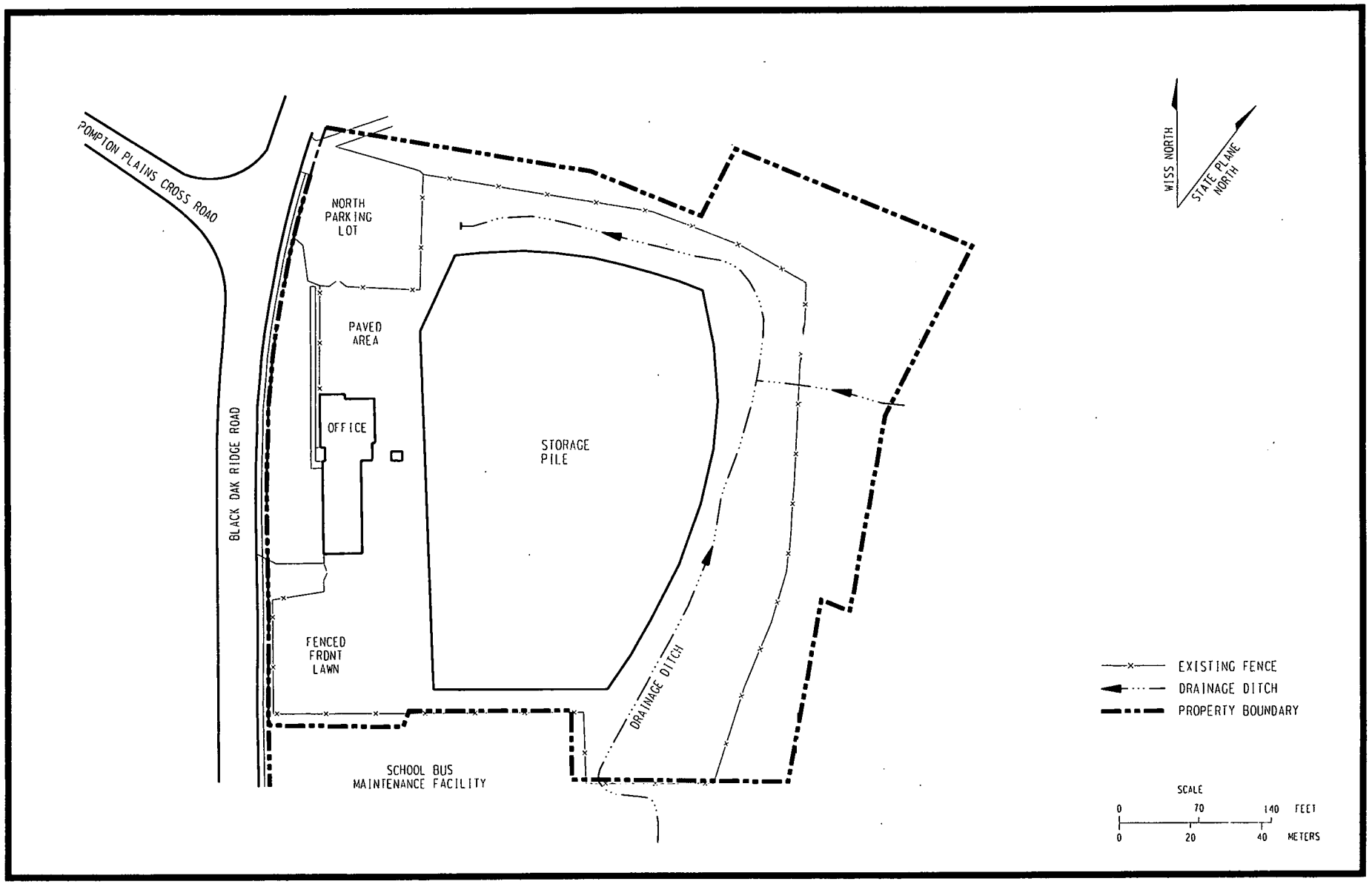

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Figure 2.6
Infrastructure at WISS

Table 2.5 Status of Lands

	Private Lands		DOE Lands				
Fiscal Year	**Total to Be Addressed (acres)**	**Total Completed and Released**	**Total Owned by DOE (acres)**	**DOE Land to Be Retained**	**Land That Has Been Released**	**Remediated and Available for Release**	**Not Ready to Be Released**
Pre-FY95	11	11	6.4	TBD	0	0	6.4
FY 1995	0	0	6.4	TBD	0	0	6.4
FY 1996	0	0	6.4	TBD	0	0	6.4
FY 1997	0	0	6.4	TBD	0	0	6.4
FY 1998	0	0	6.4	TBD	0	0	6.4
FY 1999	0	0	6.4	TBD	0	0	6.4
FY 2000	0	0	6.4	TBD	0	0	6.4
FY 2001	0	0	6.4	TBD	0	0	6.4
FY 2002	0	0	6.4	TBD	0	0	6.4
FY 2003	0	0	6.4	TBD	0	0	6.4
FY 2004	0	0	6.4	TBD	0	0	6.4
FY 2005	0	0	6.4	TBD	0	0	6.4
FY 2006	0	0	6.4	TBD	0	0	6.4
FY 2007	0	0	6.4	TBD	0	0	6.4
FY 2008	0	0	6.4	TBD	0	6.4 (pending no long-term control needs)	0

3. STATUS OF WAYNE SITE ACTIVITIES

3.1 CURRENT STATUS

3.1.1 Site Cleanup Activity Summary

Characterization and cleanup activities at the Wayne Site are summarized in Table 3.1.

3.1.2 Environmental Condition of Properties

Table 3.2 lists radionuclides of concern as well as their associated quantities and concentrations at the Wayne Site. All vicinity properties have been remediated, and the contaminated material is consolidated at WISS. Figure 3.1 shows the remediated areas of WISS and vicinity properties in Wayne Township. Figure 3.2 shows remediated areas from the Pompton Plains Railroad Spur and residential vicinity properties on Peck Avenue in Pequannock Township.

3.2 REGULATORY REQUIREMENTS

CERCLA is the principal law under which inactive DOE sites are cleaned up. For NPL sites such as the Wayne Site, CERCLA mandates the completion of a Remedial Investigation/Feasibility Study, selection of a cleanup option with stakeholder participation, documentation of the selected cleanup option in a Record of Decision, and completion of a remedial action. Removal actions can be conducted under the engineering evaluation/cost analysis (EE/CA) process (a mini-Feasibility Study) as long as the action is consistent with the sitewide remedy. FUSRAP cleanup activities incorporate NEPA values, which address protection of the environment during federal actions such as cleanup.

Although DOE is the lead agency for remedial action at the Wayne Site, DOE is bound by a Federal Facility Agreement (FFA) with the U.S. EPA. This agreement outlines the responsibilities and interactions between the two agencies including milestones for performance of cleanup activities. DOE activities are subject to oversight by EPA Region II and are coordinated with appropriate state agencies, including NJDEP. DOE also provides for participation of federal and state legislators, local and county officials, and the general public in the decision-making process regarding options for cleanup and waste disposal. One way this is accomplished is by providing fact sheets and information sessions to educate the public on cleanup work. Another important tool for including stakeholders in the decision-making process is that of allowing public comment periods for all decision documents. After comments are received, they are considered, addressed, and incorporated into the final decision documents.

The regulatory history of the Wayne Site, including regulatory agreements, permits, and other drivers and the current status in the CERCLA process, is summarized in Table 3.3. A list of regulatory requirements is provided in Table 3.4.

Table 3.1 Cleanup Activity Summary for the Wayne Site

Date	Activity
1984	• Congress assigned responsibility for cleanup of the Wayne Site to DOE, which in turn assigned the site to FUSRAP.
1985	• Collected additional characterization data from Sheffield Brook and Wayne Site to supplement data from previous surveys. • Excavated contaminated soil and demolished a building in the area of contamination at the bus maintenance facility. Began first phase of remedial action at Wayne Township Park. Characterized Pompton River at its confluence with Sheffield Brook. • Storage pile construction began.
1986	• Began remedial action along Sheffield Brook and contiguous properties. Began excavation at Pompton Plains Cross Road and continued to Farmingdale Road. Decontaminated and restored lawn in front of WISS office building, and removed a small quantity of contaminated material from the right-of-way along Pompton Plains Cross Road across the street from WISS. • Continued pile construction.
1987	• Completed removal actions at the school bus maintenance facility, Wayne Township Park, and Sheffield Brook. Began and completed remedial actions at 112 Deerfield Road, 34 Farmingdale Road, and under Farmingdale Road. • Continued pile construction. • Scoping and planning documents were begun.
1988	• Continued preparation of scoping and planning documents. • Last of the Sheffield Brook soils placed in site interim storage pile.
1989	• Continued preparation of scoping and planning documents.
1990	• Remedial Investigation activities began at the Wayne Site, starting with characterization of the interim storage pile. • Characterization was not performed on subsurface soils based on NJDEP concerns about breaching the bottom liner of the interim storage pile. • Continued preparation of scoping and planning documents.
1991	• The Federal Facility Agreement for the Wayne Interim Storage Site was signed by DOE and EPA. • The Work Plan - Implementation Plan and ancillary documents were issued for public comment.
1992	• Remedial Investigation activities were completed at the Wayne site and preparation of the Remedial Investigation report began. • Work began on the Feasibility Study/Proposed Plan.
1993	• *Engineering Evaluation/Cost Analysis for the Proposed Removal of Contaminated Materials from Vicinity Properties at the Wayne Site, Wayne and Pequannock Townships, New Jersey* was published. • The Work Plan - Implementation Plan and ancillary documents were completed. • Remedial action was performed at the Pompton Plains Railroad Spur and seven other vicinity properties.
1994	• *Remedial Investigation Report for the Wayne Site* was published. • *Baseline Risk Assessment for the Wayne Site* was published. • The EPA- State Final Draft of the *Feasibility Study for the Wayne Site* and a draft *Proposed Plan for the Wayne Site* were submitted to EPA for comment.
1995	• *Engineering Evaluation/Cost Analysis for the Removal of the Wayne Site Storage Pile, Wayne, New Jersey* was published. • "Turnkey" subcontract awarded for storage pile removal; option for removal of subsurface waste has not been exercised pending additional subsurface sampling to be performed after portions of pile are removed.
1996	• Pile removal initiated

Table 3.2 Materials of Concern at the Wayne Site

Site/Property	Waste Volume (yd^3)	Waste Type	Primary Constituents	Avg./Max Concentration (pCi/g)	Origin of Waste	Affected Media	Waste Locations
WISS Pile Material	36,500*	11e(2)	Thorium-232, Radium-226, Uranium-238	16.1 / 68.6 1.8 / 3.2 9.6 / 23.1	Vicinity property cleanups	Soil	Pile at WISS
WISS In Situ Material†	70,500 (est.)*	11e(2)	Thorium-232, Radium-226, Uranium-238	269 / 3032 8.5 / 85 33.6 / 336	Onsite processes	Soil, Water	Subpile at WISS
WISS Total Material	107,000 (est.)*	11e(2)	Thorium-232, Radium-226, Uranium-238	N/A N/A N/A	VP cleanups and onsite processes	Soil, water	Pile and subpile at WISS

* Volume as of 4/96

† Source: BNI 1993a; characterization of subsurface materials is incomplete. Additional characterization will be conducted as the pile is removed. Burial pits are likely to contain higher thorium concentrations than the known maximum

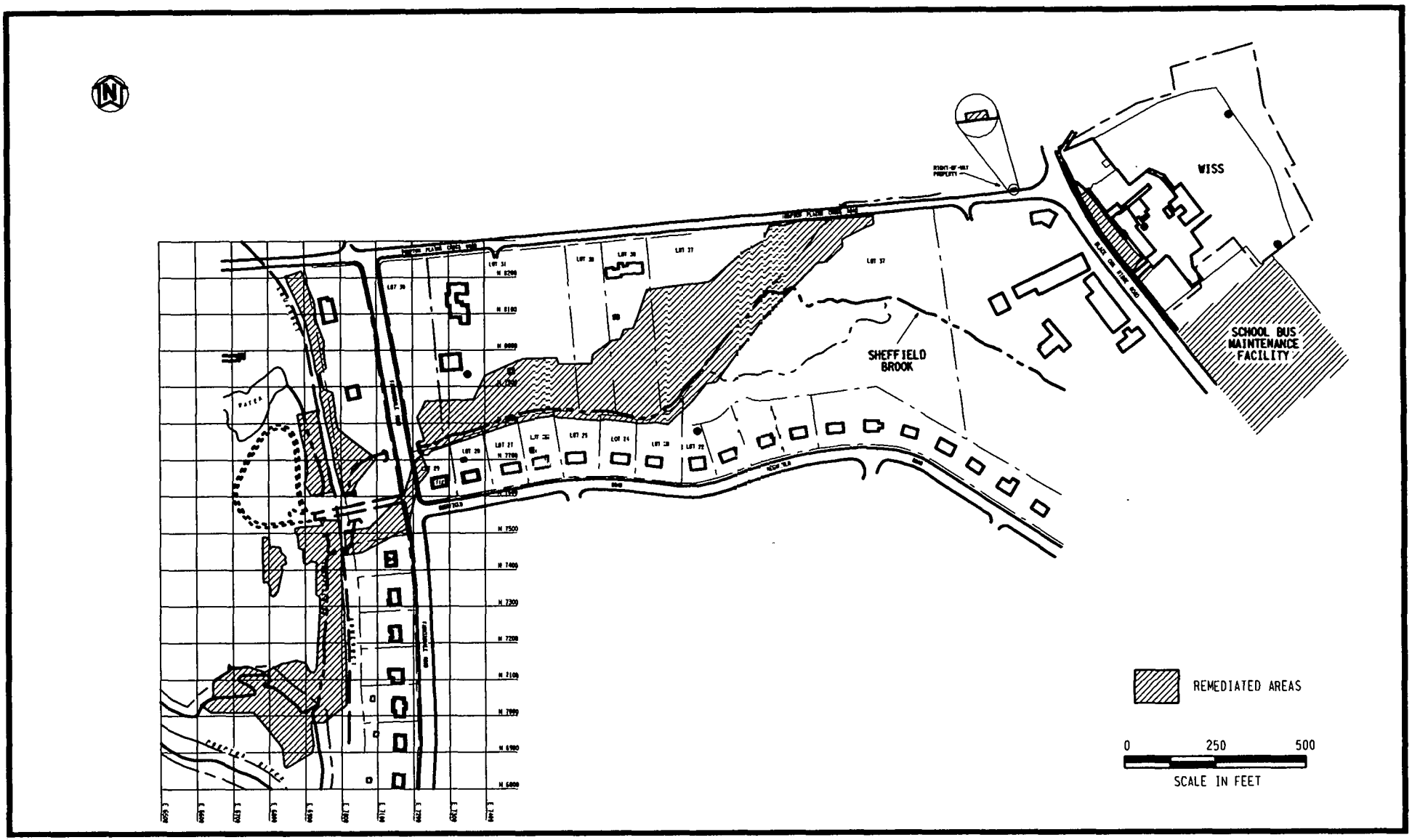

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FIGURE 3.1 PREVIOUSLY REMEDIATED AREAS OF THE WISS AND VICINITY PROPERTIES

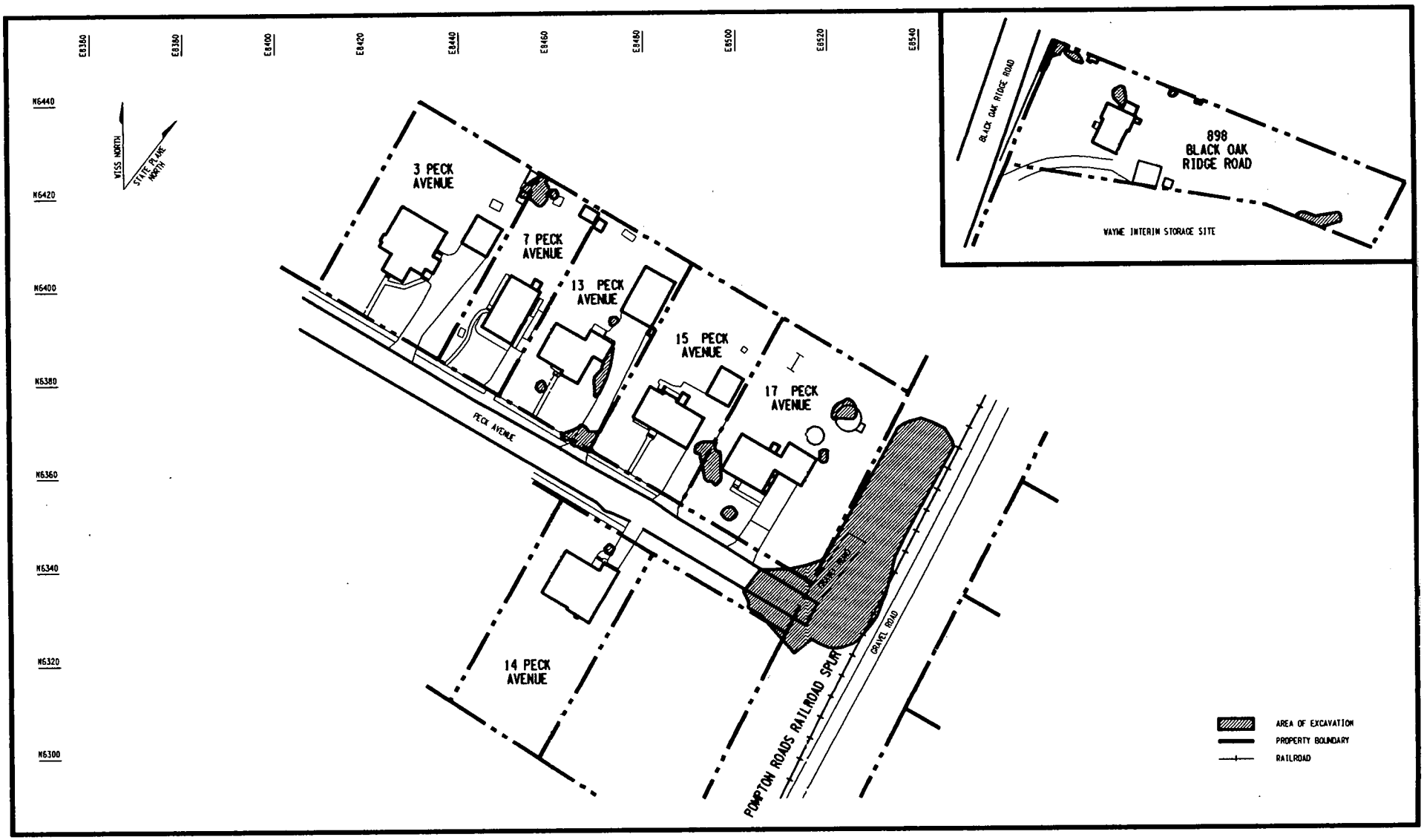

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Figure 3.2
Remediated Areas from PPRS and the Residential Vicinity Properties

Table 3.3 Regulatory History of the Wayne Site

1948	• Rare Earths purchases property
1957	• Rare Earths becomes Davidson Chemical Division of WR Grace
1971	• Facility operations cease
1975	• NRC releases WR Grace facility for unrestricted use
1981	• NRC initiates survey of formerly licensed facilities potentially contaminated because of government work • WR Grace facility is contacted
1983	• EPA places site on NPL • Congress authorizes DOE to initiate research and development project
1984	• DOE obtains WR Grace facility for interim storage of contamination from the cleanup of vicinity properties • environmental surveillance program initiated
1985	• State National Pollutant Discharge Elimination System (NPDES) permit obtained for construction of storage pile • Groundwater monitoring network installed • Site cleanup initiated
1986	• Sheffield Brook remediated pursuant to state stream encroachment and federal wetlands permits
1987	• Surveys and characterization activities conducted
1991	• Federal Facility Agreement between EPA and DOE signed • Individual permit application submitted for stormwater discharges from site
1993	• EE/CA for cleanup of vicinity properties issued to public; Action Memorandum signed • Final RI report issued in October
1994	• Final Baseline Risk Assessment issued in January • Historic preservation study completed
1995	• EE/CA for removal of pile issued to public; Action Memorandum signed • Certification docket for 1993 work at vicinity properties issued in November • Final Draft, Revision 1, Feasibility Study issued • Draft interim stormwater permit issued • Request for authorization under general stormwater permit submitted

Table 3.4 Requirements Potentially Applicable to the Wayne Site Cleanup

Potential Requirement	Description	Determination	Comments
FEDERAL REQUIREMENTS			
Atomic Energy Act of 1954 (AEA), as amended (42 USC 2011-2297G-4)	Establishes authority for licensing and regulating radioactive materials.	Applicable or relevant and appropriate	Establishes DOE's authority and responsibilities for managing radioactive materials.
Radiation Protection for Occupational Workers (10 CFR Part 835)	Specifies occupational radiation protection standards and program requirements for DOE and DOE contractor operations; includes basic dose limits of 5000 mrem/year for radiation workers and 100 mrem/year for public, and derived air concentration limits for radionuclides in air; requires all radiation exposure to be reduced ALARA.	Applicable or relevant and appropriate	The proposed action will comply with these requirements.
Clean Air Act, as amended; National Primary and Secondary Ambient Air Quality Standards (42 USC 7401-7671, 40 CFR 50)	Establishes National Primary and Secondary Ambient Air Quality Standards for certain pollutants, including total particulate matter.	Applicable or relevant and appropriate	Excavation equipment exhaust and fugitive dust could potentially contribute to air quality deterioration.
Ambient Air Quality Surveillance (40 CFR 58, 58 FR 8452)	Requires enhanced monitoring of ozone and its precursors. States must include photo-chemical assessment monitoring in their State Implementation Plans for serious to extreme ozone non-attainment areas.	Applicable or relevant and appropriate	New Jersey is classified as a severe ozone non-attainment area.
National Emission Standards for Hazardous Air Pollutants (42 USC 7401-7671, 40 CFR 61)	Emissions of radionuclides from any DOE facility to ambient air shall not exceed levels that would result in an effective dose equivalent of 10 mrem/year.	Applicable or relevant and appropriate	These requirements are considered pertinent for the protection of the public during implementation of the proposed action.
Federal Water Pollution Control Act, Clean Water Act (33 USC 1251-1387): Water Quality Standards (40 CFR 131), National Pollutant Discharge Elimination System (40 CFR 122-125)	Establishes water quality standards for surface waters and pretreatment standards for waste waters released to publicly owned treatment works (POTWs).	Applicable or relevant and appropriate	Any wastewater or stormwater resulting from the proposed action will be collected, tested, and treated, if necessary, prior to release, in accordance with the NPDES requirements.

Table 3.4 Requirements Potentially Applicable to the Wayne Site Cleanup (Continued)

Potential Requirement	Description	Determination	Comments
Occupational Safety and Health Act, General Industry Standards (29 USC 651-678, 29 CFR 1910) and Safety and Health Standards (29 CFR 1926)	Specifies health and safety standards for hazardous waste operations, including limits for exposure to noise, ionizing radiation and certain hazardous materials, including radionuclides. Sets requirements for worker training, development of emergency response and safety and health plans, and the type of safety equipment and procedures to be followed for hazardous waste site operations.	Applicable or relevant and appropriate	Since these requirements are part of an employee protection law rather than an environmental protection law, with which CERCLA response actions should comply, they are not subject to the ARAR process. However, they constitute requirements for worker protection with which the proposed action will comply.
Resource Conservation and Recovery Act (RCRA) (40 CFR 260-268)	Sets standards for management of hazardous waste, including generation, transportation, record-keeping, manifesting, treatment, and disposal.	Not a requirement	No RCRA-regulated hazardous waste is expected to be generated by the proposed action.
Toxic Substances Control Act (15 USC 2601 et seq., 40 CFR 761)	Regulates polychlorinated biphenyl (PCB) cleanup and disposal.	Not a requirement	No PCBs or other TSCA-regulated waste is expected to be generated by the proposed action.
Hazardous Materials Transportation Act, as amended by the Hazardous Materials Transportation Uniform Safety Act (49 USC 1801-1819, 49 CFR 171-174, 177)	Establishes the requirements for transportation of hazardous (including radioactive) materials, including classification, packaging, labeling, marking, shipping and placarding requirements.	Not a requirement	Potentially applicable to transportation of radioactive materials off-site; however, it is anticipated that all wastes generated during the proposed removal action will contain radioactivity concentrations below 2000 pCi/g, the threshold subject to classification as radioactive material under these transportation regulations.
Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings (42 USC 2022, 40 CFR 192)	Sets requirements for control of residual radioactive material at uranium and thorium processing or depository sites, and during site restoration. Specifies concentration limits for Ra-226 or Ra-228 in soil, limits for gamma radiation exposure and radon decay product concentrations in habitable structures, and annual dose limits from planned releases to environment.	Not a requirement	Since site is not a designated mill tailings site, these requirements are not strictly applicable. They could be considered relevant and appropriate because of the similar nature of contaminants and site conditions; however, equivalent requirements are specified under DOE Order 5400.5 (and proposed rule 10 CFR 834), with which the proposed action will comply.
Radioactive Waste Management (DOE Order 5820.2A)	Specifies requirements for managing DOE radioactive waste.	To be considered	Although not promulgated standards, these constitute requirements for protection of the public with which the proposed action will comply.
Environmental Protection, Safety, and Health Protection Standards (DOE Order 5480.4)	Establishes requirements for the application of mandatory environmental protection, safety, and health (ES&H) standards applicable to all DOE and contractor operations.	To be considered	Although not promulgated standards, these requirements are derived from such standards and constitute requirements for protection of the public with which the proposed action will comply.

Table 3.4 Requirements Potentially Applicable to the Wayne Site Cleanup (Continued)

Potential Requirement	Description	Determination	Comments
Radiation Protection of the Public and the Environment (DOE Order 5400.5)	Establishes requirements for DOE facilities and operations for control of radiation exposure to the public. Radiation exposure to any member of the public from DOE operations may not exceed 100 mrem/year effective dose equivalent above background for continuous exposure or 500 mrem/year in any single year; further, all radiation exposures must be reduced to ALARA levels. Concentrations of radionuclides in air in uncontrolled areas may not exceed specified Derived Concentration Guides. Specifies limits for Ra-226, Ra-228, Th-230, and Th-232 in soil.	To be considered	Although not yet promulgated standards, the DOE Order requirements were developed for protection of the public and the environment, and are mandatory requirements for DOE activities; these requirements will be codified in a formal rule at 10 CFR 834 (proposed 3/23/93, 58 FR 16268), which would be applicable upon final promulgation. Criteria for radionuclide concentrations in soil are not pertinent to the proposed action, but will be applicable to the final site remediation. DOE and EPA also have established more restrictive site-specific limits.
National Historic Preservation Act, as amended (16 USC 470, 40 CFR 6.301(b), 36 CFR 800)	Effect of any federally assisted undertaking must be considered for any district, site, building, structure, or object that is included or eligible for inclusion in National Register of Historic Places.	Not a requirement	No such properties known to exist in area affected by the proposed action, so no adverse impacts to such properties are expected; however, if these resources were affected, the requirement would be applicable.
Archeological and Historical Preservation Act (16 USC 469, 40 CFR 6.301(c))	Prehistorical, historical, and archeological data that might be destroyed as a result of a federal, federally assisted, or federally licensed activity or program must be preserved.	Not a requirement	No adverse impacts to such data are expected to result from the proposed action; however, if these data were affected, the requirements would be applicable.
Historic Sites, Buildings, Objects, and Antiquities Act (16 USC 461-469, 40 CFR 6.301(a))	Requires federal agencies to consider the existence and location of landmarks on the National Registry of Natural Landmarks to avoid undesirable impacts on each landmark.	Not a requirement	No such resources known to exist in the area affected by the proposed action, so no adverse impacts to such resources are expected; however, if these resources were affected, the requirement would be applicable.
Fish and Wildlife Coordination Act (16 USC 661-668, 40 CFR 6.302(g), 50 CFR 27)	Requires consultation when federal department or agency proposes or authorizes modification of any stream or other water body, and adequate provision for protection of fish and wildlife resources. Lists actions prohibited in areas belonging to National Wildlife Refuge System.	Not a requirement	The proposed action does not require modification of any stream or other water body. Site is not in the National Wildlife Refuge System.
Endangered Species Act (16 USC 1531-1544, 50 CFR 17.402, 40 CFR 6.302(h))	Federal agencies must ensure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any threatened or endangered species or destroy or adversely modify any critical habitat.	Not a requirement	No critical habitat exists in the affected area, and no adverse impacts on threatened or endangered species are expected to result from the proposed action.

Table 3.4 Requirements Potentially Applicable to the Wayne Site Cleanup (Continued)

Potential Requirement	Description	Determination	Comments
Clean Water Act, Dredge or Fill Requirements (33 USC 1251-1387, 40 CFR 230-231, 33 CFR 320-330)	Requires permits for discharge of dredged or fill material into waters of the United States, including wetlands.	Not a requirement	No jurisdictional wetlands are present in the area affected by the proposed action.
Protection of Wetlands (Executive Order 11990, 40 CFR 6.302(a))	Federal agencies must avoid, to the maximum extent possible, any adverse impacts associated with the destruction or loss of wetlands and the support of new construction in wetlands if a practicable alternative exists.	Not a requirement	No jurisdictional wetlands are present in the area affected by the proposed action.
Floodplain Management (Executive Order 11988, 40 CFR 6.302(b))	Federal agencies must avoid, to maximum extent possible, any adverse impacts associated with direct and indirect development of a floodplain.	Not a requirement	The area affected by the proposed action is not in a 100-year floodplain.
Wilderness Act (16 USC 1131; 50 CFR 35.1)	Administers federally owned wilderness areas to avoid impacts.	Not a requirement	No wilderness area exists on-site or adjacent to the area affected by the proposed action.
National Wildlife Refuge System (16 USC 668, 50 CFR 27)	Restricts activities within a National Wildlife Refuge	Not a requirement	No National Wildlife Refuge area exists on-site or adjacent to the area affected by the proposed action.
Scenic Rivers Act (16 USC 1271, 40 CFR 6.302(e))	Prohibits adverse impacts on a scenic river.	Not a requirement	No scenic river exists on-site or adjacent to the area affected by the proposed action.
Coastal Zone Management Act (16 USC 1451)	Requires that activities within coastal zone be conducted in accordance with state-approved management program.	Not a requirement	Affected area is not located in the coastal zone.
STATE REQUIREMENTS			
New Jersey Hazardous Materials Transportation Regulations (NJAC Title 7)	Establishes the requirements for transportation of hazardous (including radioactive) materials. Materials regulated by the Atomic Energy Act and hazardous chemicals may not be transported through the state of New Jersey without prior written approval by all authorities having jurisdiction in such matters and by NJDEP.	Applicable or relevant and appropriate	Applicable to transportation of radioactive materials off-site. The State of New Jersey has not officially adopted the Federal Hazardous Materials Transportation Regulations, although for the most part the Federal regulations have been incorporated into the New Jersey regulations.
New Jersey Spill Prevention Regulations (NJAC 7:1E)	Prohibits the discharge of petroleum and other hazardous substances to land and water.	Applicable or relevant and appropriate	No discharge of petroleum or hazardous materials planned for proposed removal action. Any accidental spillage would be mitigated in accordance with requirements.

Table 3.4 Requirements Potentially Applicable to the Wayne Site Cleanup (Continued)

Potential Requirement	Description	Determination	Comments
New Jersey Surface Water Quality Standards (NJAC 7:9B)	Establishes numerical criteria for the control of toxic pollutants in surface waters.	Applicable or relevant and appropriate	The proposed removal action would be conducted to prevent adverse impacts to surface water quality.
New Jersey Soil Erosion and Sediment Control Statute (NJSA 4:29-39)	Requires the implementation of soil erosion and sediment control measures whenever more than 5000 ft^2 of land surface is disturbed. Administered by local soil conservation districts of the state Dept. of Agriculture.	Applicable or relevant and appropriate	All excavation and construction activities under the proposed removal action would be conducted using appropriate erosion and sedimentation controls.
New Jersey Air Pollution Control Regulations (NJAC 7:27)	Establishes limitations on air pollution sources, including limitations on smoke emissions from combustion of fuel by vehicles, earth-moving equipment, and mobile generators.	Applicable or relevant and appropriate	All vehicles and equipment used during proposed removal action would meet these requirements. No permanent air pollution sources would be associated with this action.
New Jersey Noise Control Regulations (NJAC 7:29-1)	Establishes noise level limitations for industrial and commercial operations.	Applicable or relevant and appropriate	The proposed removal action would be conducted in compliance with all noise limitations.
Hazardous Discharge Site Remediation Act, Laws of 1993, Chap. 112, as amended by Laws of 1993, Chap. 139 (S-1070)	Legislation that upon enactment was immediately amended by S-1070 to include the remediation cleanup standards of S-1070. The Act requires persons who perform remediation activities to establish and maintain a remediation funding source in the amount necessary to pay for cleanups. Persons within the Act's scope are required to remediate to the cleanup standards to be developed under S-1070.	Potentially relevant and appropriate	Cleanup standards for human carcinogens in soil, groundwater, and surface waters are to be based on a 1 in 1,000,000 cancer risk. These standards are more stringent than the 10^{-4} to 10^{-6} risk range established by EPA for CERCLA sites.
New Jersey Stream Encroachment Permit Program (NJAC 7:7a-7.6)	Requires permits for construction, installation, or alteration of any structure or permanent fill along, in, or across channel or floodplain of any stream.	Not a requirement	The proposed removal action would not impact a stream channel or floodplain.
New Jersey Water Supply Allocation Permits (NJAC 7:19-1.1)	Requires obtainment of permit for diversion of surface water or groundwater in excess of 100,000 gallons/day, except for emergency or short-term diversions.	Not a requirement	The proposed removal action would not include diversion of surface waters addressed by this requirement.

Table 3.4 Requirements Potentially Applicable to the Wayne Site Cleanup (Continued)

Potential Requirement	Description	Determination	Comments
New Jersey Uniform Construction Code Regulations (NJAC 5:23)	Requires construction permit for the construction, enlargement, alteration or demolition of a building or structure. Includes requirements for asbestos, fire, and radon.	Not a requirement	The proposed removal action would not include activities addressed under this regulation.
New Jersey Road Impact Regulations (NJAC 16:41-5.1, 7.1)	Requires permit from the NJDOT: to install, convert, or relocate drainage facilities across state property or alongside state highway; and for use of a state highway right-of-way.	Not a requirement	The proposed removal action would not include activities addressed under this regulation.
New Jersey Pollutant Discharge Regulations (NJAC 7:14A)	Establishes controls and permitting requirements for discharge of pollutants to surface or ground waters.	Not a requirement	No discharges to surface or ground waters are planned for the proposed removal action. Source, byproduct, and special nuclear material regulated under the AEA are not regulated by this program.
New Jersey Groundwater Quality Standards (NJAC 7:9-6.1)	Establishes numerical criteria for control of toxic pollutants in groundwater. State criteria for radionuclides are equivalent to federal SDWA criteria.	Not a requirement	Proposed removal action includes excavation of waste storage pile only. No impact to groundwater is anticipated. Any groundwater remediation at the site would be addressed under RI/FS program.
New Jersey Drinking Water Quality Standards (NJAC 7:10-1)	Establishes numerical criteria for the control of contaminants in drinking water. State criteria for radionuclides are equivalent to federal SDWA criteria.	Not a requirement	The proposed removal action would not impact drinking water quality.
New Jersey Stormwater Pollution Prevention Regulations (NJAC 7:14A-3.1)	Establishes requirements for permits to discharge of stormwater associated with industrial activities to storm sewers and other outlets that drain to receiving surface water.	Not a requirement	The proposed removal action would be conducted to minimize any stormwater discharge. The area disturbed during the excavation activities would be below the threshold for these requirements.
New Jersey Freshwater Wetlands Permit Program (NJAC 7:7A-11.1)	Requires permit to engage in any regulated activity in and around freshwater wetlands and associated transition areas. (Operates in lieu of the U.S. Army CoE program.)	Not a requirement	No jurisdictional wetlands are present in the area affected by the proposed action and no wetlands impacts would be anticipated.
New Jersey Well Permit and Well Closure Regulations (NJAC 58:4A-4.1)	Establishes requirements for the drilling and closure of water wells and the licensing of water well drillers.	Not a requirement	No drilling or closure of water wells is included in the proposed removal action.

3.3 WASTE MANAGEMENT ACTIVITIES

FUSRAP operations are governed by federal and state statutes; regulations (including DOE orders) of federal, state, and applicable local regulatory agencies; and court decisions interpreting these laws and regulations. DOE Orders 5820.2A, "Radioactive Waste Management," and 5400.3, "Hazardous and Radioactive Mixed Waste Program," provide the foundation for radioactive, hazardous, and mixed waste management activities under FUSRAP. Hazardous and mixed wastes generated by FUSRAP are managed in accordance with Resource Conservation and Recovery Act (RCRA) and EPA implementing regulations.

Waste at the Wayne Site is classified under the Atomic Energy Act as 11(e)2 waste material. There is no known hazardous waste as defined by RCRA at the site. An inventory identifying quantity, location, and the status of the material at the Wayne Site is provided in Table 3.2.

3.4 OTHER ACTIVITIES

DOE is committed to a program of public participation in the remedial action process for the Wayne Site. FUSRAP maintains an ongoing community relations program as part of the CERCLA remedial action process (BNI 1995b). The program includes

- interviewing community members to identify concerns and information needs,
- briefing local officials and media,
- working with citizen interest groups,
- issuing news releases,
- maintaining information repositories, and
- holding public meetings and hearings.

All interim cleanup actions at the Wayne Site have allowed for a public comment period. DOE also held numerous information sessions and public meetings to provide an opportunity for residents of communities surrounding the site to participate in environmental cleanup decisions. A formal community relations plan for the Wayne Site is maintained and regularly updated. A public information center is located at WISS. The center houses the administrative record for the site as well as other information resources. The administrative record is also housed at the Wayne Public Library and the Pequannock Township Library. Addresses and phone numbers for the information center and libraries may be found in Appendixes B and C.

EMAB, established to set boundaries for remedy selection and decision making, is discussed in detail in Section 1.3. A key stakeholder group, the Wayne Thorium Committee, is also discussed in Section 1.3.

4. RELATIVE RANKING

The Remedial Investigation/Feasibility Study process for the Wayne Site is essentially complete. As a result, a number of separate evaluations have been performed:

- DOE-HQ Relative Ranking Evaluation
- DOE Risk Data Sheet Evaluation
- Assessment driven by regulatory requirements of CERCLA including the Baseline Risk Assessment and Feasibility Study alternatives assessment.

4.1 DOE-HQ RELATIVE RANKING

The Environmental Management (EM)-40 relative ranking process ranks the Wayne Site to describe the conditions under which the public and site workers could be exposed. The ranking assesses four different media: groundwater, surface water/sediments, soil, and facility conditions. The ranking considers the significance and concentration of the source (Source Hazard Factor), the existence or potential for a contaminant migration/exposure pathway (Pathway Factor), and the potential for receptors, such as people or the environment, to have access to the contaminated media (Receptor Factor).

The DOE relative ranking for the Wayne Site is summarized in Table 4.1. The table also contains the basis for each ranking category by describing the Source Hazard Factor (SHF), Pathway Factor (PF) and Receptor Factor (RF).

4.2 RISK DATA SHEET EVALUATION

The Risk Data Sheet (RDS) evaluation process provides information to the EM program that assists in budget development decisions. It does this by the providing data that allow management assessment of the possible effects of various budget levels on a given site's or program's ability to manage activities in comparison with those of other EM programs.

The site is evaluated in seven categories:

- Public Safety and Health
- Site Personnel Safety and Health
- Environmental Impact
- Compliance with laws, regulations and agreements
- Mission Impact to stated goals and mission of DOE
- Mortgage Reduction, i.e., reducing long-term DOE (taxpayer) financial liabilities
- Social/Cultural/Economic Impacts in the affected community/state

Within each category, the site is evaluated in terms of the conditions associated with the site/activity prior to spending a fiscal year's budget ("Before" conditions), the conditions associated with undertaking the budgeted activity ("During" conditions), and the conditions that remain after completing the budgeted activity ("After" conditions). The RDS ratings in each category are defined as either high, medium or low.

The RDS ratings for the Wayne Site are provided in Table 4.2. Detailed explanations of the basis for each rating are provided in the EM Risk Data Sheet database; a summary of the rating rationale is also provided in Table 4.2

Table 4.1 EM-40 Relative Ranking for the Wayne Site

Media	Source Ranking	Ranking Basis	
Groundwater	Medium	SHF:	Low concentrations of contaminants are present in groundwater under the site.
		PF:	Groundwater movement at the site is moderate (approximately 70 ft/yr).
		RF:	There is low potential for public or site worker access to the groundwater. The groundwater is classified as usable for drinking water or for irrigation. However the municipal water sources are the Wanaque Reservoir and the Oradell Reservoir.
Surface Water/Sediment	Low	SHF:	Concentrations of radium, thorium and uranium in sediment are very low.
		PF:	Movement of sediment is confined.
		RF:	Onsite workers could have access to sediments if administrative controls are not maintained as they currently are.
Soil	High	SHF:	Thorium and uranium are present in surface soils.
		PF:	Contaminated soil is accessible to site personnel; however, site controls are used to minimize exposure.
		RF:	Site worker contact with contaminated soils is possible if administrative controls are not maintained as they currently are.
Facility	High	SHF:	Gamma exposure and internal building contamination are present.
		PF:	Site worker presence in areas of exposure is possible if controls are not maintained as they currently are.
		RF:	Site worker exposure exists but is minimized by site access controls.
OVERALL RELATIVE RANKING:	HIGH		

SHF = Source Hazard Factor
PF = Pathway Hazard Factor
RF = Receptor Hazard Factor

Table 4.2 RDS Ratings and Rationale for the Wayne Site

Category	Rating Period	RDS Rating	Rationale
Public Safety & Health	Before	High	The site has the potential for public exposures greater than 15-100 mR/yr if funding for cleanup/maintenance/monitoring is eliminated.
	During	Medium	There is a small possibility of below-guideline public exposure during cleanup activities.
	After	Low	There is very low likelihood of public exposure or injury from residual contamination following cleanup.
Site Personnel Safety & Health	Before	Medium	Site workers could receive radiation exposures or be moderately injured in the 1-10 year timeframe if site cleanup/maintenance/monitoring were discontinued.
	During	Medium	There is a likelihood of moderate site worker injury (greater than a first aid case, but, less than 3 months' disability) during the course of remedial action.
	After	Low	After remedial action, onsite chance of injury or radiation exposure is very low.
Environmental Impact	Before	High	There is a significant possibility of the redistribution of contaminated soils/debris if site cleanup/maintenance/monitoring activities are discontinued.
	During	Medium	There is a small possibility of localized, onsite contaminant movement resulting from storm water redistribution of contamination, small fuel spills, etc. during cleanup.
	After	Low	Following remedial action, the possibility of environmental releases from residual contamination has either been eliminated or is very small.
Compliance*	Before	High	Work on the Wayne site is being performed in accordance with a federal facility agreement (FFA); lack of program funding for this work would result in noncompliance with the FFA.
	After	Low	Completing budgeted work in accordance with approved FFA schedules and requirements would permit compliance with the terms of the FFA.
Mission Impact*	Before	High	Not undertaking the funded work would directly affect fundamental DOE missions such as protection of environmental safety and health (ES&H) and environmental restoration (ER).
	After	Low	Undertaking the planned, budgeted work would allow DOE to meet its ER and ES&H missions.
Mortgage Reduction*	Before	High	Not undertaking the planned work would result in an increase in the total cleanup cost of the Wayne site as a result of continued program support requirements and escalation during the time cleanup work is unfunded.
	After	Low	Expenditure of the planned budget would avoid an increase in the site's total estimated cost resulting from added program support costs for the year(s) that the project is unfunded.
Social/Cultural/ Economic	Before	High	Not undertaking the work as budgeted and planned would be expected to result in organized public outcry and unfavorable media attention.
	During	High	During the execution of the cleanup work, periodic public outcry from a limited number of stakeholders is possible.
	After	Low	Following cleanup, it is expected that any further social, cultural, or economic impact would be very low.

* Compliance, Mission Impact, and Mortgage Reduction are not evaluated in the "During" category

The ratings indicate that, based on these management criteria for assessing the site in order to assign funding priority, the Wayne Site currently ranks high. In all cases, the residual risk following the completion of the funded activities is low, indicating a significant net benefit associated with funding the activity.

4.3 CERCLA-BASED RISK ASSESSMENT SUMMARY

A Baseline Risk Assessment was prepared to evaluate risk to human health and the environment from the radioactive and chemical contaminants at the site in the absence of remedial action. The Baseline Risk Assessment is consistent with CERCLA, assuming that institutional controls and other protective measures currently in place are no longer maintained. This document includes risk associated with both current and hypothetical future land uses without cleanup and provides the basis for determining the need for remedial action at the site.

Predicted cancer risks to hypothetical individuals from chemical and radiological constituents were compared to the EPA target risk range of 1 cancer per 10,000 exposed individuals to 1 cancer per 1,000,000 exposed individuals (1×10^{-4} to 1×10^{-6}). For current and future scenarios, potential radiological risks are generally much higher than the chemical risks except for hypothetical groundwater ingestion. The highest risk (2×10^{-2}) was projected for hypothetical future commercial use of WISS and the adjacent residential properties, both consuming contaminated groundwater. Risk associated with the current use of the Wayne Site falls within the EPA target risk range for most scenarios. However, the reasonable maximum exposure risk calculated for employees exposed to the most contaminated areas of WISS exceed the risk range.

The projected risk estimates are based upon accepted EPA methodology. However, there is uncertainty associated with each step of the risk assessment process. The conservative assumptions, such as workers occupying currently restricted areas, that are used in the Baseline Risk Assessment tend to overestimate potential risks. The projected risks at the Wayne Site indicate a need for remedial action at the site; however, actual risks are expected to be lower than estimated in the assessment.

5. STRATEGY

FUSRAP cleanups currently focus on two key elements: prioritizing sites by relative risk and expediting cleanup of non-DOE-owned sites and vicinity properties. Emphasis on these elements allows DOE to channel available resources in a manner that most efficiently and cost-effectively accomplishes the overall objective of protection of human health and the environment.

5.1 KEY ASSUMPTIONS

Key assumptions on which the cleanup strategy for the Wayne Site is based are:

- Only the storage pile and the former factory subsurface disposal areas remain to be remediated; all offsite remediation is complete
- Pile removal will be completed by end of FY 2000
- Site-wide Record of Decision to be issued pending schedule negotiation with EPA Region II
- Subpile may be amenable to treatment
- Additional subsurface characterization is necessary for site-wide remedy selection
- Subpile materials to be characterized after a portion of pile or all of pile is removed

Additional information on which the cleanup strategy for the Wayne Site is based is discussed in Section 1.3.

5.2 REMEDY SELECTION STRATEGY

The remedy selection process will include working with community groups such as the Wayne Thorium Committee to get input on the cleanup alternative, explain procedures, and address concerns. Evaluation of cleanup and disposal options for the site is still in progress and will incorporate stakeholder input and EMAB guiding principles. The decision-making process for the site will culminate in the signing of a Record of Decision, which will be issued pending resolution of a schedule between DOE and EPA.

Interim cleanup actions for the Wayne Site have involved removal of contaminated materials from vicinity properties, with the waste placed in interim storage at the site. Pile removal is being performed via a CERCLA removal action pending selection of a comprehensive remedy for site-wide cleanup. All offsite vicinity properties have been remedied and verified. No decision has been made for subpile materials; site-wide decision will be based on additional characterization of subsurface materials. Interim removal actions have been and, based on funding, will continue to be conducted. While interim actions are conducted, treatability studies and the National Stakeholder process will continue. Interim actions are being used to expedite remediation before the Record of Decision is issued and the final remedy can be implemented.

Interim actions for the Wayne Site include

- Cleanup of all vicinity properties under an Action Memorandum
- Removal of the WISS storage pile under an Action Memorandum

5.3 PROGRAM MANAGEMENT STRATEGY

The Wayne Site consists of WISS. All radioactive waste material at the site is classified as 11(e)2 by-product waste and includes soil and some building debris. The management strategy treats WISS and

the formerly designated vicinity properties as a single site rather than as individual sites (so that, for example, only one Feasibility Study and only one Record of Decision will be issued). However, each vicinity property has been released individually upon cleanup, and WISS will be released as an individual site upon implementation of a final remedy.

5.4 REGULATORY ACTIVITIES

Cleanup actions conducted by DOE at the Wayne Site are being coordinated with EPA Region II and the State of New Jersey under CERCLA. Obtaining permits typically required under the Clean Air Act, Clean Water Act, wetland protection legislation, and other federal and state environmental laws and statutes are not expected to be impediments to site cleanup because of the exemption granted to DOE under CERCLA section 121(e). DOE nevertheless recognizes and adheres to substantive requirements set forth in such legislation.

5.5 PROJECT SUPPORT ACTIVITY STRATEGY

FUSRAP has developed a Standards/Requirements Identification Document (S/RID) using a selection process that resulted in the identification and development of a set of standards/requirements that maintains protection of the safety and health of workers, the public, and the environment; provides a balance between costs and benefits; and is reasonable, tailored to the work to be performed, and defensible. The S/RID meets an objective laid out in the Secretary of Energy's August 3, 1995, "Roll Out," in which she identified in an "Honor Roll" certain initiatives that were expected to reduce DOE expenditures. One was that the "use of commercial standards for non-nuclear facilities will save millions throughout the DOE complex."

In the development of the S/RID, DOE directives deemed non-applicable and those deemed applicable but duplicative of other federal requirements were not selected for inclusion. Instead, the substantive value of the applicable yet duplicative DOE directives will be maintained through direct recognition and adherence to the federal requirements and through the use of commercial codes, standards, and best management practices. The applicability of common codes and standards for FUSRAP matches other agency processes for similar work.

The selection process recognized the important variations in the hazards, work, and other circumstances for FUSRAP and, therefore, provided a systematic and disciplined application of the graded approach. The FUSRAP S/RID contains the requirements necessary for the conduct of an effective program and sufficient for protection of human health and the environment, and it represents efficient use of financial resources.

No impediments to site remediation are anticipated; S/RID implementation is expected to actually facilitate progress.

5.6 PERFORMANCE MEASURES

FUSRAP 1996 performance measures are summarized in Table 5.1.

Table 5.1 FUSRAP FY 1996 Performance Measures

WBS No.	Release Site	Subproject or Interim Action Name	Planned Completion Date	Number Committed to Headquarters
		Assessments		3
1.4.11.1.03	New Brunswick Site	New Brunswick Site	June 1996	
1.4.11.1.04	Ventron	Ventron	May 1996	
1.4.11.1.04	B&T Metals	B&T Metals	June 1996	
		Interim Actions		5
1.4.11.1.03	Wayne	• Pile Removal -- Phase A	September 1996	
1.4.11.1.03	Maywood	• Pile Removal -- Phase C	September 1996	
1.4.11.1.02	Linde	• Decon Building 31 • Decon Building 14 • Demolish Building 38	January 1996 September 1996 September 1996	
		Remedial Actions		2
1.4.11.1.03	New Brunswick Site	New Brunswick Site	August 1996	
1.4.11.1.04	B&T Metals	B&T Metals	September 1996	
1.4.11.1.04	Baker Brothers	Baker Brothers	December 1995	
		Decommissioning		0
None				
		Vicinity Properties		15
1.4.11.1.01	Latty Avenue Properties	• Rykoff-Sexton (Property 6L) • Quaker State (Property 3L)	December 1995 December 1995	Completed Completed
1.4.11.1.01	St. Louis Airport Site (SLAPS) Vicinity Properties	• 21 Frost Avenue • 22 Frost Avenue • 23 Frost Avenue • 24 Frost Avenue • 26 Frost Avenue • 27 Frost Avenue • 30 Frost Avenue • 47 Hazelwood Avenue • 48 Hazelwood Avenue	August 1996 August 1996 August 1996 July 1996 August 1996 July 1996 July 1996 September 1996 September 1996	
1.4.11.1.01	St. Louis Downtown Site (SLDS)	• Site Owners D&D	September 1996	
1.4.11.1.03	Maywood	• 90 Avenue C • 79 Avenue B • 113 Avenue E • 112 Avenue E • 108 Avenue E • 11 Redstone Lane • 7 Branca Court • 16 Long Valley • 18 Long Valley • 20 Long Valley • 22 Long Valley • 24 Long Valley • 26 Long Valley	Fall 1995 Fall 1995 Fall 1995 Fall 1995 Fall 1995 Summer 1996 Summer 1996 Summer 1996 Summer 1996 Summer 1996 Summer 1996 Summer 1996 Summer 1996	Completed Completed Completed Completed Completed
1.4.11.1.03	Middlesex Sampling Plant	• Remediate Ditch	September 1996	

6. MASTER SCHEDULE

6.1 MASTER ER SCHEDULE

The master schedule for environmental compliance and restoration activities is provided in Table 6.1. Remedial design and remedial action consistent with the National Contingency Plan will begin following issuance of the Record of Decision. Specific dates beyond 1996 should not be considered as firmly established, however, because funding is based on an out-year budget cycle.

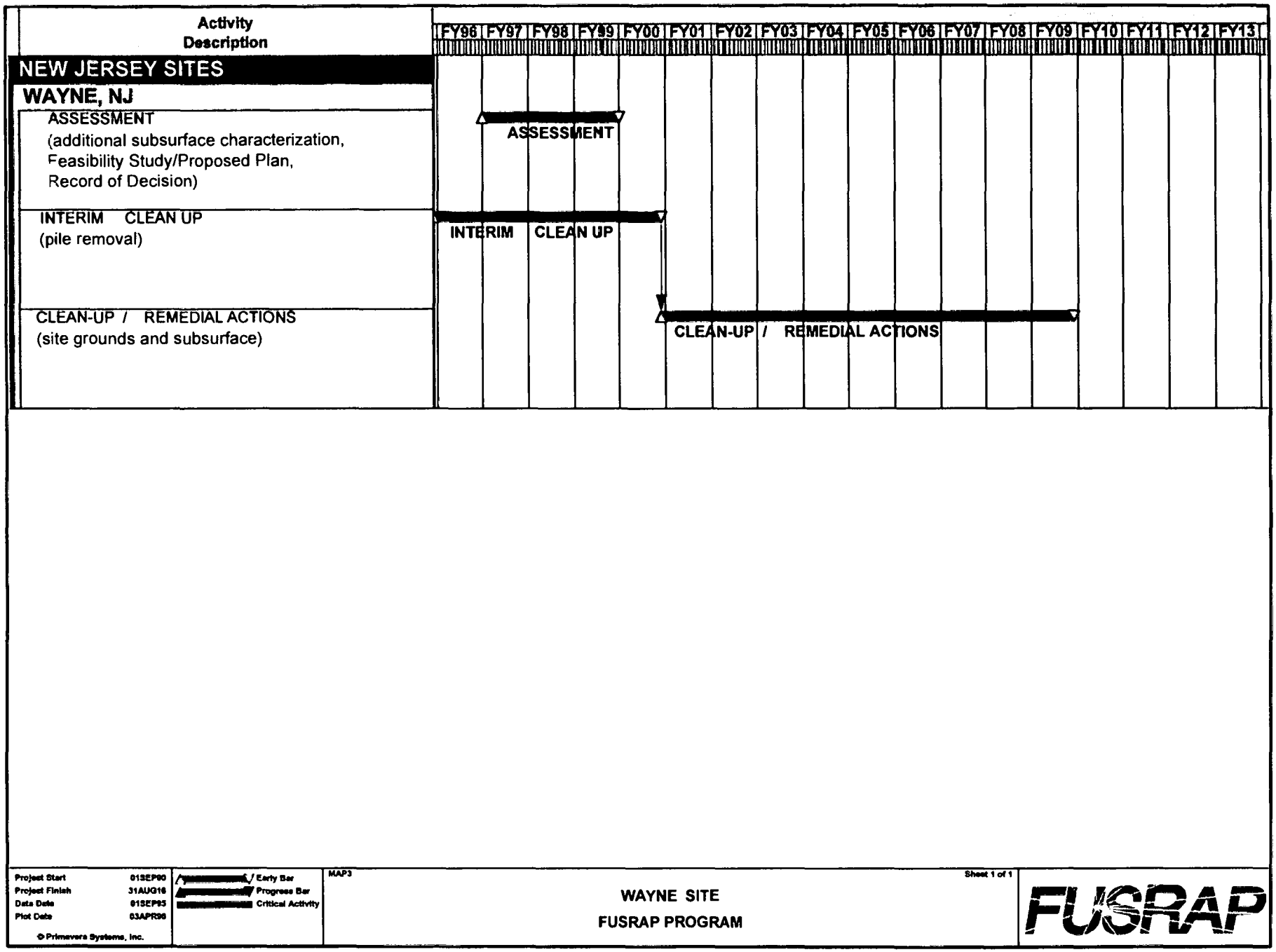

Table 6.1 Wayne Site Projected Cleanup Schedule

7. ISSUES AND INITIATIVES

7.1 ISSUES AFFECTING PROJECT PERFORMANCE

Several issues related to cleanup of the Wayne Site have the potential to impede progress and drive costs upward. Key issues affecting project performance are summarized in Table 7.1.

Issues affecting cleanup performance include

- Current and future risk management options
- Community and regulator acceptance of cost-effective, protective remedies
- Future land use
- Role of commercial disposal facilities

Socioeconomic factors that may affect site remediation and risk management strategies include effects on land use, perceived health risks, effects on property values, and other concerns expressed in community interviews and public meetings.

Program issues affecting project performance include

- Remedy selection at large sites
- Fostering productive stakeholder involvement
- Integrating cost-effective soil treatment technologies
- Role of commercial disposal facilities
- Cost-saving initiatives

Key issues for the Wayne Site include

- Current negotiations with EPA Region II to determine schedule for issuing site-wide ROD
- Future land use (site is now zoned residential)
- Role of W.R. Grace as a potentially responsible party
- Possibility of treatment of subpile materials

7.2 INITIATIVES IMPLEMENTED TO IMPROVE PROJECT PERFORMANCE

Initiatives implemented to improve project performance are as follows:

Contracting Improvements

- Initiated pile removal under a unique "turnkey" subcontract to reduce cost and expedite schedule.

Implementation of Innovative Technology

- An onsite gamma spectroscopy system has been implemented so the activity concentration of radionuclides in soils can be determined within 24 hours. This directly affects the decision time in the field, increasing productivity. The previous method required interpolating isotopic activity concentration from total radiation readings from field instruments, which was difficult because cleanup criteria are virtually indistinguishable from background radiation levels with typical field instruments.

- FUSRAP is evaluating waste minimization techniques, such as soil washing or sorting. If the techniques prove more cost-effective than complete disposal, they may be implemented at the Wayne Site.
- 3-D visualization modeling, which shows the features of the site in three dimensions, will be performed on soil data from the Wayne Site as a means of analyzing and communicating site conditions. The 3-D products represent concentration distribution where volumes of radionuclides and chemicals within defined concentration ranges can be calculated. The products visually show the complex relationship between the water table, geology, and contaminants at the site. The 3-D figures also show the co-occurrence and relationship of different radionuclides.

Progress Communication

- Site manager holds periodic meetings with Wayne Thorium Committee.
- Provided air monitoring at a local day-care facility to ease parents' concerns. Provided monitoring data to day-care facility and township.
- The stakeholder involvement strategy for the Wayne Site includes, but is not limited to
  - Distribution of information through a local DOE Public Information Center
  - An information repository that includes the administrative record file
  - Community interviews, information sessions, and workshops as needed
  - Consideration of additional DOE grant funding to Wayne Township for oversight activities
  - Letters and telephone conversations responding to inquiries from and concerns of community members
  - Fact sheets to support technical documents
  - A minimum of a 30-day public comment period upon issuance of the proposed remedial action plan
  - A responsiveness summary, providing responses to public concerns, attached to the plans and to the final Record of Decision
  - Public notice and fact sheets after a final remedy is selected

Table 7.1 Issues Affecting Project Performance

Issue	Program Impacts	Major Parties Involved in Resolution	Action(s) Planned for Resolution	Date of Next Action(s)
Technical Issues				
• Minimal data available on subsurface contamination	Allows only minimal decision-making until more data are collected	DOE, BNI, SAIC	Subsurface characterization efforts to collect more data	FY 1997, 1998
Regulatory Issues				
• Potential relevance of specific New Jersey public laws as ARARs; NJDEP has developed stricter cleanup standards than agreed upon by EPA and DOE.	• Of Public Law S-1070, DOE believes that only the Hazardous Discharge Site Remediation Act portion is an ARAR • Implementation of NJDEP cleanup standards could hinder DOE ability to release sites with no radiological restrictions • Increased costs	DOE, NJDEP	DOE is continuing negotiations with NJDEP. DOE has asked NJDEP to accept cleanup standards established by EPA and DOE.	Ongoing until resolution
Stakeholder-Related Issues				
• Schedule for issuing ROD (EPA supports resuming the ROD process and identifying treatment as the preferred remedy; DOE supports deferring the process until after the National Stakeholder process fulfills its role and a technical basis is developed to support remedy selection)	• Proceeding with ROD process would not allow for National Stakeholder process to provide input on remedy selection • Decision could not be implemented until current actions are complete and funds are available • Funding for next several years is dedicated to pile removal • Treatment as preferred option cannot currently be technically supported because of a lack of sufficient subsurface data; remedy selection too early will not allow treatment studies to come to fruition	DOE, EPA Region II	DOE negotiations with EPA	Ongoing until resolution
• Possibility of cost recovery from W.R. Grace	• Remedy selection • Litigation delays • Possible funding impacts	DOE-HQ, DOE-FSRD, DOE-ORO, W.R. Grace		Ongoing until resolution
• Lengthy remediation schedule	• Stakeholders dissatisfied with schedule • Outyear funding uncertainties	N/A	N/A	N/A

Table 7.1 Issues Affecting Project Performance (Continued)

Issue	Program Impacts	Major Parties Involved in Resolution	Action(s) Planned for Resolution	Date of Next Action(s)
• Perception of health impacts from the site	• Potential pressure to "over-engineer" work at significant cost • Detrimental to community relations	Project, Community	Continued interactions with community; outreach education	Ongoing until resolution
• Reluctance of community to consider treatment as an alternative	• Increased disposal volumes • Longer cleanup timeframe	Project, Community	Continued interactions with community; outreach education	Ongoing until resolution
• Concern over possible property value reduction near WISS unless "greenfield" remedy is implemented	• Leads to most costly remedy at minimal risk reduction	Project, Community	Continued interactions with community; outreach education	Ongoing until resolution
• Future land use/cleanup criteria; community desire for cleanup to residential standards	• Leads to most costly remedy at minimal risk reduction • Longer cleanup timeframe	Project, Community	Continued interactions with community; outreach education; evaluation of subsurface characterization results	Ongoing until resolution

APPENDIX A: FISCAL YEAR FUNDING REQUIREMENTS/COSTS

The cost baseline for the Wayne Site is provided in Table A.1.

Table A.1 Wayne Site Cost Baseline

Activity	Phase	FY 89-95 ($1,000)	FY96 ($1,000)	FY97 ($1,000)	FY98 ($1,000)	FY99 ($1,000)	FY2000-Complete ($1,000)
High Relative Ranking							
Wayne Site	Assessment	[redacted]	651	968	197	[redacted]	
	Remediation		5,212	5,082	5,902		
Subtotal	Assessment		651	968	197	1,113	1,704
	Remediation		5,212	5,082	5,902	6,355	105,433
Medium Relative Ranking - None							
Low Relative Ranking - None							
Program Management		[redacted]	Included Above				
Other	None						
Total			5,863	6,050	6,099	7,468	107,137

APPENDIX B: DELIVERABLES

A listing of major documents developed for the Wayne Site is provided in Table B.1. These documents may be found in the Administrative Record at the DOE Public Information Center, the Wayne Public Library, or the Pequannock Township Library.

DOE Public Information Center
Wayne Site
868 Black Oak Ridge Road
Wayne, NJ 07470
(201) 835-1666

Wayne Public Library
Patricia Kell, Director
475 Valley Road
Wayne, NJ 07470
(201) 694-4272

Pequannock Township Library
Nancy Gallo, Director
530 Turnpike
Pompton Plains, NJ 07444
(201) 835-7460

The documents may also be requested through the FUSRAP toll-free number: 1-800-253-9759.

Table B.1 Major Documents for the Wayne Site

Title	Date	Document No.	Point of Contact
Annual Environmental Monitoring Reports 1984 1985 1986 1987 1988 1989 1990 1991 1992 Environmental Surveillance Results 1993 1994	1984 through 1994	 DOE/OR/20722-54 DOE/OR/20722-103 DOE/OR/20722-147 DOE/OR/20722-196 DOE/OR/20722-215 DOE/OR/20722-266 DOE/OR/21949-286 DOE/OR/21949-345 DOE/OR/21949-365 DOE/OR/21949-375 unnumbered	BNI
Radiological Survey Report for Residential Properties (Pequannock Township, NJ) of the former W.R. Grace & Co. Site and of Sheffield Brook Area			BNI
Survey Plan for the Radiological Characterization of the Former W.R. Grace & Co. Site and Adjacent Properties (Wayne Township			BNI
Certification Docket for the Remedial Action Performed at the Wayne Site Vicinity Properties in Wayne, New Jersey, 1993	12/95	unnumbered	
Sampling and Analysis Plan for the Soil Washing Test Project of Wayne and Maywood Soils at the K-25 Site	10/95	unnumbered	
Project Operations Plan for the Soil Washing Test Project of Wayne and Maywood Soils at the K-25 Site	9/95	unnumbered	
Engineering Evaluation/Cost Analysis for Pile Removal at the Wayne Interim Storage Site	7/95	132665	
EPA/State Draft Feasibility Study, Revision 1	5/95		
Radiological Verification Survey Results for 14 Peck Avenue	5/95	131396	
Radiological Verification Survey Results for 3 Peck Avenue	5/95	131397	
Radiological Verification Survey Results for 7 Peck Avenue	5/95	131398	
Radiological Verification Survey Results for 13 Peck Avenue	5/95	131399	
Radiological Verification Survey Results for 17 Peck Avenue	5/95	131400	
Radiological Verification Survey Results for 898 Black Oak Ridge Road	5/95	131401	
Radiological Verification Survey Results for 914 Black Oak Ridge Road	5/95	131402	

Table B.1 Major Documents for the Wayne Site (Continued)

Title	Date	Document No.	Point of Contact
Radiological Verification Survey Results for Pompton Plains Railroad Spur	5/95	131403	
Remedial Design/Remedial Action Implementation Plan for the Wayne Interim Storage Site, First Draft	3/95	DOE/OR/21949-388	
Wayne/Maywood Stage IA Archaeological and Historical Studies Approval	1/95	126139	
TM of Final Baseline Risk Assessment	12/94	112713	SAIC
Post-Remedial Action Report for the Wayne Site Vicinity Properties	8/94	DOE/OR/21949-382	
Health and Safety Plan for the Wayne Interim Storage Site, Wayne, New Jersey, Vol. 1: Generic; Vol. 2: Site-Specific Appendixes	6/94	137-HSP	
Wayne - Baseline Risk Assessment - Correction to Final Document	6/94	117504, 117584	SAIC
Community Relations Plan for the Remedial Investigation/Feasibility Study-Environmental Impact Statement for the Wayne Site	6/94	DOE/OR/21949-201.2	BNI
Work Plan-Implementation Plan for the Remedial Investigation/Feasibility Study-Environmental Impact Statement for the Wayne Site	12/93	DOE/OR/20722-201.1, DOE/EIS-0192	BNI
Remedial Investigation Report for the Wayne Site, Wayne, New Jersey (2 vols.)	10/93	DOE/OR/21949-360	BNI
Engineering Evaluation/Cost Analysis for the Proposed Removal of Contaminated Material from Vicinity Properties	7/93	107034	
Environmental Monitoring Plan for WISS	11/91	DOE/OR/21949-311	
Characterization Report for the Interim Storage Pile at the Wayne Interim Storage Site	10/91	DOE/OR/21949-298	
Field Sampling Plan for the Remedial Investigation/Feasibility Study-Environmental Impact Statement for the Wayne Site	9/91	DOE/OR/20722-201.3	BNI
Quality Assurance Project Plan for the Remedial Investigation/Feasibility Study-Environmental Impact Statement for the Wayne Site	9/91	DOE/OR/20722-201.5	BNI
Certification Docket for the Remedial Action Performed at the WISS Vicinity Properties 1985-1987	8/90		BNI
Post-Remedial Action Reports for Wayne Site	3/87 4/89	DOE/OR/20722-142 DOE/OR/20722-88	BNI
Remedial Action Work Plan for Wayne Site	1/87	ORO-849	BNI
Site Plan for Wayne/Pequannock	9/86	DOE/OR/20722-112	BNI
Report on Remedial Drilling and Well Installations at Wayne Interim Storage Site	1/86	DOE/OR/20722-73	BNI
Environmental Monitoring Plan for the Wayne Site	1984		BNI

APPENDIX C: DECISION DOCUMENT SUMMARIES

The schedule for signing the final Record of Decision for the Wayne Site is pending DOE/EPA resolution. Decision documents to date include Action Memoranda on interim actions and Engineering Evaluations/Cost Analyses. Summaries of decision documents for the Wayne Site are found in Table C.1. These documents may be found in the Administrative Record at the DOE Public Information Center, the Wayne Public Library, or the Pequannock Township Library.

DOE Public Information Center
Wayne Site
868 Black Oak Ridge Road
Wayne, NJ 07470
(201) 835-1666

Wayne Public Library
Patricia Kell, Director
475 Valley Road
Wayne, NJ 07470
(201) 694-4272

Pequannock Township Library
Nancy Gallo, Director
530 Turnpike
Pompton Plains, NJ 07444
(201) 835-7460

The documents may also be requested through the FUSRAP toll-free number: 1-800-253-9759.

Table C.1 Decision Document Summaries

Document Name	Date	Summary
Engineering Evaluation/Cost Analysis for the Proposed Removal of Contaminated Material from Vicinity Properties; and Action Memorandum	7/93	Complete removal of contaminated materials from vicinity properties to 5/15 pCi/g criteria
Engineering Evaluation/Cost Analysis for Pile Removal at the Wayne Interim Storage Site; and Action Memorandum	7/95	Complete removal of pile materials for transportation and disposal at licensed out-of-state facility

APPENDIX D: CONCEPTUAL MODEL DATA SUMMARIES

D.1 CONTAMINANTS OF CONCERN

The primary radionuclides of concern at the Wayne Site are thorium, radium, and uranium.

D.2 POTENTIAL CONTAMINANT RELEASE AND TRANSPORT

The process of contaminant migration involves a source (e.g., burial pits), a method of release (e.g., erosion), and a transport medium (e.g., surface runoff) from the point of release to the point of exposure.

The primary sources of contamination identified include the storage pile, burial pits, property soils, and portions of the office building. The WISS storage pile is not considered a major source of contamination because it contains low concentrations of radionuclides and is completely covered. However, the pile is a potential source for surface runoff, air emissions, or groundwater contamination should the cover or bottom liner be damaged or removed. During planned pile removal activities, engineering controls are in place to prevent contaminant migration.

The primary release mechanisms are from erosion, gaseous and airborne particulate emission, and rain percolation through the soils and subsequent leaching to groundwater. Environmental measurements indicate that contaminants are not migrating into the air or water.

Figure D.1 provides a generalized conceptual model of these sources and release mechanisms

D.3 POTENTIAL RECEPTORS AND EXPOSURE ROUTES

The potential receptors for contaminants at the Wayne Site include employees, offsite residents using groundwater, and children wading in WISS drainage to Sheffield Brook. The principal exposure routes would be inhalation, ingestion, dermal contact, and external gamma irradiation. This scenario is based on theoretical models. All offsite properties have been cleaned up, and environmental monitoring has consistently supported no offsite exposures are taking place.

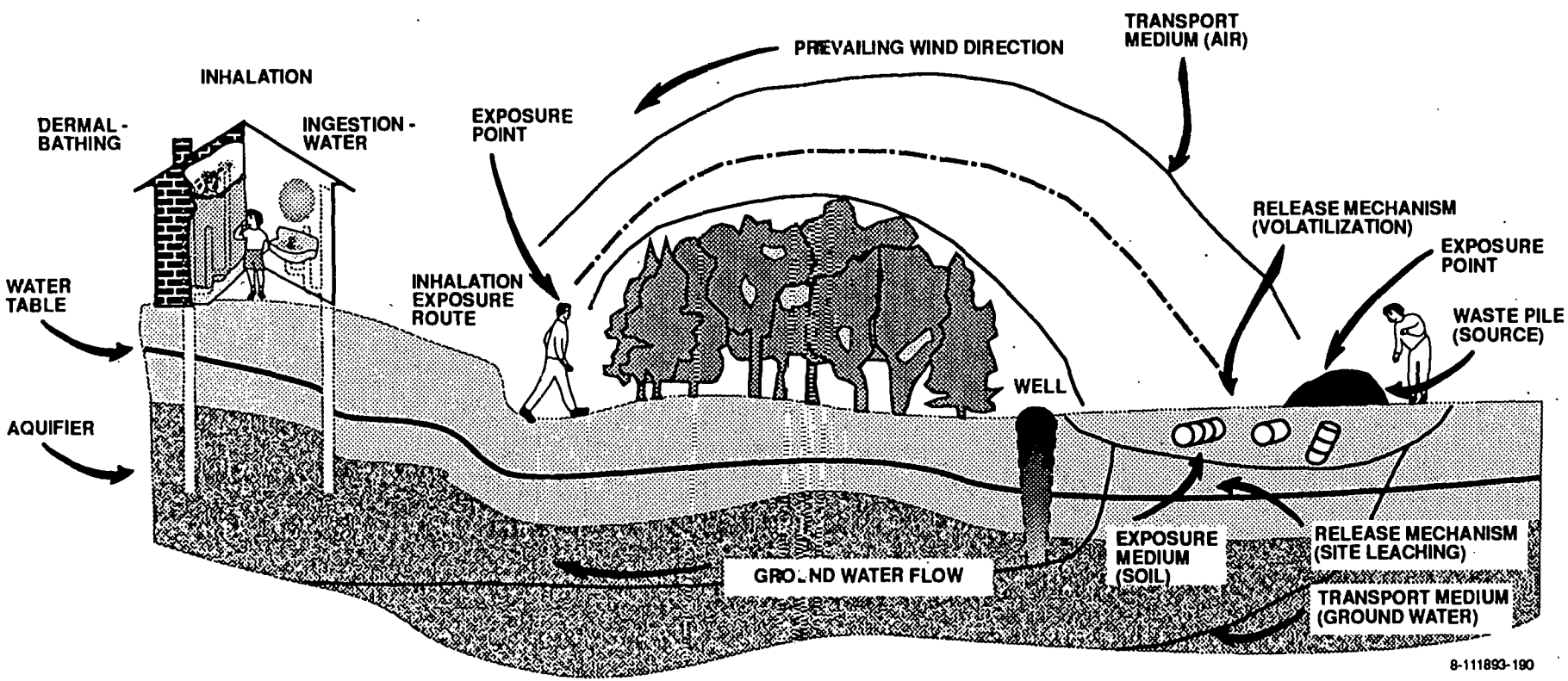

Figure D.1 Generalized Conceptual Exposure Model for the Wayne Site

APPENDIX E: PROJECT CONTROLS

The FUSRAP Project Controls department provides cost and schedule support, including budgeting, monitoring, variance analysis, and trend analysis. Project controls are implemented to provide detailed planning for cost, schedule, and technical performance to maximize efforts toward achievement of project goals. Project controls are implemented for FUSRAP as a whole because there are 46 sites in 14 states for which costs and schedules must be tracked and controlled. Bechtel National, Inc. (BNI) has established and DOE has validated a system that conforms to the criteria for cost and schedule control systems developed by the U.S. Department of Defense. This system provides a basis for assessing the quality of the cost and schedule controls used by the project participants; aids in ensuring effective planning, management, and control of project work; and provides a quick and effective means of measuring cost, schedule, and technical performance. This cost and schedule control system uses a work breakdown structure (WBS) to divide FUSRAP into distinct sites and then into discrete work packages that can be effectively managed. The WBS also provides the framework for integrating budget requirements with schedule and technical performance. Finally, it establishes the management analysis and reporting structure to permit data presentation to various levels of management.

A Project Document Control Center (PDCC) is maintained in the BNI office in Oak Ridge, Tennessee, to collect, register, distribute, and retain all project documents. Each document related to the Wayne Site is coded with the site's WBS number to associate the document with the site. Subject codes are also assigned from predetermined categories that can be used to organize the documents. The PDCC system provides for rapid identification and retrieval of all project documents by allowing documents to be searched/sorted by WBS number, subject code, author, recipient, transmittal date, a unique identification number, or any combination of the above.

All relevant information obtained during the Remedial Investigation/Feasibility Study process for the Wayne Site is retained by PDCC: aerial photographs, topographic maps, reports on features of the site and surrounding area, correspondence involving the site, findings of previous surveys, and analytical data obtained during site characterization. Types of characterization data on file include radiological and chemical data based on analyses of soil, groundwater, and surface water; borehole logging data; air sampling data; and information about geological and soil properties. Well construction data and field notebooks and documentation (e.g., chain-of-custody forms) are also on file in PDCC.

APPENDIX F: PROPERTY LIST FOR WAYNE SITE

A listing of properties at the Wayne Site is provided in Table F.1.

Table F.1 Properties at Wayne Site

Property	Status
WISS	RA Ongoing; pile removal under way
Wayne Township Park	RA Complete
Sheffield Brook and Associated Residential and Commercial Properties	RA Complete
Pompton Plains Railroad Spur	RA Complete
3 Peck Avenue	RA Complete
7 Peck Avenue	RA Complete
13 Peck Avenue	RA Complete
14 Peck Avenue	RA Complete
15 Peck Avenue	RA Complete
17 Peck Avenue	RA Complete
898 Black Oak Ridge Road	RA Complete

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