LUCIP for the
R-Area Burning/Rubble Pits (131-R and -1R) and R-Area Rubble Pile (631-25G)[15]
Land Use Control Implementation Plan R-Area Burning/Rubble Pits (131-R and -1R) and R-Area Rubble Pile (631-25G)
(WSRC-RP-2004-4119, Revision 0, January 2005)

[15] R-Area Rubble Pile is designated as a No Action/No Further Action Operable Unit.

This page was intentionally left blank.

012051

United States Department of Energy
Savannah River Site

Land Use Control Implementation Plan (LUCIP) for R-Area Burning/Rubble Pits (131-R and 131-1R) and R- Area Rubble Pile (631-25G) Operable Unit (U)

CERCLIS NUMBER: 43

WSRC–RP–2004-4119

Revision 0

January 2005

Prepared by:
Westinghouse Savannah River Company LLC
Savannah River Site
Aiken, SC 29808

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

DISCLAIMER

Printed in the United States of America
Prepared for
U.S. Department of Energy
and
Westinghouse Savannah River Company LLC
Aiken, South Carolina

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	constituent of concern
ECA	Environmental Compliance Authority
FFA	Federal Facility Agreement
GMZA	Groundwater Mixing Zone Application
HAZWOPER	Hazardous Waste Operations and Emergency Response
LUC	Land Use Control
LUCIP	Land Use Control Implementation Plan
LUCAP	Land Use Control Assurance Plan
OU	Operable Unit
PCM	Post-Closure Manager
QA	Quality Assurance
RBRP	R-Area Burning/Rubble Pits
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
RRP	R-Area Rubble Pile
SCDHEC	South Carolina Department of Health and Environmental Control
SGCP	Soil and Groundwater Closure Projects
SRS	Savannah River Site
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
WSRC	Westinghouse Savannah River Company, LLC

This page was intentionally left blank

1.0 INTRODUCTION

This Land Use Control Implementation Plan (LUCIP) has been prepared for R-Area Burning/Rubble Pits (RBRP) (131-R and 131-1R) and R-Area Rubble Pile (RRP) (631-25G) Operable Unit (OU) at the Savannah River Site (SRS). The purpose of the LUCIP is to describe how the land use controls (LUCs) selected in the RBRP/RRP Record of Decision (ROD) will be implemented and maintained. The following LUCs have been selected for this OU:

- prevent contact, removal, or excavation of RBRP and RRP soil
- protect the integrity of the low permeability cover system
- preclude residential use of the area

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 for RBRP/RRP. This additional document, the RBRP/RRP 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 Operable Unit is suitable for unlimited exposure and unrestricted use. Approval by USEPA and SCDHEC is required for any modification or termination of the 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 RBRP/RRP 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. 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 during the five-year remedy review and any approved LUCIP modification will be appropriately documented for incorporation by reference into the RBRP/RRP ROD.

1.1 Format of LUCIP

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

2.0 OVERVIEW OF RBRP/RRP REMEDIAL ACTION

2.1 Description of RBRP/RRP

RBRP/RRP is located near R-Area Reactor. RBRP is comprised of two parallel burial trenches, each approximately 230 x 30 feet (ft). One of the pits (131-R) has been backfilled with soil to grade. When operational, this pit was 13 ft deep. The other pit (131-1R) remains open. When operational, the open pit was 10 ft deep, but waste disposal and subsequent erosion of the side slopes into the pit has brought the current floor of the pit to 8 ft below local grade. The combined area of both pits is 13,800 ft^2. The area enclosed by orange marker balls, which define the perimeter of the unit, is 110 x 265 ft (29,150 ft^2).

RRP is an area of approximately 0.7 acres where miscellaneous debris was placed on the ground, forming one contiguous pile generally 2 to 3 ft deep. The pile consists of a mixture of debris and soil. Debris identified in the pile includes miscellaneous construction materials, friable asbestos material, stainless steel shavings, empty 55-gallon drums, approximately fifteen 25-gallon containers, railroad ties, building insulation, floor and ceiling tiles, lawn wastes, light bulbs, coiled metal, and small amounts of coal and ash. Friable asbestos is present in a large portion of the unit.

2.2 Nature and Extent of Contamination in RBRP/RRP

Characterization of the burning/rubble pits indicates that contaminated soil is confined to the pits. Highest concentrations of contaminants are located at the bottom of the open pit (131-1R) and at the original base of the closed pit (13 feet below ground surface). Contaminants of concern are metals (cadmium, copper, lead, manganese, thallium, zinc), PCE, and dioxins/furans.

Characterization of the rubble pile indicates that contamination is confined to the rubble pile and one foot of soil beneath the rubble pile. Contaminants of concern are metals (cadmium, lead, copper, barium, zinc) and asbestos.

2.3 Remedial Action Selected

The remedy selected for the RBRP/RRP OU is soil removal and a soil cover system. This remedy entails the following actions:

- consolidation of RCRA non-hazardous rubble pile material into/over open rubble pit sub-unit
- low permeability cover over the combination (pits and non-hazardous pile material)
- offsite disposal of any RCRA hazardous pile materials
- implementation of land-use controls to ensure continued protection of human health and the environment

The post-remedial action conceptual site model (see Appendix C-1 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 is prohibited.

3.0 LAND-USE CONTROL OBJECTIVES

Considering the residual risk, the LUC objectives are to:

- Maintain the use of the site for industrial activities only. This LUC objective attains the remedial action objectives (RAOs) to prevent residential development within the OU and prevents residential exposure to the contaminated media at the RBRP/RRP OU.

- Prevent unauthorized access to the unit as long as the waste remains a threat to human health or the environment. This LUC objective attains the RAO to prevent current, remedial and future industrial workers from exposure to the contaminated media at the RBRP/RRP OU.

- Provide public notices for disclosing former waste management and disposal activities and remedial actions taken on the site. This LUC supports RAOs that protect industrial workers, residents, trespassers, and inadvertent intruders from exposure to the contaminated media at the RBRP/RRP OU.

- Prevent unauthorized residential or agricultural access to groundwater. This LUC supports RAOs to protect industrial workers, residents, trespassers, and inadvertent intruders from exposure to the contaminated media at the RBRP/RRP OU and helps prevent the spread of groundwater contamination.

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.

The RBRP will be maintained for industrial use only in perpetuity. At RRP, institutional controls will be contingent on the confirmatory sampling results. If no contamination above residential remedial goals remains at the RRP, unit-specific LUCs will not be implemented. If soil contamination above residential remedial goals does remain, institutional controls will be implemented.

Table 1. Land Use Controls for the RBRP/RRP

Type of Control	Purpose of Control	Duration	Implementation	Affected Areas[a]
1. Property Record Notices[b]	Provide notice to anyone searching records about the existence and location of contaminated areas.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Notice recorded by DOE 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.	All waste management areas and other areas where hazardous substances are left in place at levels requiring land use and/or groundwater restrictions.
2. Property record restrictions[c]: A. Land Use B. Groundwater	Restrict use of property by imposing limitations. Prohibit the use of groundwater.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Drafted and implemented by DOE upon transfer of affected areas. Recorded by DOE in accordance with state law at County Register of Deeds office.	All waste management areas and other areas where hazardous substances are left in place at levels requiring land use and/or groundwater restrictions.
3. Other Notices[d]	Provide notice to county/city about the existence and location of waste disposal and residual contamination areas for zoning/planning purposes.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Notice recorded by DOE 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.	All waste management areas and other areas where hazardous substances are left in place at levels requiring land use and/or groundwater restrictions.
4. Site Use Program[e]	Provide notice to worker/developer) i.e., permit requestor) on extent of contamination and prohibit or limit excavation/penetration activity.	As long as property remains under DOE control.	Implemented by DOE and site contractors Initiated by permit request	Remediation systems, all waste management areas. And areas where levels requiring land use and / or groundwater restrictions.

Table 1. Land Use Controls for the RBRP/RRP (Continued)

Type of Control	Purpose of Control	Duration	Implementation	Affected Areas[a]
5. Warning Signs[f]	Provide notice or warning to prevent unauthorized uses	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Signage maintained by DOE	At RBRP OU and SRS boundary. RRP OU is dependant on confirmatory sampling results.
6. Security Surveillance Measures	Control and monitor access by workers/public	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Established and maintained by DOE Necessity of patrols evaluated upon completion of remedial actions.	Patrol of selected area throughout SRS, as necessary.

[a]Affected areas – Specific locations identified in the SRS 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 DOE 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 Doe 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-DOE property.

[e]Site Use Program – Refers to the internal DOE/DOE 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]Signs – Posted command, warning or direction.

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 remedial actions 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 to manage and dispose of waste. This requirement is consistent with the intent of Resource Conservation and Recovery Act (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 restrictions precluding residential use of the property and/or any other property record restrictions necessary to achieve the LUC objectives. The deed shall contain provisions to ensure that appropriate land use controls remain with the affected area 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 6 months notice prior to transfer 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, DOE further agrees to provide USEPA and SCDHEC with similar notice, within the same time frames, as to federal to federal transfer of property.

4.3 Other Public Notices

Prior to construction completion the LUCIP identifies in Appendix A the area under land use restriction via a design sketch, which provides a plan view of the site with a line marked depicting the area subject to land use controls. After construction completion, an as-built showing the as-built arrangement of the institutional controls will be submitted to USEPA and SCDHEC concurrently with the Post-Construction Report to replace the sketch.

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 2003a). All employees, contractors, and visitors at SRS are required to adhere to the Site Use Program. This program ensures authorization of any work performed at SRS if the work adds, modifies, or removes features portrayed on the SRS development maps. No land use (e.g., excavation) shall be undertaken without prior approval documented by a Site Use Permit. To obtain this authorization, a Site Clearance Request Form must be completed. 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 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 Federal Facility Agreement (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 USEPA and SCDHEC will be notified within 30 days of any changes to the Site Use Program that impacts actual land use requirements by USDOE via a revision to the LUCAP. The processes are controlled within the SRS Quality Assurance (QA) Program in accordance with WSRC 1Q Manual, *Quality Assurance* (WSRC 2003b). 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 RBRP/RRP OU shall be undertaken without USEPA and SCDHEC approval. USDOE shall seek prior concurrence of USEPA and SCDHEC before any anticipated action that may disrupt the effectiveness of the land use controls, or any action that may alter or negate the need for land use controls.

4.5 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. The signs will be legible for a distance of at least 25 feet. The signs will read as follows:

- R-Area Burning/Rubble Pits (131-R and 131-1R)
- "Danger – Unauthorized Personnel Keep Out. This unit contains hazardous substances. Do not dig or excavate. Do not enter without contacting the waste unit custodian."
- Custodian: Manager, Post-Closure - Remediation Maintenance
- Phone: (803) 952-6882

Custodial responsibilities for maintenance and inspection of the RBRP/RRP OU will be maintained by the Post-Closure Maintenance Group. Similar signs for RRP would be created if institutional controls are deemed necessary.

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

After remediation of the RBRP/RRP OU, only maintenance activities will be required by this remedial action. No operations other than groundwater monitoring will be required.

The RBRP/RRP OU will be inspected annually per the Field Inspection Checklist in Appendix B. USEPA and SCDHEC will be notified by USDOE of any events and/or actions that indicate potential compromise of the institutional controls and the proposed action to address the potential compromise within 30 days of identification. The FFA Annual Progress Report, submitted to the regulatory agencies by the USDOE, will provide the status of the ICs and how any institutional control 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 of the property is affected by the deed or lease restrictions and controls; 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.

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

The waste unit inspectors are to be trained in Hazardous Waste Operations and Emergency Response (HAZWOPER), RCRA Well Inspections (SGCP-specific training), SGCP 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 grass cutting operations.

This unit-specific LUCIP, including the checklist (Appendix B), will be appended to the SRS LUCAP upon final regulatory approval.

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)

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

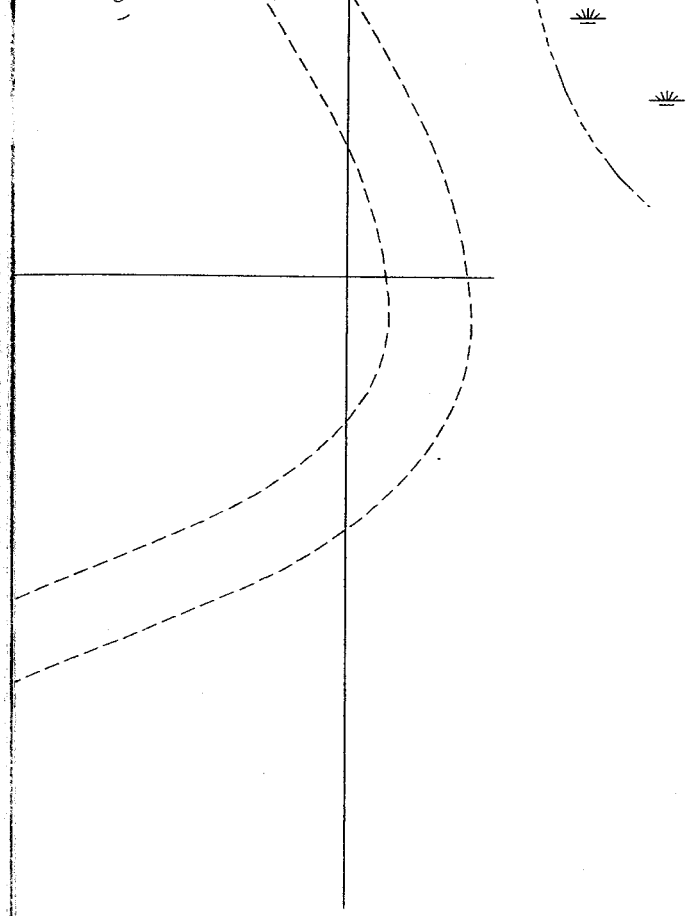
APPENDIX A

SURVEY PLAT

SK-C-53232

LAND USE CONTROL IMPLEMENTATION PLAN

This page was intentionally left blank



LEGEND

- EXISTING DIRT/GRAVEL ACCESS ROADS
- APPROXIMATE TREE LINE
- WETLAND
- EXISTING WELLS
- USGS BENCHMARK
- ACCESS CONTROL WARNING SIGN
- BOUNDARY MARKER
- GRADE BREAK LINE
- ℄ CHANNEL
- LAND USE CONTROL LIMIT

R-AREA BURNING/RUBBLE PITS AND RUBBLE PILE OPERABLE UNIT REMEDIATION

LAND USE CONTROL IMPLEMENTATION PLAN (U)

SCALE	SKETCH NO.	SHEET NO.	LATEST REVISION
NTS	SK-C-53232	1 OF 1	A

DRAWN BY (ORIG): P. CALAIS LAST CADD REV. BY: P. CALAIS
DATE: 10/28/04

Scale shown on this drawing is only applicable when plotted at 30"x42" (actual drawing size)

PV119E

P Q R S T U V W X Y

APPENDIX B

FIELD INSPECTION CHECKLIST

FOR RBRP/RRP

FIELD INSPECTION CHECKLIST

FOR RBRP/RRP WASTE UNIT

❑ **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 4 waste unit signs 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.		

FIELD INSPECTION CHECKLIST

FOR RBRP/RRP WASTE UNIT (Continued)

7. Check the soil cover 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 of this waste unit. The notification shall be in accordance with SRS post-closure inspection procedures.

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

This page was intentionally left blank

APPENDIX C

POST-REMEDIAL ACTION CONCEPTUAL SITE MODEL

FOR THE R-AREA BURNING/RUBBLE PITS AND RUBBLE PILE OPERABLE UNIT

POST-REMEDIAL ACTION

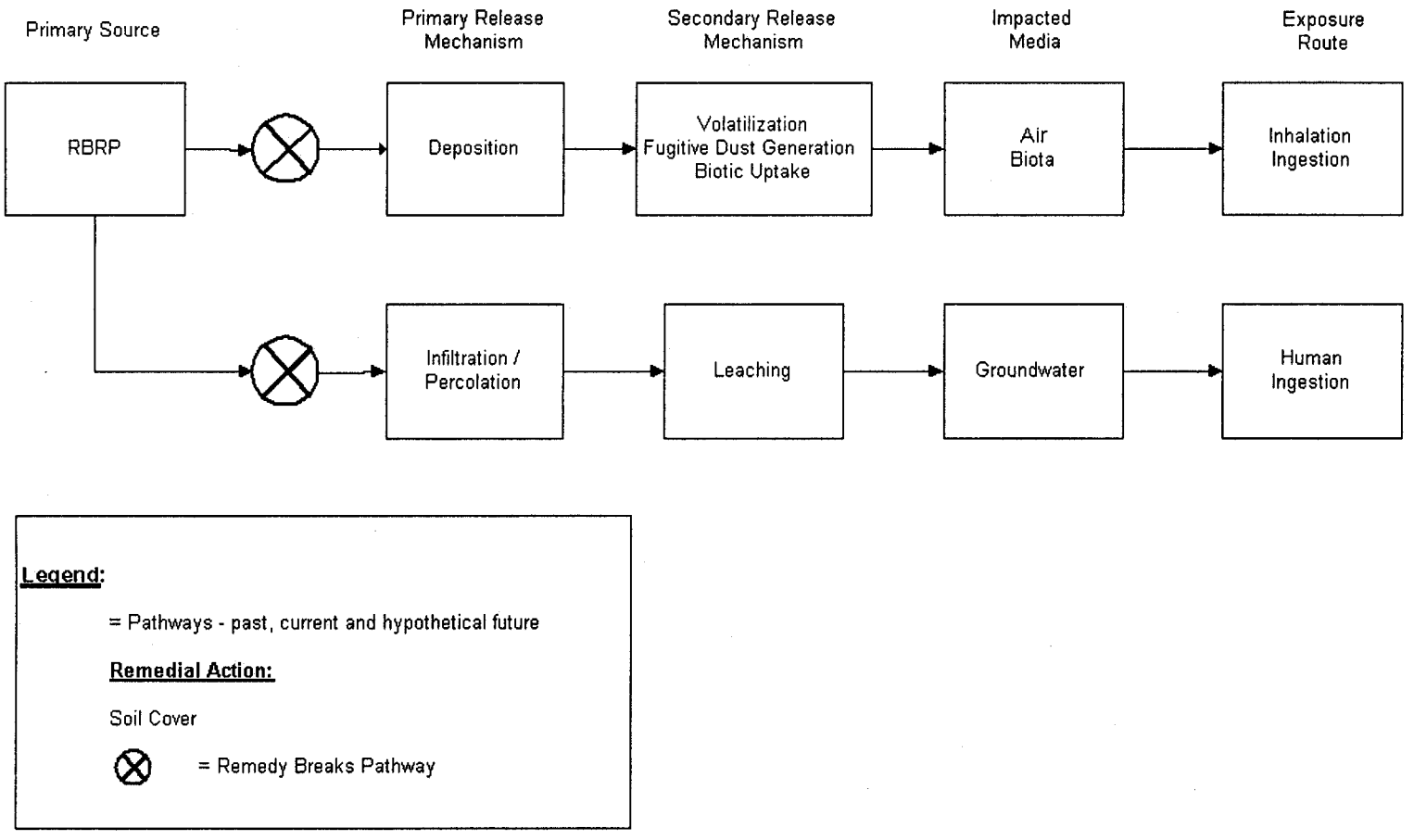


Figure C-1. Post-Remedial Action Conceptual Site Model for RBRP

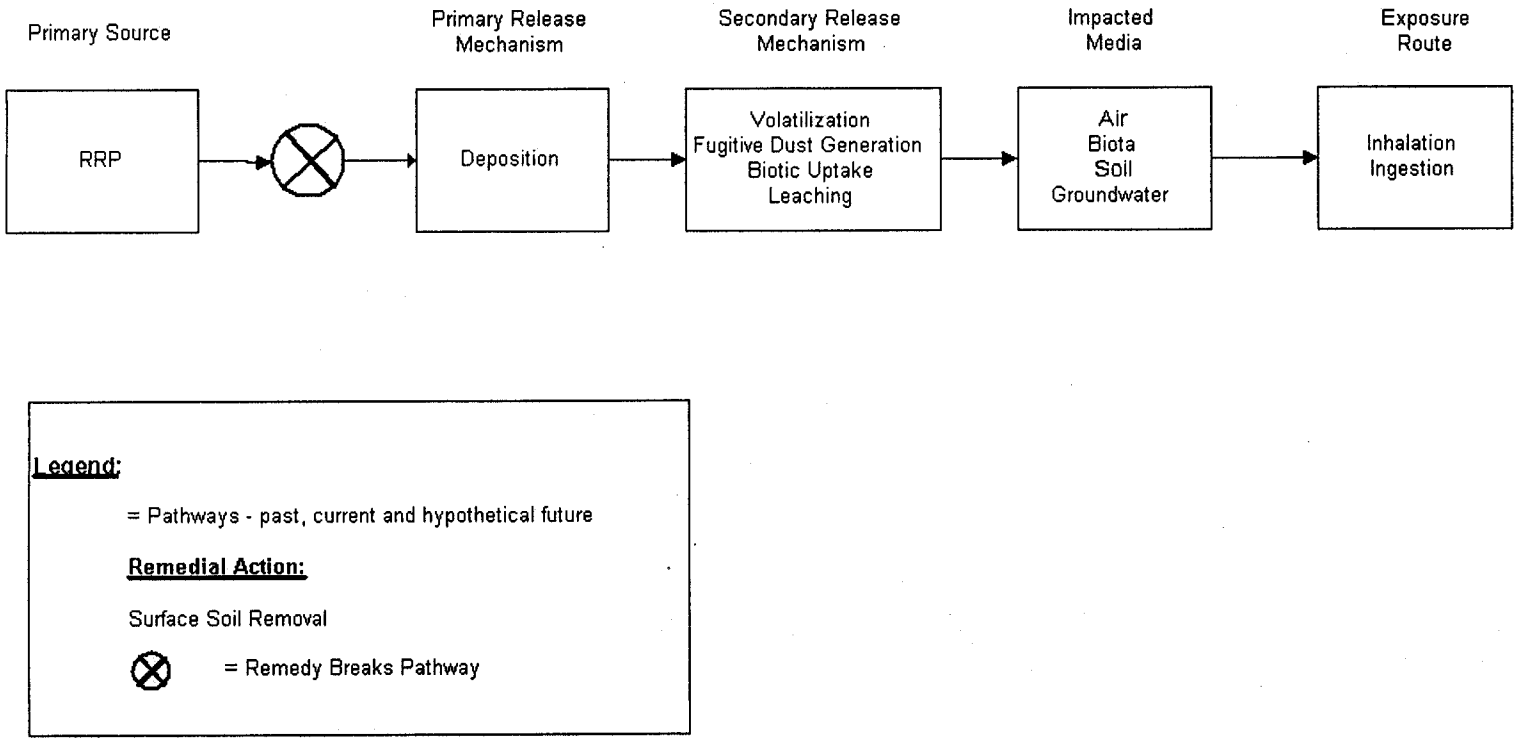


Figure C-2. Post-Remedial Action Conceptual Site Model for RRP

This page was intentionally left blank

APPENDIX D

ACCESS CONTROL WARNING SIGNS

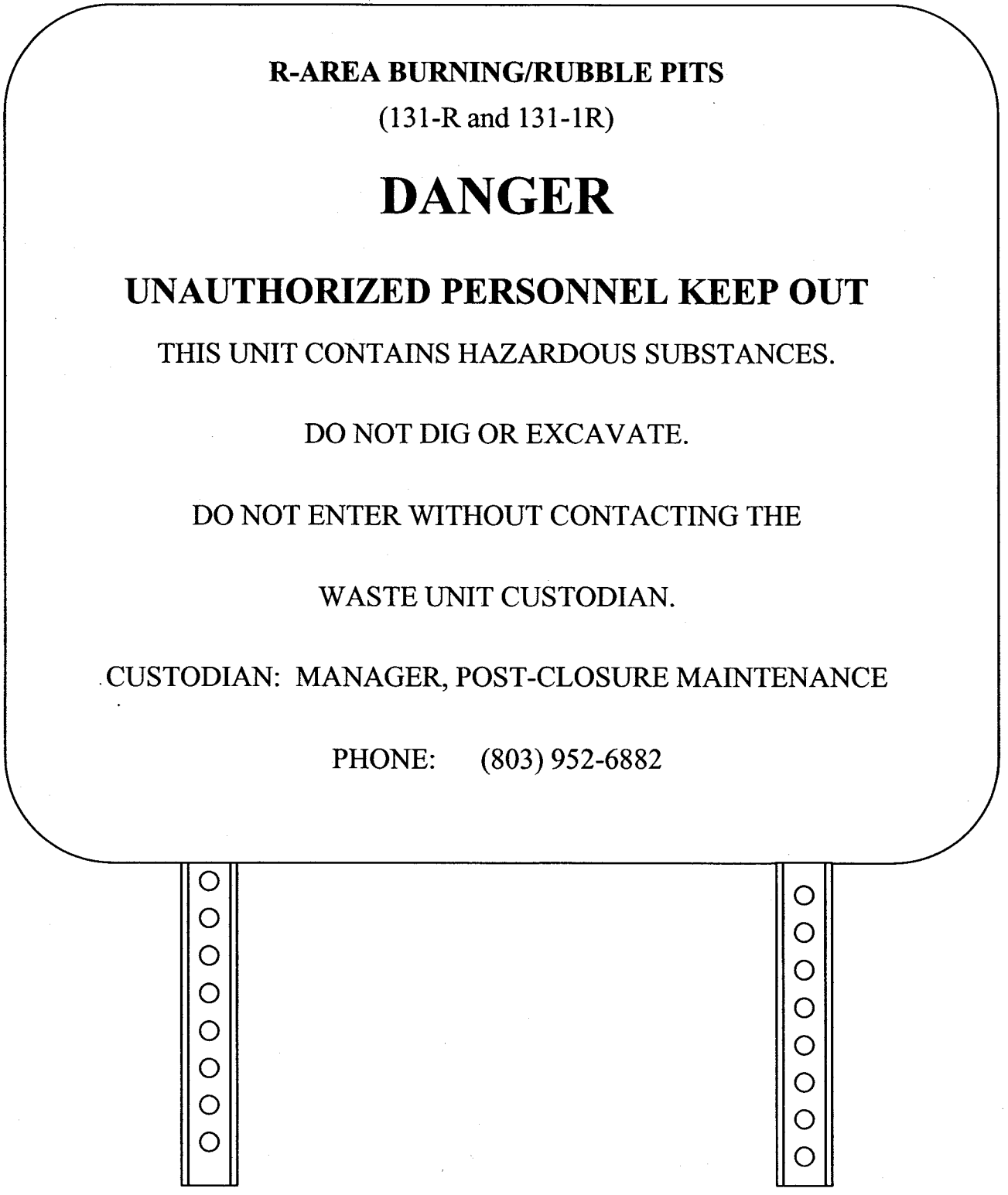


Figure D-1. Access Control Warning Sign