LUCIP for the
L-Area Hot Shop, 717-G (Including the CML-003 Sandblast Area) Operable Unit

Appendix A of Corrective Measures Implementation/Remedial Action Implementation Plan (CMI/RAIP) for the L-Area Hot Shop, 717-G (Including the CML-003 Sandblast Area) Operable Unit

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APPENDIX A

LAND USE CONTROL IMPLEMENTATION PLAN

FOR THE

L-AREA HOT SHOP (INCLUDING THE CML-003 SANDBLAST AREA) OPERABLE UNIT

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The L-Area Hot Shop (Including CML-003 Sandblast Area) Operable Unit Land Use Control Implementation Plan (LUCIP) will be appended to the Savannah River Site (SRS) Land Use Control Assurance Plan (LUCAP).

The selected remedy leaves hazardous substances in place that pose a potential future risk and will require land use restrictions for an indefinite period of time. As negotiated with the United States Environmental Protection Agency (USEPA) and in accordance with USEPA Region IV policy (Johnston 1998), SRS has developed a LUCAP to ensure that land use restrictions are maintained and periodically verified. This LUCIP provides detailed and specific measures required for the land use controls selected as part of this remedy. The United States Department of Energy (USDOE) is responsible for implementing, maintaining, monitoring, reporting upon, and enforcing the land use controls described herein. Upon final approval, the LUCIP will be appended to the LUCAP and is considered incorporated by reference into the Post-Construction Report (PCR)/Final Remediation Report (FRR), establishing land use controls implementation and maintenance requirements enforceable under the Comprehensive Environmental Response, Compensation, and Recovery Act (CERCLA). The approved LUCIP will establish implementation, monitoring, maintenance, reporting and enforcement requirements for the unit. The LUCIP will remain in effect until modified as needed to be protective of human health and the environment. LUCIP modification will only occur through another CERCLA document.

1.0 REMEDY SELECTION

1.1 The L Area Hot Shop (LAHS) (Including CML-003 Sandblast Area) Operable Unit

The L-Area Hot Shop (LAHS) (including CML-003 Sandblast Area) operable unit (OU) is listed as a Resource Conservation and Recovery Act (RCRA) 3004(u) Solid Waste Management Unit/CERCLA unit in Appendix C of the Federal Facility Agreement (FFA) for the SRS. The media associated with this OU includes concrete, inactive process (IP) drainlines and soils.

L Area is located in the south-central portion of SRS at the intersection of SRS Roads C and B. L Area lies north of L-Lake and is separated from it by SRS Road B. The LAHS OU is located at the southeast corner of the L-Reactor Area and consists of the following:

- A concrete slab with associated IP drainlines on which three interconnected buildings (former Buildings 712-G, 717-G, and 707-G) and a former storage area (former Building 080-1G) were constructed.

- A concrete slab (former Building 080-2G) located outside the eastern perimeter fence used as a temporary drum storage area.

- The CML-003 Sandblast Area, reportedly used during operation of L-Reactor for sandblasting non-radioactive equipment and metals. LAHS concrete slabs are contained within the footprint of the CML-003 Sandblast Area.

All three buildings (former Buildings 712-G, 717-G, and 707-G) were constructed in the 1960s in the footprint of temporary buildings removed in the 1950s. These buildings were used extensively during the L-Area Restart Program to repair equipment. Between June and September 1993, the three buildings were demolished. A fence controls access to the area. The area inside the fence is approximately 5,825 m^2 (62,700 ft^2).

Two manholes with associated underground pipelines, one located inside and one outside of the LAHS perimeter fence, were also investigated. These underground pipelines were used for transporting sanitary wastewater.

Two IP drainlines, one 6-inch cast iron pipe located in the concrete slab/decontamination area (former Building 712-G) and one 2-inch pipe located in the concrete slab/hot shop (former Building 717-G), were also observed during the investigations. Both the 2-inch and the 6-inch IP drainlines were removed except for 9 m (30 ft) extending out from the slab, as shown in Figure 2 (dotted line). The length of the 2-inch IP drainline is estimated to be 120 ft (approximately 90 ft under slab). The length of the 6-inch IP drainline is estimated to be 50 ft (approximately 20 ft under the slab).

The *Site Evaluation Report for the L Area Sandblast Areas (CML-001, CML-002, and CML-003) NBN (U)* (WSRC 1996a) revealed that the boundaries of the LAHS and the CML-003 Sandblast Area overlap (see Figure 2). The waste unit database indicates that the boundaries for the LAHS OU and Sandblast Area are the same. However, the site evaluation report identified the northeast corner of the Sandblast Area as being 26.2 m (86 ft) north of the LAHS northeast corner. Thus the fence surrounding the LAHS defines the eastern, western, and southern boundaries of the CML-003 Sandblast Area, while the northern boundary of CML-003 is approximately 26.2 m (86 ft) north of the LAHS fence. During operation of L-Reactor, the CML-003 Sandblast Area reportedly was used for sandblasting non-radioactive equipment and metals. However, there is no documentation on the frequency of sandblasting, and there are no records of radioactive materials or hazardous material ever disposed of or used at the CML-003 Sandblast Area.

1.2 Nature and Extent of Contamination in the L Area Hot Shop (LAHS) (Including CML-003 Sandblast Area) Operable Unit

No refined COCs are identified associated with three of the five subunits of the LAHS OU (LAHS Soils, LAHS Manholes and Associated Sanitary Wastewater Pipelines, and

LAHS Surface Drainage Ditch). Unrestricted land use was assumed for risk calculations and the calculated risk levels were below the USEPA target risk range upper limit of 1×10^{-6}. However, radiological contamination has been identified at two of the LAHS subunits (LAHS Inactive Process Drainlines and LAHS Concrete Slab). The LAHS OU is not a "source control" unit (i.e., the unit does not contain contaminated soil that may act as a source of future contamination to the groundwater through leaching).

Therefore, there are no problems warranting action associated with human health analysis, ecological analysis, or contaminant migration analysis. The LAHS Inactive Process Drainlines and LAHS Concrete Slab are considered Primary Threat Source Material (PTSM). There may be transferable radiological contamination present on the surface of the concrete slab. Radiological surveys conducted after the three buildings (former Buildings 712-G, 717-G, and 707-G) were demolished, identified fixed beta-gamma contamination above SRS background levels on the concrete slab. The contamination on the slab surface was fixed in place by sealing the surfaces of the slab with paint. The post-remedial action conceptual site model (see Attachment A-2 to this LUCIP) shows the broken pathways and the remaining residual risk to the future industrial worker.

According to the *Savannah River Site future Use Project Report* (USDOE 1996), residential use of SRS land should be prohibited.

1.3 Remedial Action Overview

The LAHS OU future land use will be industrial usage. Unrestricted land use is inappropriate due to the proximity of the LAHS OU to the heavy industrial (nuclear) area. The remedial action objective for the LAHS OU is to protect future industrial workers and the ecology from exposure to radionuclides present in the LAHS OU concrete slab and to prevent spread of transferable radionuclide contamination present in the LAHS OU concrete slab and IP drainlines.

The selected remedy for the LAHS OU is Alternative 5, Decontamination, Removal (All of LAHS concrete slab and the Inactive Process Drainlines), Disposal (PRSB #3)and institutional controls.

The selected alternative entails the following:

- Removal of the concrete slab (former 707-G, 712-G, 717-G, and 080-1G) by saw cutting or breaking up.

- Remove the grouted 6-inch cast iron IP drainline (approximately 50 ft long [approximately 30-ft coming out of the slab and 20-ft suspected to be underneath the slab of former Building 712-G]). Contaminated soils will be excavated in until the surface soils in the excavated areas are field screened/sampled to the threshold values of 20 pCi/g for gross alpha and 50 pCi/g for non-volatile beta and gamma spectroscopy.

- Remove the grouted 2-inch cast iron IP drainline (approximately 120-ft in length [approximately 30-ft coming out of the slab and 90-ft suspected to be beneath the slab in former Building 717-G]). Contaminated soils will be excavated in until the surface soils in the excavated areas are field screened/sampled to the threshold values of 20 pCi/g for gross alpha and 50 pCi/g for non-volatile beta and gamma spectroscopy.

- Cut both IP drainlines (6-inch and 2-inch) into smaller pieces suitable for transportation and disposal.

- Transport the contaminated concrete debris resulting from concrete slab removal operations (approximately 2,000 ft^3) and the cut pieces of both IP drainlines to P-Area Reactor Seepage Basin #3 for final disposal. Contaminated soils will be excavated in until the surface soils in the excavated areas are field

screened/sampled to the threshold values of 20 pCi/g for gross alpha and 50 pCi/g for non-volatile beta and gamma spectroscopy.

The LAHS IP drainlines and LAHS concrete slab are considered Principal Threat Source Material (PTSM) based upon a 2 x 10^{-3} risk to the future industrial worker. The preference for treatment to address principal threats at the LAHS will be achieved by disposing of the contaminated concrete debris resulting from removal operations and the pieces of both drainlines to P-Area Reactor Seepage Basin #3 for final disposal.

The RCRA Facility Investigation/Remedial Investigation (RFI/RI) Work Package Addendum has concluded that there are no ARARs for the LAHS OU.The LAHS Inactive Process Drainlines and the LAHS Concrete Slab potentially contain transferable radiological contamination that needs to be addressed in this remedial action. The estimated human health risk from the radiological contamination (IP Drainlines and Concrete Slab) is approximately 2.3 x 10^{-3} which exceeds the threshold of 2 x 10^{-3} identification as PTSM. Therefore, remedial action objectives (RAOs) were established for the Inactive Process Drainlines and the Concrete Slab.

Based on the ROD, the following two RAOs has been established for the LAHS OU.

The remedial objective for the LAHS OU is twofold:

1. Protect future industrial workers against unacceptable exposures by implementing institutional controls; and

2. Prevent the transfer of radionuclide contamination present in the concrete slab and drainlines by removal and offsite disposal of these sources.

The post-remedial action conceptual site model (see Attachment A-2 to this LUCIP) shows the broken pathways and the remaining residual risk to the future industrial worker.

2.0 LAND-USE CONTROLS

Considering the residual risk mentioned above, the land-use control objectives for the LAHS OU are to:

- Maintain the use of the site for industrial activities only and
- Prevent unauthorized access to the closed CERCLA unit as long as the waste remains a threat to human health or the environment.

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

2.1 Access Controls

2.1.1 On-Site Workers

In accordance with WSRC 1D, *Site Infrastructure and Services Manual,* Procedure 3.02, "Site Real Property Configuration Control," use of all lands and waters on SRS will be coordinated via the Site Use Program. All employees, contractors, and visitors to the SRS require adherence to the Site Use Program. This program ensures that all work performed on the SRS that adds, modifies, or removes features portrayed on the SRS development maps is authorized. No use of land (i.e., excavation or any other land use) will be undertaken without prior approval documented by a Site Use Permit. This authorization is obtained through the completion of a Site Clearance Request Form. Also, in accordance with WSRC Manual 1D, Procedure 3.02, all work at SRS that adds to or modifies features or facilities portrayed on SRS development maps (i.e., plot plans of facilities/utilities at SRS) will be authorized by a Site Clearance Permit before any excavation activities are conducted. All site clearance requests will be reviewed to verify that either an approved Site Use Permit has been obtained or that an existing Site Use Permit has sanctioned the request.

SRS, specifically the Site Development, Planning, and Mapping Department, is responsible for updating, maintaining, and reviewing site maps, including Federal Facility Agreement (FFA) (1993) operable unit (OU) identifications. If a site clearance request is made that may impact an FFA OU, the Site Clearance Request Form is sent to the FFA OU reviewer, who is in the Soil and Groundwater Closure Projects (SGCP), for either approval or disapproval. The roles and responsibilities of each individual are detailed in WSRC 1D, Procedure 3.02, Verification of USDOE approval for intended land use must be obtained before issuance of a Site Clearance Permit. The site use and site clearance processes are applicable to all activities and personnel on site (including subcontractors).

The processes are controlled within the SRS Quality Assurance (QA) Program. The SRS QA program is the governing QA program for all SRS activities, including those in

SGCP. The activities that are performed in SGCP must comply with SRS QA Program procedures as well as with SGCP-specific procedures.

SRS identifies all buildings and facilities on maps used in the Site Use/Site Clearance 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 major change in land use nor excavation at the LAHS OU will be undertaken without United States Environmental Protection Agency (USEPA) and South Carolina Department of Health and Environmental Control (SCDHEC) approval. To prevent unknowing entry and to ensure that unrestricted us of the waste unit does not occur while under ownership of the government, identification signs will be posted at the unit. The signs will be legible for a distance of at least 25 feet. The signs will read as follows:

L-AREA HOT SHOP (INCLUDING CML-003 SANDBLAST AREA) OPERABLE UNIT

DANGER UNAUTHORIZED PERSONNEL

KEEP OUT

THIS UNIT CONTAINS RADIOLOGICAL SUBSTANCES.

DO NOT DIG OR EXCAVATE.

DO NOT ENTER WITHOUT CONTACTING THE

WASTE SITE CUSTODIAN.

CUSTODIAN: MANAGER, POST CLOSURE MAINTENANCE

Custodial responsibilities for maintenance and inspection of the LAHS OU will be maintained by the Post-Closure Maintenance Group within WSRC SGCP.

2.1.2 Trespassers

While under the ownership of USDOE, access control of the entire SRS will be maintained in accordance with the 1992 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.

2.2 LUCIP Deed Notification

The deed notification will, in perpetuity, 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.

The deed will also include deed restrictions precluding residential use of the property. 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 with USEPA and SCDHEC review and approval.

Per Section 3.6 of the LUCIP, the post-construction revision of the LUCIP will identify the area under land use restriction via a survey plat certified by a professional land surveyor.

2.3 Field Walkdown and Maintenance for Institutional Controls

"Monitoring" will be performed to verify that the LUCIP requirements are met. Semi-annual monitoring of the LAHS OU will be conducted for items such as accuracy and legibility of signs, visible subsidence or erosion of the waste unit, proper vegetative growth, mowing, etc. Subsidence or erosion will be corrected by backfilling the affected area with clean soil and seeding the area to prevent further erosion. After the remediation of the LAHS OU, only maintenance activities will be required per this remedial action. The results of any events and/or actions that indicate some potential compromise of institutional controls will be documented in the FFA Annual Progress Report. All other routine maintenance activities will be documented and maintained in the files subject to USEPA and SCDHEC review and audit. A copy of the complete inspection form is maintained in the Soil and Groundwater Closure Projects (SGCP) Document Control.

Per Section 3.6, of the LUCAP, the post construction revision of this LUCIP will identify the area under land use restriction via a survey plat certified by a professional land surveyor. In addition, if the site is ever transferred to non-federal ownership, a survey plat of the OU will be recorded with the appropriate county recording agency.

A unit-specific field inspection checklist is provided in Attachment A-1 of this LUCIP. The waste site inspectors are to be trained in Hazardous Waste Operations and Emergency Response (i.e., HAZWOPER), RCRA Well Inspections (SGCP-specific training), SGCP RCRA Waste Unit Inspections, Radiological Worker, 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 will conduct the inspections and grass cutting operations. This unit-specific LUCIP, including the checklist (Attachment A-1), will be appended to the SRS LUCAP.

ATTACHMENT A-1

ERD FIELD INSPECTION CHECKLIST FOR L-AREA HOT SHOP (INCLUDING CML-003 SANDBLAST AREA) OPERABLE UNIT

SGCP INSPECTION DATA SHEET FOR L-AREA HOT SHOP OPERABLE UNIT

A= Satisfactory X= Unsatisfactory (Explanation required)	A or X	Observation or Corrective Action Taken
1. Verify that the roads are accessible.		
2. Verify that the waste unit signs (specify the number) are in acceptable condition, have the correct information and are legible from a distance of 25 feet.		
3. Does the site show signs of erosion or subsidence? Are there any signs of burrowing animals (holes)?		

Inspected by:_____/_____Date:_____Time:_____
(Print Name) (Signature)

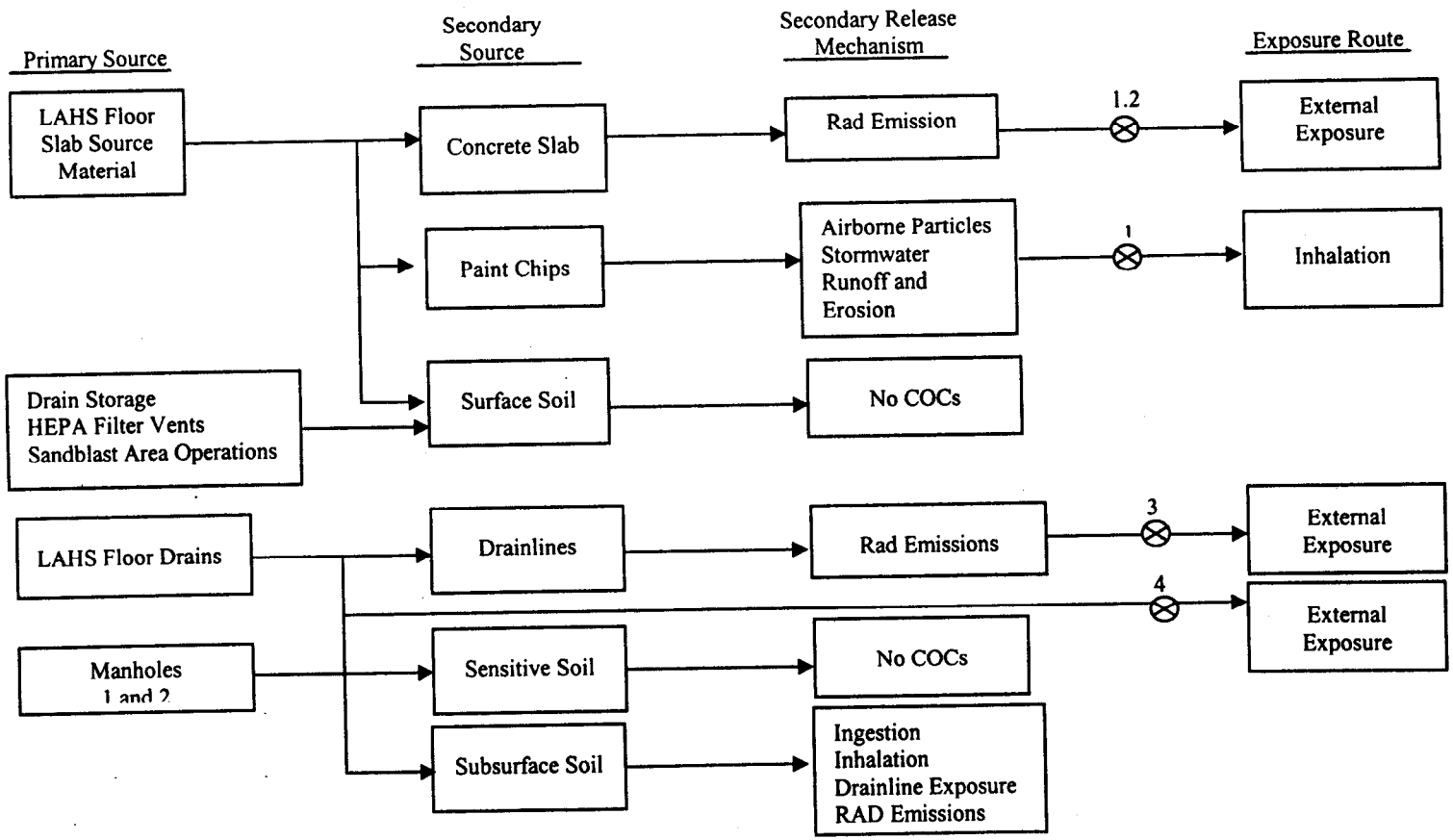
Reviewed by:_____/_____Date:_____Time:_____
Post-Closure Manager or Designee

Note: USEPA and SCDHEC must be notified within 30 days of identification of any area where any breach or compromise of restrictions placed on this institutional control OU has occurred.

ATTACHMENT A-2

CONCEPTUAL SITE MODEL FOR THE L-AREA HOT SHOP (INCLUDING CML-003 SANDBLAST AREA) OPERABLE UNIT

POST-REMEDIAL ACTION



LEGEND
→ = Pathways – past, current and hypothetical future
5. = Institutional Controls
6. = Removal of Concrete Pads
7. = Excavation/Removal of Inactive Process (IP) Drainlines
8. = Excavation/Removal of Contaminated Soils from Around IP Drainlines
⊗ = Remedy breaks this pathway

Notes:

PTSM = principal threat source material
COC = constituent of concern
CMCOC = contaminant migration constituent of concern

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