

**LUCIP for the
M-Area Inactive Process Sewer Lines Operable Unit, 081-M (consists of 313-M and
320-M Inactive Clay Process Sewers to Tims Branch, NBN)**
*Land Use Control Implementation Plan for the
M-Area Inactive Sewer Lines Operable Unit*
(WSRC-RP-2006-4068, Revision 1, April 2007)

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United States Department of Energy

Savannah River Site

**Land Use Control Implementation Plan (LUCIP)
for the M-Area Inactive Process Sewer Lines Operable Unit
(081-M) (U)**

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Revision 1

April 2007

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LIST OF ACRONYMS AND ABBREVIATIONS

ARAR	applicable or relevant and appropriate requirements
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm	centimeter
CMCOC	contaminant migration constituents of concern
COC	constituent of concern
ECA	Environmental Compliance Authority
ECO	ecological
FFA	Federal Facility Agreement
ft	feet
HAZWOPER	Hazardous Waste Operations and Emergency Response
HDPE	high density polyethylene
HH	human health
IC	institutional control
in	inch
LUC	land use control
LUCIP	Land Use Control Implementation Plan
LUCAP	Land Use Control Assurance Plan
m	meter
mg/kg	milligram per kilogram
MIPS	M-Area Inactive Process Sewer
MIPSL	M-Area Inactive Process Sewer Line
313-MIPS	313-M Inactive Process Sewer
NBN	no building number
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OU	operable unit
PCE	tetrachloroethylene
PCM	Post-Closure Manager
PCR	Post-Construction Report
QA	Quality Assurance

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

RA	remedial action
RCRA	Resource Conservation and Recovery Act
RFI/RI	RCRA Facility Investigation/ Remedial Investigation
RG	remedial goal
RGO	remedial goal option
ROD	Record of Decision
SCDHEC	South Carolina Department of Health and Environmental Control
SGCP	Soil and Groundwater Closure Projects
SRS	Savannah River Site
SVE	soil vapor extraction
TCE	trichloroethylene
TCA	trichloroethane
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WSRC	Washington Savannah River Company, LLC

1.0 INTRODUCTION

This Land Use Control Implementation Plan (LUCIP) has been prepared for the M-Area Inactive Process Sewer Lines Operable Unit (081-M) (MIPSL OU) at the Savannah River Site (SRS). The MIPS L OU includes approximately 1,158 m (3,800 ft) of underground sewer pipe, with diameters ranging in size from 30.5 to 76 cm (12 to 30 inches) and pipe depths ranging from about 2.1 to 3.7 m (7 to 12 ft) below ground surface (bgs), with pre-cast or brick manholes spaced approximately 107 to 122 m (350 to 400 ft) apart. The anticipated future land use for the MIPS L OU is industrial. The purpose of the LUCIP is to describe how the land use controls (LUCs) selected in the MIPS L OU Record of Decision (ROD) (WSRC 2006a) will be implemented and maintained. The following LUC objectives have been selected for this OU:

- prevent unauthorized contact, removal, or excavation of contaminated media (i.e., vadose zone soils and pipelines) in the OU areas designated in this LUCIP;
- maintain the use of the site for industrial activities only;
- prevent unauthorized access to the closed Resource Conservation and Recovery Act (RCRA) / Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) unit as long as the waste remains a threat to human health or the environment; and
- prevent unauthorized residential or agricultural access to groundwater until cleanup levels i.e., maximum contaminant levels, are met (under the RCRA program).

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

The selected remedy leaves hazardous substances in place that pose a potential future risk and will require land use restrictions until the concentrations of hazardous substances in the soil and groundwater are at levels that allow for unrestricted use. As agreed on March 30, 2000, among the United States Department of Energy (USDOE), the United States Environmental Protection Agency (USEPA), and South Carolina Department of Health and Environmental Control

(SCDHEC), SRS is implementing a Land Use Control Assurance Plan (LUCAP) to ensure that the LUCs required by numerous remedial decisions at SRS are properly maintained and periodically verified. The requirements of that LUCAP also apply to the LUCs that were selected as part of the remedial action (RA) for the MIPS L OU. This additional document, the MIPS L OU LUCIP, contains the detailed and specific measures required to implement and maintain the LUCs selected as part of this particular remedial decision. The LUCs shall be maintained until the OU is suitable for unlimited exposure and unrestricted use. Approval by USEPA and SCDHEC is required for any modification or termination of the institutional controls (ICs).

USDOE is responsible for implementing, maintaining, monitoring, reporting, and enforcing the LUCs in accordance with the approved LUCIP. Upon final approval, the LUCIP will be appended to the LUCAP and should be considered incorporated by reference into the MIPS L OU ROD (WSRC 2006a), establishing implementation and maintenance requirements for the LUCs under the CERCLA and the SRS Federal Facility Agreement (FFA) (FFA 1993). The LUCIP will remain in effect unless and until modifications are approved by USEPA and SCDHEC as necessary for protection of human health and the environment. This LUCIP will be evaluated for accuracy during the five-year remedy review and any approved LUCIP modification will be appropriately documented for incorporation by reference into the MIPS L OU 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 MIPS L OU REMEDIAL ACTION

2.1 General Description and History of the Unit

SRS occupies approximately 803 square kilometers (310 square miles) of land adjacent to the Savannah River, principally in Aiken and Barnwell counties of South Carolina. SRS is located approximately 40 kilometers (25 miles) southeast of Augusta, Georgia, and 32 kilometers (20

miles) south of Aiken, South Carolina. M Area is located in the northwest portion of SRS (Figure 1).

The MIPS L OU comprises portions of the M-Area Settling Basin Inactive Process Sewer to Manhole 1 (MIPS; Building Number 081-M) (including the Southern Portions of the 313-M Inactive Clay Process Sewer Lines to Tims Branch, No Building Number [NBN] and the Southern Portions of the 320-M Inactive Clay Process Sewer Lines from the Building Slab to the Former Security Fence, NBN [313-MIPS]). This includes the segment of pipe from the slab of the 320-M Alloy Building to the Former Security Fence (passing through Manholes 3A, 2A, 1N, 1A, and 1) and the segment of pipeline starting adjacent to the slab of the 322-M Metallurgical Laboratory (starting just south of the pipeline between 322-M and Manhole 6A) and extending to the A-014 Outfall (passing through Manholes 8, 9, 10, 11, 12, 13, and 14) (Figure 2).

From 1958 until the early 1985, several M-Area facilities (313-M, 320-M, and 321-M) manufactured reactor fuel and target assemblies. Associated operations included support buildings, maintenance operations, laboratories, and infrastructure for managing waste. Effluents from M Area were transported through two separate networks of vitrified clay pipes (Figure 2). The MIPS network discharged waste to the M-Area Settling Basin, and the 313-MIPS network released waste to the A-014 Outfall, which flowed to a tributary of Tims Branch. In May 1982, the 313-MIPS process waters were diverted from Tims Branch to conjoin with MIPS process waters already flowing to the M-Area Settling Basin, increasing the flow from an average of 1.6 to 3 million liters per day (430,000 to 800,000 gallons per day). In November 1982, process waters from 313-MIPS were redirected back to Tims Branch through the A-014 Outfall, resulting in a reduction of the flow to the M-Area Settling Basin to 950,000 liters per day (250,000 gallons per day) by the end of 1982.

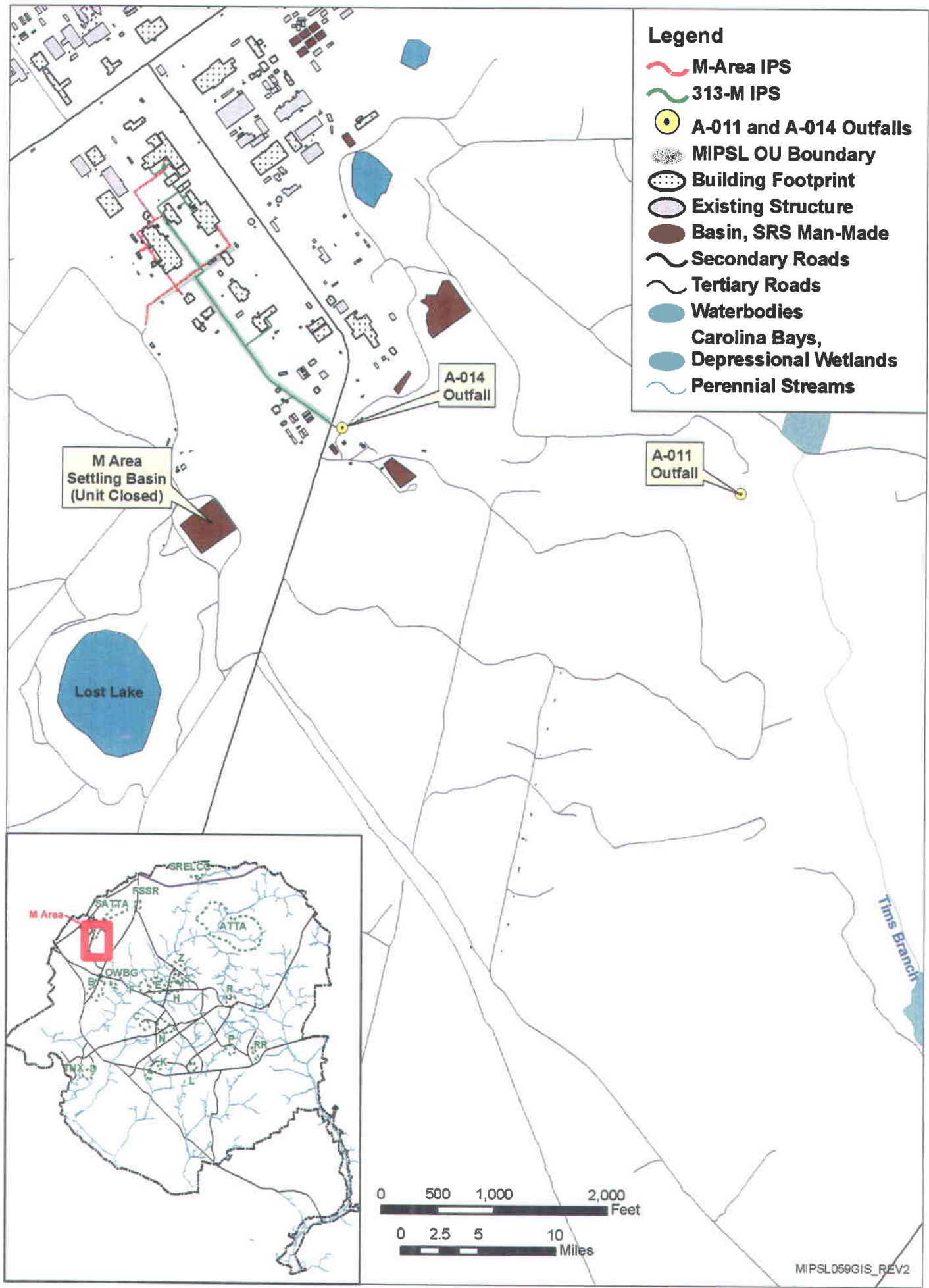


Figure 1. Location of the MIPS L OU in M Area within the Savannah River Site



The MIPS L OU includes approximately 1,158 m (3,800 ft) of underground piping [391 m (1,283 ft) of the MIPS and 768 m (2,520 ft) of 313-MIPS] and extends from the edges of the buildings (or former buildings) to the downstream discharge points of each line (Figure 2). Sewer pipes are made of vitrified clay, with diameters ranging from 30.5 to 76 cm (12 to 30 in) and pipe depths ranging from about 2.1 to 3.7 m (7 to 12 ft) below ground surface (bgs). High density polyethylene (HDPE) pipe liner, installed inside portions of the MIPS and 313-MIPS pipelines in 1983, ranges from 15 to 30 cm (6 to 12 in) in diameter.

Pre-cast concrete or brick manholes along the MIPS and 313-MIPS allowed access to the pipelines for inspection, maintenance, effluent sampling, etc. The manholes are spaced approximately 107 to 122 m (350 to 400 ft) apart along the MIPS and 313-MIPS sewer lines. An engineering review examined the construction, effluent capacity, and operational history for the MIPS and 313-MIPS and found little probability of process overflows at the manholes.

M-Area effluent wastes included chlorinated solvents (used for degreasing fuel and target assemblies), acids, caustics, heavy metals, and minor amounts of radioactive constituents. Specific constituents of interest include trichloroethylene (TCE), tetrachloroethylene (PCE), 1,1,1-trichloroethane (1,1,1-TCA), aluminum, copper, iron, lead, magnesium, manganese, mercury, nickel, zinc, and uranium.

2.2 Nature and Extent of Contamination

The primary contaminant release mechanism at the MIPS L OU is leakage of effluents from the process sewer lines serving multiple facilities in the M Area. Surficial soils in the M Area consist of fine-grained sediments to a depth of approximately 9 m (30 ft). This low permeability formation is referred to as the Upland Unit. More permeable sediments and sands with some clay lenses extend downward to the water table at a depth of approximately 36.6 m (120 ft) below the surface. The Upland Unit has limited contaminant mobility to a significant degree although volatile organic compounds (VOCs) have migrated downward, principally by diffusion from the source zone.

Because the inactive process sewer line and associated contamination are located at depths greater than 1.2 m (4 ft) bgs, there are no potentially exposed human or ecological receptors under current and future land use scenarios. Soil contaminant levels at depths greater than 1.2 m (4 ft) bgs do not exceed the threshold levels for toxicity risk to industrial workers. PCE and TCE have been determined to be contaminant migration constituents of concern (CMCOCs) at the MIPS L OU. PCE and/or TCE were found at concentrations exceeding remedial goals (RGs) at four manholes within the MIPS L OU. RGs are listed in Table 1. Although the proposed RA is intended to prevent the leaching of contaminants from deep soil to underlying aquifers, groundwater is not considered part of the MIPS L OU. Any groundwater contaminated by the MIPS L OU will be addressed by the SRS RCRA Part B Permit.

Table 1. Summary of Remedial Goals for the MIPS L OU

	Units	Refined COCs					
		Maximum Detected Value	ARAR RGO	CM RGO ^a	HH RGO	ECO RGO	Final RG ^b
Tetrachloroethylene (PCE)	mg/kg	0.767	--	0.307	--	--	0.307
Trichloroethylene (TCE)	mg/kg	0.411	--	0.0408	--	--	0.0408

Notes:

^a Contaminant migration (CM) RGO was calculated in Appendix G for the MIPS L combined document (WSRC 2005).

^b Final RG is based upon the most conservative (smallest) calculated RGO presented in the table.

HH = human health; RGO = remedial goal option; ECO = ecological, ARAR = applicable or relevant and appropriate requirements

mg/kg = milligram per kilogram

The selected remedy for the MIPS L OU leaves hazardous substances in place that pose a potential future risk and will require land use restrictions until the concentrations of hazardous substances in the soil and groundwater are at levels that allow for unrestricted use and exposure.

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 Substances Pollution Contingency Plan (NCP) and the CERCLA (as amended).

As stated in the ROD (WSRC 2006a), the selected RA for the MIPS L OU is Alternative S-2, Phased Soil Vapor Extraction Enhanced with Soil Fracturing and Institutional Controls. This includes the following elements:

- Soil Vapor Extraction – Four soil vapor extraction (SVE) wells will be installed, one at each of the four manholes where VOC contamination has been detected above RGs. The wells will enable the removal of mobile VOCs, which have leaked into the Upland Unit, as well as VOCs that have migrated downwards toward the water table by diffusion.
- Hydraulic Fracturing - The permeability of the Upland Unit at each SVE well will be enhanced by hydraulic fracturing using a sand amendment. The increased permeability will provide pathways for air flow through a larger portion of the contaminated soil at each SVE well allowing higher air flows and more rapid contaminant removal. This will reduce the time required to achieve the RGs.
- Grout Plugs – The process sewer connections at all of the manholes and the sewer discharge point at the A-014 Outfall will be plugged and the manholes will be filled with grout. This will permanently isolate the abandoned sewer line from future access by human or ecological receptors.
- Institutional Controls - The necessary land use controls described in the Record of Decision (WSRC 2006a) are provided in the Land Use Control Implementation Plan (LUCIP) for MIPS L OU (WSRC-RP-2006-4068). Institutional controls will consist of site maintenance (site inspections, mowing, general housekeeping, repair of erosion damage, and other routine maintenance as needed) and access controls (warning signs and land use restrictions). Institutional controls will include continued use of SRS's Site Use and Site Clearance Programs to restrict disturbance of the site and to prevent drinking water use of contaminated groundwater under each unit.
- CERCLA ROD RA Reviews - The ROD RA will be reviewed every five years to ensure that the selected remedy remains protective of human health and the environment.

RGs are target cleanup criteria. RGs are provided in Table 1.

The post-RA conceptual site model (see Appendix C to this LUCIP) shows the broken contaminant migration to groundwater pathways after removal of the source.

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

3.0 LAND-USE CONTROL OBJECTIVES

The following MIPS� OU LUC objectives have been developed to ensure the protectiveness of the remedy described above:

- restrict worker access and prevent unauthorized contact, removal or excavation of contaminated media (i.e., vadose zone soils and pipelines);
- prohibit the development and use of property for residential housing, elementary schools, child care facilities and playgrounds;
- maintain the integrity of any current or future remedial or monitoring system such as SVE systems or groundwater monitoring wells; and
- prevent access to or use of the groundwater until cleanup levels, i.e., maximum contaminant levels, are met (under the RCRA program).

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

4.0 IMPLEMENTATION OF LAND-USE CONTROLS

This section describes the LUCs selected in the ROD to achieve the objectives stated in Section 3.0. USDOE is responsible for implementing, maintaining, reporting on, and enforcing the LUCs required for the MIPS� OU. A summary of the types of controls is provided in Table 2. USDOE will implement and maintain the LUCs required for the MIPS� OU. The LUCIP will become enforceable and will be implemented when approved by USEPA and SCDHEC and following the completion of the RA prescribed by the MIPS� OU ROD. USDOE shall notify

USEPA and SCDHEC 60 days in advance of any proposed land use changes that are inconsistent with LUC objectives or the selected remedy.

The MIPS� OU will be maintained as an industrial use area by implementation of the property record notices (Section 4.1) and restrictions (Section 4.2), and the use of a certified LUC survey plat (Section 4.3).

The Site Use Program (Section 4.4) will be implemented to prevent onsite worker exposure to contamination left in place at the MIPS� OU. Other existing measures (i.e., Site Clearance Program, worker training, health and safety requirements, work controls) will also be used to ensure worker safety at the MIPS� OU.

Physical access controls (Section 4.5) are implemented at the SRS boundary to control and restrict public and trespasser access to the MIPS� OU.

Signs at the MIPS� OU will be maintained to alert onsite workers to the presence of underground sewer lines that once conveyed hazardous substances. The signs will also convey the restrictions of unauthorized personnel. Access control warning signs will be placed and maintained around the general M Area (which surrounds the MIPS� OU) to prevent unknowing entry and unrestricted use of the larger M-Area waste unit.

Table 2. Land Use Controls for the MIPS L Operable Unit

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 USDOE in accordance with state laws at County Register of Deeds office if the property or any portion thereof is ever transferred to non-federal ownership.	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 USDOE upon <u>any</u> transfer of affected areas. Recorded by USDOE 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 city &/or county 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 USDOE in accordance with state laws at County Register of Deeds office if the property or any portion thereof is ever transferred to non-federal ownership.	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 USDOE control.	Implemented by USDOE 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 2. Land Use Controls for the MIPS L Operable Unit (Continued)

Type of Control	Purpose of Control	Duration	Implementation	Affected Areas ^a
5. Physical Access Controls ^f (e.g., fences, gates, portals)	Control and restrict access to workers and the public to prevent unauthorized access.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Controls maintained by USDOE.	At select locations throughout SRS
6. Warning Signs ^g	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 USDOE.	At select locations throughout SRS
7. 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 USDOE. Necessity of patrols evaluated upon completion of RAs.	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 USDOE and its predecessor agencies that alerts anyone searching property records to important information about residual contamination; waste disposal areas in the property.

^c Property Record Restrictions – Includes conditions and/or covenants that restrict or prohibit certain uses of real property and are recorded along with original property acquisition records of USDOE and its predecessor agencies.

^d Other Notices – Includes information on the location of waste disposal areas and residual contamination depicted on a survey plat, which is provided to a zoning authority (i.e., city planning commission) for consideration in appropriate zoning decisions for non-USDOE property.

^e Site Use Program – Refers to the internal USDOE/USDOE contractor administrative program(s) that requires the permit requestor to obtain authorization, usually in the form of a permit, before beginning any excavation/penetration activity (e.g., well drilling) for the purpose of ensuring that the proposed activity will not affect underground utilities/structures, or in the case contaminated soil or groundwater, will not disturb the affected areas without the appropriate precautions and safeguards.

^f Physical Access Controls – Physical barriers or restrictions to entry.

^g Signs – Posted command, warning or direction.

4.1 Property Record Notices

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

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

4.2 Property Record Restrictions

The deed shall also include deed restrictions precluding residential use of the property and/or any other property record restrictions necessary to achieve the LUC objectives. The deed shall contain provisions to ensure that appropriate LUCs 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 through an amended ROD.

USDOE shall provide USEPA and SCDHEC six 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, USDOE 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

The LUCIP identifies the proposed area under land use restrictions via Figure 2 for the MIPS L OU and the final survey plat (when available) located in Appendix A. After construction completion, a final survey plat will be prepared to document the as-built arrangement of the ICs and area subject to LUCs. The drawing will present a polygon of the MIPS L OU subject to LUCs, including the benchmarks, the location of warning signs, access control points and other information for LUCs. This post-construction survey plat will be certified by a professional land surveyor and will be submitted to USEPA and SCDHEC concurrently with the Post-Construction Report (PCR).

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*, SRS is required to implement an asset management program for the use, maintenance, and disposal of physical assets, including real estate. SRS complies with this order through its Site Use Program, which is conducted in accordance with WSRC 1D, *Site Infrastructure and Services Manual*, Procedure 3.02, "Site Real Property Configuration Control" (WSRC 2006b). All employees, contractors, and visitors at SRS are required to adhere to the Site Use Program. No use of land (i.e., excavation or any other land use) shall be undertaken without prior approval documented by a Site Use Permit. Also, in accordance with WSRC 1D, Procedure 3.02, all work at SRS that adds 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 FFA (FFA 1993) OU identifications. If a Site Clearance Request potentially impacts an FFA OU, the Site Clearance Request Form is sent to the appropriate FFA OU reviewer for approval. The roles and responsibilities of each individual are detailed in WSRC 1D, Procedure 3.02. Before a Site Clearance Permit is issued, verification of USDOE approval for intended land use must be obtained. The site use and site clearance processes are applicable to all activities and personnel on site (including subcontractors). USEPA and SCDHEC will be notified in advance of any changes to the Site Use Program that impacts actual land use requirements. The processes are controlled within the SRS Quality Assurance (QA) Program in accordance with WSRC 1Q Manual, *Quality Assurance* (WSRC 2003). 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 MIPS L OU shall be undertaken without USEPA and SCDHEC approval. Approval by USEPA and SCDHEC is required for any modification or termination of the institutional controls and implementation actions, and USDOE must obtain approval from USEPA and SCDHEC that a proposed new land use is sufficiently protective.

4.5 Physical Access Controls

There are no physical access controls required at the MIPS L OU; however, physical access controls are provided at the SRS boundary as mentioned in Table 2, item 5.

4.6 Warning Signs

To prevent unknowing entry and to ensure that unrestricted use of the waste unit does not occur while the unit is under ownership of the government, access control warning signs will be posted at the unit as shown in Appendix D. The signs shall be legible for a distance of at least 25 feet.

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

4.7 Other Access Controls and Security/Surveillance Measures

While under the ownership of USDOE, access control of the entire SRS will be maintained in accordance with the 2000 RCRA Part B Permit Renewal Application, Volume I, Section F.1. This section describes the 24-hour surveillance system (R.61-79.264.14(b)(1)), artificial or natural barriers (R.61-79.264.14(b)(2)(I)), control entry systems (R.61-79.264.14(b)(2)(ii)), and access control warning signs (R.61-79.264.14(c)) in place at the SRS boundary to comply with the security requirements for a RCRA-permitted facility.

4.8 Field Inspection and Maintenance for Institutional Controls

After remediation of the MIPS L OU, only inspection and maintenance activities will be required by the RA.

The MIPS L OU will be inspected per the Field Inspection Checklist in Appendix B. Field inspections will be performed annually. Additional inspections may be necessary in the event of unusual weather or any other condition warranting inspection. For the MIPS L OU, inspections

will be performed to ensure that signs are in place and that pipeline and manhole plugs are intact. Inspection records will be kept in the operations record file for future access.

Maintenance (including site inspections, mowing, general housekeeping, and repair of erosion damage) will be performed as needed at MIPS L OU. Necessary upkeep of the access control signs for MIPS L OU will be performed.

USEPA and SCDHEC will be notified within 30 days of identification by USDOE of any events and/or actions that indicate potential compromise of the ICs, including any activity that is inconsistent with the IC objectives or use restrictions, or any other action that may interfere with the effectiveness of the ICs and the proposed action to address the potential compromise. The FFA Annual Progress Report, submitted to the regulatory agencies by the USDOE, will provide the status of the ICs and describe how any IC deficiencies or inconsistent uses have been addressed. In the event of property transfer or lease, the Annual Report will cite findings on the following: whether the use restrictions and controls referenced above were communicated in the deed(s) or lease restrictions; whether property use conforms with the deed or lease restrictions and controls; and whether the owners and state/local agencies have been notified regarding the deed or lease restrictions and controls.

All other routine maintenance activities will be documented and maintained in files subject to USEPA and SCDHEC review and audit. A copy of the completed inspection form is maintained in the 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. After completion of the PCR, the preliminary checklist in the LUCAP will be replaced with the final approved checklist.

5.0 REFERENCES

FFA, 1993. *Federal Facility Agreement for the Savannah River Site*, Administrative Docket No. 89-05-FF (Effective Date: August 16, 1993)

USDOE, 1996. *Savannah River Site Future Use Project Report*, Stakeholder-Preferred Recommendations for SRS Land and Facilities, USDOE Savannah River Operations Office, January

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

WSRC, 2005. *RCRA Facility Investigation/Remedial Investigation (RFI/RI) Work Plan, RFI/RI Report with Baseline Risk Assessment, and Corrective Measures Study/Feasibility Study (CMS/FS) for the M Area Inactive Process Sewer Lines (081-M) (U)*, WSRC-RP-2004-4214, Revision 1.1, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2006a. *Record of Decision Remedial Alternative Selection for the M Area Inactive Process Sewer Lines Operable Unit (081-M) (U)*, WSRC-RP-2006-4001, Revision 0, Washington Savannah River Company, Aiken, SC

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

APPENDIX A - As-Built Drawings

LAND USE CONTROL IMPLEMENTATION PLAN

(Drawing to be provided at a later date.)

APPENDIX B - Field Inspection Checklist

FOR THE M-AREA INACTIVE PROCESS SEWER LINES OPERABLE UNIT

FIELD INSPECTION CHECKLIST

FOR THE M-AREA INACTIVE PROCESS SEWER LINES OPERABLE UNIT

☐ **SCHEDULED**

☐ **UNSCHEDULED**

A= Satisfactory X= Unsatisfactory (Explanation required)	A or X	Observation of Corrective Action Taken
1. Verify that roads are accessible.		
2. Verify that the waste unit signs (quantity to be inserted later) are in acceptable condition, have the correct information, and are legible from a distance of 25 feet. Verify that roads are acceptable.		
3. Verify that there are no excavation, digging, or construction activities over the underground sewer lines, at the sewer outlet at the A-014 Outfall, or at the manholes. Verify that pipelines and manhole plugs are intact.		

Inspected by:

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

Post-Closure Manager:

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

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 ICs 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.

APPENDIX C - Post-Remedial Action Conceptual Site Model

FOR THE M-AREA INACTIVE PROCESS SEWER LINES OPERABLE UNIT

POST-REMEDIAL ACTION

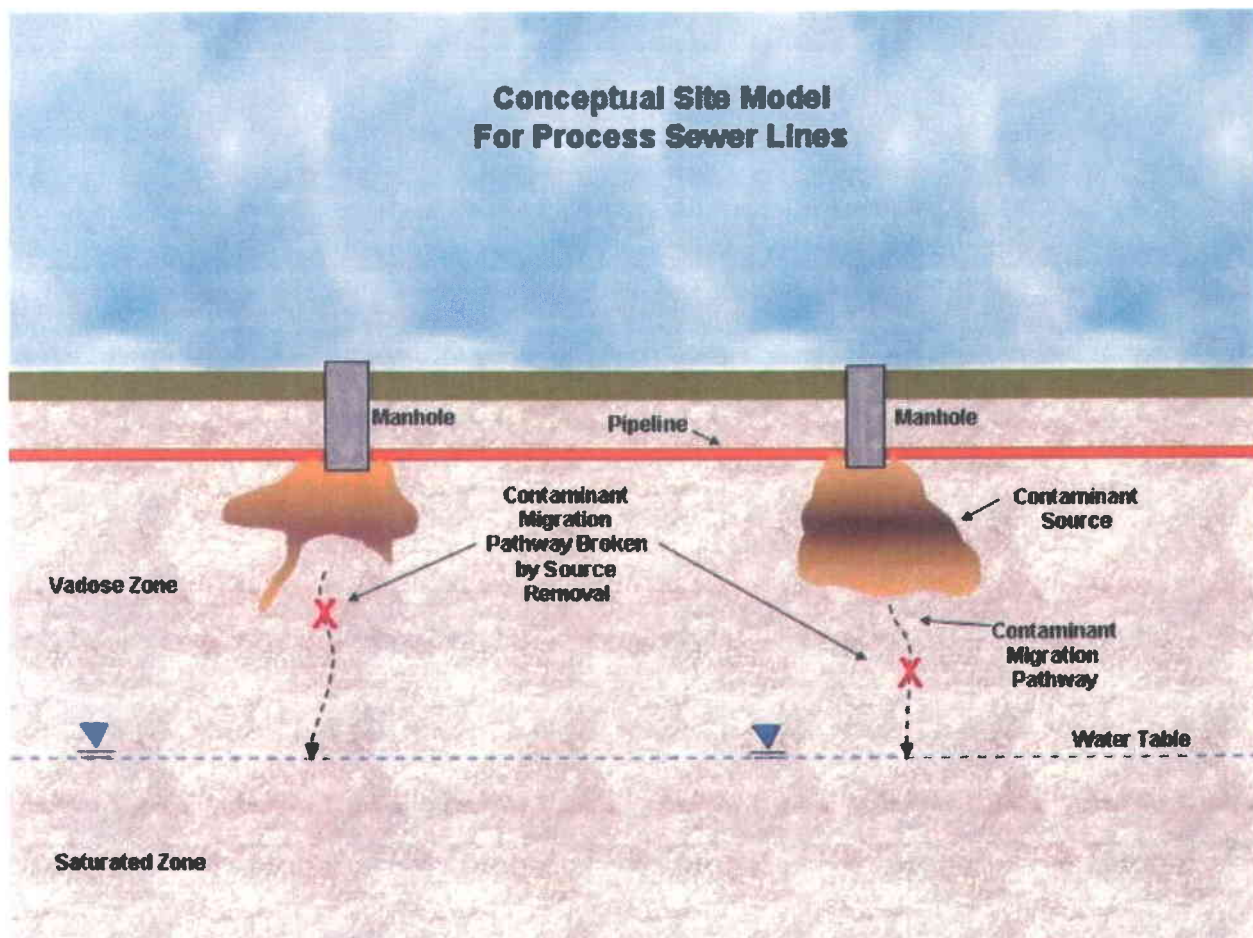


Figure C-1. Post-Remedial Action Conceptual Site Model for MIPS L OU

APPENDIX D - Access Control Warning Signs

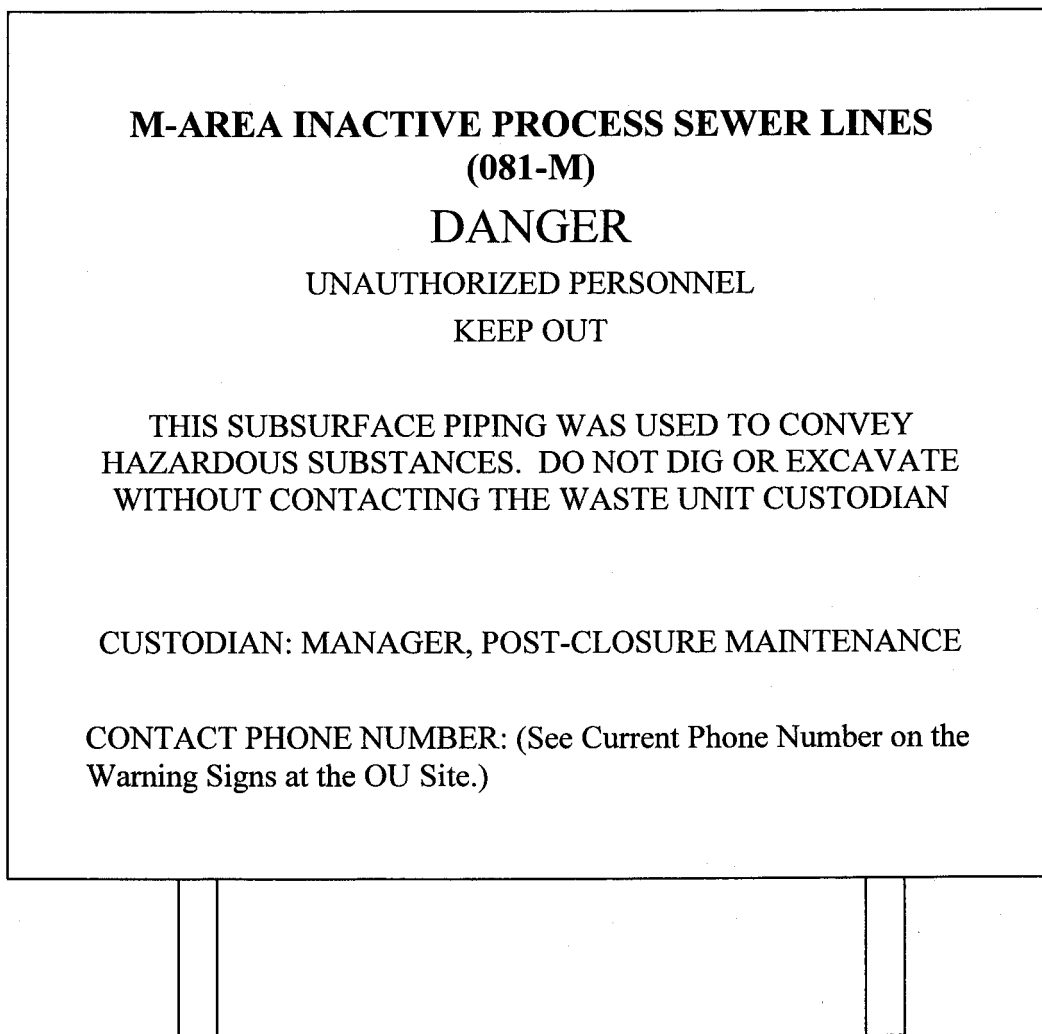


Figure D-1. Underground Piping Access Control Warning Sign