United States Department of Energy
Environmental Restoration Program

DOE/OR/02-1427&D1

Proposed Plan for Surface Impoundments Operable Unit, Waste Area Grouping 1, Oak Ridge National Laboratory, Oak Ridge, Tennessee

February 1996

This Proposed Plan Describes:

- The Surface Impoundments Operable Unit
- Current and future risks to human health and the environment
- Remedial action alternatives considered
- The U.S. Department of Energy preferred alternative
- How to participate in the selection/modification of the preferred alternative
- Where to get more information

Your opinion is invited

The U.S. Department of Energy invites you to express your opinion of its preferred alternative for environmental restoration of the Surface Impoundments Operable Unit. This report tells how to obtain further information. Interested citizens are encouraged to read the remedial investigation and feasibility study reports for additional background and more detailed technical information and regulatory history. A form has been attached for comments, but you are not restricted to the form. Any written comments will be considered by the decision makers.

The reports and other documents are available at the Information Resource Center, 105 Broadway Avenue, Oak Ridge, Tennessee.

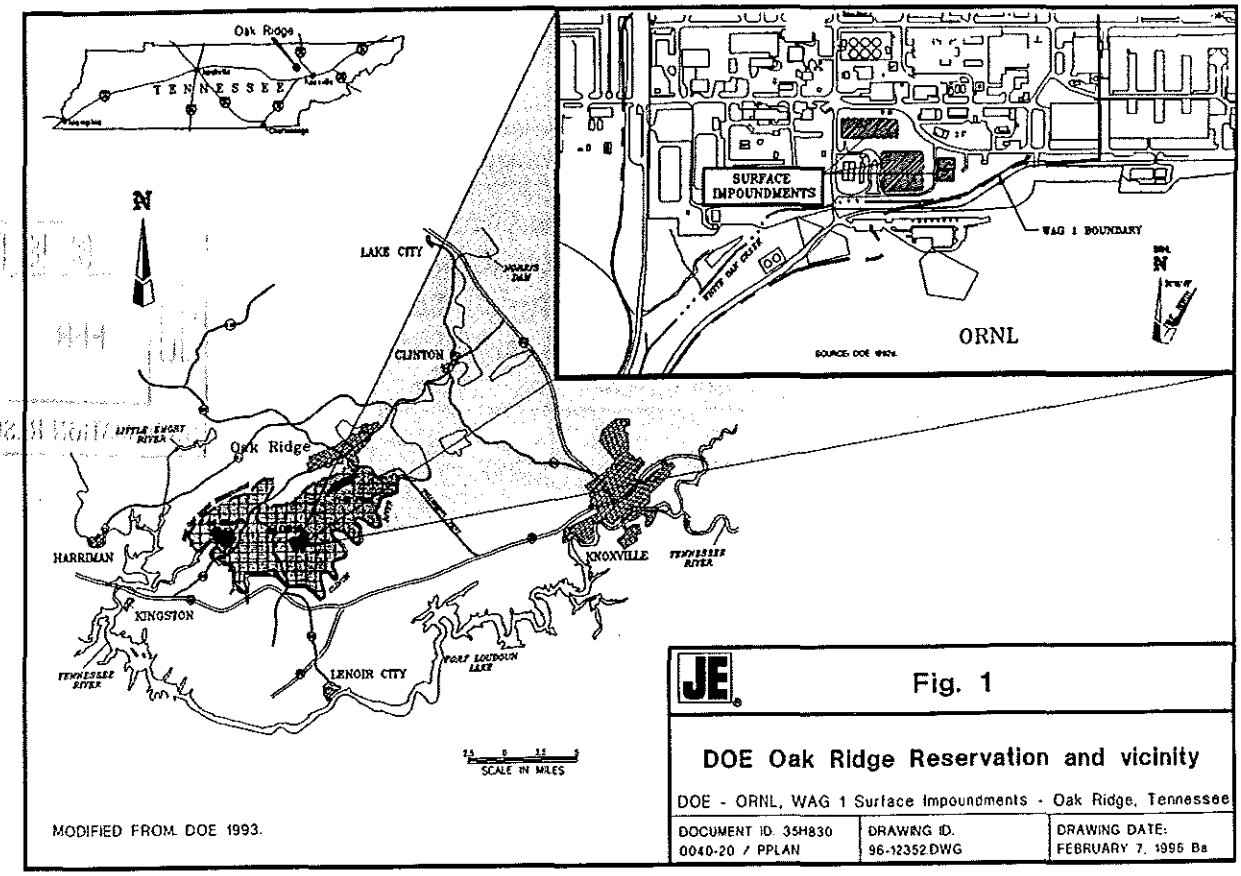
INTRODUCTION

This proposed plan identifies the U.S. Department of Energy's (DOE's) preferred alternative for protecting human health and the environment from the effects of contaminated sediments within the Surface Impoundments Operable Unit (SIOU). This OU is within Waste Area Grouping (WAG) 1 of the Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee (Fig. 1).

Recent investigations of the sediments in the impoundments indicate that they pose a potential risk to human health and the environment. This plan presents summaries of the remedial alternatives analyzed and considered for the site. This plan is being issued as part of the U.S. Environmental Protection Agency's (EPA's) public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

This proposed plan acquaints the public with issues relating to contaminated sediments within the impoundments and offers the public an opportunity to participate in the selection or modification of the preferred alternative for remediation of this site. The shaded box on page 10 describes how to participate in the process and how to obtain additional information. This plan is based on the results of a remedial investigation (RI)/feasibility study (FS) report (DOE/OR/02-1346&D2, November 1995). The RI characterizes the nature and extent of contamination associated with the SIOU sediments and examines present and future risks, based on this information. The FS identifies a range of alternatives developed by screening and evaluating available technologies and comparing those alternatives against required EPA criteria.

This plan summarizes the alternatives and the FS evaluation. After the public comment period and consideration of public response, DOE will prepare a record of decision (ROD) presenting the selected remedy and will forward the ROD to EPA and to the Tennessee Department of Environment and Conservation (TDEC) for final approval. After the three parties approve and issue the ROD, DOE will prepare an action plan and will implement remedial actions at SIOU.



More information about the site and activities conducted is available in the administrative record file at the Information Resource Center, 105 Broadway Avenue, Oak Ridge, Tennessee. A public meeting will be scheduled, if requested by interested citizens, to discuss the cleanup alternatives and address any questions and concerns the public may have about the preferred alternative.

SITE BACKGROUND

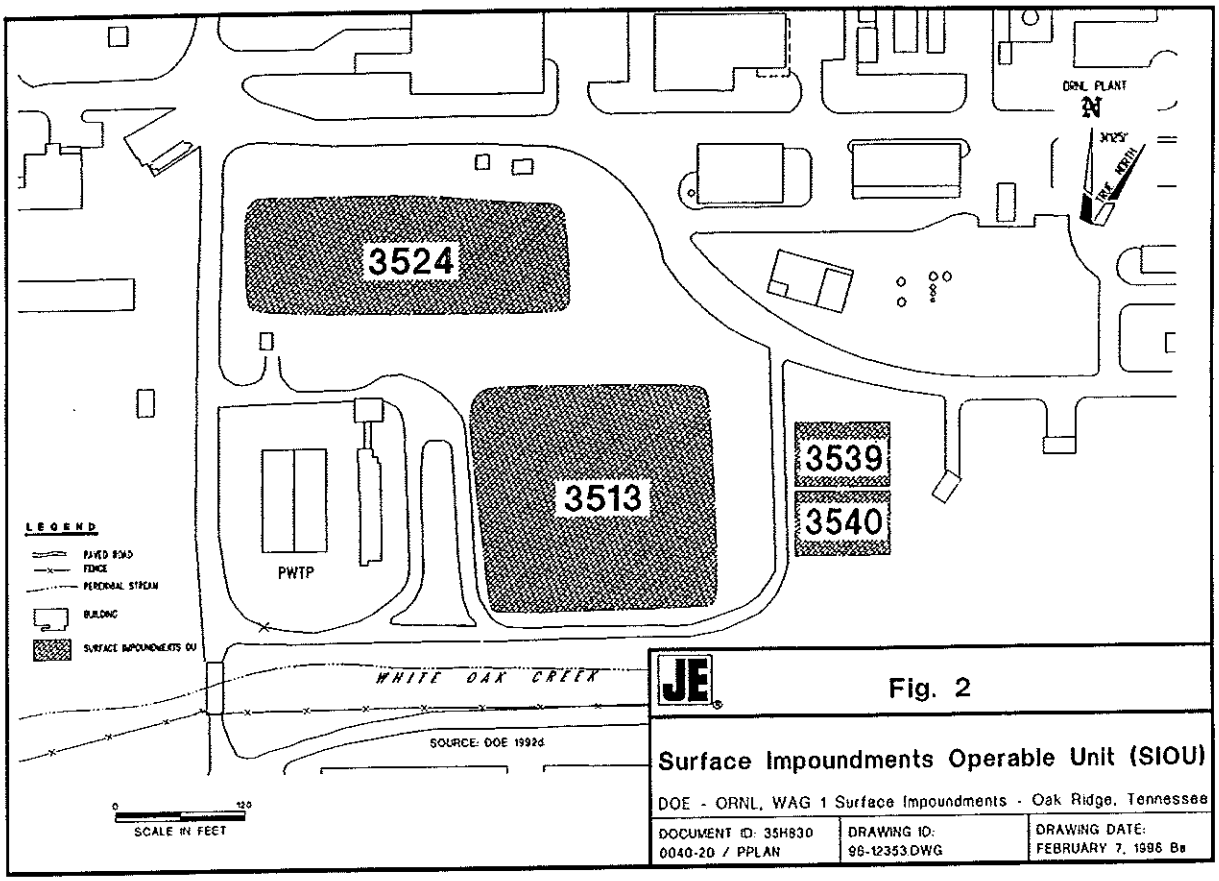
The surface impoundments are within the DOE Oak Ridge Reservation (ORR) in Oak Ridge, Tennessee. ORNL is one of three major DOE installations at ORR and is subdivided into various WAGs. SIOU is part of WAG 1 and consists of Impoundment 3524, Impoundment 3513, and Impoundments 3539 and 3540. The four impoundments are in the south-central part of ORNL's main plant area, north of White Oak Creek (Fig. 2). They are owned by DOE and managed by Lockheed Martin Energy Systems.

The impoundments were used from the 1940s to the 1970s as part of ORNL's waste management system. They contain radiologically and chemically contaminated sediments. The two larger impoundments (3513 and 3524) are unlined and release contaminants to the environment. This is due to groundwater intrusion into these impoundments. A water cover is maintained over the sediments within these two impoundments to provide radiation shielding and to prevent airborne releases of sediments.

Various chemical and radiological substances were released into the environment during past operations at the impoundments. However, contaminant releases of the magnitude that occurred in the past no longer take place. Current activities are closely monitored for compliance with state and federal environmental laws.

Impoundment 3524

Impoundment 3524 was built in 1943 for short-term storage of wastewater to allow for final precipitation of radioisotopes before discharge to White Oak Creek. Initially this impoundment consisted of two unlined impoundments separated by a berm. In the early 1950s, the berm separating the two impoundments was removed, forming one impoundment that only received process wastewater. From 1949 until 1957, effluent from Impoundment 3524 was pumped to Impoundment 3513. In 1957, the Process Waste Treatment Plant



was placed on line, and Impoundment 3524 was used as an equalization basin for intermediate storage and collection of process wastewater for the treatment plant until 1989. Currently it is used as an emergency storage basin to provide backup overflow capacity for the process wastewater storage tanks during storms. This impoundment will no longer be needed as backup for overflow when the Surge Tank Project is completed in March 1996.

Impoundment 3513

Impoundment 3513, an unlined pond excavated into natural clay, was built in 1944 as a settling basin for various low-level waste streams that were diluted with process wastewater. From 1944 until 1947, excess water within the impoundments exited through pipes on the impoundment's southern berm directly into White Oak Creek. These pipes were plugged in 1947. From 1957 until 1976, this impoundment received waste that did not require treatment in the Process Waste Treatment Plant. Wastewater exiting the Process Waste Treatment Plant was also discharged into the impoundment to allow settling of particulates. The impoundment was taken out of service in 1976 and is currently not in use. There is some seepage through the southern berm to White Oak Creek, but corrective action has mitigated this problem.

Impoundments 3539 and 3540

Impoundments 3539 and 3540 are lined ponds that were built in 1964 to receive process wastewater from Building 4500. The process waste was ultimately discharged into White Oak Creek after verifying radionuclide content and pH adjustments of the water in the ponds. Wastewater from Building 4500 exceeding acceptable limits was pumped to Impoundment 3524 before treatment at the Process Waste Treatment Plant. These impoundments were taken out of service in 1990, but they are also available as backup overflow capacity for the process wastewater storage tanks during storms. As is the case with Impoundment 3524, these impoundments will no longer be needed as backup for overflow when the Surge Tank Project is completed in March 1996.

SCOPE AND ROLE OF OPERABLE UNIT

This operable unit (OU) only addresses remediation of water and sediments within the impoundments to control future releases to groundwater, surface water, and the air. Groundwater and surface soils within the boundaries of the OU will be addressed by other CERCLA actions outside the scope of SIOU actions because other sources in WAG 1 also contribute to groundwater contamination and surrounding soils could be recontaminated from migration of contaminants from these other sources.

The goal for remediation of this OU is to reduce potential risks to human health and the environment from sediment within SIOU to acceptable levels.

SUMMARY OF SITE RISKS

The risk assessment presented in the RI/FS report estimated the potential risks and hazards to human health and the environment from the contaminated sediments within the impoundments. The sediments contain chemical and radiological constituents. The RI/FS assessed a variety of exposure scenarios to fully evaluate the current and potential future site conditions. Pathways considered include direct gamma radiation exposures, infiltration of contaminants into groundwater and surface water, and possible inhalation of particulates should the protective water cover over the impoundment sediments be lost. Potential receptors evaluated were current and future on-site employees and future residents at Clinch River, White Oak Dam, White Oak Creek across from SIOU, and on site. EPA has defined general remedial action goals, which include a target range for carcinogenic risk of 10^{-4}–10^{-6}. Risk greater than 10^{-4} indicates a need for action.

The potential for noncarcinogenic effects is evaluated by calculating a hazard quotient (HQ) for each contaminant. HQs for each contaminant are summed to obtain a hazard index (HI). An HI greater than 1 indicates adverse effects are likely to occur.

Radiological Risks

Strontium-90 is leaching from the sediments into the shallow groundwater, which in turn enters White Oak Creek. Occasional seeps emanating from Impoundment 3513 have appeared on the White Oak Creek side of its berm.

DOE enforces strict institutional and engineering controls that mitigate against uncontrolled exposures to contaminants within the impoundments. Risks to current employees at ORNL and possible off-site receptors are currently acceptable because of the institutional controls in place.

Institutional controls are mandated to ensure regulatory compliance concerning exposures to on-site individuals and to prevent direct contact with the sediments, which would result in a near certain chance of cancer. Even assuming that direct sediment contact does not occur, radiological risks to hypothetical, future on-site employees and residents are well above the EPA acceptable risk range, up to 8×10^{-2} and 2×10^{-1}, respectively, assuming a 5-day period during which the water cover over Impoundment 3524 is lost.

Potential future off-site residents also have unacceptable risks from radioactive contaminants should institutional controls be lost. For these receptors, the main risk is inhalation of wind-blown particulates derived from the sediments during the assumed period when the sediments are dry. The risks range up to 7×10^{-3} for receptors at White Oak Creek and 5×10^{-3} for receptors at White Oak Dam and Clinch River.

Chemical Risks

There are unacceptable chemical carcinogenic risks to potential future residents at White Oak Dam, White Oak Creek, and on site if institutional controls are assumed to be lost. However, chemical carcinogenic risks to current and future on-site employees were calculated to be acceptable, as were risks to future residents at Clinch River. Chemical noncarcinogenic effects were acceptable for all exposure scenarios (i.e., all HIs were less than 1). Relative to radiological risks, chemical carcinogenic risks calculated for the exposure scenarios were insignificant. The maximum chemical risk calculated was 2×10^{-3} for future on-site residents (compared to a radiological risk of 2×10^{-1} for the same exposure scenario).

Ecological Risks

The ecological risk assessment evaluated risks to aquatic receptors (i.e., fish and daphnids in White Oak Creek) and piscivorous wildlife receptors (i.e., mink and belted kingfisher). Risk and hazards were calculated using current contaminant

concentrations, and contaminant concentrations were modeled for future, likely exposure locations. Contaminant exposure was estimated for wildlife feeding from SIOU, White Oak Creek, White Oak Dam, and Clinch River. Estimated contaminant concentrations were compared to a series of benchmarks based upon National Ambient Water Quality Criteria, no observed adverse effect levels, low observed adverse effect levels, and chronic dose benchmarks.

Benchmarks were exceeded for aquatic receptors in White Oak Creek and White Oak Dam. Mercury concentrations in the fish at SIOU resulted in unacceptable risks to minks and kingfishers. In addition, radiation doses to a mink at SIOU exceed the chronic dose benchmark.

SUMMARY OF ALTERNATIVES

The following alternatives were developed to achieve the remedial action objectives:

- prevent direct exposure to, direct contact with, and inhalation or ingestion of contaminated sediments by humans and animals,
- prevent movement of contaminants to groundwater and surface water,
- control failure of the impoundments berm and embankments, and
- prevent the bioaccumulation of contaminants in ecological receptors.

The alternatives evaluated ranged from no action to complete removal of contaminated sediments and off-site disposal. The alternatives were screened, based on effectiveness, implementability, and cost, to develop a shorter list of alternatives for detailed analysis. The final alternatives retained in the FS include:

- Alternative 1—no action
- Alternative 2—multilayer cap and institutional controls
- Alternative 3—consolidation cell with simple dewatering
- Alternative 4—consolidation cell with ex situ treatment
- Alternative 5—off-SIOU consolidation cell
- Alternative 6—removal, treatment, and off-site disposal

All alternatives assume that all water removed from the impoundments will be treated at the existing Process Waste Treatment Plant.

For each of these alternatives, total escalated cost, total present worth, and time to implement are itemized. The costs presented are revisions to the initial estimates in the RI/FS and reflect savings expected from the use of incentive task orders as an innovative contracting mechanism.

ALTERNATIVE 1—NO ACTION

Total Escalated Cost: $14 million
Total Project Present Worth: $5.5 million
Time to Implement: None

Alternative 1 assumes that existing institutional controls, including actively maintaining the water cover on the impoundments, are maintained for a reasonable period of time (i.e., 30–100 years). After this period of time, the site is assumed to be abandoned. This alternative makes no provisions for containment, removal, treatment, or disposal of wastes. There are unacceptable risks at all receptor locations considered after loss of institutional controls.

There are no applicable or relevant and appropriate requirements (ARARs) under CERCLA for this alternative. The no action alternative does not meet the CERCLA requirement for protection of human health and the environment.

ALTERNATIVE 2—MULTILAYER CAP AND INSTITUTIONAL CONTROLS

Total Escalated Cost: $14.5 million
Total Project Present Worth: $11 million
Time to Implement: 1.75 years

Alternative 2 includes placing a multilayer cap over the sediment to protect against airborne contamination and direct contact with, or direct exposure to, radiation from the contaminated sediments. This alternative includes institutional controls to the outfall from White Oak Dam to limit access and exposure to groundwater and surface water contamination. Risks from exposures to contaminants beyond this point are acceptable.

This alternative would be able to meet ARARs with the following exceptions. A waiver would be required for the annual dose radiation protection requirements of TDEC 1200-2-11-.16(2), if the receptor is assumed to be on site. This requirement is met for a receptor at Clinch River. A waiver would also be required for isolation and long-term design requirements of TDEC 1200-2-11-.16(3) and 1200-2-11-.17(2)(a), respectively, as this

alternative does not isolate the wastes from groundwater and requires continued, active maintenance. Similarly, the cap design would not meet all of the requirements in TDEC 1200-2-11-.17(2)(d), nor does it meet the requirement in TDEC 1200-2-11-.17(2)(f), which requires minimization of contact between the waste and standing or percolating water. Therefore, waivers would be required for these ARARs, also.

A waiver from the requirement to eliminate free liquids from wastes [40 *Code of Federal Regulations* (CFR) 264.228(a)(2)] may also be needed.

ALTERNATIVE 3—CONSOLIDATION CELL WITH SIMPLE DEWATERING

Total Escalated Cost: $25 million
Total Project Present Worth: $21.5 million
Time to Implement: 2.75 years

Alternative 3 includes constructing a consolidation cell by relocating sediment and solid contaminants from Impoundment 3524 into Impoundment 3513, followed by retrofitting Impoundment 3524 with appropriate liners and a leachate collection system. Contaminated sediment from all the surface impoundments would be placed in this consolidation cell and maintained with an interim cover to promote dewatering of sediments through the leachate system. Once subsidence of the sediments has occurred, the consolidation cell cap would be completed by grading, compacting (if necessary), and reseeding.

This alternative would isolate the wastes sufficiently so federal institutional controls would only be required at the site of the consolidation cell. A receptor at White Oak Creek would not be exposed to unacceptable risk from SIOU contamination.

Alternative 3 would meet ARARs, except waivers would be needed from TDEC 1200-2-11-.16(3) requirements for protection of individuals from inadvertent intrusion into the disposal site after institutional controls are removed, and from the Toxic Substances Control Act (TSCA) requirements for hydraulic conditions, [40 CFR 761.75(3)], which includes a minimum depth of 16.7 m (50 ft) to the historic high water table as measured from the cell liner. Additional waivers could also include a stipulation that institutional controls may not be relied upon for more than 100 years, requirements for cover and intruder barriers be designed for 500 years, and a requirement that the site be located where the results of environmental monitoring will not be masked by other activities (TDEC 1200-2-11).

A waiver from Resource Conservation and Recovery Act (RCRA) land disposal restrictions (LDRs) could be needed if a treatment contingency were used. A waiver from the requirement to eliminate free liquids from wastes [40 CFR 264.228(a)(2)] may also be needed.

ALTERNATIVE 4—CONSOLIDATION CELL WITH EX SITU TREATMENT

Total Escalated Cost: $44 million
Total Project Present Worth: $42.5 million
Time to Implement: 4 years

Alternative 4 includes relocating the sediment from Impoundments 3524, 3539, and 3540 to Impoundment 3513; constructing a treatment facility for stabilization and solidification of the waste; installing a liner and leachate detection system (part of consolidation cell) at the former location of Impoundment 3524; transferring all of the sediments within the OU to the treatment facility; treating the sediment (stabilization/solidification is the representative treatment process analyzed); placing the solidified waste in the lined cell; and installing a multilayer cap over the consolidation cell to isolate the waste from the environment. Institutional controls for this alternative would be the same as those required for Alternative 3.

Alternative 4 would meet ARARs, except waivers would be needed from the TDEC 1200-2-11-.16(3) requirements for protection of individuals from inadvertent intrusion into the disposal site after institutional controls are removed, and from the TSCA requirements for hydraulic conditions, 40 CFR 761.75(3), which include a minimum depth of 16.7 m (50 ft) to the historic high water table as measured from the cell liner. Additional waivers could also include a stipulation that institutional controls may not be relied upon for more than 100 years, requirements for cover and intruder barriers be designed for 500 years, and a requirement that the site be located where the results of environmental monitoring will not be masked by other activities.

The treatment process could trigger LDRs. The ability of this alternative to meet the LDRs would be determined in engineering studies for the effectiveness of the treatment. A waiver from some of the RCRA LDRs could be needed.

ALTERNATIVE 5—OFF-SIOU CONSOLIDATION CELL

Total Escalated Cost: $31 million
Total Project Present Worth: $27 million
Time to Implement: 3.5 years

Alternative 5 includes removal of all sediments and surface water from the OU; possible treatment of sediment (simple dewatering with in situ drainage beds is the representative process option receiving detailed analysis); transport of sediment to a newly constructed, off-SIOU consolidation cell; consolidation of the waste in the lined cell; and capping the cell when the contents have sufficiently stabilized.

Alternative 5 would require institutional controls at the site of the consolidation cell. No institutional controls would be needed for SIOU because all contamination included in the OU scope (water and sediment) would be removed; however, such controls may be needed at the site to address contamination from other sources.

Alternative 5 would meet ARARs, except waivers would be needed from the TDEC 1200-2-11-.16(3) requirements for protection of individuals from inadvertent intrusion into the disposal site after institutional controls are removed, and from the TSCA requirements for hydraulic conditions, 40 CFR 761.75(3), which include a minimum depth of 16.7 m (50 ft) to the historic high water table as measured from the cell liner. Additional waivers could also include a stipulation that institutional controls may not be relied upon for more than 100 years and that cover and intruder barriers be designed for 500 years. A waiver from RCRA LDRs could be needed if a treatment contingency were used.

ALTERNATIVE 6—REMOVAL, TREATMENT, AND OFF-SITE DISPOSAL

Total Escalated Cost: $164 million
Total Project Present Worth: $149 million
Time to Implement: 4 years

Alternative 6 includes removal of all sediments within the OU, construction of a treatment facility, treatment of sediments, as required, to meet ARARs and applicable disposal facility waste acceptance criteria, containerization of treated wastes, and transport of all treated waste to the Nevada Test Site.

The treatment process includes base-catalyzed destruction of polychlorinated biphenyls followed by stabilization/solidification to meet U.S. Department of Transportation transport and RCRA LDR requirements.

This alternative meets all ARARs. No waivers would be needed.

EVALUATION OF ALTERNATIVES

Table 1 summarizes the performance of the alternatives against seven of the nine CERCLA criteria. The first two criteria must be met in initial screening by any alternative considered for selection in the ROD. The next five criteria are the primary balancing criteria upon which the analysis is based. The remaining two criteria will be evaluated after a regulatory agency review and a public comment period.

Community acceptance of the preferred alternative will be evaluated based upon public comments received. Details of the selected alternative will be described in the ROD for the site.

SUMMARY OF THE PREFERRED ALTERNATIVE

The preferred alternative for cleaning up SIOU is Alternative 3—consolidation cell with appropriate liners, caps, and leachate collection system for simple dewatering. Based on current information, this alternative appears to provide the best balance of the nine CERCLA criteria developed by EPA (see page 9 for a description of evaluation criteria). Alternative 3 protects future employees and on-site residents from direct radiation and prevents airborne migration of sediments from the impoundments. Contamination of potential drinking and irrigation water would be significantly reduced by the cap and liner. Risks to future residents on site, at White Oak Creek, at White Oak Dam, and at Clinch River are all within the acceptable EPA target range.

The leachate collection system will be maintained and operated indefinitely to monitor the overall integrity of the consolidation cell. Site surveillance and maintenance would be required as long as the contaminated media under the cap remains. Institutional controls, such as continued site ownership by the government and placing a notice in the site deed, would prevent on-site

Table 1. Evaluation of alternatives for CERCLA criteria, WAG 1, SIOU, ORNL, Oak Ridge, Tennessee

CERCLA criteria	Alternative 1 No Action	Alternative 2 Multilayer cap and institutional controls	Alternative 3 Consolidation cell with simple dewatering	Alternative 4 Consolidation cell with ex situ treatment	Alternative 5 Off-SIOU consolidation cell	Alternative 6 Removal, treatment, and off-site disposal
1. Overall protection of human health and the environment						
Future RME Risk		Total risk	Total risk	Total risk	Total risk	Total risk
Employee on site	8×10^{-2}	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$
Resident Clinch River	5×10^{-3}	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$
Resident White Oak Dam	5×10^{-3}	6×10^{-6}	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$
Resident White Oak Creek	7×10^{-2}	1×10^{-5}	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$
Resident on site	2×10^{-1}	1×10^{-5}	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$	$< 1 \times 10^{-6}$
Human health risk discussion	Risk to human health from migration of contamination to groundwater and White Oak Creek. If water cover over sediment is lost, airborne contamination resulting in widespread human health risk is possible. Very high external gamma exposures to on-site receptors	Protective to receptor at White Oak Dam. Possible risk to human health from migration of contamination to groundwater and White Oak Creek. Protective while DOE maintains institutional controls	Protective to employees and to residential receptors at White Oak Dam and at White Oak Creek. Protective at the site while DOE maintains institutional controls	Protective to employees and to residential receptors at White Oak Dam and at White Oak Creek. Protective at the site while DOE maintains institutional controls	Protective to all receptors while DOE maintains institutional controls	Protective to all receptors due to removal of source material
Ecological risk	Risk to environmental receptors from consumption of fish in impoundments. Small risk from consumption of fish in White Oak Creek	No risk to environmental receptors	No risk to environmental receptors	No risk to environmental receptors	No risk to environmental receptors	No risk to environmental receptors
2. Compliance with ARARs	No ARARs under CERCLA. Not protective as required by CERCLA	5–10 waivers required	2–5 waivers required	2–5 waivers required	2–4 waivers required	Meets all ARARs
3. Long-term effectiveness	Not effective	Effective for period of institutional control	Very effective for period of institutional control	Very effective for period of institutional control	Very effective for period of institutional control	Very effective at site
4. Reduction of toxicity, mobility, or volume through treatment	None	None	Small reduction in volume	Significant increase in volume. Some decrease in mobility of most contaminants	Small reduction in volume	Significant increase in volume. Some decrease in mobility of most contaminants
5. Short-term effectiveness	No increase or reduction in short-term effects on human health and environment	Potential for small, adverse short-term effects	Potential for moderate, adverse short-term effects	Potential for moderately high, adverse short-term effects	Potential for moderately high, adverse short-term effects	Potential for very high, adverse short-term effects
6. Implementability	Very easy to implement	Easy to implement	Somewhat difficult to implement	Difficult to implement	Fairly difficult to implement	Extremely difficult to implement, technically and administratively
7. Total escalated cost Present worth cost	$14 million $5.5 million	$14.5 million $11 million	$25 million $21.5 million	$44 million $42.5 million	$31 million $27 million	$164 million $149 million

ARAR = applicable or relevant and appropriate requirement
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act of 1980
DOE = U.S. Department of Energy
ORNL = Oak Ridge National Laboratory
RME = reasonable maximum exposure
SIOU = Surface Impoundments Operable Unit
WAG = waste area grouping

EVALUATION CRITERIA

The following criteria are based on guidance published by EPA and are used to evaluate potential alternatives. The first seven criteria are highlighted in this proposed plan. The last two criteria, State and Community Acceptance, will be addressed during the public comment period.

1. *Overall protection of human health and the environment* addresses whether an alternative eliminates, reduces, or controls threats to public health and the environment.
2. *Compliance with applicable or relevant and appropriate requirements (ARARs)* addresses whether an alternative meets federal and state environmental laws and regulations.
3. *Short-term effectiveness* considers the time needed for an alternative to achieve remedial response objectives and the risks posed to workers, residents, and the environment during the remedial action.
4. *Long-term effectiveness* considers the ability of an alternative to protect public health and the environment long after remedial action is complete.
5. *Reduction of toxicity, mobility, and volume through treatment* evaluates an alternative's use of treatment to reduce the harmful nature of contaminants; the contaminants' ability to move in the environment; and the amount, or volume, of contamination present.
6. *Implementability* addresses the feasibility of an alternative from a technical and an administrative standpoint.
7. *Cost* considers the amount of money it will take to design, construct, operate, and maintain the alternative.
8. *State acceptance* addresses TDEC comments concerning the alternatives considered.
9. *Community acceptance* addresses the public comments on the alternatives being considered. One opportunity for the public to voice its opinion is to complete the attached comment sheet and send it to DOE. At the end of the public comment period, DOE will respond to every relevant question and comment. These responses will become part of the ROD.

residential and farming land uses that could result in direct exposure to contaminated sediments.

In summary, Alternative 3 would substantially reduce site risks through waste consolidation, surface water controls, engineering controls (i.e., the cap, liner, and leachate collection system), and institutional controls. Institutional controls would allow safe management of sediment remaining in the consolidation cell.

Based on information available at this time, DOE believes that Alternative 3 would protect human health and the environment, comply with ARARs (although regulators agreed that appropriate waivers will be required), and be cost-effective. EPA and TDEC concur with the release of this proposed plan for public comment.

COMMUNITY PARTICIPATION

Community involvement is critical to the CERCLA RI/FS process.

DOE encourages public participation in the selection of the preferred alternative for remediation of SIOU. The 30-day public comment period will be announced in local newspapers. During this time the public is invited to submit written comments on the preferred and other alternatives. A public meeting will be held if requested.

Comments will be evaluated and documented as part of the subsequent ROD. Based on public comments or new information, DOE may modify the preferred alternative or select another.

THE NEXT STEP

Following the public comment period and consideration of public concerns, DOE will prepare a ROD. The ROD will describe the selected remedy and include the responses to public comments. A remedial design plan for implementing the alternative will be prepared after the ROD is signed by EPA, TDEC, and DOE.

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

Public Comment Period: DOE will hold a 30-day public comment period for this proposed plan. The comment period provides an opportunity for local residents and interested parties to express their views and concerns on the remedial alternatives being considered. Copies of the proposed plan and supporting documents are available at the following location:

DOE Information Resource Center
105 Broadway Avenue
Oak Ridge, TN 37830

Hours: Mon., Wed., and Fri., 7 a.m.–5 p.m.,
Tues. and Thurs., 7 a.m.–7 p.m.,
Sat., 9 a.m.–1 p.m.

Tel: (423) 241-4582

SURFACE IMPOUNDMENTS OPERABLE UNIT, WASTE AREA GROUPING 1, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE PUBLIC COMMENT SHEET

DOE is interested in your comments on the alternatives being considered in the *Proposed Plan for the Surface Impoundments Operable Unit, Waste Area Grouping 1, Oak Ridge National Laboratory, Oak Ridge, Tennessee*, including the preferred alternative. The mailing address is preprinted on the back of this form. You may use this form to submit your comments. We must receive your comments on or before the close of the public comment period. If you have questions, please contact Mr. Nelson Lingle, Chief; Oak Ridge Remediation Branch; DOE Oak Ridge Operations; 105 Broadway Avenue; Oak Ridge, TN 37830; (423) 576-5580.

Name: _____

Address: _____

City: _____ State/Zip: _____

Telephone: _____

MAILING LIST ADDITIONS:

Please add my name to the Environmental Restoration Program mailing list to receive additional information on the progress at the Oak Ridge Reservation: ☐ Yes ☐ No

Place
Stamp
Here

Mr. Nelson Lingle, Chief
Oak Ridge Remediation Branch
DOE Oak Ridge Operations
105 Broadway Avenue
Oak Ridge, TN 37830