

EXHIBIT D

SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

**Environmental Sampling and Support Services
LANL Water Stewardship Program**

TABLE OF CONTENTS

1.0 PROJECT GOALS AND OBJECTIVES.....4

1.1 Purpose4

1.2 SUBCONTRACTOR Requirements.....4

1.3 LANL Physiographic Setting5

1.4 Climate.....5

2.0 SCOPE OF WORK.....6

2.1 General Scope of Work6

2.2 Issuance of Task Orders.....6

3.0 PRE-MOBILIZATION SUBMITTALS AND ACTIVITIES6

3.1 Pre-Mobilization Planning Documents.....6

3.2 Pre-Mobilization Activities9

4.0 SUPPORT TASKS11

4.1 Transportation.....11

4.2 Sample Handling and Shipping12

4.3 Management of Investigation-Derived Waste.....12

4.4 Documentation and Records Management13

5.0 SAMPLING AND MONITORING ACTIVITIES.....14

5.1 Implementing the Interim Facility-Wide Groundwater Monitoring Plan and the
Groundwater Level Monitoring Plan14

5.2 Environmental Surveillance Water and Sediment Sampling.....18

5.3 Sampling Municipal Water Supply Wells19

5.4 Implementing the EPA Individual Permit for Storm Water-Related Sampling.....19

5.5 Collecting Air Samples and Monitoring Radiation (Optional Scope).....23

5.6 Other Environmental Media (Optional Scope)26

5.7 Personnel Requirements27

5.8 Work Not Included27

6.0 GENERAL REQUIREMENTS.....27

6.1 Codes and Standards27

6.2 Quality Requirements for LANS/SUBCONTRACTOR Interfacing28

6.3 Performance Requirements.....29

6.4 CONTRACTOR-Provided Equipment.....30

Figures31

Figure 1 – Map of Los Alamos National Laboratory31

Figure 2 – Watersheds at Los Alamos National Laboratory31

Figure 3 – Los Alamos Watershed sampling locations and access points.....31

Figure 4 – Sandia Watershed sampling locations and access points31

Figure 5 – Mortandad Watershed sampling locations and access points31

Figure 6 – Pajarito Watershed sampling locations and access points31

Figure 7 – Water Watershed sampling locations and access points31

Figure 8 – Frijoles, Ancho and Chaquehui Watershed sampling locations and access points31

Figure 9 – White Rock Canyon sampling locations and access points31

Figure 10 – Well and Surface Water Sampling Locations at the City of Santa Fe Buckman well field and San Ildefonso Pueblo.....31

Figure 11 – On-site Sediment Sampling Locations31

Figure 12 – Off-site Sediment Sampling Locations31

Figure 13 – Map of Site Monitoring Areas31

Figure 14 – Map of Stream Gage Locations.....31

Figure 15 – LANL AIRNET Monitoring Locations31

Figure 16 – AIRNET Monitoring Locations at MDA B.....31

Figure 17 – AIRNET Monitoring Locations at MDA G31

Figure 18 – LANL DPRNET Monitoring Locations31

Figure 19 – DPRNET Monitoring Locations at MDA G.....31

Tables 31

Table 1 – Access to Watershed Sampling Locations31

Table 2 – Purge Volumes for Wells by Watershed.....31

Table 3 – Master Schedule for LANL Sampling Activities in 2008 and 200931

Table 4 – Domestic Water Well Sampling at San Ildefonso Pueblo.....31

Table 5 – Sediment Sampling32

Table 6 – Municipal Well Sampling for the City and County of Santa Fe32

Table 7 – BMP Sampling32

Table 8 – Access to Site Monitoring Areas.....32

Table 9 – Access to Stream Gaging Sampling Locations32

Table 10 – AIRNET Sampling32

Table 11 – DPRNET Sampling.....32

1.0 PROJECT GOALS AND OBJECTIVES

1.1 Purpose

This exhibit establishes the general Scope of Work and Technical Specifications (SOW) required to perform Environmental Sampling and Support Services for the DOE National Nuclear Security Administration (NNSA), Los Alamos National Laboratory (LANL or the Laboratory) that is operated by Los Alamos National Security, LLC (LANS). The environmental sampling and support services will be performed for the Environmental Programs (EP) Directorate, LANL Water Stewardship Program (LWSP) and other organizations in the EP Directorate, including Waste and Environmental Services (WES).

The following general types of sampling activities will be performed under this Master Task Order Agreement (MTOA): groundwater sampling, environmental surveillance water and sediment sampling, water supply wells sampling, storm water-related sampling, and optionally, other environmental media sampling, as well as related support and reporting tasks identified herein. The CONTRACTOR will issue individual Task Orders to the SUBCONTRACTOR to carry out this work scope.

It is anticipated that combining the work scope for the two major long-term environmental sampling programs at the Laboratory, groundwater monitoring and storm water sampling, will allow the selected SUBCONTRACTOR to obtain greater efficiencies and cost savings. Some of the work scope described herein is seasonal and it is assumed SUBCONTRACTOR will be able to utilize those workers for other activities that continue year-round. Offerors are encouraged to look closely at the work scope contained herein and identify areas where efficiencies can be gained in carrying out the various types of sampling and support services.

1.2 SUBCONTRACTOR Requirements

SUBCONTRACTOR shall be responsible for performing all associated work activities in this SOW in a manner that will avoid the risk of bodily harm to employees, other project personnel, and the general public and damage to property or the environment as set forth in Exhibit F - Environmental, Safety, and Health (ES&H) Requirements. SUBCONTRACTOR shall also comply with the requirements set forth in Exhibit G – Security Requirements and Exhibit H - Quality Assurance Requirements.

All work performed under this SOW must be conducted in accordance with the [Compliance Order on Consent](#) (2005) between NMED and DOE/LANL, as well as any pertinent letters issued by NMED to DOE/LANL subsequent to the Consent Order filing. Any applicable NMED modifications to the 2005 Consent Order will be identified in individual Task Orders. SUBCONTRACTOR is directed to Section IV, IX.B, and X of the Consent Order for environmental sampling and reporting requirements related to this Exhibit D. Additionally, work must be performed in accordance with all applicable EPA permits and DOE orders as described herein.

1.3 LANL Physiographic Setting

LANL is located on the central Pajarito Plateau along the eastern flank of the Jemez Mountains at approximately 7,500 feet above mean sea level. The Plateau displays complex

topography consisting of a series of west-to-east trending finger-like mesas separated by deep canyons; topographic relief from mesa-top to canyon-bottom can be as much as 600 feet (ft). LANL sampling and monitoring sites are located on the mesa tops, on hillsides and in canyon bottoms and site access can be rugged and difficult at times.

LANL comprises an area of approximately 40 square miles on the Pajarito Plateau and surrounds the town of Los Alamos. It is bordered by Los Alamos County, San Ildefonso Pueblo, Santa Fe National Forest, the US Bureau of Land Management, Bandelier National Monument and the town of White Rock (Figure 1).

Groundwater wells to be sampled as part of this MTOA are completed in three primary water-bearing zones: (1) shallow groundwater (<100 ft deep) in canyon-floor alluvium (herein referred to as alluvial wells); (2) moderately deep perched groundwater (~100 – 700 ft deep) in bedrock units of the vadose zone (herein referred to as intermediate wells); and (3) deep groundwater (from 600 – 2,000 ft deep) associated with the regional aquifer (herein referred to as regional wells). Groundwater monitoring well screens range from very shallow alluvial monitoring wells (several feet deep) in canyon bottoms to regional wells as deep as 2,000 feet on mesa tops.

Surface water at LANL occurs primarily as base flow, defined as persistent but not necessarily perennial water flow that is present for periods of weeks or longer. Perennial springs on the flanks of the Jemez Mountains supply surface water flow into the upper reaches of some canyons, but for most of the year the volume is insufficient to maintain surface flows across the site because the water is depleted by evaporation, transpiration and infiltration. During spring runoff, snowmelt can sometimes cause surface water to flow from the Jemez Mountains across LANL and discharge in the Rio Grande.

Storm water runoff sampling points are found in a variety of topographic settings, including mesa tops, hillsides, and watershed discharge points in canyon bottoms. Some stream gage monitoring sites are located in remote areas that require longer access times.

1.4 Climate

The Pajarito Plateau has a temperate, semiarid mountain climate. Daytime summer temperatures average between 70 to 85°F, and average daytime winter temperatures range between 30 and 50°F. Between 1971 and 2000, the average annual precipitation was approximately 19 inches (in.) and average annual snowfall was approximately 60 in. Intense afternoon summer thunderstorms occur in July and August and account for approximately 36% of the annual precipitation. The thunderstorms are accompanied by lightning and short, heavy downpours; however, the amount of precipitation from an individual thunderstorm can vary greatly across the site. Thunderstorms and associated lightning can occur between June and September and lightning safety precautions must be taken into account during sampling activities; see Exhibit F - ES&H Requirements for details.

2.0 SCOPE OF WORK

2.1 General Scope of Work

SUBCONTRACTOR will be tasked to carry out environmental sampling, monitoring and support activities required by the NMED Consent Order as well as DOE and EPA directives or permits for the following tasks:

- Implementing the Interim Facility-Wide Groundwater Monitoring Plan and the Groundwater Level Monitoring Plan (Section 5.1)
- Environmental surveillance water and sediment sampling (Section 5.2)
- Sampling municipal water supply wells (Section 5.3)
- Implementing the EPA Individual Permit for Storm Water Monitoring (Section 5.4)
- Collecting air samples and monitoring radiation (optional task) (Section 5.5)
- Sampling other environmental media (optional tasks) (Section 5.6)

In addition, the SUBCONTRACTOR will be tasked to conduct Pre-Mobilization and Support tasks identified in Sections 3 and 4, respectively.

SUBCONTRACTOR shall not be relieved of performing the details of any work manifestly or customarily performed to carry out the intent of this Exhibit D. All work shall be performed as if fully and correctly set forth and described in this Exhibit D.

2.2 Issuance of Task Orders

CONTRACTOR will issue individual Task Orders to the SUBCONTRACTOR for performance of work set forth in this SOW. Task Orders will consist of one or several of the subtasks described in the remainder of this Exhibit D and will describe the requirements and details of the work scope.

CONTRACTOR may require additional sampling in the out years of this MTOA, e.g., biota, soil and foodstuffs monitoring or other environmental sampling activities, as required by technical or regulatory reasons. The right to exercise the optional sampling scope is at the sole discretion of the CONTRACTOR. Should the option to sample other media be exercised, the CONTRACTOR will issue separate Task Orders to cover that scope.

3.0 PRE-MOBILIZATION SUBMITTALS AND ACTIVITIES

3.1 Pre-Mobilization Planning Documents

SUBCONTRACTOR shall submit a final, CONTRACTOR-approved copy of each submittal identified below within 30 days of MTOA award, unless otherwise indicated. Each of the submittals must include approval signatures, an issue date, and all other applicable title block/page information Upon receipt of the submittal documents (plan, procedure, etc.), the CONTRACTOR will review and provide any comments to the SUBCONTRACTOR for their

consideration and/or incorporation into the document. This process may be repeated until CONTRACTOR concurs with the content, format, etc.

3.1.1 Corporate Environmental Health and Safety Plan

SUBCONTRACTOR shall provide a Corporate Environmental Health and Safety Plan that meets the requirements identified in Exhibit F within 30 days of the MTOA award.

3.1.2 Corporate Quality Assurance Plan

SUBCONTRACTOR shall provide a Corporate Quality Assurance Plan that meets the requirements identified in Exhibit G within 30 days of MTOA award.

3.1.3 Operating Procedures

SUBCONTRACTOR shall develop Operating Procedures that address all work activities including, but not limited to, the following:

- Field sampling for each medium and method
- Monitoring activities
- Support services
- Equipment maintenance and calibration
- Pump maintenance
- Training
- Records management, including electronic databases
- Nonconformance and corrective action
- Audits/surveillance
- Document revisions and control

Existing CONTRACTOR procedures are available as guidance for SUBCONTRACTOR to develop their own procedures for each operation (provided on CD-ROM). However, CONTRACTOR does not warrant the adequacy of this existing information and retains no liability for any actions associated with implementation or utilization of this information. The Operating Procedures shall be submitted for review within 30 days of MTOA award. Any subsequent revisions to operating procedures shall be re-submitted for review and acceptance prior to implementing a change.

3.1.4 Personnel Training Plan

SUBCONTRACTOR shall provide a training plan that documents how they will (1) identify all training requirements for their personnel, and (2) track the completion of all training requirements for each employee working on the project as described in Exhibit F – ES&H Requirements. The Training Plan shall be submitted within 30 days of issuance of the MTOA.

3.1.5 Records Management Plan

The Records Management Plan shall identify the records that will be maintained for the duration of the project and establish how those records will be organized, managed, and maintained. The plan shall identify relevant records management requirements to comply with state and/or federal regulations, DOE orders and CONTRACTOR's Quality Procedures for Records Management. The plan shall include the distribution and format of all records. The Records Management Plan shall be submitted to the CONTRACTOR's Contract Administrator (CA) for review within 30 days after issuance of the MTOA.

As part of the Records Management Plan, SUBCONTRACTOR shall develop and maintain procedures to ensure that all data collected for CONTRACTOR (electronic data, field data, sample identifiers, etc.) are captured and not lost. At least quarterly, or at Task Order completion, all records shall be catalogued and transmitted to CONTRACTOR's Subcontractor Technical Representative (STR) in accordance with ER-DIR-SOP-4004, Record Transmittal and Retrieval Process.

3.1.6 Equipment Inventory List

SUBCONTRACTOR shall verify an initial inventory of all CONTRACTOR-provided equipment (Section 6.4) in cooperation with CONTRACTOR. An Equipment Inventory List documenting inventory results shall be submitted to STR prior to any equipment use or commencement of field work and in accordance with the approved SUBCONTRACTOR Transition Plan. The CONTRACTOR-provided equipment will be inspected as described in Section 3.2 and its status/location tracked in a database.

SUBCONTRACTOR shall also provide to CONTRACTOR a complete listing of all SUBCONTRACTOR-provided sampling equipment, instrument measuring devices, vehicles, heavy equipment, etc. that will be used to carry out the work scope described herein.

SUBCONTRACTOR shall develop, maintain and implement a calibration, maintenance, repair, and replacement schedule for each piece of equipment necessary to perform work. The STR will approve this schedule and the SUBCONTRACTOR will provide a monthly status to the STR documenting successful completion of required calibrations, maintenance, repairs, and replacement.

3.1.7 Transition Plan

CONTRACTOR will provide a general Transition Plan to the SUBCONTRACTOR upon issuance of the MTOA. SUBCONTRACTOR shall then develop a detailed Transition Plan that

- summarizes the overall transition approach to be taken by SUBCONTRACTOR including, but not limited to, assembling the management team and field crews that will be required to carry out the work scope presented herein, as well as providing an overall schedule for commencing the general SOW and,

- describes the sequences, schedules and processes for transitioning work from the existing subcontractor(s) currently performing groundwater-related sampling, surveillance water and sediment sampling, drinking water sampling and storm water-related sampling activities to the SUBCONTRACTOR.

SUBCONTRACTOR shall develop the Transition Plan within the following constraints:

- CONTRACTOR-supplied equipment shall be transitioned from the CONTRACTOR and/or existing subcontractor(s) currently performing work without interruption to ongoing activities.
- All regulatory schedules and deadlines will be met during the transition period.

The Transition Plan shall be submitted to the STR for review within 30 days after the issuance of the MTOA. CONTRACTOR shall review and approve the Transition Plan prior to its implementation.

3.1.8 Technical Approach Document

The Technical Approach Document shall provide a comprehensive and detailed description for executing each element of the SOW identified in the MTOA. The technical approach shall include organization charts listing key personnel, support personnel, and proposed subcontractors/vendors. In addition, the technical approach shall define SUBCONTRACTOR interfaces and describe the flow of work for the major types of sampling activities. The technical approach document shall be submitted to the STR for review within 30 days of issuance of the MTOA.

3.2 Pre-Mobilization Activities

Pre-mobilization activities described in this section shall commence after individual Task Order(s) are issued.

3.2.1 Inspection and Transfer of all CONTRACTOR-Provided Equipment

SUBCONTRACTOR and CONTRACTOR shall meet to inspect and transfer all CONTRACTOR-provided equipment that will be transferred to the SUBCONTRACTOR for the execution of the work scope described herein in accordance with Exhibit B – Special Conditions, Clause SC-13. Any discrepancies between the inspection/transfer process and the CONTRACTOR-provided equipment described in Section 6.4 will be identified and corrected and a final inventory list will be prepared and maintained with the SUBCONTRACTOR's Records.

3.2.2 Inspection of SUBCONTRACTOR-Provided Equipment

SUBCONTRACTOR and CONTRACTOR shall meet to inspect all SUBCONTRACTOR-provided equipment that will be used for the execution of the work scope described herein in accordance with Exhibit F-ES&H Requirements.

3.2.3 Documentation of SUBCONTRACTOR Training per the CONTRACTOR-Approved Personnel Training Plan

SUBCONTRACTOR shall submit a copy of the final Personnel Training Plan documentation to the STR prior to commencing any field sampling activities. SUBCONTRACTOR shall provide monthly updates of the Personnel Training Plan to the STR. Training records will be maintained and tracked in a training database, which will be current and auditable at all times.

3.2.4 SUBCONTRACTOR Mobilization to the LANL Laydown Yard (Optional Scope)

Following CONTRACTOR review and approval of the Pre-mobilization planning documents and the inspection of CONTRACTOR- and SUBCONTRACTOR-provided equipment inventories, SUBCONTRACTOR may choose to mobilize sampling equipment, monitoring devices, heavy equipment, and vehicles, as required, to the LANL laydown. Alternatively, SUBCONTRACTOR may choose to store the equipment and vehicles at a separate SUBCONTRACTOR-provided location.

3.2.5 Readiness Activities

The following Readiness Activities will be successfully completed prior to mobilization to the field for the sampling and monitoring activities for individual Task Orders. Copies of the forms, documents, permits and packages described below are on the CD-ROM made a part of this Exhibit D.

CONTRACTOR will provide a Task Order that describes the sampling and monitoring activities to be implemented and a schedule for completion of the work by the SUBCONTRACTOR. SUBCONTRACTOR shall comply with all permit requirements as identified in Exhibit F - ES&H Requirements of this MTOA, including the Permit Review and Request-Identification (PR-ID) System.

SUBCONTRACTOR shall prepare an Integrated Work Document (IWD) per LANS requirements, for all field activities associated with the individual Task Order in a manner consistent with LANS ISD 101-12, Integrated Work Management for Work Activities. The IWD details the scope of the work, the hazards involved and the protections that workers must take to work safely.

SUBCONTRACTOR shall prepare a task-specific ES&H Plan as specified in Exhibit F for all field activities associated with individual Task Orders. SUBCONTRACTOR shall prepare an Integrated Work Package (IWP) for each Task Order per the SUBCONTRACTOR-prepared Operating Procedure equivalent to EP-ERSS-SOP-5018, Integrated Fieldwork Planning and Authorization.

Following approval of the IWD and IWP, SUBCONTRACTOR shall provide 2-day notice to the LANS Field Operations Director (FOD) to schedule a tabletop review to ensure all required documentation is complete. When approved, the CONTRACTOR will grant a written Notice to Proceed to the field.

Following approval of the IWD and IWP, SUBCONTRACTOR shall provide 2-day notice to the FOD to schedule a Management Observation and Verification (MOV)

site walkaround or a Management Self Assessment (MSA) site walkaround, as directed by the STR. When the MOV/MSA is deemed acceptable, the CONTRACTOR's Site Operations Manager shall release the work via the STR, who will notify the SUBCONTRACTOR to initiate field work.

SUBCONTRACTOR shall ensure that all work personnel have appropriate documentation and copies of all required documentation available in the field per Exhibit F - ES&H Requirements. Such documentation shall include, but is not limited to, the following:

- SUBCONTRACTOR-prepared ES&H Plan and IWD per Exhibit F - ES&H Requirements
- Operational Security Plan as specified in Exhibit G - Security Requirements
- Task Order specific Quality Assurance Plan per Exhibit H - Quality Assurance Requirements
- Applicable permits and approvals identified in the LANS PR-ID system
- All SUBCONTRACTOR-generated Operating Procedures that cover the field activities being conducted
- SUBCONTRACTOR-provided instrument calibration records (e.g., pH, temperature, specific conductivity, turbidity, dissolved oxygen, carbon dioxide, noise levels, and others, as appropriate)
- SUBCONTRACTOR- and CONTRACTOR-provided Training Plan, training records and training matrix. If required training was not available prior to conducting field activities, SUBCONTRACTOR will obtain a Worker Authorization Form that documents this and allows field work to proceed.
- A chart showing the Integrated Project Team and the SUBCONTRACTOR and CONTRACTOR chains-of-command and interfaces for field activities

SUBCONTRACTOR shall mobilize or otherwise deliver to the field locations all required equipment, tools, materials, supplies, sampling containers and sufficient and qualified work force required to perform the work activities described in individual Task Orders.

4.0 SUPPORT TASKS

4.1 Transportation

SUBCONTRACTOR shall provide transportation of sufficient type and quantity to accommodate all sampling, monitoring and support service activities described in this SOW. All SUBCONTRACTOR personnel shall have valid, active driver's licenses in accordance with Exhibit F - ES&H Requirements.

The transportation of samples shall comply with the U.S. Department of Transportation (US DOT) requirements of 49 Code of Federal Regulations (CFR) and New Mexico Department of Transportation (NM DOT) requirements in performance of this SOW.

SUBCONTRACTOR shall maintain vehicles capable of reaching all sampling locations in all types of weather and make all necessary vehicle access arrangements for onsite work. SUBCONTRACTOR will maintain vehicles to ensure all work activities are completed according to schedule.

Year-round sampling activities will sometimes require off-road site access in snowy conditions. SUBCONTRACTOR is required to use prudent judgment as to whether road conditions are too treacherous to conduct work activities. If road conditions are deemed impassable or too risky to negotiate, SUBCONTRACTOR personnel are expected to make other arrangements to access the sites.

4.2 Sample Handling and Shipping

SUBCONTRACTOR shall coordinate and request all sampling paperwork (such as sample numbers, sampling protocols, labels, and tracking information) through the CONTRACTOR's SMO (online tutorial will be provided). SUBCONTRACTOR shall verify that tracking numbers and protocols are correct per the documents that direct specific sampling efforts and request any needed modifications through the SMO.

SUBCONTRACTOR shall provide all labels, bottles, sampling containers and coolers and all other materials and equipment required for the performance of sampling activities identified in this SOW.

SUBCONTRACTOR shall provide shipping for all samples described in this SOW to analytical laboratories that are selected by the SMO. CONTRACTOR will maintain analytical laboratory subcontracts and coordinate sample receipt and tracking with individual laboratories. CONTRACTOR will receive electronic deliverables from individual laboratories and submit the data to LANS customer databases, as required, and submit electronic data to the Long Term Stewardship archive facility in Denver CO.

4.3 Management of Investigation-Derived Waste

SUBCONTRACTOR shall complete, as appropriate, the Waste Characterization Strategy Form (WCSF) providing appropriate details for waste generated by SUBCONTRACTOR for the various sampling and monitoring activities. CONTRACTOR will review and provide concurrence with the WCSF.

SUBCONTRACTOR shall sample wastes in accordance with EPA's RCRA Waste Sampling Technical guidance (EPA530-D-02-002). Qualified and experienced sampling personnel must collect the required samples. Qualifications and training for sampling personnel must be identified in the SUBCONTRACTOR's Personnel Training Plan.

SUBCONTRACTOR will prepare and facilitate required approvals of the waste management documentation, including waste characterization strategy forms (WCSFs), waste profile forms (WPFs), chemical waste disposal requests (CWDRs), and transportation and shipping manifests in compliance with CONTRACTORS' waste management requirements. Investigation-Derived Waste (IDW) from sampling activities and equipment decontamination shall be temporarily stored in accordance with the WCSF.

All purge water removed from wells and contact waste shall be managed in accordance with the WCSF and approved SUBCONTRACTOR procedures. Purge water and waste will be containerized and held until analytical results from the samples indicate whether the material

contains RCRA wastes or constituents above State standards as determined in accordance with the WCSF.

SUBCONTRACTOR shall oversee management of IDW while stored on site pending removal by the CONTRACTOR or designee including labeling, manifests and standard compliance housekeeping, including expeditious disposition of all wastes.

SUBCONTRACTOR shall be subject to periodic inspections of waste storage areas for compliance with all applicable RCRA storage, labeling, and handling requirements (e.g., less-than-90-day storage areas, proper labeling, etc.).

SUBCONTRACTOR shall perform segregation, weighing, and labeling of waste at the field site, to ensure that the material meets CONTRACTOR's requirements and the waste-acceptance criteria of the ultimate disposal facility.

SUBCONTRACTOR is not responsible for disposing of hazardous or radioactivity-contaminated items. CONTRACTOR will dispose of hazardous and radioactivity-contaminated items in accordance with the WCSF and Radiological Work Permit (RWP) and Radiological Control Technician (RCT) guidance.

SUBCONTRACTOR shall contact the CONTRACTOR to arrange for disposal of IDW generated by SUBCONTRACTOR. SUBCONTRACTOR shall not remove any contaminated or uncontaminated IDW unless CONTRACTOR provides written authorization. IDW will be disposed of in accordance with the WCSF.

SUBCONTRACTOR shall make the preliminary waste determination and coordinate the final determination of the waste types (Low-Level Waste, Low-Level Mixed Waste, or Resource Conservation and Recovery Act waste) within 70 days of waste generation with the appropriate LANS waste management groups. In compliance with LANS' waste management requirements, LANS shall make the final determination on the characterization of each waste stream.

SUBCONTRACTOR shall procure waste transportation and disposal at appropriate (DOE-approved) disposal facilities; perform the labeling, loading, and shipping of waste for transport to the disposal facilities.

SUBCONTRACTOR shall complete and maintain required auditable waste management records including copies of WCSFs, due diligence, acceptable knowledge, or other information used to make waste determinations, and shipping manifests and provide copies to the CONTRACTOR within 4 months of conclusion of each sampling event.

4.4 Documentation and Records Management

SUBCONTRACTOR shall maintain all written and electronic data and documentation as specified in the CONTRACTOR-approved Records Management Plan. SUBCONTRACTOR shall maintain, organize and manage such records for the duration of the MTOA. SUBCONTRACTOR shall follow all reviewed SUBCONTRACTOR operating procedures regarding records management and ensure that all data collected for CONTRACTOR (electronic data, logbooks, sample identifiers, etc.) are not lost and that backup copies are maintained.

5.0 SAMPLING AND MONITORING ACTIVITIES

This section describes the tasks required for the six primary types of sampling described in this SOW:

- Implementing the Interim Facility-Wide Groundwater Monitoring Plan and the Groundwater Level Monitoring Plan
- Environmental surveillance water and sediment sampling
- Sampling municipal water supply wells
- Implementing the EPA Individual Permit for Storm Water Monitoring
- Collecting air samples and monitoring radiation (optional scope)
- Other environmental media (optional scope)

Note that Form A-1, Exhibit C, contains a costing table that is organized by the section headings listed below.

5.1 Implementing the Interim Facility-Wide Groundwater Monitoring Plan and the Groundwater Level Monitoring Plan

Groundwater-related sampling and monitoring activities described in this section are required by the March 2005 Consent Order signed between NMED and DOE and are described in detail in the most current version of annual Interim Facility-Wide Groundwater Monitoring Plan (GMP) (typically issued in May of each year) and the Groundwater Level Monitoring Plan (GWLMP) (typically issued in January of each year). Watershed sampling and monitoring activities are conducted year round at LANL; some locations are monitored quarterly, some semi-annually and some annually.

5.1.1 Interim Facility-Wide Groundwater Monitoring Plan

The initial Interim Facility-Wide Groundwater Monitoring Plan (GMP) was written in 2005 to comply with the NMED Consent Order (Section IV.A.3.b) directive to establish a comprehensive groundwater monitoring plan for LANL. The purpose of monitoring conducted under the GMP is to evaluate the fate and transport of known legacy-waste contaminants, evaluate remedy effectiveness, and validate proposed corrective measures.

The GMP was last updated in May 2008, and will be updated annually to further refine groundwater monitoring at LANL and at nearby locations as additional data are gathered and evaluated. SUBCONTRACTOR shall review the May 2008 GMP provided on the attached CD-ROM and be capable of complying with all requirements and schedules presented therein. The GMP and all figures, tables and appendices are incorporated as if wholly included with this SOW.

Monitoring conducted under the GMP takes place in the following seven major watersheds, watershed groups or canyons:

- Los Alamos/Pueblo Canyons
- Sandia Canyon
- Mortandad Canyon

- Pajarito Canyon
- Water Canyon/Cañon de Valle
- Ancho/Chaquehui/Frijoles Canyons
- White Rock Canyon

Offsite groundwater monitoring is also conducted in LANL-impacted areas (e.g., Guaje Canyon and Rendija Canyon), or areas that have not been affected by LANL operations to provide baseline data. Additionally, areas east and southeast of LANL are monitored to track water quality down gradient of the Laboratory (e.g., the Rio Grande and springs in White Rock Canyon). Figure 2 shows the watersheds to be sampled under the May 2008 GMP, along with LANL access-controlled areas.

Note that access times for sampling locations in the various watersheds or portions of watersheds can vary widely depending on distance from the SUBCONTRACTOR field office, condition of access roads, whether or not the site can be driven to or if hiking is required, access control issues, obtaining keys to unlock gates, whether RCT screening is required to enter or leave the site, etc.

Figures 3 through 9 of this SOW show each watershed and its associated access points, and are designed to be printed at 11 by 17 in. size; separate maps are included on the CD-ROM as part of this SOW (with the same figure numbers) that have been prepared to be printed as “D” sized drawings for easier evaluation of sampling locations and access. Note that it may take some time to access a canyon or portion of a watershed, but once there, a group of wells can then be sampled together. Table 1 provides a summary of site access to each group of wells in the various watersheds and can be used in conjunction with the D-sized drawings.

Groundwater samples are collected from alluvial, intermediate and regional aquifer wells in the watersheds utilizing a variety of pumping systems. Table 2 of this SOW identifies the approximate water volume contained in the standing water column and the type of sampling device at each well to be sampled under the May 2008 GMP. SUBCONTRACTOR shall assume that the current LANL SOP covering groundwater sampling, which will be incorporated into SUBCONTRACTOR’s Operating Procedures, shall apply. It currently states that sampling can occur after one purge volume has been removed and groundwater quality parameters have stabilized for three consecutive measurements taken 5 minutes apart.

Base flow and spring sampling are also required by watershed under the GMP. Base flow is defined as persistent stream flow that is present for periods of weeks or longer. There are approximately 47 base flow sampling locations, including both on-site and downstream locations, and approximately 21 spring locations. Tables 2.3-1, 3.3-1, 4.3-1, 5.3-1, 6.3-1, 7.3-1 and 8.3-1 of the May 2008 GMP list the base flow, spring and groundwater well sampling locations for each watershed.

Groundwater level measurements are required to be taken as part of the GMP scope. The GMP specifies the schedule for water level measurements for each well in the LANL watershed sampling network; for wells with dedicated pressure transducers, it also specifies the frequency that water level data are recorded. Details of groundwater level measurements are presented in the following section.

Groundwater, base flow and spring sampling, as well as groundwater level measurements, must be accomplished within a not-to-exceed 21-calendar-day

window per watershed as described in the GMP and the Consent Order; the LANS target for completing watershed sampling is 18 days. Table 3 presents the approximate schedule for sampling of LANL watersheds, as well as other environmental sampling described in this SOW, for 2008 and 2009.

In addition to the watershed monitoring activities, a 4-day, 3-night field sampling event is conducted each fall in White Rock Canyon to collect samples from springs, surface water and sediment sampling locations in the Rio Grande corridor. In 2008, approximately 26 springs, seven surface water locations, and five sediment locations were sampled. A brief sampling plan entitled “White Rock Canyon 2008 Sampling Event” is included on the CD-ROM. SUBCONTRACTOR shall prepare the SMO-required documentation, contract with a private rafting company to provide transport down the river, implement the scheduled sample collection, and ship samples to a CONTRACTOR-selected analytical laboratory.

5.1.2 Groundwater Level Monitoring Plan

A separate document, the Groundwater Level Monitoring Plan (GWLMP) (January 2008), details the annual requirements for measuring groundwater levels identified in the GMP; the Quality Assurance Project Plan (QAPP) for the Groundwater Level Monitoring Project (EP-ERSS-WSP-1003) describes the processes that have been put in place to ensure the quality of groundwater level monitoring data for various LANL customers. The 2008 GWLMP and QAPP are included on the CD-ROM as part of this SOW.

The GWLMP is revised and re-issued in January of each year; SUBCONTRACTOR shall comply with the requirements of the most current version of the GWLMP at the time the MTOA RFP is released. The most recent versions of GWLMP and associated QAPP along with all figures, tables and appendices are incorporated as if wholly included with this SOW.

Most LANL groundwater monitoring wells are equipped with dedicated pressure transducers that typically record water levels hourly; however, water level data for a small subset of wells must be collected manually at variable frequencies, typically on a quarterly basis. Transducer data are downloaded on a quarterly basis from wells in each watershed on a schedule aligned with the watershed sampling schedule. In general, water level measurements from a given watershed are completed within a 7 - 10 days after a watershed has been sampled.

An overview of groundwater level measurement requirements for LANL watersheds is presented in Table ES-1 of the GWLMP. It provides a summary of the number of wells to be measured, the frequency required for water level measurements and whether transducer or manual measurements are obtained.

5.1.3 Typical Watershed Sampling Strategy

Sampling activities for each watershed typically includes:

- Sample Preparation
 - Review the sampling plan and prepare a detailed sampling schedule for the watershed. Meet with LANL project leader and

staff to review the proposed schedule, prioritize suites, and optimize quality assurance/quality control sampling for each watershed.

- Prepare the sampling paperwork and coordinate with the SMO regarding labels and analytical laboratories.
 - Hold a 2 – 3 hr field kickoff meeting several days before sampling is to begin with sampling crew, the LANL project leader and technical staff to review Readiness Activity paperwork, lessons learned, field logistics, the ES&H plan etc.
 - Enter the sampling activities into the Plan of the Day with the CONTRACTOR's Field Operations Director and Shift Operations Manager (SOM).
- Implement Watershed Sampling
 - Provide status of sampling activities at 14 days
 - All sampling activities must be performed within an 18-day window (not to exceed 21-days) for each watershed
 - SUBCONTRACTOR shall collect the samples and ship samples to a CONTRACTOR-selected analytical laboratory
 - SUBCONTRACTOR shall coordinate closely with the SOM to ensure that all sampling activities are authorized, and the daily work activities are included on the Plan of the Day.
 - Provide Deliverables
 - As identified in Section 5.1.4

5.1.4 Other Activities

The following activities are also required as part of implementing the GMP/GWLMP:

- Conduct Performance Checks and Maintain Calibrated Equipment

SUBCONTRACTOR shall obtain, operate, conduct performance checks and maintain all field equipment required to conduct groundwater-related sampling activities as specified in the SUBCONTRACTOR Operating Procedures and according to manufacturer's specifications. Such equipment could include, but is not limited to: analytical equipment, survey equipment, bar code scanners, Hach meters, and equipment to measure pH, temperature, specific conductivity, turbidity, dissolved oxygen, carbon dioxide, noise levels, wind speed, etc.

SUBCONTRACTOR shall implement and maintain a pressure transducer program for all groundwater monitoring wells that utilize dedicated transducers. Existing transducers installed in wells will be the SUBCONTRACTOR's responsibility to maintain and the SUBCONTRACTOR shall obtain all new transducers as required. The program will include performing transducer calibration and maintenance, and replacing and/or installing transducers as needed. SUBCONTRACTOR shall maintain a database which is current at all times

of existing wells and transducers as specified in the SUBCONTRACTOR-prepared Operating Procedure for transducer calibration and maintenance. SUBCONTRACTOR shall perform quarterly reviews of transducer maintenance or replacement needs and submit to the STR

- Maintain and Manage Records and Databases

SUBCONTRACTOR will maintain field data in accordance with the reviewed SUBCONTRACTOR Records Management Plan SUBCONTRACTOR Operating Procedures and per the quality requirements identified in Section 6.2 of this SOW and Exhibit G - Quality Assurance Requirements. In addition, SUBCONTRACTOR will maintain databases to track the status of sampling at the watersheds and other sampling activities, as required.

- Deliverables

Examples of the following reports, or portions of reports, are provided on the accompanying CD-ROM that is part of this SOW:

Field Summary Report for each watershed sampling event:
(includes an Executive Summary, a Samples Taken Table, a summary of Mechanical and Operational Issues, Geochemical and Hydrogeologic Observations, Tabulated Field Parameters for each Well, and Miscellaneous Notes regarding any deviations from the planned sampling approach)

Monthly Progress Reports

Periodic Monitoring Reports (quarterly)

Annual updates to Interim Facility-Wide GMP (portions thereof)

Annual updates to Groundwater Level Monitoring Plan (portions thereof)

Annual Groundwater Level Status Report

Monthly Waste Inventory Report

5.2 Environmental Surveillance Water and Sediment Sampling

The SUBCONTRACTOR shall perform environmental surveillance water and sediment sampling at LANL and off-site locations as required by DOE Order 450.1 and as described below. This work scope is conducted as part of annual environmental monitoring required at DOE sites and is in addition to the work scope identified in Section 5.1 of this SOW. The general scope of work involves annual sampling of water supply wells and sediment locations. The specific scope varies annually based on technical and regulatory requirements. Sampling activities are primarily carried out during the summer months.

SUBCONTRACTOR will provide field planning and prepare a brief Sampling Plan annually for the water and sediment sampling tasks. SUBCONTRACTOR shall then prepare the SMO-required paperwork, implement the scheduled water and sediment sampling, and ship samples to a CONTRACTOR-selected analytical laboratory.

5.2.1 Domestic Water Supply Wells

Seven domestic water supply wells on San Ildefonso Pueblo are sampled semi-annually as part of the environmental surveillance sampling (Table 4 and Figure 10). Additionally, eight springs and four regional aquifer wells are also sampled on San Ildefonso Pueblo, but they are sampled in conjunction with the watershed sampling described in Section 5.1 of this SOW.

5.2.2 Sampling Sediment

In 2008, sediment samples were collected from active stream channels, the Rio Grande and two reservoirs at approximately 42 LANL locations (including 11 locations at MDA G) and at 8 offsite locations (Table 5 and Figures 11 and 12). SUBCONTRACTOR shall collect sediment samples in accordance with their approved SOPs. The spade and scoop method was used to collect sediment samples from riverbanks or inactive reaches. A CONTRACTOR-provided Ponar© (clamshell) sampling device was used to collect samples from two nearby reservoirs via a boat.

5.2.3 Deliverables

- Work Plan
- Daily Activity Report
- Summary Report for Water and Sediment Environmental Surveillance Sampling Activities
- Environmental Surveillance Monitoring Report (portions thereof to be identified in individual Task Orders)

5.3 Sampling Municipal Water Supply Wells

Approximately 18 municipal drinking water wells are sampled each year to evaluate possible impacts from LANL's past operations on nearby public water supply wells. Drinking water wells from the City of Santa Fe and the County of Santa Fe have been sampled in past years. Table 6 shows a summary of the number of wells and sampling frequencies for the City and County of Santa Fe. Figure 10 shows the Buckman well field sampling locations for the City of Santa Fe.

5.4 Implementing the EPA Individual Permit for Storm Water-Related Sampling

5.4.1 Storm Water-Related Sampling at LANL to Date

Storm water-related sampling at LANL to date has included all activities related to monitoring Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) at LANL as required by the EPA Clean Water Act's National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit under a Federal Facility Compliance Agreement (FFCA) between DOE and EPA. As part of FFCA requirements, an annual Storm Water Pollution Prevention Plan (SWPPP) has guided the monitoring work.

5.4.2 Draft NPDES Individual Permit Application

In the future, it is anticipated that the FFCA will be superceded by an NPDES Individual Permit (IP) as required by EPA. LANS submitted the draft NPDES IP to

EPA Region 6 for approval in December 2007. The IP will direct all storm water-related sampling activities at LANL for 5 years after it is issued. It is anticipated that the IP will be finalized in 2009.

The draft IP (included on the attached CD-ROM) is being provided as general information on the major storm water-related sampling activities required under the IP. The draft IP is incorporated as if wholly included with this SOW; when the final IP is issued, it will be included with the Task Order that covers storm water-related sampling and all work will be performed according to its directives.

Should the FFCA is still be in effect when the first storm water Task Order is issued, its requirements will be incorporated into the individual Task Order for storm water-related sampling until the IP is finalized. The scope required for the FFCA and the IP are very similar in nature, e.g., both require monitoring BMPs, installing new BMPs as necessary, sampling storm water sites and stream gages; the primary differences are in the numbers of sampling sites and stream gage stations required to be monitored under the two programs, as well as reporting requirements. Monthly Screening Action Level exceedance reports must be submitted to the EPA under the FFCA, whereas under the IP they are not required and Semi-Annual reports will be prepared.

5.4.3 SOW for Storm Water-Related Sampling Activities

Storm water sampling activities occur between May and October, but mobilization begins in March and site shutdowns for winter continue through November. The general types of storm water-related sampling or monitoring activities include:

- Inspecting and maintaining Best Management Practices (BMPs) at LANL SWMUs and AOCs (there are approximately 411 BMP locations)
- Installing new BMPs as required
- Sampling storm water runoff and performing operations and maintenance at each Site Monitoring Area (SMA) (there are approximately 260 SMAs)
- Sampling at stream gaging stations and performing operations and maintenance (there are approximately 48 locations)
- Preparing SMO-required sample paperwork and shipping samples to CONTRACTOR's SMO-selected analytical laboratory
- Managing all records and databases associated with the storm water-related sampling activities
- Producing deliverables as identified in Section 5.4.3.7.

For the storm water program, the BMPs, SMAs and gaging stations are located in seven major watersheds at LANL (Note: These storm water watershed designations differ slightly from the GMP watershed groupings.):

- Los Alamos/Pueblo
- Sandia
- Mortandad

- Pajarito
- Water/Canon de Valle
- Ancho
- Chaquehui.

SUBCONTRACTOR shall conduct the following tasks in accordance with the approved SUBCONTRACTOR SOP for storm water-related sampling and monitoring activities. The SUBCONTRACTOR SOP shall be developed in a manner consistent with LANS SOP 2.01, but LANS does not warrant the adequacy of this existing information and retains no liability for any actions associated with implementation or utilization of this information.

5.4.3.1 Inspecting and Maintaining BMPs

The draft IP regulates the storm water discharges associated with approximately 411 individual SWMUs or AOCs associated with past LANL operations, such as former waste tanks, storage tanks, septic tanks, firing sites, burn pits, sumps, buried landfills and outfall areas. Each one of these sites has BMPs in place to minimize discharge of storm water. BMPs such as straw bales or wattles, silt fencing, rock check dams, jute matting, and/or vegetative covers are designed to minimize erosion of the slopes, mitigate storm water impacts at the SWMUs/AOCs, and reduce the potential for sediment/contaminant migration.

SUBCONTRACTOR shall inspect and maintain all 411 BMPs as specified in the draft IP and as described herein. Work scope includes, but is not limited to, employee training, erosion evaluations, and conducting post-storm inspections after each rainfall event of greater than 0.5-in. that is 15 days or more from the previous post-storm inspection. If maintenance is required, it must be completed within 14 days of the inspection. Table 7 shows a list of the BMPs that are monitored per the draft IP.

5.4.3.2 New BMPs

SUBCONTRACTOR shall complete any new BMPs required under the IP within 365 days of the effective date of the permit. New BMPs must follow the most current version of CONTRACTOR'S BMP Guidance Document that will be provided in the individual Task Order. The specific work scope for any new BMPs required under the final IP will be included in the individual Task Order issued for storm water-related monitoring activities.

5.4.3.3 Sampling of Storm Water Runoff at SMAs

In order to monitor the effectiveness of BMPs at the SWMUs/AOCs, storm water is collected at SMAs that are located at or near the discharge points of watersheds or sub-watersheds containing one or more SWMUs/AOCs. Storm water runoff is collected at approximately 260 SMA locations approximately 8 times per year. Figure 13 shows the SMA locations and Table 8 contains a listing of SMAs and their respective watersheds, and associated access. SMAs are activated in March and sampling typically extends from April through October.

5.4.3.4 Evaluating BMP Effectiveness

In order to determine the effectiveness of the BMPs, data from two or more sampling rounds within a 12-month period at each SMA are averaged and compared to analyte-specific Water Quality Criteria (WQC) contained in the IP. If the average concentration for any analyte exceeds the applicable WQC, then all BMPs monitored by the SMA must be visually inspected, re-evaluated and enhanced as necessary within 90 days of knowledge of the exceedance.

The same process is repeated the following year, and if the average concentration for the specific analyte still exceeds the applicable WQC, SUBCONTRACTOR shall initiate further enhanced BMPs within 90 days. The same process is repeated the third year and if an exceedance still exists, SUBCONTRACTOR shall either initiate remediation or cap the SWMU/AOC that is deemed to be the source of the exceedance within 360 days from the knowledge of analytical results.

Because of the uncertainties associated with this process, any exceedances of WQC will be handled on a site-by-site basis as set forth in the IP and individual Task Orders will be issued to perform the BMP evaluation process.

5.4.3.5 Stream Gage Monitoring

Although not required by the IP regulations, the CONTRACTOR is proposing to continue stream gage monitoring at approximately 48 locations as shown on Figure 14 and listed in Table 9. The stream gages samplers consist of an auto sampler, flow detection device, flow measurement device and telemetry.

SUBCONTRACTOR will collect, process and ship samples for all surface water and stream gage sampling stations. SUBCONTRACTOR will provide dedicated sampling personnel between March 1 and November 30 of each year to collect surface water samples at locations specified in Table 9.

SUBCONTRACTOR will maintain and repair samplers in the watershed monitoring gage station network as necessary. This task includes repairing damaged stations, removing or upgrading existing gage stations, and assisting with gage station telemetry as required. SUBCONTRACTOR shall maintain personnel trained and experienced in such types of work, including but not limited to, electricians and personnel trained in troubleshooting and maintaining telemetry stations.

As part of the stream gaging sampling activities, SUBCONTRACTOR will evaluate stream flow measurements by developing rating curves, calculating stage heights, determining channel geometries, calculating slope areas, providing telemetry support, maintaining flow meters, and conducting in-field water measurements. SUBCONTRACTOR shall maintain personnel trained in such types of work, including but not limited

to, hydrologists, surface water hydrologists and persons trained in watershed evaluation and analysis.

5.4.3.6 Records and Database Management

SUBCONTRACTOR will maintain field data in accordance with the approved SUBCONTRACTOR operating procedures and per the quality requirements identified in Section 6.2.

5.4.3.7 SW Deliverables

Daily Reports

Weekly Compliance Reports – database summaries plus photographs

Monthly Project Status Reports

Site Discharge Pollution Prevention Plan (within 180 days of final IP issuance - optional)

BMP Inspection Reports

Semi-Annual Status Report (includes BMP Inspections Reports)

5.5 Collecting Air Samples and Monitoring Radiation (Optional Scope)

The CONTRACTOR reserves the option to include the work defined below as part of this SOW at its sole discretion. The following sections outline the potential scope of work involved with air sampling. The latest versions of the air sampling Quality Assurance Project Plans (QAPPs) WES-DIR-SOP-5140 (AIRNET) and RRES-MAQ-DPRNET provide the details associated with these sampling activities and are included herein as if wholly incorporated into this SOW. They are provided on the attached CD-ROM

5.5.1 AIRNET Sampling

SUBCONTRACTOR will collect ambient air samples as specified in the [Quality Assurance Project Plan for the Radiological Air Sampling Network \(AIRNET\)](#) ENV-MAQ-AIRNET.

Approximately 60 AIRNET air monitoring stations in non-secured locations are operated on and around LANL property (Figures 15, 16 and 17 and Table 10). These stations collect particulate matter and water vapor on filter paper and silica gel, respectively. SUBCONTRACTOR will collect these samples every 2 weeks and will submit samples in accordance with applicable procedures. The current process involves collecting all 60 samples during the first week and preparing the samples for laboratory analysis during the second week.

SUBCONTRACTOR shall prepare filters and silica gel samples for shipping in accordance with SUBCONTRACTOR-prepared procedures. SUBCONTRACTOR will weigh silica gel samples with an electronic scale with 0.5-gram accuracy before and after deployment and these masses will be recorded and provided to LANS. Timely biweekly shipping of samples to the analytical laboratory specified by the

CONTRACTOR is required. After samples have been shipped to the analytical laboratory, SUBCONTRACTOR will forward copies of chain-of-custody documentation to the CONTRACTOR.

SUBCONTRACTOR will maintain six high volume samplers. These samplers will be deployed around the Laboratory in be in good working condition. SUBCONTRACTOR will operate these stations at LANS's direction, possibly on short notice. Sample change-out may be required at times other than during regular working hours, including weekends. SUBCONTRACTOR will have supplies for high volume samplers on hand for at least five filter changes. SUBCONTRACTOR will have qualified employees trained to handle field collection during unplanned releases as described in WES-DIR-SOP-5173.

SUBCONTRACTOR will maintain the handheld computers and their chargers, and return them to LANS in good, working condition at the completion of work under the MTOA. CONTRACTOR will loan the handheld computers to the SUBCONTRACTOR. SUBCONTRACTOR will ensure personnel are trained in the use of the handheld computers, specifically in the transfer of data.

SUBCONTRACTOR will not have write-access to the AIRNET database. SUBCONTRACTOR will provide a CD with field data in a format specified by the LANS AIRNET staff, within one business day of completion of the biweekly sample collection.

SUBCONTRACTOR will also furnish the CONTRACTOR with hard copies of field data downloaded from the handheld field computers. SUBCONTRACTOR will maintain a field logbook and supply photocopies of handwritten field notes taken during sample collection, as well as other handwritten notes relevant to the maintenance of the AIRNET stations.

5.5.1.1 AIRNET Equipment Maintenance

In addition to regular sample collection, the SUBCONTRACTOR will also maintain the equipment used by the AIRNET system and return it to the CONTRACTOR at the end of the Task Order period in a fully functional and essentially equivalent condition as at the start of the Task Order. SUBCONTRACTOR will maintain all air monitoring equipment as specified in the AIRNET QAPP and will ensure that station operability is maintained at or greater than 95%. SUBCONTRACTOR will also evaluate station siting against procedural criteria, and will document any issues identified during routine sample collection. SUBCONTRACTOR will be responsible for all activities necessary to install and/or remove stations. Installation may involve trenching to access electrical power.

Specifically the following CONTRACTOR maintenance procedures will be followed:

SUBCONTRACTOR will replace and service each pump used in the field every 6 months. To this end, a minimum of 20 spare pumps must be maintained in inventory. SUBCONTRACTOR will establish a pump maintenance database and track the rebuilding and maintenance of each AIRNET pump, including spares. SUBCONTRACTOR will also track the prices for replacement parts for the pumps and provide these data to the STR.

SUBCONTRACTOR will provide vegetation removal service to ensure AIRNET stations continuously meet siting criteria as stated in applicable procedures

SUBCONTRACTOR will maintain AIRNET stations and associated data-logger antennae, making repairs to the housing, replacing broken parts on the station or antennae, replacing wiring, or replacing antennae as needed. SUBCONTRACTOR will notify the STR when repairs or maintenance are made to AIRNET stations, their antennae or the vegetation surrounding the AIRNET station.

SUBCONTRACTOR will have the Bell Prover and Roots meter recalibrated by the manufacturer as suggested by the manufacturer, or annually if no manufacturer suggestion exists. Calibration of flow measuring equipment must be done at high altitude.

SUBCONTRACTOR will retain the technical support for the assembly, internal wiring, and installation of new AIRNET stations. SUBCONTRACTOR will maintain a supply of spare parts for such assembly for five stations.

When new stations also require a data-logger to be installed, SUBCONTRACTOR will have personnel who can physically install the logger and its associated electronics, and perform the required programming.

5.5.2 Direct Penetration Radiation Monitoring Sampling (DPRNET)

SUBCONTRACTOR will collect direct penetrating radiation samples as specified in the [Quality Assurance Project Plan for the Direct Penetrating Radiation Monitoring Network \(DPRNET\)](#) RRES-MAQ-DPRNET.

SUBCONTRACTOR will perform quarterly sample collection from approximately 85 DPRNET stations (Figures 18 and 19 and Table 11). This number is subject to change. The CONTRACTOR dosimetry group will provide the TLDs.

Approximately 1 week prior to the start of each calendar quarter, SUBCONTRACTOR will request the CONTRACTOR personal dosimetry group to expose twenty TLDs to 300 millirem (mrem) (known as the FD group) and be separated from the other TLDs. At the end of a quarter, SUBCONTRACTOR will separate another group of twenty (20) TLDs that will be exposed afterwards to 300 mrem (known as the EA group). The EA group may not contain any FD TLDs.

SUBCONTRACTOR will place four regular unexposed TLDs, four exposed (FD) TLDs, and four to-be-exposed (EA) TLDs at five different locations to be specified by the STR. All other locations will have one TLD each.

SUBCONTRACTOR I also keep a group of at least 15 TLDs in a low radiation environment for the entire quarter. For this purpose the SUBCONTRACTOR will maintain a steel vault with 2-in. thick walls suitable for reducing background radiation exposure to the TLDs.

SUBCONTRACTOR will at the conclusion of each calendar quarter return all 200 TLDs to the radiation dosimetry group at LANS for analysis. SUBCONTRACTOR will keep 20 EA TLDs separate from the other TLDs when they are returned.

SUBCONTRACTOR will provide to LANS a CD containing all the field data that have been downloaded from the handheld computer used in the field within 5 business days of TLD change-out. SUBCONTRACTOR will also maintain a backed up database. The database will be backed up quarterly and data will be retained for 5 years from initiation of the Task Order.

SUBCONTRACTOR will maintain the handheld computers and their chargers, and return them to the CONTRACTOR in good, working condition at the termination of the Task Order. CONTRACTOR will loan these handheld computers to the SUBCONTRACTOR. SUBCONTRACTOR will ensure personnel are trained in the use of the handheld computers, specifically in the transfer of data. The SUBCONTRACTOR will have a program in place to ensure field data are not lost.

5.5.3 Deliverables

- CD with AIRNET field data in a format specified by the CONTRACTOR AIRNET staff, to be provided within one business day of completion of the biweekly sample collection
- Chain of custody documentation
- Hard copies of field data downloaded from the handheld field computers
- CD containing all the field data that have been downloaded from the handheld computer used in the field within five business days of TLD change-out
- Specific deliverables will be negotiated on a task order basis, when and if this part of the contract is utilized.

5.6 Other Environmental Media (Optional Scope)

Sampling of other environmental media may be included in future individual Task Orders. SUBCONTRACTOR may be requested to perform additional environmental sampling as optional requirements at the sole discretion of the CONTRACTOR.

- 5.6.1 Non-Radiological Air Monitoring (NONRADNET). This program involves sampling of various non-radiological constituents in air such as total suspended particulate, beryllium, etc. This program, in its current form, is documented in RRES-MAQ-NONRADNET, QAPP for Non-Radiological Air Sampling Network.
- 5.6.2 Soils, Foodstuffs and Biota. This program involves sampling of fish, vegetation, soils, etc., as needed to support LANS environmental surveillance efforts. This program is documented in QAPP-0001, QAPP for the Soil, Foodstuffs, and Biota Monitoring project. This sampling entails
- 5.6.3 Pore Gas Sampling. Pore gas samples may need to be collected from vadose zone monitoring wells around former SWMUs or disposal areas at LANL.
- 5.6.4 Other Sampling. Such sampling might include additional sediment or storm water sampling after a fire or flood event, as an example.

5.6.5 Deliverables. Deliverables will be negotiated on a Task Order basis with the SUBCONTRACTOR.

5.7 Personnel Requirements

5.7.1 SUBCONTRACTOR shall provide sufficient qualified Project Management personnel to effectively manage, staff and execute oversee all aspects of the work set forth in the SOW for the duration of the MTOA. Project management personnel shall have demonstrated experience managing environmental projects of similar scope and scale. Project management personnel shall be identified by name, along with years of experience and relevant past work activities.

5.8 Work Not Included

5.8.1 CONTRACTOR shall provide RCTs as needed.

5.8.2 CONTRACTOR will provide drums or other containers only for Low-Level Waste or Low-Level Mixed Waste that must be stored at LANL's Technical Area (TA)-54 waste handling facility.

5.8.3 SUBCONTRACTOR is not responsible for disposing of hazardous or radioactivity-contaminated items.

6.0 GENERAL REQUIREMENTS

6.1 Codes and Standards

6.1.1 The following codes and standards are incorporated by reference herein and shall have the same force and effect as if printed in full text. SUBCONTRACTOR shall comply with the following LANS policies and procedures, or parts thereof, applicable to any person who performs work at LANL. (Note: Those documents listed below that are not available in the public domain are provided on a CD-ROM.)

- Project Review and Requirements Identification System (PR-ID)
- IP 300, 04/13/06, Integrated Management
- IP 300-SD1, 05/17/07, Integrated Safety Management System Description Document
- ISD 101-12, XXXXXX, Integrated Work Management for Work Activities
- IMP 315, 10/17/06, Conduct of Operations
- IMP 322, 10/11/06, Issues and Corrective Action Management
- ISD 330-6, 09/20/06, Nonconformance Reporting

6.2 Quality Requirements for LANS/SUBCONTRACTOR Interfacing

6.2.1 SUBCONTRACTOR shall comply with the following quality requirements in order to provide sampling and monitoring data, electronic deliverables, reporting, etc. in a manner that is consistent with DOE and LANS Quality Requirements.

- SUBCONTRACTOR shall adhere strictly to all applicable Environmental Programs Directorate (EP), CONTRACTOR, and DOE quality requirements
- SUBCONTRACTOR shall comply with all requirements found in DOE Order 414.1C, 06/17/05, Quality Assurance
- SUBCONTRACTOR shall ensure that changes to maps are appropriately reflected in the EP geographic information system per QP-5.10, Change Control for Spatial Features.
- SUBCONTRACTOR shall submit all archival and historical documents or records regardless of physical form to the CONTRACTOR's EP Records Processing Facility (RPF) in accordance with SOP-4004, Records Transmittal and Retrieval Process. Copies of these documents must also be submitted to the STR at the time such documents are submitted to the RPF.
- SUBCONTRACTOR shall provide an electronic version of all draft and final plans and reports per schedules specified in individual Task Orders using Microsoft Office software.
- SUBCONTRACTOR shall report any failure to comply with the technical or quality requirements to the STR for disposition review, in accordance with the CONTRACTOR's EP Quality Implementing Matrices, Criterion 3 – Quality Improvement, or an approved equivalent program.
- SUBCONTRACTOR shall protect DOE, CONTRACTOR, and EP information and data in accordance with EP Quality Implementing Matrices, Criterion 4 – Documents and Records.
- SUBCONTRACTOR shall allow access to relevant records and/or personnel by EP, CONTRACTOR, and/or DOE personnel to verify compliance with provisions of this MTOA.
- SUBCONTRACTOR shall record field information in accordance with requirements in QP-5.7, Notebook Documentation for Environmental Restoration Technical Activities.
- SUBCONTRACTOR shall prepare Chain of Custody documentation in accordance with ENV-WQH-QP-029, Creating and Maintaining Chain of Custody.

6.3 Performance Requirements

- 6.3.1 The SUBCONTRACTOR will provide timely communication to the STR regarding scope changes, unforeseen problems, and project updates.
- 6.3.2 The SUBCONTRACTOR will track and invoice costs by subtask using program codes to be provided by the STR. It will be the responsibility of the SUBCONTRACTOR to use the correct program codes for all work, and to ask for any necessary clarification from the STR.

- 6.3.3 SUBCONTRACTOR shall participate in post-award meetings such as progress reviews, health and safety reviews, and coordination meetings. SUBCONTRACTOR's participation will include activities such as giving status reports, making presentations, and working with CONTRACTOR to define problems, propose solutions, and implement corrective actions. The first progress review meeting will be held within 4 months of individual Task Order award and monthly thereafter.
- 6.3.4 CONTRACTOR will reimburse SUBCONTRACTOR for time spent in LANS-directed training at negotiated employee hourly rates.
- 6.3.5 SUBCONTRACTOR personnel shall complete Radworker Training prior to performing any work in Radiological Controlled Areas (RCAs). Any additional training requirements specific to RCAs will be identified in individual Task Orders.
- 6.3.6 SUBCONTRACTOR shall comply with CONTRACTOR-supplied Radiological Work Permits (RWPs) for any work performed in RCAs. CONTRACTOR will provide a RCT for work activities conducted in RCAs. The RCT will perform personnel, equipment, and environmental monitoring for radiation while working in RCAs. SUBCONTRACTOR personnel shall follow all RCT instructions.
- 6.3.7 All deliverables prepared and submitted by the SUBCONTRACTOR shall adhere to the following guidelines:
- SUBCONTRACTOR shall use the guidance provided in “Editing and Compositing Guidelines,” current edition.
http://int.lanl.gov/orgs/erss/docs/writing/editcomposit_guidelines.pdf
 - SUBCONTRACTOR shall deliver documents to the requester in electronic format. If CDs or other portable media are used, they must be compatible with PC computers.
 - SUBCONTRACTOR shall deliver text and table documents in Microsoft Word format, illustrations in Illustrator (.ai) or (.eps) format, and photographs in Photoshop or Jpeg (.jpg) format, unless another format is specifically approved in writing by the requestor.
 - SUBCONTRACTOR shall use correct grammar and provide a document possessing a logical flow from section to section or from background information through results to the conclusions drawn.
 - SUBCONTRACTOR shall provide a readable document written and formatted in a manner that allows the requester or another reader to extract relevant or important information easily and follow the “evidence of the document” argument through to its conclusion.
 - SUBCONTRACTOR shall deliver a comprehensive document including all relevant information and data necessary to make it a standalone, complete document. Extensive references to existing documents are unacceptable unless approved by the CONTRACTOR in writing.

- The cost of rewriting of any documents because of poor or unacceptable quality may be subject to Exhibit A - General Condition, Clause GC-40 entitled Backcharges.

6.4 CONTRACTOR-Provided Equipment

6.4.1 The following materials and equipment will be provided by the CONTRACTOR:

- 55-gallon drums if needed for disposal of low-level or mixed wastes only (not for disposal of commercial/industrial wastes, which must be provided by the SUBCONTRACTOR)
- Two-way radios capable of communicating with the Site Emergency Operations Center
- Insulated generators where required due to noise restrictions
- Existing pumps and sampling systems in groundwater monitoring wells
- Westbay trailers
- Ponar® clamshell sediment sampling device
- Should CONTRACTOR exercise the option to include the AIRNET monitoring as part of this work scope, CONTRACTOR will provide necessary AIRNET monitoring equipment, including pumps, data loggers, antennae, stations, etc. This equipment will be returned to the CONTRACTOR at the conclusion of the MTOA or Task Order.
- Should CONTRACTOR exercise the option to include the DPRNET sampling is included as part of this work scope, CONTRACTOR will provide hand held computers and chargers for downloading data from the DPRNET samplers.

Figures

Figure 1 – Map of Los Alamos National Laboratory

Figure 2 – Watersheds at Los Alamos National Laboratory

Figure 3 – Los Alamos Watershed sampling locations and access points

Figure 4 – Sandia Watershed sampling locations and access points

Figure 5 – Mortandad Watershed sampling locations and access points

Figure 6 – Pajarito Watershed sampling locations and access points

Figure 7 – Water Watershed sampling locations and access points

Figure 8 – Frijoles, Ancho and Chaquehui Watershed sampling locations and access points

Figure 9 – White Rock Canyon sampling locations and access points

Figure 10 – Well and Surface Water Sampling Locations at the City of Santa Fe Buckman well field and San Ildefonso Pueblo

Figure 11 – On-site Sediment Sampling Locations

Figure 12 – Off-site Sediment Sampling Locations

Figure 13 – Map of Site Monitoring Areas

Figure 14 – Map of Stream Gage Locations

Figure 15 – LANL AIRNET Monitoring Locations

Figure 16 – AIRNET Monitoring Locations at MDA B

Figure 17 – AIRNET Monitoring Locations at MDA G

Figure 18 – LANL DPRNET Monitoring Locations

Figure 19 – DPRNET Monitoring Locations at MDA G

Tables

Table 1 – Access to Watershed Sampling Locations

Table 2 – Purge Volumes for Wells by Watershed

Table 3 – Master Schedule for LANL Sampling Activities in 2008 and 2009

Table 4 – Domestic Water Well Sampling at San Ildefonso Pueblo

Table 5 – Sediment Sampling

Table 6 – Municipal Well Sampling for the City and County of Santa Fe

Table 7 – BMP Sampling

Table 8 – Access to Site Monitoring Areas

Table 9 – Access to Stream Gaging Sampling Locations

Table 10 – AIRNET Sampling

Table 11 – DPRNET Sampling