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FINAL

SLDS
Administrative
Record
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FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)
CONTRACT NO. DE-AC05-910421950

RESPONSIVENESS SUMMARY FOR THE INITIAL SCREENING OF ALTERNATIVES REPORT FOR THE ST. LOUIS SITE

ST. LOUIS, MISSOURI

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
ESC-FUSRAP

JULY 1992



Former Sites Restoration Division
U.S. DEPARTMENT OF ENERGY

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ACRONYMS AND ABBREVIATIONS

AEC	Atomic Energy Commission
ARAR	applicable, or relevant, and appropriate requirements
AWC	Ayres Western Company
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	Department of Energy
DOT	Department of Transportation
EPA	Environmental Protection Agency
EIS	Environmental Impact Statement
ESP	Electrostatic Precipitators
FFA	Federal Facilities Agreement
FS	Feasibility Study
ft	feet
FUSRAP	Formerly Utilized Sites Remedial Action Program
HISS	Hazelwood Interim Storage Site
ISA	Initial Screening of Alternatives
km ²	square kilometer
LLW	low level waste
MDNR	Missouri Department of Natural Resources
MED	Manhattan Engineer District
mi ²	square mile
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NORM	naturally occurring radioactive material
RI	Remedial Investigation
RI/FS-EIS	Remedial Investigation/Feasibility Study-Environmental Impact Statement
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SLAPS	St. Louis Airport Site
SLDS	St. Louis Downtown Site

1. INTRODUCTION

The Department of Energy (DOE) has implemented a program for the management and clean-up of radioactive contamination on a set of properties, collectively referred to as the St. Louis site, in St. Louis, Mo. The St. Louis site includes the St. Louis Downtown Site (SLDS), St. Louis Airport Site (SLAPS), St. Louis Airport Site vicinity properties, and the Latty Avenue Properties [Hazelwood Interim Storage Site (HISS), Futura Coatings, Inc., and vicinity properties]. This document presents the responses to comments on the Initial Screening of Alternatives (ISA) Report for the St. Louis site under DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP). FUSRAP was implemented by DOE to characterize and remediate sites where residual radioactivity remains from activities carried out under contract to the Manhattan Engineer District (MED) and Atomic Energy Commission (AEC) during the early years of the nation's atomic energy program.

The planning and documentation of DOE's activities at the St. Louis site is being conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA). This process involves the preparation of a Notice of Intent (NOI), Remedial Investigation/Feasibility Study-Environmental Impact Statement (RI/FS-EIS) Workplan, RI/FS-EIS, and a Record of Decision (ROD). The RI/FS-EIS will describe the nature and extent of contamination present at the site, alternatives for site remediation and potential environmental impacts associated with each remedial alternative. The NOI is a NEPA document. The RI/FS-EIS Workplan, RI/FS-EIS, and ROD are integrated CERCLA/NEPA documents.

An FS-EIS is conducted to identify and evaluate a range of cost effective remedial alternatives that protect human health and the environment. The FS incorporates the provisions of the Superfund Amendments and Reauthorizations Act (SARA) of 1986, CERCLA, and the National Contingency Plan (NCP). The EIS incorporates NEPA requirements. In accordance with the Environmental Protection Agency (EPA) guidance, (EPA, 1988), the FS is conducted in three phases:

- Phase I, which involves the identification and formulation of remedial action objectives, identification of remedial technologies, and development of remedial alternatives;
- Phase II, which involves refinement of the alternatives and initial screening of the alternatives; and
- Phase III, which involves the detailed analysis of the remedial alternatives.

The initial screening of alternatives report for the contaminated media at the St. Louis site combines Phases I and II of the FS-EIS process. The report has been prepared to provide regulatory agencies and the public opportunity to review and comment on the alternatives which are being considered for the clean-up of the St. Louis site. In Phase III of the FS-EIS, a detailed analysis will be completed on each of the remedial alternatives retained through initial screening. Alternatives will be further defined with respect to the quantities of contaminated media to be addressed and the technology performance requirements. Modifications to remedial options identified during Phase I are made, if necessary.

2. WRITTEN COMMENTS AND RESPONSES

This responsiveness summary presents responses to two comment letters received in regard to the ISA Report for the St. Louis site. Each letter is assigned an identification letter, and specific issues within each letter are identified with a number. For example, issues (comments) identified within Letter A are labeled A-1, A-2, etc.; and the respective responses to these comments are labeled Response A-1, Response A-2, etc.

The letters received and their respective identification letter are as follows:

- Letter A -- David E. Bedan, Radioactive Waste Remedial Action Coordinator, State of Missouri, Department of Natural Resources (MDNR); and
- Letter B -- Gregory D. McCabe, Site Assessment and Federal Facility Section Superfund Branch, U.S. Environmental Protection Agency, Region VII.

A copy of each letter is reproduced on the left side of the page in the document with the responses to identified comments presented on the following page(s).

JOHN ASHCROFT
Governor



088705
G. TRACY MEHAN III
Director

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102

April 22, 1992

Mr. David Adler
St. Louis FUSRAP Site Manager
Former Sites Restoration Division
U. S. Department of Energy
Oak Ridge Operations, P.O. Box 2001
Oak Ridge, Tennessee 37831-8723

Dear Mr. Adler,

I have reviewed the draft Initial Screening of Alternatives for the St. Louis Site, St. Louis, Missouri (February 1992, DOE/OR/21950-777).

-1 In general, MDNR does not believe that institutional controls/site maintenance and containment are acceptable final remedial options. Also road bed dispersal should not be considered further. None of these options provide assurance of protection which is commensurate with the long-lived nature of the contaminants.

-2 Any on-site final disposal facilities or off-site final disposal facilities in Missouri should meet the siting and design standards of the Missouri Hazardous Waste Management Law and Regulations. MDNR will consider the state hazardous waste regulation [10 CSR 25-7.264 (2) (N)] regarding landfill site suitability to be an Applicable, Relevant and Appropriate Requirement (ARAR). As we discussed last year, it may
-3 facilitate the study process to conduct a separate site suitability study on any proposed Missouri disposal site locations. These studies should be added to Chapter 4: Additional Studies Recommendations.

-4 Sentences 2 through 5 of the first paragraph on page 2-38 and pages A-10 and A-11 should be deleted from the report. The Low-Level Radioactive Waste Compact facilities are not intended for disposal of this type of waste.

Sincerely yours,

DIVISION OF ENVIRONMENTAL QUALITY

David E. Bedan
Radioactive Waste Remedial Action Coordinator



Recycled Paper

Response A-1

The National Contingency Plan (NCP) (40 CFR 300) states that institutional controls may be employed. Specifically it states "EPA expects to use institutional controls such as ... deed restrictions to supplement engineering controls as appropriate for short- and long-term management to prevent or limit exposure to hazardous substances, pollutants, or contaminants." Protection of human health and the environment and compliance with applicable or relevant and appropriate requirements (ARARs) are paramount evaluation criteria in both the initial screening and detailed evaluation of alternatives.

Response A-2

At this time DOE does not recognize the referenced regulations as either applicable or relevant and appropriate requirements for management of clean-up wastes generated at the St. Louis Site. While many of the standards established by this regulation may be employed as general design criteria, at this time, they are not regarded as absolute site-suitability requirements.

Response A-3

Under Section 4, Additional Study Recommendations, a recommendation for site suitability studies for proposed in-state and newly developed out-of-state disposal site locations was added.

Response A-4

The low-level waste (LLW) compact facilities may not currently have the appropriate licenses to receive this type of waste. However, this waste is not excluded in the Low Level Radioactive Waste Policy Act, as amended, and additional licenses could be obtained. Therefore, the LLW compact facilities are not screened out at this time as a potential disposal site.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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MAY 08 1992

David Adler
Former Sites Restoration Division
Department of Energy,
Oak Ridge Field Office
P.O. Box 2001
Oak Ridge, TN 37831-8723

Dear Mr. Adler:

We have completed our review of the document "Draft Initial Screening Of Alternatives Report for the St. Louis Site, St. Louis, Missouri" (ISA), dated February 1992. Based on our review we have the following comments:

GENERAL COMMENTS

- 1-1 1. Subsection 1.7.2, on page 1-38, discusses the DOE Guideline for residual thorium and radium contamination. The report states that the guidelines take into account ingrowth of radium-226 from thorium-230, and that they "assume secular equilibrium". It has been established that radium-226 and thorium-230 are far from secular equilibrium at the St. Louis site. This discussion should be expanded to explain the application in a situation like that prevailing at St. Louis.
- 2 2. The discussion in Subsection 1.6 and the list of Contaminants of Concern (Table 1-1, page 1-33) include chemical contaminants as well as radioactive contaminants. However, in Subsection 1.7 the Remedial Objectives are stated in terms of only radioactive contaminants (Subsection 1.7.2, page 1-37).
- 3 3. The ISA Report acknowledges (page 1-25) that remedial action will be required on portions of the stormwater and sanitary sewers at the SLDS. Mention of these was not found under Section 3, Development and Screening of Alternatives, under any of the "scenarios" discussed there. Although the sewers might logically be considered under soils of restricted access or as structures under the "buildings and structures" unit, it is possible that the sewers present problems unique enough to make them a separate scenario. Regardless, the sewer system needs to be specifically discussed in the evaluation of alternatives.

Response B-1

The text in Section 1.7.2 was expanded to include further details on situations where radionuclides are not in secular equilibrium and was taken from DOE Order 5400.5, Chapter IV.

Response B-2

The text in Section 1.7.2 was amended to refer to hazardous contaminants instead of radioactive contaminants.

Response B-3

Drain and sewer characterization data obtained to date are sufficient to identify the drains and sewers as media of concern. At this time, DOE intends to remediate drains and sewers at SLDS under an "observational approach" characterization/remediation effort as part of the remediation of the balance of the site. Accessible drains and sewers, especially those surrounded by other contaminated media, may be removed and replaced. Inaccessible drains and sewers (e.g. those under structures which may not be removed as part of remedial action) may be internally decontaminated by mechanical or chemical means or left as is if calculated risk of no action does not justify the expense and risk to access and remediate them. If either accessible or inaccessible drains and sewers are left as is, a hazard assessment will be completed to document the supplemental cleanup standards based on the risks and costs involved. Language has been added to Sections 3.1 and 3.2.2 to clarify that stormwater and sanitary sewer system remediation will be addressed along with access restricted soils.

4 4. The criterion of long-term effectiveness and permanence [40 CFR 300.430(e)(9)(iii)(C)] is unusually complex as applied to this site, because of the long-term ingrowth of radium-226 (with a corresponding increase in radon-222 generation). The ISA Report does not address this radium ingrowth issue. Under the discussion of containment as an alternative for "accessible soils" (page 3-3), the ISA Report states that the level of control should incorporate requirements of 40 CFR 192 (a potential ARAR), and ". . . Accordingly, the cap should be maintained effectively for a period of 100 to 400 years". However, the permanence requirement of 40 CFR 192 states that control shall be designed to " . . . be effective for up to one thousand years, to the extent reasonably achievable, and, in any case, for at least 200 years . . . ". Thus, the requirement of 40 CFR 192 (as an ARAR) would be to make all reasonable efforts to design control for a 1000-year effectiveness. The criteria of "100 to 400 years" appears to be inadequate.

5 5. The long-term effectiveness consideration for this site should include the concept of maintainability by future generations.

6 6. Discussions of "institutional controls" as an alternative are introduced in subsection 2.2, and continued throughout the ISA Report. The ISA should include in its discussions of institutional controls the requirement of 40 CFR 300.430(a)(1)(iii)(D) which states, "The use of institutional controls shall not substitute for active response measures (e.g., treatment and/or containment of source material, restoration of ground waters to their beneficial uses) as the sole remedy unless such active measures are determined not to be practicable, based on the balancing of trade-offs among alternatives that is conducted during the selection of remedy".

7 7. Table 3-1, Summary of Selected Remedial Alternatives for Accessible Soils at the St. Louis Site, lists under "Alternative No. 3 - Excavation and Disposal," options 4A through 4B for disposal of excavated accessible soils. Three are off-site: at a Federal facility, at a commercially licensed facility, and in an offsite land encapsulation facility. The sole option for onsite disposal is option 4A, "Solidification and/or vitrification followed by onsite disposal in a designed land encapsulated facility". Thus, the table states that the only onsite disposal being retained is one that involves solidification and/or vitrification before disposal. This is inconsistent with the preceding discussion on pages 3-4 and 3-5. If this is an error in the table, it should be corrected. Otherwise, the development should be clarified in the text.

Response B-4

It is true that ingrowth of radium-226 is expected to increase radon-222 generation over time, however, the magnitude of this increase in terms of risk is expected to be relatively minor. Nonetheless it will be more closely evaluated in the site feasibility section.

Reference to the 40 CFR 192 standards has been deleted. While key elements of these standards may be relevant and appropriate to future remedial measures at the St. Louis Site, these requirements are largely action specific, and accordingly will be reviewed during the FS process.

Response B-5

The concept of maintainability by future generations will be evaluated for all options in the FS-EIS.

Response B-6

Section 2.3.2 currently quotes text from 40 CFR 300 which supports that institutional controls can be used for long term management to prevent or limit exposure to hazardous substances (Also see Response A-1).

Response B-7

Table 3-1 and the corresponding text was modified to allow for onsite disposal in a designed land encapsulation cell without specifying solidification or vitrification. Additionally, the option of a FUSRAP dedicated disposal facility has been included.

8. Subsection 3.2.4, Buildings and Structures, consists of one paragraph that lists alternatives but does not actually discuss them. Physical decontamination procedures followed by surface sealing is listed as one alternative, and chemical decontamination procedures followed by surface sealing is listed as another. It is not readily apparent to us why one might consider physical decontamination and exclude chemical decontamination, or consider chemical decontamination and exclude physical decontamination. Accordingly, it is suggested that these two be combined into one alternative, decontamination procedures followed by surface sealing.
9. The last-listed reference in Section 6, References, is the U.S. EPA publication, "Technological Approaches to the Cleanup of Radiologically Contaminated Superfund Sites", EPA/540/2-88/002, August 1988. A later EPA document of similar title and subject matter is "Assessment of Technologies for the Remediation of Radioactively Contaminated Superfund Sites", EPA/540/2-90/001, January 1990. DOE should assure that this later document is considered in the development of alternatives, and should include it in the references.
10. Discussion in Subsection 2.3.6, page 2-12, (e.g., second complete paragraph on page 2-12) gives the impression that soils to be shipped from the St. Louis site would require containerization, ". . . to provide shielding requirements and comply with applicable packaging requirements". Drums, steel boxes, and wooden crates are mentioned along with immobilization technologies being used to bind soils into a solid block. In contrast, the discussion under Subsection 3.2 (page 3-4) clearly does not contemplate such containerization. For example, the paragraph on Disposal Option A (page 3-4) states, "Contaminated materials would be transported in bulk via trucks or rail". Clarification regarding transportation requirements and procedures is needed.
11. Both Subsection 3.2.5, page 3-8, and Table 3-5, page 3-13, list "air stripping followed by activated carbon adsorption, inoperative recovery to concentrate aqueous stream". "Inoperative recovery" is not explained (it appears that "evaporative recovery" may be meant).
12. The ISA (eg., p. 3-6, paragraph 1) appears to take a narrow view of the potential for surface water contamination. During any remedial action taken on the sediments of Coldwater Creek, the potential for contaminants being released into the water will exist. The ISA does not mention this potential, nor is any discussion concerning possible mitigative options which could be undertaken during sediment excavation presented. Perhaps DOE has considered this potential and possible mitigative options during its internal discussions of sediment removal, but there is no indication of such consideration in the ISA.

Response B-8

Comment incorporated.

Response B-9

This EPA document titled "Assessment of Technologies for the Remediation of Radioactively Contaminated Superfund Sites" has been reviewed and was added to the list of references. No text modifications are required based on the contents of the document.

Response B-10

The text was modified on pages 2-12 and 3-4 to reflect that drumming of the material "may" be required depending on which disposal site the material is to be shipped to.

Response B-11

The text was corrected to specify "evaporative" recovery.

Response B-12

DOE has considered the potential for contaminant migration during sediment removal. One remedial alternative is to divert surface water flow at specific locations along the creek to permit the partial excavation of contaminated sediments, as discussed in Section 3.2.3. Actual details of sediment removal, and associated erosion control measures will be defined by remedial design documents.

- 3-13 { 13. Appendix A mentions transportation classification and restrictions (eg., NORM, 11(e)(2), Class C, DOT, etc.) but provides no discussion. A clarifying discussion of transportation requirements is needed in the ISA.

SPECIFIC COMMENTS

- 14 { p. 1-1, paragraph 2. The text states that the RI/FS-EIS document is scheduled for release to the public in late 1992. Presumably DOE is planning on coordinating the results of the next phase of investigation with those presented in the January 1992 draft report. Exactly how will this be accomplished?
- 15 { p. 1-8, paragraph 4. What is meant by "periodically"? Is there any pattern to the northeast-trending flow direction at SLDS?
- 16 { p. 1-22, line 6, 32 km² is not equal to 46 mi².
- 17 { p. 1-25, second paragraph. The text states, "The radioactive contaminants at SLDS are uranium-238, radium-226, thorium-232, and thorium-230". This statement implies that only those four isotopes are present, which is not the case. Clarification in the text is needed.
- 18 { p. 1-26, paragraph 1. EPA has previously commented in its review of other documents that there are indications that the depth of contamination at the SLAPS property exceeds 18 feet.
- 19 { p. 1-27, top paragraph. Verbiage is redundant.
- 20 { p. 1-32, Figure 1-10, Actinium (Uranium-235) Radioactive Decay Series. The half life for actinium-227 is in error by a factor of 10.
- 21 { p. 1-36, Section 1.6.4.2. The text should briefly compare the risk estimates for hypothetical future use with the target risk range.
- 22 { p. 2-4, Table 2-1, 4th column, next to last paragraph (similar wording in last paragraph). The text states ". . . volatile and nonvolatile metals can be treated as well." Should "metals" be replaced with "organics"?
- 23 { p. 2-11. In the paragraph immediately above beginning of subsection 2.3.6, "Section 2.3.5" apparently should say "Section 2.3.6".
- 24 { p. 2-12, last 2 paragraphs. Given the preliminary nature of an initial screening, the allusion to "preferences" should be removed.

Response B-13

Text has been added to Appendix A to provide details on transportation classifications and restrictions.

Response B-14

The text incorrectly stated the RI/FS-EIS completion date. The combined document will be finalized in FY93. The FY92 date was deleted from the text.

Response B-15

The text on pages 1-8 was modified to clarify the discussion of groundwater flow at SLDS.

Response B-16

The correction was made.

Response B-17

The text was clarified to reflect those primary isotopes and their associated decay products.

Response B-18

The text was modified to indicate that contamination was identified from the surface to approximately 18 ft below ground surface.

Response B-19

The redundant verbiage was removed.

Response B-20

The halflife of Actinium 227 was corrected to 21.7 years.

Response B-21

Risk estimates were added to the hypothetical future use section.

Response B-22

The text in Table 2-1 was revised to "volatile and non-volatile organics and metals."

Response B-23

The text was corrected to cite Section 2.3.6.

Response B-24

The discussion of preferences was removed from this section.

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- 1-25 { p. 2-14, Table 2-2. The Response Action column is confusing. The vertical and horizontal barriers presented are not surface water controls.
- 1-26 { p. 2-25, last paragraph. The text implies that the identification of ARARs has been finalized. True?
- 1-27 { p. 2-31, last paragraph. The text should identify how long will it take for radon to decay to its progeny.
- 1-28 { P. 2-35, second paragraph. The text identifies the TRUClean Process developed by AWC, Inc. It is stated that a pilot plant has been operated and that soils from Hazelwood were treated. However, the discussion does not give any information on the nature of the process itself. The ISA should briefly describe the process and the results. Additionally, we request that a copy of the 1987 report be provided to us.
- 1-29 { p. 2-36, fourth paragraph, last sentence. The statement "It is feasible that such a design . . ." appears to pre-judge feasibility. We suggest replacing the word "feasible".
- 1-30 { p. 2-35, fifth paragraph. The text here states that road-bed dispersal has been screened out, while page 2-37, second paragraph, states that it will be retained. Clarification is needed. We would also point out that at this point in time, based on the information presented in the ISA, we would not find road bed dispersal to be an acceptable alternative.
- 1-31 { p. 2-40, Table 2-5. No discussion of "scarification and contour furrowing" could be found in the text.
- 1-32 { Page 2-48, Table 2-6, 4th column, third paragraph. "DOD-owned" should be "DOE-owned."
- 1-33 { Page 2-50, paragraph 2. What exactly does "the same holds true for Futura Coatings" mean?
- 1-34 { Page 2-51, Subsection 2.6.3.4. The discussion of electrostatic precipitators should be clarified to reflect that ESPs can capture radon progeny adsorbed onto dust particles and reduce their concentration in the breathing air, but do not control radon generation or remove radon from the air.
- 1-35 { p. 2-64, Figure 2-3. It is unclear from the figure whether surface sealing is to be retained.
- 1-36 { p. 3-2, second full paragraph, last line. Simply decommissioning a building would not make the soils underneath it accessible.

Response B-25

Containment and surface water controls are combined in Table 2-2 under one Response Action. Surface water controls are found under this same Response Action heading on the following page.

Response B-26

The list of ARARs is currently being compiled. Final identification of ARARs will be presented in the FS-EIS.

Response B-27

The text on pages 2-34 was modified to clarify the length of time it takes for radon to decay to its progeny.

Response B-28

The text was modified to briefly describe the TRUclean process. A copy of the June 1987 AWC, Inc. document will be sent to you.

Response B-29

The sentence has been removed.

Response B-30

The text in Section 2.6.1.6 was modified to correctly reflect that roadbed dispersed has been retained. At this time we do not believe that sufficient information on protectiveness, costs, or implementability is available to make any informed judgment on the "acceptability" of road-bed dispersal. Accordingly, the alternative will be retained for further study.

Response B-31

Text was added to describe scarification and contour furrowing technology.

Response B-32

The reference to "DOD owned" was modified to "DOE owned."

Response B-33

The text was revised for clarification on institutional controls/site management for SLDS and Futura Coatings.

Response B-34

Text was added to clarify that electrostatic precipitators do not control radon generation.

Response B-35

Figure 2-3 was modified to show that surface sealing was retained as a remedial option.

Response B-36

The text was modified to note that buildings would be decommissioned and demolished.

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- 3-37 p. 3-4, first paragraph, last sentence. What exactly is meant by the sentence "It is anticipated that certain areas of the site with low activity can be addressed by using other remediation methods"?
- 3-38 p. 3-6, paragraph 3. We find it difficult to understand how DOE will be able to effectively use institutional controls on Coldwater Creek. After all, DOE does not own property along the creek, and the creek passes through several residential areas and city parks.
- 3-39 p. 3-9, second paragraph. What is the meaning of the sentence "These measures would be implemented until a more permanent solution is identified"? Is capping, for example, to be considered a temporary solution? This issue needs to be clarified throughout the ISA, and a timeframe for identifying "more permanent solutions" should be addressed.
- 3-40 p. 4-1, second paragraph. The FFA schedule calls for the submittal of the Feasibility Study by March 31, 1993. If "treatability studies are necessary to provide specific information for the detailed evaluation of alternatives" when does DOE plan on conducting these studies? Are efforts currently underway to begin these studies?
- 3-41 p. 4-2, fifth paragraph. Which of the treatment technologies identified for buildings and structures in the ISA are considered to be "innovative"?
- 3-42 p. 5-2, paragraph 3. Have efforts begun to collect the information identified here as being necessary for the implementation of treatability studies?

Should you have any questions regarding our comments, please do not hesitate to contact me at FTS 276-7709.

Sincerely,



Gregory D. McCabe
Site Assessment and
Federal Facility Section
Superfund Branch

cc: David Bedan, MDNR

Response B-37

The text was deleted.

Response B-38

Institutional controls do not necessarily require ownership of property. Institutional controls such as zoning ordinances and deed restrictions will be further evaluated and discussed in the FS-EIS. EPA, and other federal, state, and local governments have employed a range of mechanisms (generally referred to as "Institutional Controls") to constrain future land use for various purposes.

Response B-39

Table 3-1 was modified to correctly reflect containment as a permanent remedial alternative.

Response B-40

Soil samples will be submitted for laboratory analysis to evaluate the suitability of treatment to accomplish volume reduction. Detailed treatability studies will be conducted as needed for full evaluation of the alternatives.

Response B-41

Table 2-6 was modified to include CO₂ pellet blasting as an innovative technology.

Response B-42

Efforts are underway to collect the pertinent information for treatability studies.