ORNL/M--5442

**Removal Site Evaluation Report
on the Tower Shielding Facility
at Oak Ridge National Laboratory,
Oak Ridge, Tennessee**

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Energy Systems Environmental Restoration Program

**Removal Site Evaluation Report
for the Tower Shielding Facility
at Oak Ridge National Laboratory,
Oak Ridge, Tennessee**

Date Issued—September 1996

Prepared by
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Oak Ridge, Tennessee
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PREFACE

This document, *Removal Site Evaluation Report on the Tower Shielding Facility at Oak Ridge National Laboratory, Oak Ridge, Tennessee* (DOE/OR/01-1517&D1) was prepared in accordance with requirements under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980. This work was performed under Work Breakdown Structure 1.6.6.2.1, "Oak Ridge Reservation," and Activity Data Sheet Number OR6500FT, "Oak Ridge Reservation Facility Transition Program." Publication of this document provides the Environmental Restoration Program with information necessary to evaluate whether hazardous and/or radiological contaminants in and around the Tower Shielding Facility pose a substantial risk to human health or the environment and if remedial site evaluations or removal actions are required.

CONTENTS

PREFACE	iii
ABBREVIATIONS	vii
EXECUTIVE SUMMARY	ix
1. INTRODUCTION	1-1
2. SUMMARY OF REMOVAL SITE EVALUATIONS	2-1
2.1 BUILDING 7700A — BIG BEAM SHIELD	2-1
2.2 BUILDING 7700B — OUTSIDE SOURCE STORAGE AREA	2-1
2.3 BUILDING 7701 — TSF REACTOR HANDLING POOL	2-1
2.3 BUILDING 7702 — CONTROL HOUSE	2-1
2.4 BUILDING 7703 — HOIST HOUSE	2-2
2.5 BUILDING 7704 — CONTROL HOUSE 2	2-2
2.6 BUILDING 7705 — PUMP HOUSE	2-3
2.7 BUILDING 7706 — COOLER	2-3
2.8 BUILDING 7707 — BATTERY HOUSE	2-3
2.9 BUILDING 7708 — SHIELDING STORAGE BUILDING	2-4
2.10 BUILDING 7716 — FILTER PUMP HOUSE, MAIN POOL	2-4
2.11 BUILDING 7720 — CIVIL DEFENSE BUNKER	2-4
2.12 SCRAPYARD	2-5
3. BUILDING 7700—TOWER SHIELDING FACILITY	3-1
4. BUILDING 7700A—TOWER SHIELDING FACILITY BIG BEAM SHIELD	4-1
5. BUILDING 7700B—TOWER SHIELDING FACILITY OUTSIDE SOURCE STORAGE AREA	5-1
6. BUILDING 7701— TOWER SHIELDING FACILITY PAD AND REACTOR HANDLING POOL	6-1
7. BUILDING 7702 —TOWER SHIELDING FACILITY CONTROL HOUSE	7-1
8. BUILDING 7703 —TOWER SHIELDING FACILITY HOIST HOUSE	8-1
9. BUILDING 7704— TOWER SHIELDING FACILITY CONTROL HOUSE 2	9-1
10. BUILDING 7705—TOWER SHIELDING FACILITY PUMP HOUSE	10-1

11. BUILDING 7706—TOWER SHIELDING FACILITY COOLER	11-1
12. BUILDING 7707—TOWER SHIELDING FACILITY BATTERY HOUSE	12-1
13. BUILDING 7708—TOWER SHIELDING FACILITY SHIELDING STORAGE BUILDING (BUTLER BUILDING)	13-1
14. BUILDING 7716—TOWER SHIELDING FACILITY FILTER PUMP HOUSE, MAIN POOL	14-1
15. BUILDING 7720—CIVIL DEFENSE BUNKER TOWER SHIELDING FACILITY	15-1

ABBREVIATIONS

ACM	asbestos containing material
CFR	<i>Code of Federal Regulations</i>
D&D	Decontamination and Decommissioning
FPDL	Fission Products Development Laboratory
HAZMAT	hazardous material
HEPA	high-efficiency particulate air (filter)
HSRD	Health Sciences Research Division
IFDP	Isotopes Facilities Deactivation Project
KEF	Krypton-85 Enrichment Facility
LBP	lead-based paint
LLLW	liquid low-level (radioactive) waste
LMES	Lockheed Martin Energy Systems, Inc.
ORNL	Oak Ridge National Laboratory
PCB	polychlorinated biphenyl
RAD	radiologic
RCRA	Resource Conservation and Recovery Act
RDL	Radioisotope Development Laboratory
RmSE	removal site evaluation
RSE	remedial site evaluation
S&M	surveillance and maintenance
TCLP	Toxicity Characteristic Leaching Procedure
WAG	waste area grouping
WOC	White Oak Creek

EXECUTIVE SUMMARY

This removal site evaluation report for the Tower Shielding Facility at Oak Ridge National Laboratory was prepared to provide the Environmental Restoration Program with information necessary to evaluate whether hazardous and/or radiological contaminants in and around the Tower Shielding Facility pose a substantial risk to human health or the environment (i.e., a high probability of adverse effects) and if remedial site evaluations or removal actions are, therefore, required. The scope of the project included (1) a review of historical evidence regarding operations and use of the facility; (2) interviews with facility personnel concerning current and past operating practices; (3) a site inspection; and (4) identification of hazard areas requiring maintenance, removal, or remedial actions.

Based on the findings of this removal site evaluation, adequate efforts are currently being made at the TSF to contain and control existing contamination and hazardous substances on site in order to protect human health and the environment. No conditions requiring maintenance or removal actions to mitigate imminent or potential threats to human health and the environment were identified during this evaluation. Given the current conditions and status of the buildings associated with the TSF, this removal site evaluation is considered complete and terminated according to the requirements for removal site evaluation termination set forth in 40 CFR 300.410(e).

1. INTRODUCTION

A removal site evaluation (RmSE) is required by the regulators for all facilities in the Nuclear Material and Facility Stabilization (EM-60) Program included in Appendix C of the Federal Facility Agreement. Between June 17 and July 3, 1996, a removal site evaluation was conducted on the Tower Shielding Facility. The results of the evaluation are presented in Sect. 2 of this report, and the more detailed RmSE information form is presented in Sect. 3.

2. SUMMARY OF REMOVAL SITE EVALUATIONS

2.1 BUILDING 7700A — BIG BEAM SHIELD

Building 7700A houses the TSR-II reactor. Reactor support systems remain operational due to the presence of fuel in the reactor core. The building and reactor are currently in an inactive, standby mode awaiting entry into the D&D Program. There are no current operations, other than surveillance and maintenance (S&M) activities, associated with this building. This building is secured from access and the reactor is monitored and maintained remotely.

There were no imminent hazard areas requiring maintenance actions identified to be associated with Building 7700A during this removal site evaluation. Due to potential for exposure to ionizing radiation from the reactor, the building is designated as a radiologic (RAD) hazard area.

Current actions being taken to maintain Building 7700A and the reactor in a safe state are considered adequate until D&D activities begin.

2.2 BUILDING 7700B — OUTSIDE SOURCE STORAGE AREA

Building 7700B is actually a small underground storage area which contains eight two-inch pipes used to store a small quantity of transuranic material. The pipes are buried under five feet of earth and capped with a concrete slab.

There were no imminent hazard areas requiring maintenance actions identified to be associated with Building 7700B during this removal site evaluation. The material in storage is inaccessible and represents no immediate hazard to workers at the TSF.

Current actions being taken to maintain this material and Building 7700B in a safe state are considered adequate until D&D activities begin.

2.3 BUILDING 7701 — TSF REACTOR HANDLING POOL

Building 7701 is actually the TSF Reactor Handling Pool. There are currently no activities other than S&M associated with the handling pool. There were no imminent hazard areas requiring maintenance actions identified to be associated with the pool during this removal site evaluation. The pool reportedly contains clean water and is currently capped with a concrete slab. No hazardous substances were identified to be currently stored in the pool.

Current actions being taken to maintain the handling pool in a safe state are considered adequate until D&D activities begin.

2.3 BUILDING 7702 — CONTROL HOUSE

Building 7702 is the main control center for TSF operations. There are currently no activities ongoing in this building other than S&M. The building primarily contains reactor control and monitoring equipment as well as equipment which controls the tower hoists.

There were no imminent hazard areas requiring maintenance actions identified to be associated with Building 7702. Hazardous substances and areas within the building are safely stored and/or maintained. The building is occupied with two full-time and one part-time personnel.

Current actions being taken to maintain hazardous substances and areas associated with Building 7702 in a safe state are considered adequate until D&D activities begin.

2.4 BUILDING 7703 — HOIST HOUSE

Building 7703 contains the drums, motors, and associated mechanical equipment for the TSF hoist system. The building contains six hoists which are controlled from within Building 7702. The hoists are currently inactive and there are no activities within the building other than S&M.

There were no imminent hazard areas requiring maintenance actions identified to be associated with Building 7703. Small quantities (i.e., less than 5 gallons or 100 pounds) of miscellaneous hazardous materials used for S&M activities are safely stored in a flammable cabinet within the building. The building is unoccupied.

Current actions being taken to maintain hazardous substances and areas associated with Building 7703 in a safe state are considered adequate until D&D activities begin.

2.5 BUILDING 7704 — CONTROL HOUSE 2

Building 7704 is a service and shop area adjacent to Building 7702. The two buildings are connected by a common hallway. The building contains various active equipment and instrumentation necessary to support TSF S&M activities, and inactive equipment and instrumentation used to support TSF during operations. There are currently no activities within the building other than S&M.

There were no imminent hazard areas requiring maintenance actions identified to be associated with Building 7704. Small quantities (i.e., items of less than 5 gallons or 100 pounds) of miscellaneous hazardous materials used for S&M activities are safely stored in a flammable cabinet within the building. There is also a Resource Conservation and Recovery Act (RCRA) satellite accumulation area consisting of a single 55-gallon collection drum within the building which is used to collect hazardous waste generated as a result of S&M activities. The wastes are segregated into individual containers within this drum which acts as an overpack. According to the Interim Facility Manager, hazardous waste is generated in such small quantities at the TSF that this drum has not had to be emptied for a few years. The building is occupied by personnel as necessary to conduct S&M activities.

Current actions being taken to maintain hazardous substances and areas associated with Building 7704 in a safe state are considered adequate until D&D activities begin.

2.6 BUILDING 7705 — PUMP HOUSE

Building 7705 contains equipment associated with the reactor cooling water system. The cooling water system remains active to support the reactor during the shutdown period due to the presence of fuel in the reactor core.

There were no imminent hazard areas requiring maintenance actions identified to be associated with Building 7705. There was one small area of RAD contamination associated with a leaky piece of equipment which was clearly marked. It is suspected that the cooling water system piping and components may be internally contaminated with RAD material; however, no information was available to adequately confirm or deny this suspicion. The building is unoccupied and accessed only to perform S&M activities.

Current actions being taken to maintain equipment and potentially hazardous substances and areas associated with Building 7705 in a safe state are considered adequate until D&D activities begin.

2.7 BUILDING 7706 — COOLER

Building 7706 contains the heat exchanger and associated equipment for the reactor cooling water system. The cooling water system remains active to support the reactor during the shutdown period due to the presence of fuel in the reactor core.

There were no imminent hazard areas requiring maintenance actions identified to be associated with Building 7706. It is suspected that the cooling water system piping and components may be internally contaminated with RAD material; however, no information was available to adequately confirm or deny this suspicion. The building is unoccupied and accessed only to perform S&M activities.

Current actions being taken to maintain equipment and potentially hazardous substances and areas associated with Building 7706 in a safe state are considered adequate until D&D activities begin.

2.8 BUILDING 7707 — BATTERY HOUSE

Building 7707 contains rectifiers and lead-acid batteries used for backup power at the TSF. This equipment remains active and available as an alternate power source, if required.

There were no imminent hazard areas requiring maintenance actions identified to be associated with Building 7707. The main hazard associated with the building is the presence of lead-acid batteries which are in good condition. The building is unoccupied and accessed only to perform S&M activities.

Current actions being taken to maintain equipment and hazardous substances and areas associated with Building 7707 in a safe state are considered adequate until D&D activities begin.

2.9 BUILDING 7708 — SHIELDING STORAGE BUILDING

Building 7708 is a storage warehouse used to store shielding blocks and miscellaneous items and equipment.

There were no imminent hazard areas requiring maintenance actions identified to be associated with Building 7708. The main hazardous inventory in the building consists of large amounts of sodium (Na) and lithium hydride (LiH) present in the shielding blocks. Areas containing items which have been confirmed or suspected to be radiologically contaminated are clearly marked within the building. The building is unoccupied and accessed only to perform S&M activities.

Current actions being taken to maintain hazardous substances and areas associated with Building 7708 in a safe state are considered adequate until D&D activities begin.

2.10 BUILDING 7716 — FILTER PUMP HOUSE, MAIN POOL

Building 7716 contains equipment which was previously used to filter and purify the water contained in the TSF Reactor Handling Pool. This equipment currently remains inactive and shutdown. There are no activities currently on-going in this building.

There were no imminent hazard areas requiring maintenance actions identified to be associated with Building 7716. In addition, no hazardous substances or areas were identified to be associated with this building. The building is unoccupied and accessed only to perform S&M activities.

Current actions being taken to maintain equipment associated with Building 7716 in a safe state are considered adequate until D&D activities begin.

2.11 BUILDING 7720 — CIVIL DEFENSE BUNKER

The Civil Defense Bunker (CDB) was constructed for research purposes in studying the effects that radiation had on structures of similar construction. Concrete shielding blocks were placed in front of this bunker and the bunker was subsequently bombarded with radiation from an external radiation source. The CDB currently remains empty and has reportedly never been used for anything other than shielding experiments.

There were no imminent hazard areas requiring maintenance actions identified to be associated with the CDB. The concrete shielding blocks remaining in the opening of the bunker have been activated as a result of past radiation experiments; however, they represent no immediate threat in their current state. The bunker is unoccupied.

Current actions being taken to maintain the CDB in a safe state are considered adequate until D&D activities begin.

2.12 SCRAPYARD

The TSF Scrapyard is located at the south side of the facility and contains six control balls from the reactor which sit in an open tank filled with water. The Scrapyard also contains a variety of other metal items which were activated by the neutron flux of the reactor.

There were no imminent hazard areas requiring maintenance actions identified to be associated with the Scrapyard. There activated items currently stored in this area present no immediate threat to workers at the TSF or the surrounding environment in their current state. This area is marked off as a radiation control area.

3. BUILDING 7700—TOWER SHIELDING FACILITY

ORNL FACILITY RmSE INFORMATION FORM

General Information	
<i>Area/Facility Name (and aliases):</i> Building 7700 Tower Shielding Facility (TSF)	
<p>Note: This is a summary form representing the entire TSF, including the scrapyard. Additional information regarding TSF support buildings evaluated as part of this RmSE is provided on building-specific forms included with TSF RmSE Report.</p>	
<p><i>Organization responsible for area/facility (include specific person and phone number if possible):</i> K. Constant (241-3146), HRFDP Project Manager, ER Program, LMES</p>	
<i>Status (active/inactive):</i> Inactive, Standby Mode	<i>Years of Operation:</i> ~ 40
<p><i>Description of Operation:</i></p> <p>There are no current operations, other than surveillance and maintenance (S&M) and deactivation activities, on-going at the TSF and associated buildings/structures.</p> <p>The TSF was constructed in 1953 and was used for a number of radiation shielding research projects and experiments until 1992. Four reactors have been operated at the TSF: the Tower Shielding Reactor (TSR-I); the spherically symmetric Tower Shielding Reactor (TSR-II); the Aircraft Shield Test Reactor (ASTR); and the Space Nuclear Auxiliary Power (SNAP) reactor. These reactors were used to study the radiation shielding capabilities of various materials and equipment at ground level and elevated positions. All research operations were ceased in 1992 and the TSF was placed in an inactive, standby mode. The TSR-II reactor remains inactive and loaded with fuel at the TSF. All other reactors and associated fuel were removed from the TSF when their operation ceased. Although this facility is currently shutdown, it reportedly remains fully functional and capable of supporting shielding experiments.</p>	

Physical description of area/facility:

- The TSF is located in a remote area of ORNL approximately 2.3 miles south-southeast of the Main Plant area. The facility sits on a knoll at an elevation of approximately 1069 feet above sea-level surrounded by forest. The facility consists of four 315 foot high steel tower structures which form a 100-ft by 200-ft rectangle, and a number of small ancillary support structures/areas as follows:

Building 7700A	Big Beam Shield
Building 7700B	Outside Source Storage Area (OSSA)
Building 7701	TSF Pad and Reactor Handling Pool (approx. 82,000 gallon capacity)
Building 7702	Control House
Building 7703	Hoist House
Building 7704	Control House 2
Building 7705	Pump House
Building 7706	Cooler
Building 7707	Battery House
Building 7708	Shielding Storage Facility (Butler Building)
Building 7716	Filter Pump House (TSF Pool)

Physical description of area/facility (continued):

There is also an experimental Civil Defense Bunker and Scrapyard located at the facility.

- The facility is surrounded by a security fence to restrict access. Personnel are required to check in and out at a security check point upon entering and exiting the facility.
- The facility is occupied by two full-time personnel responsible for conducting S&M activities and maintaining the TSF. Also, one health-physics personnel is present on a part-time basis.
- An illustration of the facility is attached to this form for reference.

Release Information*Description of release, or threatened release, and source:*

With the exception of a few localized areas of low-level residual radiologic (RAD) surface contamination associated with equipment in some ancillary buildings (see individual building RmSE information forms), no adverse release (i.e., threatening to human health and/or the environment) or immediate potential for adverse release of hazards substances was identified at the TSF during this RmSE. Any existing contamination associated with equipment at the facility has accumulated from various experimental operations at the facility and, therefore, cannot be attributed to a single release episode or source.

Hazardous substances present:

A number of hazardous substances remain in inventory at the TSF. These substances primarily include radioactive materials, metals, and miscellaneous hazardous materials (HAZMATs). The materials of greatest concern are the large quantities of sodium (Na) and lithium hydride (LiH) on site because of their violent reactivity with water. These substances are stored in various locations and buildings throughout the facility as indicated in the next section (also, see individual building RmSE information forms).

Transformers containing polychlorinated bi-phenols (PCBs) are present in Building 7702 and various outdoor areas on site. Information regarding these transformers is provided on the attached ORNL transformer inventory reports. These transformers are reportedly labeled and no "leakers" were identified.

There is also a Resource Conservation and Recovery Act (RCRA) hazardous waste satellite accumulation area located in Building 7704 and used oil accumulation areas located adjacent to the Big Beam Shield on the TSF pad and in Building 7703. All of these areas consist of a single 55-gallon drum for collection of small quantities of waste generated during some S&M activities which is subsequently removed from the facility as necessary.

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

No information concerning the quantity of RAD contamination existing at the TSF was identified during this RmSE. However, there are a number of hazardous substances in inventory that have the potential to be released if improperly handled, controlled, or maintained. These substances are summarized as follows:

Spent Fuel:

- 8.4 kg of uranium is present in the fuel remaining loaded in the TSR-II reactor core which is housed in the Big Beam Shield (7700A). This fuel has reportedly been in place for approximately 35 years.

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released: (continued)

Radioactive Sources:

- 9 g of transuranic material (composed mostly of ^{241}Am and ^{239}Pu) are stored underground in eight 2-inch diameter stainless steel pipes at the Outside Source Storage Area (7700B).
- A fission chamber and sources are stored in a locked hallway safe between Buildings 7702 and 7704 and a secured area within Building 7704.

Depleted Uranium:

- Depleted uranium is stored in Building 7708; one shield is located in an outdoor storage area south of the TSF pad. The quantity of this material has reportedly not been determined.

Sodium:

- Approximately 55 tons of Na are contained in 45 shielding blocks stored at the TSF. Four of the blocks (containing approximately 80% of the total quantity of Na) are stored in an outdoor storage area south of the TSF pad. The remainder of the blocks are located within Building 7708. Eighteen of the blocks containing 19 tons of Na are not RAD contaminated; eleven blocks contain 33 tons of Na which is contaminated with ^{22}Na ; sixteen blocks containing 2 tons of Na are stored in activated cans.

Lithium Hydride:

- Approximately 2.5 tons of LiH are contained in nine shielding blocks located within Building 7708. Seven of these blocks containing 2 tons of LiH are not RAD contaminated. The remaining two blocks contain 0.5 ton of LiH which may be contaminated with tritium. There is one additional shielding block containing an unknown quantity of LiH located in the outdoor storage area to the south of the TSF pad.

Miscellaneous Materials:

- 1.53 lbs lithium stored in 3 metal containers in Building 7702.
- Approximately 70 tons lead (slabs, bricks, shot, shapes)- primarily in outdoor storage area at the south end of the TSF pad. Lead is also present in the lead-acid batteries located in Building 7707 which provide backup power to the TSF. No quantity information was identified for the lead in these batteries; however, the quantity is estimated to be less than 1 ton based on visual inspection.
- The majority of the following are also stored in the outdoor storage area at the south end of the TSF pad: 1.1 tons copper (slabs); 2.6 tons hevimet (slab); 1 ton bismuth (slabs); 6 tons boron carbide (shields); 500 lbs boral (sheet); 880 lbs zirconium (slab); 8.8 tons thorium oxide (shields); and 500 lbs cadmium (shields).
- Small quantities (i.e., less than 5 gallons or 100 lbs) of miscellaneous HAZMATs (pesticides, solvents, lubricants, etc.) are also located in various areas of the facility (see individual building RmSE information forms).

Other pollutants or contaminants:

Asbestos containing material, primarily in the form of thermal system insulation, is present in some buildings at the TSF (see individual building RmSE information forms). Based on the age of this facility, painted surfaces of buildings and structures are assumed to be lead-containing. Verification samples are taken by ORNL Lead Management Program personnel on an "as-needed" basis to confirm the presence of lead in the paint (i.e., when work activities will disturb the paint, or paint is found to be deteriorating and poses a health or environmental threat). There are currently two dismantled instrument towers laying on the ground at the north end of the facility awaiting removal. Paint on these towers has been tested and found to be positive for lead according to the ORNL Lead Program Manager. No conditions presenting an immediate threat of lead impact to the soil was identified to be associated with these towers. The remaining painted surfaces throughout the facility were observed to be in fair to good condition. No areas of deteriorating paint presenting an immediate threat to human health and/or the environment were identified at the TSF (see individual building RmSE information forms for building-specific details).

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

With the exception of domestic sewer, which discharges to a local septic system, all liquid waste from facility operations drains to an above ground storage tank located at the west side of the facility. Waste from this tank is sampled for hazardous constituents prior to being emptied. Contaminated waste is removed from the facility by tanker truck for proper treatment and disposal. Uncontaminated waste is discharged to the environment at the TSF.

No information or data was identified during this RmSE to adequately confirm or deny the presence of groundwater contamination in the TSF area. However, no reasonable evidence was identified during this RmSE to suggest that groundwater has been adversely impacted as a result of historical operations and/or use of the facility. Additionally, no existing conditions presenting an immediate threat to groundwater were identified to be currently associated with the TSF.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Uncontaminated process waste and stormwater runoff are discharged directly to the surrounding environment at the TSF. No information or data was identified during this RmSE to adequately confirm or deny the presence of surface water contamination in the area surrounding the TSF. However, no reasonable evidence was identified to suggest that surface water in the area surrounding the TSF has been adversely impacted as a result of historical operations and/or use of the facility. Additionally, no existing conditions presenting a significant threat to surface water were identified to be currently associated with the TSF.

Air

Are there any suspected impacts due to air emissions? If yes, please describe.

There are currently no activities or operations threatening to air quality on-going at the TSF. Dosimeters and monitors are installed around the facility to detect any airborne release of radioactive material. A potential for impact to air quality exists due to the presence of radioactive inventory and areas of contamination at the facility if these materials and areas are not properly contained, controlled, or maintained. No conditions presenting an immediate threat to air quality were identified to be currently associated with the TSF during this RmSE.

A potential also exists for impact to indoor air quality due to the presence of ACM and assumed lead-based paint (LBP) in some buildings (see individual building RmSE information forms) should these materials be improperly disturbed. The ACM and assumed LBP remaining in buildings at the TSF are not considered to be immediate threats to indoor air quality in their current state.

Soil

Are there any suspected impacts to soil? If yes, please describe.

Other than the analysis results of a soil sample taken recently at the exit of the west silo drain, which showed only background levels of transuranics, alpha, and beta, no significant information or data was identified during this RmSE to adequately confirm or deny the presence of soil contamination at the TSF. A potential exists, however, for soils in the immediate area of the Scrapyard to be contaminated as a result of items stored in this area throughout the years. No existing conditions presenting an immediate significant threat to soils were identified to be currently associated with the Scrapyard or TSF.

There is also a potential for areas of soil adjacent to painted buildings and structures at the TSF to be impacted from lead if, in fact, exterior paint is found to be lead-containing. Deteriorating paint could dislodge from the surface and fall to the soil below. No areas of significant deterioration posing an immediate threat to soils were observed on painted structures at the TSF.

Release Beyond Facility or Reservation Boundaries

Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).

The following are considered potential scenarios where radiologic contamination could migrate beyond the facility or reservation boundaries:

- A person becomes inadvertently contaminated from residual surface contamination and leaves the facility/reservation undetected.
- An animal enters the scrapyard, comes in contact with contaminated equipment/items, and leaves the area carrying contamination either externally or internally.
- Catastrophic failure of the buildings/structures containing radiologic/chemical inventory, contaminated surfaces, or contaminated equipment.
- Catastrophic failure of contaminated Na and LiH shields currently in storage.

There is also a potential for assumed lead-containing paint which peels off the building to be carried away from the facility and off-site with surface runoff during a rain event. Though these potentials exist, they are considered slight and unlikely due to the current status and condition of the facility and the engineering/ administrative controls that are in place to protect against such an event.

Worker Safety

Could the release pose a threat to workers? If yes, please describe.

Known and suspected RAD contaminated areas and equipment are isolated and well marked throughout the TSF. Good radiation practices and standard operating procedures governing activities throughout the facility are enforced for worker safety. The TSF is located in a "secured" area surrounded by a security fence. Personnel exiting contaminated areas of the facility are required to "frisk" themselves to detect the presence of RAD contamination. Monitors, alarms, and dosimeters are in place around the facility to detect any radioactive release on site. Asbestos containing material remaining in buildings and PCB-containing items are appropriately labeled. Access to the TSF is controlled and personnel are required to log in and out at a guard house upon entering and exiting the facility. However, even with these safeguards in place, a potential threat to workers exists if safety measures are overlooked. This potential is not considered significant given the current status and level of activity at the facility.

Environmental Receptors

Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.

A potential exists for animals which wander into the Scrapyard to become contaminated as a result of contact with contaminated equipment/items in storage at the scrapyard. No items or areas containing transferable radiologic contamination were identified to be presently associated with scrapyard; therefore, this potential is considered slight.

No other existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with the TSF.

Mitigation

What action(s) might be taken to abate/prevent release or impacts from release?

- Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities at the TSF.
- Continue S&M activities per TSF Surveillance and Maintenance Work Plan, ORNL/RRD/INT-88/R1.

What actions are currently being taken to abate/prevent release or impacts from release?

Engineering and administrative controls are in place to control access to the TSF, radiologic inventory, HAZMAT inventory, and contaminated areas; to monitor conditions and activities at the facility; and to contain hazardous substances located on site for worker and environmental protection. Warning signs and labels are posted throughout the facility indicating RAD, ACM, and PCB hazard areas and equipment. Standard operating procedures are in place for facility S&M and deactivation activities to protect against inadvertent contact and disturbance of contaminated areas and materials. Radiologically contaminated areas are monitored periodically by ORNL health physics personnel. Personnel are "frisked" upon exit of contaminated areas to detect the presence of radiologic contamination. The TSF is currently shut down and in S&M status awaiting entry into the Decontamination and Decommissioning (D&D) Program; however, reactor support systems remain operational to maintain reactor conditions due to the presence of fuel in the reactor core. Structures and storage devices at the TSF are inspected periodically for structural integrity to identify any degradation that may allow contamination to be released.

Current actions being taken to prevent further release and ensure worker safety in at the TSF are considered adequate until D&D activities begin.

Other Environmental Authorities

Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.

If paint associated with any of the buildings/structures at TSF is found to be lead-containing and samples fail the Toxicity Characteristic Leaching Procedure (TCLP) analysis, the facility could qualify as a hazardous waste generator point under the Resource Conservation and Recovery Act (RCRA).

Also, depending on the disposition of HAZMATs currently stored at the TSF, the facility could potentially be subject to RCRA disposal regulations.

Maintenance Actions

Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.

No potential hazards requiring maintenance actions were identified to be currently associated with the TSF.

Removal Actions

Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.

No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with the TSF.

Remedial Site Evaluation

Is a Remedial Site Evaluation needed?

The potential for soil contamination exists in and around the Scrapyard due to items historically stored in this area. Therefore, it is recommended that some type of remedial investigation/evaluation be performed to assess the condition of the soil in this area prior to conducting any activities which involve disturbing the soil.

Asbestos containing materials and PCB-containing items have also been identified, marked and documented throughout the facility. No further remedial investigation involving these hazards is considered necessary.

Based on the age of the facility, painted surfaces are assumed to contain lead. Samples of the paint should be taken and analyzed to verify the presence of lead prior to conducting any S&M or D&D activities which may disturb these assumed areas.

No Further Investigation

Is a finding of No Further Investigation appropriate? Please explain.

A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Since the TSF contains substances and materials which may become threatening if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.

Additional Comments

The following documents and databases were referenced for historical and hazard information related to the TSF:

- Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322.
- TSF Occurrence Reports.
- Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1.
- ORNL Hazardous Material Information System Database.
- ORNL PCB Inventory Database.
- EM60 Facility Inventory and Assessment Database.

The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:

- Mr. Bill Hill, Interim Facility Manager, TSF.
- Mr. Butch Fancher, Facility Manager (in training), TSF.
- Ms. Swati Wilson, Manager, ORNL Lead Management Program.
- Mr. Nathan Dunn, Hazardous Material Information System Office.
- Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

Advanced Sciences, Inc.
800 Oak Ridge Turnpike, Suite C-102
Oak Ridge, TN

Evaluator's Signature

Date

Oak Ridge National Laboratory
Transformer Inventory
Pad-Mount Transformers

Division No. and Name: 21 Plant & Equipment

Division Director's Signature: _____

Environmental Protection Officer: J M Hackworth, Jr.

Responsible Person's Signature: _____

Quan.	Unique No.	Description/ ID No.	Location	Label	Capacity (gal.)	Capacity (kg)	PCB Concentration (ppm)	Person Responsible
1	21056	LINE MATERIAL 100 KVA 1337045	7003 27-8	YES BLUE/WHITE	60.00	227.12	< 5.00	K P NORRIS
1	21057	LINE MATERIAL 100 KVA 1337042	7003 27-8	YES BLUE/WHITE	60.00	227.12	< 5.00	K P NORRIS
1	21058	LINE MATERIAL 100 KVA 1331476	7003 27-8	YES BLUE/WHITE	60.00	227.12	< 5.00	K P NORRIS
1	21063	GE 50 KVA N150895	7012	YES BLUE/WHITE	35.00	132.49	< 50.00	K P NORRIS
1	21064	GE 50 KVA N151527	7012	YES BLUE/WHITE	35.00	132.49	< 50.00	K P NORRIS
1	21065	GE 50 KVA N151528	7012	YES BLUE/WHITE	35.00	132.49	< 50.00	K P NORRIS
1	21062	CENTRAL 167 KVA 3376-1	7012 27-10	YES BLUE/WHITE	70.00	264.98	< 5.00	K P NORRIS
1	21066	CENTRAL 167 KVA 3376-2	7012 27-10	YES BLUE/WHITE	70.00	264.98	< 5.00	K P NORRIS
1	21067	CENTRAL 167 KVA 3376-3	7012 27-10	YES BLUE/WHITE	70.00	264.98	< 5.00	K P NORRIS
1	21209	UPTGRAFF 1500 KVA 75474	7503 234-9	YES BLUE/WHITE	422.00	1597.44	< 5.00	K P NORRIS
1	21515	WESTINGHOUSE 1500 KVA SCV0999-01	7602 264-16	YES BLUE/WHITE	283.00	1071.27	< 5.00	K P NORRIS
1	21211	GE 2000 KVA L246058	7602 264-17	YES BLUE/WHITE	258.00	976.63	< 5.00	K P NORRIS
TSF 1	21212	AC 50 KVA 2648913	7700 234-22	YES BLUE/WHITE	42.00	158.99	< 50.00	K P NORRIS
TSF 1	21213	WAGNER 167 KVA M9D1623	7700 234-23	YES BLUE/WHITE	145.00	548.88	25.00	K P NORRIS
TSF 1	21214	WAGNER 167 KVA M9D1625	7700 234-23	YES BLUE/WHITE	145.00	548.88	27.00	K P NORRIS
TSF 1	21215	WAGNER 167 KVA M9D1621	7700 234-23	YES BLUE/WHITE	145.00	548.88	28.00	K P NORRIS
TSF 1	21216	GE 75 KVA C547540	7700 234-24	YES BLUE/WHITE	42.00	158.99	42.00	K P NORRIS

Oak Ridge National Laboratory
Transformer Inventory
Pad-Mount Transformers

Division No. and Name: 21 Plant & Equipment

Division Director's Signature: _____

Environmental Protection Officer: J M Hackworth, Jr.

Responsible Person's Signature: _____

Quan.	Unique No.	Description/ ID No.	Location	Label	Capacity (gal.)	Capacity (kg)	PCB Concentration (ppm)	Person Responsible
TSF 1	21217	GE 75 KVA C547546	7700 234-24	YES GREEN/WHITE	42.00	158.99	51.00	K P NORRIS
TSF 1	21500	GE 75 KVA C566436	7700 234-24	YES GREEN/WHITE	42.00	158.99	232.00	K P NORRIS
1	21219	GE 1000 KVA 7731582	7710 234-15	YES BLUE/WHITE	500.00	1892.70	16.00	K P NORRIS
1	21220	WESTINGHOUSE 225 KVA 77M615179	7831 35-11	YES BLUE/WHITE	60.00	227.12	< 5.00	K P NORRIS
1	21222	SQUARE D 500 KVA 776002228	7860 7-45	YES BLUE/WHITE	225.00	851.72	< 5.00	K P NORRIS
1	21103	GE 1000 KVA 13.8 KV 7367549	7901 911-1	YES NO PCBS	650.00	2460.51	< 2.00	K P NORRIS
1	21224	GE 1000 KVA 7731801	7901	YES BLUE/WHITE	500.00	1892.70	4.40	K P NORRIS
1	21225	GE 1000 KVA 7731581	7901	YES BLUE/WHITE	500.00	1892.70	3.60	K P NORRIS
1	21226	GE 1000 KVA 7373793	7901	YES BLUE/WHITE	500.00	1892.70	3.60	K P NORRIS
1	21227	AC 5000 KVA 2371103	7901	YES NO PCBS	1297.00	4909.66	< 2.00	K P NORRIS
1	21228	AC GRN XFMR 3428808	7901	YES BLUE/WHITE	200.00	757.08	15.00	K P NORRIS
1	21229	WESTINGHOUSE 1500 KVA 7022144	7920 294-1	YES BLUE/WHITE	275.00	1040.99	38.00	K P NORRIS
1	21002	AC 7.5 KVA 1827783	PINE PLANT. 35-68	YES NO PCBS	5.00	18.93	< 2.00	K P NORRIS

TOTAL NO. OF PAD-MOUNT TRANSFORMERS = 81

Green/White = 5
Blue/White = 67
No PCBS = 9

**4. BUILDING 7700A—TOWER SHIELDING FACILITY
BIG BEAM SHIELD**

ORNL FACILITY RmSE INFORMATION FORM

General Information	
<p><i>Area/Facility Name (and aliases):</i> Building 7700A Tower Shielding Facility (TSF) Big Beam Shield</p>	
<p><i>Organization responsible for area/facility (include specific person and phone number if possible):</i> K. Constant (241-3146), HRFDP Project Manager, ER Program, LMES</p>	
<p><i>Status (active/inactive):</i> Inactive, Standby Mode</p>	<p><i>Years of Operation:</i> ≈ 40</p>
<p><i>Description of Operation:</i></p> <p>There are no current operations, other than surveillance and maintenance (S&M) and deactivation activities, on-going at the TSF and associated buildings/structures.</p> <p>The Big Beam Shield (Building 7700A) is used to contain the TSR-II reactor. The reactor currently sits idle in the building; however, reactor support systems remain operational due to the presence of fuel in the reactor core.</p>	
<p><i>Physical description of area/facility:</i></p> <ul style="list-style-type: none"> • The Big Beam Shield is located between the two western legs of the TSF tower structure at pad level. • The building consists of 196 sq. ft., is 10 ft. high. • The building is constructed of deep reinforced concrete on all sides and is not painted. • The area surrounding the building is concrete. • The building is secured from access. • The roof of the building consists of prefabricated steel. 	
Release Information	
<p><i>Description of release, or threatened release, and source:</i></p> <p>No existing or past releases of hazardous substances were identified to be associated with Building 7700A. The potential for a radiologic (RAD) release exists due to the presence of fuel in the reactor core. Aside from catastrophic failure of the Big Beam Shield, this potential is considered to be slight given the current status and condition of Building 7700A and the TSF.</p>	
<p><i>Hazardous substances present:</i></p> <p>The only hazardous substance identified to be currently associated with Building 7700A is the fuel loaded in the TSR-II reactor core.</p>	

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

Refer to TSF summary form for quantity of fuel remaining in the reactor. The amount of RAD contamination within Building 7700A is uncertain.

Other pollutants or contaminants:

No other existing or potential pollutants or contaminants were identified to be currently associated with Building 7700A.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts.

Air

Are there any suspected impacts due to air emissions? If yes, please describe.

Refer to Air section of TSF summary form for discussion of potential air quality impacts.

Soil

Are there any suspected impacts to soil? If yes, please describe.

Refer to Soil section of TSF summary form for discussion of potential soil impacts.

Release Beyond Facility or Reservation Boundaries

Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).

Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.

Worker Safety

Could the release pose a threat to workers? If yes, please describe.

The fuel remaining in the TSR-II reactor does not pose an immediate threat to worker safety in its current state. The reactor is shielded by Building 7700A (Big Beam Shield) and support systems remain operational to maintain the reactor in a safe state. Good radiation practices and standard operating procedures governing activities involving Building 7700A and the reactor are enforced for worker safety. The TSF is located in a "secured" area surrounded by a security fence. Monitors, alarms, and dosimeters are in place around the facility to detect any radioactive release on site. However, even with these safeguards in place, a potential threat to workers exists if safety measures are overlooked. This potential is not considered significant given the current status and level of activity at the facility.

Environmental Receptors

Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.

No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with the TSF.

Mitigation

What action(s) might be taken to abate/prevent release or impacts from release?

- Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities involving Building 7700A and the reactor.
- Continue S&M activities per TSF Surveillance and Maintenance Work Plan, ORNL/RRD/INT-88/R1.

What actions are currently being taken to abate/prevent release or impacts from release?

The main hazard associated with Building 7700A is from exposure to ionizing radiation due to the presence of fuel in the reactor. Engineering and administrative controls are in place to control access and activities related to Building 7700A and the TSR-II reactor. Building 7700A provides shielding for the reactor and the reactor's support systems remain operational to maintain the reactor in safe condition. See TSF summary form for additional actions being taken facility-wide to prevent adverse release of hazardous substances.

Current actions being taken to prevent adverse release of radioactive substances and ensure worker safety associated with Building 7700A in its current state are considered adequate until D&D activities begin.

Other Environmental Authorities
<p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>No other environmental statutory actions were identified to be currently applicable to Building 7700A during this RmSE.</p>
Maintenance Actions
<p><i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i></p> <p>No potential hazards requiring maintenance actions were identified to be currently associated with Building 7700A.</p>
Removal Actions
<p><i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i></p> <p>No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with Building 7700A.</p>
Remedial Site Evaluation
<p><i>Is a Remedial Site Evaluation needed?</i></p> <p>No existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with Building 7700A.</p>
No Further Investigation
<p><i>Is a finding of No Further Investigation appropriate? Please explain.</i></p> <p>A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Since Building 7700A contains substances which may become threatening if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.</p>

Additional Comments

The following documents and databases were referenced for historical and hazard information related to Building 7700A:

- Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322.
- TSF Occurrence Reports.
- Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1.
- ORNL Hazardous Material Information System Database.
- ORNL PCB Inventory Database.
- EM60 Facility Inventory and Assessment Database.

The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:

- Mr. Bill Hill, Interim Facility Manager, TSF.
- Mr. Butch Fancher, Facility Manager (in training), TSF.
- Ms. Swati Wilson, Manager, ORNL Lead Management Program.
- Mr. Nathan Dunn, Hazardous Material Information System Office.
- Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

Advanced Sciences, Inc.
800 Oak Ridge Turnpike, Suite C-102
Oak Ridge, TN

Evaluator's Signature

Date

 

**5. BUILDING 7700B—TOWER SHIELDING FACILITY
OUTSIDE SOURCE STORAGE AREA**

ORNL FACILITY RmSE INFORMATION FORM

General Information	
<p><i>Area/Facility Name (and aliases):</i> Building 7700B Tower Shielding Facility (TSF) Outside Source Storage Area (OSSA)</p>	
<p><i>Organization responsible for area/facility (include specific person and phone number if possible):</i> K. Constant (241-3146), HRFDP Project Manager, ER Program, LMES</p>	
<p><i>Status (active/inactive):</i> Inactive, Standby Mode</p>	<p><i>Years of Operation:</i> ≈ 40</p>
<p><i>Description of Operation:</i></p> <p>The OSSA (Building 7700B) is an underground storage site currently used to store transuranic material five feet below the ground.</p>	
<p><i>Physical description of area/facility:</i></p> <ul style="list-style-type: none"> • The OSSA is located at the base of tower leg IV. • This is a small storage pit containing eight stainless steel, two-inch diameter pipes in which, transuranic material is stored. • The area on top of the OSSA consists of five feet of earth. • The OSSA is secured from unauthorized access. 	
Release Information	
<p><i>Description of release, or threatened release, and source:</i></p> <p>No existing or past releases of hazardous substances were identified to be associated with the OSSA. The potential for a radiologic (RAD) release exists due to the presence of RAD material presently stored in the OSSA. This material presents no immediate threat in its current form; however, the potential for release remains as a result of improper handling of this material or catastrophic failure of the storage devices. The potential for adverse release of RAD material is considered to be slight given the current status and condition of the OSSA and TSF.</p>	
<p><i>Hazardous substances present:</i></p> <p>The only hazardous substance existing in the OSSA is the transuranic material existing in the stainless steel storage pipes. There is reportedly no RAD contamination or other hazardous materials currently associated with the OSSA.</p>	

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

Refer to TSF summary form for quantity of transuranic material currently stored at the OSSA.

Other pollutants or contaminants:

No other existing or potential pollutants or contaminants were identified to be currently associated with the OSSA.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts.

Air

Are there any suspected impacts due to air emissions? If yes, please describe.

Refer to Air section of TSF summary form for discussion of potential air quality impacts.

Soil

Are there any suspected impacts to soil? If yes, please describe.

Refer to Soil section of TSF summary form for discussion of potential soil impacts.

Release Beyond Facility or Reservation Boundaries

Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).

Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.

Worker Safety
<p><i>Could the release pose a threat to workers? If yes, please describe.</i></p> <p>The transuranic material remaining in the OSSA does not pose an immediate threat to worker safety in its current state. The material is located in stainless steel pipes buried five feet below-ground. Good radiation practices and standard operating procedures governing activities involving hazardous and radiologic materials are enforced for worker safety at the TSF. The facility is located in a "secured" area surrounded by a security fence. Monitors, alarms, and dosimeters are in place around the facility to detect any radioactive release on site. However, even with these safeguards in place, a potential threat to workers exists if safety measures are overlooked. This potential is not considered significant given the current status and level of activity at the facility.</p>
Environmental Receptors
<p><i>Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.</i></p> <p>No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with the TSF.</p>
Mitigation
<p><i>What action(s) might be taken to abate/prevent release or impacts from release?</i></p> <ul style="list-style-type: none"> Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities involving the OSSA and stored materials. Continue S&M activities per TSF Surveillance and Maintenance Work Plan, ORNL/RRD/INT-88/R1.
<p><i>What actions are currently being taken to abate/prevent release or impacts from release?</i></p> <p>The main hazard associated with the OSSA is from exposure to ionizing radiation due to the presence of transuranic material stored in the area. Engineering and administrative controls are in place to control access and activities related to the OSSA and stored material. See TSF summary form for additional actions being taken facility-wide to prevent adverse release of hazardous substances.</p> <p>Current actions being taken to prevent adverse release of radioactive substances and ensure worker safety associated with the OSSA in its current state are considered adequate until D&D activities begin.</p>
Other Environmental Authorities
<p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>No other environmental statutory actions were identified to be currently applicable to the OSSA during this RmSE.</p>

Maintenance Actions
<i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i>
No potential hazards requiring maintenance actions were identified to be currently associated with the OSSA.
Removal Actions
<i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i>
No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with the OSSA.
Remedial Site Evaluation
<i>Is a Remedial Site Evaluation needed?</i>
No existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with the OSSA.
No Further Investigation
<i>Is a finding of No Further Investigation appropriate? Please explain.</i>
A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Since the OSSA contains substances which may become threatening if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.

Additional Comments

The following documents and databases were referenced for historical and hazard information related to Building 7700B:

- Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322.
- TSF Occurrence Reports.
- Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1.
- ORNL Hazardous Material Information System Database.
- ORNL PCB Inventory Database.
- EM60 Facility Inventory and Assessment Database.

The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:

- Mr. Bill Hill, Interim Facility Manager, TSF.
- Mr. Butch Fancher, Facility Manager (in training), TSF.
- Ms. Swati Wilson, Manager, ORNL Lead Management Program.
- Mr. Nathan Dunn, Hazardous Material Information System Office.
- Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

Advanced Sciences, Inc.
800 Oak Ridge Turnpike, Suite C-102
Oak Ridge, TN

Evaluator's Signature

Date

**6. BUILDING 7701— TOWER SHIELDING FACILITY
PAD AND REACTOR HANDLING POOL**

ORNL FACILITY RmSE INFORMATION FORM

General Information	
<p><i>Area/Facility Name (and aliases):</i> Building 7701 Tower Shielding Facility (TSF) Pad and Reactor Handling Pool</p>	
<p><i>Organization responsible for area/facility (include specific person and phone number if possible):</i> K. Constant (241-3146), HRFDP Project Manager, ER Program, LMES</p>	
<p><i>Status (active/inactive):</i> Inactive, Standby Mode</p>	<p><i>Years of Operation:</i> $\approx$ 40</p>
<p><i>Description of Operation:</i></p> <p>The reactor handling pool was used to provide shielding during the removal of fuel elements and changing of reactor shields during TSF operations.</p>	
<p><i>Physical description of area/facility:</i></p> <ul style="list-style-type: none"> • The TSF reactor handling pool is located midway between the two west tower legs, adjacent to the Big Beam Shield. • The pool is divided into two sections, a large section with a capacity of approximately 74,000 gallons and a small section with a capacity of approximately 7,900 gallons. • The pool has reportedly been drained for maintenance actions (i.e., painting and cleaning) in the recent past, but currently remains filled with water and capped with a concrete slab. • The TSF Pad is centrally located at the base of the tower structure and consists of a large concrete pad. 	
Release Information	
<p><i>Description of release, or threatened release, and source:</i></p> <p>No existing or past adverse releases of hazardous substances were identified to be associated with the reactor pool. In addition, no potential for adverse release of hazardous substances was identified to be currently associated with the reactor pool.</p>	
<p><i>Hazardous substances present:</i></p> <p>No hazardous substances or radioactive contamination were identified to be currently associated with the reactor pool. The pool reportedly contains clean water.</p>	

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

No hazardous substances or radioactive contamination were identified to be currently associated with the reactor pool.

Other pollutants or contaminants:

The only potential hazard identified with the reactor pool is the possible existence of layers of lead-based paint (LBP) on the pool walls. Based on the age of the facility, painted surfaces are assumed to contain lead by the ORNL Lead Management Program. Even though the pool has reportedly been recently painted, the potential exists for underlayers of paint to contain lead.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts.

Air

Are there any suspected impacts due to air emissions? If yes, please describe.

Refer to Air section of TSF summary form for discussion of potential air quality impacts.

Soil

Are there any suspected impacts to soil? If yes, please describe.

Refer to Soil section of TSF summary form for discussion of potential soil impacts.

Release Beyond Facility or Reservation Boundaries

Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).

Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.

Worker Safety
<p><i>Could the release pose a threat to workers? If yes, please describe.</i></p> <p>No existing or potential release of hazardous substances threatening to workers at the TSF was identified to be currently associated with the reactor handling pool.</p>
Environmental Receptors
<p><i>Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.</i></p> <p>No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with the TSF.</p>
Mitigation
<p><i>What action(s) might be taken to abate/prevent release or impacts from release?</i></p> <ul style="list-style-type: none"> • Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities involving the reactor handling pool. • Continue S&M activities per TSF Surveillance and Maintenance Work Plan, ORNL/RRD/INT-88/R1.
<p><i>What actions are currently being taken to abate/prevent release or impacts from release?</i></p> <p>No situations or conditions requiring special actions to abate/prevent an adverse release were identified to be currently associated with the reactor handling pool.</p>
Other Environmental Authorities
<p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>No other environmental statutory actions were identified to be currently applicable to the reactor handling pool during this RmSE.</p>
Maintenance Actions
<p><i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i></p> <p>No potential hazards requiring maintenance actions were identified to be currently associated with the reactor handling pool.</p>

Removal Actions
<p><i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i></p> <p>No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with the reactor handling pool.</p>
Remedial Site Evaluation
<p><i>Is a Remedial Site Evaluation needed?</i></p> <p>No existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with the reactor handling pool.</p>
No Further Investigation
<p><i>Is a finding of No Further Investigation appropriate? Please explain.</i></p> <p>A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Because of the reactor handling pool's association with the TSF which contains substances which may become threatening if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.</p>
Additional Comments
<p>The following documents and databases were referenced for historical and hazard information related to Building 7701:</p> <ul style="list-style-type: none"> • Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322. • TSF Occurrence Reports. • Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1. • ORNL Hazardous Material Information System Database. • ORNL PCB Inventory Database. • EM60 Facility Inventory and Assessment Database. <p>The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:</p> <ul style="list-style-type: none"> • Mr. Bill Hill, Interim Facility Manager, TSF. • Mr. Butch Fancher, Facility Manager (in training), TSF. • Ms. Swati Wilson, Manager, ORNL Lead Management Program. • Mr. Nathan Dunn, Hazardous Material Information System Office. • Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

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Oak Ridge, TN

Todd R. Grant
Evaluator's Signature

8/28/96
Date

**7. BUILDING 7702 —TOWER SHIELDING FACILITY
CONTROL HOUSE**

ORNL FACILITY RmSE INFORMATION FORM

General Information	
Area/Facility Name (and aliases): Building 7702 Tower Shielding Facility (TSF) Control House	
Organization responsible for area/facility (include specific person and phone number if possible): K. Constant (241-3146), HRFDP Project Manager, ER Program, LMES	
Status (active/inactive): Inactive, Standby Mode	Years of Operation: $\approx$ 40
Description of Operation: There are no current operations, other than surveillance and maintenance (S&M) activities, on-going in Building 7702. Building 7702 is the main control house for the TSF. This building contains the reactor and tower controls, a data collection facility, a counting room, and office space.	
Physical description of area/facility: <ul style="list-style-type: none"> • Building 7702 is a single-story, underground, reinforced concrete bunker located to the north of the TSF towers. The building has an 18-inch concrete slab roof which is covered by 3.5 feet of earth and consists of approximately 3,600 sq. ft. • Air drawn into the building by the ventilation system is filtered through high-efficiency particulate air (HEPA) filters. This design prevents airborne particulates from entering the building during shielding experiments. In addition, a slight positive pressure is maintained in the building to prevent air leakage. • Although Building 7702 is in an inactive status, all building and reactor support systems remain fully functional. 	
Release Information	
Description of release, or threatened release, and source: No existing or past adverse releases of hazardous substances were identified to be associated with Building 7702. In addition, no potential for adverse release of hazardous substances was identified to be currently associated with Building 7702.	
Hazardous substances present: A radioactive fission chamber and other accountable materials are safely stored in a locked safe in the hallway leading out to the TSF pad between Buildings 7702 and 7704. Additionally, a small amount of lithium is stored in Building 7702, and small amounts of polychlorinated bi-phenols (PCBs) reportedly exist in some light fixtures and transformers within the building.	

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

Refer to TSF summary form for known quantities of hazardous substances associated with this building.

Other pollutants or contaminants:

Asbestos containing material, primarily in the form of thermal system insulation, has been confirmed present in this building. ACM observed is labeled, in good condition, and poses no immediate health threat.

Based on the age of the facility, painted surfaces are assumed to be lead-containing. Verification samples are taken by ORNL Lead Management Program personnel on an "as-needed" basis to confirm the presence of lead in the paint (i.e., when work activities will disturb the paint, or paint is found to be deteriorating and poses a health or environmental threat). Painted surfaces observed are in good condition throughout the building and pose no immediate health threat.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts.

Air
<p><i>Are there any suspected impacts due to air emissions? If yes, please describe.</i></p> <p>The only potential for air impact identified to be directly associated with Building 7702 would be from the presence of the radioactive accountable material, ACM and assumed lead-based paint (LBP) currently in the building. The potential impact is related to indoor air quality should these materials be improperly disturbed or handled. The ACM, LBP, and RAD material remaining in the building are not considered to be immediate threats to indoor air quality in their current state.</p>
Soil
<p><i>Are there any suspected impacts to soil? If yes, please describe.</i></p> <p>Refer to Soil section of TSF summary form for discussion of potential soil impacts.</p>
Release Beyond Facility or Reservation Boundaries
<p><i>Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).</i></p> <p>Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.</p>
Worker Safety
<p><i>Could the release pose a threat to workers? If yes, please describe.</i></p> <p>Radiologic hazard areas associated with this building are isolated and well marked. Good radiation practices and standard operating procedures are enforced for worker safety. Asbestos containing material is appropriately labeled. However, even with these safeguards in place, a potential threat to workers exists if safety measures are overlooked. This potential is not considered significant given the current status and level of activity of the building.</p>
Environmental Receptors
<p><i>Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.</i></p> <p>No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with Building 7702 or the TSF.</p>

Mitigation
<p><i>What action(s) might be taken to abate/prevent release or impacts from release?</i></p> <ul style="list-style-type: none"> Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities within Building 7702 and the TSF. Continue S&M activities per TSF Surveillance and Maintenance Work Plan, ORNL/RRD/INT-88/R1.
<p><i>What actions are currently being taken to abate/prevent release or impacts from release?</i></p> <p>Existing areas of ACM are labeled throughout the building. Radioactive accountable materials are stored in a locked safe to prevent unauthorized access and contact. Administrative controls and standard operating procedures governing activities within Building 7702 are in place and enforced.</p>
Other Environmental Authorities
<p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>If paint associated with the building is found to be lead-containing and samples fail the Toxicity Characteristic Leaching Procedure (TCLP) analysis, the building could qualify as a hazardous waste generator point under the Resource Conservation and Recovery Act (RCRA).</p>
Maintenance Actions
<p><i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i></p> <p>No potential hazards requiring maintenance actions were identified to be currently associated with Building 7702.</p>
Removal Actions
<p><i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i></p> <p>No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with Building 7702.</p>

Remedial Site Evaluation

Is a Remedial Site Evaluation needed?

Asbestos containing materials have been identified, marked and documented in Building 7702. No further remedial investigation involving this hazard is considered necessary.

Based on the age of the facility, painted surfaces are assumed to contain lead. Samples of the paint should be taken and analyzed to verify the presence of lead prior to conducting any S&M or D&D activities which may disturb these assumed areas.

No further existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with Building 7702.

No Further Investigation

Is a finding of No Further Investigation appropriate? Please explain.

A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Since Building 7702 contains substances which may become threatening if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.

Additional Comments

The following documents and databases were referenced for historical and hazard information related to Building 7702:

- Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322.
- TSF Occurrence Reports.
- Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1.
- ORNL Hazardous Material Information System Database.
- ORNL PCB Inventory Database.
- EM60 Facility Inventory and Assessment Database.

The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:

- Mr. Bill Hill, Interim Facility Manager, TSF.
- Mr. Butch Fancher, Facility Manager (in training), TSF.
- Ms. Swati Wilson, Manager, ORNL Lead Management Program.
- Mr. Nathan Dunn, Hazardous Material Information System Office.
- Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

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Todd R. Grant

Evaluator's Signature

8/28/96

Date

**8. BUILDING 7703 —TOWER SHIELDING FACILITY
HOIST HOUSE**

ORNL FACILITY RmSE INFORMATION FORM

General Information	
Area/Facility Name (and aliases): Building 7703 Tower Shielding Facility (TSF) Hoist House	
Organization responsible for area/facility (include specific person and phone number if possible): K. Constant (241-3146), HRFDP Project Manager, ER Program, LMES	
Status (active/inactive): Inactive, Standby Mode	Years of Operation: ≈ 40
Description of Operation: There are no current operations, other than surveillance and maintenance (S&M) activities, on-going in Building 7703. The building is the heart of the TSF tower hoist system, and contains equipment which is used to lift and position the reactor, shields, and test specimens over the main pad. There are six main hoists within the building. Each consists of a drum, motor, and cable which runs from the hoist house to the TSF towers. These hoists are capable of lifting up to 55 tons to a height of 200 feet. The hoist control stations are located at Building 7701 (TSF Pad) and the south entrance to Building 7702.	
Physical description of area/facility: <ul style="list-style-type: none"> • Building 7703 is a single-story, steel frame, warehouse-like structure with metal siding. The building consists of approximately 5,000 sq. ft. • The interior of the building is open and contains the drums, motors, and associated equipment for the TSF hoists. • Building 7703 has no mechanical means of ventilation. • Painted surfaces observed are in fair to good condition and the building is generally clean. • The area surrounding the building is predominantly soil and grass. 	
Release Information	
Description of release, or threatened release, and source: Reportedly, no radioactive material has ever been brought into this building. No existing or past adverse releases of hazardous substances were identified to be associated with Building 7703. In addition, no significant potential for adverse release of hazardous substances was identified to be currently associated with Building 7703.	

Hazardous substances present:

No radioactive material or contamination was identified to be currently or historically associated with Building 7703. The building does contain small quantities (i.e., individual containers of less than or equal to 5 gallons or 100 pounds) of hazardous materials (HAZMATs) (pesticides, lubricants, solvents, fuels) which are used for various S&M activities. The materials are safely stored in a flammable cabinet within the building.

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

No estimate of the small quantities of HAZMATs currently stored in Building 7703 was identified during this RmSE.

Other pollutants or contaminants:

Based on the age of the building, painted surfaces are assumed to be lead-containing. Verification samples are taken by ORNL Lead Management Program personnel on an "as-needed" basis to confirm the presence of lead in the paint (i.e., when work activities will disturb the paint, or paint is found to be deteriorating and poses a health or environmental threat). Painted surfaces observed are in fair to good condition throughout the building and pose no immediate health or environmental threat.

No asbestos containing material was identified to be associated with this building.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts.

Air

Are there any suspected impacts due to air emissions? If yes, please describe.

Refer to Air section of TSF summary form for discussion of potential air quality impacts.

Soil
<p><i>Are there any suspected impacts to soil? If yes, please describe.</i></p> <p>There is a potential for areas of soil adjacent to this building to be impacted from lead if, in fact, exterior paint is found to be lead-containing. Deteriorating paint could dislodge from the surface and fall to the soil below. With the exception of a few localized areas of deterioration, exterior paint was observed to be good condition and does not pose a significant threat in its current state.</p> <p>Refer to Soil section of TSF summary form for further discussion of potential soil impacts.</p>
Release Beyond Facility or Reservation Boundaries
<p><i>Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).</i></p> <p>Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.</p>
Worker Safety
<p><i>Could the release pose a threat to workers? If yes, please describe.</i></p> <p>No adverse release threatening to workers was identified to be associated with Building 7703. Additionally, no conditions presenting the potential for an adverse release posing a threat to work safety was identified to be currently associated with Building 7703.</p>
Environmental Receptors
<p><i>Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.</i></p> <p>No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with Building 7703 or the TSF.</p>
Mitigation
<p><i>What action(s) might be taken to abate/prevent release or impacts from release?</i></p> <ul style="list-style-type: none"> • Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities within Building 7703 and the TSF. • Continue S&M activities per TSF Surveillance and Maintenance Work Plan, ORNL/RRD/INT-88/R1.
<p><i>What actions are currently being taken to abate/prevent release or impacts from release?</i></p> <p>No threat of significant adverse release of hazardous substances was identified to be currently associated with Building 7703.</p>

Other Environmental Authorities
<p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>If paint associated with the building is found to be lead-containing and samples fail the Toxicity Characteristic Leaching Procedure (TCLP) analysis, the building could qualify as a hazardous waste generator point under the Resource Conservation and Recovery Act (RCRA).</p>
Maintenance Actions
<p><i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i></p> <p>No potential hazards requiring maintenance actions were identified to be currently associated with Building 7703.</p>
Removal Actions
<p><i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i></p> <p>No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with Building 7703.</p>
Remedial Site Evaluation
<p><i>Is a Remedial Site Evaluation needed?</i></p> <p>Based on the age of the facility, painted surfaces are assumed to contain lead. Samples of the paint should be taken and analyzed to verify the presence of lead prior to conducting any S&M or D&D activities which may disturb these assumed areas.</p> <p>No further existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with Building 7703.</p>
No Further Investigation
<p><i>Is a finding of No Further Investigation appropriate? Please explain.</i></p> <p>A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Since Building 7703 contains substances which may become threatening if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.</p>

Additional Comments

The following documents and databases were referenced for historical and hazard information related to Building 7703:

- Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322.
- TSF Occurrence Reports.
- Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1.
- ORNL Hazardous Material Information System Database.
- ORNL PCB Inventory Database.
- EM60 Facility Inventory and Assessment Database.

The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:

- Mr. Bill Hill, Interim Facility Manager, TSF.
- Mr. Butch Fancher, Facility Manager (in training), TSF.
- Ms. Swati Wilson, Manager, ORNL Lead Management Program.
- Mr. Nathan Dunn, Hazardous Material Information System Office.
- Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

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Oak Ridge, TN

Evaluator's Signature

Date

**9. BUILDING 7704— TOWER SHIELDING FACILITY
CONTROL HOUSE 2**

General Information	
<p><i>Area/Facility Name (and aliases):</i> Building 7704 Tower Shielding Facility (TSF) Control House 2</p>	
<p><i>Organization responsible for area/facility (include specific person and phone number if possible):</i> K. Constant (241-3146), HRFDP Project Manager, ER Program, LMES</p>	
<p><i>Status (active/inactive):</i> Inactive, Standby Mode</p>	<p><i>Years of Operation:</i> ~ 40</p>
<p><i>Description of Operation:</i></p> <p>There are no current operations, other than surveillance and maintenance (S&M) activities, on-going in Building 7704. Building 7704 is similar in construction to Building 7702 and continues to serve primarily as a service and shop area for the TSF.</p>	
<p><i>Physical description of area/facility:</i></p> <ul style="list-style-type: none"> • Building 7704 is a single-story, underground, reinforced concrete bunker located to the east of Building 7702. The building has an 18-inch concrete slab roof which is covered by 3.5 feet of earth and consists of approximately 1,800 sq. ft. • Building 7704 is accessible through Building 7702 via a hallway which connects the two buildings. 	
Release Information	
<p><i>Description of release, or threatened release, and source:</i></p> <p>No existing or past adverse releases of hazardous substances were identified to be associated with Building 7704. In addition, no potential for adverse release of hazardous substances was identified to be currently associated with Building 7704 given the current status and level of activity in the building.</p>	

Hazardous substances present:

Radioactive accountable materials are safely stored in a locked safe in the hallway leading out to the TSF pad between Buildings 7704 and 7702. Building 7704 contains small quantities (i.e., less than 5 gallons or 100 pounds) of hazardous materials (HAZMATs) which are used for various S&M activities. The materials are safely stored in a flammable cabinet within the building. A Resource Conservation and Recovery Act (RCRA) satellite accumulation area is located in Building 7704. This area consists of a 55-gallon collection drum which is used to collect the small quantities of hazardous waste generated as a result of S&M activities at the facility. The wastes are segregated into individual containers within this drum which acts as an overpack. A number of lead bricks are also stored in this building. Additionally, small amounts of polychlorinated bi-phenols (PCBs) reportedly exist in some light fixtures within the building.

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

Refer to TSF summary form for known quantities of hazardous substances associated with this building.

Other pollutants or contaminants:

Asbestos containing material, primarily in the form of thermal system insulation, has been confirmed present in this building. ACM remaining in the building is labeled, in good condition, and poses no immediate health threat.

Based on the age of the facility, painted surfaces are assumed to be lead-containing. Verification samples are taken by ORNL Lead Management Program personnel on an "as-needed" basis to confirm the presence of lead in the paint (i.e., when work activities will disturb the paint, or paint is found to be deteriorating and poses a health or environmental threat). Painted surfaces observed are in good condition throughout the facility and pose no immediate health threat.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts.

Air
<p><i>Are there any suspected impacts due to air emissions? If yes, please describe.</i></p> <p>The only potential for air impact identified to be directly associated with Building 7704 would be from the presence of the radioactive calibration sources, ACM and assumed lead-based paint (LBP) currently in the building. The potential impact is related to indoor air quality should these materials be improperly disturbed or handled. The ACM, LBP, and RAD calibration sources remaining in the building are not considered to be immediate threats to indoor air quality in their current state.</p>
Soil
<p><i>Are there any suspected impacts to soil? If yes, please describe.</i></p> <p>Refer to Soil section of TSF summary form for discussion of potential soil impacts.</p>
Release Beyond Facility or Reservation Boundaries
<p><i>Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).</i></p> <p>Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.</p>
Worker Safety
<p><i>Could the release pose a threat to workers? If yes, please describe.</i></p> <p>Radiologic and chemical hazard areas associated with this building are isolated and well marked. Good radiation practices and standard operating procedures governing S&M activities and waste disposal activities are enforced for both worker safety and environmental protection. Asbestos containing material is appropriately labeled. However, even with these safeguards in place, a potential threat to workers exists if safety measures are overlooked. This potential is not considered significant given the current status and level of activity of the building.</p>
Environmental Receptors
<p><i>Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.</i></p> <p>No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with Building 7704 or the TSF.</p>

Mitigation
<p><i>What action(s) might be taken to abate/prevent release or impacts from release?</i></p> <ul style="list-style-type: none"> • Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities within Building 7704 and the TSF. • Continue S&M activities per TSF Surveillance and Maintenance Work Plan, ORNL/RRD/INT-88/R1.
<p><i>What actions are currently being taken to abate/prevent release or impacts from release?</i></p> <p>Existing areas of ACM are labeled throughout the building. Radioactive accountable materials are stored in a secured area to prevent unauthorized access and contact. Administrative controls and standard operating procedures governing activities within Building 7704 are in place and enforced.</p>
Other Environmental Authorities
<p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>If paint associated with the building is found to be lead-containing and samples fail the Toxicity Characteristic Leaching Procedure (TCLP) analysis, the building could qualify as a hazardous waste generator point under the Resource Conservation and Recovery Act (RCRA). Disposal of the waste collected at the satellite accumulation area is also subject to RCRA disposal regulations.</p>
Maintenance Actions
<p><i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i></p> <p>No potential hazards requiring maintenance actions were identified to be currently associated with Building 7704.</p>
Removal Actions
<p><i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i></p> <p>No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with Building 7704.</p>

Remedial Site Evaluation

Is a Remedial Site Evaluation needed?

Asbestos containing materials have been identified, marked and documented in Building 7704. No further remedial investigation involving these hazards is considered necessary.

Based on the age of the facility, painted surfaces are assumed to contain lead. Samples of the paint should be taken and analyzed to verify the presence of lead prior to conducting any S&M or D&D activities which may disturb these assumed areas.

No further existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with Building 7704.

No Further Investigation

Is a finding of No Further Investigation appropriate? Please explain.

A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Since Building 7704 contains substances which may become threatening if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.

Additional Comments

The following documents and databases were referenced for historical and hazard information related to Building 7704:

- Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322.
- TSF Occurrence Reports.
- Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1.
- ORNL Hazardous Material Information System Database.
- ORNL PCB Inventory Database.
- EM60 Facility Inventory and Assessment Database.

The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:

- Mr. Bill Hill, Interim Facility Manager, TSF.
- Mr. Butch Fancher, Facility Manager (in training), TSF.
- Ms. Swati Wilson, Manager, ORNL Lead Management Program.
- Mr. Nathan Dunn, Hazardous Material Information System Office.
- Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

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Todd R. Grant
Evaluator's Signature

8/28/96
Date

**10. BUILDING 7705—TOWER SHIELDING FACILITY
PUMP HOUSE**

General Information	
Area/Facility Name (and aliases): Building 7705 Tower Shielding Facility (TSF) Pump House	
Organization responsible for area/facility (include specific person and phone number if possible): K. Constant (241-3146), HRFDP Project Manager, ER Program, LMES	
Status (active/inactive): Inactive, Standby Mode	Years of Operation: ≈ 40
Description of Operation: <p>Building 7705 remains active to circulate cooling water to the reactor due to the presence of fuel in the reactor core.</p>	
Physical description of area/facility: <ul style="list-style-type: none"> • Building 7705 is a single-story, reinforced concrete building consisting of approximately 663 sq. ft. The building is located to the west of Building 7702. • The building contains pumps, piping, filters, a demineralizer, and a level control tank. • Painted surfaces of the building are in good condition. • The area surrounding the building is predominantly concrete with some areas of soil and grass. 	
Release Information	
Description of release, or threatened release, and source: <p>No existing or past adverse releases of hazardous substances were identified to be associated with Building 7705. However, a small, localized area of radiologic (RAD) surface contamination was observed on a piece of equipment within the building. It is suspected that the resin in the demineralizer and the interior of some of the system piping and equipment may contain low levels of residual RAD contamination. No information regarding the extent of such contamination was available at the time of this RmSE.</p>	
Hazardous substances present: <p>No other hazardous substances in addition to potential residual RAD contamination within system components were identified to be associated with Building 7705.</p>	

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

No information regarding quantities of hazardous substances associated with Building 7705 was identified during this RmSE.

Other pollutants or contaminants:

Based on the age of the facility, painted surfaces are assumed to be lead-containing. Verification samples are taken by ORNL Lead Management Program personnel on an "as-needed" basis to confirm the presence of lead in the paint (i.e., when work activities will disturb the paint, or paint is found to be deteriorating and poses a health or environmental threat). Painted surfaces observed are in good condition throughout the facility and pose no immediate health threat.

No asbestos containing material was identified to be associated with this building.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts.

Air

Are there any suspected impacts due to air emissions? If yes, please describe.

Refer to Air section of TSF summary form for discussion of potential air quality impacts.

Soil

Are there any suspected impacts to soil? If yes, please describe.

There is a potential for areas of soil adjacent to this building to be impacted from lead if, in fact, exterior paint is found to be lead-containing. Deteriorating paint could dislodge from the surface and find its way to soil in the area of the building. Exterior paint on this building was observed to be in good condition and does not pose a significant threat in its current state.

Refer to Soil section of TSF summary form for further discussion of potential soil impacts.

<p align="center">Release Beyond Facility or Reservation Boundaries</p> <p><i>Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).</i></p> <p>Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.</p>
<p align="center">Worker Safety</p> <p><i>Could the release pose a threat to workers? If yes, please describe.</i></p> <p>Radiologic hazard areas associated with this building are well marked. Good radiation practices and standard operating procedures for maintenance activities are enforced for worker safety. However, even with these safeguards in place, a potential threat to workers exists if safety measures are overlooked. This potential is not considered significant given the current status and level of activity of the building.</p>
<p align="center">Environmental Receptors</p> <p><i>Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.</i></p> <p>No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with Building 7705 or the TSF.</p>
<p align="center">Mitigation</p> <p><i>What action(s) might be taken to abate/prevent release or impacts from release?</i></p> <ul style="list-style-type: none"> • Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities within Building 7705 and the TSF. • Continue S&M activities per TSF Surveillance and Maintenance Work Plan, ORNL/RRD/INT-88/R1. <p><i>What actions are currently being taken to abate/prevent release or impacts from release?</i></p> <p>Building 7705 is periodically monitored for the presence of external RAD surface contamination on system equipment by ORNL health physics personnel. Additionally, administrative controls and standard operating procedures governing activities within Building 7705 are in place and enforced.</p>

Other Environmental Authorities
<p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>If paint associated with the building is found to be lead-containing and samples fail the Toxicity Characteristic Leaching Procedure (TCLP) analysis, the building could qualify as a hazardous waste generator point under the Resource Conservation and Recovery Act (RCRA).</p>
Maintenance Actions
<p><i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i></p> <p>No potential hazards requiring maintenance actions were identified to be currently associated with Building 7705.</p>
Removal Actions
<p><i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i></p> <p>No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with Building 7705.</p>
Remedial Site Evaluation
<p><i>Is a Remedial Site Evaluation needed?</i></p> <p>Based on the age of the facility, painted surfaces are assumed to contain lead. Samples of the paint should be taken and analyzed to verify the presence of lead prior to conducting any S&M or D&D activities which may disturb these assumed areas.</p> <p>Because of the suspected presence of residual RAD contamination within the reactor cooling water system components, it is recommended that the internal condition of system piping and associated equipment be further characterized prior to activities involving dismantling of this equipment.</p> <p>No further existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with Building 7705.</p>
No Further Investigation
<p><i>Is a finding of No Further Investigation appropriate? Please explain.</i></p> <p>A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Since Building 7705 contains substances which may become threatening if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.</p>

Additional Comments

The following documents and databases were referenced for historical and hazard information related to Building 7705:

- Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322.
- TSF Occurrence Reports.
- Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1.
- ORNL Hazardous Material Information System Database.
- ORNL PCB Inventory Database.
- EM60 Facility Inventory and Assessment Database.

The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:

- Mr. Bill Hill, Interim Facility Manager, TSF.
- Mr. Butch Fancher, Facility Manager (in training), TSF.
- Ms. Swati Wilson, Manager, ORNL Lead Management Program.
- Mr. Nathan Dunn, Hazardous Material Information System Office.
- Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

Advanced Sciences, Inc.
800 Oak Ridge Turnpike, Suite C-102
Oak Ridge, TN

Evaluator's Signature

Date

11. BUILDING 7706—TOWER SHIELDING FACILITY COOLER

General Information	
Area/Facility Name (and aliases): Building 7706 Tower Shielding Facility (TSF) Cooler	
Organization responsible for area/facility (include specific person and phone number if possible): K. Constant (241-3146), HRFD Project Manager, ER Program, LMES	
Status (active/inactive): Inactive, Standby Mode	Years of Operation: ~ 40
Description of Operation: Building 7706 houses the heat exchanger for the reactor cooling water system. The heat exchanger remains active to support the reactor during the shutdown period.	
Physical description of area/facility: <ul style="list-style-type: none"> • Building 7706 is a single-story, metal framed building consisting of approximately 600 sq. ft. The building is located to the west of Building 7702. • The building contains a heat exchanger and piping associated with the TSR-II reactor cooling water system. • Painted surfaces of the building are in good condition. • The area surrounding the building is predominantly concrete. 	
Release Information	
Description of release, or threatened release, and source: No existing or past adverse releases of hazardous substances were identified to be associated with Building 7706 and no radiologic (RAD) contamination external to system components has reportedly been detected within the building. However, it is suspected that the interior of the heat exchanger and some of the system piping may contain low levels of residual RAD contamination. No information regarding the extent of such contamination was available at the time of this RmSE.	
Hazardous substances present: In addition to the potential residual internal RAD contamination within the cooling water system components, the only other hazardous substances identified to be associated with Building 7706 were small quantities of lubricants used on rotating equipment.	

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

No information regarding the quantities of hazardous substances currently associated with Building 7706 was identified during this RmSE.

Other pollutants or contaminants:

Based on the age of the facility, painted surfaces are assumed to be lead-containing. Verification samples are taken by ORNL Lead Management Program personnel on an "as-needed" basis to confirm the presence of lead in the paint (i.e., when work activities will disturb the paint, or paint is found to be deteriorating and poses a health or environmental threat). Painted surfaces observed are in good condition throughout the facility and pose no immediate health threat.

All asbestos containing material associated with this building has reportedly been removed.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts.

Air

Are there any suspected impacts due to air emissions? If yes, please describe.

Refer to Air section of TSF summary form for discussion of potential air quality impacts.

Soil

Are there any suspected impacts to soil? If yes, please describe.

There is a potential for areas of soil adjacent to this building to be impacted from lead if, in fact, exterior paint is found to be lead-containing. Deteriorating paint could dislodge from the surface and find its way to soil in the area of the building. Exterior paint on this building was observed to be in good condition and does not pose a significant threat in its current state.

Refer to Soil section of TSF summary form for further discussion of potential soil impacts.

<p align="center">Release Beyond Facility or Reservation Boundaries</p>
<p><i>Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).</i></p> <p>Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.</p>
<p align="center">Worker Safety</p>
<p><i>Could the release pose a threat to workers? If yes, please describe.</i></p> <p>Building 7706 remains locked to control access. Good radiation practices and standard operating procedures for maintenance activities are enforced for worker safety. However, even with these safeguards in place, a potential threat to workers exists if safety measures are overlooked. This potential is not considered significant given the current status and level of activity of the building.</p>
<p align="center">Environmental Receptors</p>
<p><i>Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.</i></p> <p>No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with Building 7706 or the TSF.</p>
<p align="center">Mitigation</p>
<p><i>What action(s) might be taken to abate/prevent release or impacts from release?</i></p> <ul style="list-style-type: none"> Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities within Building 7706 and the TSF. Continue S&M activities per TSF Surveillance and Maintenance Work Plan, ORNL/RRD/INT-88/R1.
<p><i>What actions are currently being taken to abate/prevent release or impacts from release?</i></p> <p>Building 7706 is periodically monitored for the presence of RAD surface contamination associated with system equipment by ORNL health physics personnel. Additionally, administrative controls and standard operating procedures governing activities within Building 7706 are in place and enforced.</p>
<p align="center">Other Environmental Authorities</p>
<p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>If paint associated with the building is found to be lead-containing and samples fail the Toxicity Characteristic Leaching Procedure (TCLP) analysis, the building could qualify as a hazardous waste generator point under the Resource Conservation and Recovery Act (RCRA).</p>

Maintenance Actions
<p><i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i></p> <p>No potential hazards requiring maintenance actions were identified to be currently associated with Building 7706.</p>
Removal Actions
<p><i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i></p> <p>No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with Building 7706.</p>
Remedial Site Evaluation
<p><i>Is a Remedial Site Evaluation needed?</i></p> <p>Based on the age of the facility, painted surfaces are assumed to contain lead. Samples of the paint should be taken and analyzed to verify the presence of lead prior to conducting any S&M or D&D activities which may disturb these assumed areas.</p> <p>Because of the suspected presence of residual RAD contamination within the reactor cooling water system components, it is recommended that the internal condition of the heat exchanger and associated piping and equipment be further characterized prior to activities involving dismantling of this equipment.</p> <p>No further existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with Building 7706.</p>
No Further Investigation
<p><i>Is a finding of No Further Investigation appropriate? Please explain.</i></p> <p>A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Since Building 7706 contains substances which may become threatening if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.</p>

Additional Comments

The following documents and databases were referenced for historical and hazard information related to Building 7706:

- Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322.
- TSF Occurrence Reports.
- Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1.
- ORNL Hazardous Material Information System Database.
- ORNL PCB Inventory Database.
- EM60 Facility Inventory and Assessment Database.

The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:

- Mr. Bill Hill, Interim Facility Manager, TSF.
- Mr. Butch Fancher, Facility Manager (in training), TSF.
- Ms. Swati Wilson, Manager, ORNL Lead Management Program.
- Mr. Nathan Dunn, Hazardous Material Information System Office.
- Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

Advanced Sciences, Inc.
800 Oak Ridge Turnpike, Suite C-102
Oak Ridge, TN

Evaluator's Signature

Date

**12. BUILDING 7707—TOWER SHIELDING FACILITY
BATTERY HOUSE**

 

ORNL FACILITY RmSE INFORMATION FORM

General Information	
<i>Area/Facility Name (and aliases):</i> Building 7707 Tower Shielding Facility (TSF) Battery House	
<i>Organization responsible for area/facility (include specific person and phone number if possible):</i> K. Constant (241-3146), HRFDP Project Manager, ER Program, LMES	
<i>Status (active/inactive):</i> Inactive, Standby Mode	<i>Years of Operation:</i> ≈ 40
<i>Description of Operation:</i> Building 7707 houses rectifiers and lead acid batteries capable of providing backup power to the TSF.	
<i>Physical description of area/facility:</i> <ul style="list-style-type: none"> • Building 7707 is a single-story, concrete block building consisting of approximately 375 sq. ft. The building is located to the west of Building 7705. • The building contains a number of lead acid batteries and rectifiers that are used to provide a backup power supply to the TSF. • Painted surfaces of the building are in good condition. • The area surrounding the building is predominantly concrete with some areas of soil and grass. 	
Release Information	
<i>Description of release, or threatened release, and source:</i> No existing or past adverse releases of hazardous substances or areas of radiologic (RAD) contamination were identified to be associated with Building 7707. A potential does exist for acid leaks from the batteries; however, this potential is not considered significant given the current condition of the batteries and the surveillance and maintenance (S&M) procedures in place for Building 7707.	
<i>Hazardous substances present:</i> The only hazardous substance identified to be currently associated with Building 7707 is the lead and acid in the batteries.	

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

No information regarding the quantities of lead and acid associated with the batteries in Building 7707 was identified during this RmSE.

Other pollutants or contaminants:

Based on the age of the facility, painted surfaces are assumed to be lead-containing. Verification samples are taken by ORNL Lead Management Program personnel on an "as-needed" basis to confirm the presence of lead in the paint (i.e., when work activities will disturb the paint, or paint is found to be deteriorating and poses a health or environmental threat). Painted surfaces observed are in good condition throughout the facility and pose no immediate health threat.

No asbestos containing material was identified to be associated with this building.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts.

Air

Are there any suspected impacts due to air emissions? If yes, please describe.

Refer to Air section of TSF summary form for discussion of potential air quality impacts.

Soil

Are there any suspected impacts to soil? If yes, please describe.

There is a potential for areas of soil adjacent to this building to be impacted from lead if, in fact, exterior paint is found to be lead-containing. Deteriorating paint could dislodge from the surface and find its way to soil in the area of the building. Exterior paint on this building was observed to be in good condition and does not pose a significant threat in its current state.

Refer to Soil section of TSF summary form for further discussion of potential soil impacts.

Release Beyond Facility or Reservation Boundaries
<p><i>Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).</i></p> <p>Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.</p>
Worker Safety
<p><i>Could the release pose a threat to workers? If yes, please describe.</i></p> <p>Standard operating procedures for maintenance activities involving the batteries in Building 7707 are enforced for worker safety. However, even with these safeguards in place, a potential threat to workers exists from battery acid if safety measures and procedures are overlooked. This potential is not considered significant given the current status and level of activity of the building.</p>
Environmental Receptors
<p><i>Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.</i></p> <p>No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with Building 7707 or the TSF.</p>
Mitigation
<p><i>What action(s) might be taken to abate/prevent release or impacts from release?</i></p> <ul style="list-style-type: none"> • Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities within Building 7707 and the TSF. • Continue S&M activities per TSF Surveillance and Maintenance Work Plan, ORNL/RRD/INT-88/R1.
<p><i>What actions are currently being taken to abate/prevent release or impacts from release?</i></p> <p>Administrative controls and standard operating procedures governing activities associated with Building 7707 are in place and enforced. Batteries are periodically inspected for leakage and deterioration.</p>

Other Environmental Authorities
<p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>If paint associated with the building is found to be lead-containing and samples fail the Toxicity Characteristic Leaching Procedure (TCLP) analysis, the building could qualify as a hazardous waste generator point under the Resource Conservation and Recovery Act (RCRA). Disposal of any of the batteries within the building is subject to RCRA disposal regulations.</p>
Maintenance Actions
<p><i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i></p> <p>No potential hazards requiring maintenance actions were identified to be currently associated with Building 7707.</p>
Removal Actions
<p><i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i></p> <p>No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with Building 7707.</p>
Remedial Site Evaluation
<p><i>Is a Remedial Site Evaluation needed?</i></p> <p>Based on the age of the facility, painted surfaces are assumed to contain lead. Samples of the paint should be taken and analyzed to verify the presence of lead prior to conducting any S&M or D&D activities which may disturb these assumed areas.</p> <p>No further existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with Building 7707.</p>
No Further Investigation
<p><i>Is a finding of No Further Investigation appropriate? Please explain.</i></p> <p>A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Since Building 7707 contains substances which may become threatening if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.</p>

Additional Comments

The following documents and databases were referenced for historical and hazard information related to Building 7707:

- Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322.
- TSF Occurrence Reports.
- Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1.
- ORNL Hazardous Material Information System Database.
- ORNL PCB Inventory Database.
- EM60 Facility Inventory and Assessment Database.

The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:

- Mr. Bill Hill, Interim Facility Manager, TSF.
- Mr. Butch Fancher, Facility Manager (in training), TSF.
- Ms. Swati Wilson, Manager, ORNL Lead Management Program.
- Mr. Nathan Dunn, Hazardous Material Information System Office.
- Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

Advanced Sciences, Inc.
800 Oak Ridge Turnpike, Suite C-102
Oak Ridge, TN

Evaluator's Signature

Date

**13. BUILDING 7708—TOWER SHIELDING FACILITY
SHIELDING STORAGE BUILDING (BUTLER BUILDING)**

ORNL FACILITY RmSE INFORMATION FORM

General Information	
<p><i>Area/Facility Name (and aliases):</i> Building 7708 Tower Shielding Facility (TSF) Shielding Storage Building (Butler Building)</p>	
<p><i>Organization responsible for area/facility (include specific person and phone number if possible):</i> K. Constant (241-3146), HRFDP Project Manager, ER Program, LMES</p>	
<p><i>Status (active/inactive):</i> Inactive, Standby Mode</p>	<p><i>Years of Operation:</i> ~ 40</p>
<p><i>Description of Operation:</i></p> <p>Building 7708 is used for storing sodium (Na) and lithium hydride (LiH) shielding blocks as well as a number of miscellaneous items and equipment.</p>	
<p><i>Physical description of area/facility:</i></p> <ul style="list-style-type: none"> • Building 7708 is a single-story, metal framed, warehouse-type building with metal siding consisting of approximately 3,444 sq. ft. The building is located at the south side of the TSF. • The majority of the building is occupied by the Na and LiH shields in storage. • Building 7708 has no mechanical means of ventilation. • Painted surfaces observed are in fair to good condition and the building is generally clean. • The area surrounding the building is concrete, soil and grass. 	
Release Information	
<p><i>Description of release, or threatened release, and source:</i></p> <p>No existing or past adverse releases of hazardous substances were identified to be associated with Building 7708. A potential for adverse release of radiologic (RAD) and/or chemical substances exists due to the items currently stored in the building. However, based on the condition of stored material, methods of storage, and surveillance and maintenance (S&M) activities in place to maintain items in storage, this potential is considered slight.</p>	
<p><i>Hazardous substances present:</i></p> <p>The main inventory stored in Building 7708 consists of Na and LiH shields. Some of these shields contain RAD contamination and activated material. In addition, beryllium, alcohol, and equipment suspected to contain RAD contamination are stored in this building.</p>	

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

Refer to TSF summary form for known quantities of hazardous substances associated with this building.

Other pollutants or contaminants:

Based on the age of the facility, painted surfaces are assumed to be lead-containing. Verification samples are taken by ORNL Lead Management Program personnel on an "as-needed" basis to confirm the presence of lead in the paint (i.e., when work activities will disturb the paint, or paint is found to be deteriorating and poses a health or environmental threat). Painted surfaces observed are in fair to good condition throughout the facility and pose no immediate health threat.

No asbestos containing material was identified to be currently associated with this building.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts.

Air

Are there any suspected impacts due to air emissions? If yes, please describe.

Refer to Air section of TSF summary form for discussion of potential air quality impacts.

Soil

Are there any suspected impacts to soil? If yes, please describe.

There is a potential for areas of soil adjacent to the facility to be impacted from lead if, in fact, exterior paint is found to be lead-containing. Deteriorating paint could dislodge from the surface and fall to the soil below. With the exception of a few localized areas of deterioration, exterior paint was observed to be good condition and does not pose an significant threat in its current state.

Refer to Soil section of TSF summary form for further discussion of potential soil impacts.

Release Beyond Facility or Reservation Boundaries

Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).

Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.

Worker Safety

Could the release pose a threat to workers? If yes, please describe.

Good radiation practices and standard operating procedures governing S&M activities involving Building 7708 are enforced for worker safety. Radiologic hazard areas associated with this building are isolated and well marked. Hazardous substances are isolated and stored in containers where possible and appropriate. However, even with these safeguards in place, a potential threat to workers exists if safety measures and procedures are overlooked. This potential is not considered significant given the current status and level of activity of the building.

Environmental Receptors

Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.

No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with Building 7708 or the TSF.

Mitigation

What action(s) might be taken to abate/prevent release or impacts from release?

- Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities within Building 7708 and the TSF.
- Continue S&M activities per TSF Surveillance and Maintenance Work Plan, ORNL/RRD/INT-88/R1.

What actions are currently being taken to abate/prevent release or impacts from release?

Administrative controls and standard operating procedures governing activities associated with Building 7708 are in place and enforced. Levels of RAD contamination associated with the building are periodically monitored by ORNL health physics personnel. Hazard areas are isolated and marked to prevent inadvertent contact with contaminated surfaces or hazardous materials.

<p align="center">Other Environmental Authorities</p> <p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>If paint associated with the building is found to be lead-containing and samples fail the Toxicity Characteristic Leaching Procedure (TCLP) analysis, the building could qualify as a hazardous waste generator point under the Resource Conservation and Recovery Act (RCRA). Depending on the disposition of hazardous materials, items stored in Building 7708 may be subject to RCRA disposal regulations.</p>
<p align="center">Maintenance Actions</p> <p><i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i></p> <p>No potential hazards requiring maintenance actions were identified to be currently associated with Building 7708.</p>
<p align="center">Removal Actions</p> <p><i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i></p> <p>No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with Building 7708.</p>
<p align="center">Remedial Site Evaluation</p> <p><i>Is a Remedial Site Evaluation needed?</i></p> <p>Based on the age of the facility, painted surfaces are assumed to contain lead. Samples of the paint should be taken and analyzed to verify the presence of lead prior to conducting any S&M or D&D activities which may disturb these assumed areas.</p> <p>No further existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with Building 7708.</p>
<p align="center">No Further Investigation</p> <p><i>Is a finding of No Further Investigation appropriate? Please explain.</i></p> <p>A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Since Building 7708 contains substances which may become threatening if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.</p>

Additional Comments

The following documents and databases were referenced for historical and hazard information related to Building 7708:

- Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322.
- TSF Occurrence Reports.
- Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1.
- ORNL Hazardous Material Information System Database.
- ORNL PCB Inventory Database.
- EM60 Facility Inventory and Assessment Database.

The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:

- Mr. Bill Hill, Interim Facility Manager, TSF.
- Mr. Butch Fancher, Facility Manager (in training), TSF.
- Ms. Swati Wilson, Manager, ORNL Lead Management Program.
- Mr. Nathan Dunn, Hazardous Material Information System Office.
- Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

Advanced Sciences, Inc.
800 Oak Ridge Turnpike, Suite C-102
Oak Ridge, TN

Evaluator's Signature

Date

**14. BUILDING 7716—TOWER SHIELDING FACILITY FILTER
PUMP HOUSE, MAIN POOL**

ORNL FACILITY RmSE INFORMATION FORM

General Information	
<p><i>Area/Facility Name (and aliases):</i> Building 7716 Tower Shielding Facility (TSF) Filter Pump House, Main Pool</p>	
<p><i>Organization responsible for area/facility (include specific person and phone number if possible):</i> K. Constant (241-3146), HRFDP Project Manager, ER Program, LMES</p>	
<p><i>Status (active/inactive):</i> Inactive, Standby Mode</p>	<p><i>Years of Operation:</i> Unknown</p>
<p><i>Description of Operation:</i></p> <p>Building 7716 was originally constructed to house purification equipment for the handling pool water. The equipment in the building is currently inactive.</p>	
<p><i>Physical description of area/facility:</i></p> <ul style="list-style-type: none"> • Building 7716 is a single-story, steel framed, and reinforced concrete building consisting of approximately 100 sq. ft. • The building is located to the west of the handling pool. • The area surrounding the building consists of soil and grass. 	
Release Information	
<p><i>Description of release, or threatened release, and source:</i></p> <p>No existing or past adverse releases of hazardous substances were identified to be associated with Building 7716. Additionally, no potential for adverse release of hazardous substances was identified to be currently associated with Building 7716.</p>	
<p><i>Hazardous substances present:</i></p> <p>No hazardous substances were identified to be currently associated with Building 7716.</p>	
<p><i>Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:</i></p> <p>No hazardous substances were identified to be currently associated with Building 7716.</p>	

Other pollutants or contaminants:

No other pollutants or contaminants presenting an adverse threat to human health and the environment were identified to be currently associated with Building 7716.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts at the TSF.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts at the TSF.

Air

Are there any suspected impacts due to air emissions? If yes, please describe.

Refer to Air section of TSF summary form for discussion of potential air quality impacts at the TSF.

Soil

Are there any suspected impacts to soil? If yes, please describe.

Refer to Soil section of TSF summary form for discussion of potential soil impacts at the TSF.

Release Beyond Facility or Reservation Boundaries

Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).

Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.

Worker Safety

Could the release pose a threat to workers? If yes, please describe.

No release or potential release of hazardous substances threatening to workers at the TSF was identified to be currently associated with Building 7716.

Environmental Receptors
<p><i>Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.</i></p> <p>No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with Building 7716 or the TSF.</p>
Mitigation
<p><i>What action(s) might be taken to abate/prevent release or impacts from release?</i></p> <ul style="list-style-type: none"> Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities involving Building 7716 and the TSF.
<p><i>What actions are currently being taken to abate/prevent release or impacts from release?</i></p> <p>No situations or conditions requiring special actions to abate/prevent an adverse release of hazardous substances are currently associated with Building 7716.</p>
Other Environmental Authorities
<p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>No other environmental statutory actions were identified to be currently applicable to Building 7716 during this RmSE.</p>
Maintenance Actions
<p><i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i></p> <p>No potential hazards requiring maintenance actions were identified to be currently associated with Building 7716.</p>
Removal Actions
<p><i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i></p> <p>No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with Building 7716.</p>

Remedial Site Evaluation
<p><i>Is a Remedial Site Evaluation needed?</i></p> <p>No existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with Building 7716.</p>
No Further Investigation
<p><i>Is a finding of No Further Investigation appropriate? Please explain.</i></p> <p>A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Because of Building 7716's association with the TSF which contains substances which may become threatening to the area surrounding Building 7716 if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.</p>
Additional Comments
<p>The following documents and databases were referenced for historical and hazard information related to Building 7716:</p> <ul style="list-style-type: none"> • Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322. • TSF Occurrence Reports. • Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1. • ORNL Hazardous Material Information System Database. • ORNL PCB Inventory Database. • EM60 Facility Inventory and Assessment Database. <p>The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:</p> <ul style="list-style-type: none"> • Mr. Bill Hill, Interim Facility Manager, TSF. • Mr. Butch Fancher, Facility Manager (in training), TSF. • Ms. Swati Wilson, Manager, ORNL Lead Management Program. • Mr. Nathan Dunn, Hazardous Material Information System Office. • Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

Advanced Sciences, Inc.
800 Oak Ridge Turnpike, Suite C-102
Oak Ridge, TN

Evaluator's Signature

8/28/96
Date

**15. BUILDING 7720—CIVIL DEFENSE BUNKER
TOWER SHIELDING FACILITY**

ORNL FACILITY RmSE INFORMATION FORM

General Information	
Area/Facility Name (and aliases): Building 7720, Civil Defense Bunker Tower Shielding Facility (TSF)	
Organization responsible for area/facility (include specific person and phone number if possible): K. O. Constant (241-3146), HRFDP Project Manager, ER Program, LMES	
Status (active/inactive): Inactive, Standby Mode	Years of Operation: Unknown
Description of Operation: The Civil Defense Bunker was constructed at the TSF as part of an experiment to test and study the shielding capabilities such structures provided from the radiation produced by nuclear weapons. The front of the bunker consisted of reinforced concrete shielding blocks which were bombarded with an external radiation source during shielding experiments.	
Physical description of area/facility: <ul style="list-style-type: none"> • The Civil Defense Bunker (CDB) is an underground structure constructed in the side of a hill located at the northwest portion of the TSF. • The bunker is currently empty and has reportedly never been used for any kind of storage. • Reinforced concrete shielding blocks remain in place at the opening of the bunker. 	
Release Information	
Description of release, or threatened release, and source: No existing or past adverse releases of hazardous substances were identified to be associated with the CDB. Additionally, no potential for adverse release of hazardous substances was identified to be currently associated with the bunker.	
Hazardous substances present: No hazardous substances were identified to be currently associated with the CDB, although the reinforced concrete shielding blocks present at the opening of the bunker have reportedly been activated as a result of past radiation shielding experiments. The concrete shields do not represent an immediate threat to human health and the environment in their current form.	

Estimate (if possible) of quantities of hazardous substances that have been released and that could be released:

No hazardous substances were identified to be currently associated with the CDB.

Other pollutants or contaminants:

No other pollutants or contaminants presenting an adverse threat to human health and the environment were identified to be currently associated the CDB.

Groundwater

Are there any suspected impacts to groundwater? If yes, please describe. Include any impacts to drinking water sources.

Refer to Groundwater section of TSF summary form for discussion of potential groundwater impacts at the TSF.

Surface Water

Are there any suspected impacts to surface water? If yes, please describe. Also describe the most likely surface water migration route(s), if applicable. Include any impacts to drinking water sources.

Refer to Surface Water section of TSF summary form for discussion of potential surface water impacts at the TSF.

Air

Are there any suspected impacts due to air emissions? If yes, please describe.

Refer to Air section of TSF summary form for discussion of potential air quality impacts at the TSF.

Soil

Are there any suspected impacts to soil? If yes, please describe.

Refer to Soil section of TSF summary form for discussion of potential soil impacts at the TSF.

Release Beyond Facility or Reservation Boundaries

Has or will the release migrate beyond the boundaries of the facility or reservation? If yes, please describe (including possible human or environmental receptors).

Refer to TSF summary form for discussion of the potential for adverse release beyond facility or reservation boundaries.

Worker Safety
<p><i>Could the release pose a threat to workers? If yes, please describe.</i></p> <p>No release or potential release of hazardous substances threatening to workers at the TSF was identified to be currently associated with the CDB.</p>
Environmental Receptors
<p><i>Does the release pose a potential threat to environmental receptors? If yes, please describe. Include natural resources impacts.</i></p> <p>No existing conditions posing an immediate significant threat to environmental receptors, including natural resources, were identified to be currently associated with the CDB or the TSF.</p>
Mitigation
<p><i>What action(s) might be taken to abate/prevent release or impacts from release?</i></p> <ul style="list-style-type: none"> Continued utilization and enforcement of engineering and administrative controls that are currently in place to protect workers and monitor conditions and activities involving the CDB and the TSF.
<p><i>What actions are currently being taken to abate/prevent release or impacts from release?</i></p> <p>No situations or conditions requiring preventive actions are currently associated with the CDB.</p>
Other Environmental Authorities
<p><i>Is the release or threatened release potentially subject to other environmental statutory actions? If yes, please explain.</i></p> <p>No other environmental statutory actions were identified to be currently applicable to the CDB during this RmSE.</p>
Maintenance Actions
<p><i>Are maintenance actions necessary to eliminate potential threats to human health and the environment? If so, explain.</i></p> <p>No potential hazards requiring maintenance actions were identified to be currently associated with the CDB.</p>
Removal Actions
<p><i>Are Removal Actions necessary to eliminate immediate threat to human health and the environment? If so, explain.</i></p> <p>No imminent hazards requiring removal actions per 40 CFR 300.415 were identified to be currently associated with the CDB.</p>

Remedial Site Evaluation
<p><i>Is a Remedial Site Evaluation needed?</i></p> <p>No existing conditions requiring a Remedial Site Evaluation (RSE) were identified to be currently associated with the CDB.</p>
No Further Investigation
<p><i>Is a finding of No Further Investigation appropriate? Please explain.</i></p> <p>A finding of No Further Investigation implies that a facility or area is free from hazardous substances or contaminants that may threaten human health and the environment. Because of the civil defense bunker's association with the TSF which contains substances which may become threatening to the area surrounding the CDB if not properly controlled, handled and managed during the S&M cycle, a finding of No Further Investigation is inappropriate in this case.</p>
Additional Comments
<p>The following documents and databases were referenced for historical and hazard information related to the CDB:</p> <ul style="list-style-type: none"> • Work Plan for the High Ranking Facilities Deactivation Project at Oak Ridge National Laboratory, Document No. ORNL/ER-322. • TSF Occurrence Reports. • Tower Shielding Facility (TSF) Surveillance and Maintenance Work Plan, Document No. ORNL/RRD/INT-88/R1. • ORNL Hazardous Material Information System Database. • ORNL PCB Inventory Database. • EM60 Facility Inventory and Assessment Database. <p>The following personnel and offices were contacted and provided historical and current use/condition information for the TSF:</p> <ul style="list-style-type: none"> • Mr. Bill Hill, Interim Facility Manager, TSF. • Mr. Butch Fancher, Facility Manager (in training), TSF. • Ms. Swati Wilson, Manager, ORNL Lead Management Program. • Mr. Nathan Dunn, Hazardous Material Information System Office. • Mr. Jade Thomas, ORNL Environmental Compliance Office.

The RmSE of this facility was conducted for LMES under contract by:

Advanced Sciences, Inc.
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Oak Ridge, TN

Todd R. Grant
Evaluator's Signature

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15. J. W. Wagoner II, Team Leader, Portsmouth/Paducah/Weldon Spring Team, Office of Environmental Restoration, U.S. Department of Energy, Cloverleaf Building, EM-424, 19901 Germantown Road, Germantown, MD 20874
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