ESHID-602066

Environment Safety & Health
Associate Directorate
PO Box 1663, MS K491
Los Alamos, New Mexico 87545
(505) 667-4218

National Nuclear Security Administration
Los Alamos Field Office, A316
3747 West Jemez Road
Los Alamos, New Mexico 87544
(505) 667-5105/Fax (505) 667-5948

Date: DEC 12 2016
Symbol: ADESH: 16-215
LA-UR: 16-29194
Locates Action No.: N/A

Mr. John E. Kieling, Chief
Hazardous Waste Bureau
New Mexico Environmental Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87595-6303

Subject: Supplemental Environmental Project, Supplemental Sampling and Monitoring Work Plan Regarding Settlement Agreement and Stipulated Final Order HWB-14-20, Addendum 3

Dear Mr. Kieling:

This letter transmits the work plan associated with a supplemental environmental project as directed in the Settlement Agreement and Stipulated Final Order HWB-14-20, Addendum 3, entered into by the New Mexico Environment Department (NMED) (Complainant), the U.S. Department of Energy (DOE), and Los Alamos National Security, LLC (LANS) (Respondents) on January 22, 2016. Paragraph 40 of the Stipulated Final Order requires the Department of Energy to expend $2.5 million to fund increased sampling and monitoring capabilities for storm water runoff in and around Los Alamos National Laboratory (LANL), with the results of sampling and monitoring to be shared with the public and NMED.

The *Addendum 3 Supplemental Sampling and Monitoring Work Plan*, Enclosure 1, provides a description of the proposed strategy for increasing sampling and monitoring capabilities for storm water and related environmental media within and around LANL so data and technologies can be shared with the public and NMED. Also included are the proposed sampling locations and schedules for implementation. The Respondents would be pleased to meet with Hazardous Waste Bureau personnel to discuss and explain the documentation included herein.

If you have comments or questions regarding this submittal, please contact John C. Bretzke (LANS) at (505) 665-3867 or Peter Maggiore (DOE, NA-LA) at (505) 665-5025.

Sincerely,

Michael T. Brandt, DrPH, CIH
Associate Director
Environment, Safety & Health
Los Alamos National Security, LLC
Los Alamos National Laboratory

Sincerely,

Kimberly Davis Lebak
Manager
Los Alamos Field Office
U.S. Department of Energy

MTB/JCB/ARG/eim

Enclosure 1: Addendum 3 Supplemental Sampling and Monitoring Work Plan

Copy: Butch Tongate, NMED, Santa Fe, NM, (E-File)
Kathryn M. Roberts, NMED, Santa Fe, NM, (E-File)
Jody M. Pugh, NA-LA (E-File)
Peter Maggiore, NA-LA, (E-File)
Lisa Cummings, NA-LA (E-File)
Jaime Navarro, NA-LA (E-File)
Steve J. Veenis, ADEM-PO, (E-File)
Karen E. Armijo, NA-LA, (E-File)
Craig S. Leasure, PADOPS, (E-File)
John C. Bretzke, EPC-DO, (E-File)
Deborah K. Woitte, LC-ESH (E-File)
Anthony R. Grieggs, EPA-CP, (E-File)
Terrill W. Lemke, EPC-CP, (E-File)
lasomailbox@nnsa.doe.gov, (E-File)
epc-correspondence@lanl.gov, (E-File)
rcra-prr@lanl.gov, (E-File)
epccat@lanl.gov, (E-File)
adesh-records@lanl.gov, (E-File)

ENCLOSURE 1

Addendum 3 Supplemental Sampling and Monitoring Work Plan

ADESH-16-215

LA-UR-16-29194

Date: DEC 1 2 2016

Addendum 3

Supplemental Sampling and Monitoring Work Plan

I. Introduction

This Supplemental Environmental Project (SEP) work plan has been developed pursuant to the January 22, 2016, Settlement Agreement and Stipulated Final Order (Settlement Agreement) between the New Mexico Environment Department (NMED) and the U.S. Department of Energy (DOE) and Los Alamos National Security, LLC (LANS), collectively, the Parties, for the purposes of resolving Compliance Order No. HWB-14-20 (the Compliance Order), issued on December 6, 2014, related to Los Alamos National Laboratory (LANL facility).

Section II, B, 40 of the Settlement Agreement requires DOE to expend $2.5 million to "increase sampling and monitoring capabilities for storm water runoff in and around LANL facility, with the results of sampling and monitoring to be shared with the public and NMED."

A project team was formed in March 2016 and team members participated in technical meetings to determine the options and scope of the Sampling and Monitoring SEP work plan. The project team met 10 times between March 2016 and July 2016.

The project team discussed how best to allocate SEP funding by identifying specific objectives. Key topics discussed at these technical meetings included how to improve the ability of the public to access and view environmental data; how to share storm water monitoring capabilities and technologies with local entities; how to address sampling and monitoring data gaps related to impacts of LANL facility on storm water; how to better quantify levels of pollutants in storm water from natural landscapes; how to quantify aerial deposition of pollutants associated with global cycling; how to accurately identify acute and chronic aquatic life standards applied to storm water based on resident species; and how to use attainability assessments, hydrologic protocols, assessment protocols, and other water-quality data tools to best define goals/objectives of the SEP effort.

The project team agreed upon the specific scope objectives of the Sampling and Monitoring SEP and that scope is identified in this work plan as Addendum 3. The scope identified in this addendum is not required under existing state or federal permits regulations.

II. Purpose/Objectives of Project

The goal of the Sampling and Monitoring SEP is to fulfill the requirements of the Settlement Agreement by increasing sampling and monitoring capabilities for storm water and related environmental media within and around LANL facility so data and technologies can be shared with the public and NMED.

The project objectives include the following:

- Sharing all data collected with the public by uploading the data to the Intellus New Mexico database (Intellus) and making those data publicly accessible at the website www.intellusnm.com.

- Improving the way data collected under this SEP and past Laboratory-associated environmental data can be accessed, viewed, and analyzed by the public by improving the organization of data in Intellus.
- Sharing the skills, knowledge, and technologies for storm water sampling and monitoring by implementing an Accord Pueblo Outreach subproject.
- Addressing data gaps in storm water quality and discharge (volume and flow), and other environmental media from Laboratory firing sites, natural landscapes, developed landscapes, and aerial deposition of pollutants associated with global cycling. Survey aquatic life communities from reaches in and around LANL facility so impacts from storm water pollutants to the species within these communities can be better quantified.

III. Description of the Project Team

The scope of the Sampling and Monitoring SEP has been developed through a project team led by NMED Surface Water Quality Bureau (SWQB) with designees from the following entities:

- NMED DOE Oversight Bureau (OB)
- NMED Hazardous Waste Bureau (HWB)
- DOE / National Nuclear Security Administration Los Alamos Field Office (NA-LA)
- Los Alamos County (LAC)
- Pueblo de San Ildefonso
- LANS organizations, including representative from the Associate Directorate of Environmental Management and the Associate Directorate for Environment, Safety, and Health.

The technical meetings focused on the development of specific objectives to be accomplished under the SEP. Before project team meetings, NMED-SWQB developed and submitted an agenda to all members. During the project team meetings, agenda items were discussed. At the end of each project team meeting, action items were reviewed and clear assignments made. Between project team meetings, notes from previous meetings were submitted to all members for review and comment. Meeting minutes were then updated and, if there were no objections, were finalized at the following meeting.

In general, the project team technical meeting process was collaborative with decisions reached by consensus. Project team members' professional backgrounds were multidisciplinary and when specific expertise was needed but was not available within the team, technical experts were invited to project team meetings to provide information.

IV. Justification of Subprojects

The subprojects described below were selected by the project team to meet the specific goals and objectives set forth in the Settlement Agreement for the Sampling and Monitoring SEP. The identification and justifications for each subproject chosen by the project team include the following.

a. Improvements to Intellus New Mexico (Intellus)

Intellus New Mexico (Intellus) is a publicly accessible database that contains environmental monitoring data provided by LANL facility as well as the NMED-DOE-OB. However, because of the vast quantity and quality of data collected over the past decade at LANL facility, data descriptions, cross-reference locations, naming conventions, coordinates and configuration control in Intellus have not been kept up to date, making it difficult for the public to find and display data of interest. This subproject will remedy these problems by improving data organization and categorization, thereby improving ease of access and use of Intellus data by the public. All data collected under this SEP will be publicly accessible via Intellus.

b. Accord Pueblo Outreach

The outreach subproject will share skills, knowledge, and technologies associated with storm water sampling and monitoring with Accord Pueblos (Santa Clara, San Ildefonso, Jemez, and Cochiti). This subproject will provide outreach opportunities so that Accord Pueblos can establish new or improve existing sampling and monitoring capabilities. Outreach with the Accord Pueblos will consist of providing equipment and training (classroom and hands-on) on elements of storm water monitoring, sampling and data analysis. Data collected under this effort will be loaded into Intellus.

c. Sampling and Monitoring

The sampling and monitoring subproject will fill data gaps to characterize the sources of pollutants in storm water runoff and impacts on receiving waters in and around LANL facility. A broad range of pollutants will be targeted under this subproject from the following sources: Laboratory developed areas, Laboratory firing sites, natural landscapes, and atmospheric deposition. To better understand these sources and their potential impacts, the study areas are identified and discussed in the bulleted list below. The U.S. Environmental Protection Agency–accepted data quality objectives (DQO) process will be used to evaluate and identify specific sampling and monitoring actions to be conducted under these study areas. The DQO process will identify performance and acceptance criteria to determine if data collected are sufficient to determine the pollutant concentrations from the sources studied.

i. Reference Watershed – Past investigations of storm water quality by the NMED-DOE-OB and LANS in undeveloped (that is, reference) watersheds located to the west and north of LANL facility and the Los Alamos town-site have documented concentrations of polychlorinated biphenyls (PCBs), metals, and radioactivity greater than numeric water quality criteria (WQC) established for designated uses in the New Mexico Administrative Code (NMAC). However, data gaps exist in quantifying these concentrations of pollutants in undeveloped watersheds. The SEP project team selected sampling and monitoring of storm water and related media in undeveloped watersheds to quantify concentrations of pollutants sourced from natural landscapes (primarily originating from natural geologic sources in sediments) or aerial deposition of pollutants (associated with global cycling of anthropogenic produced atmospheric contaminants). These data will allow NMED to evaluate impacts to storm water quality at LANL facility.

ii. Laboratory Developed-Area – Past investigations of storm water quality by the NMED-DOE-OB and LANS in developed watersheds on Laboratory property and within the Los Alamos town site have documented concentrations of organics and metals greater than the WQC for designated uses. However, additional data are required to fully characterize and quantify the concentrations of pollutants and the storm water discharge (volume and rate) from developed landscapes. The SEP project team selected sampling and monitoring of storm water from Laboratory developed areas to aid in quantifying and identifying the source (e.g. class of development, age, materials used) of pollutants, and quantifying storm water discharge. Monitoring developed areas will allow NMED to evaluate impacts of Laboratory-developed areas appropriately.

iii. Laboratory Firing Sites – LANL facility has conducted experiments at over 140 firing sites. While the majority of these firing sites are inactive, a few remain active. The SEP project team has identified data gaps associated with some firing sites. This study area will sample and monitor runoff from LANL facility firing sites not currently covered by existing permits to determine if firing site pollutants are migrating into storm water runoff. Firing sites selected for monitoring will be based on site history and soil sampling results to determine the sites that have the greatest potential to impact storm water quality.

iv. Aquatic Life Community Surveys – Ambient water quality criteria (AWQC) for aquatic life apply to all storm water runoff in and around LANL facility based upon the designation of the reach in NMAC. However, the current standards used to determine the AWQC are based on species present in perennial waters largely in the eastern United States. Evaluation and determination of the species resident to reaches in and around LANL facility have not occurred. The SEP project team selected aquatic life community surveys because appropriate accounting for aquatic species resident to waters on and around LANL facility will enable LANS and NMED to evaluate whether updates to state aquatic life criteria for storm water are necessary to protect native species.

V. Scope of Subprojects

DOE/LANS has provided details for the subproject scope identified below in a supplemental information document by members of the project team. The supplemental information, which is separate from the addendum, is provided for informational purposes only and is not enforceable. In the event that specific scope changes are required within each subproject, the supplemental information will be updated and discussed with the project team at periodic status meetings.

a. Improvements to Intellus New Mexico

Improvements to Intellus will allow users to more easily obtain data currently in the database as well as those generated by this SEP on the public website (www.intellusnm.com). Subproject scope focuses on performing data cleanup and smart data organization. Specific improvements will include the following:

- Improve location group naming conventions
- Organizing locations names
- Organize sample groups
- Organize biota data
- Performing quality assurance (QA) reviews of chemical look-up tables and data
- Updating solid waste management unit/aggregate data and standardizing naming conventions
- Improving user interface, queries, frequently asked questions and geographical information system (GIS) mapping functions

b. Accord Pueblo Outreach

Accord Pueblo Outreach subproject will improve the capabilities of participating Accord Pueblos in performing monitoring, sampling, and analysis of storm water. The outreach subproject will consist of several modules that include equipment procuring/sharing, field training, data analysis, and information sharing proposed modules will include the following:

- Providing monitoring equipment for the collection of storm water
- Training on operation and maintenance of automated monitoring devices
- Training on data validation and analysis
- Collecting storm water samples
- Sampling protocols
- Developing and using sampling plans and procedures

c. Sampling and Monitoring

The sampling and monitoring subproject will collect precipitation, storm water quality and discharge, sediment, and aquatic life survey data. Sampling and monitoring results will be loaded to Intellus and be reported in a final project report published on LANL facility's EPRR. The scope of each study area under this subproject is listed below. Figure 1 shows potential locations for conducting sampling and monitoring for each study area.

i. Reference Watershed – Collecting reference watershed data will allow NMED and LANS to better evaluate Laboratory impacts to storm water quality. This study area will generate precipitation, storm water quality and sediment data to characterize and quantify the impacts to water quality from natural background- and baseline- (atmospheric deposition of pollutants such as PCBs) sourced constituents in ephemeral/intermittent waters in undeveloped/natural background watersheds on the Pajarito Plateau in the vicinity of LANL facility.

ii. Laboratory Developed Area – Collecting developed area data will allow NMED and LANS to better quantify impacts from developed areas. This study area will generate storm water quality and discharge, precipitation, sediment, and vehicular use data to aid in characterizing and quantifying the impacts to water and sediments from developed areas not impacted by regulated industrial activities around LANL facility. Developed areas considered for monitoring include Laboratory parking lots, roads and structures.

iii. Firing Sites – The SEP project team has identified firing sites that potentially discharge unmonitored storm water. This study area will generate storm water quality data to aid in characterizing and quantifying impacts from firing sites not currently covered by existing permits.

iv. Aquatic Life Community Surveys – Appropriate accounting for aquatic species resident to waters on and around LANL facility will enable LANS and NMED to evaluate whether updates to state aquatic life criteria for storm water are necessary. This study area will generate biological data (i.e., meiofaunal invertebrate, vertebrate, and benthic invertebrate) to aid in characterizing storm water–affected aquatic life communities found in perennial, intermittent, and ephemeral waters in the vicinity of LANL facility.

d. Contingency Activities

Successful collection of storm water runoff samples requires precipitation that generates runoff in a large enough quantity to collect samples. In the vicinity of LANL facility, storm water runoff from pervious areas (e.g., undeveloped areas that are underlain by soils or sediments) may occur only a few times in a year; therefore, it may be necessary to adjust monitoring locations and identify contingencies for sample collection to utilize fully SEP funding. If adjustments to a subproject's scope are necessary, a member of the SEP project team will discuss details in a routine status meeting, and changes will be made after consensus is reached, and then documented in the supplemental information.

The following is a list of contingencies for this SEP.

- Laboratory developed area storm water, including discharge monitoring at additional locations to better characterize developed areas.
- Toxicity testing of resident species identified during aquatic life surveys to better understand the toxic effects of storm water pollutants on resident species.
- Firing site storm water monitoring at additional locations where data may already exist but closer monitoring of the firing site may be beneficial.
- Activation of currently inactive canyon-scale watershed monitoring locations on and around LANL facility to collect additional information that can be used to compare current concentrations of pollutants with past concentrations at the same location and to better identify specific sources of pollutants that could be contributing to impairment.

VI. Acquisition Strategy

The project acquisition strategy and cost breakdown described below were selected by the project team to meet the specific goals and objectives set forth in the Settlement Agreement for the Sampling and Monitoring SEP.

a. General description of selected acquisition strategy

Settlement Agreement expenditures for this SEP will be managed by DOE NA-LA through the Management and Operations (M&O) contract. LANS staff will self-perform most of the project scope with additional technical support and fieldwork assistance from existing subcontracts. Project implementation will consist of the following elements.

- Project Management (scope, cost and schedule tracking)
- Technical Support and Oversight (monitoring, telemetry, GIS, data management, data analysis, reporting)
- Regulatory support
- Field support (inspections, O&M, sample collection, sample preparation) during implementation period
- Analytical support (shipping, electronic data deliverable screening)
- Loading data into Intellus for public access

To perform scope specified in the approved addendum, staff will modify existing subcontracts, purchase field equipment, obtain access permits, and complete DQO process and reports. Subsequently, staff will execute field sampling, complete data analysis, and develop the final project report. All data will be loaded into Intellus after data validation.

b. Description of option(s) chosen and justification

An Integrated Project Team (IPT) approach to support the project in the areas of project controls, regulatory compliance, engineering, health and safety, QA, and document control will be used. Project activities will be executed using a combination of internal staff, existing subcontractors and cooperation agreements with surrounding Pueblos.

LANS will execute project management activities by using established project control methodology.

c. General Cost Breakdown for the Projects

Rough order magnitude (ROM) cost items are presented in Table 1

Table 1 ROM Costs

Subprojects	ROM ($K)
Intellus Improvements	340
Accord Pueblo Outreach	185
Sampling and Monitoring	1975
Total	2500

If ROM cost underruns occur, funds will be expended based on scope identified in Section V.d of this addendum.

VII. Schedule

The schedule outlines a series of interim milestones and a final deliverable due to NMED. Interim milestones before the deliverable date are for progress tracking between the Respondents and NMED and are not enforceable. The Respondents may need to adjust schedule dates of the interim milestones. If adjustments to a subproject's schedule are necessary, the SEP project team will discuss details in a routine status meeting, and changes will be documented and included in the supplemental information.

a. Interim Milestones

Interim milestone schedule for the project are presented in Table 2.

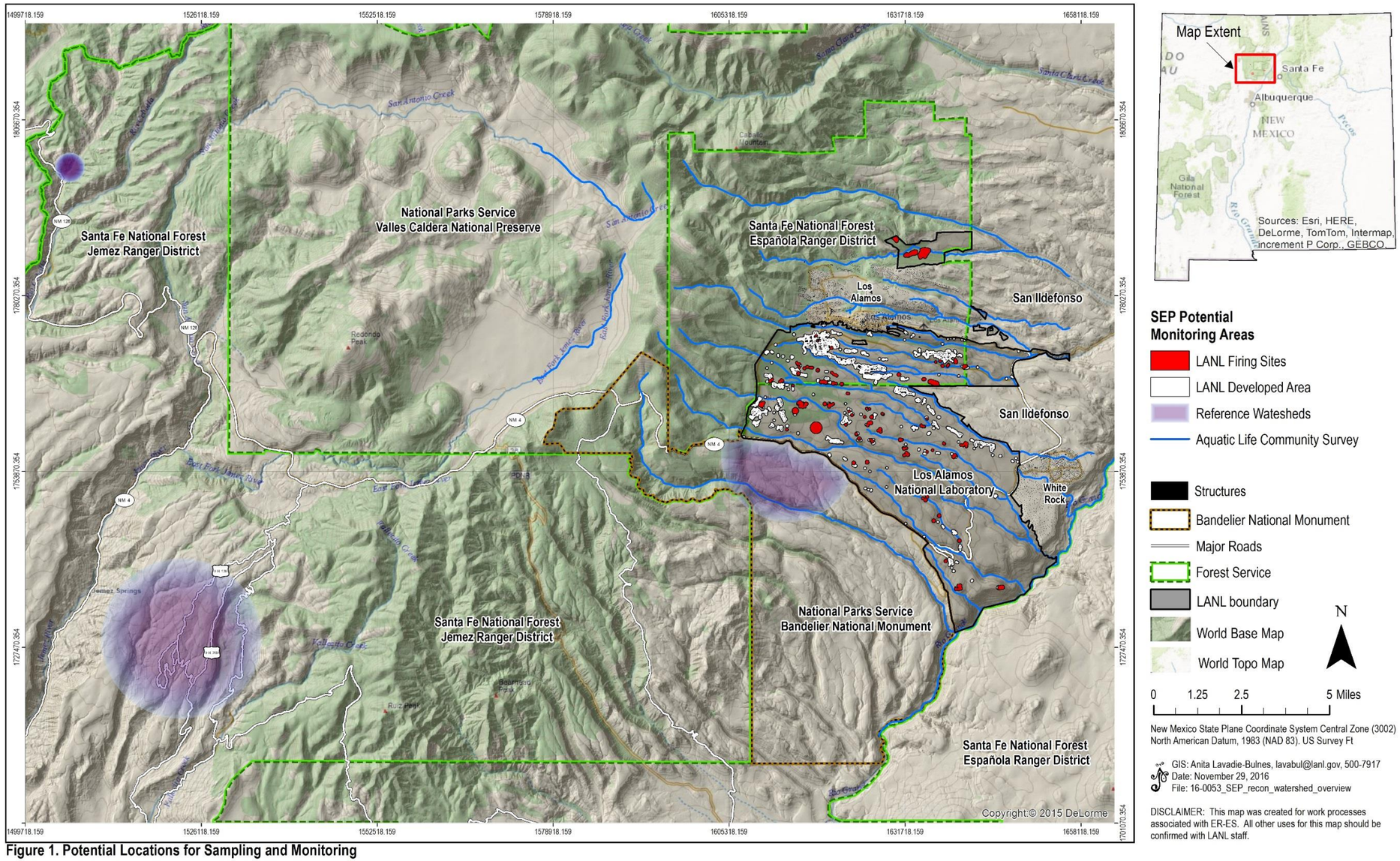
Table 2 Interim Milestones

Program	Dates
i. Workplan Approved	
ii. DQO Reports	i + 4 mo
iii. Intellus Improvements	i + 24 mo
iv. Accord Pueblo Outreach	i + 24 mo
v. Sampling and Monitoring	i + 24 mo
vi. Final Project Report	i + 28 mo

Routine status meetings will be conducted as needed. Project team members will be invited to the project status meetings and be provided with meeting notes. The supplemental information will be updated and provided to NMED to support final certification of the SEP. If necessary, additional meetings will be held to discuss specific issues that affect scope, schedule or budget.

b. Deliverables

DOE and LANS shall submit a signed and sworn Certification of Completion, executed by their authorized representatives, including the supplemental information, pertinent attachments and data related to the final implementation of the SEP, to NMED for approval within thirty (30) calendar days after the completion of this SEP.



SEP Potential Monitoring Areas

- LANL Firing Sites
- LANL Developed Area
- Reference Watesheds
- Aquatic Life Community Survey
- Structures
- Bandelier National Monument
- Major Roads
- Forest Service
- LANL boundary
- World Base Map
- World Topo Map

N

0 1.25 2.5 5 Miles

New Mexico State Plane Coordinate System Central Zone (3002)
North American Datum, 1983 (NAD 83). US Survey Ft

GIS: Anita Lavadie-Bulnes, lavabul@lanl.gov, 500-7917
Date: November 29, 2016
File: 16-0053_SEP_recon_watershed_overview

DISCLAIMER: This map was created for work processes associated with ER-ES. All other uses for this map should be confirmed with LANL staff.

Figure 1. Potential Locations for Sampling and Monitoring