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Addendum to the Revision 1 Land Use Control Implementation Plan (LUCIP) for the M Area Operable Unit (MAOU) (U)

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LIST OF ACRONYMS AND ABBREVIATIONS

BRA	Baseline Assessment Risk
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMS/FS	Corrective Measures Study/Feasibility Study
FFA	Federal Facility Agreement
HH	human health
LLC	Limited Liability Company
LUC	land use control
LUCIP	Land Use Control Implementation Plan
LUCAP	Land Use Control Assurance Plan
MAOU	M-Area Operable Unit
MIPSL	M-Area Inactive Process Sewer Line
NBN	no building number
OU	Operable Unit
PSVE	passive soil vapor extraction
RA	remedial action
RCRA	Resource Conservation and Recovery Act
RFI/RI	Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation
ROD	Record of Decision
SCDES[1]	South Carolina Department of Environmental Services
SEMS	Superfund Enterprise Management System
SRNS	Savannah River Nuclear Solutions, LLC
SRS	Savannah River Site
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
WSRC	Washington Savannah River Company, LLC or Westinghouse Savannah River Company, LLC

[1] SCDES was known as the South Carolina Department of Health and Environmental Control prior to July 1, 2024.

1.0 INTRODUCTION

This Addendum to the *Land Use Control Implementation Plan (LUCIP) for the M Area Operable Unit (MAOU) (U)* (WSRC 2009) has been prepared for the MAOU at the Savannah River Site (SRS). The purpose of this Addendum to the MAOU LUCIP is to describe the change in the area after adding M-Area Inactive Process Sewer Line (MIPSL) Operable Unit (OU) land use controls (LUCs) to the MAOU LUCs since the LUC boundaries of the two overlaps. The MAOU LUCIP (WSRC 2009) and MIPSL LUCIP (WSRC 2007a) will be superseded by this Addendum. The LUC objectives for the MAOU and MIPSL are documented in the MAOU LUCIP (WSRC 2009) and MIPSL LUCIP (WSRC 2007a), respectively, and will not be affected. The MAOU and MIPSL OU are located in M-Area (Figure 1).

The MAOU is listed as a Resource Conservation and Recovery Act (RCRA)/Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) unit in Appendix C of the Federal Facility Agreement (FFA) for SRS (FFA 1993). The MAOU comprises several subunits within M-Area and covers approximately 30 hectare (75 acres). The media of concern is subsurface vadose zone soil. Groundwater is not considered part of the scope of the MAOU as detailed in the MAOU Record of Decision (ROD) (WSRC 2008).

The MIPSL OU is also listed as a RCRA/CERCLA unit in Appendix C of the FFA for SRS (FFA 1993). The MIPSL 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 Process Sewer Lines to Tims Branch (No Building Number [NBN] and the Southern Portions of the 320-M Inactive Process Sewer Lines from the Building Slab to the Former Security Fence (NBN). 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). The media of concern is vadose zone soil. Groundwater is not considered part of the scope of the MIPSL OU as detailed in the MIPSL OU ROD (WSRC 2006).

At a waste unit, if the selected remedy leaves hazardous substances in place that pose a potential future risk and then land use restrictions will be required until the concentrations of hazardous substances in the soil 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 the South Carolina Department of Environmental Services (SCDES), SRS is implementing a Land Use Control Assurance Plan (LUCAP) (WSRC 1999) 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 actions (RAs) for MAOU and MIPSL. The MAOU LUCIP (WSRC 2009), MIPSL OU LUCIP (WSRC 2007a), and this Addendum to the MAOU LUCIP contain the detailed and specific measures required to implement and maintain the LUCs selected as part of the remedial decisions. The LUCs shall be maintained until the OUs are suitable for unlimited exposure and unrestricted use. Approval by USEPA and SCDES is required for any modification or termination of the LUCs.

USDOE is responsible for implementing, maintaining, monitoring, reporting, and enforcing the LUCs in accordance with the approved LUCIPs and Addendum to the MAOU LUCIP. Upon final approval, the LUCIP Addendum will be appended to the LUCAP and should be considered incorporated by reference into the MAOU and MIPSL RODs (WSRC 2008 and WSRC 2006, respectively), establishing implementation and maintenance requirements for the LUCs under the CERCLA and the SRS FFA (FFA 1993). The LUCIP Addendum will remain in effect unless and until modifications are approved by USEPA and SCDES as necessary for protection of human health (HH) and the environment. In accordance with Section 121(c) of CERCLA and National Oil and Hazardous Substances Pollution Contingency Plan §300.430(f)(5)(iii)(c), a statutory review will be conducted within five years of initiation of the RA, and every five years thereafter, to ensure that the remedy continues to be protective of HH and the environment.

2.0 OVERVIEW OF MAOU REMEDIAL ACTION

A general description and history of the MAOU is provided in the MAOU LUCIP (WSRC 2009). The nature and extent of contamination as determined from the *RCRA Facility Investigation/Remedial Investigation (RFI/RI) Work Plan, RFI/RI Report with Baseline Risk*

Assessment (BRA), and Corrective Measures Study/Feasibility Study (CMS/FS) for the M Area Operable Unit (WSRC 2007b) is also described in the MAOU LUCIP (WSRC 2009). The remedy for the MAOU selected in the ROD (WSRC 2008) is passive soil vapor extraction (PSVE) and institutional controls (i.e., LUCs).

A general description and history of the MIPSL OU is provided in the MIPSL LUCIP (WSRC 2007a). The nature and extent of contamination as determined from the *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)* (WSRC 2005) is also described in the MIPSL OU LUCIP (WSRC 2007a). The remedy for the MIPSL OU selected in the ROD (WSRC 2006) is phased soil vapor extraction enhanced with soil fracturing and institutional controls (i.e., LUCs).

The *Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Operating Equipment (U)* (SRNS 2023) recommends incorporating the MIPSL OU LUCs into the MAOU LUCs since the remedial action for the closure of MIPSL OU has been completed and the LUC boundaries of the MIPSL OU and MAOU overlap. This action will eliminate duplicate operations and maintenance costs. MIPSL OU LUCs will be added to the MAOU LUCs which means MIPSL will now be considered a part of the MAOU boundary (Figure 2).

3.0 LAND USE CONTROL OBJECTIVES

The MAOU and MIPSL OU LUC objectives include the following:

- Restrict worker access and prevent unauthorized contact, removal or excavation of contaminated media (i.e., vadose zone soils and pipelines);
- Prevent access through manholes and pipelines;
- Prohibit the development and use of property for residential housing, elementary schools, childcare facilities and playgrounds;
- Maintain the integrity of any current or future remedial or monitoring systems 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).

This LUCIP Addendum proposes no changes to the MAOU or MIPSL LUC objectives documented in their respective LUCIPs (WSRC 2009 and WSRC 2007a, respectively) other than combining them in this Addendum which ensures protectiveness of the selected remedies.

4.0 IMPLEMENTATION OF LAND USE CONTROLS

The LUCs will be implemented as described in the MAOU LUCIP (WSRC 2009) except for a revised figure and inspection checklist. Figure 2 has been revised to incorporate the MIPSL OU and MAOU LUCs and now includes both LUC boundaries and all boundary markers, manholes, and signs. The warning signs installed as described in the MAOU LUCIP (WSRC 2009) and MIPSL LUCIP (WSRC 2007a) will remain in the same place and will not be modified. See Appendix A for warning sign examples. The revised field inspection checklist is included in Appendix B.

This Addendum to the MAOU LUCIP does not change the land transfer requirements, property record notices and restrictions, and security/surveillance measures documents in the MAOU and MIPSL LUCIPs (WSRC 2009 and WSRC 2007a, respectively).

5.0 REFERENCES

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

SRNS, 2023. *Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Operating Equipment (U),* SRNS-RP-2022-00468*,* Revision 1 (corrected), Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRS, 2020. SRS Procedure Manual 1D, *Site Infrastructure and Services Manual (U)*, Procedure 3.02, “Site Real Property Configuration Control," Savannah River Site, Aiken, SC

SRS, 2024. SRS Procedure Manual 1Q, *Quality Assurance (U)*, Savannah River Site, Aiken, SC

WSRC, 1999. *Land Use Control Assurance Plan for the Savannah River Site*, WSRC-RP-98-4125, Revision 1.1, latest update, Savannah River Nuclear Solutions, LLC, 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, LLC, Savannah River Site, Aiken, SC

WSRC, 2006. *Record of Decision Remedial Alternative Selection for the M Area Inactive Process Sewer Lines Operable Unit (081-M) (U)*, WSRC-RP-2006-4001, Revision 1, Washington Savannah River Company, LLC, Savannah River Site, Aiken, SC

WSRC, 2007a. *Land Use Control Implementation Plan (LUCIP) for the M Area Inactive Process Sewer Lines Operable Unit (081-M) (U)*, WSRC-RP-2006-4068, Revision 1, Washington Savannah River Company, LLC, Savannah River Site, Aiken, SC

WSRC, 2007b. *RCRA Facility Investigation/Remedial Investigation (RFI/RI) Work Plan, RFI/RI Report with Baseline Risk Assessment, and Corrective Measures Study/Feasibility Study for M Area Operable Unit (U)*, WSRC-RP-2006-4060, Revision 1, Washington Savannah River Company, LLC, Savannah River Site, Aiken, SC

WSRC, 2008. *Record of Decision Remedial Alternative Selection for the M Area Operable Unit (MAOU) (U)*, WSRC-RP-2008-4030, Revision 1, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

WSRC, 2009. *Land Use Control Implementation Plan (LUCIP) for the M Area Operable Unit (MAOU) (U)*, WSRC-RP-2008-4067, Revision 1, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

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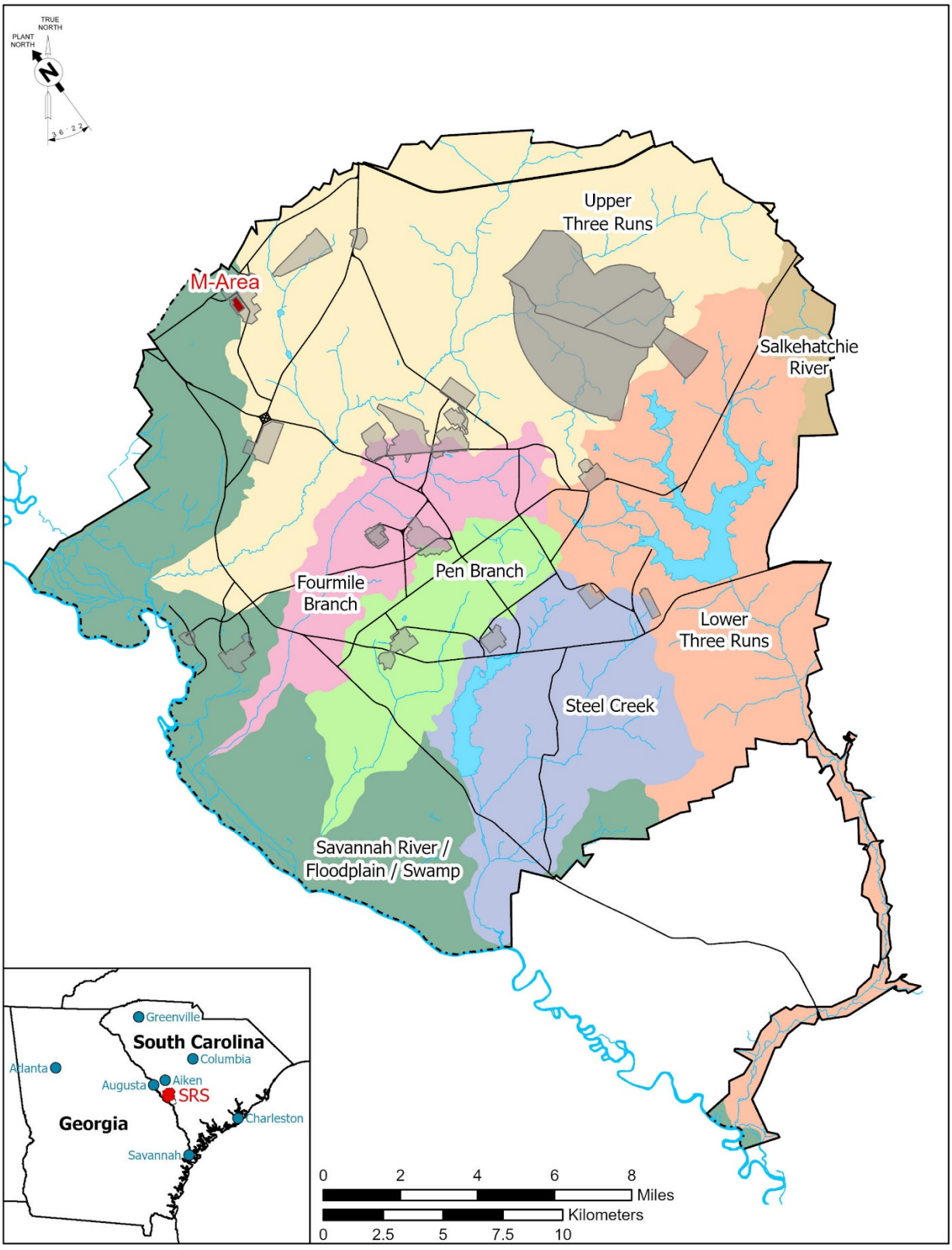


Figure 1. Location of M-Area within the Savannah River Site

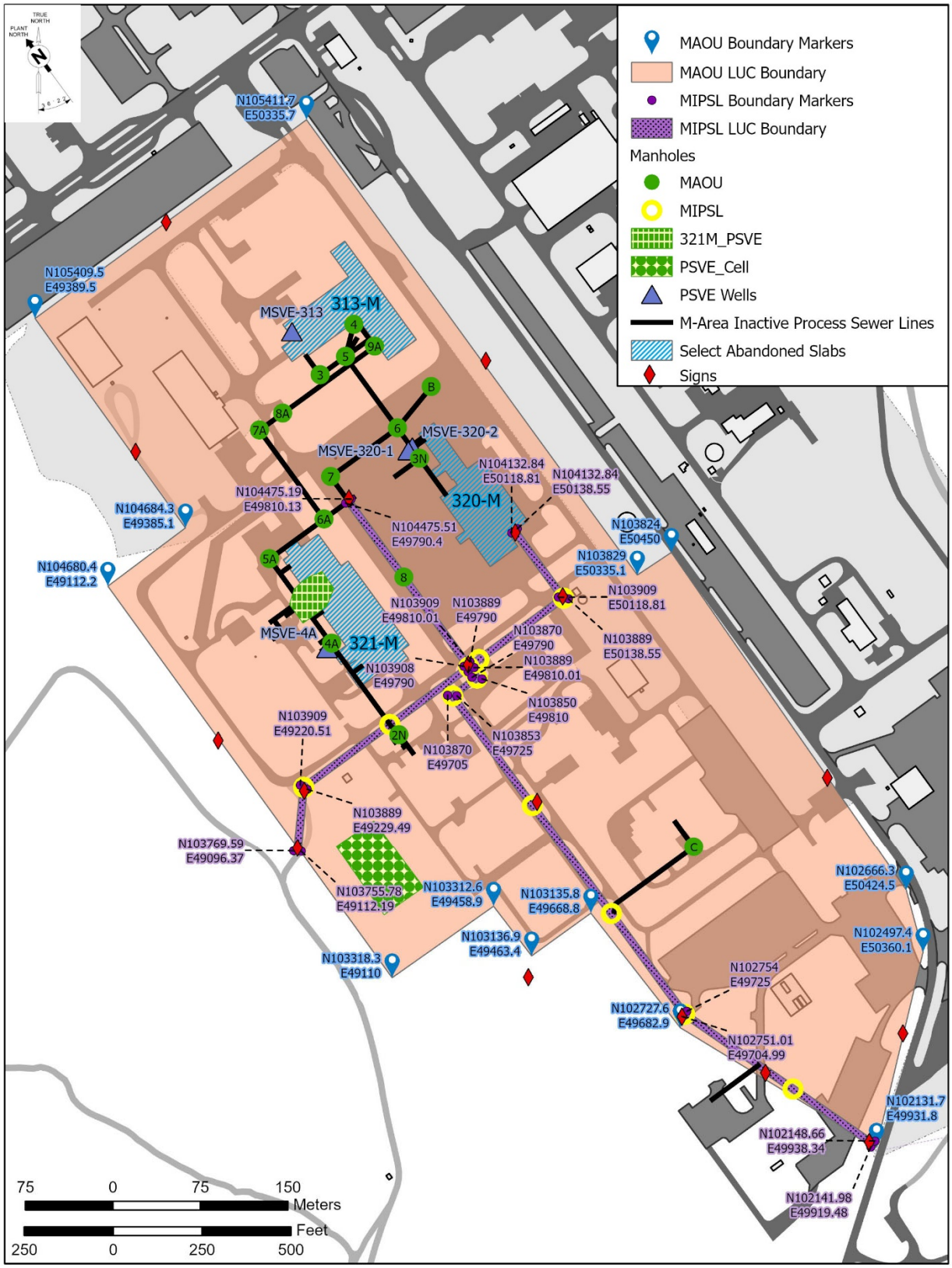


Figure 2. LUC Boundaries for the MAOU and MIPSL OU

APPENDIX A

ACCESS CONTROL WARNING SIGNS

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Figure A-1. MIPSL Access Control Warning Sign



Figure A-2. MAOU Access Control Warning Sign

APPENDIX B

FIELD INSPECTION CHECKLIST FOR THE MAOU

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Field Inspection Checklist for the M-Area Operable Unit (MAOU)[a]

☐ **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 warning signs (17) are in acceptable condition, have the correct information, and are legible from a distance of 25 feet.		
3. Check survey boundary markers for damage and visibility.		
4. Verify that there are no unauthorized excavation, digging, or construction activities at Passive Soil Vapor Extraction (PSVE) Sites 313-M, 320-M, 321-M, PSVE Cell, Manholes 2N, 3, 3N, 4, 4A, 5, 5A, 6, 6A, 7, 7A, 8A, 9A, B, and C.		
5. Verify PSVE wells at PSVE Sites 313-M, 320-M, 321-M, PSVE Cell, Manhole 4A, and support systems are accessible and in good condition.		
6. Verify vapor intrusion barrier over 321-M and PSVE Cell are not visible (beneath the approximate 1-foot common fill), and repair visible damage to vapor barrier.		
8. Verify that signs of burrowing or mounding animals are not present at the unit.		
9. Inspect waste unit for erosion, abnormal soil cracks, and depressions.		
10. Verify that there are no unauthorized excavation, digging, or construction activities over underground sewer lines, at sewer outlet, at A-014 Outfall, or at the manholes.		
11. Verify pipelines and manhole plugs are intact.		

[a] Includes the M-Area Inactive Process Sewer Line (MIPSL) Operable Unit that is within the MAOU boundaries

Field Inspection Checklist
for the MAOU *(Continued)*

Inspected by:

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

Post-Closure Manager:

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

CAUTION: The inspector shall notify the Post-Closure Manager and Environmental Compliance Authority **IMMEDIATELY** if there has been a breach or compromise of the land use controls of this waste unit. The notification shall be in accordance with SRS post-closure inspection procedures.