LUCIP for the
P-Area Reactor Seepage Basins, 904-61G, -62G, and -63G
Land Use Control Implementation Plan for P-Area Reactor Seepage Basins, 904-61G, -62G, and -63G
(WSRC-RP-2003-4139, Revision 1, January 2004)

On February 6, 2014, the DOE submitted a letter (ACP-14-125, ARF #019315) to the EPA and SCDHEC to perform the inspections for this operable unit on an annual basis. The EPA and SCDHEC approved the request in letters dated March 20, 2014 (ARF #019385) and March 7, 2014 (ARF #019360), respectively.

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010702

United States Department of Energy

Savannah River Site

Land Use Control Implementation Plan (LUCIP) for P-Reactor Seepage Basins (904-61G, 904-62G, and 904-63G) OU (U)

CERCLIS NUMBER: 66

WSRC-RP-2003-4139

Revision 1

January 2004

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Prepared for the U. S. Department of Energy Under Contract No. DE-AC09-96SR18500

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Prepared for
U.S. Department of Energy
and
Westinghouse Savannah River Company LLC
Aiken, South Carolina

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LIST OF ACRONYMS AND ABBREVIATIONS

b/g	beta-gamma
bls	below land surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Ci	curie
COC	constituent of concern
cm/s	centimeter per second
CSM	conceptual site model
ECA	Environmental Compliance Authority
FFA	Federal Facility Agreement
ft	feet
ft^2	square feet
GCL	geosynthetic clay liner
GDL	geocomposite drainage layer
HAZWOPER	Hazardous Waste Operations and Emergency Response
HDPE	high-density polyethylene liner
IPSL	inactive process sewer pipelines
LUC	Land Use Control
LUCAP	Land Use Control Assurance Plan
LUCIP	Land Use Control Implementation Plan
MCL	maximum contaminant levels
NCP	National Oil and Hazardous Substance Contingency Plan
OU	Operable Unit
pCi/g	picocuries per gram
PCM	Post-Closure Manager
PRSB	P-Area Reactor Seepage Basins
PTSM	principal threat source materials
PVC	polyvinyl chloride
QA	Quality Assurance

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

RA	remedial action
RAIP	remedial action implementation plan
RAO	remedial action objective
RBC	risk-based concentrations
RCRA	Resource Conservation and Recovery Act
RG	remedial goal
ROD	Record of Decision
S/S	stabilization/solidification
SCA	soil contamination area
SCDHEC	South Carolina Department of Health and Environmental Control
SGCP	Soil and Groundwater Closure Projects
SRS	Savannah River Site
TER	Technical Evaluation Report
TTV	treatment threshold value
URMA	underground radioactive management area
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
WSRC	Westinghouse Savannah River Company, LLC

1.0 INTRODUCTION

This Land Use Control Implementation Plan (LUCIP) has been prepared for P-Reactor Seepage Basin (PRSB) (904-61G, 904-62G, and 904-63G) Operable Unit (OU) (Figure 1) at the Savannah River Site (SRS). The purpose of the LUCIP is to describe how the land use controls (LUCs) selected in the PRSB OU Record of Decision (ROD) will be implemented and maintained. The following LUCs have been selected for this OU:

- Property Record Notices
- Property Record Restrictions
- Other Public Notices
- Site Use Program
- Warning Signs
- Access Controls and Security/Surveillance Measures
- Field Inspection and Maintenance for Institutional Controls

Section 4.0 of this LUCIP describes the LUCs that will be implemented at the PRSBs.

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 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 Action 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 the PRSB OU. This additional document, the

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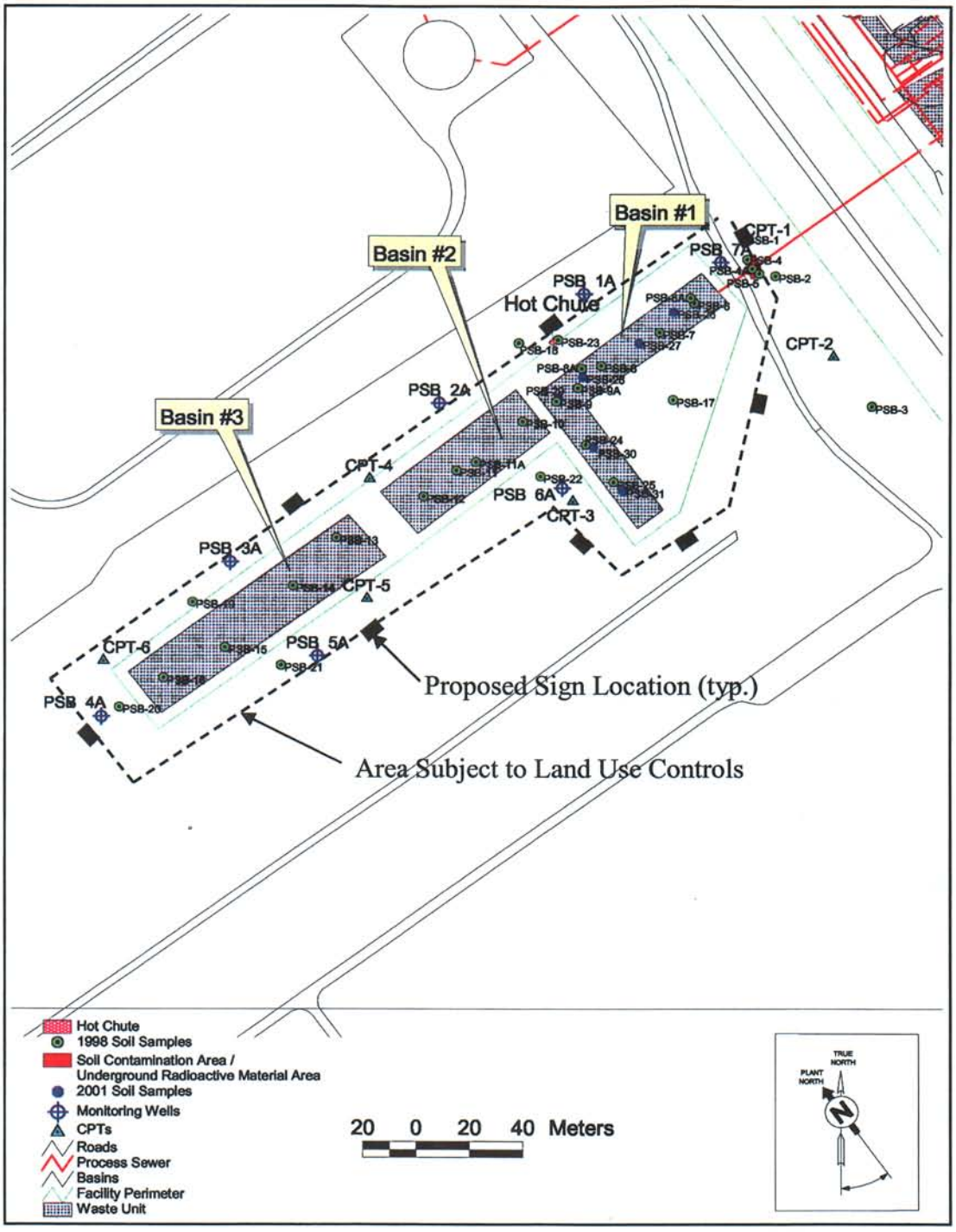

Figure 1. Conceptual Site Detail of P-Area Reactor Seepage Basins

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PRSB (904-61G, 904-62G, and 904-63G) OU LUCIP, contains the detailed and specific measures required to implement and maintain the LUCs selected as part of this particular remedial decision.

2.0 OVERVIEW OF P-REACTOR SEEPAGE BASINS REMEDIAL ACTION

2.1 Description of the P-Reactor Seepage Basins (904-61G, 904-62G, and 904-63G) Operable Unit

The PRSB (904-61G, 904-62G and 904-63G) OU is listed as a Resource Conservation and Recovery Act (RCRA) 3004(u) Solid Waste Management Unit/Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) unit in Appendix C of the Federal Facility Agreement (FFA) (1993) for SRS. The media associated with this OU include soils, inactive process pipelines (IPSLs), a hot chute, cascade overflow pipes, and woody vegetation.

The PRSB OU is located in the central portion of SRS west of P Area. The basins are in an open area with vegetative cover. The ground slopes southwestward toward Steel Creek, approximately 2,500 ft to SRS west. The PRSBs are located in an industrial zone identified in the proposed SRS future land use map of the SRS FFA Implementation Plan. The basins are adjacent to a nuclear facility and have been selected to remain an industrial use area.

Constructed in 1957, the PRSB OU comprises three unlined (earthen) basins. Basin 1 is L-shaped and was constructed with approximate outside dimensions of 211 x 50 ft in the north-south direction and 254 x 50 ft in the east-west direction, at a depth of 13 to 17 ft below land surface (bls). Basin 2 was constructed with approximate outside dimensions of 211 x 70 ft at a depth of 8 ft bls. Basin 3 was constructed with approximate outside dimensions of 340 x 70 ft at a depth of 9 ft bls. None of the three basins has been backfilled to grade, and all are currently open.

Two IPSLs extend from the disassembly basin within P Reactor to the eastern end of Basin 1. One IPSL is made of 3-inch diameter carbon steel and the other is made of 4-inch diameter high

density polyethylene (HDPE). The IPSLs are approximately 660 ft in length. From 1957 until 1970 and from 1978 until 1991, the process sewer lines conveyed low-level radioactive purge water from the P-Area Reactor Disassembly Basin to the seepage basins. Historical records indicate that the original IPSL leaked in an area east of Basin 1, contaminating the soils in a 15 by 30 ft (450 ft^2) area. A second line was installed as a replacement, but contaminated soils were not removed during this installation. This area is posted as a Soil Contamination Area (SCA) and an Underground Radioactive Management Area (URMA).

Cascade overflow pipes connect Basin 1 to Basin 2 and Basin 2 to Basin 3. The cascade overflow pipes are 12-inches in diameter and are made of corrugated steel. Flow between the basins was via the cascade overflow pipes positioned near the top of the basin walls.

In addition to the cascade overflow pipe in Basin 1, a "hot chute" was placed at the north wall of the basin during operation. The chute consists of several 10-ft sections of polyvinyl chloride (PVC) pipes and several coils of fire hose located outside of the basin perimeter fence. There is no documentation indicating when the "hot chute" was used and if it was used for waste disposal. Previous radiological surveys of the "hot chute" are consistent with background radiation levels.

The seepage basins were used from 1957 to 1970 to dispose of low-level radioactive process purge water from the reactor disassembly basin. Beginning in 1963, disassembly basin wastewater was deionized and filtered prior to discharge, which reduced radioactivity and removed solids and sludges. The seepage basins were not used from 1971 to 1977. Purge water was mixed with large volumes of heat exchanger cooling water and discharged to area streams. After improvements for processing disassembly basin water had been made, purge water discharges to the seepage basins resumed in 1978. The seepage basins have not received wastewater since P-Reactor was shut down for repairs in 1991.

Waste disposal records indicate that the main basin (Basin 1) received aqueous radioactive waste. Radionuclides in the wastewater from the disassembly basin, sumps, tanks, and drums included tritium, strontium-90, chromium-51, cobalt-60, cesium-134, cesium-137, and other

beta-gamma (b/g) fission products. The records show most of the radioactivity in reactor seepage basin discharge water was due to tritium, cesium-137, cobalt-60, and strontium-90. During the entire operation of the PRSBs, it is estimated that 70,000 curies (Ci) of tritium, 4.74 Ci of strontium-90, 19.5 Ci of cesium-137, and 0.835 Ci of other b/g emitters were released to the PRSBs.

2.2 Nature and Extent of Contamination in P-Reactor Seepage Basins (904-61G, 904-62G, and 904-63G) OU

The PRSB soils have been characterized in the unit-specific Plug-in Technical Evaluation Report (TER). (WSRC 2003c). The radionuclides that are designated as principal threat source material (PTSM) in the TER are briefly addressed in the following paragraphs. Tritium was a major contributor to the production waste stream and may still be present in the soil and pipelines.

For the plug-in remedy, PTSM has been defined as highly contaminated basin soils and any other unit-related soils that pose a radiological risk to the future industrial worker equal to or greater than 1×10^{-3} risk (using baseline risk assessment exposure assumptions). Based on the presumptive approach used in the Plug-in ROD, a bias for treatment of PTSM that consists of soil stabilization/solidification (S/S) (by grouting) has been used.

The TER (WSRC 2003c) provides a comparison of the average radionuclide concentration detected in the three basins and SCA/URMA to the PTSM treatment threshold value (TTV). The TTV relates to a risk of 1×10^{-3} for an industrial worker. The average cesium-137 concentration exceeds the TTV in Basin 1, Basin 2, and the SCA/URMA; therefore, this plug-in criteria is met because this unit contains PTSM. No PTSM was detected in Basin 3 or below 19 ft in Basin 1 or 2 or the SCA/URMA. Data in the TER illustrate that PTSM is present in Basin 1, Basin 2, and the SCA/URMA. Basin 1 PTSM is composed of cesium-137 and cobalt-60. The average cesium-137 concentration exceeds the 1×10^{-3} risk and TTV. The TER (WSRC 2003c) indicates the maximum depth of S/S of PTSM for Basin 1, which is 10 ft.

Basin 2 PTSM is composed of cesium-137. TTVs are exceeded in Basin 2 in all four boreholes to a depth of 4 ft. The depth designated for S/S, which extends 4 ft below the basin bottom, is shaded in gray on Table 10 of the TER (WSRC 2003c).

Very little contamination was ever released to Basin 3 and, as result, no PTSM is present. See Table 11 of TER (WSRC 2003c). PTSM located in the SCA/URMA and associated with the original process sewer line is composed of cesium-137. The average concentration of cesium-137 exceeds the TTV between a depth of 1 to 4 ft bls (Table 12 of the TER).

The "hot chute" does not contain any PTSM but will be removed, placed in Basin 1 or Basin 2 and encapsulated within the grouted mass. The cascade overflow pipes connecting the three basins will be crushed and encapsulated within the grout mass.

2.3 Remedial Action Selected

The selected RA established in the ROD is based on an evaluation of potential alternatives performed in accordance with the National Oil and Hazardous Substance Contingency Plan (NCP) and CERCLA, as amended.

The RA addressed in the Remedial Action Implementation Plan (RAIP) for PRSB is applicable to the in situ grouting of the two IPSLs, in situ S/S of the PRSB PTSM soils, excavation and encapsulation of the IPSLs within the grouted mass, and capping of the PRSB with a low permeability geosynthetic closure cover system.

The PRSB conceptual site model (CSM) (Appendix C) illustrates how implementation of the RA breaks the contaminant exposure pathways.

The following are key elements of the selected RA for the PRSB soils and IPSLs (WSRC 2003c):

- Based on the analysis and conclusions of the TER, the S/S treatment depth for Basin 1 will be graduated as follows:

- For the east-west section of Basin 1, the treatment depth will be 10 ft below basin bottom (approximately 15 ft bls) at the eastern end (source location of IPSL discharge) and will be graduated to 6 ft (approximately 11 ft bls) at the basin corner.

- For the north-south section of Basin 1, the S/S treatment depth will be graduated from 6 ft (approximately 11 ft bls) at the corner to 2 ft (approximately 7 ft bls) at the south end.

- Basin 2 soils will be stabilized in place to a depth of 4 ft below the basin bottom with a cement-based grout mixture to achieve the CERCLA preference for treatment of PTSM. This treatment will convert the waste to a solid form, which is less likely to result in human exposure to radionuclides. Since there is no PTSM soil in Basin 3, it does not need S/S treatment.

- A low permeability geosynthetic closure cover system will be installed over the PRSB to meet the remedial action objectives (RAOs) as stated in Section 1.6 of this RAIP. This closure cover system will be placed over basins 1, 2, and 3 and will extend beyond the edges of the seepage basins. The soil cover will encompass all of the stabilized PTSM and contaminated soils located at the basins. Because arsenic and strontium-90 were estimated to migrate to the groundwater at concentrations above the MCL within a period of 1,000 years, a closure cover system with a maximum hydraulic conductivity of 1×10^{-5} cm/s or lower will be provided to reduce infiltration. The closure cover system consists of a structural fill layer, geosynthetic clay liner (GCL), geocomposite drainage layer (GDL), grading fill layer, and a vegetative layer. The closure cover system is designed to reduce water infiltration and to prevent exposure to highly contaminated soils in the PRSBs in accordance with the approved Plug-in ROD (WSRC 1999a) and the approved Unit-Specific Plug-in TER (WSRC 2003c). The installed cover system will be maintained to provide long-term protection.

- Institutional controls will consist of near- and long-term actions. These actions will be consistent with industrial land use and the SRS LUCAP. For the near term, signs and existing SRS access controls will be used to prevent disturbance of the soil cover system. 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, which will likely include deed restrictions precluding residential use or excavation within the boundaries of the unit. Residential use of SRS land will be prohibited as stated in the *SRS Future Use Project Report, Stakeholder Recommendations for SRS Land and Facilities* (USDOE 1996).

- The IPSLs will be grouted, removed, and placed in Basin 1 or 2 and incorporated in the S/S mix to prevent or limit contact of plants and animals to contamination, thereby protecting the ecological receptors indigenous to the area. Historical records, supported by more recent characterization data, indicate that the original IPSL leaked in an area east of Basin 1, contaminating the soils in a 15 by 30 ft (450 ft^2) area. A second line was installed as a replacement; however, the contaminated soils were not removed during this installation. This area is posted as an SCA/URMA. Because the soil adjacent to the IPSLs in the SCA/URMA is considered PTSM, the contaminated soil does meet the Plug-in ROD requirement for treatment or consolidation. The contaminated soil in the SCA/URMA area will be excavated and placed in Basin 1 or 2 (consolidation) for inclusion in the S/S treatment. Soils exceeding 20 pCi/g gross alpha or 50 pCi/g nonvolatile beta screening/sampling criteria will be excavated and consolidated within the S/S mass in Basin 1 or Basin 2.

The remedy selected in the Plug-in ROD is designed to meet the following RAOs for the PRSB and any contaminated soils encountered during removal of the IPSLs:

1) Prevent human exposure to highly contaminated basin soils (PTSM) through stabilization treatment to the extent practicable and backfill of the basins with clean soil. Reduce risks to the future worker from surface soils (0 to 1 ft) outside the basin by establishing

remedial goals (RGs) for constituents of concern (COCs) at concentrations equivalent to 1×10^{-6} for carcinogens and a hazard quotient of 1 for noncarcinogens or background (where background levels of COCs exceed 1×10^{-6}).

2) Prevent the release of COCs in the soil to groundwater beneath the unit above maximum contaminant levels (MCLs) or risk-based concentrations (RBCs) if there are no MCLs. The soil RGs are back-calculated based on MCLs or RBCs.

3) Protect the ecological receptors indigenous to the area by preventing or limiting contact with contaminated basin soil/pipelines and preventing plants and animals from bringing contaminants up towards the surface.

3.0 LAND-USE CONTROL OBJECTIVES

Considering the residual risk mentioned above, the following LUCs have been established for the PRSB OU:

- Maintain the use of the site for industrial activities only.
- Prevent unauthorized access to the unit as long as the waste remains a threat to human health or the environment.
- Prevent unauthorized residential or agricultural access to soil. (Note: P-Area Reactor groundwater is a separate OU).

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

4.0 LAND-USE CONTROL DESCRIPTIONS

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 the RA 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, in perpetuity, notify any potential purchaser that the property has been used for 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. 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.

4.3 Other Public Notices

The LUCIP identifies the area under land use restriction via a survey plat certified by a professional land surveyor. The survey plat will be incorporated in this LUCIP upon completion of the construction phase. A conceptual site detail is provided in Figure 1.

4.4 Site Use Program

SRS is required under DOE Order 430.1A, *Life Cycle Management* (USDOE 1998), to implement an asset management program for the use, maintenance, and disposal of physical assets, including real estate. SRS has complied with this order by establishing its Site Use Program in accordance with WSRC 1D, *Site Infrastructure and Services Manual*, Procedure 3.02, "Site Real Property Configuration Control" (WSRC 2003a). In accordance with this procedure, use of all lands and waters on SRS shall be coordinated via the Site Use Program, and all employees, contractors, and visitors at SRS must comply with it. This program ensures that any work performed at 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) shall 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 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 is responsible for updating, maintaining, and reviewing site maps, including FFA OU identifications (FFA 1993). If a site clearance request that may impact an FFA OU is made, the Site Clearance Request Form is sent to the appropriate FFA OU reviewer 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 a Site Clearance Permit is issued. The site use and site clearance processes are applicable to all activities and personnel on site (including subcontractors).

The processes are controlled in accordance with the WSRC 1Q, SRS Quality Assurance (QA) Program (WSRC 2003b). The SRS QA program is the governing QA program for all SRS activities.

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 or excavation at the PRSB OU shall be undertaken without USEPA and SCDHEC approval.

4.5 Warning Signs

To prevent unknowing entry and to ensure that unrestricted use of the waste unit does not occur while it is under ownership of the government, identification signs will be posted at the unit (Figure 1). The signs will be legible for a distance of at least 25 ft. The signs will read as follows:

P-REACTOR SEEPAGE BASINS (904-61G, 904-62G AND 904-63G)
OPERABLE UNIT

DANGER UNAUTHORIZED PERSONNEL

KEEP OUT

THIS UNIT CONTAINS RADIOLOGICAL OR MIXED HAZARDOUS SUBSTANCES.

DO NOT DIG OR EXCAVATE.

DO NOT ENTER WITHOUT CONTACTING THE WASTE SITE CUSTODIAN.

CUSTODIAN: MANAGER, POST-CLOSURE MAINTENANCE

PHONE: (803) 952-6882

Custodial responsibilities for maintenance and inspection of the PRSB OU will be maintained by the Post-Closure Maintenance Group within Soil and Groundwater Closure Projects (SGCP).

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 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.

4.7 Field Inspection and Maintenance for Institutional Controls

"Monitoring" will be performed to verify that the LUCIP requirements are met. Semi-annual monitoring of the PRSB OU will be conducted for items such as accuracy and legibility of signs, visible subsidence or erosion of the waste unit, proper vegetative growth, and mowing. Subsidence or erosion will be corrected by backfilling the affected area with clean soil and seeding the area to prevent further erosion. After remediation of the PRSB OU, only maintenance activities will be required per this RA. USEPA and SCDHEC will be notified of the results of any event and/or action that could indicate some potential compromise of institutional controls within 30 days of identification. These events or actions will be documented in the FFA Annual Progress 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 complete inspection form is maintained in the SGCP Document Control Center. The LUCs will be implemented as long as the waste remains a threat to human health or the environment.

A unit-specific field inspection checklist is provided in Appendix B of this LUCIP. The waste site inspectors are to be trained in Hazardous Waste Operations and Emergency Response (HAZWOPER), RCRA Well Inspections (SGCP-specific training), SGCP RCRA Waste Unit

Inspections, Radiological Workers, 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 grass cutting operations.

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. *SRS Future Use Project Report, Stakeholder Recommendations for SRS Land and Facilities*, U.S. Department of Energy Savannah River Operations Department, January

USDOE, 1998. DOE Order 430.1A, *Life Cycle Management* (Approved 10/14/98)

WSRC, 2003a. 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, 2003b. WSRC Procedure Manual 1Q, *Quality Assurance (U)*, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2003c. *Unit-Specific Plug-In Technical Evaluation Report for the P-Area Reactor Seepage Basins 904-61G, 904-62G, and 904-63G) Operable Unit (U)*, WSRC RP-2002-4082, February, Rev. 1.1, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

6.0 APPENDICES

Appendix A Survey Plat

Appendix B Field Inspection Checklist

Appendix C Post-Remedial Action Conceptual Site Model

APPENDIX A

SURVEY PLAT

LAND USE CONTROL IMPLEMENTATION PLAN SURVEY PLAT

(The survey plat will be incorporated in this LUCIP upon completion of the construction phase).

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APPENDIX B

FIELD INSPECTION CHECKLIST

FOR LUCIP FOR P-REACTOR SEEPAGE BASINS

APPENDIX B

SGCP FIELD INSPECTION CHECKLIST - TYPICAL

Note: This unit-specific LUCIP, including the checklist, will be appended to the SRS LUCAP. The Appendix A survey plat will be provided upon completion of the construction phase.

☐ **SCHEDULED** ☐ **UNSCHEDULED**

A= Satisfactory X= Unsatisfactory (Explanation required)	A or X	Observation of 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. Verify that there are no excavation, digging, or construction activities on the soil cover.		
4. Check the integrity of drainage ditches (if any) for the presence of excessive erosion, sediment buildup, and any debris restricting water flow.		
5. Verify that no woody vegetation is growing on the soil cover. Remove or identify as needed.		
6. Visually check the vegetative cover for grass density, with no bare spots more than 3 by 3 feet in area. The height of the vegetative cover should not impair the visual inspection of the soil cover. This will be determined by the inspector.		
7. Check the closure cover system for signs of erosion or depressions (subsidence).		
8. Check for signs of burrowing animals.		

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 at this waste unit. Refer to post-closure inspection procedures.

APPENDIX C

POST-REMEDIAL ACTION CONCEPTUAL SITE MODEL

FOR THE LUCIP FOR P-REACTOR SEEPAGE BASINS

APPENDIX C

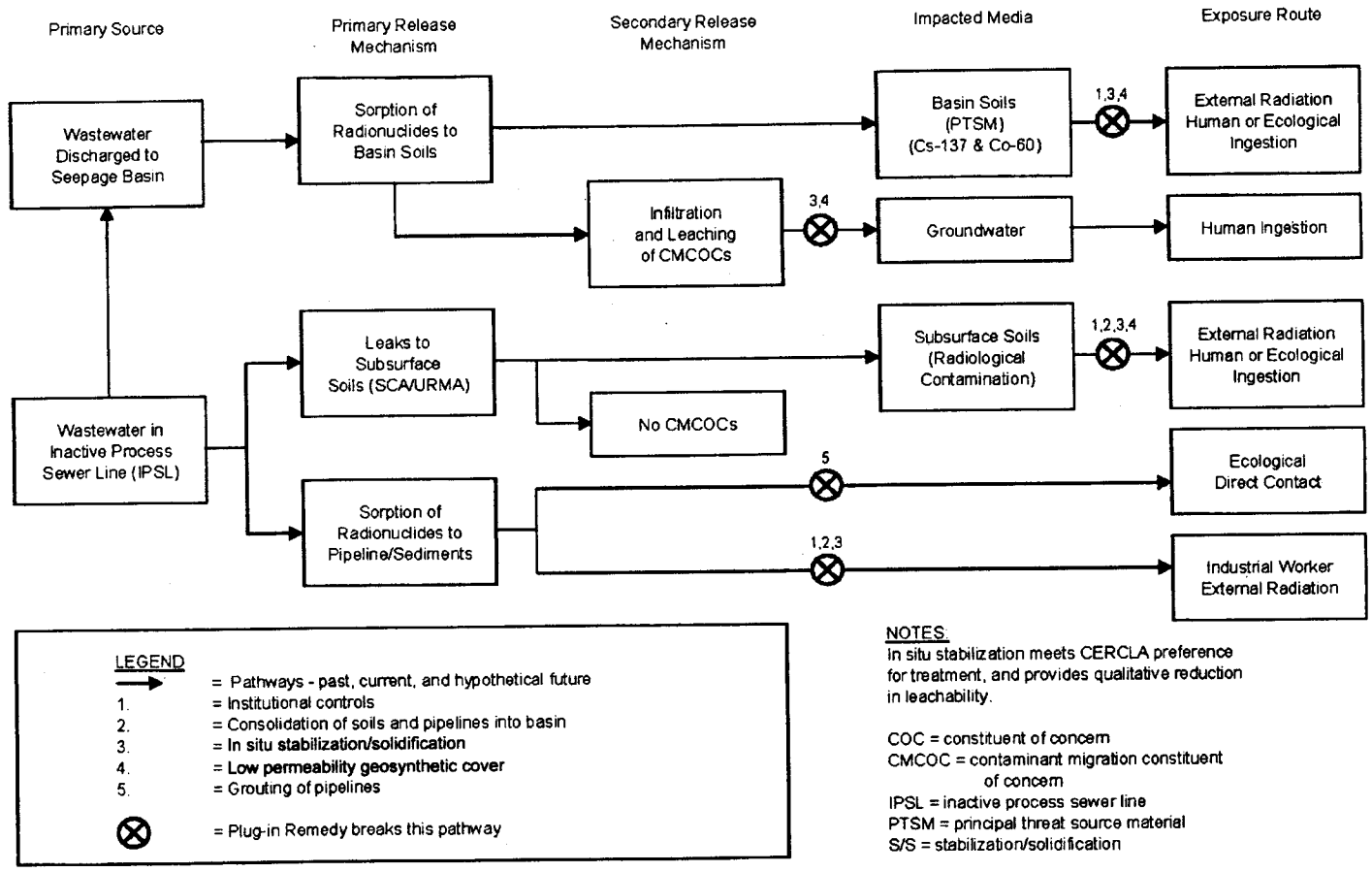

Figure C1. Post-Remedial Action Conceptual Site Model for the LUCIP For P-Reactor Seepage Basins