LUCIP for the
B Area Operable Unit (consists of 770-U Test Reactor Building (HWCTR), ECODS B-3 (East of B Area, South of Road C), and ECODS B-5 (Adjacent to ECODS B-3)[18]
Land Use Control Implementation Plan for the B Area Operable Unit
(SRNS-RP-2013-00113, Revision 1, January 2014)

[18] ECODS B-3 (East of B Area, South of Road C) and ECODS B-5 (Adjacent to ECODS B-3) are designated as No Action/No Further Action Operable Units.

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United States Department of Energy

Savannah River Site

enterprise-srs

Land Use Control Implementation Plan (LUCIP) for B-Area Operable Unit (U)

CERCLIS Number: 48

SRNS-RP-2013-00113

Revision 1

January 2014

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LIST OF ABBREVIATIONS AND ACRONYMS

~	approximately
ac	acre
ACP	Area Completion Projects
ARRA	American Recovery and Reinvestment Act
BAOU	B-Area Operable Unit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Ci	curie
CMI/RACR	Corrective Measures Implementation/Remedial Action Completion Report
CSM	Conceptual Site Model
ECA	Environmental Compliance Authority
ECODS	Early Construction and Operational Disposal Sites
FFA	Federal Facility Agreement
ft	feet, foot
ha	hectare
HAZWOPER	Hazardous Waste Operations and Emergency Response
HH	human health
HWCTR	Heavy Water Components Test Reactor
kg	kilogram
lb	pound
LUC	Land Use Control
LUCIP	Land Use Control Implementation Plan
LUCAP	Land Use Control Assurance Plan
m	meter
m^3	cubic meters
MCL	Maximum Contaminant Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NTCR	non-time critical removal
OU	Operable Unit
PCB	polychlorinated biphenyl
PCM	Post-Closure Manager
QA	Quality Assurance

LIST OF ABBREVIATIONS AND ACRONYMS *(Continued/End)*

RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SCDHEC	South Carolina Department of Health and Environmental Control
SDC	Site Development Control
SLF	Sanitary Landfill
SRNS	Savannah River Nuclear Solutions, LLC
SRS	Savannah River Site
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
WSRC	Washington Savannah River Company, LLC
yd^3	cubic yards

1.0 INTRODUCTION

This Land Use Control Implementation Plan (LUCIP) has been prepared for the B-Area Operable Unit (BAOU) at the Savannah River Site (SRS). The BAOU consists of two subunits within B Area: the Early Construction and Operational Disposal Sites (ECODS) B-3 and B-5 subunit and the Building 770-U Heavy Water Components Test Reactor (HWCTR) subunit. The ECODS B-3 and B-5 subunit covers approximately (~) 0.04 hectare (ha [0.1 acre {ac}]) and the HWCTR subunit covers ~0.8 ha (2 ac). Groundwater is not considered part of the BAOU. The purpose of this LUCIP is to describe how the land use controls (LUCs) selected in the BAOU Record of Decision (ROD) (SRNS 2013) will be implemented and maintained. The LUC objectives have been documented in the BAOU ROD and are listed in Section 3.0.

The selected remedy for the ECODS B-3 and B-5 subunit is No Further Action. In its current state, this subunit poses no risk to human health (HH) and the environment and supports unrestricted land use. Therefore, LUCs are not required at this subunit.

The selected remedy for the HWCTR subunit is LUCs with Groundwater Monitoring. The selected remedy leaves hazardous substances in place that pose a potential future risk and will require land use restrictions until the concentrations of hazardous substances in the below-grade portion of the HWCTR facility are at levels that allow for unrestricted use. Although groundwater is not part of this operable unit (OU), the selected remedy also provides additional assurance regarding the protection of groundwater by the inclusion of an effectiveness monitoring program.

As agreed on March 30, 2000, among the United States Department of Energy (USDOE), the United States Environmental Protection Agency (USEPA), and the South Carolina Department of Health and Environmental Control (SCDHEC), SRS is implementing a Land Use Control Assurance Plan (LUCAP) (WSRC 2013) to ensure that the LUCs required by numerous remedial decisions at SRS are properly maintained and periodically verified. The requirements of that LUCAP also apply to the LUCs that were selected as part of the remedial action for the BAOU. This additional document, the BAOU LUCIP, contains the detailed and specific measures required to implement and maintain the LUCs selected as part of this particular remedial

decision. The LUCs shall be maintained until the HWCTR subunit is suitable for unlimited exposure and unrestricted use. Approval by USEPA and SCDHEC is required for any modification or termination of the LUCs.

USDOE is responsible for implementing, maintaining, monitoring, reporting, and enforcing the LUCs in accordance with the approved LUCIP. Upon final approval, the LUCIP will be appended to the LUCAP and should be considered incorporated by reference into the BAOU ROD, establishing implementation and maintenance requirements for the LUCs under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the SRS Federal Facility Agreement (FFA) (FFA 1993). The LUCIP will remain in effect unless and until modifications are approved by USEPA and SCDHEC as necessary for protection of HH and the environment. In accordance with Section 121(c) of CERCLA and National Oil and Hazardous Substances Pollution Contingency Plan (NCP) §300.430(f)(5)(iii)(c), a statutory review will be conducted within five (5) years of initiation of the remedial action, and every five (5) years thereafter, to ensure that the remedy continues to be protective of HH and the environment. Any approved LUCIP modification will be appropriately documented for incorporation by reference into the BAOU ROD.

1.1 Format of LUCIP

The format of this LUCIP is consistent with the FFA protocol format approved by the USEPA and SCDHEC in March 2004.

2.0 OVERVIEW OF BAOU REMEDIAL ACTION

2.1 General Description and History of the BAOU

The BAOU is located in the northwest quadrant of the SRS in Aiken County, South Carolina (Figure 1). Funding through the American Recovery and Reinvestment Act (ARRA) of 2009 supported acceleration of the original milestone dates for both of the BAOU subunits, and the USDOE has performed a non-time critical removal (NTCR) action at each in order to achieve the accelerated schedule commitments (SRNS 2010a and SRNS 2010b).

ECODS B-3 and B-5

ECODS B-3 and B-5 were two of the twenty-five (25) ECODS identified at SRS that were used to dispose of waste material associated with the construction of SRS facilities. ECODS B-3 and B-5 were associated with the construction of B Area and are located between B Area and the Sanitary Landfill (SLF) (Figure 2). Construction waste was buried in shallow, elongated trenches, and several trenches were also used as burn pits for combustible waste disposal.

The NTCR action successfully addressed contaminants in the soil (arsenic and five pesticides) and construction waste (potential exposure to buried asbestos) that posed a threat to HH and the environment. The removal action consisted of excavation and off-site disposal of impacted soil and construction debris totaling ~6,537 cubic meters (m^3 [8,550 cubic yards {yd^3}]). The NTCR action met residential cleanup goals. Currently, the ECODS B-3 and B-5 subunit poses no risk to HH and the environment and warrants unrestricted land use.

HWCTR

The HWCTR facility is located on ~0.8 ha (2 ac) in an area formally known as U Area. This area is now part of B Area (Figure 2), which is composed primarily of administrative, protective force operations, laboratory, and warehouse facilities.

The HWCTR facility was a pressurized heavy water reactor designed to test candidate fuel designs for heavy water power reactors. The test reactor was not a defense-related facility like the five (5) production reactors at the SRS. The HWCTR facility operated from March 1962 until December 1964 when operations were terminated and the facility was placed in a standby condition, including the removal of fuel and heavy water.

The NTCR action for HWCTR was "In Situ Decommissioning with Reactor Vessel and Steam Generator Removal." The purpose of the NTCR action was to protect future industrial workers from exposure to radionuclides and hazardous constituents in the reactor vessel, steam generators and associated equipment in the HWCTR facility and to prevent potential migration of radionuclides and hazardous constituents from the HWCTR facility to groundwater above maximum contaminant levels (MCLs).

Under this removal action, the reactor vessel, steam generators, steel containment dome, and all above-grade components of the facility, with the exception of the transfer coffin refueling machine, were removed and disposed of at appropriate disposal facilities. Following removal of these components, the transfer coffin refueling machine was placed in the reactor vessel void space and the below-grade portions of the facility were sealed in place with a grout material to form a stabilized structure. The area was then covered with concrete at the ground surface to prevent infiltration and eliminate direct exposure to contaminants left in place for future industrial workers.

In addition, four groundwater monitoring wells were installed at HWCTR in 2009 to confirm that there was no impact to groundwater from historical releases and to provide a future monitoring network if needed (i.e., if potential sources were not stabilized or removed). The 2009-2010 sampling results acknowledged that there was no historical impact to groundwater from HWCTR operations or a former underground storage tank location.

Signs were installed, ongoing surveillance and maintenance activities were initiated, and LUCs were implemented as part of the NTCR action.

2.2 Nature and Extent of Contamination in the BAOU

ECODS B-3 and B-5

There are no HH, ecological or contaminant migration risks following the NTCR action at the ECODS B-3 and B-5 subunit. This BAOU subunit is suitable for unrestricted use.

HWCTR

Prior to the removal action, ~2,100 curies (Ci) of radioactivity remained in the HWCTR facility. More than 99 percent of the radioactivity in the HWCTR facility was associated with activated metal in the internal structure of the reactor vessel and associated steam generators. It is estimated that following deactivation activities and removal of the above grade structure, the reactor vessel and the steam generators, ~21 Ci remain in the below grade structure. In addition, the facility also contained hazardous materials such as lead, asbestos, and polychlorinated

biphenyls (PCBs) associated with existing equipment or previous operations (e.g., lights, piping, paints, etc.). The estimated mass of PCBs contained in paint and cables remaining in HWCTR is ~45 kilogram (kg [100 pounds {lb}]). All of the residual contamination is limited to the below-grade portions of the facility that were sealed in place with grout material to form the stabilized structure; there is no evidence that contaminants have migrated in the past or will migrate in the future from the facility to the surrounding soil or groundwater media. Following the NTCR action, grouting below-grade and covering portions of the facility at-grade removed exposure pathways for the industrial worker to remaining contaminants while reducing any future risk of contaminant migration to groundwater.

The selected remedy for the HWCTR subunit of the BAOU leaves hazardous substances in place that pose a potential future risk if exposure were to occur and will require land use restrictions until the concentrations of hazardous substances remaining in the below-grade portions of the HWCTR facility are at levels that allow for unrestricted use and exposure.

2.3 Remedial Action Selected

The selected remedy for the ECODS B-3 and B-5 subunit is No Further Action. In its current state, this subunit poses no risk to HH and the environment and supports unrestricted land use.

The selected remedy for the HWCTR subunit is LUCs with Groundwater Monitoring. The NTCR action reduced the HH risk by eliminating the human exposure pathway and minimized the potential of contaminants to migrate to groundwater; however, residual hazardous and radioactive substances, although stabilized in place, remain in the below-grade portions of the HWCTR facility. The future land use will remain industrial. This remedy also provides additional assurance regarding the protection of the groundwater by inclusion of an effectiveness monitoring program.

The post-NTCR action conceptual site model (CSM) for HWCTR (Figure 3) demonstrates that the exposure pathways to an industrial worker are incomplete. This CSM is also applicable following implementation of the remedial action. According to the *Savannah River Site Future Use Project Report* (USDOE 1996), residential use of SRS land should be prohibited.

3.0 LAND USE CONTROL OBJECTIVES

The following LUC objectives for the HWCTR subunit of the BAOU have been developed to ensure the protectiveness of the remedy described above:

- Maintain the integrity of engineering controls which provide an exposure barrier (including in-situ grouting and concrete cover)
- Maintain the integrity of the groundwater monitoring well system
- Restrict or prohibit groundwater use as determined to be necessary based on monitoring results
- Restrict access by posting and maintaining warning signs and enforcing SRS security procedures
- Prohibit the development and use of property for any use other than industrial; no residential use, school use, child care facilities or recreational use shall be allowed

Current access controls and land transfer requirements needed to maintain the future land use are described in the following sections of this LUCIP.

4.0 IMPLEMENTATION OF LAND USE CONTROLS

This section describes the LUCs selected in the ROD to achieve the LUC objectives stated in Section 3.0. A summary of the types of LUCs is provided in Table 1. USDOE is responsible for implementing, maintaining, monitoring, reporting on and enforcing the LUCs required for the HWCTR subunit of the BAOU. The LUCIP will become enforceable and will be implemented when approved by USEPA and SCDHEC following the completion of the remedial action prescribed by the BAOU ROD. USDOE shall notify USEPA and SCDHEC 60 days in advance of any proposed land use changes that are inconsistent with LUC objectives or the selected remedy.

The HWCTR subunit of the BAOU will be maintained as an industrial use area by implementation of the property record notices and restrictions (Section 4.1) and the LUC boundary map (Section 4.2).

The Site Use Program (Section 4.3) will be implemented to prevent onsite worker exposure to contamination left in place at the HWCTR subunit of the BAOU. Other existing measures (i.e., Site Clearance Program, worker training, health and safety requirements, work controls) will also be used to ensure worker safety at the HWCTR subunit. Physical access controls (Section 4.4) are implemented at the SRS boundary to control and restrict public and trespasser access.

The signs that were installed as part of the NTCR action at the HWCTR subunit will be maintained to alert onsite workers to the presence of hazardous substances. The signs also convey the restrictions of unauthorized personnel. The access control warning signs were placed as shown in Figure 4 and will be maintained to prevent unknowing entry and unrestricted use.

4.1 Property Record Notices and Restrictions

In the long term, if the property, or any portion thereof, is ever transferred from the USDOE, the U.S. Government and/or USDOE will take those actions necessary pursuant to Section 120(h)(1) of CERCLA. Those actions will include in any contract, deed, or other transfer document, notice of the type and quantity of any hazardous substances that were known to have been stored (for more than one year), released, or disposed of on the property. The notice will also include the time at which the storage, release, or disposal took place to the extent such information is available.

In addition, if the property, or any portion thereof, is ever transferred by deed, the U.S. Government will also satisfy the requirements of CERCLA 120(h)(3). The requirements include: a description of the remedial action taken, a covenant, and an access class. These requirements are also consistent with the intent of the Resource Conservation and Recovery Act (RCRA) deed notification requirements at final closure of a RCRA facility if contamination will remain at the unit.

LUCs will be implemented through the following:

- The contract, deed, or other transfer document shall also include restrictions precluding residential use of the property. However, the need for these restrictions may be reevaluated at the time of transfer in the event that exposure assumptions differ and/or the residual

contamination no longer poses an unacceptable risk under residential use. Any reevaluation of the LUCs will be done through an amended ROD with USEPA and SCDHEC review and approval.

- In addition, if the site is ever transferred to nonfederal ownership, a survey plat of the OU will be prepared, certified by a professional land surveyor, and recorded with the appropriate county recording agency.

In the event of a property lease or interagency agreement, the equivalent restrictions will be implemented as required by CERCLA Section 120(h).

USDOE shall provide the USEPA and SCDHEC at least six months notice prior to transfer or sale of property subject to LUCs to ensure that USEPA and SCDHEC can be involved in discussions to ensure that appropriate provisions are included in the transfer documents to maintain effective LUCs. If it is not possible for the USDOE to notify the USEPA and SCDHEC at least six months prior to the transfer or sale, then the facility will notify the USEPA and SCDHEC as soon as possible, but no later than 60 days prior to the transfer or sale of any property subject to LUCs. In addition to the land transfer notice and discussion provisions above, USDOE further agrees to provide the USEPA and SCDHEC with similar notice within the same time frames as to federal-to-federal transfer of property.

4.2 LUC Boundary Maps

This LUCIP identifies the area currently under land use restrictions in Figure 4 for the HWCTR subunit. A final (as-built) survey plat will be developed and certified by a professional land surveyor registered in the State of South Carolina. The final plat will include the boundary coordinates for the area subject to land use restrictions and general locations of access control warning signs. The final as-built survey plat will be submitted to USEPA and SCDHEC in the Corrective Measures Implementation/Remedial Action Completion Report (CMI/RACR).

In addition, if the site is ever transferred to non-federal ownership, a certified survey plat of the HWCTR subunit of the BAOU will be prepared at or near the time of conveyance to support the

LUCIP required restrictive covenants on land use and will be recorded with the appropriate county recording agency.

4.3 Site Use Program

Under DOE Order 430.1A, *Life Cycle Management* (USDOE 1998), SRS is required to implement an asset management program for the use, maintenance, and disposal of physical assets, including real estate. SRS complies with this DOE Order through the Site Use Program which is administered by Site Development Control (SDC) in accordance with SRS Manual 1D, *Site Infrastructure and Services Manual*, Procedure 3.02, "Site Real Property Configuration Control" (SRS 2006). Use of all lands and waters on the SRS are coordinated via the Site Use Program. No use of land (i.e., excavation or any other land use) shall be undertaken without prior approval by the USDOE and documented by a Site Use Permit.

SRS identifies all buildings, facilities, and FFA waste units on SRS site development maps that are maintained by SDC in accordance with SRS Manual 1D. If LUCs are required for an FFA waste unit, the unit-specific LUC boundaries are identified on the SRS site development maps. SDC must verify that any proposed work to be performed on a site is sanctioned by a Site Use Permit and verify that the proposed activity does not conflict with any previously approved land use.

In addition to the management of the use of SRS lands and waters through the Site Use Program, the SDC also administers the Site Clearance Program to control the construction, alteration, or demolition activities at SRS. Before any work that adds or modifies features or facilities portrayed on the SRS site development maps is conducted, a Site Clearance Permit is required. USDOE approval of the intended land via a Site Use Permit must be verified before a Site Clearance Permit is issued. If a Site Clearance request potentially impacts a FFA waste unit, the Site Clearance Request Form is sent to the appropriate FFA reviewer for approval. The FFA reviewer will evaluate the proposed activity to identify any conflicts with the waste unit and to verify that waste unit specific LUCs are not compromised. The roles and responsibilities of the individuals responsible for review and approval of Site Use and Site Clearance permits are

detailed in SRS 1D, Procedure 3.02. All employees, contractors, and visitors at SRS are required to adhere to the Site Use Program and the Site Clearance Program.

The USDOE will notify USEPA and SCDHEC in advance of any change to any internal procedure, including the Site Use Program, which would affect implementing or maintaining the LUCs. Approval by USEPA and SCDHEC is required for any modification or termination of the LUCs and implementation actions, and the USDOE must obtain prior approval from USEPA and SCDHEC before taking any anticipated action that may disrupt the effectiveness of the LUCs or alter or negate the need for LUCs. The Site Use Permit and site development maps must be amended when the geographic configuration or buffer zone used to establish the permit boundary changes or there is a change to the land use. The processes are controlled within the SRS Quality Assurance (QA) Program in accordance with SRS 1Q Manual, *Quality Assurance* (SRS 2007). The SRS QA program governs all SRS activities.

4.4 Physical Access Controls

There are no physical access controls required at the HWCTR subunit of the BAOU because all residual contamination is stabilized below-grade beneath a concrete cover; however, physical access controls are provided at the SRS boundary as mentioned in Table 1, Item 5.

4.5 Warning Signs

To prevent unknowing entry and to ensure that unrestricted use of the HWCTR facility does not occur while under ownership of the USDOE, access control warning signs as shown in Appendix A were posted at the HWCTR subunit as part of the NTCR action (Figure 4). The signs are legible for a distance of at least 7.6 meters (m [25 feet {ft}]).

Custodial responsibilities for maintenance and inspection of the HWCTR subunit of the BAOU will be maintained by the SRS Post-Closure Maintenance Group.

4.6 Other Access Controls and Security/Surveillance Measures

While under the ownership of USDOE, access control of the entire SRS will be maintained in accordance with the 2000 RCRA Part B Permit Renewal Application, Volume I, Section F.1. This section describes the 24-hour surveillance system (R.61-79.264.14(b)(1)), artificial or natural barriers (R.61-79.264.14(b)(2)(I)), control entry systems (R.61-79.264.14(b)(2)(ii)), and access control warning signs (R.61-79.264.14(c)) in place at the SRS boundary to comply with the security requirements for a RCRA-permitted facility.

4.7 Field Inspection and Maintenance for Land Use Controls

Following implementation of the LUCs at the HWCTR subunit, inspection and maintenance activities are required. The HWCTR subunit will be inspected per the Field Inspection Checklist in Appendix B. Field inspections will be performed annually. Additional inspections may be necessary in the event of unusual weather or any other condition warranting inspection. Inspections will be performed to ensure that access control signs are in place, have the correct information, and are legible from a distance of 7.6 m (25 ft). The inspections will verify that excessive deterioration of the concrete cover has not occurred and the cover is free of vegetation, and that there are no unauthorized excavation, digging, or construction activities within the HWCTR boundaries. Necessary repairs will be performed for items in Appendix B that are found to be in unsatisfactory condition.

Any activity that is inconsistent with the LUC objectives or use restrictions, or any other action that may interfere with the effectiveness of the LUCs will be addressed by the USDOE as soon as practicable, but in no case will the process be initiated later than ten (10) days after the USDOE becomes aware of the breach. The USDOE will notify USEPA and SCDHEC as soon as practicable, but no longer than ten (10) days after discovery of any activity that is inconsistent with the LUC objectives or use restrictions, or any other action that may interfere with the effectiveness of the LUCs. The USDOE will notify USEPA and SCDHEC regarding how the USDOE has addressed or will address the breach within ten (10) days of sending USEPA and SCDHEC notification of the breach.

The FFA Annual Progress Report, submitted to the regulatory agencies by USDOE, will provide the status of the LUCs and describe how any LUC deficiencies or inconsistent uses have been addressed. In the event of property transfer or lease, the Annual Report will cite findings on the following: whether the use restrictions and controls referenced above were communicated in the deed(s) or lease restrictions; whether property use conforms with the deed or lease restrictions and controls; and whether the owners and state/local agencies have been notified regarding the deed or lease restrictions and controls. The FFA Annual Progress Report(s) will be used in the preparation of the Five-Year Remedy Review Report.

All other routine maintenance activities will be documented and maintained in files subject to USEPA and SCDHEC review and audit. A copy of the completed inspection form is maintained in the Area Completion Projects (ACP) Document Control. The LUCs shall be maintained until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.

The waste unit inspectors are to be trained in Hazardous Waste Operations and Emergency Response (HAZWOPER), RCRA Well Inspections (ACP-specific training), ACP RCRA Waste Unit Inspections, Radiological Worker Training, etc., as applicable for the specific inspection. They will also be trained based on the individual requirements of the regulatory approved closure documents for each waste unit. In addition, the inspectors are to attend yearly refresher courses. Over the years, different personnel may conduct the inspections and maintenance activities.

This unit-specific LUCIP, including the checklist (Appendix B), will be appended to the SRS LUCAP upon final regulatory approval. After completion of the CMI/RACR, the preliminary checklist in the LUCAP will be replaced with the final approved checklist.

5.0 REFERENCES

FFA, 1993. *Federal Facility Agreement for the Savannah River Site*, Administrative Docket No. 89-05-FF (Effective Date: August 16, 1993)

SRNS, 2010a. *Removal Site Evaluation Report / Engineering Evaluation / Cost Analysis (RSER/EE/CA) for the Early Construction and Operational Disposal Sites (ECODS) B-3 and B-5 Operable Unit (OU) (U),* Revision 1, SRNS-RP-2009-01443, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2010b. *Removal Site Evaluation Report / Engineering Evaluation / Cost Analysis (RSER/EE/CA) for the Heavy Water Components Test Reactor (HWCTR) (U)*, Revision 1, SRNS-RP-2009-01102, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

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USDOE, 1996. *Savannah River Site Future Use Project Report, Stakeholder-Preferred Recommendations for SRS Land and Facilities*, USDOE Savannah River Operations Office, January

USDOE, 1998. DOE Order 430.1A, *Life Cycle Management* (Approved October 14, 1998)

WSRC, 2013. *Land Use Control Assurance Plan for the Savannah River Site*, WSRC-RP-98-4125, Revision 1.1, August 1999, updated March 2013, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

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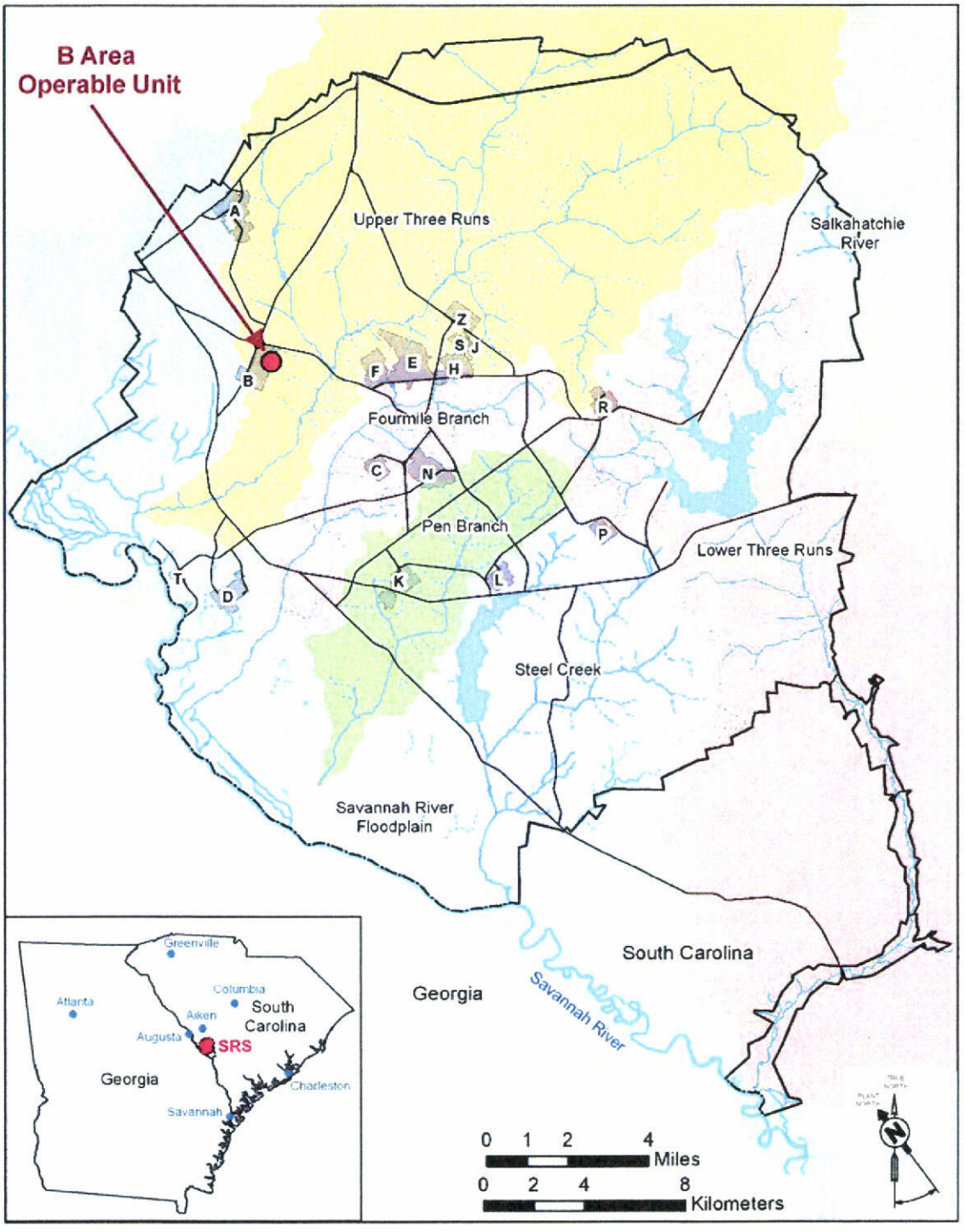
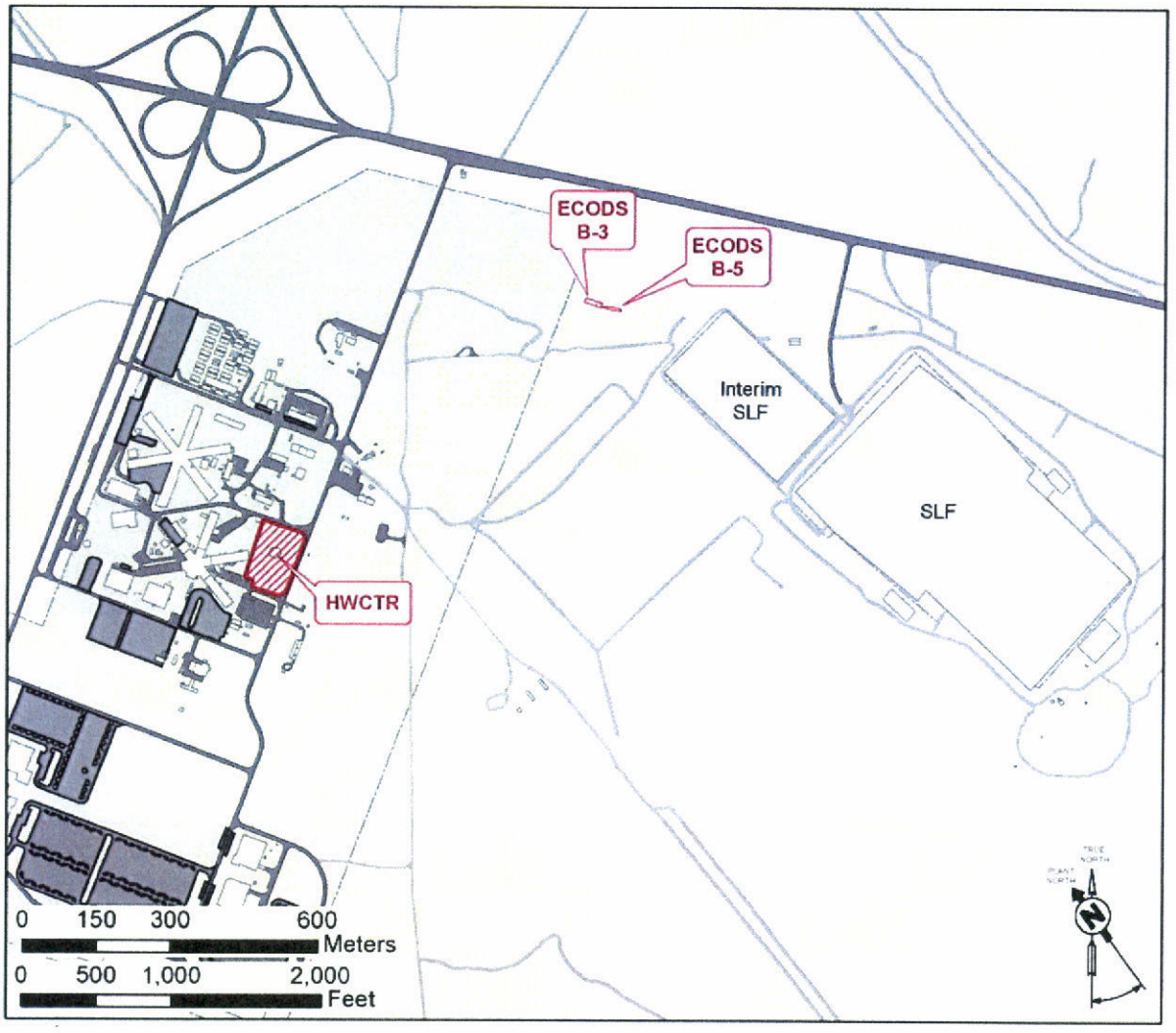


Figure 1. Location of the BAOU within the Savannah River Site and Upper Three Runs Watershed.



SLF = Sanitary Landfill

Figure 2. Location of the BAOU Subunits

ARF-19290

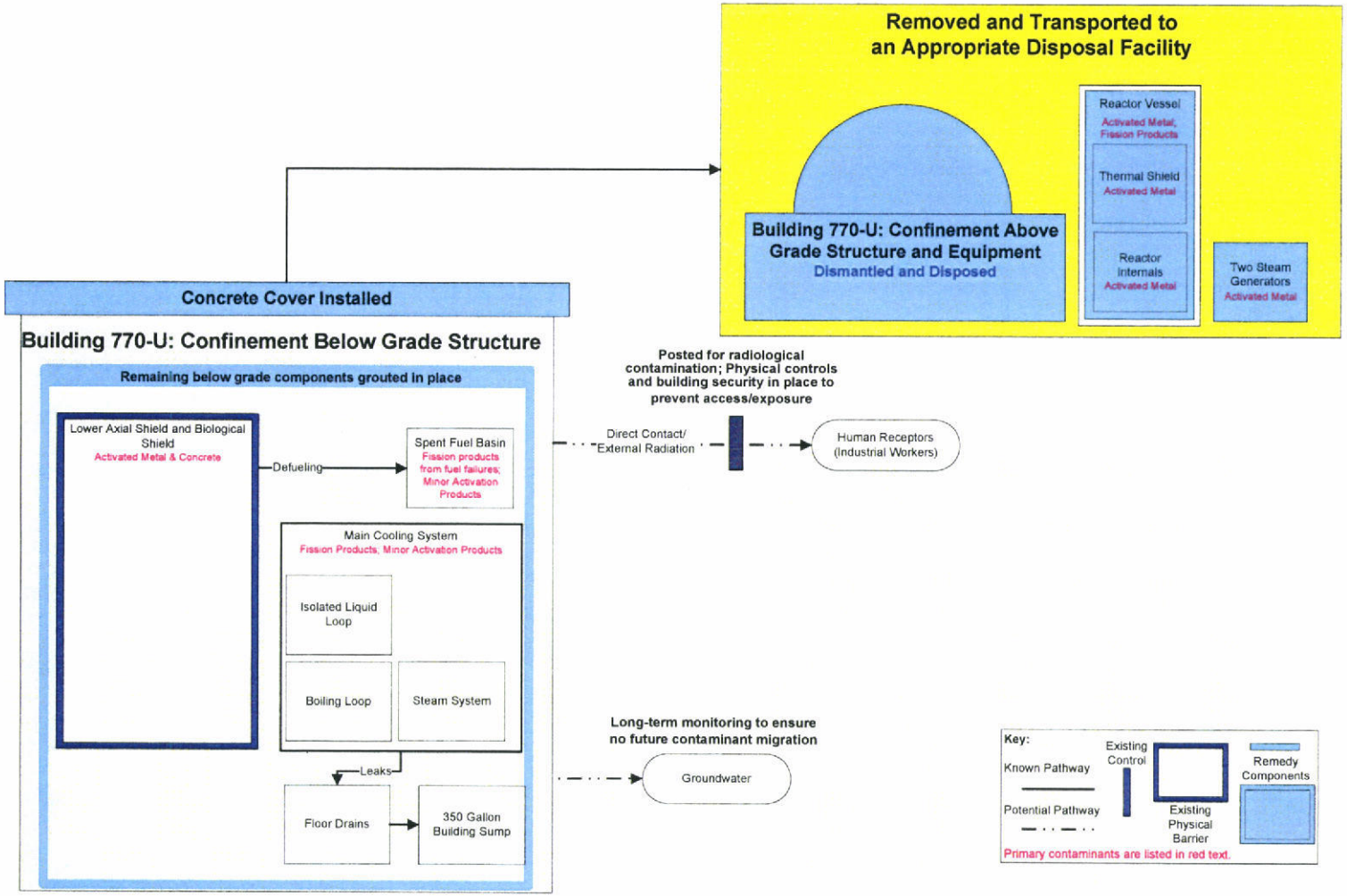


Figure 3. Post-Remedial Action Conceptual Site Model for the HWCTR Subunit of the BAOU

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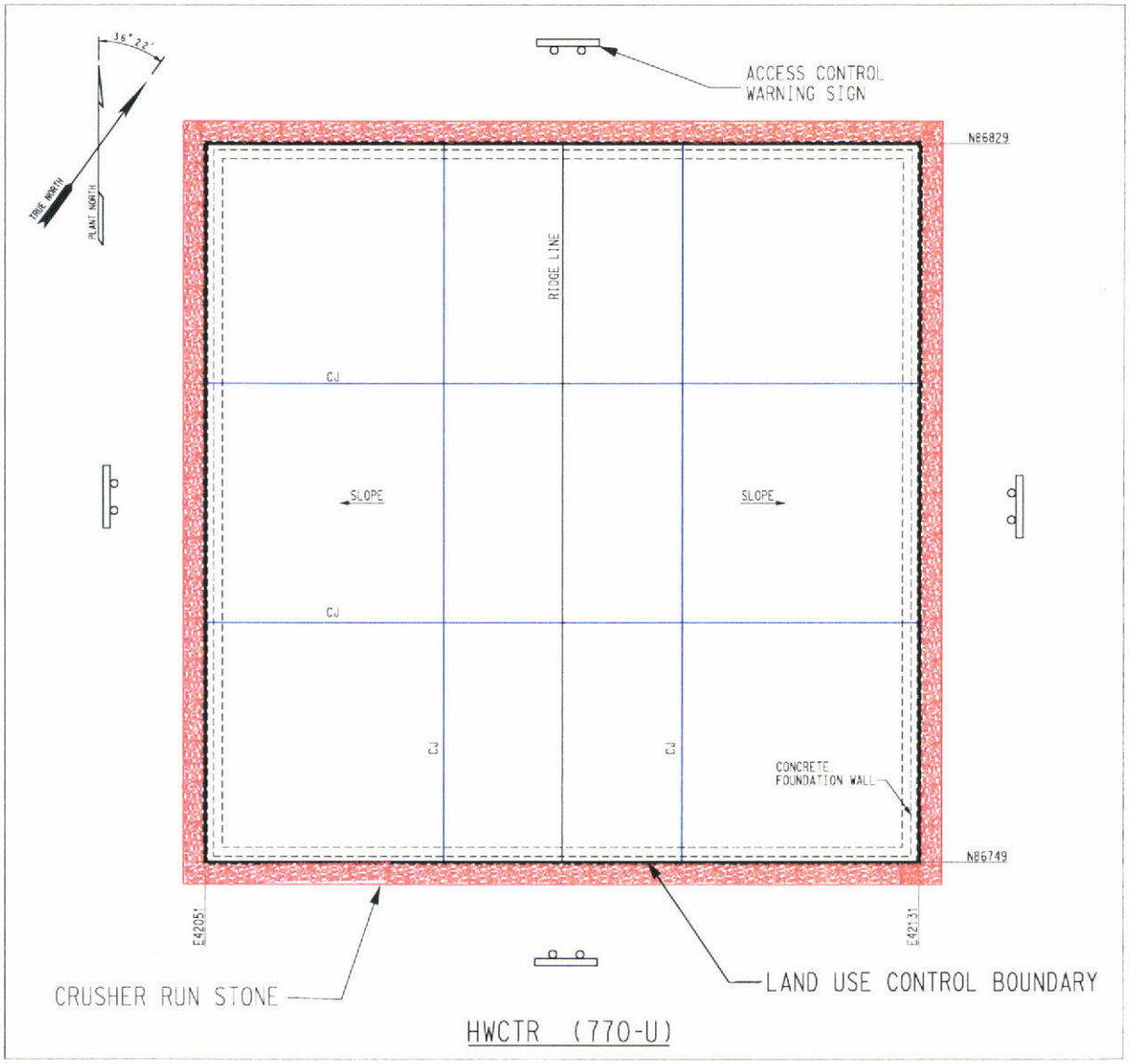

Figure 4. Land Use Control Boundary for the HWCTR Subunit of the BAOU

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Table 1. Land Use Controls for the BAOU

Type of Control	Purpose of Control	Duration	Implementation	Affected Areas[a]
1. Property Record Notices[b]	Provide notice to anyone searching records about the existence and location of contaminated areas.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Notice recorded by USDOE in accordance with state laws at County Register of Deeds office if the property or any portion thereof is ever transferred to non-federal ownership.	BAOU area (i.e., HWCTR) under this LUCIP where hazardous substances are left in place at levels requiring land use and/or groundwater restrictions.
2. Property record restrictions[c]: A. Land Use	Restrict use of property by imposing limitations.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Drafted and implemented by USDOE upon any transfer of affected areas. Recorded by USDOE in accordance with state law at County Register of Deeds office.	BAOU area (i.e., HWCTR) under this LUCIP where hazardous substances are left in place at levels requiring land use restrictions.
3. Other Notices[d]	Provide notice to county/city about the existence and location of waste disposal and residual contamination areas for zoning/planning purposes.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Notice recorded by USDOE in accordance with state laws at County Register of Deeds office if the property or any portion thereof is ever transferred to non-federal ownership.	BAOU area (i.e., HWCTR) under this LUCIP where hazardous substances are left in place at levels requiring land use restrictions.
4. Site Use Program[e]	Provide notice to worker/developer) i.e., permit requestor) on extent of contamination and prohibit or limit excavation/penetration activity.	As long as property remains under USDOE control.	Implemented by USDOE and site contractors. Initiated by permit request.	BAOU area (i.e., HWCTR) and remediation systems under this LUCIP where hazardous substances are left in place at levels requiring land use restrictions.
5. Physical Access Controls[f] (e.g., fences, gates, portals)	Control and restrict access to workers and the public to prevent unauthorized.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Controls maintained by USDOE	Security is provided at site boundaries in accordance with SRS procedures.

Table 1. Land Use Controls for the BAOU *(Continued/End)*

Type of Control	Purpose of Control	Duration	Implementation	Affected Areas[a]
6. Warning Signs[g]	Provide notice or warning to prevent unauthorized uses	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Signage maintained by USDOE	Warning signs will be posted in accordance with applicable site procedures and will be placed in appropriate areas at the HWCTR subunit of the BAOU.
7. Security Surveillance Measures	Control and monitor access by workers/public	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Established and maintained by USDOE. Necessity of patrols evaluated upon completion remedial actions or property transfer.	Patrol of waste management areas under this LUCIP, as necessary.

[a] Affected areas – Specific locations identified in the OU-specific LUCIP or subsequent post-ROD documents.

[b] Property Record Notices – Refers to any non-enforceable, purely informational document recorded along with the original property acquisition records of USDOE and its predecessor agencies that alerts anyone searching property records to important information about residual contamination; waste disposal areas in the property.

[c] Property Record Restrictions – Includes conditions and/or covenants that restrict or prohibit certain uses of real property and are recorded along with original property acquisition records of USDOE and its predecessor agencies.

[d] Other Notices – Includes information on the location of waste disposal areas and residual contamination depicted on as survey plat, which is provided to a zoning authority (i.e., city planning commission) for consideration in appropriate zoning decisions for non-USDOE property.

[e] Site Use Program – Refers to the internal USDOE/USDOE contractor administrative program(s) that requires the permit requestor to obtain authorization, usually in the form of a permit, before beginning any excavation/penetration activity (e.g., well drilling) for the purpose of ensuring that the proposed activity will not affect underground utilities/structures, or in the case contaminated soil or groundwater, will not disturb the affected areas without the appropriate precautions and safeguards.

[f] Physical Access Controls – Physical barriers or restrictions to entry.

[g] Signs – Posted command, warning or direction.

APPENDIX A

ACCESS CONTROL WARNING SIGNS

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ARF # 17822

Enclosure 2 – HWCTR Access Control Warning Sign

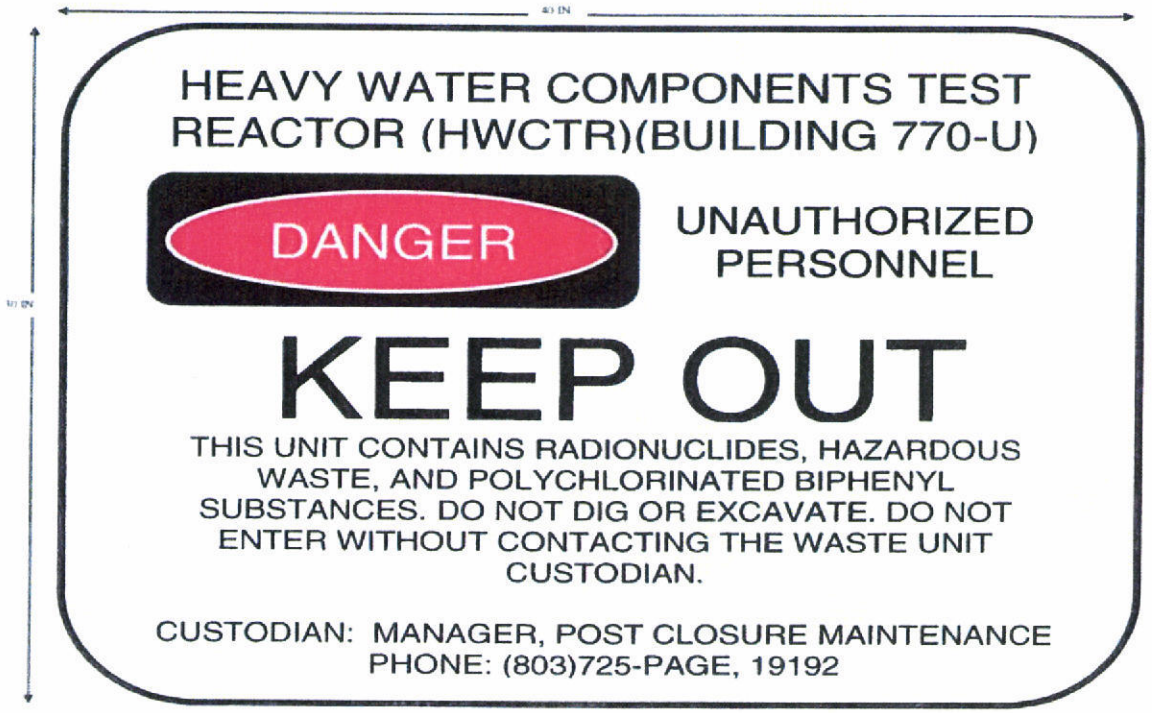

Figure A-1. Access Control Warning Sign

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APPENDIX B

FIELD INSPECTION CHECKLIST FOR HWCTR SUBUNIT OF BAOU

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FIELD INSPECTION CHECKLIST

FOR THE HEAVY WATER COMPONENTS TEST REACTOR (HWCTR) (770-U)

☐ SCHEDULED ☐ UNSCHEDULED

A= Satisfactory X= Unsatisfactory (Explanation required)	A or X	Observation of Corrective Action Taken
1. Verify that the area is accessible for authorized maintenance and inspections.		
2. Verify that the waste unit signs (4) are in acceptable condition, have the correct information, and are legible from a distance of 25 feet.		
3. Verify that excessive deterioration of the concrete cover has not occurred and the cover is free of vegetation.		
4. Verify that there are no unauthorized excavation, digging, or construction activities within the HWCTR boundaries.		

Inspected by:

_____ / _____ _____

(Print Name) (Signature) (Date)

Post-Closure Manager:

_____ / _____ _____

(Print Name) (Signature) (Date)

CAUTION: The inspector shall notify the Post-Closure Manager (PCM) and Environmental Compliance Authority (ECA) **IMMEDIATELY** if there has been a breach or compromise of the land use controls of this waste unit. The notification shall be in accordance with SRS post-closure inspection procedures.

NOTE: Monitoring wells associated with this waste unit are maintained in accordance with ACP Monitoring Well Procedures

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