LUCIP for the
L- and P-Area Bingham Pump Outage Pits, 643-3G and 643-4G

Section 2.0 of Final Remediation Report for the L- and P-Area Bingham Pump Outage Pits, 643-3G and 643-4G

WSRC-RP-2000-4030, Revision.0, March 2000

NOTE: The Westinghouse Savannah River Company (WSRC) and Department of Energy (DOE) organizations responsible for environmental restoration at the Savannah River Site underwent name changes in 2003, as shown below. The responsibilities as outlined in the following document did not change.

Organization	**Previous Name**	**Current Name**
WSRC	Environmental Restoration Division (ERD)	Soils and Groundwater Closure Projects (SGCP)
DOE	Environmental Restoration Division (ERD)	Soil and Groundwater Project (SGP)

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The contact person (title, address, and phone number) for the L and P BPOPs is as follows:

Westinghouse Savannah River Company
Manager, Post-Closure Maintenance
Building 730-2B
Aiken, SC 29808
(803) 952-6882

2.0 LAND USE CONTROL IMPLEMENTATION PLAN (LUCIP)

The L and P BPOPs Land Use Control Implementation Plan (LUCIP) will be appended to the SRS Land Use Control Assurance Plan (LUCAP) once it is approved.

Remedy Selection

The miscellaneous construction debris (i.e., pipes, cables, ladders, etc.) with fixed contamination (primary source) has been buried in the L and P BPOPs since 1958. The presence of the debris plays a primary role in the remedy selection. There was no indication from the characterization data that the contamination present on the debris has moved, and the level of radioactivity has diminished over the years. The degree of exposure toxicity to the waste is considered minimal and the potential for exposure is also considered to be minimal.

The L and P BPOPs are located in a potential residential zone, close to but outside of the industrial zone boundaries as identified on the Proposed SRS Future Land Use Map of the SRS FFA Implementation Plan. The location of the L and P BPOPs adjacent to the heavy industrial (nuclear) zones, and the presence of buried debris, make the units unsuitable for residential use (US DOE 1996). Although the units are located outside of the defined industrial zones, it is anticipated that the units will be limited use areas with restrictions similar to an industrial-use zone.

Based on the *Approved Standardized Corrective Action Design (ASCAD™) Combined Document for the L- and P-Area Bingham Pump Outage Pits* (U) (WSRC 1999a), no human health or ecological final COCs were identified for any land use/receptor scenario at the L BPOPs, indicating that surface soil and subsurface soil and groundwater do not pose unacceptable risks to human or environmental receptors under current or future conditions. Furthermore, no final Contaminant Migration Constituents of Concern (CM COC) were identified; therefore, leaching does not pose a threat to groundwater. Land Use Controls (LUCs) will provide adequate protection against exposure to waste left in place by prohibiting unauthorized excavation through access controls and deed restrictions.

Based on the *Approved Standardized Corrective Action Design (ASCAD™) Combined Document for the L- and P-Area Bingham Pump Outage Pits* (U) (WSRC 1999a), no ecological final COCs or final CM COCs were identified at the P BPOP; therefore, the unit does not pose unacceptable risks to ecological receptors and does not pose a future threat to groundwater. For the hypothetical on-unit resident and the future industrial worker scenarios, human health final COCs in the subsurface soil included polyaromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs). No human health final COCs were identified for the current land use scenario. LUCs will provide adequate protection against exposure to waste left in place by prohibiting unauthorized excavation through access controls and deed restrictions.

The selected remedy for L and P BPOPs groundwater is No Action as neither unit poses a future threat to groundwater. The L and P BPOPs soils pose minimal risk to human health. To manage any risk uncertainty and to ensure that the potential for exposure remains minimal, Institutional Control as the selected remedy for soils is appropriate for the L and P BPOPs operable unit (OU). LUCs will restrict the L and P BPOPs to future industrial use and will prohibit residential use of the

areas. Unauthorized excavation will also be prohibited and the waste units will remain undisturbed. LUCs will be maintained until such time as they are deemed unnecessary.

The proposed actions for both the L and P BPOPs Operable Unit (OU) are final actions because they each meet the final remedial action objectives (RAOs) and final remedial goals (RGs) established in the Record of Decision (ROD) (WSRC 1999b).

A post-construction conceptual site model (CSM) for the L and P BPOPs, which illustrates the broken pathways after implementation of the remedy, are included as Figure 4.

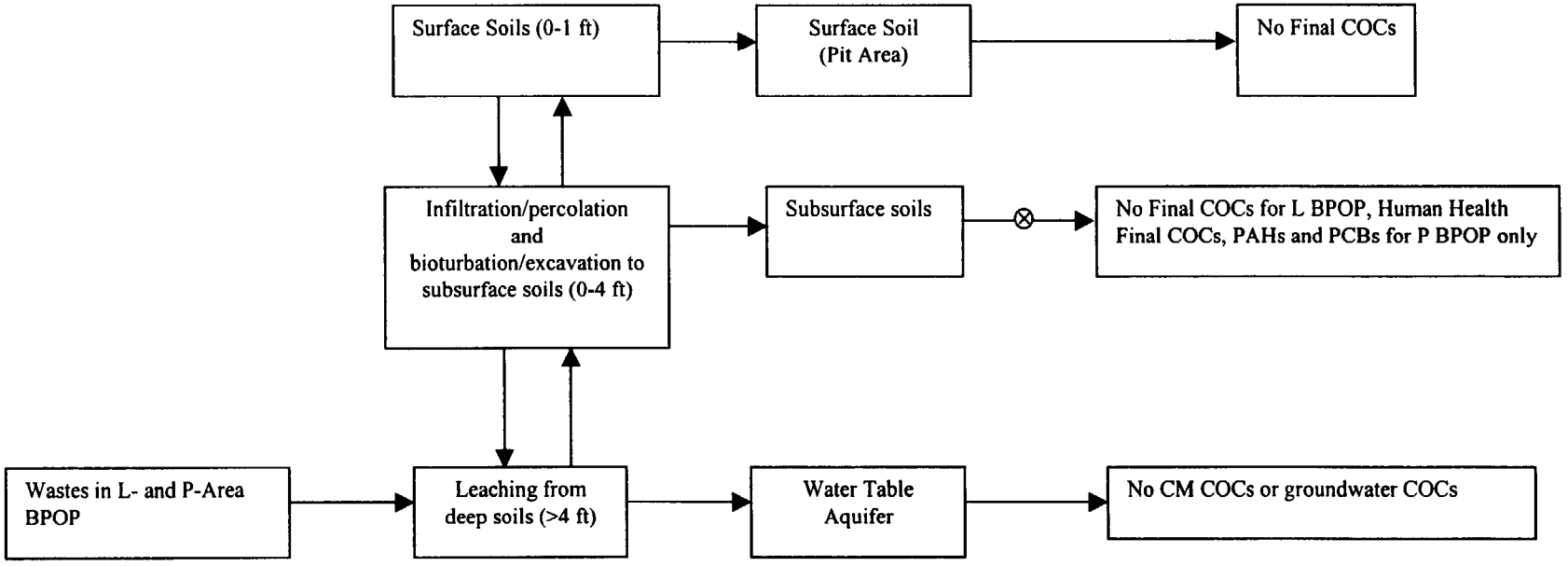
Land Use Controls

Based on the conclusions of the L and P BPOPs remedial investigation/baseline risk assessment (RI/BRA), groundwater does not pose a threat to human health and restrictions are not required. Therefore, groundwater LUC objectives have not been established. Soils do pose a threat to human health and restrictions are required. Soil LUC objectives are detailed below.

Institutional controls is the remedial alternative selected for this site and is intended to be permanent and effective in the near-and long-term. Implementation of this alternative will require both near- and long-term actions.

The LUC objectives necessary to ensure the protectiveness of the preferred alternative are:

- Prevent contact, removal, or excavation of buried waste in the area
- Preclude residential use of the area



Notes for Remedial Actions:
Land Use Controls

Other Notes:
⊗ = pathway break for remedial considerations

Figure 4. Simplified Conceptual Site Model for the L and P BPOPs

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The LUCs required to prevent unauthorized exposure to the contaminated media at the L and P BPOPs include the following:

- Survey plats have been completed by professional land surveyors delineating the land subject to LUCs (Figures 5 and 6). Figures 5 and 6 are reductions of full size survey plats.

- installation of warning signs at the most probable access points to indicate that the areas were used for the disposal of waste materials/hazardous substances (radioactively contaminated construction materials) and to advise that the waste unit custodian must be contacted prior to entry

- use of existing SRS access controls (including security gates, guards, and the site use/site clearance program) to maintain the use of each site consistent with its intended land use

- periodic inspections and general maintenance (primarily mowing and subsidence repairs, and minor drainage modifications as needed to prevent ponding and to promote surface water runoff)

- evaluation of the need for deed notifications/restrictions if the property were ever transferred to non-federal ownership, as required under CERCLA Section 120(h)

In the long term, if the L and P BPOPs are transferred to non-federal ownership, the need for deed restriction will be evaluated and performed through an amended ROD with the United States Environmental Protection Agency (US EPA) and South Carolina Department of Health and Environmental Control (SCDHEC)

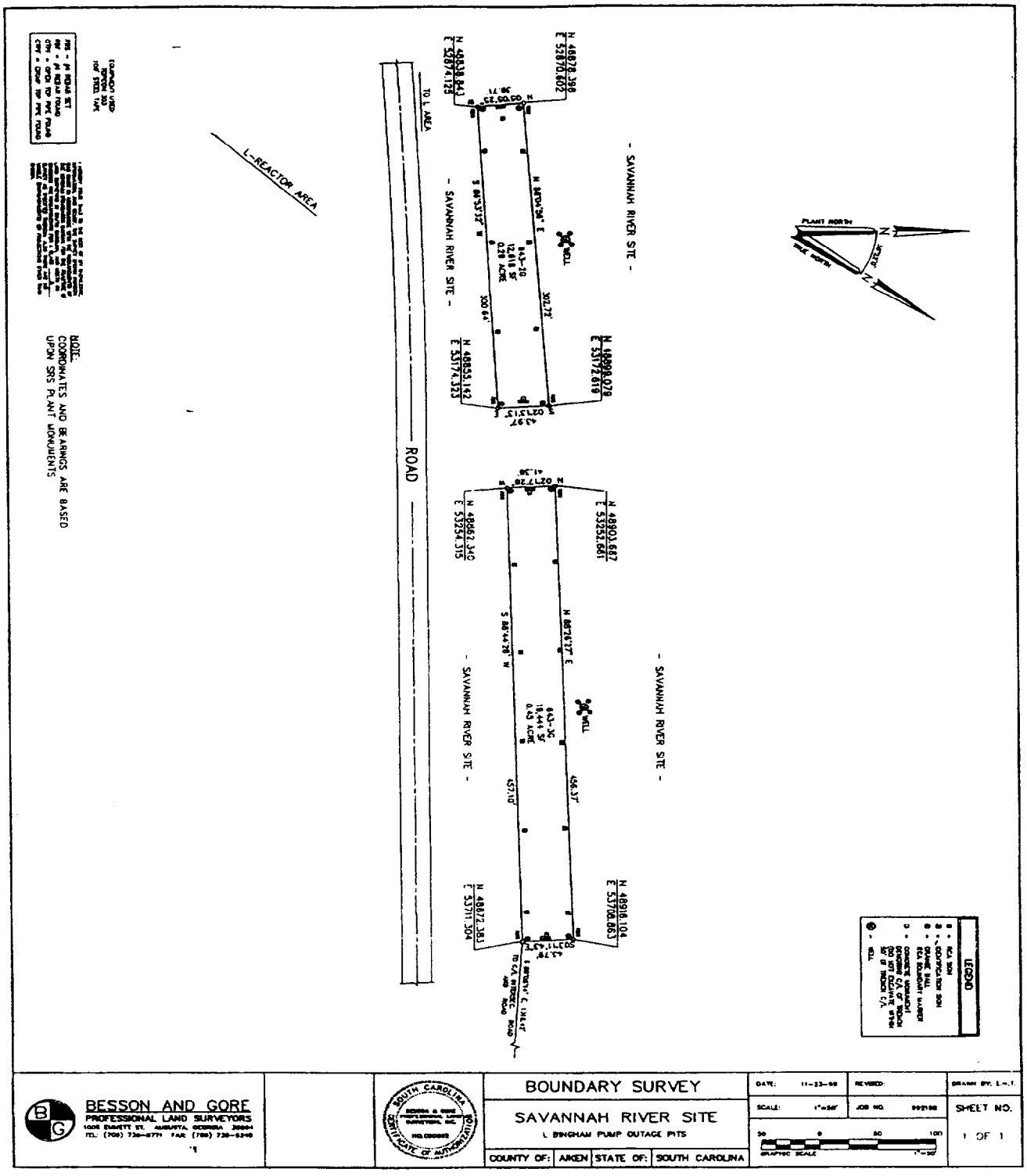

Figure 5. L Bingham Pump Outage Pits Survey Plat

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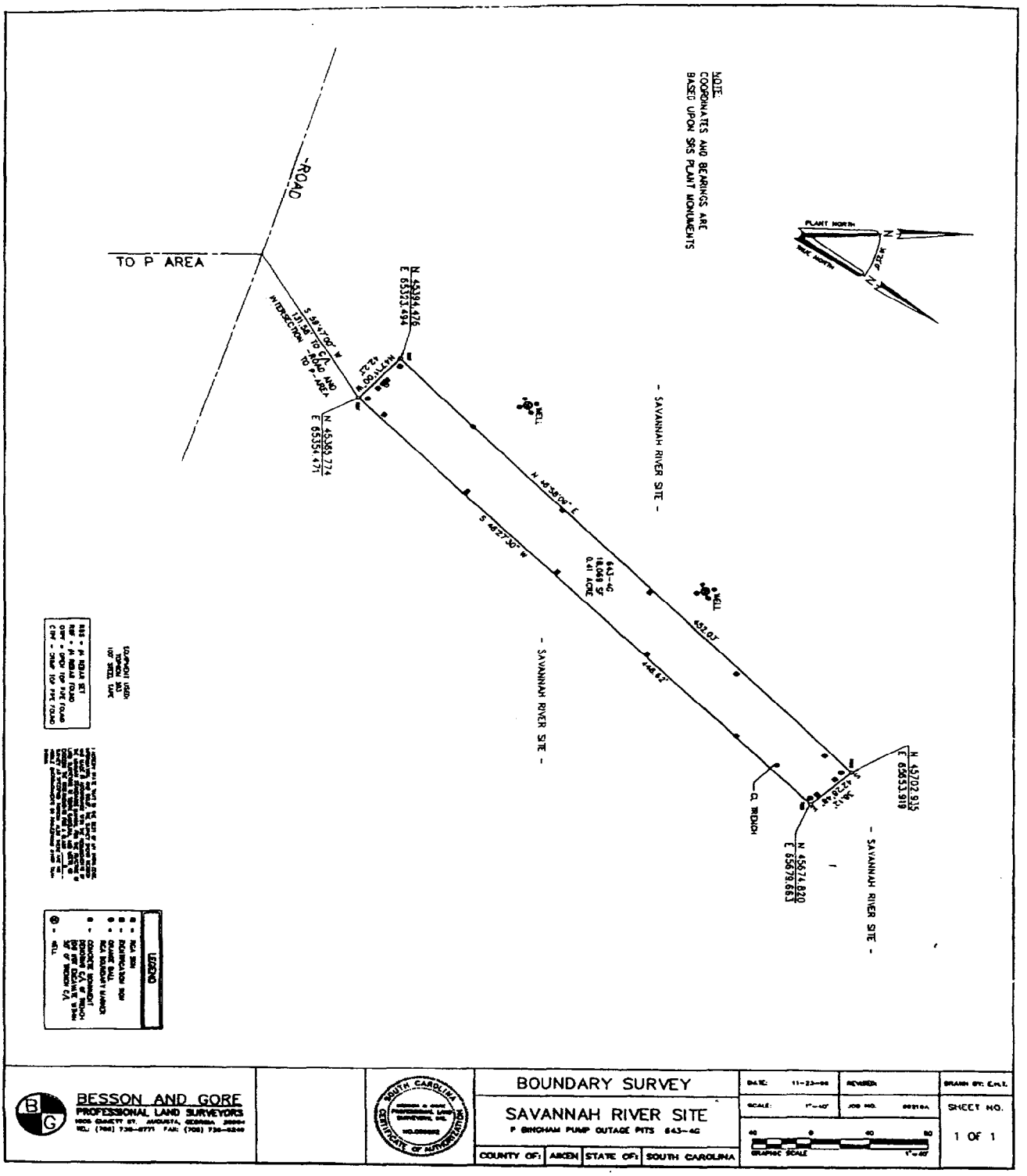

Figure 6. P Bingham Pump Outage Pit Survey Plat

approval and actions taken pursuant to CERCLA Section 120(h). The actions will include a deed notification disclosing former waste management and disposal activities, as well as any remedial actions taken at the waste unit. The deed notification will, in perpetuity, notify any potential purchaser that the property has been used for the management and disposal of construction debris, waste and other materials, including hazardous substances. RCRA deed notification requirements are not required for this waste unit since it is not listed as a RCRA facility in the SRS FFA, Appendix C. The deed would include restrictions precluding residential use of the property. The need for deed restrictions and/or LUCs will require US EPA and SCDHEC review and approval. The survey plat will be reviewed and updated, as necessary, at the time the site is transferred and will be recorded with the Barnwell County recording agency. This proposal is consistent with US EPA guidance and is an effective use of risk management principles.

The elements of the institutional control corrective action, which consists of land restrictions without any engineering controls, are composed of deed notifications when the parcel is transferred from United States Department of Energy (US DOE) ownership, access controls that include posting of identification signs, and field walkdowns for general site conditions. These LUCs will be implemented in perpetuity for this OU. Each element of the institutional controls corrective action is discussed below.

2.1 Deed Notification

A deed notification shall be filed with the Barnwell County recording agency in accordance with CERCLA Section 120(h), which requires the government to create a deed when land on which any hazardous substance was stored, released, or disposed is transferred to non-federal ownership. The transference of the L and

P BPOPs OU is unlikely. Per CERCLA Section 120(h)(3)(A), the deed shall contain, to the extent practical, such information as is available based on the complete search of agency files, including the following:

- a notice of the type and quantity of such hazardous substances
- notice of the time at which such storage, release, or disposal took place
- a description of the remedial action taken, if any

Per CERCLA Section 120(h)(3)(B), the deed shall also contain a covenant warranting that

- all remedial action necessary to protect human health and the environment with respect to any such substance remaining on the property has been taken before the date of such transfer
- any additional remedial action found to be necessary after the date of such transfer shall be conducted by the United States Government
- a clause granting the United States Government access to the property in any case in which remedial action or corrective action is found to be necessary after the date of such transfer

RCRA permit requirements are not applicable for this waste unit per the SRS FFA, Appendix C.

2.2 Access Controls

2.2.1 On-Site Workers

In accordance with WSRC 1D, *Site Infrastructure and Services Manual,* Procedure 3.02, *Site Real Property Configuration Control* (WSRC, 1996), use of all lands and waters on the SRS shall be coordinated via 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 Procedure 3.02, all work at SRS that adds to or modifies features or facilities portrayed on the SRS development maps (i.e., plot plans of facilities/utilities at SRS) is authorized by a Site Clearance Permit before execution. All Site Clearance requests are reviewed to verify that either an approved Site Use Permit has been obtained, or that an existing Site Use Permit has sanctioned the request. Verification of the US DOE 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 Program.

SRS identifies all buildings and facilities on maps used in the Site Use/Site Clearance Program and includes a 200-ft buffer zone around each facility. 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. Any changes in the use or disturbance of the L and P BPOPs will be cleared with the US EPA and SCDHEC before the disturbance occurs. To prevent unknowing entry and to ensure that unrestricted use of the waste unit does not occur while under ownership of the government,

identification signs will be posted at the waste unit roadway access points (Figures 2 and 3). The signs will be legible from a distance of at least 25 ft. The signs will read:

> L-Area Bingham Pump Outage Pits, 643-2G and 643-3G
> "Danger – Unauthorized Personnel Keep Out. This waste unit was used to manage waste materials/hazardous substances (radioactively contaminated construction material). Do not dig or excavate. Do not enter without contacting the waste site custodian."
> Custodian: Manager, Post-Closure Maintenance
> **Phone: (803) 725- 7243 Pager ID: 19192**

> P-Area Bingham Pump Outage Pit, 643-4G
> "Danger – Unauthorized Personnel Keep Out. This waste unit was used to manage waste materials/hazardous substances (radioactively contaminated construction material). Do not dig or excavate. Do not enter without contacting the waste site custodian."
> Custodian: Manager, Post-Closure Maintenance
> **Phone: (803) 725- 7243 Pager ID: 19192**

Site-specific access controls (i.e., fences) are not required for the L and P BPOPs since exposure to the casual worker or trespasser as calculated in the Baseline Risk Assessment does not warrant this level of protection.

2.2.2 Trespassers

Additionally, while under the ownership of the US DOE, access control of the entire SRS will continue to 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 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.

2.3 Field Walkdowns and Maintenance

Monitoring will be performed to verify that LUCIP requirements are met. Semi-annual monitoring of the L and P BPOPs, 643-2G, 3G, and 4G will be conducted for items such as accuracy and legibility of identification signs, visible subsidence or erosion of the waste unit, proper vegetation 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. The results of any events and/or actions that could indicate some potential compromise of institutional controls will be documented in the FFA Annual Progress Report. All other routine maintenance activities (i.e., mowing, etc.) will be documented and maintained in files that are subject to US EPA and SCDHEC review and audit. The typical field inspection checklist to be used to perform monitoring activities at the L and P BPOPs are included in this document as Attachment A-1. A copy of the completed inspection form is maintained in the Environmental Restoration Division Administrative Record Files.

Inspections at the L and P BPOPs will be performed to ensure that institutional controls remain protective and consistent with all remedial action objectives. Semi-annual inspections of the L and P BPOPs will be conducted. The results of the inspections will be reported in the annual certification.

2.4 Certification Mechanism

The US DOE Site Manager shall certify on an annual basis that the L and P BPOPs are currently being restricted per the institutional controls corrective action described in the approved *Record of Decision Remedial Alternative Selection for the L- and P-Area Bingham Pump Outage Pits (643-2G, 3G and 4G) (U)*, WRSC-RP-98-4105, Revision 1, September 1999 (WSRC 1999b). This certification shall be included in the FFA Annual Progress Report.

2.5 Groundwater Monitoring and Reporting (as necessary)

Based on the conclusions of the RI/BRA, the L and P BPOPs are not impacting groundwater. Constituents are not observed to have migrated horizontally and clayey zones underneath the base of the pit will limit vertical migration potential. No groundwater land use control objectives have been established. Therefore, groundwater monitoring and reporting is not required for the L and P BPOPs.

3.0 SCHEDULE

The remedial actions to be implemented at the L and P BPOPs include the installation of two identification signs. The installation of the identification signs, as described in Section 2.2.1, will occur during 4Q00. Semi-annual site monitoring activities will also begin with 4Q00. The monitoring activities will include those items necessary to annually certify that the L and P BPOPs are being restricted per the approved corrective action. Installation of the signs and site monitoring activities will commence within two months of regulatory approval of this FRR.

4.0 REFERENCES

US DOE 1996. *Savannah River Site: Future Use Project Report,* Stakeholder Recommendations for SRS Land and Facilities. January 1996. Cover letter: Fiori, Mario P., "SRS Future Use Project Report (Reference: Transmittal of Final Draft "Forging the Missing Link: A Resource Document for Identifying Future Use Options," Grumbly/Pearlman letter, 1-12-94)", US DOE Letter EB-96-015, Savannah River Site, Aiken, South Carolina, January 29, 1996.

US EPA 1991. *A Guide to Principal Threat and Low Level Threat Wastes,* Superfund Publication 9380.3-06FS, United States Environmental protection Agency, Office of Solid Waste and Emergency Response, November 1991.

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