
United States Department of Energy

Savannah River Site



**Record of Decision
Remedial Alternative Selection for the
L-Area Northern Groundwater Operable Unit (NBN) (U)**

CERCLIS Number: 77

SRNS-RP-2011-00134

Revision 1

May 2011

**Prepared by:
Savannah River Nuclear Solutions, LLC
Savannah River Site
Aiken, SC 29808**

Prepared for U.S. Department of Energy under Contract No. DE-AC09-08SR22470

ROD for the LANG OU (NBN) (U)
Savannah River Site
May 2011

SRNS-RP-2011-00134
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Prepared for
U.S. Department of Energy
and
Savannah River Nuclear Solutions, LLC
Aiken, South Carolina

**ROD for the LANG OU (NBN) (U)
Savannah River Site
May 2011**

**SRNS-RP-2011-00134
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**RECORD OF DECISION
REMEDIAL ALTERNATIVE SELECTION (U)**

L-Area Northern Groundwater Operable Unit (NBN) (U)

CERCLIS Number: 77

**SRNS-RP-2011-00134
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May 2011

**Savannah River Site
Aiken, South Carolina**

Prepared by:

**Savannah River Nuclear Solutions, LLC
for the
U. S. Department of Energy under Contract DE-AC09-08SR22470
Savannah River Operations Office
Aiken, South Carolina**

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ROD for the LANG OU (NBN) (U)
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DECLARATION FOR THE RECORD OF DECISION

Unit Name and Location

L-Area Northern Groundwater Operable Unit (NBN)

Comprehensive Environmental Response, Compensation, and Liability Information System
(CERCLIS) Identification Number: OU- 77

Savannah River Site

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
Identification Number: SC1 890 008 989

Aiken, South Carolina

United States Department of Energy

The L-Area Northern Groundwater Operable Unit (OU) (LANG OU) is listed as a Resource Conservation and Recovery Act (RCRA) 3004(u) Solid Waste Management Unit/CERCLA unit in Appendix C of the Federal Facility Agreement (FFA) for the Savannah River Site (SRS).

The FFA is a legally binding agreement between regulatory agencies [United States Environmental Protection Agency (USEPA) and South Carolina Department of Health and Environmental Control (SCDHEC)] and regulated entities [United States Department of Energy (USDOE)] that establishes the responsibilities and schedules for the comprehensive remediation of SRS. Groundwater is the only media associated with the LANG OU.

Statement of Basis and Purpose

This decision document presents the selected remedial action for the LANG OU, in northwestern Barnwell County, South Carolina, which was chosen in accordance with CERCLA, as amended by the Superfund Amendments Reauthorization Act (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the information contained in the Administrative Record File for this site.

The USEPA, SCDHEC and USDOE concur with the selected remedy.

Assessment of the Site

Groundwater is the only media associated with the LANG OU. The LANG OU has been administratively separated from L-Area surficial waste units that exist within the LANG OU boundary and were dispositioned under separate Records of Decision (RODs) or regulatory documents. These surficial waste units are not part of the LANG OU. There have been no releases of contaminants from groundwater at the LANG OU into the environment. There are no active sources of groundwater contamination in the LANG OU.

Description of the Selected Remedy

The selected remedy for the LANG OU is No Action. There are no refined constituents of concern (RCOCs). No remedial action is needed at the LANG OU because no contaminants are present in the groundwater at levels that may pose a threat to human health and the environment. Additionally, there is no discharge of LANG OU groundwater to surface water or potential drinking water sources that would result in an unacceptable threat to human health and the environment. Therefore, no land use controls or other remedial action is required for the LANG OU.

The RCRA permit will be revised to reflect selection of the final remedy using the procedures under 40 CFR Part 270, and SCHWMR R.61-79.264.101; 270.

Statutory Determinations

Based on the unit RCRA Facility Investigation/Remedial Investigation (RFI/RI) report, which is an appendix to the Statement of Basis/Proposed Plan (SB/PP) (SRNS 2010), the LANG OU poses no threat to human health and the environment. Therefore, No Action has been selected as the remedy for the LANG OU. Although the future land use for the LANG OU will be unrestricted, access to the OU is restricted within the SRS boundaries.

Because this remedy will not result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required for this remedial action.

Data Certification Checklist

This ROD certifies that the following information is either provided in the ROD or an explanation is provided for information that is not included:

- RCOCs and their respective concentrations – *This information is not included because no RCOCs were identified at the LANG OU.*
- Baseline risk represented by the RCOCs – *This information is not included because no RCOCs were identified at the LANG OU.*
- Cleanup levels established for the RCOCs and the basis for the levels – *This information is not included because there are no hazardous substances in place that pose a threat to human health or the environment based on unrestricted land use.*
- Current and reasonably anticipated future land and groundwater use assumptions used in the ROD – *This information is provided in Section VI.*
- Potential land and groundwater use that will be available at the site as a result of the selected remedy – *This information is provided in Section VI.*
- Estimated capital, operation and maintenance, and total present worth cost; discount rate; and the number of years over which the remedy cost estimates are projected – *This information is not required because a No Action remedy was selected.*
- Key decision factor(s) that led to selecting the remedy (i.e., describe how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria) –

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This information is not required because a No Action remedy was the only alternative considered.

- How source materials constituting principal threats are addressed – *This information is not included as the LANG OU does not contain any principal threat source material.*

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May 2011

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May 2011

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ROD for the LANG OU (NBN) (U)
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DECISION SUMMARY
REMEDIAL ALTERNATIVE SELECTION (U)

L-Area Northern Groundwater OU (NBN) (U)

CERCLIS Number: 77

SRNS-RP-2011-00134
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May 2011

Savannah River Site
Aiken, South Carolina

Prepared By:

Savannah River Nuclear Solutions, LLC
for the
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ROD for the LANG OU (NBN) (U)
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LIST OF ACRONYMS AND ABBREVIATIONS

ac	acres
ARAR	applicable or relevant and appropriate requirement
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulation
COC	constituent of concern
CPT	cone penetrometer technology
CSM	conceptual site model
ft	feet
FFA	Federal Facility Agreement
GCDF	Gas Cylinder Disposal Facility
ha	hectares
HSWA	Hazardous and Solid Waste Amendments
IOU	inoperable unit
km	kilometers
km ²	square kilometers
LANG	L-Area Northern Groundwater
LASG	L-Area Southern Groundwater
LBPOP	L-Area Bingham Pump Outage Pits
LBRP	L-Area Burning/Rubble Pit
LECS	L-Area Erosion Control Site
LLC	Limited Liability Company
LRP	L-Area Rubble Pile
LUCs	Land Use Controls
MCL	maximum contaminant level
m	meters
m ²	square miles
mi	miles
MNA	monitored natural attenuation
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Protection Act
NPL	National Priorities List
OU	operable unit
PCE	tetrachloroethylene
PRG	preliminary remedial goals
RCOC	refined constituent of concern
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RFI/RI	RCRA Facility Investigation/Remedial Investigation
RI	Remedial Investigation
ROD	Record of Decision

RSL	regional screening level
SARA	Superfund Amendments Reauthorization Act
SB/PP	Statement of Basis/Proposed Plan
SCDHEC	South Carolina Department of Health and Environmental Control
SCHWMR	South Carolina Hazardous Waste Management Regulations
SRNS	Savannah River Nuclear Solutions, LLC
SRS	Savannah River Site
TCE	trichloroethylene
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
WSRC	Washington Savannah River Company, LLC

I. SAVANNAH RIVER SITE AND OPERABLE UNIT NAME, LOCATION, AND DESCRIPTION

Unit Name, Location, and Brief Description

L-Area Northern Groundwater OU (NBN) (U)

Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Identification Number: OU-77

Savannah River Site

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Identification Number: SC1 890 008 989

Aiken, South Carolina

United States Department of Energy (USDOE)

Savannah River Site (SRS) occupies approximately 802.9 km² (310 mi²) of land adjacent to the Savannah River, principally in Aiken and Barnwell counties of South Carolina (Figure 1). SRS is located approximately 40.2 km (25 mi) southeast of Augusta, Georgia, and 32.1 km (20 mi) south of Aiken, South Carolina.

The USDOE owns SRS, which historically produced tritium, plutonium, and other special nuclear materials for national defense and the space program. Chemical and radioactive wastes are by-products of nuclear material production processes. Hazardous substances, as defined by the CERCLA, are currently present in the environment at SRS.

The Federal Facility Agreement (FFA) (FFA 1993) for SRS lists the L-Area Northern Groundwater Operable Unit (OU) (LANG OU) as a Resource Conservation and Recovery Act Solid Waste Management Unit/Comprehensive Environmental Response, Compensation and Liability Act (RCRA/CERCLA) unit requiring further evaluation.

The LANG OU was evaluated through an investigation process that integrates and combines the RCRA corrective action process with the CERCLA remedial process to determine the actual or potential impact to human health and the environment of releases of hazardous substances to the environment.

II. SITE AND OPERABLE UNIT COMPLIANCE HISTORY

SRS Operational and Compliance History

The primary mission of SRS has been to produce tritium, plutonium, and other special nuclear materials for our nation's defense programs. Production of nuclear materials for the defense program was discontinued in 1988. SRS has provided nuclear materials for the space program, as well as for medical, industrial, and research efforts up to the present. Chemical and radioactive wastes are by-products of nuclear material production processes. These wastes have been treated, stored, and in some cases, disposed at SRS. Past disposal practices have resulted in soil and groundwater contamination.

Hazardous waste materials handled at SRS are managed under RCRA, a comprehensive law requiring responsible management of hazardous waste. Certain SRS activities require South Carolina Department of Health and Environmental Control (SCDHEC) operating or post-closure permits under RCRA. SRS received a RCRA hazardous waste permit from the SCDHEC, which was most recently renewed on September 30, 2003. Module VIII of the Hazardous and Solid Waste Amendments (HSWA) portion of the RCRA permit mandates corrective action requirements for non-regulated solid waste management units subject to RCRA 3004(u).

On December 21, 1989, SRS was included on the National Priorities List (NPL). The inclusion created a need to integrate the established RCRA facility investigation (RFI) program with CERCLA requirements to provide for a focused environmental program. In accordance with Section 120 of CERCLA 42 United States Code Section 9620, USDOE has negotiated a FFA (FFA 1993) with United States Environmental Protection Agency (USEPA) and SCDHEC to coordinate remedial activities at SRS into one comprehensive strategy which fulfills these dual regulatory requirements. USDOE functions as the lead agency for remedial activities at SRS, with concurrence by the USEPA - Region 4 and the SCDHEC.

Operable Unit Operational and Compliance History

The L-Reactor operated from 1954 to 1968 and 1985 to 1988. Between 1968 and 1984, the L-Reactor was kept in warm standby due to decreased demand for plutonium and tritium. L-Lake, constructed in 1985 as a cooling pond for L-Reactor, covers 418 ha (1,034 ac) and contains approximately 26.5 billion liters (7 billion gallons) of water. Both surficial waste units are located in L-Area.

L-Area groundwater is defined by two OUs identified as the L-Area Southern Groundwater (LASG) OU and the LANG OU (Figure 2). The two groundwater OUs are separated by a groundwater divide that is located along the northern edge of L-Area. The LASG OU is currently managed by a Record of Decision (ROD) that documents monitored natural attenuation (MNA) and land use controls (LUCs) as the selected remedy (WSRC 2007). Both L-Reactor and L-Lake are located south of the groundwater divide and are not part of the LANG OU.

The LANG OU addressed by this ROD encompasses all of the groundwater north of the L-Area groundwater divide. The LANG OU is bordered on the south and east by the LASG OU and L-Area, to the west by Pen Branch, and to the north by a groundwater flow boundary below the Chemical, Metals, and Pesticides Pits OU (Figure 2). The areal extent of LANG OU is about 360 ha (890 ac). There are no current drinking water sources located within the LANG OU.

The LANG OU has been administratively separated from L-Area surficial waste units to provide a comprehensive evaluation of groundwater north of L-Area. While groundwater is the only media addressed by the LANG OU, information gathered from the following six (6) surface waste units, located within the vicinity of the LANG OU, was evaluated to confirm that there are no ongoing or potential future releases of contaminants to the LANG OU (Figure 3):

- L-Area Burning/Rubble Pit (LBRP) (131-L)

- Gas Cylinder Disposal Facility (GCDF) (131-2L)
- L-Area Rubble Pile (LRP) (131-3L)
- L-Area Bingham Pump Outage Pits (LBPOPs) (643-G and 643-3G)
- L-Area Erosion Control Site (LECS) (080-26G)
- L-Area Ash Basin (188-L)

With the exception of the L-Area Ash Basin, the surficial waste units were previously and individually evaluated with response decisions that are documented in RODs or other regulatory documents. The L-Area Ash Basin will be dispositioned at a later date as part of the L-Area Operable Unit. However, based on process knowledge and evaluation of similar ash basins in P- and R-Areas, there is nothing that indicates the potential for release of contaminants to groundwater from the L-Area Ash Basin. Details of each of the surficial waste units can be found in Appendix A of the LANG OU Statement of Basis/Proposed Plan (SB/PP) (SRNS 2010).

The characterization of the LANG OU is comprised of all analytical data obtained between 1984 and 2009 from all the groundwater wells and surface water stations located within the LANG OU boundary, as well as one (1) temporary cone penetrometer (CPT). This is a total of 469 samples that were collected from 35 groundwater wells, eight (8) surface water stations, and one (1) CPT (Figure 4).

LANG OU analytical data was compared to the maximum contaminant levels (MCLs) (i.e., USEPA drinking water standards and the South Carolina State Primary Drinking Water Regulations [R.61-58] [SCDHEC 2009]), the EPA Region 4 tap water regional screening levels (RSLs) (USEPA 2009a) if an MCL was not available, or the EPA preliminary remediation goals (PRGs) for radiological constituents (USEPA 2009b), as appropriate. A total of 114 contaminant exceedances were identified, however, 96 were addressed by previous regulatory decisions on the surficial waste units located within the LANG OU boundary. With the lone exception of a carbon tetrachloride groundwater plume being monitored for the LRP/LBRP surficial unit, as a result of remedial actions

and data evaluations performed during the surficial waste units' investigations, it was determined there is no threat to groundwater from any of the constituents associated with the surficial waste units within the LANG OU boundary. Although the L-Area Ash Basin has yet to be completely investigated, a comparison of other ash basins investigated at SRS as well as LANG OU groundwater sampling has shown no indication of a contamination threat to groundwater from the ash basin. Section A-1.2 of the SB/PP for the LANG OU (SRNS 2010) describes the conditions and relationship to LANG at each of the surficial waste units. The remaining 18 exceedances to be addressed by the LANG OU involved six (6) constituents of concern (COCs) (arsenic, thallium, lead, lead-214, trichloroethylene [TCE], and pentachlorophenol [PCE]). Details of these results and their assessment are included in Appendix A of the SB/PP for the LANG OU (SRNS 2010).

All characterization efforts were reviewed by USDOE, USEPA, and SCDHEC and it was determined that no refined constituents of concern (RCOCs) were present at the LANG OU. However, as a result of subsequent data analysis, there was some uncertainty associated with elevated detections of arsenic and lead in one (1) monitoring well (LSP 6DU) which were believed to be caused by high turbidity. Re-sampling of this well in December 2010 confirmed that lead and arsenic were not at levels of concern and no RCOCs were present at the LANG OU. The details and results of the December 2010 sampling event are presented in Section V.

III. HIGHLIGHTS OF COMMUNITY PARTICIPATION

Both RCRA and CERCLA require the public to be given an opportunity to review and comment on the draft permit modification and proposed remedial alternative. Public participation requirements are listed in South Carolina Hazardous Waste Management Regulation (SCHWMR) R.61-79.124 and Sections 113 and 117 of CERCLA (42 United States Code Sections 9613 and 9617). These requirements include establishment of an Administrative Record File that documents the investigation and selection of the remedial alternative for addressing the LANG OU groundwater. The Administrative Record File must be established at or near the facility at issue.

The SRS FFA Community Involvement Plan (WSRC 2009a) is designed to facilitate public involvement in the decision-making process for permitting, closure, and the selection of remedial alternatives. The SRS FFA Community Involvement Plan addresses the requirements of RCRA, CERCLA, and the National Environmental Policy Act, 1969 (NEPA). SCHWMR R.61-79.124 and Section 117(a) of CERCLA, as amended, require the advertisement of the draft permit modification and notice of any proposed remedial action and provide the public an opportunity to participate in the selection of the remedial action. The *Statement of Basis/Proposed Plan for the L-Area Northern Groundwater Operable Unit (U)* (SRNS 2010), a part of the Administrative Record File, highlights key aspects of the investigation and identifies the preferred action for addressing the LANG OU.

The FFA Administrative Record File, which contains the information pertaining to the selection of the response action, is available at the following locations:

US Department of Energy Public Reading Room Gregg-Graniteville Library University of South Carolina – Aiken 171 University Parkway Aiken, South Carolina 29801 (803) 641-3465	Thomas Cooper Library Government Documents Department University of South Carolina Columbia, South Carolina 29208 (803) 777-4866
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The RCRA Administrative Record File for SCDHEC is available for review by the public at the following locations:

The South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management 8911 Farrow Road Columbia, South Carolina 29203 (803) 896-4000	The South Carolina Department of Health and Environmental Control –Region 5 Aiken Environmental Quality Control Office 206 Beaufort Street, Northeast Aiken, South Carolina 29801 (803) 641-7670
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The public was notified of the public comment period through mailings of the *SRS Environmental Bulletin*, a newsletter sent to citizens in South Carolina and Georgia, and through notices in the *Aiken Standard*, the *Allendale Citizen Leader*, the *Augusta*

Chronicle, the *Barnwell People-Sentinel*, and *The State* newspaper. The public comment period was also announced on local radio stations.

The SB/PP 45-day public comment period began on December 14, 2010 and ended on January 27, 2011; no comments were received. A Responsiveness Summary, prepared to address any comments received during the public comment period, is provided in Appendix A of the ROD. A Responsiveness Summary will also be available in the final RCRA permit.

IV. SCOPE AND ROLE OF THE OPERABLE UNIT

Due to the complexity and size of multiple waste units in different areas, the SRS is divided into watersheds for the purpose of managing a comprehensive cleanup strategy. The SRS is segregated into six watersheds: Upper Three Runs, Lower Three Runs, Fourmile Branch, Steel Creek, Pen Branch, and the Savannah River. In addition, the SRS also identifies six Integrator Operable Units (IOUs) which are the surface water bodies and associated wetlands that correspond to the six respective watersheds. Waste units within a watershed may be evaluated and remediated individually or grouped with other waste units and evaluated as part of a larger Area OU. Upon disposition of all the waste units within a watershed, a final comprehensive ROD for the corresponding IOU (i.e., surface water and associated wetlands) will be pursued with additional public involvement. The LANG OU is located within the Pen Branch watershed (Figure 5).

Groundwater is the only media addressed by the LANG OU. There are no constituents present in groundwater at the LANG OU that pose an unacceptable threat to human health or the environment. Therefore, the selected remedial action for the LANG OU is No Action. This means no OU-specific land use controls are necessary to prevent against unrestricted use, and this unit will remain in its present condition.

V. OPERABLE UNIT CHARACTERISTICS

L-Area groundwater is defined by two (2) OUs identified as the LASG OU and the LANG OU. The two (2) groundwater OUs are separated by a groundwater divide which is derived from a topographic ridge that runs northeast of L-Area towards the southwest (Figure 2 and Figure 6).

The LANG OU encompasses all of the groundwater north of the L-Area groundwater divide. The LANG OU is bordered on the south and east by the LASG OU and L-Area, to the west by Pen Branch, and to the north by a groundwater flow boundary below the Chemicals, Metals, and Pesticides Pits OU (Figure 7). The LANG OU comprises a total of 360 ha (890 ac).

Groundwater flow is driven by the regional topography and stream patterns (Figure 6 and Figure 7). Within the LANG OU boundary, groundwater flow is towards the west to southwest (Figure 7). Water levels measured in the fourth quarter of 2009 show that the water table surface ranges in depth from 0 m (0 ft) at Pen Branch to 17.3 m (56.8 ft) below ground surface. The LANG OU water table aquifer is located in sandy and clayey strata of the transmissive zone.

Conceptual Site Model (CSM) for the LANG OU

The CSM for the LANG OU is presented in Figure 8. A CSM identifies known and suspected sources of contamination, types of contaminants and potentially affected media, known and potential routes of migration, and known and potential human and ecological receptors.

In general, if contamination from the surficial units within the LANG OU boundary were to contact surface or subsurface soil, this would create a secondary source of potential contamination. The secondary release mechanism is infiltration/percolation/leaching to groundwater. This could create a pathway for the human receptor.

The potential sources of contamination at the LANG OU are associated with the surficial units within the LANG OU boundary; the LBRP, GCDF, LRP, LBPOPs, LECS, and/or the L-Area Ash Basin. With the exception of the L-Area Ash Basin, these potential sources of contamination have been evaluated individually, remediated and/or depleted. It has also been confirmed that there are no ongoing or potential future releases of contaminants to the LANG OU. The knowledge and the evaluation of other ash basins at SRS support the basis that there is not potential for the release of contaminants to groundwater from the L-Area Ash Basin¹.

Human receptors for risk assessment purposes include the future industrial worker and the hypothetical future on-unit resident. The general public is not considered to be a potential human receptor because the unit is located approximately 10.2 km (6.3 mi) from the nearest SRS boundary. Access by the general public has been prohibited by strict, long-term entry control procedures and site security inspections. The long distances and access restrictions make all pathways for the general public incomplete. The ecological exposure pathway to groundwater in the CSM is incomplete because ecological receptors are not typically exposed to groundwater, and groundwater is the only media under consideration at the LANG OU.

Media Assessment

The only media of concern at the LANG OU is groundwater. Surface water was sampled during the LANG OU characterization to investigate the potential discharge of contamination from groundwater into the Pen Branch stream. Further evaluation of surface water within Pen Branch will be addressed by the Pen Branch IOU.

Prior to 2009, a total of 30 groundwater wells and six (6) surface water stations existed within the LANG OU boundary. In 2009, five (5) additional groundwater wells, two (2) surface water stations, and one (1) temporary CPT were installed to support

¹Monitoring wells that can be used for the future characterization of the L-Area Ash Basin will not be abandoned and will be maintained through the decision process for that unit.

characterization efforts for the LANG OU. During 2009, the newly installed stations and 18 of the previously existing wells were sampled for additional characterization. Altogether, the total characterization of LANG OU was based on all analytical data available since 1984. This is comprised of 469 samples that were collected from all of the groundwater wells and surface water stations located within the LANG OU boundary, as well as the one (1) 2009 CPT (Figure 4).

The historical data along with the Pre-Work Plan characterization data was determined to be adequate for the characterization of the LANG OU. No further characterization efforts were needed and a Work Plan was not developed. A SB/PP (SRNS 2010) with a RFI/RI attached as an Appendix was submitted and approved. However, as a result of subsequent data analysis, there was some uncertainty as to whether elevated turbidity values was an adequate explanation for elevated detections of arsenic and lead in samples collected from one (1) monitoring well (LSP 6DU). In December 2010, this monitoring well was sampled using a low flow pump to minimize turbidity concerns. In addition, monitoring wells LSW 6C, LSW 5C were sampled for data comparison. These two wells have a history of having elevated arsenic values. Also, wells LSP 5DU and LSP 7DU were sampled for data consistency as they were used in a figure in Appendix A of the SB/PP and previously had highly turbid samples.

Media Assessment Results

The detailed findings of the LANG OU investigation and assessment are documented in Appendix A of the SB/PP for the LANG OU (SRNS 2010). A summary is described below.

LANG OU analytical data was compared to the MCLs (i.e., USEPA drinking water standards and the South Carolina State Primary Drinking Water Regulations [R.61-58] [SCDHEC 2009]), the EPA Region 4 tap water RSLs (USEPA 2009a) if an MCL was not available, or the EPA PRGs for radiological constituents (USEPA 2009b), as appropriate.

A total of 114 exceedances were identified, however, 96 were addressed by previous regulatory decisions on the surficial waste units located within the LANG OU boundary. The remaining 18 exceedances to be addressed by the LANG OU involved six (6) constituents of concern (arsenic, thallium, lead, lead-214, TCE, PCE). These exceedances were evaluated and reviewed by USDOE, USEPA, and SCDHEC and were determined not to be RCOCs warranting action following a thorough weight-of-evidence evaluation. Factors that contributed to the elimination of these constituents from further consideration included confirmation of no upgradient sources, absence of degradation products that would indicate a continuing source, presence of naturally occurring constituents at similar concentrations, and recent sampling results being below threshold limits.

The analytical results of the December 2010 sampling were consistent with previously collected data at two (2) wells (LSW 6C and LSW 5C). The arsenic concentration in well LSW 6C, which exceeds the MCL, is naturally occurring (SRNS 2010). The December 2010 sampling analytical results did not result in any constituent exceedance in the previously highly turbid samples (LSP 5DU, LSP 6DU, and LSP 7DU), confirming there are no problems warranting action at the LANG OU. The results of the December 2010 sampling are provided in Figure 9 and Table 1. All characterization efforts were reviewed by USDOE, USEPA, and SCDHEC and it was determined that no RCOCs exist within the LANG OU.

Site Specific Factors

No site-specific factors requiring special consideration that might affect the remedial action for the LANG OU are present at the site.

VI. CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Land Uses

L-Area is identified as an industrial area by the Land Use Control Assurance Plan for the SRS (WSRC 2009b). The LANG OU is located north and west of L-Area outside of the industrial area.

According to the SRS Future Use Project Report (USDOE 1996), residential uses of SRS land should be prohibited. Although the LANG OU is suitable for unrestricted land use, access to the OU is restricted within the SRS boundaries and USDOE maintains control of SRS land to prevent unrestricted uses. Future residential land use at SRS is not anticipated. There is no current or projected future use of the groundwater as a drinking water source.

Groundwater Uses/Surface Water Uses

Shallow groundwater and surface water are currently not used for drinking water, hygiene, recreation, or process water as prohibited by existing institutional controls; groundwater and surface water are not used for agricultural purposes at SRS. Drinking water is supplied to SRS workers from carefully monitored wells in deep, uncontaminated aquifers. LUCs are currently in place to prevent the exposure to the non-drinking water supply; including SRS site boundary fencing and controlled access gates, and the Site Use/Site Clearance program that controls construction, excavation, and well installation activities.

There are no current ground/surface water uses within the LANG OU. However, Pen Branch does feed into the Savannah River, which may be used for recreational and agricultural purposes outside of SRS and as a source for drinking water for distant downstream communities.

VII. SUMMARY OF OPERABLE UNIT RISKS

A baseline risk assessment was not performed for the LANG OU. In place of a human-health baseline risk assessment, regulatory concurrence was obtained to use MCLs (i.e., USEPA drinking water standards and the South Carolina State Primary Drinking Water Regulations [R.61-58] [SCDHEC 2009]), the EPA Region 4 tap water RSLs (USEPA 2009a) if an MCL was not available, or the EPA PRGs for radiological constituents (USEPA 2009b), as appropriate, as a point of comparison because the only media under consideration at the LANG OU is groundwater. Using these threshold limits as a point of comparison is appropriate because they provide the basis for determining if a remedial action is necessary to prevent possible human exposure.

The ecological exposure pathway to groundwater in the CSM is incomplete and unnecessary because ecological receptors are not typically exposed to groundwater, and groundwater is the only media under consideration at the LANG OU.

No contaminants are present in the groundwater at levels that would pose a threat to human health and the environment. Therefore, no remedial action is necessary at the LANG OU.

VIII. REMEDIAL ACTION OBJECTIVES AND REMEDIAL GOALS

There is no current or potential threat to public health or the environment from the LANG OU. There are no applicable or relevant and appropriate requirements (ARARs) for the LANG OU. Therefore, no remedial action objectives are required and no remedial goals are established.

IX. DESCRIPTION OF ALTERNATIVES

No Action

Based on the LANG OU characterization data and evaluation, the LANG OU poses no risk to human health or the environment. For this reason, a No Action alternative has

been selected as the selected remedial alternative. No LUCs for the LANG OU are required.

The No Action alternative does not restrict access, limit exposure, or reduce contaminant toxicity, mobility, or volume at the LANG OU. Based on the unit characterization data and evaluation and the fact that no RCOCs are associated with the LANG OU, no other alternatives were developed for consideration and evaluation.

X. COMPARATIVE ANALYSIS OF ALTERNATIVES

According to USEPA guidance (USEPA 1991) if there is no current or potential threat to human health and the environment and no action is warranted, the CERCLA 121 requirements to evaluate other cleanup alternatives or to evaluate the No Action alternative against the nine remedy selection criteria under CERCLA are not triggered. The No Action alternative will be the final action for the LANG OU.

XI. THE SELECTED REMEDY

No Action is the selected alternative for the LANG OU. There is no waste to treat, no institutional or engineering controls are required, and there are no ARARs. Because there are no problems warranting action at the LANG OU, no remedial action is necessary.

XII. STATUTORY DETERMINATIONS

Based on the LANG OU characterization data and evaluation (Appendix A of the SB/PP), the LANG OU poses no threat to human health and the environment. Therefore, a No Action alternative has been selected as the remedy for the LANG OU. No LUCs for the LANG OU are required.

Because this remedy will not result in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for unlimited use and unrestricted exposure, a five-year remedy review will not be required.

XIII. EXPLANATION OF SIGNIFICANT CHANGES

The remedy selected in this ROD does not contain any significant changes from the preferred alternative presented in the SB/PP. No comments were received during the public comment period.

XIV. RESPONSIVENESS SUMMARY

The Responsiveness Summary is included as Appendix A of this document.

XV. POST-ROD DOCUMENT SCHEDULE AND DESCRIPTION

No remedial action will be performed at the LANG OU; therefore, a schedule for post-ROD activities is not provided.

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XVI. REFERENCES

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WSRC, 2009b. *Land Use Control Assurance Plan for the Savannah River Site*, WSRC-RP-98-4125, Rev. 1.1, August 1999, updated October 20, 2009, Savannah River Nuclear Solutions, LLC, Aiken, SC

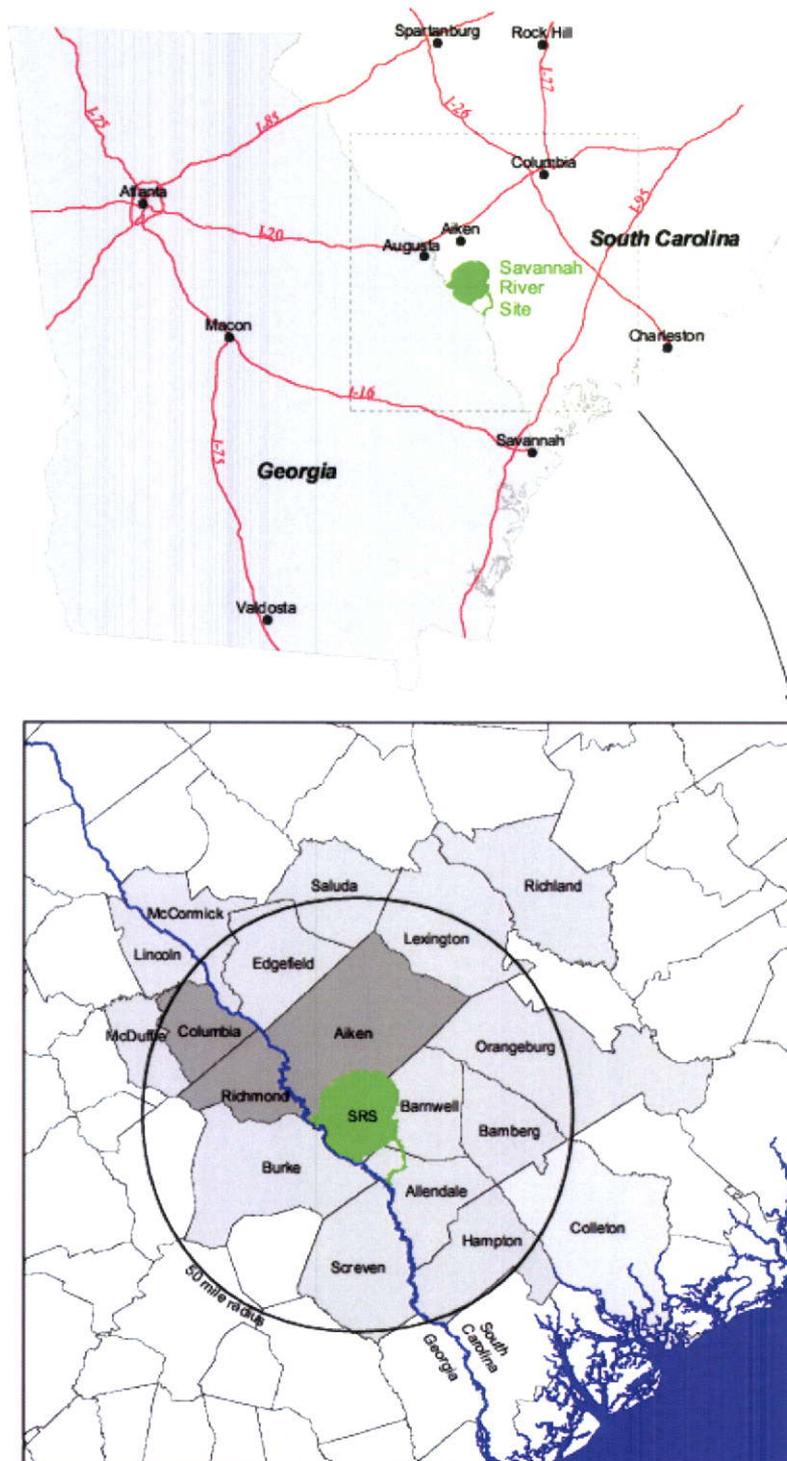


Figure 1. Location of the Savannah River Site

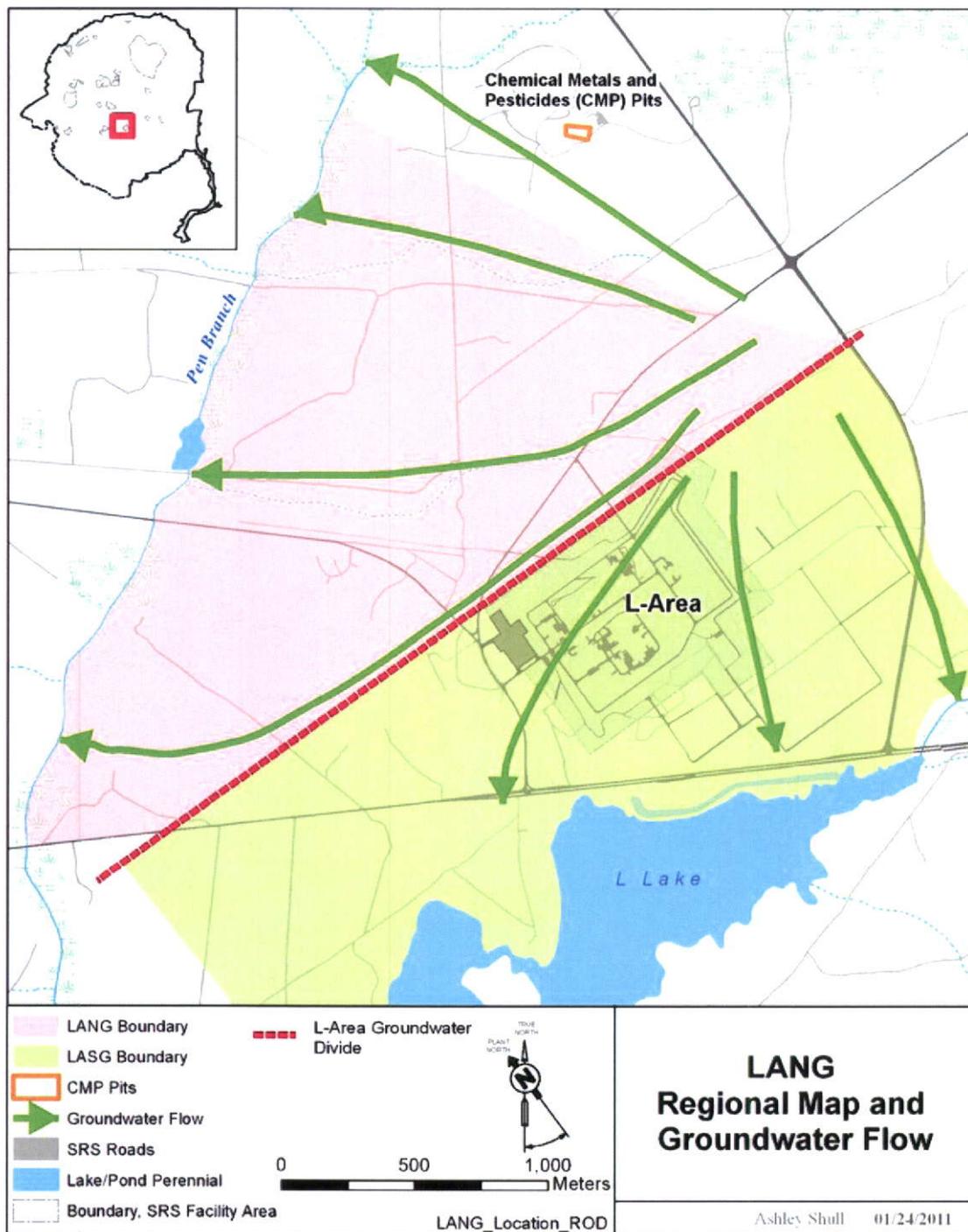


Figure 2. Location of the LANG OU within the Savannah River Site

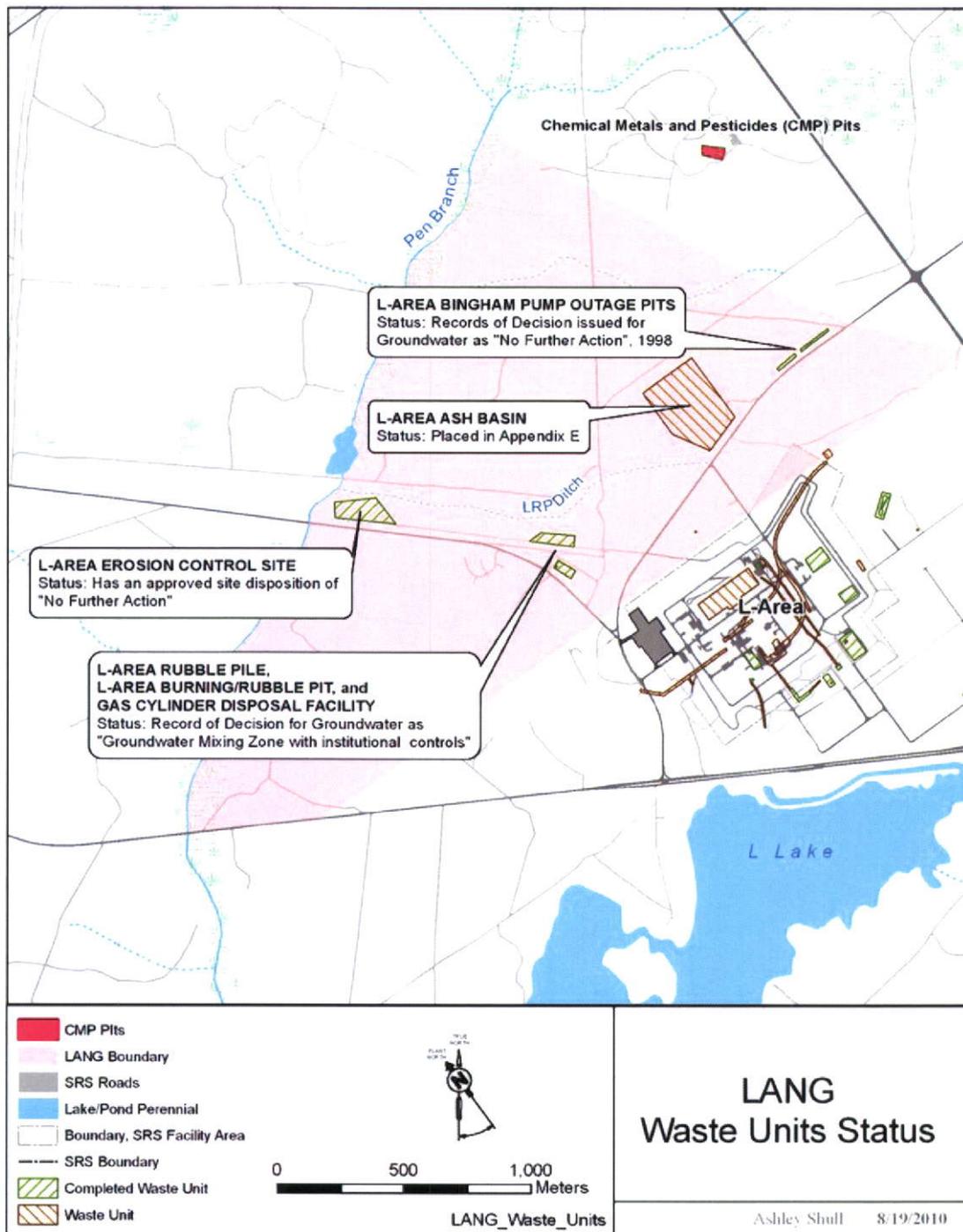


Figure 3. Surficial Waste Units within the LANG OU Boundary

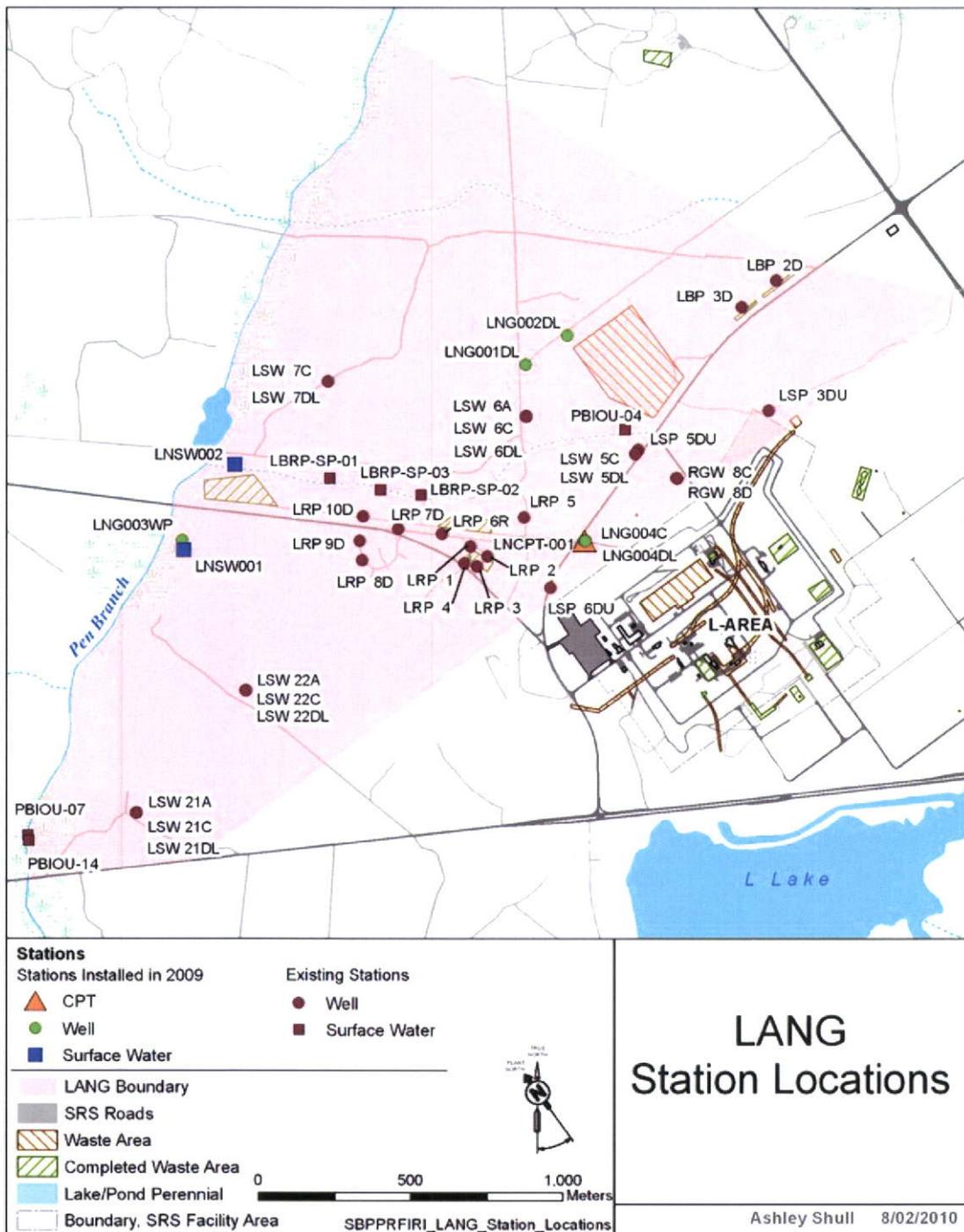


Figure 4. LANG OU Station Locations

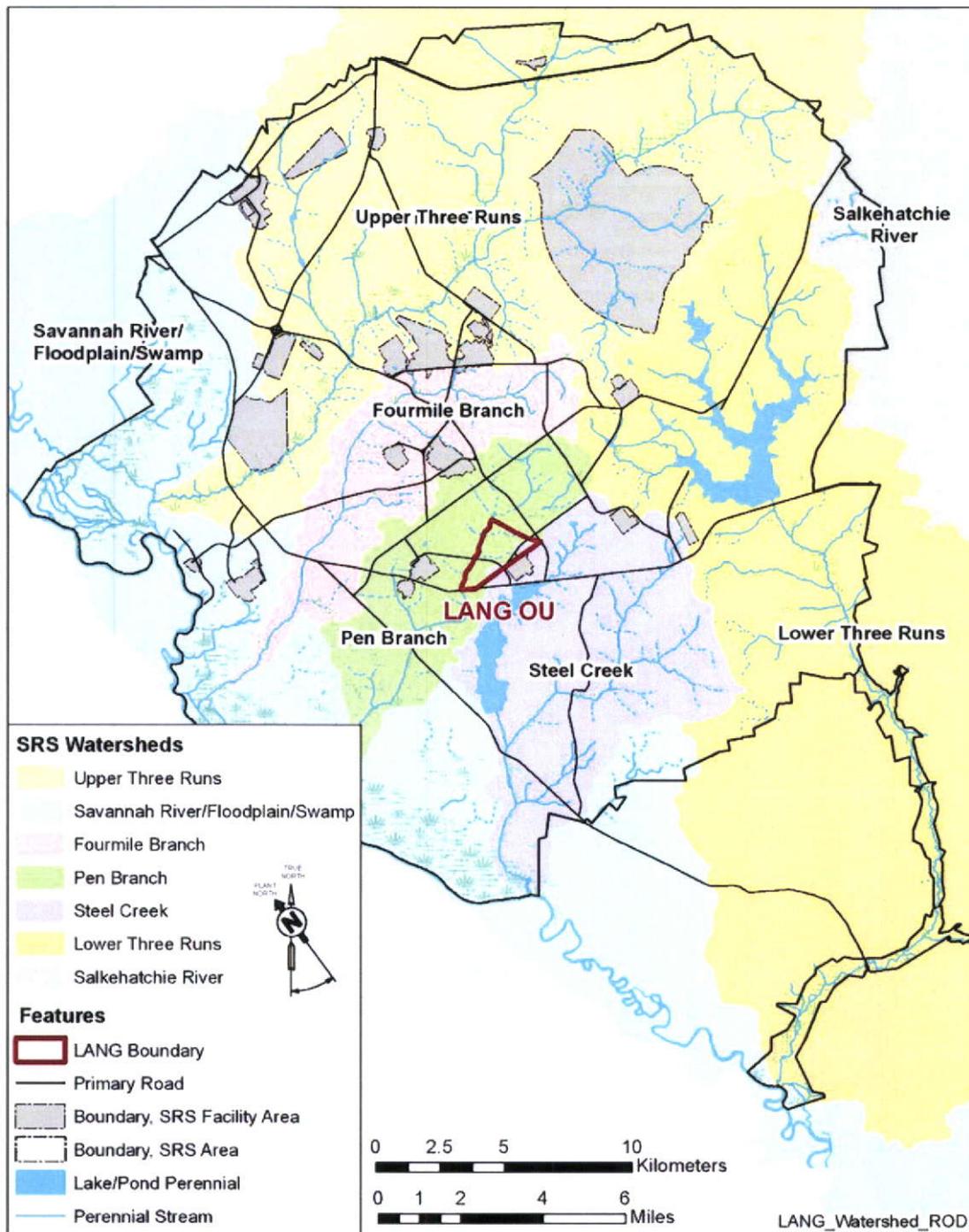


Figure 5. Layout of the LANG OU within the Pen Branch Watershed

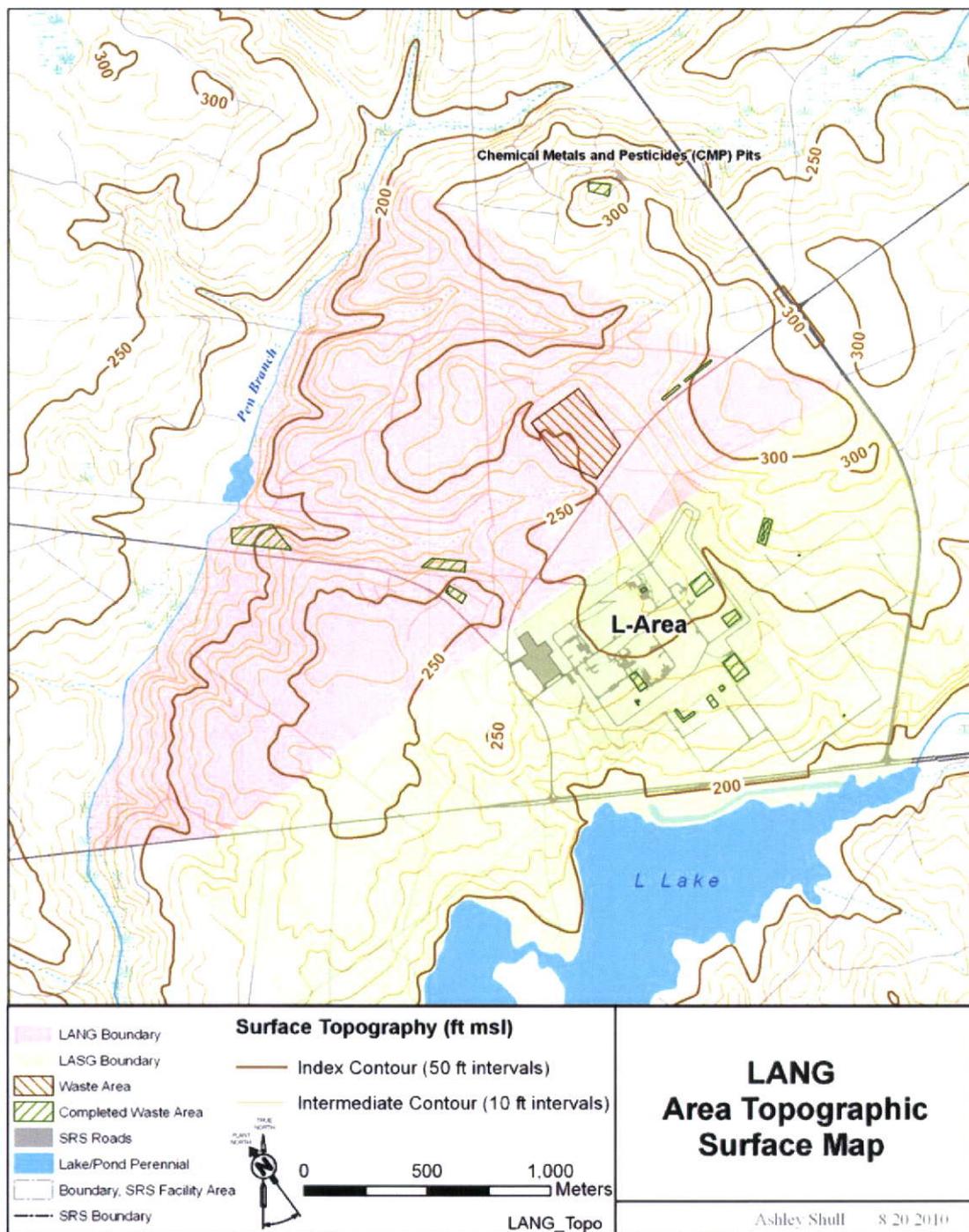


Figure 6. Regional Topography of the LANG OU and Surrounding Area

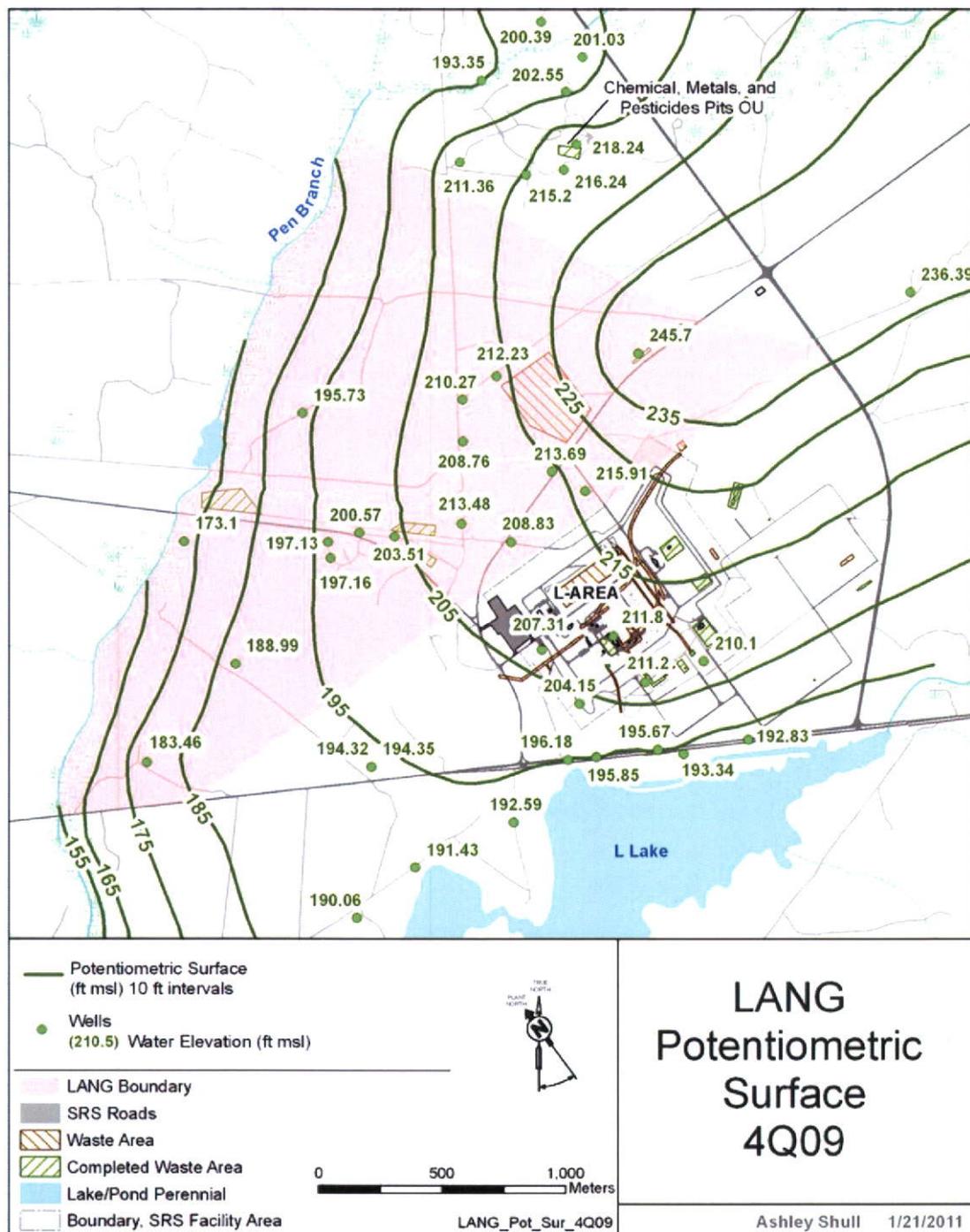
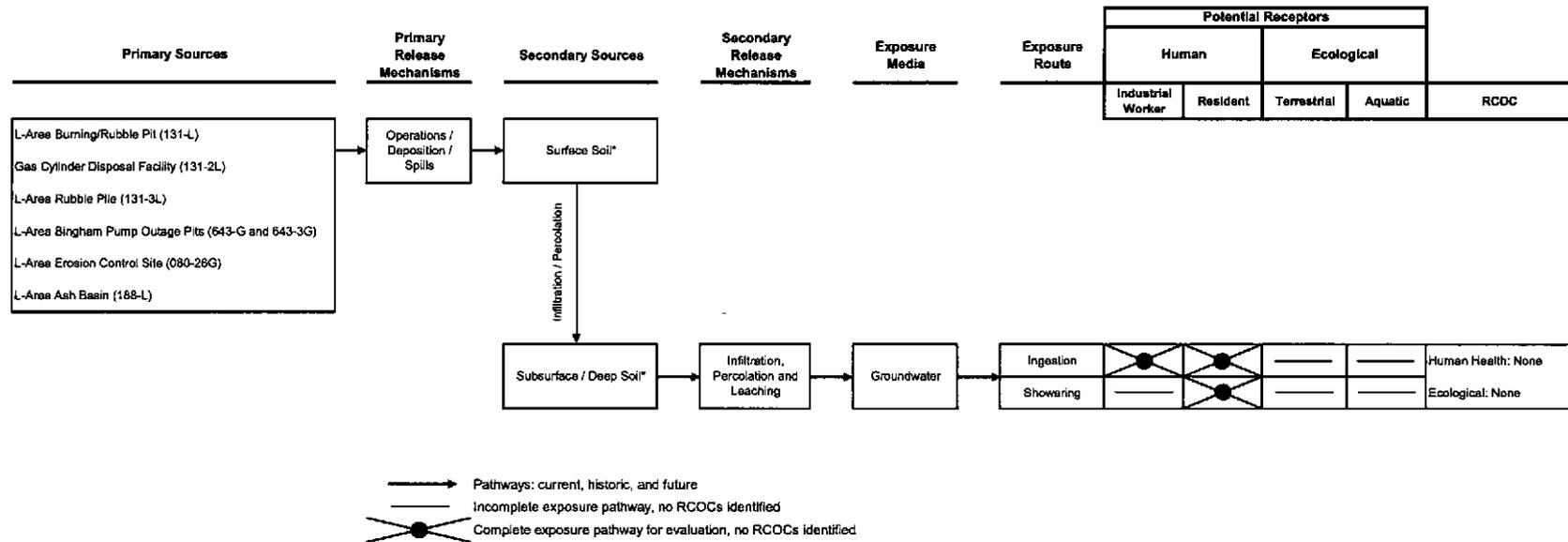


Figure 7. Potentiometric Surface of the LANG OU and Surrounding Area in the Fourth Quarter of 2009



* Although the L-Area Ash Basin will be dispositioned at a later date as part of the L-Area Operable Unit, process knowledge and evaluation of similar units at SRS indicate there is no potential for release of contaminants to groundwater. The other five surface waste units were evaluated individually with the response decisions documented in previous RODs. Information gathered from these previous investigations was evaluated to confirm that there are no ongoing or potential future releases of contaminants to the LANG OU.

Figure 8. Conceptual Site Model for the LANG OU

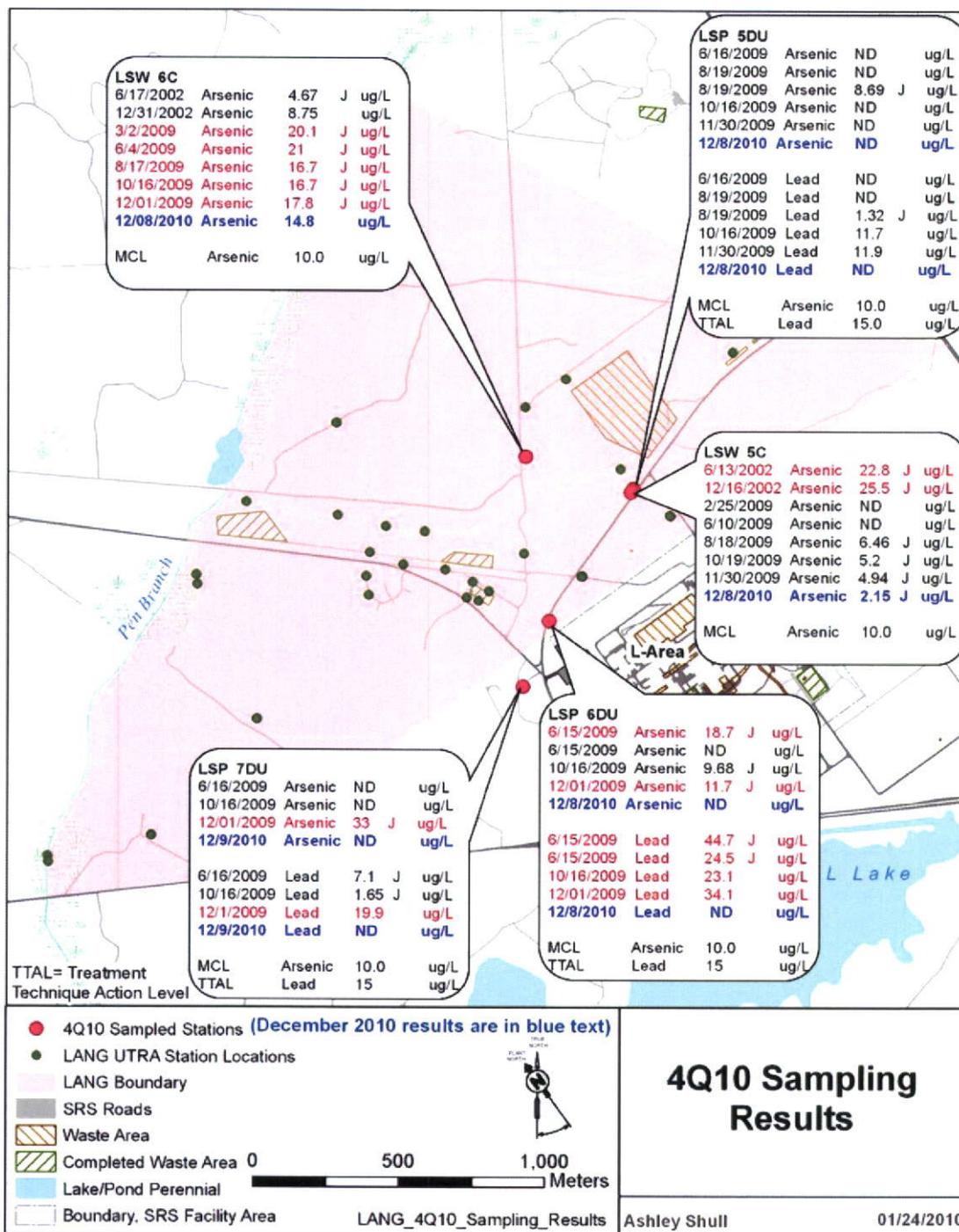


Figure 9. Results of the December 2010 Sampling

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Table 1. Results of the December 2010 Sampling

Station ID	Turbidity (NTU)	Arsenic (ug/L)	Arsenic Detection Limit (ug/L)	Arsenic Sample Quantitation Limit (ug/L)	Lead (ug/L)	Lead Detection Limit (ug/L)	Lead Sample Quantitation Limit (ug/L)
LSP 5DU	3.4	ND	1.6	5.0	ND	0.5	2.0
LSP 6DU	7.4	ND	1.6	5.0	ND	0.5	2.0
LSP 7DU	6.6	ND	1.6	5.0	ND	0.5	2.0
LSW 5C	4.8	2.15 J	1.6	5.0	ND	0.5	2.0
LSW 6C	1.2	14.8	1.6	5.0	ND	0.5	2.0

ND= Not Detected; J= Estimated Value

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**APPENDIX A –
RESPONSIVENESS SUMMARY**

Responsiveness Summary

The 45-day public comment period for the Statement of Basis/Proposed Plan for the LANG OU began on December 14, 2010 and ended on January 27, 2011.

Public Comments

No public comments were received on the Statement of Basis/Proposed Plan for the LANG OU