Explanation of Significant Differences
for the Record of Decision for Interim Actions
for the Melton Valley Watershed
at Oak Ridge National Laboratory,
Oak Ridge, Tennessee

Addition of Units to the Selected Remedy

This document is approved for public release per
review by:
Mike Aaron 7/9/04
ORNL Technical Information Officer Date
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Date Issued—July 2004

Prepared for the
U.S. Department of Energy
Office of Environmental Management

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Environmental Management Activities at the
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Y-12 National Security Complex Oak Ridge National Laboratory
Paducah Gaseous Diffusion Plant Portsmouth Gaseous Diffusion Plant
under contract DE-AC05-98OR22700 and DE-AC05-03OR22980
for the
U.S. DEPARTMENT OF ENERGY
APPROVALS

Explanation of Significant Differences for the Record of Decision for Interim Actions for the Melton Valley Watershed at Oak Ridge National Laboratory, Oak Ridge, Tennessee

Addition of Units to the Selected Remedy

DOE/OR/01-2165&D1

July 2004

Gerald G. Boyd, Manager
Oak Ridge Operations
U.S. Department of Energy

Date

John A. Owley, Director
U.S. Department of Energy Oversight Division
Tennessee Department of Environment and Conservation

Date

Winston A. Smith, Director
Waste Management Division
U.S. Environmental Protection Agency – Region 4

Date
Site Name and Location

U.S. Department of Energy (DOE)
Oak Ridge Reservation (ORR)
Melton Valley watershed at the Oak Ridge National Laboratory (ORNL), which includes the following 11 units:

- Liquid Low-Level Waste (LL LW) Slotting Tank T-13
- Straw Shed (7831-C)
- SWSA 6 Staging Facility (7878)
- SWSA 6 Waste Storage Facility (7842)
- Epicore II Storage Building (7848)
- Equipment Storage Facility (7841)
- Tanks T-1/T-2 Central Pumping Station (7567)
- Well Drilling Steam Cleaning Area
- Epicore II Contaminated Soil and Lysimeters
- Engineered Test Facility (ETF)
- ER Storage Bunker (7844)

Oak Ridge, Tennessee
CERCLA Information System ID TN1890090003

Introduction and Statement of Purpose

The Melton Valley watershed occupies approximately 1000 acres in the southern portion of ORNL, located on DOE's ORR. Portions of the watershed have been contaminated with a variety of wastes, including liquid and solid low-level radioactive wastes, through past disposal practices. DOE is remediating the Melton Valley watershed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

Remediation of most of the inactive units and contaminated media within Melton Valley is addressed by a CERCLA document entitled Record of Decision for Interim Actions for the Melton Valley Watershed at the Oak Ridge National Laboratory, Oak Ridge, Tennessee (DOE/OR/01-1826&D3). This Melton Valley record of decision (MV ROD) was signed on September 21, 2000, by DOE, the Tennessee Department of Environment and Conservation (TDEC), and the U.S. Environmental Protection Agency (EPA). The MV ROD addresses contaminant releases and potential risk or hazard through a combination of remedial activities such as containment, stabilization, removal, treatment, monitoring, and land use controls (LUCs). The selected remedial activities are expected to significantly reduce the release of contaminants from Melton Valley source areas into White Oak Creek, Melton Branch, their tributaries, and the Clinch River.

Since the MV ROD was signed, 11 new inactive Melton Valley units that were considered "active" at the time of ROD signature have now become eligible for remediation. Some of the 11 units require demolition to facilitate hydrologic isolation of the burial grounds under the MV ROD remedy. DOE would like to modify the MV ROD remedy accordingly for these 11 units. In an Environmental Program Council meeting on March 31, 2004, and in accordance with 40 Code of Federal Regulations (CFR) 300.435, DOE

ESD for MV ROD

Addition of Units to the Selected Remedy
and the regulators categorized the scope modification as a “significant” change to the MV ROD. In accordance with CERCLA Sect. 117 (c) and 40 CFR 300.435 (c)(2)(i), such a significant change is documented with an Explanation of Significant Differences (ESD). The purpose of this ESD is to explain the basis for adding 11 new units to the MV ROD remedy. All of the remedial actions proposed for these units are consistent with the overall MV ROD remedy. Consistency of each unit’s remedial action is discussed in “Description of Significant Differences”. The location of all 11 units addressed by this ESD are shown in Fig. 1.

Table 1 provides a description of the units; indicates whether or not the unit was originally in the scope of the MV ROD and if so, the unit’s assigned remedial action within the selected remedy; denotes the requested remedial action change for each unit; and states the reason. The three parties to the Federal Facilities Agreement (FFA) (i.e., DOE, EPA, and TDEC) evaluated these units with respect to their inclusion under CERCLA and the appropriateness of the requested remedy change using the process presented in Fig. 2. The results of this evaluation are presented in Table 1 under the column “Core Team (CT) Comments, Decision No., and Recommended Actions.”

This ESD is part of the Administrative Record file, and it and other information supporting the selected remedy can be found at the DOE Information Center, 475 Oak Ridge Turnpike, Oak Ridge, Tennessee 37830, from 8:00 a.m. to 5:00 p.m., Monday through Friday.

Site History, Contamination, and Selected Remedy

The ORNL historical missions—plutonium production during World War II and nuclear technology development during the postwar era—produced a diverse legacy of contaminated inactive facilities, research areas, and waste disposal areas in Melton Valley. The major problems identified in Melton Valley are the presence of high inventories of short half-life radiological waste and lesser quantities of long half-life radiological wastes, contaminant releases to surface water, and widespread contamination in secondary media.

Melton Valley is currently a restricted area under DOE control. The remediation levels, listed below, have been established in the ROD to achieve the reasonably anticipated future use of each remediation area.

1. The eastern portion of Melton Valley, which contains the reactor sites, will be remediated to a condition that allows industrial use with limited restrictions.
2. Much of the western portion of Melton Valley, occupied by the waste disposal sites, will continue to be a waste management area with wastes contained in place.
3. Surface water, designated as waters of the state, will be remediated consistent with the state’s stream use classification (e.g., recreation and fish and aquatic life). The floodplain soils will be remediated to 2500 µR/hour.

Through a variety of source actions, the selected remedy addresses principal threats to human health and the environment posed by contaminated media in the Melton Valley watershed. Hydraulic isolation is preferred for most of Melton Valley because of the magnitude of the principal threat wastes, and the worker risks and excessive cost entailed if treatment or removal were the primary mechanism for addressing these wastes. However, treatment and removal are included for selected areas to enhance the overall protectiveness of the selected remedy.
Fig. 1. Location of Units Addressed in Explanation of Significant Differences
(DOE/OR/01-2165)

1 – LLW Staging Tank T-13
2 – Straw Shed (1951-C)
3 – SWSA 6 Staging Facility (1978)
4 – SWSA 6 Waste Storage Facility (7842)
5 – Epicore II Storage Building (1984)
6 – Equipment Storage Facility (7841)
7 – Tank T-1/F-2 Central Pumping Station (7567)
8 – Well Drilling Dosem Cleaning Area
9 – Epicore II Contaminated Soil and lysimeters
10 – Engineered Test Facility (ETF)
11 – ER Storage Bunker (1944)
<table>
<thead>
<tr>
<th>ROD ID No.</th>
<th>Unit Name/Location</th>
<th>Currently in FFA?</th>
<th>SWMU?</th>
<th>Description</th>
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<th>Core Team (CT) Comments, Decision No.¹, and Recommended Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.015</td>
<td>Active LLLW Slotting Tank T-13</td>
<td>Yes- App. F, Cat. B</td>
<td>Yes-SWMU No. 5.15</td>
<td>T-13 is a stainless steel tank with a 4000-gal capacity located in the NHF Slotting Waste Pit. The tank currently contains about 1000 gal of liquid and 130 gal of sludge consisting of contaminated sand and shale cuttings generated during slotting and well recovery operations.</td>
<td>Out of scope (active at time of ROD approval)</td>
<td>Remove liquids to the extent practicable and grout sludge heel, tank shell, and vault in place.</td>
<td>No longer needed following NHF D&amp;D. Already included in approved NHF RDR/RAWP.</td>
<td>CT concurs (3a). The word &quot;active&quot; will be deleted from unit name. Grouting of sludge based on results of DUST model. Move from App. F, Cat. B, to App. F, Cat. D (which then automatically transfers to App. C).</td>
</tr>
<tr>
<td>5.24</td>
<td>Straw Shed (7831-C)</td>
<td>No</td>
<td>No</td>
<td>A 1200-ft² metal pavilion used for temporary radiological waste storage. Approximately 34 yd³ of demolition debris will be generated.</td>
<td>Out of scope (active at time of ROD approval)</td>
<td>Demolish and dispose of demolition debris under the SWSA 5 cap. Unit is currently within the SWSA 5 South cap boundary.</td>
<td>To facilitate SWSA 5 South cap construction.</td>
<td>CT concurs (3c and 3d). Do not add unit to FFA App. C. Address as part of SWSA 5 South remedial action.</td>
</tr>
<tr>
<td>6.4</td>
<td>SWSA 6 Staging Facility (7878)</td>
<td>No</td>
<td>Yes-SWMU No. 6.4</td>
<td>A 3562-ft² metal Butler-type building used for CH-TRU waste storage. The facility is currently a RCRA permitted storage facility (Part B permit). Approximately 179 yd³ of demolition debris will be generated.</td>
<td>Out of scope (active at time of ROD approval)</td>
<td>Demolish and dispose of demolition debris under SWSA 6 cap.</td>
<td>To facilitate SWSA 6 cap construction.</td>
<td>CT concurs (3d). Add unit to App C only after State approval to close under CERCLA. Make separate CERCLA Area to complete RCRA closure/corrective action associated with the SWMU.</td>
</tr>
<tr>
<td>6.5</td>
<td>SWSA 6 Waste Storage Facility (Building 7842)</td>
<td>No</td>
<td>Yes-SWMU No. 6.5</td>
<td>A 3838-yd³ metal Butler-type building used for CH-TRU waste storage. The facility is currently a RCRA permitted storage facility (Part B permit). Approximately 176 yd³ of demolition debris will be generated.</td>
<td>Out of scope (active at time of ROD approval)</td>
<td>Demolish and dispose of demolition debris under SWSA 6 cap.</td>
<td>To facilitate SWSA 6 cap construction.</td>
<td>CT concurs (3d). Add unit to App C only after State approval to close under CERCLA. Make separate CERCLA Area to complete RCRA closure/corrective action associated with an SWMU.</td>
</tr>
<tr>
<td>6.6</td>
<td>Epicore II Storage Building (7848)</td>
<td>No</td>
<td>No</td>
<td>A small 120-ft³ metal shed containing miscellaneous equipment, materials, PPE, and soil samples. Approximately 25 yd³ of waste and demolition debris will be generated.</td>
<td>Out of scope (under UT-Battelle/NRC ownership at time of ROD approval)</td>
<td>Demolish and dispose of demolition debris, miscellaneous equipment, materials, PPE, and soil samples at the EMWMF or other approved disposal facility.</td>
<td>To facilitate remediation of a unit within the SWSA 6 boundary previously outside EM program jurisdiction; would complete remediation of SWSA 6 area.</td>
<td>CT concurs (3c). Address as part of SWSA 6 remedial action. Add unit to FFA App. C.</td>
</tr>
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**ESD for MV ROD**

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**Addition of Units to the Selected Remedy**
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<th>SWMUI?</th>
<th>Description</th>
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<th>Core Team (CT) Comments, Decision No.*, and Recommended Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.12</td>
<td>Equipment Storage Area (7841)</td>
<td>No</td>
<td>No</td>
<td>A 3580-yd² storage area for potentially reusable contaminated equipment from historical operations. Soil/gravel is contaminated. Approximately 194 yd³ of size-reduced non-recyclable equipment and material will be disposed in the EMWMF, and approximately 14 yd³ of size-reduced non-recyclable equipment and material will be disposed at NTS.</td>
<td>Out of scope (active at time of ROD approval)</td>
<td>Remove non-recyclable equipment and material and dispose in the EMWMF or other approved disposal facility. Excavate contaminated soil above remediation levels and dispose of under a cap(s).</td>
<td>Needed as equipment laydown area to facilitate LLLW seepage pits and trenches hydrologic isolation. Also, equipment removal is required to remediate contaminated soil.</td>
<td>CT concurs (3d, equipment and material must be removed to access soil). Make separate CERCLA Area. No associated CERCLA Area. Add unit to FFA App. C.</td>
</tr>
<tr>
<td>8.H1</td>
<td>Tanks T-1 / T-2 Central Pumping Station (7567) (listed as &quot;Melton Valley Pumping Station&quot; in Table A.1)</td>
<td>No</td>
<td>No</td>
<td>This pumping station serviced Tanks T-1, T-2, HFIR, and WC-20 and associated contaminated LLLW pipelines currently on the FFA App. C. The pumping station is a 10 ft by 14 ft (140 ft²) cinderblock structure sitting on top of a ~ 14 ft by 14 ft concrete vault. The vault contains the pumps that made the LLLW transfers. The pumps are no longer operable. There are numerous valves in the pump vault and in the building. None of these are in service at the present time. The vault is ventilated through a HEPA filtered off-gas stack which is still in operation. The building itself houses the level indicator equipment for Tanks T-1 and T-2. These levelers are still in service. Approximately 25 yd³ of demolition debris will be generated.</td>
<td>Out of scope (active at time of ROD approval)</td>
<td>Demolish surface facilities to slab. Grout subsurface structures in place. Masonry/concrete debris acceptable as fill material can be disposed under a cap(s). Other demolition debris will be disposed at the EMWMF or other approved disposal facility.</td>
<td>No longer needed following grouting of Tanks T-1, T-2, and HFIR, and the Tank WC-20 vault.</td>
<td>CT concurs (3e, part of LLLW system remediation). Make separate CERCLA Area. No associated CERCLA Area. Add unit to FFA App. C.</td>
</tr>
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<td>ROD ID No.</td>
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<tr>
<td>N/A</td>
<td>Well Drilling Steam Cleaning Area Outside of WAG 5</td>
<td>No</td>
<td>Yes-SWMU No. 79</td>
<td>A decontamination area used to conduct steam cleaning operations on drilling equipment, containment boxes, and related accessories between 1989 and 1996. Three basins were constructed to collect drill cuttings and wastewater generated by the cleaning activities. In 1997, the basins were drained, the liners were punctured to minimize water collection, and the site was backfilled with soil, which was then compacted. The decontamination area was originally used to decontaminate well drilling equipment associated with CERCLA RI/FS activities. The area included a sandblasting trailer, two tents containing tubs for scrubbing and spraying decontamination, and a 10,000-gal tank for consolidation of both decontamination liquid and purge water from groundwater well monitoring. Decontamination activities ceased in 1994. Today the area is used as an interim storage location for equipment that contains, or may contain, radioactive contamination. The items stored at the facility are constantly changing. Waste will be dispositioned as follows: 36 yd$^3$ to Envirocare; 10 yd$^3$ to Y-12</td>
<td>N/A</td>
<td>Remove and dispose of non-recyclable equipment and debris in the EMWMF or other approved disposal facility. Excavate contaminated soil “hot spots” and dispose of under cap(s).</td>
<td>To provide access to contaminated soil, and to facilitate SWSA 5 cap construction (needed as laydown area) and remediation of a RCRA SWMU.</td>
<td>CT concurs (3d and 4). Make separate CERCLA Area; add unit to FFA App. C.</td>
</tr>
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<tr>
<td>N/A</td>
<td>Epicore II Contaminated Soil and Lysimeters</td>
<td>No</td>
<td>No</td>
<td>NRC-sponsored experiment initiated in 1985 to evaluate the leachability of radionuclides from different solidified waste forms and its subsequent migration in the surrounding soil under field conditions. 5 buried stainless steel lysimeters/containers, 3 ft in diameter, 10 ft in height. The site is approximately 28 ft². Approximately 13 yd³ (sum of five lysimeters and soil) of waste will be generated.</td>
<td>N/A</td>
<td>Excavate lysimeters and any contaminated soil above MV ROD remediation levels; dispose of lysimeters at the EMWMF or other approved disposal facility. Excavated contaminated soil can be disposed under the SWSA 6 caps.</td>
<td>To facilitate remediation of a unit within the SWSA 6 boundary previously outside EM program jurisdiction.</td>
<td>CT concurs (3c). Address as part of SWSA 6 remedial action. Add unit to FFA App. C.</td>
</tr>
<tr>
<td>N/A</td>
<td>Engineered Test Facility (ETF)</td>
<td>No</td>
<td>No</td>
<td>The Engineered Test Facility (ETF) was a research and development area established by ORNL. Its purpose was to investigate improved shallow land burial (SLB) technology for disposal of LLW in humid environments. The ETF consists of nine trenches (~3 m x 3 m x 3 m each) and 36 monitoring wells for monitoring tracer movement from the trenches. Three trenches were used to test liners; three trenches were used to test grouting techniques; and three trenches were control trenches representing SLB that was being practiced at the time. Low-activity baled waste with radiation readings less than 200 mR/hr at the package surface was randomly dumped into each trench until the trench was filled to an average depth of 2 m. The outer plastic layer of the bales was ruptured to expose the waste to any water entering the trench. Approximately 397 yd³ of waste will be generated.</td>
<td>N/A</td>
<td>Excavate waste and contaminated soil above remediation levels. Dispose of waste and contaminated soil in the EMWMF or other approved disposal facility.</td>
<td>To remediate unit within SWSA 6 boundary.</td>
<td>CT concurs (3c). Make separate CERCLA Area. Add unit to FFA App. C.</td>
</tr>
</tbody>
</table>
Table 1. Description of the units (continued)

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<tr>
<td>N/A</td>
<td>ER Storage Bunker (7844)</td>
<td>No</td>
<td>No</td>
<td>A storage facility consisting of three concrete vaults laid on their sides (~507 ft^2) located in SWSA 6 on a hillside approximately 300 ft north of the IWMF used to store contaminated concrete block from the CERCLA demolition of the Waste Evaporator Facility (Bldg. 3506). Potential contaminants include Cs-137, Sr-90, Co-60, U, Th, and Pu. Vault TL-841 contains ~0.079 Ci. Vault TL-843 contains ~0.0085 Ci. Vault TL-844 contains ~0.57 Ci. Approximately 134 yd^3 (including 85 yd^3 of waste in the vaults) of demolition debris and waste will be generated.</td>
<td>N/A</td>
<td>Demolish storage facility. Masonry/concrete debris and stored concrete block in the vaults that is acceptable as fill material can be disposed under a SWSA 6 cap. Other demolition debris and stored block will be disposed at the EMWMF or other approved disposal facility.</td>
<td>To disposition 3506 demolition debris and storage vaults.</td>
<td>CT concurs (3c; part of SWSA 6). Make separate CERCLA Area. Add unit to FFA App. C.</td>
</tr>
</tbody>
</table>

* The Decision Number is taken from the flow diagram entitled “Process for Including Additional Units for Remediation (Revision 4)” (Fig. 2).

* Contaminated soil and masonry/concrete debris placed under caps as fill material must be protective of the maintenance worker.

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CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CH = contact handled
CT = Core Team for Melton Valley
D&D = decontamination and decommissioning
DUST = Disposal unit source term
EM = Environmental Management
EMWMF = EM Waste Management Facility
ETF = Engineered Test Facility
FFA = Federal Facility Agreement
FS = feasibility study
HF = Hydrofracture
HFIR = High Flux Isotope Reactor
LLW = low level waste
LLLW = liquid low level waste
N/A = not applicable
NHF = New Hydrofracture Facility
NRC = U.S. Nuclear Regulatory Commission
NTS = Nevada Test Site
OHF = Old Hydrofracture Facility
OU = operable unit
P&A = plugging and abandonment
PCCR = phased construction completion report
PPE = personal protective equipment
RA = remedial action
RAWP = remedial action work plan
RCRA = Resource Conservation and Recovery Act of 1976
RDR = remedial design report
RI = remedial investigation
ROD = record of decision
SLB = shallow land burial
SWMU = solid waste management unit
SWSA = solid waste storage area
TRU = transuranic
WAG = Waste Area Grouping
WHP = Waste Handling Plan

ESD for MV ROD
Fig. 2. Process for including additional units for remediation.

Decision No. | Decision Makers and Approach
--- | ---
1 | DOE/BJC determines if unit is regulated by RCRA Part B permit.
2 | TDEC Solid Waste Division approves/disapproves RCRA Part B permit modifications.
3 | Core Team determines if unit is currently addressed under CERCLA:
   (a) Is unit on FFA Appendix C or F?
   (b) Does the ROD have a specific remedial action for this unit even though it is not listed in FFA Appendix C or F?
   (c) Can the unit be considered part of a CERCLA area under remediation?
   (d) Does the unit interfere with remediation of a CERCLA area?
4 | FFA Project Managers to approve new units under CERCLA.
5 | Core Team to determine if proposed action is consistent with ROD remedy.
6 | Core Team to determine acceptability of proposed action.
7 | Core Team to determine if post-ROD change has occurred, and if so, the level of the post-ROD change. If the change is considered significant or fundamental by the Core Team, the selection of the appropriate post-ROD change documentation will be elevated to the FFA project managers.
Following are the major components of the selected remedy:

- hydraulic isolation (including various combinations of multilayer caps, upgradient diversion trenches, and downgradient collection trenches) for the major contaminant source areas in Melton Valley [e.g., Solid Waste Storage Areas (SWSAs) 4, 5, and 6, and the Seepage Pits and Trenches Area];
- disposal of contaminated soils from the lower 22 trenches in SWSA 5 North;
- in situ vitrification of two trenches in the Seepage Pits and Trenches Area;
- demolition of the majority of structures;
- removal of the High Flux Isotope Reactor (HFIR) Waste Collection Basins and the Homogeneous Reactor Experiment (HRE) Pond and surrounding contaminated soils;
- maintenance of cryogenics for the HRE pond until removal;
- plugging and abandonment of all wells that have no future use, including the hydrofracture injection and monitoring wells;
- removal or hydraulic isolation of various contaminated surface soils above remediation levels throughout Melton Valley;
- removal of floodplain soil radiologically contaminated at levels greater than 2500 μR/hour;
- removal, stabilization, or isolation of inactive waste pipelines as necessary to address contamination;
- in situ grouting of the HRE fuel wells in the Seepage Pits and Trenches Area;
- monitoring to verify the effectiveness of remedial actions and the protection of ecological receptors and to support a future decision for deferred portions of Melton Valley; and
- use of interim LUCs to restrict access to contaminated areas and groundwater.

The scope of the selected remedy does not include active facilities.

**Basis for the Document**

This section summarizes information that prompted and supports significant differences from the selected remedy (i.e., it justifies changing the selected remedy to add the remediation of 11 new units).

The 11 units were active, and therefore “out-of-scope” of the selected remedy when the various CERCLA documentation for the Melton Valley watershed, such as the MV ROD, were developed and approved. As a result of the accelerated cleanup program, these units have been, or are in the process of being, deactivated and are eligible for remediation. The remediation of some of the units is required to facilitate the implementation of the overall MV ROD remedy.

1. **LLLW Slotting Tank T-13.** Tank T-13 is located at the New Hydrofracture Facility (NHF) and was used to collect liquid waste generated during decontamination and decommissioning (D&D) of the NHF. Although NHF D&D is ongoing, it was determined that Tank T-13 was no longer needed to collect liquid wastes and could be remediated.
2-4. **Straw Shed (7831-C), SWSA 6 Staging Facility (7878), and SWSA 6 Waste Storage Facility (7842).** These three units are currently located within hydrologic isolation cap boundaries and will require demolition prior to cap installation.

5. **Epicore II Storage Building (7848).** This building was used in support of Nuclear Regulatory Commission sponsored radionuclide leachability studies. Since MV ROD approval, this activity has been completed, and the building is available for remediation.

6. **Equipment Storage Area (7841).** This storage area is required to provide a construction equipment laydown/staging area to facilitate the hydrologic isolation of the Pits and Trenches Area.

7. **T-1/T-2 Central Pumping Station (7567).** The Central Pumping Station is connected to the Tank WC-20 Vault; the inactive LLLW Tanks T-1, T-2, and HFIR; and associated piping. The vault, tanks, and piping are being or will be remediated as part of the Melton Valley Closure Project. Therefore, the Central Pumping Station that serviced these units is no longer required and is eligible for remediation.

8. **Well Drilling Steam Cleaning Area.** Remediation of this area located outside SWSA 5 South is required to facilitate implementation of the installation of the SWSA 5 South hydrologic isolation cap.

9-11. **Epicore II Contaminated Soil and Lysimeters, ER Storage Bunker (7844), and the Engineered Test Facility (ETF).** These three units are located within the SWSA 6 boundary, but do not impact cap installation. However, remediation of these three units is required to complete the remediation of the SWSA 6 area.

**Description of Significant Differences**

The overall impact of the post-ROD additions to the remedy is an incremental increase in scope and cost. Performance of the remedy remains unchanged. No new applicable or relevant and appropriate requirements (ARARs) are needed. No major change is needed to the ROD or its supporting analyses. No additional maintenance, monitoring, or land use controls, beyond those established at the watershed level or for units already under the MV ROD, are needed for any of the individual units in this ESD. Addition of this scope will not adversely impact the current Melton Valley Closure Project scope of work or completion schedule.

All of the remedial actions proposed for the additional units are consistent with the overall MV ROD remedy. Disposal of excavated contaminated soil and/or masonry/concrete demolition debris under multilayer caps being constructed in Melton Valley is included as part of the remedial action associated with some of these units. Section 1.11.1.7 of the MV ROD states that, with regulatory agency approval, excavated soil can be used as contour fill under the various multilayer caps. Although masonry/concrete debris is not addressed in this section, this material is considered to have similar engineering properties and can be used as contour fill also, subject to regulatory agency approval. Approval to place material under the caps will be obtained during the design phase of the remedial action.
The planned actions for the 11 new units are as follows:

1. **LLLW Slotting Tank T-13.** Liquids will be removed from the active LLLW Slotting Tank T-13 to the extent practicable and the remaining sludge, tank shell, and vault will be grouted in-place. Tank T-13, along with the residual sludge in the tank, was first evaluated as a candidate for stabilization, and then grouted with concurrence from the regulators as an early action in April 2004. This action was consistent with MV ROD remedial actions for underground storage tanks [e.g., in situ stabilization of the Old Hydrofracture Facility (OHF) tanks T-1, T-2, T-3, T-4, and T-9 and HRE tanks 7560 and 7562].

2. **Straw Shed (7831-C).** The Straw Shed will be demolished and the demolition debris placed under the SWSA 5 South hydrologic isolation cap. Demolition of this unit is consistent with other MV ROD remedial actions for structures such as demolition of the HRE Evaporator Facility 7502. Since the unit is within the SWSA 5 South cap footprint, disposal of demolition debris under the cap is considered an inherent part of the MV ROD remedy although not specifically stated.

3-4. **SWSA 6 Staging Facility (7878) and SWSA 6 Waste Storage Facility (7842).** These two units will be demolished to slab and the demolition debris placed under the SWSA 6 hydrologic isolation caps. Demolition of these units is consistent with MV ROD remedial actions for structures. Since these units are also within the SWSA 6 cap footprints, disposal of demolition debris under the caps is considered an inherent part of the MV ROD remedy although not specifically stated.

5. **Epicore II Storage Building (7848).** The building will be demolished following removal of miscellaneous equipment, materials, personal protective equipment, and soil samples. Demolition of this unit is consistent with MV ROD remedial actions for structures. Since this unit is not within a SWSA 6 cap footprint, waste and demolition debris will be disposed at the Environmental Management Waste Management Facility (EMWMF) or other approved disposal facility.

6. **Equipment Storage Area (7841).** All material and equipment will be removed from the Equipment Storage Area (7841). Non-recyclable equipment and material will be disposed in the EMWMF or other approved disposal facility. This remedial action is consistent with MV ROD actions for surface disposal sites (e.g., removal of the Trash Area east of HRE parking lot and the HFIR Drive Disposal Site). Contaminated soil exceeding remediation levels will be excavated and, if acceptable as fill material, disposed under hydrologic isolation caps.

7. **T-1/T-2 Central Pumping Station (7567).** The Central Pumping Station surface facilities will be demolished to slab. Subsurface structures will be grouted in-place following removal or fixation of transferable contamination. This remedial action is consistent with MV ROD actions for structures [e.g., demolition of the HRE Waste Evaporator Loading Pit (7558) and the HRE Charcoal Absorber Pit (7557)]. Masonry or concrete debris acceptable as fill material will be disposed under hydrologic isolation caps. Other demolition debris will be disposed at the EMWMF or other approved disposal facility.

8. **Well Drilling Steam Cleaning Area.** All debris and equipment will be removed from the Well Drilling Steam Cleaning Area outside of SWSA 5. Non-recyclable equipment and debris will be disposed in the EMWMF or other approved disposal facility. This remedial action is consistent with MV ROD actions for surface disposal sites. Contaminated soil “hot spots” exceeding remediation levels will be excavated and, if acceptable as fill material, disposed under hydrologic isolation caps.
9. **Epicore II Contaminated Soil and Lysimeters.** The lysimeters will be excavated and disposed at the EMWMF or other approved disposal facility. Contaminated soil exceeding remediation levels will be excavated and placed under a SWSA 6 cap if acceptable as fill material. Since this unit is not within a SWSA 6 cap footprint, the remedial action is consistent with MV ROD actions for source removal [e.g., excavation of the HFIR/TRU waste collection basins (7905, 7906, 7907, 7908) and the HRE Pond (7556)].

10. **ER Storage Bunker (7844).** The vaults will be demolished. Demolition of this unit is consistent with MV ROD actions for structures. Masonry/concrete debris from demolition of the vaults and stored concrete block within the vaults, that is acceptable as fill material, can be disposed under the SWSA 6 caps. Other demolition debris and stored block will be disposed at the EMWMF or other approved disposal facility.

11. **Engineered Test Facility (ETF).** Buried waste and contaminated soil above remediation levels will be excavated and disposed at the EMWMF or other approved disposal facility. Since this unit is not within a SWSA 6 cap footprint, the remedial action is consistent with MV ROD actions for source removal. Since this unit may be remediated following SWSA 6 cap construction, contaminated soil will be disposed in the EMWMF or other approved disposal facility rather than being used as cap contour fill.

**Cost**

The incremental capital cost associated with the remedy changes and additions is approximately $2,692,000, as shown in Table 2. This cost is approximately 1.6% of the escalated capital cost of $164,846,000 presented in the ROD. There are no additional costs for maintenance, monitoring, or land use controls associated with these units.

<table>
<thead>
<tr>
<th>Inactive units</th>
<th>Capital cost ($ thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
</tr>
<tr>
<td>LLLW Slotting Tank T-13</td>
<td>85</td>
</tr>
<tr>
<td>Straw Shed (7831-C)</td>
<td>33</td>
</tr>
<tr>
<td>SWSA 6 Staging Facility (7878)</td>
<td>208</td>
</tr>
<tr>
<td>SWSA 6 Waste Storage Facility (7842)</td>
<td>210</td>
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<tr>
<td>Epicore II Storage Building (7848)</td>
<td>32</td>
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<tr>
<td>Equipment Storage Facility (7841)</td>
<td>410</td>
</tr>
<tr>
<td>Tanks T-1/T-2 Central Pumping Station (7567)</td>
<td>121</td>
</tr>
<tr>
<td>Well Drilling Steam Cleaning Area Outside of WAG 5</td>
<td>398</td>
</tr>
<tr>
<td>Epicore II Contaminated Soil and Lysimeters</td>
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</tr>
<tr>
<td>Engineered Test Facility (ETF)</td>
<td>434</td>
</tr>
<tr>
<td>ER Storage Bunker (7844)</td>
<td>163</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2233</strong></td>
</tr>
</tbody>
</table>

Note: Cost estimates assume that remediation of the units will be performed incrementally with other Mellon Valley actions.
EPA and TDEC Comments

EPA and TDEC have participated with DOE in the development, early review, and subsequent revision of this ESD. Through signature of this document, EPA and TDEC indicate that they approve the ESD and endorse the addition of 11 units to the scope of the MV ROD selected remedy as presented in this final ESD.

Statutory Determinations

As required under CERCLA Sect. 121, the modified remedy protects human health and the environment, complies with federal and state requirements that are ARAR to the remedial action, is cost-effective, and uses permanent solutions and alternative treatment technologies to the maximum extent practicable. The remedy consists of interim actions and will be reevaluated in the future. No ARAR waivers are required for this remedy. This ESD does not affect the prior ROD determination that the remedy satisfies the statutory preference for treatment. As required by CERCLA, a review will be conducted no less often than every 5 years after initiation of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Public Participation Compliance

Prior to issuance of this ESD, DOE developed an information sheet explaining the scope of the proposed change to the MV ROD and the potential impacts to the original decision. On June 16, 2004, the Oak Ridge Site Specific Advisory Board reviewed the information sheet for clarity and completeness. The finalized information sheet was made available to the public at the DOE Information Center.

The public participation requirements set forth in 40 CFR 300.435(c)(2)(i) will be met. After approval of the ESD by the regulators, DOE will publish a public notice of availability and a brief description of the ESD in major local newspapers of general circulation. Also, the ESD will be made available to the public through placement in the Administrative Record file and the DOE Information Center.
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