LUCIP for the
Early Construction and Operational Disposal Site (ECODS)
L-1, N-2, P-2, and R-1A, -1B, -1C

Land Use Control Implementation Plan for the Early Construction and Operational Disposal Site (ECODS) L-1, N-2, P-2, & R-1A, -1B, -1C
(SRNS-RP-2009-01373, Rev.1, April 2010)

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United States Department of Energy

Savannah River Site

Land Use Control Implementation Plan (LUCIP) for the Early Construction and Operational Disposal Sites (ECODS) L-1, N-2, P-2, and R-1A, -1B, -1C Operable Unit (OU) (U)

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Aiken, South Carolina

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ACP	Area Completion Projects
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CM	contaminant migration
CMIR	Corrective Measures Implementation Report
COC	constituent of concern
CSM	conceptual site model
ECODS	Early Construction and Operational Disposal Site
FFA	Federal Facility Agreement
ft	feet
IC	institutional control
IOU	Integrator Operable Unit
km	kilometer
km^2	square kilometer
LUC	land use control
LUCAP	Land Use Control Assurance Plan
LUCIP	Land Use Control Implementation Plan
m	meter
mi	mile
mi^2	square mile
NBN	no building number
OU	operable unit
PTSM	principal threat source material
QA	Quality Assurance
RA	remedial action
RACR	Remedial Action Completion Report
RAO	remedial action objective
RCOC	refined constituent of concern
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SB/PP	Statement of Basis/Proposed Plan
SCDHEC	South Carolina Department of Health and Environmental Control
SGCP	Soil and Groundwater Closure Projects
SRNS	Savannah River Nuclear Solutions, LLC
SRS	Savannah River Site
USDOE	U.S. Department of Energy
USEPA	U.S. Environmental Protection Agency
WSRC	Washington Savannah River Company

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1.0 INTRODUCTION

This Land Use Control Implementation Plan (LUCIP) has been prepared for the Early Construction and Operational Disposal Sites (ECODS) L-1, N-2, P-2, and R-1A, -1B, -1C Operable Unit (OU) at the Savannah River Site (SRS). The purpose of this LUCIP is to describe how the land use controls (LUCs) selected in the Record of Decision (ROD) (SRNS 2009) will be implemented and maintained. The following LUC objectives have been selected for this OU:

- Prevent contact, removal, or excavation of subsurface soils.
- Prohibit the development and use of property for residential housing, elementary and secondary schools, child care facilities and playgrounds.

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

The selected remedy leaves hazardous substances in place that pose a potential future risk and will require land use restrictions until the hazardous substances in the soil and groundwater are at levels that allow for unrestricted use. As agreed on March 30, 2000, among the U.S. Department of Energy (USDOE), U.S. Environmental Protection Agency (USEPA), and South Carolina Department of Health and Environmental Control (SCDHEC), SRS is implementing a Land Use Control Assurance Plan (LUCAP) 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 (RA) for ECODS L-1, N-2, P-2, and R-1A, -1B, -1C. This additional document, the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C 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 OU is suitable for unlimited exposure and unrestricted use. Approval by USEPA and SCDHEC is required for any modification or termination of the institutional controls (ICs).

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 ECODS L-1, N-2, P-2, and R-1A, -1B, -1C 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 human health and the environment. This LUCIP will be evaluated for accuracy and protectiveness during the five-year remedy review and any approved LUCIP modification will be appropriately documented for incorporation by reference into the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C ROD.

1.1 Format of the LUCIP

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

2.0 OVERVIEW OF THE REMEDIAL ACTION

2.1 General Description and History of the Operable Unit

SRS occupies approximately 804 km^2 (310 mi^2) of land adjacent to the Savannah River, principally in Aiken and Barnwell counties of South Carolina (Figure 1). SRS is located approximately 40.2 km (25 mi) southeast of Augusta, Georgia, and 32.2 km (20 mi) south of Aiken, South Carolina.

ECODS at SRS are typically shallow (less than 3.65 m [12 ft] below ground surface) land disposal pits used between 1951 to 1955 to dispose of waste material associated with the construction of SRS facilities. Construction waste was buried in shallow, elongated trenches, with some also used as burn pits for combustible waste disposal. Figure 2 shows the locations at SRS of ECODS L-1, N-2, P-2, and R-1A, -1B, and -1C. ECODS L-1 and P-2 are located in the

Steel Creek Integrator Operable Unit (IOU). ECODS N-2 is located in the Pen Branch IOU. ECODS R-1A, -1B, and -1C are located in the Lower Three Runs IOU.

ECODS L-1 is located in the southern portion of SRS, immediately east of L Area (Figure 3) within the Steel Creek IOU. ECODS L-1 was created during the construction of the L Reactor and associated support buildings for the burning and/or burial of construction waste. Aerial photographs identify ECODS L-1 as being in use from November 1953 to June 1954 (WSRC 2003). The area is relatively flat, slopes gradually to the southwest (toward L Lake), and is covered with small pine trees.

ECODS N-2 is located in the central portion of SRS, near the southwestern edge of N Area (Figure 4) within the Pen Branch IOU. Aerial photographs identify ECODS N-2 as being in use from January 1953 to May 1955 (WSRC 2000). Waste was buried in trenches and sections of the trenches may have been used as a burn pit or combustible waste disposal. The area is relatively flat and slopes gradually to the south and southwest. The area is lightly wooded with pine trees and underbrush.

ECODS P-2 is located in the southeastern portion of the SRS, immediately south of P Area (Figure 5) within the Steel Creek IOU. Aerial photographs identify the ECODS P-2 as being in use from approximately January 1953 to May 1955 (WSRC 2001). The area is relatively flat and slopes gradually to the southeast. It is heavily wooded with pine trees and dense underbrush.

ECODS R-1A, -1B, and -1C are located in the southeastern portion of SRS, immediately northeast of R Area (Figure 6) within the Lower Three Runs IOU. Aerial photographs identify ECODS R-1A, R-1B, and R-1C as being in use from approximately September 1951 to August 1952 (WSRC 2002). ECODS R-1A, -1B, and -1C are located in a relatively flat area that slopes gradually to the northwest and is covered with small pine trees and heavy underbrush. The center of the ECODS is approximately 91.4 m (300 ft) east of the southern end of the Old R-Area Discharge Canal (no building number [NBN]).

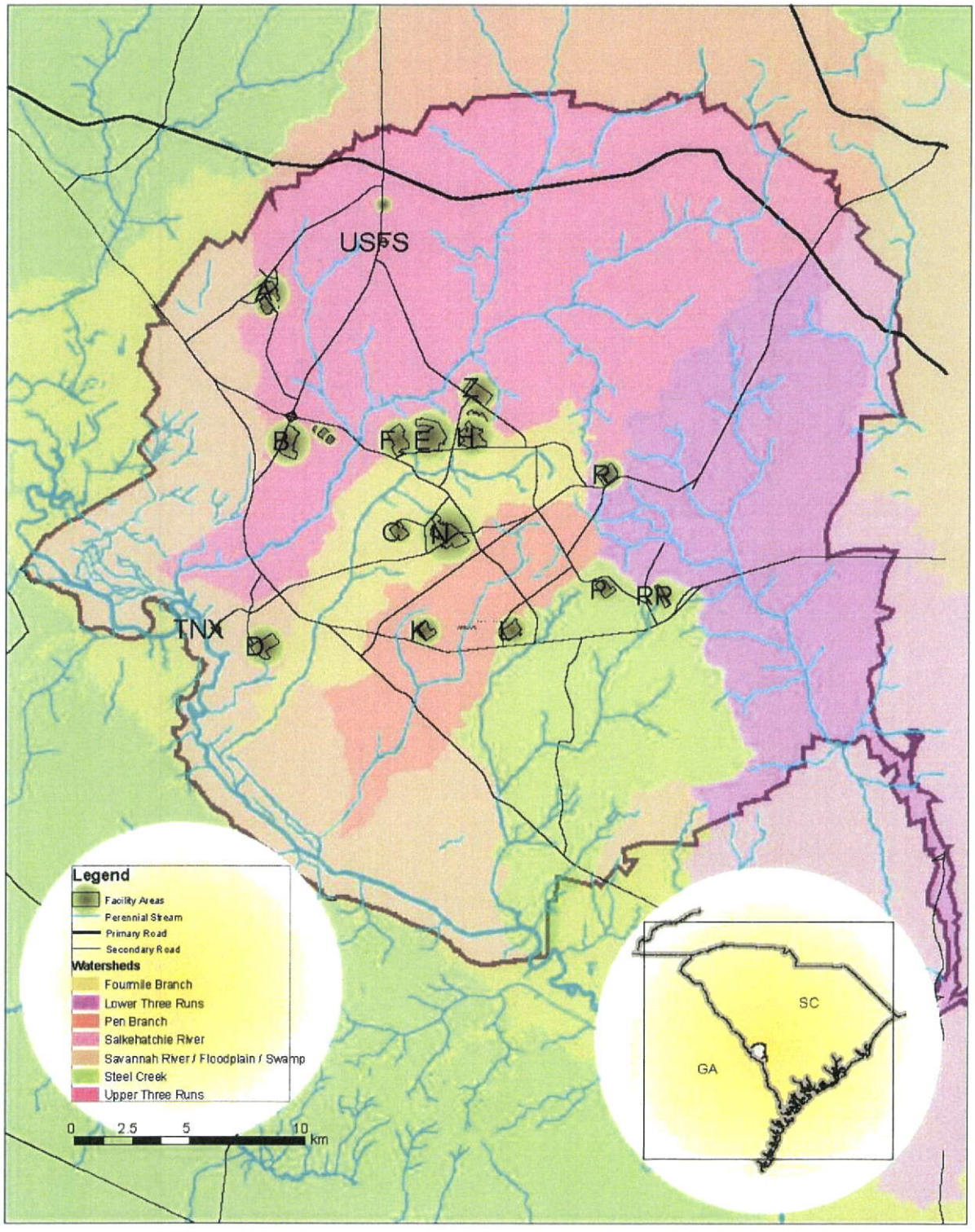

Figure 1. Map Showing the Location of the Savannah River Site and Facilities

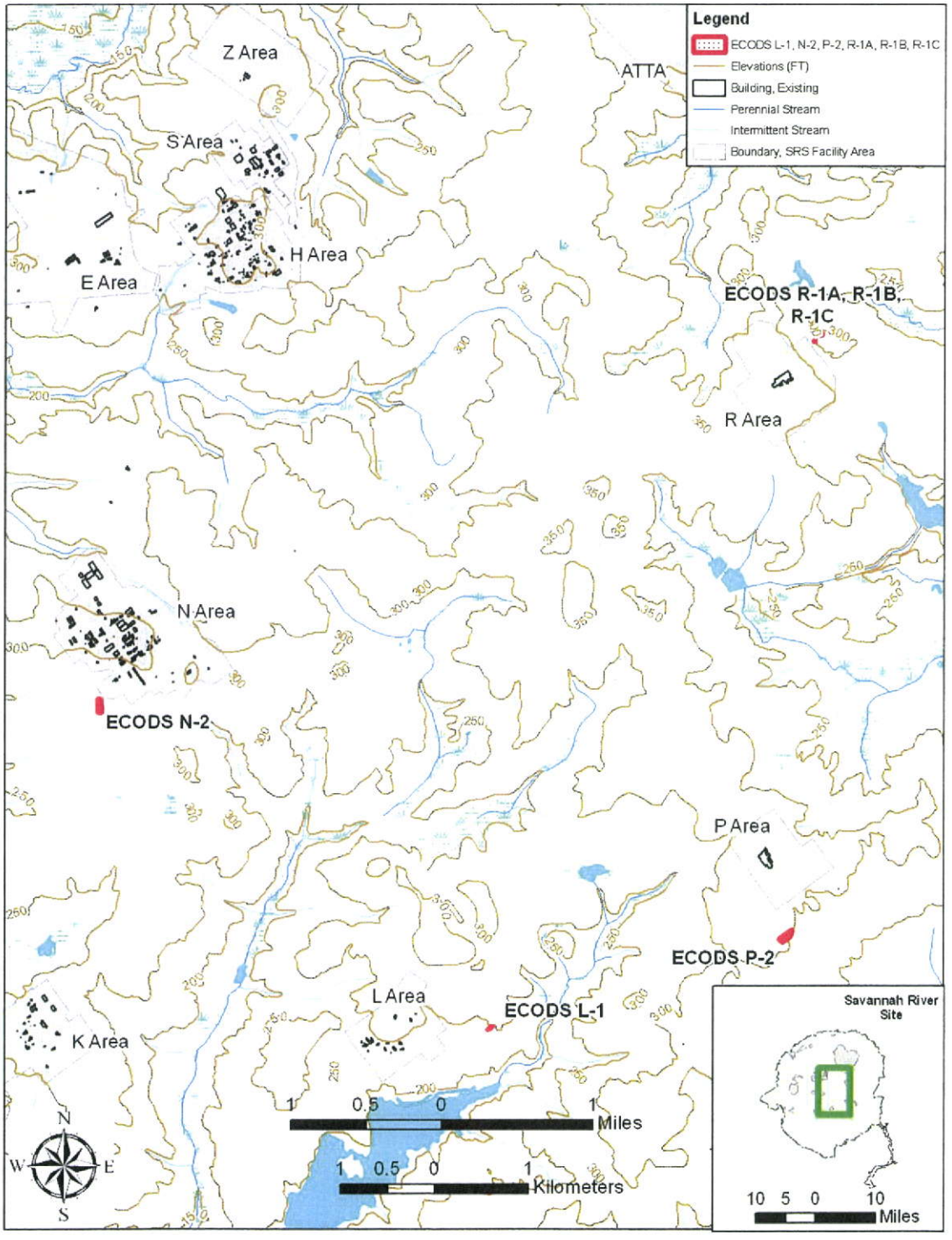

Figure 2. Map Showing the Locations of ECODS L-1, N-2, P-2, and R-1A, -1B, -1C within the Savannah River Site

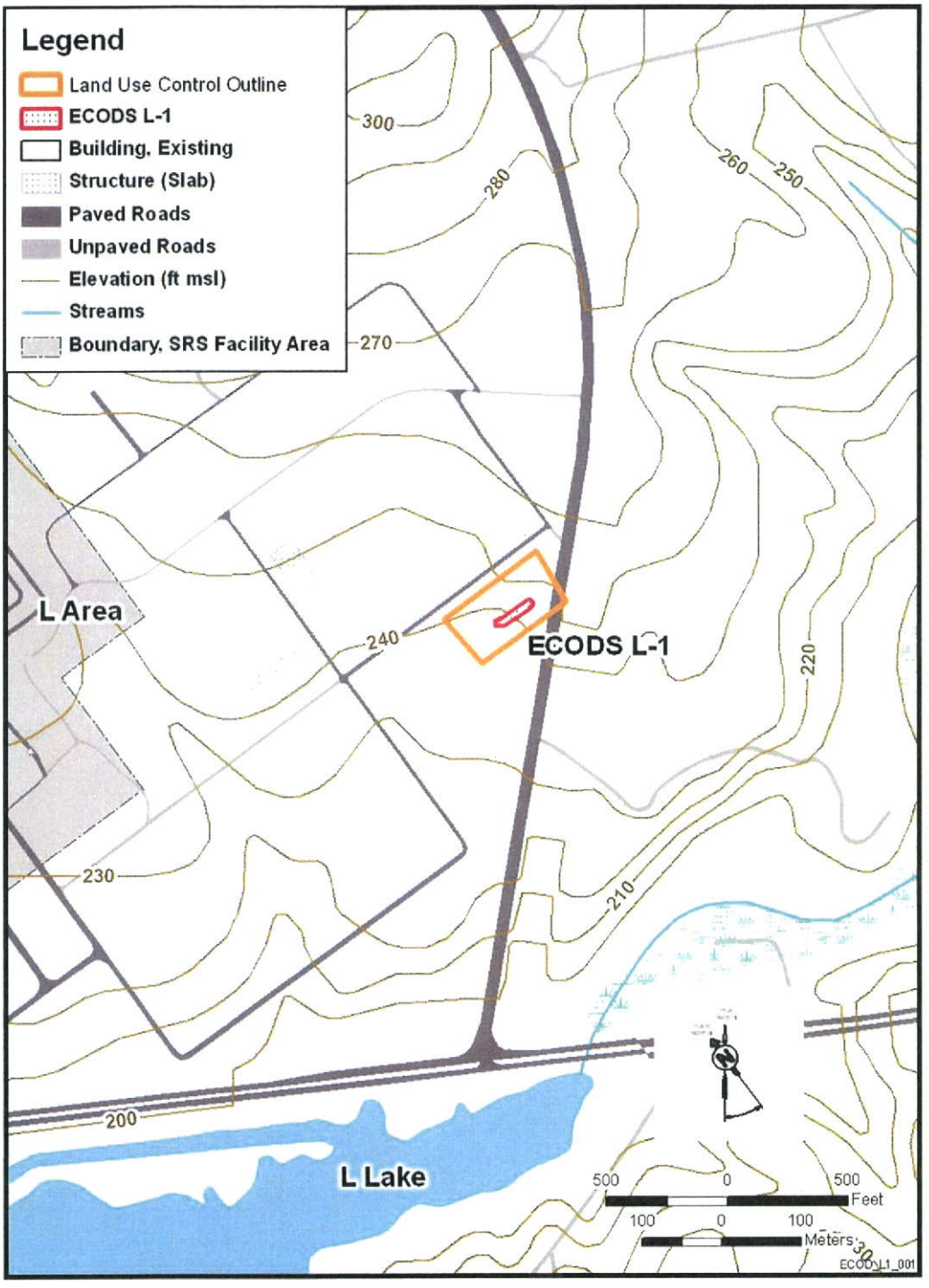

Figure 3. **Map Showing the Locations of ECODS L-1 and the Approximate Land Use Control Boundary**

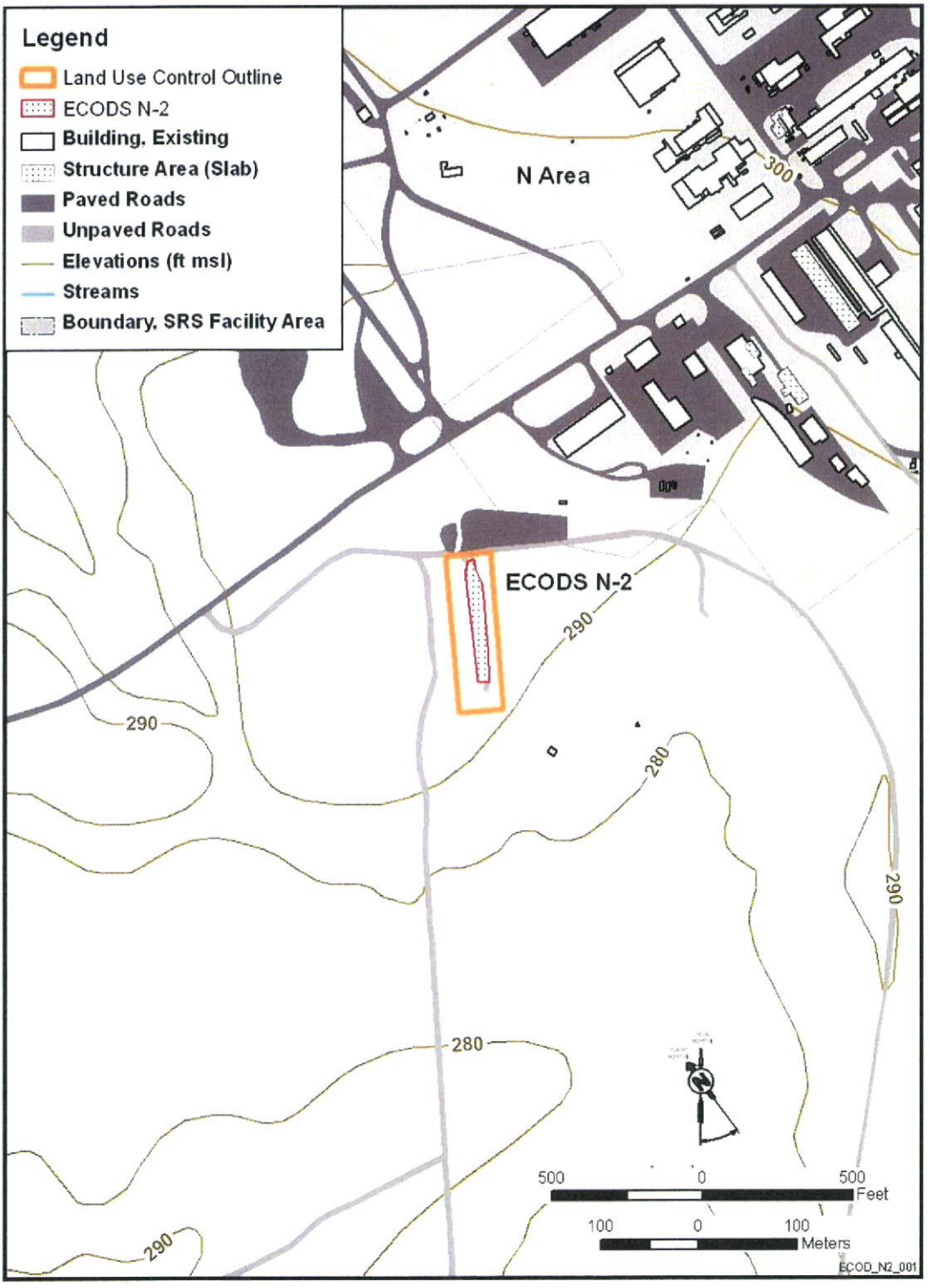

Figure 4. Map Showing the Location of ECODS N-2 and the Approximate Land Use Control Boundary

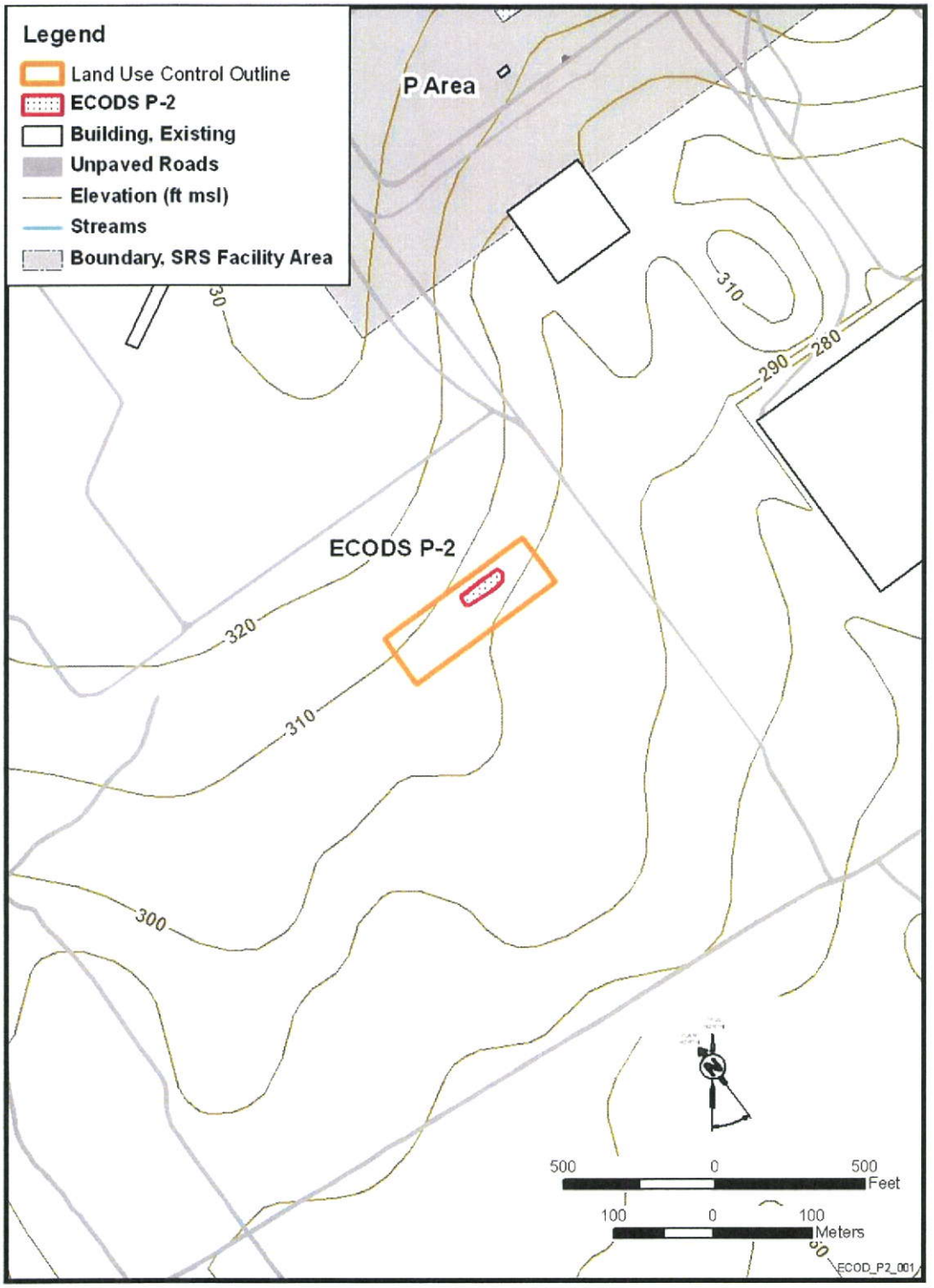

Figure 5. Map Showing the Location of ECODS P-2 and the Approximate Land Use Control Boundary

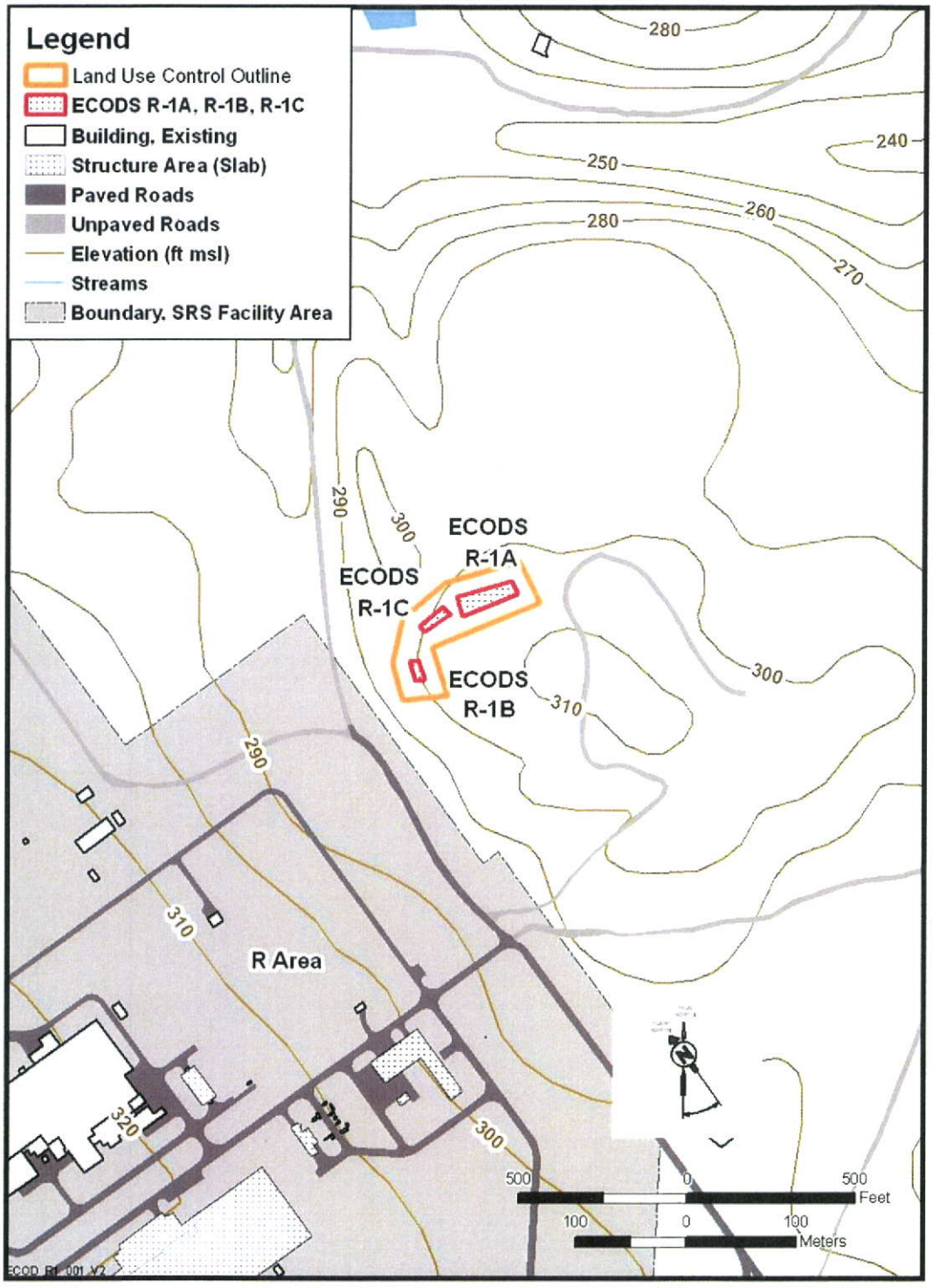

Figure 6. Map Showing the Locations of ECODS R-1A, -1B, and 1-C and the Approximate Land Use Control Boundary

2.2 Nature and Extent of Contamination

Identification of ECODS at SRS in the last few years has led to the investigation of these disposal pits under the Site Evaluation Program. Upon identification, these areas were added to Appendix G.1 (Areas to be Investigated) of the FFA.

Site Evaluation Reports were developed for ECODS L-1, N-2, P-2, and R-1A, -1B, -1C and contain detailed information and analytical data for all of the investigations conducted and all of the composite soil samples that were collected (WSRC 2000, WSRC 2001, WSRC 2002, WSRC 2003). In addition, a Trenching Report (SGCP 2005; WSRC 2006a) was prepared for ECODS P-2.

The four ECODS were subsequently transferred to Appendix C of the FFA as a Resource Conservation and Recovery Act (RCRA) / CERCLA OU for further evaluation. Due to the similar history and nature of the contaminants, the four ECODS were addressed in a single Statement of Basis/Proposed Plan (SB/PP) (WSRC 2007a). A streamlined RCRA Facility Investigation/Remedial Investigation, Baseline Risk Assessment, and Corrective Measures Study/Feasibility Study were prepared for each of the ECODS and included in the SB/PP.

The investigation at ECODS L-1, N-2, P-2, and R-1A, -1B, -1C indicated that a release to the environment had occurred of polycyclic aromatic hydrocarbons, polychlorinated biphenyls, volatile organic compounds, metals, and potentially friable asbestos. However, the human health and ecological risk assessments, contaminant migration (CM) analysis, and principal threat source material (PTSM) evaluation identified no refined constituents of concern (RCOCs) for ECODS L-1, ECODS N-2, ECODS P-2, or ECODS R-1A, -1B, and -1C. It was recognized that there was a potential for friable asbestos exposure to human health receptors should buried debris (> 0.3 m [1 ft] depth) be brought to the surface. Soil, dust, or air samples were not taken for asbestos; however, USDOE has exercised the option to proceed directly to a response because there is threat of release of asbestos (USEPA 2008).

The selected remedy for the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C 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 soil are at levels that allow for unrestricted use and exposure.

2.3 Remedial Action Selected

The selected remedy for the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C is ICs. Although there are no PTSM, human health, or ecological RCOCs or CM constituents of concern (COCs), there is the potential for friable asbestos exposure to human receptors should buried debris (> 0.3 m [1 ft] depth) be brought to the surface. Therefore, ICs will be implemented to prevent land disturbance activities and to prevent exposure to subsurface soils that may contain friable asbestos. ICs will consist of signage and Site Use/Site Clearance restrictions. The RCRA permit will be revised to reflect selection of the final remedy using the procedures under 40 Code of Federal Regulations Part 270, and South Carolina Hazardous Waste Management Regulations R.61-79.264.101; 270.

The RA selected in the ROD (SRNS 2009) is based on an evaluation of potential alternatives performed in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan and CERCLA (as amended). The conceptual site model (CSM) for ECODS L-1, N-2, P-2, and R-1A, -1B, -1C shows there are no human health or ecological RCOCs, or CM COCs (Appendix A). According to the *Savannah River Site Future Use Project Report* (USDOE 1996), residential use of SRS land is prohibited. This alternative was selected because it effectively protects against residential and industrial exposure and provides the best balance of tradeoffs between no action and removal and offsite disposal.

Remedial action objectives (RAOs) are medium- or OU-specific objectives for protecting human health and the environment. RAOs usually specify protection of potential receptors and exposure pathways. They are typically identified during the scoping process once the CSM is understood. The following RAO has been identified for ECODS L-1, N-2, P-2, and R-1A, -1B, -1C:

- Prevent human exposure to contaminants including buried asbestos present in the subsurface soils that may present a risk to a future industrial worker or resident.

3.0 LAND USE CONTROL OBJECTIVES

The following ECODS L-1, N-2, P-2, and R-1A, -1B, -1C LUC objectives have been developed to ensure the protectiveness of the remedy described above:

- Prevent contact, removal, or excavation of subsurface soils.

- Prohibit the development and use of property for residential housing, elementary and secondary schools, child care facilities and playgrounds

Current access controls and deed notification 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 objectives stated in Section 3.0. A summary of the LUCs is provided in Table 1. USDOE is responsible for implementing, maintaining, reporting on and enforcing the LUCs required for the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C. This LUCIP will become enforceable and will be implemented when approved by USEPA and SCDHEC and following the completion of the RA prescribed by the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C 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 selected alternative for the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C is ICs. ICs effectively protect against residential and industrial exposure and provide the best balance of tradeoffs between no action and removal and offsite disposal.

Table 1. Land Use Controls for ECODS L-1, N-2, P-2, and R-1A, -1B, -1C

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 hazardous substances associated with the unit no longer pose an unacceptable risk under 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.	Waste management areas under this LUCIP where hazardous substances are left in place at levels requiring land use restrictions.
2. Property record restrictions[c]: A. Land Use	Restrict use of property by imposing limitations.	Until the hazardous substances associated with the unit no longer pose an unacceptable risk under 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.	Waste management areas under this LUCIP where hazardous substances are left in place at levels requiring land use restrictions.
3. Other Notices[d]	Provide notice to city &/or county about the existence and location of waste disposal and residual contamination areas for zoning/planning purposes.	Until the hazardous substances associated with the unit no longer pose an unacceptable risk under 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.	Waste management areas 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 excavation/ penetration activity.	As long as property remains under USDOE control.	Implemented by USDOE and site contractors Initiated by permit request	Waste management areas 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 access.	Until the hazardous substances associated with the unit no longer pose an unacceptable risk under unlimited exposure and unrestricted use.	Controls maintained by USDOE.	Waste management areas under this LUCIP.

Table 1. Land Use Controls for ECODS L-1, N-2, P-2, and R-1A, -1B, -1C *(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 hazardous substances associated with the unit no longer pose an unacceptable risk under unlimited exposure and unrestricted use.	Signage maintained by USDOE.	Waste management areas under this LUCIP.
7. Security Surveillance Measures	Control and monitor access by workers/public.	Until the hazardous substances associated with the unit no longer pose an unacceptable risk under unlimited exposure and unrestricted use.	Established and maintained by USDOE Necessity of patrols evaluated upon completion of remedial actions or property transfer.	Waste management areas under this LUCIP, as necessary.

[a]Affected areas – Specific locations identified in the site-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 recoded 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.

ICs will be implemented by:

- Access controls to prevent exposure to onsite workers via the Site Use Program, Site Clearance Program, work control, worker training, worker briefing of health and safety requirements, and identification signs located at the waste unit boundaries.

- Access controls to prevent exposure to trespassers, as described in the 2000 RCRA Part B Permit Renewal Application, Volume I, Section F.1, which describes the security procedures and equipment, 24-hour surveillance system, artificial or natural barriers, control entry systems, and warning signs in place at the SRS boundary and at the ECODS.

In the long term, if the property is ever transferred to nonfederal ownership, the U.S. Government will take those actions necessary pursuant to Section 120(h) of CERCLA. Those actions will include a deed notification disclosing former waste management and disposal activities as well as RAs taken on the site. The contract for sale and the deed will contain the notification required by CERCLA Section 120(h). The deed notification shall notify any potential purchaser that the property has been used for the management and disposal of waste. These requirements are also consistent with the intent of the RCRA deed notification requirements at final closure of a RCRA facility if contamination will remain at the unit.

The deed shall also include deed restrictions precluding residential use of the property. The deed shall expressly prohibit activities inconsistent with the remedial goals and objectives in the ROD upon any and all transfers. However, the need for these deed 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 need for the deed restrictions 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.

As agreed by USDOE, USEPA, and SCDHEC on March 30, 2000, SRS is implementing a LUCAP to ensure that the LUCs required by numerous remedial decisions at SRS are properly maintained and periodically verified. This unit-specific LUCIP provides details and specific measures required to implement and maintain the LUCs selected as part of this remedy. Upon final approval, the LUCIP will be appended to the LUCAP and is considered incorporated by reference into the ROD, establishing LUC implementation and maintenance requirements enforceable under CERCLA and the FFA (FFA 1993). The approved LUCIP will establish implementation, monitoring, maintenance, reporting, and enforcement requirements for the unit. The LUCIP will remain in effect unless and until modifications are approved as needed to be protective of human health and the environment. The deed shall expressly prohibit activities inconsistent with the remedial goals and objectives in the ROD upon any and all transfers. The LUCs shall be maintained until the hazardous substances associated with the unit (i.e., buried potential friable asbestos) no longer pose an unacceptable risk under unlimited exposure and unrestricted use. Approval by USEPA and SCDHEC is required for any modification or termination of the ICs.

USDOE has recommended that residential use of SRS land be controlled; therefore, future residential use and potential residential water usage will be restricted to ensure long-term protectiveness. LUCs, including ICs, will restrict the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C to future industrial use and will prohibit residential use of the area. Unauthorized excavation will also be prohibited and the waste unit will remain undisturbed. LUCs selected as part of this action will be maintained for as long as they are necessary to meet the RAOs and termination of any LUCs will be subject to CERCLA requirements for documenting changes in remedial actions.

The ECODS L-1, N-2, P-2, and R-1A, -1B, -1C will be maintained as an industrial use area by implementation of the property record notices (Section 4.1) and restrictions (Section 4.2), and the use of a certified LUC survey plat (Section 4.3). Figures 3 through 6 illustrate land use boundary requirements at the different subunits.

The Site Use Program (Section 4.4) will be implemented to prevent onsite worker exposure to contamination left in place at the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C. 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 ECODS L-1, N-2, P-2, and R-1A, -1B, -1C.

Physical access controls (Section 4.5) are implemented at the SRS boundary to control and restrict public and trespasser access to the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C.

Signs at the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C will be maintained to alert onsite workers to the presence of hazardous substances. The signs will also convey the restrictions of unauthorized personnel. Access control warning signs will be placed and maintained around the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C to prevent unknowing entry and unrestricted use.

4.1 Property Record Notices

In the long term, if the property is ever transferred to non-federal ownership, the U.S. Government will take those actions necessary pursuant to Section 120(h) of CERCLA. Those actions will include a deed notification disclosing former waste management and disposal activities as well as RAs taken on the site. The contract for sale and the deed will contain the notification required by CERCLA Section 120(h).

The deed notification shall notify any potential purchaser that the property has been used for the management and disposal of waste. These requirements are also consistent with the intent of RCRA deed notification requirements at final closure of a RCRA facility if contamination will remain at the unit.

4.2 Property Record Restrictions

The deed shall also include deed restrictions precluding residential use of the property and/or any other property record restrictions necessary to achieve the LUC objectives. The deed shall expressly prohibit activities inconsistent with the remedial goals and objectives in the ROD upon

any and all transfers. USDOE shall provide a copy of the executed deeds to the regulatory agencies as soon as practicable after the transfer of fee title, but no later than 30 days. However, the need for these deed restrictions may be re-evaluated 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 re-evaluation of the need for the deed restrictions will be done though an amended ROD.

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

4.3 Other Public Notices

This LUCIP identifies the proposed area under land use restrictions via Figures 3 through 6 for each of the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C and the final survey plats (when available) located in Appendix B. After installation of warning signs, a final survey plat will be prepared to document the as-built arrangement of the ICs and area subject to LUCs. The drawing will present a polygon of the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C subject to LUCs, including the benchmarks, the location of warning signs, access control points and other information for LUCs. This post-construction survey plat will be certified by a professional land surveyor and will be submitted to USEPA and SCDHEC concurrently with the Corrective Measures Implementation Report (CMIR) / Remedial Action Completion Report (RACR).

In addition, if the site is ever transferred to non-federal ownership, a professional land surveyor-certified survey plat of the OU 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.

4.4 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 Order through its Site Use Program, which is conducted in accordance with WSRC 1D, *Site Infrastructure and Services Manual*, Procedure 3.02, "Site Real Property Configuration Control" (WSRC 2006b). All employees, contractors, and visitors at SRS are required to adhere to the Site Use Program. No use of land (i.e., excavation or any other land use) shall be undertaken without prior approval documented by a Site Use Permit. Also, in accordance with WSRC 1D, Procedure 3.02, all work at SRS that adds or modifies features or facilities portrayed on the SRS development maps (i.e., plot plans of facilities/utilities at SRS) will be authorized by a Site Clearance Permit before any activities are conducted. All Site Clearance Requests will be reviewed to verify that either an approved Site Use Permit has been obtained or that the request is sanctioned by an existing Site Use Permit. All land use requirements applicable for the OU will be provided to the Site Use Program for use in determining issuance of Site Clearance permits. In addition, the Site Use permit must be amended when the geographic configuration or buffer zone used to establish the permit boundary changes or there is a change to the permitted land use.

SRS is responsible for updating, maintaining, and reviewing site maps, including FFA (FFA 1993) OU identifications. If a Site Clearance Request potentially impacts an FFA OU, the Site Clearance Request Form is sent to the appropriate FFA OU reviewer for approval. The roles and responsibilities of each individual are detailed in WSRC 1D, Procedure 3.02. Before a Site Clearance Permit is issued, verification of USDOE approval for intended land use must be obtained. The site use and site clearance processes are applicable to all activities and personnel on site (including subcontractors). 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. The processes are controlled within the SRS Quality Assurance (QA) Program in accordance with WSRC 1Q Manual, *Quality Assurance* (WSRC 2007b). The SRS QA program governs all SRS activities.

SRS identifies all buildings and facilities on maps used in the Site Use Program. This waste unit is identified on these maps as a CERCLA facility.

Any work proposed in these areas will be strictly controlled, and workers will be appropriately trained and briefed about health and safety requirements if work is deemed necessary for maintenance. No change in land use or excavation at the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C OU shall be undertaken without USEPA and SCDHEC approval. Approval by USEPA and SCDHEC is required for any modification or termination of the ICs and implementation actions, and 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.

4.5 Physical Access Controls

There are no physical access controls required at ECODS L-1, N-2, P-2, and R-1A, -1B, -1C; however, physical access controls are provided at the SRS boundary as mentioned in Table 1, item 5.

4.6 Warning Signs

To prevent unknowing entry and to ensure that unrestricted use of the waste unit does not occur while the unit is under ownership of the government, access control warning signs will be posted at the unit as shown in Appendix C. Warning signs will be installed in accordance with the implementation schedule (i.e., Remedial Action Start date) located in the ECODS L-1, N-2, P-2, R-1A, -1B, -1C ROD (SRNS 2009). In addition, the final placement of the signage will be documented in the survey plat submitted with the CMIR/RACR. The signs will be legible for a distance of at least 25 feet.

Custodial responsibilities for maintenance and inspection of ECODS L-1, N-2, P-2, and R-1A, -1B, -1C will be maintained by the SRS Post-Closure Maintenance Group.

4.7 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.

4.8 Field Inspection and Maintenance for Institutional Controls

After remediation of ECODS L-1, N-2, P-2, and R-1A, -1B, -1C, only inspection and maintenance activities will be required by this RA. ECODS L-1, N-2, P-2, and R-1A, -1B, -1C will be inspected per the Field Inspection Checklist in Appendix D. Field inspections will be performed annually by USDOE. Additional inspections may be necessary in the event of unusual weather or any other condition warranting inspection. For ECODS L-1, N-2, P-2, and R-1A, -1B, -1C, inspections will be performed to ensure that access control signs are in place. Inspection records will be kept in the operations record file for future access. Maintenance (including inspections, general housekeeping, and repair of erosion damage) will be performed as needed at ECODS L-1, N-2, P-2, and R-1A, -1B, -1C. Necessary upkeep of the access control signs will be performed.

Any activity that is inconsistent with the IC objectives or use restrictions, or any other action that may interfere with the effectiveness of the ICs, will be addressed by the USDOE as soon as practicable, but in no case will the process be initiated later than 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 10 days after discovery of any activity that is inconsistent with the IC objectives or use restrictions, or any other action that may interfere with the effectiveness of the ICs. The USDOE will notify USEPA and SCDHEC regarding how the USDOE has addressed or will address the breach within 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 ICs and describe how any IC 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 Center. The LUCs shall be maintained until the 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, 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 D), will be appended to the SRS LUCAP upon final regulatory approval. After completion of the CMIR/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)

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)

USEPA, 2008. *Framework for Investigating Asbestos-Contaminated Superfund Sites*, Office of Solid Waste and Emergency Response, OSWER Directive #9200.0-68

SGCP, 2005. *Sampling and Analysis Plan for ECODS P-2 Trenching (U)*, SGCP-SAP-2005-00006, Rev. 0, June, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

SRNS, 2009. *Record of Decision Remedial Alternative Selection for the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C Operable Unit (OU) (formerly Site Evaluation Areas [SEAs]) (U)*, SRNS-RP-2009-00072, Revision 1, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

WSRC, 2000. *Site Evaluation Report for ECODS N-2 (NBN) (U),* WSRC-RP-2000-4166, Rev. 0, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2001. *Site Evaluation Report for Early Construction and Operational Disposal Site (ECODS) P-2 (NBN)*, WSRC-RP-2001-4272, Rev. 0, Westinghouse Savannah River Site, Aiken, SC

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WSRC, 2003. *Site Evaluation Report for the Early Construction and Operational Disposal Site (ECODS) L-1*, WSRC-RP-2003-4047, Rev. 0, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2006a. *Site Evaluation for the Excavation of Observation Trenches at ECODS P-2,* April 24, 2006, ARF #013446, Washington Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2006b*. WSRC Procedure Manual 1D, *Site Infrastructure and Services Manual (U)*, Procedure 3.02, "Site Real Property Configuration Control," Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2007a. *Statement of Basis/Proposed Plan for the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C Site Evaluation Areas (SEAs) (U),* Revision 1.2, WSRC-RP-2007-4067, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

WSRC, 2007b*. WSRC Procedure Manual 1Q, *Quality Assurance (U)*, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

* WSRC procedures have been accepted by SRNS, but have not yet received an SRNS or SRS procedure number.

Appendix A

Conceptual Site Model

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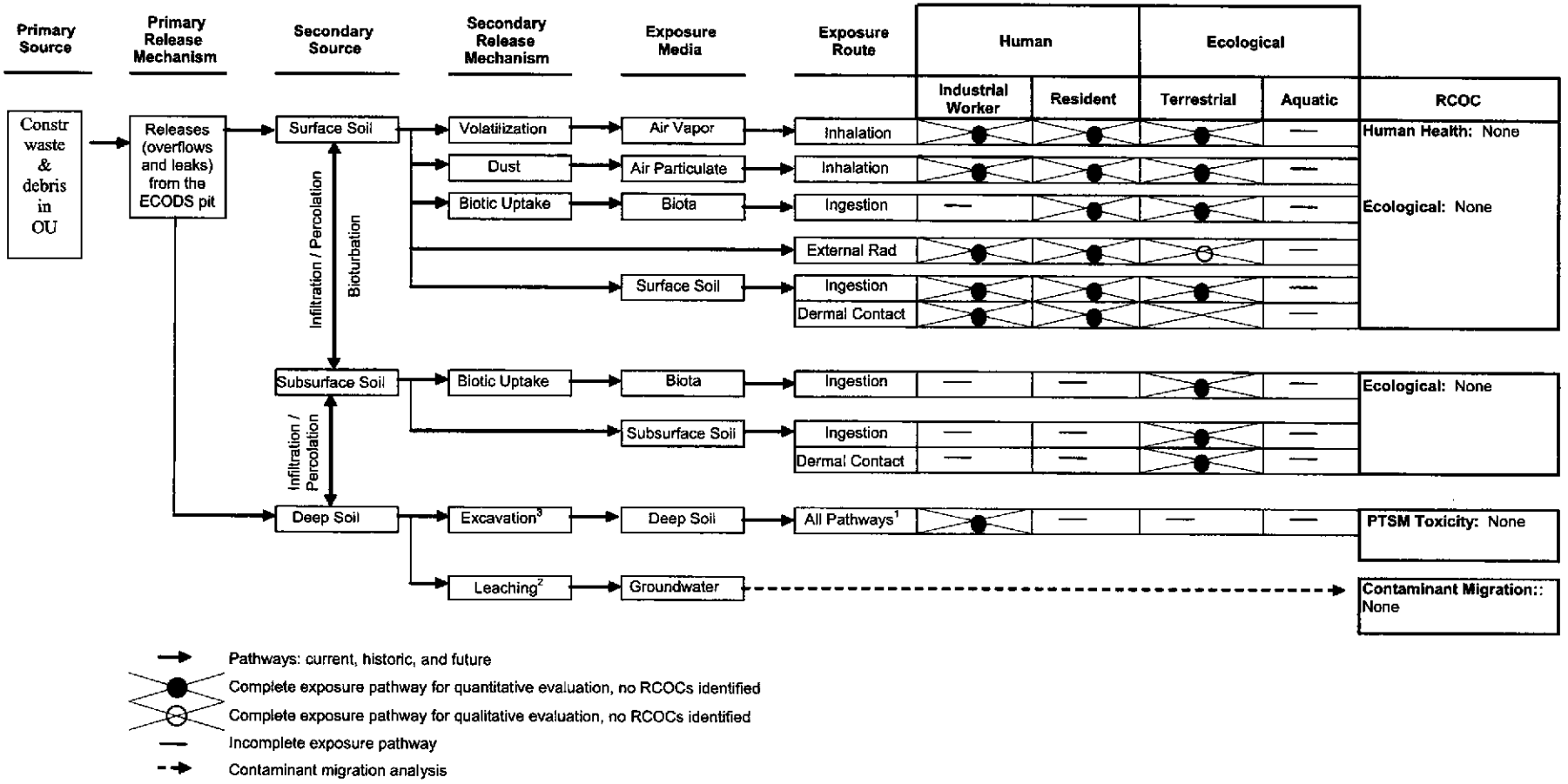

[1] All pathways represent ingestion, inhalation, dermal contact, and external radiation exposure for a PTSM evaluation for toxicity
[2] Leaching represents the potential of a contaminant in soil to migrate to groundwater above maximum contaminant levels per the contaminant migration analysis and does not represent a human or ecological exposure route
[3] There is potential for friable asbestos exposure to human receptors should buried debris be exposed or brought to the surface under an excavation scenario. This pathway was not quantitatively evaluated in the risk assessment.

Figure A-1. Conceptual Site Model for the ECODS L-1, N-2, P-2, and R-1A, -1B, -1C

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Appendix B

Survey Plats

Land Use Control Implementation Plan

(Plats to be provided at a later date in accordance with the Implementation Schedule in the ROD.)

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Appendix C

Access Control Warning Signs

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Figure C-1. Access Control Warning Sign

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Appendix D

Field Inspection Checklist

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Field Inspection Checklist

For ECODS L-1, N-2, P-2, AND R-1A, -1B, -1C

❑ **SCHEDULED** ❑ **UNSCHEDULED**

A= Satisfactory **X**= Unsatisfactory (Explanation required)	**A** or **X**	Observation of Corrective Action Taken
Verify that the roads are accessible.		
Verify that the waste unit signs (quantity to be inserted later) are in acceptable condition, have the correct information, and are legible from a distance of 25 feet.		
Verify that there are no excavation, digging, or construction activities.		
Verify that signs of burrowing or mounding animals are not present.		
Verify that signs of erosion or depression (subsidence) are not present.		

Inspected by:

_____ / _____ Date:_____
(Print Name) (Signature)

Post-Closure Manager:

_____ / _____ Date:_____
(Print Name) (Signature)

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 institutional controls of this waste unit. The notification shall be in accordance with SRS post-closure inspection procedures.

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