# PART I – THE SCHEDULE

## SECTION C

## PERFORMANCE WORK STATEMENT

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# SECTION C DESCRIPTION/SPECIFICATIONS

# PERFORMANCE WORK STATEMENT

## C.1 CONTRACT OVERVIEW AND OBJECTIVES

This section provides an overview of the Los Alamos Legacy Cleanup Contract (LLCC), including the objectives of the Contract, as well as a description of the performance work statement for program management and infrastructure.

### C.1.1 Background

Established in 1989, the U.S. Department of Energy's (DOE) Office of Environmental Management (EM) is charged with addressing the environmental legacy of over 50 years of nuclear weapons production and government sponsored research. Since its inception in 1943 as part of the Manhattan Project, the Los Alamos National Laboratory (LANL)'s primary mission has been nuclear weapons research and development. Other DOE missions have included high explosives research, development, fabrication, and testing; chemical and material science research; electrical research and development; laser design and development; and photographic processing.

Waste management activities at LANL resulted in the release of hazardous wastes, hazardous waste constituents, mixed waste, radiological and transuranic (TRU) wastes, groundwater contaminants, toxic pollutants, and Explosive Compounds into the soils, sediments, and groundwater. Mixed low-level waste (MLLW) and TRU waste generated prior to 1999 and recognized as legacy waste, have been staged to prepare for off-site disposition.

The EM mission at LANL is to clean up the site safely and to reduce risks to the public, workers and the environment associated with legacy material, facilities and waste sites. Since October 1, 1988, EM has funded the work performed to characterize and remediate contaminants in the environment; decontaminate, decommission and demolish (DD&D) process-contaminated facilities; and manage and dispose of legacy TRU waste.

The National Nuclear Security Administration (NNSA) is the LANL property owner and landlord, and maintains site-wide infrastructure; while EM is a tenant on the LANL site. EM is responsible for cleaning up and remediating the effects from these historical operations as part of the legacy waste remediation. EM is not, however, responsible for the environmental effects or impacts of current LANL operations.

The EM program at LANL must comply with numerous regulatory requirements. Since 1989, *the Resource Conservation and Recovery Act* of 1976 (RCRA) has been the main regulatory driver to executing environmental cleanup (RCRA corrective actions) at LANL. In 1996, the U.S. Environmental Protection Agency (EPA) granted primacy to the State of New Mexico for corrective actions. In March of 2005, the New Mexico Environment Department (NMED), New Mexico Attorney General, University of California, and DOE signed a Compliance Order on Consent (Consent Order) pursuant to the New Mexico Hazardous Waste Act (NMHWA). The 2005 Consent Order was a comprehensive and enforceable Order that is grounded in RCRA and set a completion date for the last

scheduled deliverable of December 2015 that has subsequently been automatically been extended through (currently) 2019.

In fiscal year (FY) 2012, DOE initiated discussions with the State of New Mexico to reprioritize the near-term scheduled activities within the 2005 Consent Order, based on a risk-based approach. This reprioritization is documented in the 2012, *Framework Agreement, TA-54, MDA-G Transuranic Waste Removal* (Framework Agreement). The Framework Agreement is a shared commitment between DOE and the State of New Mexico, but unlike the 2005 Consent Order, the Framework Agreement is not an enforceable agreement. Inherent in reaching this agreement was the acknowledgement by DOE that it could not meet the 2005 Consent Order current completion date of 2015. The Framework Agreement contained a milestone to complete disposition of 3,706 cubic meters of above ground TRU waste (a campaign) by June 30, 2014. LANL missed the milestone due to the pause in operations at the Waste Isolation Pilot Plant (WIPP) and the pause in shipments of TRU waste for temporary storage at a commercial storage facility. LANL made significant progress, however, prior to the WIPP pause, and only 10% of the 3,706 cubic meters of above ground TRU waste remains at LANL.

On June 24, 2016, NMED issued a revision to the Consent Order with which DOE, all contractors, all subcontractors, all agents, and all representatives shall comply. This 2016 Consent Order continues the previous RCRA corrective action processes while allowing more flexibility in accelerating work scope at the DOE's and Contractor's risk and relying on the final documentation of the completed work to meeting the 2016 Consent Order requirements. This 2016 Consent Order is the contract requirement that all Offerors shall propose to and comply with following contract award.

The 2016 Consent Order now includes campaigns as an approach to 'bin' related work scopes into concentration areas, similar to what was done for the '3,706 cubic meters of above-ground TRU Campaign.' The Performance Work Statement (PWS) for this contract is not organized into campaigns because it is up to the Environmental Management Los Alamos Field Office (EM-LA) to agree to what work is being fit into which campaign. The campaigns that EM-LA and NMED have agreed to are provided in Section J, Attachment J-8, *Campaign Crosswalk to Performance Work Statement Sections*. Work scope outside of the campaigns listed in Section J, Attachment J-8 is base work scope that is more continuous throughout the contract and is thus not amenable to creating a campaign or is DOE-regulated radiological work scope for which NMED does not have primacy. Campaigns are to be a reasonably short duration (3-4 years) and have measureable and definable end-states or summary-level milestones.

The Contractor must understand that execution of the requirements in the 2016 Consent Order, as a contract requirement, potentially subjects the Contractor to stipulated penalties for failure to deliver the enforceable milestones listed in the 2016 Consent Order, Appendix B. Each year, EM-LA will allow the Contractor to participate in development of the milestone list for the next (upcoming) FY and the targets for the next two FYs as part of EM-LA's negotiations with NMED under the 2016 Consent Order, Section VIII, *Campaign Approach*. Any stipulated penalties assessed by NMED and/or passed through by EM-LA as having been the responsibility of the Contractor will be non-reimbursable costs.

Other regulatory drivers include environmental permits, compliance agreements, and other agreements applicable to the EM work scope which are listed in Section J, Attachment J-16*, Environmental Permits, Compliance Documents, and Agreements*, and closure plans, Federal and State of New Mexico regulations, and other implementing documents. Although some of the environmental permits (such as Title V of the Clean Air Act) are issued to the LANL landlord as operator or owner/operator, others are issued jointly to LANL and the M&O Contractor. Regardless of who is designated as the permittee(s), the EM Contractor's legacy environmental cleanup activities must comply with the permit provisions, in accordance with Section J, Attachment J-16.

The DOE has other prime contractors that support ongoing activities at the LANL. The current prime contractors are listed in Section J, Attachment J-7, *Interfaces With Other Contractors,* as the expected interfaces needed.

Funding for the LANL EM legacy waste cleanup and remediation is through EM distribution channels. The LANL EM legacy waste cleanup and remediation focuses equally on reducing risks to workers, the public, and the environment.

### C.1.2 Contract Purpose and Objectives

The purpose of the LLCC is to support EM-LA's mission work. The LLCC encompasses ongoing legacy above ground stored TRU waste disposition activities, ground and surface water monitoring and protection programs, groundwater contaminant plume investigation and evaluation including for hexavalent chromium and high-explosive contamination, aggregate area investigations and remediation activities, and facility (DD&D) activities. Specific objectives for the LLCC include the following:

- Protect, characterize, remediate (as necessary), and monitor the regional aquifer.
- Clean up legacy contaminated media and legacy waste sites at LANL and surrounding private and government-owned lands, including groundwater and surface water, to levels appropriate for the intended land use and in accordance with regulatory requirements.
- DD&D inactive, process-contaminated, and non-contaminated facilities at Technical Area (TA)-21 and TA-54 that impede the progress of the execution of environmental restoration (ER) activities.
- Retrieve, characterize, and prepare legacy MLLW and TRU waste for shipment off-site. The EM-LA Program manages the disposition of legacy waste generated between 1970 and 1998 and the newly generated waste, i.e., waste generated after fiscal year 1998, that is already within the EM operational control area at TA-54, Area G. NNSA is responsible for newly generated wastes that are outside of the EM operational control area at Area G. The EM Operational Control Concept to be implemented is described in Section J, Attachment J-6, *Interfaces with the NNSA Managing and Operating Contractor Systems and Services.*
- Transfer remediated sites to NNSA for long-term surveillance and monitoring as needed, to provide necessary safeguards and protection of workers, the public, and the environment. All required post-remediation monitoring and maintenance activities will be transitioned from EM to NNSA.

The scope of this Contract includes work scope in the following areas:

- Solid Waste Stabilization and Disposition. This work scope includes:
  - maintaining all above grade stored contact handled (CH)-TRU and other waste streams in a safe configuration until treatment, processing, and shipment of wastes is planned and authorized;
  - retrieving below grade stored CH-TRU for processing, characterization, and preparation for shipment;
  - maintaining an appropriate nuclear safety basis for the waste streams;
  - dispositioning MLLW;
  - treatment, management, characterization, storage, and disposal of excess EM radioactive and hazardous materials; and
  - supporting the disposition and storage of newly-generated TRU waste in TA-54 Area G.

- Soil and Water Remediation. This work scope includes:
  - compliance with the 2016 Consent Order's RCRA corrective action processes including work planning, investigation, evaluation, and remediation; interim measures;
  - groundwater compliance monitoring and specific plume investigation and remediation for hexavalent chromium and high-explosive contaminants;
  - surface water monitoring and protection activities including those for the National Pollutant Discharge Elimination (NPDES) Individual Permit (IP) for Stormwater, soil investigations and contaminant remediation in several aggregate area and project areas; and investigation, evaluation, and proposal of potential remedies in several material disposal areas; and
  - supporting demolition activities for radiological liquid waste facility structures and Delta-Prime (DP) West facility slabs at TA-21 and some of the facilities that are made available in TA-54 as CH-TRU is processed and facilities are excessed.

During the term of this Contract, the LLCC Contractor (hereby referred as the *Contractor*) shall interface with the other site contractors. The Contractor shall establish *Interface Agreements* in accordance with Section C.3.2.4 with the other DOE-Los Alamos contractors, as required. The Contractor will not be responsible for the performance of the other DOE-Los Alamos Contractors/Subcontractors, but will remain responsible for its own subcontractors working on the project.

The Contractor is to determine the specific methods of accomplishing the work and perform all work specified in this Contract. The Contractor shall ensure this work is performed safely and in compliance with all Federal, State, and local laws and regulations, Executive Orders, DOE Orders (and other types of directives that are listed in Section J Attachment J-1, *Requirements Sources and Implementing Documents (List A) and List of Applicable DOE Directives (List B)*). The Contractor shall comply with and implement as necessary the documents listed in *Environmental Permits, Compliance Documents, and Agreements* listed in Section J, Attachment J-16. The Contractor shall also comply with and meet the commitments to Orders and Milestones with the regulators (both State and Federal) in the performance of this contract.

The Contractor shall support EM-LA in achieving its goals as described in the "DOE Office of Environmental Management FY15/16 Performance Agreement" (Section J, Attachment J-18). The goals pertinent to this PWS are:

- Goal 1: Improve Organizational Culture - Improve organizational culture to ensure that all work activities are appropriately scoped, analyzed for hazards, comprehensively planned to eliminate or mitigate those hazards, effectively performed by trained employees, and performed safely and correctly.
- Goal 2: Increase Efficiency/Improve Performance - Increase efficiency and improve performance to ensure the maximum cleanup value for every dollar invested in the EM Program under this Contract.
- Goal 3: Achieve Program/Project Results - Commitment to improve acquisition, contract, and project management.

## DESCRIPTION OF PROJECT PERFORMANCE REQUIREMENTS

## C.2 INCOMING CONTRACT TRANSITION

During the transition period, as specified in DOE-F-2003, Period of Performance, the Contractor shall perform those activities that are necessary to transition work from the current Los Alamos National Laboratory Legacy Cleanup Bridge Contract (LCBC). The Contractor shall perform the activities in a manner that:

(1) ensures that all work for which the LLCC Contractor is responsible is continued without disruption;
(2) provides for an orderly accounting of resources, responsibilities, and accountability in support of EM work scope from the LCBC-contractor,
(3) provides for a complete and accurate reporting of cleanup and remediation work scope activities; and
(4) ensures that all work is performed work in an efficient, effective, and safe manner.

The Contractor shall perform the transition activities listed in the Transition Plan and shall ensure all necessary personnel, including Key Personnel (Section H, Key Personnel) are on-site during the transition period, unless specifically directed otherwise by the Contracting Officer (CO). The LLCC Contractor shall brief workers, Federal staff, and stakeholders during the transition period on the Contractor's approach and commitments for accomplishing the PWS.

### C.2.1 Transition Plan

The Contractor shall submit a *Transition Plan* for DOE approval within 15 days after the Notice to Proceed (NTP). The objectives of the *Transition Plan* are to ensure that implementation of the Contract minimizes impacts on continuity of operations. The *Transition Plan* shall provide a description of transition activities, involved organizations, and transition schedule. The Transition Plan shall include a description of all activities necessary for the Contractor to assume full responsibility for the PWS no later than 90 days after NTP, including the following activities listed below. The Transition Plan shall include a detailed transition schedule with identified critical path.

In addition, the Plan shall include:

- A description of all necessary transition activities; to ensure uninterrupted operations and a status of all PWS elements.
- Coverage of key functional and matrix support areas during the transition period;
- Any changes from the LCBC Contractor's strategy for developing required documents (including licenses and agreements);
- A brief description of the LLCC Contractor organizations involved in transition and their role in the transition;
- Planned execution of Interface Agreements with other EM-LA contractors and necessary Memorandums of Understanding (MOUs) with outside support organizations (see Section J Attachment J-6, *Interfaces with NNSA Management and Operations Contractor Systems and Services* and J-7, *Interfaces with Other Contractors*);
- Schedule of transition activities; and,
- Required utilities and other transition activities such as retention of personnel, and adoption or revisions of required plans and procedures.

The Contractor shall perform due diligence to ensure that all transition activities are identified and completed during the Transition Period, e.g., interface or service-level agreements are to be put in place 90 days after the NTP (see Section J Attachment J-6, *Interfaces with NNSA Management and Operations Contractor Systems and Services*).

The Contractor shall put into place any *Interface Agreements* (Deliverable C.2.1) necessary between it and other DOE-Los Alamos contractors/subcontractors to define necessary interface points, scope boundaries, and/or provision of services, as required. A purchase order, subcontract, or other contracting vehicle between the contractors may dually serve as the necessary Interface Agreement where appropriate. Initial *Interface Agreements* finalized and signed by all applicable parties, shall be in place within 90 days after the NTP. The Contractor shall provide informational copies of all *Interface Agreements* to DOE as they are established.

The Contractor shall review the LCBC Contractor's existing procedures and plans during the transition. The Contractor shall determine a course of action for adopting, updating, and/or replacing the LCBC Contractor's existing procedures and plans while ensuring continuity of operations in accordance with applicable requirements. The Contractor shall describe the course of action in a *Continuity of Procedures and Plans* deliverable. Following any transition phase interim procedure and program revisions, permanent procedures and programs will be in-place and functioning as expected within one year of NTP.

#### C.2.1.1 Implementation of Human Resources Management Requirements

The Contractor's Transition Plan required above in Section C.2.1 shall include a description of the Contractor's implementation of human resource management consistent with Workforce Transition and Contractor Human Resources Management requirements as described in Section H, Clause H.4 through H.7, including:

(a) Expected workforce composition and any immediate or anticipated workforce restructuring;

(b) Identification of any existing issues under the National Labor Relations Act (NLRA) and its plan for engaging with any labor representatives;
(c) A schedule for preparation and submission of any bargaining parameters requests;
(d) Identification of any prevailing wage requirements, including any requirements under section 4(c) of the Service Contract Labor Standards statute as well as any NLRA requirements with respect to determination of wages and benefits;
(e) Description of processes for handling labor standards determinations for work packages;
(f) Define any obligations with respect to pension and post-retirement benefit plans;
(g) A plan for identification and resolution of any legal issues regarding any of the above, including the Contractor's plan for engaging outside counsel as needed; and
(h) A plan for communicating and engaging with DOE on these matters.

#### C.2.1.2 Implementation Plan for Information Technology and Cyber Security Requirements

The Contractor's Transition Plan shall include a description of the Contractor's implementation of information technology and cyber security requirements to correspond with the transition of the contract from the LCBC to the Contractor. This plan will include timeframes for separation of services, institution of new systems, and any continuation of access that is necessary to access the NNSA M&O Contractor systems as identified in Section J, Attachment J-6.

### C.2.2 Transition Status Reports

The Contractor shall provide *Transition Status Reports* on a weekly basis of transition activities to EM-LA Field Office Manager and the Contracting Officer Representative (COR). The Contractor shall establish routine status meetings with the EM-LA Field Office Manager, COR, and other affected contractors to review transition activities and issues until the end of the Contract Transition Period. The Contractor shall raise issues, if any, to the Management Steering Committee (see Section C.3.2.2). The Contractor shall coordinate directly with the EM-LA Field Office, and other organizations and contractors to finalize any transition agreements required for the Contractor to assume full responsibility.

### C.2.3 Permits and Memorandums

The Contractor shall evaluate the permits and memorandums and determine whether changes are necessary to support the Contractor's work under this contract and provide a plan as a transition deliverable for any changes. The plan shall include any necessary commitments to comply with the requisite permits or agreements. The Contractor shall execute the plan by implementing any document modifications within one year of NTP.

Section J Attachment J-16, lists current Environmental Permits applicable to EM-LA work scope (e.g., site-wide level RCRA permits, EM facility-specific air permits, and EM facility-specific Waste Water Land Application permits). With respect to any new

permits, the Contractor and EM-LA agree to modify Section J Attachment J-16, to reflect such permits.

Section J Attachment J-16, also lists current MOUs, Memorandums of Agreement (MOAs), and other Agreements applicable to the EM work scope.

### C.2.4 Identification of Material Differences

The Contractor shall identify any material differences in the systems, facilities, waste sites, waste volumes, property and services between what is described in this PWS and what actual conditions exist at the end of the Contract Transition Period. The Contractor shall prepare and submit a Statement of Material Differences to EM-LA, as a contract deliverable before the end of the transition period. If the Material Differences require revisions to the contract, the Contracting Officer will issue a request for proposal to reconcile the material differences with the Contract.

### C.2.5 Property Inventory

All real and personal property currently accountable to the LCBC Contractor for contract performance will be provided to the Contractor. During the contract transition period, an inventory record of such property in the DOE Facilities Information Management System (FIMS) and incumbent contractor's personal property databases will be provided to the Contractor. Specifically, the following property acceptance requirements will be implemented:

a. The Contractor must perform during the transition period a joint wall-to-wall physical inventory with the LCBC Contractor of all accountable high-risk and sensitive property during the transition period and accept full accountability for the high-risk and sensitive property at the end of transition.
b. The Contractor must accept, at the end of transition, transfer of accountability for the remaining government-owned real and personal property not covered under paragraph (a), based on existing inventory records, on an "as-is, where-is" basis, or perform a wall-to-wall inventory within the transition period of the Contract. Any discrepancies from the existing inventory records shall be reported to the CO. As the formal inventories are completed, the Contractor shall assume responsibility and liability for subsequent losses and damages. If the physical inventory is not accomplished within the allotted timeframe, the LCBC Contractor records will become the inventory baseline.
c. The Contractor shall work with DOE Property Manager, Fleet Manager and Realty Officer and provide the property and vehicle reports in accordance with Federal requirements listed in Section J, Attachment J-1.
d. The Contractor property transition will include the furniture including desks, file cabinets, credenzas, book shelves, white boards and general area notice boards located both at the Pueblo Complex and the trailers located at Area-G (Government-Furnished Services and/or Information [GFS/I] facility leases).
e. The Contractor shall include in the inventory those computers, printers, plotter, telephones, etc. that are taken over from the LCBC Contractor. The Contractor shall arrange for any necessary technical support as part of this contract.

### C.2.6 Negotiated Site Services

The Contractor shall establish a formal *Interface Agreement* with the NNSA Management and Operations (M&O) Contractor describing how the Interfaces with the NNSA M&O Contractor Systems and Services listed in Section J, Attachment J-6 (Interfaces with M&O) will be performed and reimbursed throughout the Contract period.

### C.2.7 Matrix of Personnel Interfaces (Zipper Plan)

The Contractor shall develop and maintain a *Matrix of Personnel Interfaces* (*Zipper Plan)* between Contractor personnel and EM-LA Personnel and provide updates to DOE within two (2) weeks of changes in the plan/matrix (see Section J Attachment J-2, *Summary of Contract Deliverables*).

### C.2.8 Inter-Contractor Ordering and Financial Agreements

The Contractor shall develop the inter-contractor ordering and financial agreements that are necessary to support transition and Contract performance, and be responsible for the costs incurred under these agreements.

### C.2.9 Assessment and Verification

The Contractor shall conduct a self-assessment of its completion of transition activities prior to the end of the transition period and support DOE with in-process verification of Contract transition completion.

### C.2.10 Executive Summary

Within 2 days following NTP, the Contractor shall release on its own website a brief Executive Summary of its offer including the following elements:

- Name of Contractor including the identification of any Teaming Partners and Critical Subcontractors (if applicable) and a description of past performance and experience that each brings to the program
- Summary/Description of Contractor's Technical Approach (e.g., what do you plan to accomplish, cost savings anticipated)
- Organizational Structure and Identification of Key Personnel
- Commitments to the Community for the Term of the Contract
- Total Contract Value Commitment to Small Business Subcontracting (if applicable)
- Brief overview of Contract Schedule including anticipated completion dates of major campaign milestones

The purpose of this Executive Summary is to provide immediate release of relevant information to stakeholders and the public at large.

## C.3 PROGRAM MANAGEMENT AND GENERAL REQUIREMENTS

The Contractor shall provide program management support to EM-LA to ensure successful and efficient implementation and reporting of cost and schedule performance of the contract activities in compliance with regulatory requirements. This includes: program management/technical planning; scope, cost and schedule control activities required to ensure compliance with applicable regulations; and the annual budget call, which is required for EM-LA strategic and financial planning and reporting.

The Contractor shall distribute costs for all personnel performing management and support activities specifically for the scopes of work identified in the other sections of Section C (C.4 through C.12, and C.14) to the corresponding CLIN for that particular scope of work. The Contractor shall assign only those costs for overall program management and support, as described in this Section C.3, to the CLINs associated with C.3.

### C.3.1 Program and Projects

#### C.3.1.1 Scope, Schedule and Cost Baseline

The Contractor shall develop and maintain a Contract Performance Baseline in accordance with Section H.73, *Integrated Work Control Systems and Reporting Requirements.* As part of the Contractor's management of the Contract Performance Baseline (CPB), the Contractor shall be responsible for developing and maintaining a three-year rolling contract and regulatory baseline of milestones and near-term targets that will be used by EM-LA in negotiating the annual work planning process contained in the 2016 Consent Order. EM-LA expects the Contractor to directly support negotiation of these annual milestones with NMED. The Contractor shall provide the CPB input in the timeframes specified in the 2016 Consent Order to EM-LA. EM-LA will use this input as part of the evaluation of the Contractor's performance. The Contractor shall update and manage the CPB through contract changes based on changes derived from the Consent Order annual work planning process and other changes as a result of Contracting Officer direction.

#### C.3.1.2 Risk Management

The Contractor shall implement a risk management process and submit a *Risk Management Plan* to EM-LA for approval. The *Risk Management Plan* shall use the principles in the DOE Guide 413.3-7A, *Risk Management Guide*.

The *Risk Management Plan* shall also specify:

- The use of probabilistic risk analysis using Monte Carlo simulation and identify when Monte Carlo simulations will be run.
- Probabilistic risk analysis with sufficient analytical information to establish cost and schedule confidence.
- The contractor PWS execution risks and its quantification in the management reserve (MR) estimate which is documented and recorded separately from the federal contingency.

- Risk assessments identifying the magnitude of variance in conjunction with reported variances or baseline change proposals (BCP).
- The application of the life cycle phases defined for Environmental Restoration Cleanup Phases in Chapter 4, Types of Cost Estimates, of DOE Guide 430.1-1, *Cost Estimating Guide*, to the RMP.
- How the contractor shall maintain a risk register to manage remediation activities.

The Contractor shall use logic linked schedules compatible for use by EM-LA in conducting EM-LA program risk management assessments and analysis. The Contractor's identified program risks shall be linked to the activities in the schedule.

Risk and decision management activities shall be coordinated on a continuing basis with EM-LA.

#### C.3.1.3 Program Management

The Contractor shall implement and maintain an integrated program management system to support safe, efficient, and measurable progress. The program management system shall include the processes and implementing procedures necessary to plan, execute, and control all work performed under this Contract.

The Contractor shall develop and maintain a program management work control system in accordance with Section H.73, *Integrated Work Control Systems and Reporting Requirements* (April 2016), and Section H.16, DOE-H-2024 *Earned Value Management System (OCT 2014*).

EM-LA will continuously seek to improve LLCC performance under this Contract, and will actively seek effective Contractor program management and execution. The Contractor shall structure their program management system to provide early and continuous identification of opportunities to improve LLCC performance.

#### C.3.1.4 Environmental Projects

Although environmental projects are no longer required to implement DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets,* the Contractor shall apply the project management principles in DOE Order 413.3B to individual environmental projects using a graded approach.

The Contractor shall submit the *30%, 60%, 90% and final designs* for any environmental projects to EM-LA for review and approval. The Contractor shall submit the as-built designs, long-term monitoring, and maintenance requirements to EM-LA for acceptance.

Within one year of the contract's expiration date, the Contractor shall communicate in writing to EM-LA regarding upcoming decision/hold points for the

project. For discrete projects that may continue beyond the period of performance, EM-LA will make a decision on whether to proceed or wait.

#### C.3.1.5 Progress/Status Reviews

The Contractor shall provide monthly *Contractor Progress/Status Report* as outlined in Section H.73, *Integrated Work Control Systems and Reporting Requirements* (April 2016).

The Contractor shall also report certain performance metrics and progress to EM-LA on a monthly basis to allow EM-LA input into various DOE business systems, including, but not limited to, the IPABS on the current schedule of inputs provided by EM (calendar) (Section J, Attachment J-11, GFS/I). The Contractor shall provide an initial contract baseline profile for the following EM corporate metrics and provide monthly reporting of performance against these EM corporate metrics:

- Periodic Monitoring Reports Planned and Submitted,
- D&D Debris and Remediated Soil Disposed,
- Remediation Complete (Certificates of Completion Received), and
- Site Remediated / Footprint Reduction

The Contractor shall also provide the planned EVM and monthly EVM data, as well as providing a list of milestones and a monthly update of schedule status to EM-LA on the same schedule.

### C.3.2 Interfaces

#### C.3.2.1 National Nuclear Security Administration Los Alamos Field Office

The Contractor shall support EM-LA in interfacing with NNSA Los Alamos Field Office (NA-LA) in accordance with the existing agreements between EM and NNSA, including the *Memorandum of Understanding between National Nuclear Security Administration (NNSA) Los Alamos Field Office (NA-LA) and Department of Energy Environmental Management Los Alamos Field Office (EM-LA) for Transition of Legacy Environmental Cleanup Work at Los Alamos from NNSA to EM*, signed September 17, 2015 (Section J, Attachment J-16).

#### C.3.2.2 Management Steering Committee

The Contractor shall become a member of the Management Steering Committee (MSC) consisting of senior-level advisors from the site. The MSC provides a forum to facilitate the resolution of crosscutting issues and concerns during contract transitions, contract performance, and transition to any successor contractor(s) consistent with the NNSA-EM Memorandum of Understanding (MOU) for “Transition of Legacy Environmental Cleanup Work at Los Alamos from NNSA to EM”, terms and conditions of the contract(s), and applicable law, regulation and DOE/NNSA policy. The MSC will provide a stabilizing influence and Members of the Steering Committee will ensure objectives of the LCBC transition are being met. The Contractor shall participate in the associated

implementing organizations including a Integrated Project Team (IPT), a Regulatory Interface Steering Committee (RISC), and an Executive Software Change Control Board (ESCCB) (See Section J, Attachment J-6) such that all work at LANL is coordinated between contractors and potential problems are resolved quickly.

The Contractor shall provide representatives to serve as members of the Committee and the associated organizations. The MSC includes members of EM-LA, NA-LA, the NNSA M&O Contractor, and the LLCC Contractor. The Contractor shall raise issues as applicable, as they are identified to the MSC, RISC, or IPT as appropriate. The MSC meets as needed, and the implementing organizations meet monthly, but expect that the frequency will decrease over time. The Management Steering Committee does not diminish authority of the designated EM and NNSA Contracting Officers (CO) responsible for the contract(s). Therefore, before consulting with the Management Steering Committee, parties must first address their concerns, issues, disagreements, and/or recommendations to the CO(s) for resolution. All contractual actions and technical direction under this Contract shall be provided by the designated Contracting Officer and Contracting Officer Representative, respectively.

#### C.3.2.3 National Nuclear Security Administration Management and Operating Contractor Interfaces

The Contractor shall interface with the NNSA M&O contractor

(a) to obtain access to use existing site systems to perform EM work;
(b) to obtain services that are required to allow performance of EM work;
(c) to integrate programs including emergency management and safeguards and security;
(d) to provide EM program information necessary to allow the NNSA M&O Contractor to develop and submit site reports; and,
(e) execute shared responsibilities such as Airnet permitting which is split between NNSA and EM (11 stations and 3 stacks) program support.

The Contractor shall work to the interface agreements established in the Transition Plan (see Section C.2.1.). The parties acknowledge the services provided by the NNSA M&O contractor will be on a non-interference basis with the M&O mission. In addition, in the execution of this Contract work scope, the Contractor shall not interfere with nor negatively impact NNSA missions at LANL. The Contractor shall notify EM-LA of any potential interface or interference delays.

The Contractor shall support EM-LA and the NNSA M&O Contractor who is the lead and has the site-wide coordination role for all regulatory programs including:

- RCRA and the NMHWA and implementing regulations;
- Federal Facilities Compliance Order (FFCO) Site Treatment Plan; and
- RCRA under the FFCO.

The Contractor shall support EM as the lead for work scope under the Consent Order regulatory program (see Section J, Attachment J-16, *Environmental Permits, Compliance Documents, and Agreements)*. Interfaces are identified in Section J, Attachment J-6, *Interfaces with NNSA Managing and Operating Contractor*.

For all other services not identified in Section J Attachment J-6, the Contractor has the flexibility to use any service provider that supports safe and efficient performance of the Contract

#### C.3.2.4 Interfaces with Other Contractors

The Contractor shall interface with other contractors including those listed in Section J, Attachment J-7 (Interfaces with Other Contractors). The Contractor shall establish Interface Agreements as necessary to establish working relationships. The Contractor shall regularly evaluate the Interface Agreements to identify additional updates, as needed, to ensure the EM-LA mission is being supported efficiently and effectively.

The Contractor shall coordinate with the other contractors when more than one contractor works in a shared workplace to ensure roles, responsibilities, and worker safety and health provisions are clearly delineated (see Section J Attachment J-7, *Interfaces With Other Contractors*).

If a reportable incident occurs involving personnel working under another contractor's authority (e.g. personnel injury, notice of violation, safety, security, quality, radiological) at LANL, any such incidents shall be reported by the cognizant contractor and will not contribute toward the LLCC Contractor's statistics or reflect negatively on the LLCC Contractor's performance.

#### C.3.2.5 Safeguards and Security

The Contractor shall interface with the NNSA M&O Contractor (Section J, Attachment J-6) and the NNSA security operations contractor, Centera. (Section J, Attachment J-7) regarding Safeguards and Security (S&S) responsibilities, in particular, regarding Contractor responsibilities, LANL security requirements.

The Contractor shall provide derivative classifiers to ensure information brought into the Contractor facilities, and subsequently used in the work will not require additional protections. Although the Contractor shall interface with the NNSA M&O Contractor and the LANL security operations contractor for Foreign National Visits and Assignments, Unclassified Visits, Area and Facility access, and Contraband Pass issuance necessary to access LANL on-site facilities, the Contractor shall implement the appropriate requirements within its facilities.

For EM operational controlled areas such as TA-21 and leased office spaces, the LLCC Contractor shall control access to the contractor's facilities and work locations to meet the Contractor's program needs and not to specifically implement physical security requirements. Access to information in operationally controlled areas shall be commensurate with protection of normal business systems, and the Contractor shall protect the integrity of DOE information

technology (IT) systems. The Contractor shall not need to interface with the NNSA M&O Contractor regarding TA-21 activities.

All information shall be protected within the LANL on-site facilities commensurate with the sensitivity level of the information and the designation of facility protection provided by the NNSA M&O Contractor and the Security Operation Contractor.

The Contractor shall obtain the necessary security training required by the NNSA M&O Contractor for those personnel accessing LANL on-site facilities. All LLCC Contractor personnel will not need access to LANL on-site facilities.

#### C.3.2.6 Central Characterization Program

The Contractor shall interface with the Central Characterization Program (CCP), as needed, only for those CH-TRU waste activities within TA-54 Area G for EM legacy wastes.

The CCP is tasked with characterizing and certifying Transuranic (TRU) waste for disposal at the Waste Isolation Pilot Plant (WIPP). Accordingly, the Contractor and CCP must comply with *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WAC) (recently issued Revision 8). The WAC also requires that the CCP produce documents, including a certification plan, that addresses applicable requirements and criteria pertaining to packaging, characterization, certification, and shipping of defense TRU waste to WIPP for disposal.

The Contractor having operational control of Area G has general management oversight responsibility for work performed by the CCP at TA-54, Area G. The Contractor is responsible for ensuring that CCP conducts its activities at TA-54, Area G in compliance with site requirements, as defined in a site-specific interface document between CCP and the Contractor.

The Contractor shall provide the necessary facilities and equipment for the CCP to perform their function within TA-54. The Contractor shall ensure that TRU waste meets the CCP requirements for shipment configuration and content before presenting it to the CCP process.

The Contractor is not responsible for the cost of CCP services for the TRU Waste certification program such as assay, radiography, EPA/NMED certification, Acceptable Knowledge determinations, etc.

The Contractor is responsible for the purchase of commodities (i.e. drums, solid waste boxes) purchased from the National TRU Program.

The Contractor is responsible for the cost associated with CCP onsite support such as access, work controls including safety and health physics, infrastructure support, utilities to the CCP equipment, waste inventory tracking, and physical waste movement into and out of the CCP facilities or structures.

### C.3.2.7 Tribal Nations

The Contractor shall support EM-LA in its communications with the Tribal Nations. The Contractor shall review Tribal documents prepared under the Los Alamos Pueblo Project (LAPP) run by EM-LA, such as the Pueblo human health risk assessments, prepare and present program briefings as necessary for the Pueblos, and support implementation of the agreements with the Pueblos (see Section J, Attachment J-16). LAPP includes the Pueblo de San Ildefonso, Santa Clara Pueblo, Jemez Pueblo, and Cochiti Pueblo.

The Contractor shall prepare all necessary access permits required for their work on Pueblo de San Ildefonso lands in accordance with the "*Memorandum of Agreement between the U.S. Department of Energy and the Pueblo de San Ildefonso*" and the three associated protocols:

- Protocol for Access to Pueblo Lands,
- Protocol for Protecting Confidential Pueblo Information, through review and release of data and reports, and
- Protocol for Inadvertent Discoveries of Native American Human Remains and Cultural Items.

EM-LA shall be the formal point-of-contract for submittal of access requests, information requests and reviews, and notifications to the Pueblo (Government-to-Government interface) unless EM-LA specifically authorizes the Contractor to act in this capacity.

### C.3.2.8 Regulatory Interfaces

EM-LA is the regulatory lead for all activities related to the 2016 Consent Order, the IP for Stormwater, the legacy TRU waste disposition activities conducted within TA-54 Area G, and radiological regulatory authority for cleanup activities. The Contractor shall propose strategies and solutions to EM-LA for concurrence or approval. Changes in previously accepted strategies require re-submission and re-approval by EM-LA. The Contractor is NOT responsible for any waste management activities (specifically TRU) that are necessary for the NNSA mission at LANL.

#### Protocol for Interfaces with NMED Regulatory Bureaus and other State Agencies

The Contractor shall ensure a representative of EM-LA is with them when contacting NMED personnel by telephone and in person. At the direction of EM-LA, the Contractor can talk to and meet with NMED staff without EM-LA personnel being present. When meeting with NMED Bureau Chiefs and above, the Contractor shall ensure an EM-LA Representative is in attendance. Telephone calls and meetings shall be documented in an email (minimum) or communications record provided to EM-LA within one week of the call or meeting.

The Contractor shall provide NMED Oversight Bureau access to facilities for inspection and meeting participation; implementation of agreements between DOE (EM-LA) and the New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB) and other bureaus; and logistic and technical support for public meetings by the agencies, to include, but is not limited to Remedy Statement of Bases meetings.

The Contractor shall obtain any necessary operator permits and relevant regulatory agency determinations, including but not limited to the following:

- air permits from the NMED Air Quality Bureau,
- drilling and withdrawal permits from the New Mexico Office of the State Engineer (NMOSE),
- discharge permits (including land application of treated waters and introduction of tracers into either groundwater or surface water) from the New Mexico Environment Department Surface Water Quality Bureau (NMED-SWQB) and Ground Water Quality Bureau (NMED-GWQB), and
- underground injection control (UIC) permits from NMED-GWQB.

The Contractor shall provide all permit applications to EM-LA for review before submittal. The Contractor shall include NA-LA and the NNSA M&O Contractor in the review of permit applications and modifications for which NA-LA or the NNSA M&O Contractor are the responsible owners.

**Protocol for Interfaces with U.S. Environmental Protection Agency**

The Contractor shall make every attempt to have a representative of EM-LA with them when contacting EPA personnel by telephone and in person. EM-LA will authorize the Contractor to talk and meet with EPA staff without EM-LA participation, as necessary. The Contractor shall document telephone calls and meetings in an email (minimum) or in a communications record provided to EM-LA within one week of the call or meeting. These protocols are particularly relevant for the NPDES Individual Permit for Stormwater (IP).

The Contractor shall be responsible for obtaining the necessary operator permits and relevant determinations including but not limited to new source preconstruction authorization applications. The Contractor shall provide all permit applications to EM-LA for review before submittal.

### C.3.2.9 Other Federal Agencies

The Contractor shall support implementation of the agreements with the New Mexico Department of Transportation (see Section J, Attachment J-16).

The Contractor shall interface with the U.S. Army Corps of Engineers (USACE) for a variety of activities applicable to the work scope including wetland management, floodplain assessment and notification, unexploded ordnance surveys, 401/404 permitting, etc. This may also include various tasks including *National Environmental Policy Act of 1969* (NEPA).

The Contractor shall notify the EPA of asbestos in EM-owned facilities planned for demolition (listed as *EM Owned Buildings and Structures* in the Facility Supplement to the *Memorandum of Understanding between National Nuclear Security Administration (NNSA) Los Alamos Field Office (NA-LA) and Department of Energy Environmental Management Los Alamos Field Office (EM-LA) for Transition of Legacy Environmental Cleanup Work at Los Alamos from NNSA to EM*, signed September 17, 2015.).

#### C.3.2.10 County of Los Alamos and City and County of Santa Fe

The Contractor shall interface with County of Los Alamos personnel as needed to execute the assigned work and provide support such as, but not limited to:

- provide support to EM-LA in meeting commitments;
- prepare presentations and briefings;
- respond to data calls and provide analysis;
- provide materials and publications;
- provide logistic support when requested; and,
- notify EM-LA (if not also in attendance) of commitments requested by the County of Los Alamos.

The Contractor shall provide field sample collection or screening at County projects located at former LANL structures and solid waste management units (SWMUs) to ensure no residual contaminants require disposal or mitigation, and shall provide this screening information to EM-LA and County personnel. In those rare circumstances where contaminants impact County land uses, the Contractor shall remove and dispose of contaminated media.

The Contractor shall implement the agreements with Los Alamos County (see Section J, Attachment J-16) including execution of the existing DOE Access Agreement for work on County Property and preparation of new site-specific access agreements for DOE and Los Alamos County approval to facilitate Contractor work.

The Contractor shall support EM-LA activities that may be required as a result of County economic development efforts and/or private property owner efforts on non-DOE property that may have previously been affected by LANL activities (see Section C.3.6.3, *Regulatory Management*).

The Contractor shall support preparation and meetings with the County of Los Alamos including monthly SWMU working group meetings, periodic Interdepartmental Review Committee (IDRC) meetings, periodic Public Works coordination meetings, trail committee meetings, and ad-hoc project-specific meetings.

The Contractor shall interface with County and City of Santa Fe personnel as needed to support EM-LA such as: meeting commitments regarding the Buckman well field sampling, planning and execution; preparation of presentations, briefings; respond to data calls and provide analysis; provide materials and publications; and, provide logistic support when requested. The Contractor shall

notify EM-LA personnel (if not also in attendance) of requested commitments by the County and City of Santa Fe.

#### C.3.2.11 Public and Stakeholders

The Contractor shall coordinate with the NNSA Public Affairs organization when communicating with the public and stakeholders in accordance with DEAR 952.204-75 Public Affairs (DOE 2000) and the *Memorandum of Understanding Between the National Nuclear Security Administration Los Alamos Site Office and the Environmental Management Los Alamos Field Office for Transition of Legacy Environmental Management Cleanup from NNSA to EM* such that the EM and NNSA messages are consistent. This coordination includes, but is not limited to stakeholder and oversight organization support, media relations, tours, visits, access to documents.

The Contractor shall support EM-LA in its communications with the public both in response to good-neighbor relationships and as required by regulatory permits (see Section C.3.6.3, *Regulatory Management*). The LLCC Contractor shall prepare presentations, briefings, data calls and analysis, materials and publications, and provide logistic support when requested. In addition, the contractor shall provide necessary technical support to the EM-LA Field Office and participate in stakeholder activities at the direction of the Contracting Officer. The Contractor shall support public meetings, such as the semi-annual public meetings for the IP for Stormwater.

Some of the current interfaces are:

- Northern New Mexico Citizen's Advisory Board (NNMCAB),
- Regional Coalition of LANL Communities,
- Natural Resources Damage Assessment Trustee Council,
- DOE public meetings,
- County and City of Santa Fe,
- Buckman Direct Diversion Board (BDDB) and project staff,
- Private property owners, as needed, on non-DOE property that may have been affected by previous LANL activities (see Section C.3.6.3, *Regulatory Management),*
- Local and regional non-DOE land management entities and private property owners,
- Non-DOE local and regional property owners including the U.S. Forest Service (USFS), National Park Service,
- Other Non-Governmental Organizations.

The Contractor shall perform research into past LANL activities, available analytical data, and any other available information to assist the non-DOE entities in determining what controls, if any, must be put in place to protect the public and workers and to comply with environmental regulations when conducting non-DOE entity work on property formerly owned and used by LANL but now owned by the non-DOE entities. When necessary (i.e., when unexpected conditions arise), the Contractor will arrange for other support, such as radiation protection monitoring, sampling, waste management, and fencing.

The Contractor shall assist the non-DOE entities in determining what controls, if any, must be put in place to protect the public and workers and to comply with environmental regulations when conducting non-DOE entity work on property formerly owned and used by LANL but now owned by the non-DOE entities. When necessary (i.e., when unexpected conditions arise), the Contractor will arrange for other support, such as radiation protection monitoring, sampling, waste management, and fencing.

The Contractor shall work with local and regional non-DOE land management to ensure those projects and other actions are tracked with regards to their proximity to SWMUs and areas of concern (AOC) where contamination from former LANL activities may result in exposure to the public and/or compliance issues.

### C.3.3 Safety Program Support

#### C.3.3.1 Integrated Safety Management System

The Contractor shall establish and maintain an Integrated Safety Management System (ISMS) for the contract performance period in accordance with applicable requirements. EM-LA will review and approve the Contractor's ISMS. EM-LA's expectations for safety standards are incorporated into Section J, Attachment J-1 *Requirements Sources and Implementing Documents (List A) and List of Applicable DOE Directives (List B)*.

The Contractor shall submit its *ISMS Description* for EM-LA approval. Until EM-LA approves the Contractor's ISMS Description, the Contractor shall adopt and implement the existing LCBC ISMS Description.

#### C.3.3.2 Environment, Safety, Health and Quality Program

The Contractor shall establish and maintain an integrated environment, safety, health, and quality (ESH&Q) program to ensure the protection of human health and the environment in performing the scope of this contract. The Contractor shall operate its ESH&Q program as an integral and visible part of Contract performance. The Contractor's ESH&Q program shall include effective work planning and execution, establish clear priorities, allocate the appropriate resources, establish performance measures, analyze performance, and take effective corrective actions. The Contractor shall develop and submit an *ESH&Q Program Plan* for EM-LA approval. Until EM-LA approves the Contractor's ESH&Q Program Plan, the Contractor shall adopt and implement the existing LCBC ESH&Q program.

The Contractor shall flow the applicable ESH&Q requirements down to all levels of self-performed work and all tiers of subcontracted work performance, and promptly identify and correct areas of non-compliance and performance concerns on self-performed and subcontracted levels of work performance. Where applicable, *Site-Specific Health and Safety Plans* (SSHASPs) shall be developed for specific work scope activities.

**Worker Safety and Health**

The Contractor shall develop and implement a single Worker Safety and Health Program (WSHP) that eliminates, limits, or mitigates the identified workplace hazards in a manner that is necessary and sufficient to provide adequate protection of workers and is tailored to reflect the activities and hazards in particular work environments. The Contractor shall submit for EM-LA approval, a *WSHP* in accordance with the applicable requirements of 10 CFR 851.102. The Contractor may adopt existing LCBC WSHPs as an interim measure.

When more than one contractor works in a shared workplace, the Contractor shall coordinate with the other contractors to ensure roles, responsibilities, and worker safety and health provisions are clearly delineated.

The Contractor shall immediately report all job-related injuries and/or illnesses that occur in any EM-LA facility to the COR. Upon request, the Contractor shall provide a copy of occupational safety and health self-assessments and/or inspections of work sites for job hazards for its EM-LA facilities to the COR.

After receipt of notice from the Contracting Officer of any noncompliance with the terms of the WSHP, the Contractor shall immediately take corrective action to resolve the noncompliance.

In the event that the Contractor fails to comply with the terms and conditions of this section the CO may, without prejudice to any other legal or contractual rights, issue a stop work order halting all or any part of the work. Thereafter, a start order for resumption of the work may be issued at the discretion of the CO. The Contractor shall not be entitled to an equitable adjustment of the Contract amount or extension of the performance schedule on any stop work order issued under this special Contract requirement.

The Contractor shall also provide an ergonomic equipment program that will support the Contractor and approximately 60 Federal and federal support service contractor staff such as providing condition evaluations and order and install items such as Vari-Desks, ergonomic chairs, keyboards, and computer mice.

The Contractor shall also develop metrics and statistics on the safe execution of work and present this information (including injury rates and lost work day cases) to EM-LA on at least a monthly basis and shall prepare an annual (fiscal year) worker health and safety report for EM-LA by the end of the calendar year. The Contractor shall share this information with the NNSA M&O Contractor such that LANL can compile site-wide reports.

**Occupational Medical Program**

The Contractor shall provide occupational medical program services either directly or obtain them from the NNSA M&O Contractor, for the Contractor and its subcontractor personnel and for EM-LA and its support service personnel. If the Contractor obtains these services from the NNSA M&O Contractor, then the Contractor shall establish an Interface Agreement as part of the transition process [see Section C.2.1].

The Contractor shall describe the occupational medical program in the *Occupational Medical Program Plan* and submit the plan for EM-LA approval.

**Chronic Beryllium Disease Prevention Program**

The Contractor shall develop a Chronic Beryllium Disease Prevention Program that supplements and integrates into the WSHP for those few sites containing beryllium contamination.

**Occurrence Reporting**

The Contractor shall provide Occurrence Reporting and Processing System (ORPS) reporting in accordance with DOE Order 232.2, *Occurrence Reporting and Processing of Operations Information*, for events related to the performance of EM work scope. The Contractor shall identify their point-of-contact (POC) for ORPS to EM-LA and develop any necessary procedures and training. The Contractor shall ensure the requirements for reporting are flowed down to all subcontractors.

**Mapping, Project Interferences, and Excavations**

The Contractor shall obtain and provide specific EM activity mapping coordinates and provide through the NNSA M&O Geographic Information System (GIS) to maintain a single coordination of Contractor activities relative to existing and planned LANL structures, systems, and plans, with culturally sensitive areas, and known locations of contaminants. The Contractor shall obtain a subject matter expert review of project interferences through the NNSA M&O Contractor's Project Requirements Identification System (PRID) prior to authorizing any field activities (see Section J, Attachment J-6). The Contractor shall obtain an excavation permit through the NNSA M&O Contractor's Excavation Identification System (ExID) prior to conducting any excavations (see Section J, Attachment J-6). The LANL excavation permit process and the requirements are described in LANL Procedure 101-17, *Excavation/Fill and Soil Disturbance.* The Contractor shall use the LANL Facility Locates program to verify areas for ground disturbances are free of identifiable utilities.

**Utility Markings**

Prior to conducting environmental field work on LANL, the Contractor will engage the NNSA M&O Contractor through the use of site procedures and requirements to call for the location mark out of buried utilities and structures and for the proper execution of hazardous energy controls and lockout/tagout processes. Prior to conducting environmental field work off of LANL property, the Contractor will engage the appropriate County utility department for the location of buried utilities and structures and the appropriate hazardous energy controls.

### C.3.3.3 Environmental, Safety, and Health Reporting

The Contractor shall report all Environmental, Safety, and Health (ES&H) Reports as required in DOE Order 231.1B, *Environment, Safety and Health Reporting*, and DOE Order 435.1, *Radioactive Waste Management*. The

Contractor shall flow down the applicable reporting requirements to all levels of self-performed work and all tiers of subcontracted work performance. The Contractor shall consolidate all information and serve as a single point of reporting to EM-LA for all environmental, safety, and health events and information.

The Contractor shall provide all required support for the preparation of annual and/or periodic consolidated LANL reports for all contract activities, including summaries of work performed, monitoring and assessment, compliance status, identification and resolution of problems, and other related activities. As part of the consolidated reporting activities, the Contractor shall provide the necessary support to multi-contractor LANL Site working groups responsible for report preparation.

#### C.3.3.4 Accident Investigation

The Contractor shall support all accident investigations for accidents on all self-performed and subcontracted levels of work performance, as required in DOE Order 225.1B, *Accident Investigations*. The Contractor shall establish and maintain readiness to respond to an accident; respond to all accidents; mitigate potential accident consequences; assist in preserving, collecting, and processing information and evidence from the scene of the accident; and provide all necessary support required to investigate the accident and support an accident investigation board.

#### C.3.3.5 Nuclear Safety Programs

**Safety Culture**

The Contractor shall provide and maintain a strong safety culture and a Safety Conscious Work Environment (SCWE), as required by DOE Policy 420.1, *Department of Energy's Nuclear Safety Policy*, DOE Policy 450.4A, *Integrated Safety Management Policy*, and DOE Guide 450.4-1C, *Integrated Safety Management System Guide*. The Contractor shall establish an employee concerns program as required by DOE O 442.1A, *DOE's Employee Concerns Program* and DOE O 442.2, *Differing Professional Opinions for Technical Issues Involving Environment, Safety and Health,* to encourage the free and open expression of employee concerns.

The Contractor shall set the expectation that employees have not only the right to raise concerns, but also the responsibility to raise concerns, and that they can do so without fear of retaliation. The Contractor shall take action to proactively address, or demonstrate adequate and effective response to, chilling effect (i.e., suppression of input, expertise, and opinions). The Contractor shall also demonstrate evidence of immediate, adequate and effective mitigation of substantiated allegations of harassment, intimidation, retaliation, and/or discrimination (for engagement in protected activity). The Contractor shall specifically focus on the three Safety Focus Areas of Leadership, Employee Engagement, and Organizational Learning.

The Contractor shall develop metrics that reflect the importance of the nuclear safety culture and provide *Nuclear Safety Culture Metrics Monthly Reports* and *Nuclear Safety Culture Metrics Annual Assessment Reports* to EM-LA. The metrics to be developed shall include direct safety metrics, worker involvement in all aspects of planning and work, the engagement of management, and the relationship between worker involvement and the successful execution of work without safety issue delays.

The Contractor's safety culture shall address recommended elements from the *Safety Culture Improvement Plan Report on Safety Culture and Contractual Language*, November 2015:

- Maintaining and implementing the approved Safety Culture Sustainment Plan;
- Improving trends in Corrective Action Program condition report (CR) corrective action effectiveness, self-identification, and percent of employees issuing CRs;
- Employee concerns performance which demonstrates responsiveness, employee satisfaction, and reduced recurrence;
- Conduct and effectiveness of management to employee engagement sessions (proactive vice reactive);
- Percentage/frequency of management time in the field, and engagements with employees within the workplace; and
- Attainment/maintenance of third party quality certifications (ASME NQA-1, ISO 9001, VIP, Baldridge, etc.).

EM-LA will be assessing the execution of a strong nuclear safety culture in the periodic contract evaluations. Although DOE Guide 450.4-1C, *Integrated Safety Management System Guide* is non-mandatory, the execution of best practices in the guide will be part of the EM-LA assessment and will include the three focus areas of leadership, employee engagement, and organizational learning. The Contractor shall coordinate their annual assessment report with NNSA M&O Contractor in the preparation of their nuclear safety culture assessment reports. Each report shall include a common conclusion section addressing the culture across the EM-LA legacy EM work scope.

**Radiation Protection**

The Contractor shall provide their own, fully compliant radiation protection program (RPP) for the EM work scope as described in this PWS. The RPP shall be submitted to and approved by EM-LA before conducting radiological work. The Contractor may begin radiological work using the NNSA M&O Contractor programs and RP personnel until the Contractor's RPP has been approved. The Contractor shall completely implement their approved radiation protection program within 9 months of contract award.

The Contractor's radiation protection program (RPP) shall include program management, oversight and performance assurance, procedures, qualification and training, operations and logistics support, radiological engineering, external and internal dosimetry, a personnel dosimetry program, dose reporting and

records, exposure monitoring within facilities or work areas, bioassay program, periodic monitoring of work sites and potential release sites, radiological control equipment and personnel, monitoring equipment and calibration services.

The Contractor shall assume custody of, operate, maintain, replace, and calibrate the network of continuous air monitoring samplers (eCAMS) for reliably monitoring WIPP drums in TA-54, Area G.

**Nuclear Safety**

The Contractor shall provide and maintain a compliant nuclear safety program that is sufficient to address the EM program activities. The Contractor shall utilize and comply with the existing nuclear safety authorization and safety basis documents that currently exist (until EM-LA replacement documents are prepared and provided as GFS/I (Section J, Attachment J-11, GFS/I) as a separate and discrete Contract Change. NA-LA will be conducting review of the implementation of the safety basis documents that are currently in place; the Contractor must work through EM-LA for resolution of all identified review issues.

The Contractor is to maintain the *Existing Safety Basis for all Hazard Category 2 and 3 Facilities* until the hazards are reduced to a level that the Safety Basis can be revised and facilities can be down-graded. The Contractor shall provide all changes to Safety or Authorization Bases to EM-LA for submittal to NA-LA who currently is the Safety Basis Approval Authority for the existing BIO and TSRs in Area G and to the EM HQ contact technical authority (Section J, Attachment J-11, GFS/I).

As part of the safety basis, the Contractor shall prepare a DOE Order 420.1C, *Facility Safety* Exemption from DOE-EM HQ for fire protection for the current TA-54 facilities. The Contractor shall support EM-LA discussions on the exemption. The Contractor shall implement the current exemption. DOE has provided a copy of the NNSA Fire Protection Exemption in Section J, Attachment J-11, GFS/I.

**Criticality Safety**

The Contractor shall provide and maintain a compliant Criticality Safety Program that is sufficient to address EM program activities. The Contractor shall utilize and comply with the existing nuclear safety authorization and safety basis documents that currently exist until EM replacement documents are prepared and approved.

### C.3.3.6 Emergency Management

The Contractor shall obtain emergency management response services such as security response, fire and rescue services, police assistance and coordination, medical response, emergency event notifications, and emergency storm warnings for lightning and flash flooding, etc. from the NNSA M&O contractor, as listed in Section J, Attachment J-6, in accordance with the interface agreements established in the *Transition Plan* [see Section C.2.1].

The Contractor shall establish an *Emergency Management Plan* as a contract deliverable specific to the scope of work under this Contract. The Contractor's plan shall coordinate and be compatible with the NNSA M&O Contractor's emergency management program and be compliant with DOE Order 151.1C, *Comprehensive Emergency Management System*. This includes providing technical base documents (e.g., hazard surveys and emergency planning hazard assessments) and technical resources to support the activities of the emergency operations center, which is managed by NA-LA, as well as receiving data and information notices and alerts as required. The Contractor shall take over the three emergency planning and hazard analysis documents that are applicable to TA-54, Area G and review, maintain, modify, or validate, as necessary. The Contractor shall participate in the site drill/exercise program. The Contractor's *Emergency Management Plan* must be reviewed and accepted by EM-LA; EM-LA will be coordinating the review with NA-LA.

The Contractor shall establish a Continuity of Operations (COOP) Program per DOE Order 150.1A. The Contractor shall provide to EM-LA as a Contract deliverable a COOP Plan and a Continuity Readiness Assurance Plan, which must be coordinated and compatible with the NNSA M&O Contractor's plans. The Contractor shall define the COOP Program to (a) shutdown environmental remediation activities to a safe walk-away condition and (b) shutdown CH-TRU operations and establish and maintain an absolute minimum safe (min-safe) shutdown condition. Min-Safe does NOT include a minimum regulatory compliant condition (e.g., RCRA weekly surveys).

The Contractor shall also provide an annual Emergency Readiness Assurance Plan for assessing the ability to respond to emergencies related specifically to the EM work scope activity related emergencies.

## C.3.4 Environmental Program Support

### C.3.4.1 Environmental Management System

The Contractor shall integrate with the NNSA M&O Contractor who maintains the LANL-wide Environmental Management System (EMS), and provide appropriate environmental data inputs (see Section J, Attachment J-6).

The Contractor shall provide status and updates of environmental field activities and plans, of environmental investigations and remediation, of environmental data and evaluations, and of surveillance activities and results for inclusion in the site-wide Annual Site Environmental Report (ASER) prepared by the NNSA M&O Contractor. The Contractor shall participate in the product peer review of this NNSA M&O Contractor document (five volumes), which typically is conducted annually in August and September.

Product peer review is the currently performed and expected future process for independent review of documents by individuals not involved in the development of the document to ensure the document meets requirements and is technical accurate and complete. This review part of the quality assurance requirements expected of all contractors. The Contractor shall provide EM-LA the opportunity to fully participate in this review before documents are finalized.

#### C.3.4.2 Sample Management Program

The Contractor shall establish a Sampling Management Program for the planning necessary for sample collection, limited on-site analyses for field screening only, field collection of samples, chain-of-custody controls, sample preservation, sample packaging and shipment for groundwater, surface water, soil, and debris sampling associated with EM-LA work scope. The Contractor shall include the development of S*tandard Operating Procedures for Sampling Management,* in the program, and submit to EM-LA for acceptability within 90 days of NTP. The Contractor shall submit significant changes to these procedures to EM-LA for acceptability review.

#### C.3.4.3 Environmental Sustainability

The Contractor shall establish an environmental sustainability program in accordance with the associated Section H clauses and is appropriate for the execution of work scope under this contract. The Contractor may coordinate with the NNSA M&O Contractor for shared support with CO approval.

#### C.3.4.4 Human Health and Ecological Risk Assessment Activities and ECORISK Database Maintenance

The Contractor shall establish and maintain a risk-based Human Health and Ecological Risk Assessment Program including integration, methodology development, and communication activities for human health and ecological risk assessments conducted for each of the cleanup activities to facilitate the regulatory acceptance of deliverables and translate to more reliable data interpretation, quicker review cycles, and easier contractor oversight. The Contractor shall integrate any necessary program change reviews with the NNSA M&O Contractor to support a single LANL site-wide system for multiple purposes across LANL. The Contractor shall contribute and include soil screening levels and screening action levels to work plans and reports for several exposure scenarios. The Contractor shall identify critical data gaps on the watershed scale, identify major contributors to watershed source terms, model ecosystem health, interpret significance of transport modeling results, and evaluate ecosystem health in the watersheds. The Contractor shall interface with the NNSA M&O Contractor for a nest box monitoring network in the canyons of the Pajarito Plateau (Section J, Attachment J-6).

The Contractor shall implement DOE Order 458.1, *Radiation Protection of the Public and the Environment,* in the remediation activities. The Contractor shall coordinate with the NNSA M&O Contractor such that the radiation protection program is not in conflict with NNSA M&O Contractor's site-wide implementation plan. The Contractor shall conduct technical reviews of tribal risk assessments and work plans. The Contractor shall also develop ecological preliminary remediation goals (EcoPRGs). The Contractor shall develop an interface agreement with the NNSA M&O for radiation protection program and provide a copy to EM-LA.

The Contractor shall maintain the ECORISK Database which contributes ecological screening levels (ESLs) used to assess potential ecological risk for a

SWMU, AOC, consolidated unit, or aggregate. This database shall include screening levels for use by the projects, to identify chemicals of potential ecological concern and receptors to investigate in the field and all of the supporting information including literature sources, exposure parameters, uncertainty factors, equations, and calculation results to document the derivation of ESLs. The Contractor shall provide updates based on changes in LANL, NMED, DOE, or EPA guidance; changes to transfer factors and other components of the calculations as required, and revised or new toxicity information from scientific literature.

#### C.3.4.5 Potential Release Site Database

The Contractor shall manage and maintain the Potential Release Site (PRS) Database, the electronic repository which contains official archived information regarding the location, description, spatial PRS boundary data, operational history, status, and investigation activities specific to each SWMU and AOC. PRS includes information, related deliverable information, and related investigation and remediation activities. The Contractor shall provide information requested, communicate information to *Final Site-Wide Environmental Impact Statement for Continued Operation of the Los Alamos National Laboratory (SWEIS),* LANL, DOE/EIS-0380, May 2008, personnel for inclusion into the annual update of the *SWEIS Yearbook* (Section J, Attachment J-7).

The PRS Database provides a dynamic resource that supports regulatory reviews, regulatory analyses, reporting activities, permitting activities, management activities and that accommodates a variety of information requests to support the activities of (DOE) (HQ and the Los Alamos Site Office), other Organizations such as LANL Legal Counsel, permits and requests for permit modifications, individual investigation and remediation projects, and institutional ExID and Project Requirements Identification System (PRID) requests.

The Contractor shall use the PRS Database to provide annual updates to the 2016 Consent Order Appendix A and identify the current status by progress in the RCRA process, by campaign progression, and by NMED acceptance of activities. The Contractor shall provide these annual updates to EM-LA on a schedule before the end of each Fiscal Year and updated following Congressional appropriation bill approval, as a minimum, in accordance with the 2016 Consent Order, Section VIII.C, Campaign Approach, Annual Planning Process.

#### C.3.4.6 Land Transfer

The Contractor will support land transfer activities (such as independent verification requirements), as appropriate, under Public Law (PL) 105-119 for the conveyance/transfer of land, as directed by EM-LA. Because NA-LA is the lead for land transfer, EM-LA shall coordinate with NA-LA and shall specify to the Contractor appropriate cleanup levels to be implemented in cleanup activities on transfer parcels, specifically at TA-21 and Rendija Canyon parcels which are the only remaining parcels destined for land transfer by NA-LA to the County of Los Alamos.

### C.3.4.7 Other Environmental Sampling and Monitoring Programs

The Contractor shall support Nest Box Monitoring Network activities in the canyons of the Pajarito Plateau. This program has been expanded over the last several years to provide information to the Human Health and Ecological Risk Assessment Programs of both the previous EM contractor and the NNSA M&O Contractor. The Contractor shall participate as requested in the sample collection and analysis and provide results for other site-wide reports (such as ASER).

The Contractor shall collect and provide environmental sampling data and other information collected that is related to soil, air, biota surveillance and monitoring to the NSNA M&O Contractor such that it can be used in assessing the impacts of operations on the environment and natural resources.

### C.3.4.8 Other Environmental Reporting Programs

The Contractor shall collect non-radiological air emission information during the conduct of the EM work scope activities such as decontamination, demolition, excavation, contaminant disturbances, sample collection, waste movement, temporary power generation, soil-vapor extraction, equipment cleaning, etc. The Contractor shall coordinate the development of non-radiological air permitting applications, permits, and reports per the Clean Air Act (CAA), New Mexico implementing regulations, and reporting per the National Emission Standards for Hazardous Air Pollutants (NESHAP) with the NNSA M&O Contractor (who has primary responsibility for LANL). The Contractor shall coordinate the preparation and submittal of applications, permits, and reporting with the NNSA M&O Contractor such that LANL site-wide permits and reporting is correctly administered. See the Airnet information and coordination with the NNSA M&O Contractor in Section J, Attachment J-6, that includes eleven Airnet stations between TA-21 and TA-54 Area G and three stacks at TA-54, Area G. The Contractor shall develop the necessary documents specific for this contract's activities and provide these documents to the NNSA M&O Contractor for coordination or submittal to the appropriate regulatory authority as follows:

- construction new source review permit applications shall be submitted to the NMED-Air Quality Bureau (AQB) by the Contractor;
- no permit required determinations shall be submitted to the NMED AQB by the Contractor;
- exemption requests shall be submitted to NMED AQB by the NNSA M&O Contractor;
- asbestos/demolition notifications shall be submitted to the NMED AQB by the Contractor, the Contractor shall copy the NNSA M&O Contractor, and the Contractor shall coordinate quarterly reporting with the NNSA M&O Contractor to the NMED-HWB; and
- Title V operating permit revisions necessary for EM work scope shall be coordinated and submitted to the NMED AQB by the NNSA M&O Contractor.

The Contractor shall collect radionuclide (or radiological) air emission information from the necessary EM work scope activities and locations of EM work scope required by NESHAP and provide to the NNSA M&O Contractor for consolidated LANL site-wide reporting. The Contractor shall coordinate and prepare any necessary pre-construction approval requests and submit to the NNSA M&O Contractor for submittal to the USEPA Region 6.

The Contractor shall collect data and records for work scope activities under this contract on refrigerants, volatile and semi-volatile chemicals used, toxic substances/chemical inventory, insecticides and fungicides and rodenticides, cultural resource impacts and use, emergency planning communications, etc., to support site-wide compliance reports, etc., required by the Toxic Substances Control Act; Federal Insecticide, Fungicide and Rodenticide Act; Emergency Planning and Community Right-To-Know Act of 1986; and cultural resource management laws and regulations. The Contractor shall enter their chemical usage information into the LANL Chem DB database. The Contractor shall provide the necessary information to the NSNA M&O Contractor, as necessary to meet consolidated LANL site-wide report schedules and Administrative Records requirements. The Contractor shall participate in the product peer review of the necessary reports.

The Contractor shall conduct site-wide monitoring, surveillance, and reporting for liquid effluents, drinking water, storm water, and groundwater flows or discharges only from EM sites or facilities to demonstrate compliance with the Clean Water Act, Safe Drinking Act, New Mexico Water Quality Control Commission regulations, and other water quality requirements. The Contractor shall coordinate implementation of the annual sampling plan for County of Los Alamos drinking water supply wells on LANL property (See Sections C.5 and C.7). The environmental monitoring program shall provide for on-site effluent monitoring; both on- and off-site environmental surveillance to measure both radiological and non-radiological constituents; and both on- and off-site erosion control monitoring, as required for specific contractor operations. Monitoring and surveillance includes both the continuous recording of data and the collecting of soil, sediment, water, air, and other samples at specific times. The Contractor shall evaluate and analyze this data, as requested. The Contractor shall coordinate the EM activities with the NNSA M&O Contractor activities such that the program is effectively managed for DOE.

#### C.3.4.9 Waste Management

The Contractor shall establish a waste management program for all environmental management waste streams that complies with DOE Order 435.1, *Waste Management*, requirements, U.S. Department of Transportation (DOT) requirements, and NMED requirements. This program shall include any program certification requirements such as for access to the National Nuclear Security Site (NNSS) in Nevada and to WIPP for TRU wastes. The Contractor may negotiate for temporary use of the NNSA M&O Contractor's certification program until the Contractor's program is established.

## C.3.5 Quality Assurance Program

### C.3.5.1 Quality Assurance

The Contractor shall establish and maintain a quality assurance (QA) program that meets the *Quality Implementation Plan (QIP)*, EM-LA, P 00.02, Revision 0, October 27, 2015, and the *EM Quality Assurance Program,* EM, EM-QA-001, Revision 1, June 11, 2012, and meets the applicable requirements specified in H.66, *Quality Assurance (QA) for Work Affecting Nuclear Safety*. The Contractor shall submit the *Quality Assurance Plan* (QAP) to EM-LA within 90 days of NTP for review and acceptance. EM HQ also will participate in the review and acceptance of the QAP.

### C.3.5.2 Training

The Contractor shall provide or obtain sufficient training to maintain the competencies necessary for all personnel assigned to the Contract work scope. The Contractor shall obtain mandatory training services from the NNSA M&O Contractor as listed in Section J, Attachment J-6. The Contractor shall flow the applicable training requirements down to all levels of self-performed work and all tiers of subcontracted work performance. The Contractor shall retain training records to support verification of personnel training as required.

The Contractor may obtain certain training programs from the NNSA M&O Contractor. This may include, but not be limited to the following:

- General Employee Training
- Training for information and other systems managed by M&O.

The Contractor shall ensure that all employees attend safety and security training once within 30 calendar days of beginning performance on this Contract and at least once annually thereafter. Contractor shall ensure that every employee is instructed to safely and competently perform the work.

### C.3.5.3 Standard Operating Procedures

The Contractor shall establish or adopt, existing SOPs for obtaining quality samples of various media. The Contractor shall ensure the SOPs are in accordance with applicable NMED and regulatory requirements. The Contractor shall submit the all *SOPs for sampling and future revisions* as deliverables to EM-LA for review and acceptance prior to implementation.

### C.3.5.4 Document Control

The Contractor shall develop, implement and maintain comprehensive and sound Document Control processes ensuring efficient tracking, retrieval, revision control and distribution of documents, including drawings. The LLCC Contractor shall provide a systematic and deliberate approach to the management of documents; define the points at which Documents are Controlled, and makes documents available electronically via the Electronic Document Management System (EDMS).

### C.3.5.5 Records Management

The LLCC Contractor shall manage all records (regardless of media) generated/received in the performance of the Contract, including records obtained from a predecessor contractor [historical records maintained on-site and at a FRC] in accordance with:

- 44 U.S.C. 21;
- 44 U.S.C. 29;
- 44 U.S.C. 31;
- 44 U.S.C. 33;
- 44 U.S.C. 36;
- 36 CFR Chapter XII, Subchapter B, *Records Management*;
- DOE O 243.1B, "*Records Management Program";*
- Presidential Memorandum M-12-18, "Managing Government Records"; and
- Any other DOE requirements as directed by the Contracting Officer.

The Contractor shall be responsible for records management and document control in support of its operation, which includes historical record collections stored on-site and at the FRC. All records subject to the management of the Contractor (e.g., records in support of its operation), are to be inventoried, scheduled and dispositioned in accordance with Federal laws, regulations, DOE Directives and approved schedules, and an approved Records Management Plan. The Records Management Plan (see Section J, Attachment J-2, Summary of Contract Deliverables) shall be submitted to the Government for approval within 60 days of the NTP, and updated thereafter when changes occur.

The Contractor shall develop and implement records management controls to ensure that the identification, maintenance and disposition of all records (regardless of media), including electronic and email, are managed utilizing an Electronic Records Management System (ERMS) in accordance with Federal and DOE requirements and guidelines for all records.

The Contractor shall develop and implement a process to ensure that electronic records submitted to the Records Management system are scanned or converted to meet National Archives and Records Administration (NARA) requirements. The Contractor shall develop an Image Quality Statistical Sampling Plan that is based on an industry standard (See Section J, Attachment J-2), and submit to EM-LA for approval within 60 days after NTP. All records (regardless of media) must be scheduled, arranged, and cutoff by collections (e.g., case file, project, chronologically, numerically, alphabetically, etc.) for proper disposition in accordance with the NARA-approved DOE Records Disposition Schedules, http://energy.gov/cio/guidance/records-management/disposition-schedules. The Contractor shall provide a web search capability for the ERMS to allow record searches. This search capability shall be made available to DOE and other site EM contractors as authorized by the Government.

The Contractor shall ensure records identified as QA records under *Quality Assurance Requirements for Nuclear Facility Applications,* American National

Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME), Nuclear Quality Assurance (NQA)-1-2008, March 2008, with 2009 Addenda, are:

- categorized (lifetime/non-permanent);
- managed in accordance with NQA-1-2008 and 36 CFR Chapter XII, Subchapter B; and
- maintained for traceability to the applicable item, activity or facility.

The Contractor shall develop and implement a plan to incorporate the processing of newly generated and historical records from potentially contaminated areas and those records stored in records vaults to ensure the prompt transfer of records to the records vault and/or release for storage at an FRC/NARA. Contaminated records, depending on retention period, can be reproduced to allow for retention of the copy as the “record” and destruction of the contaminated copy.

The Contractor shall respond to records management data calls by NARA and DOE, as requested and process record requests for the Freedom of Information Act (FOIA), the Privacy Act, the former worker medical screening program, the Chronic Beryllium Disease Prevention Program, congressional inquiries, legal discoveries, and other record requests (i.e., training, personnel, exposure, project, incident reports, visitor logs, etc.).

The Contractor shall ensure records that contain personally identifiable information (PII) are maintained in Privacy Act Systems of Records, in accordance with Federal Acquisition Regulation (FAR) 52.224-2, Privacy Act, and DOE Order 206.1, *Department of Energy Privacy Program*.

The Contractor shall implement records management requirements for the creation, maintenance and storage of audiovisual records in accordance with 36 CFR § 1237 and 36 CFR § 1235.42 and any updated NARA requirements/guidance.

The Contractor shall develop and implement a vital (also known as essential records) records program, including a vital records inventory in accordance with 36 CFR § 1223, Managing Vital Records, and DOE Order 243.1B, *Records Management Program*.

The Contractor shall develop and implement site-wide recordkeeping requirements that reflect adequate and proper documentation of all Contractor (and subcontractor) records generated / received (regardless of media) in the performance of their contracts as required by Federal regulations found in 36 CFR, Subchapter B, *Records Management*. The Contractor shall manage records contained in electronic information systems by incorporating recordkeeping controls into the system or export the records into the current ERMS in accordance with 36 CFR Part 1236, Electronic Records Management. The Contractor must design and implement migration strategies to counteract hardware and software dependencies of electronic records whenever the records must be maintained and used beyond the life of the information system in which the records are originally created and captured. The Contractor

shall provide a list of all electronic information systems to DOE annually utilizing the format provided by DOE, including Contractor-owned records.

The Contractor shall develop and maintain up-to-date EM records inventories, as well as EM program file plans and systems that provide for the identification, location, arrangement, assignment of disposition authority, and retrieval of all categories (record series) of records created and received.

The Contractor shall maintain and preserve all records, including the historical records collection (regardless of media) stored on-site and at the FRC. The Contractor shall be responsible for receipt of records, scheduled verification/validation or scheduling of records, importing into the ERMS, storage/preservation, indexing (paper), retrieval, copying and final turnover to DOE.

The Contractor shall develop and implement a Records Disposition Plan, which shall include processing records to storage (e.g., on-site, FRC) and the destruction process for records and information content. The Contractor shall disposition all records in accordance with the NARA-approved DOE Records Disposition Schedules and applicable federal laws and regulations. Disposition activities include scanning to electronic (permanent to NARA), transferring of paper records to an FRC, maintain electronically in an ERMS, and/or destroy once retention has been met and proper approvals obtained.

1) Ensure proper DOE Records Disposition Schedule assigned, box, index, complete transfer paperwork, and obtain DOE Records Management Field Officer (RMFO) approval prior to sending transfer paperwork and/or shipping inactive temporary records to a FRC and/or permanent records to the NARA.

2) Complete destruction certificate and submit to DOE RMFO for review and appropriate approvals prior to destruction.

#### C.3.5.6 Issue Management and Tracking

The Contractor shall provide an issue management system that effectively documents issues, documents corrective action plans, and documents issue closure. The Contractor shall ensure EM-LA can utilize the system as well as the Contractor.

### C.3.6 Distributed Technical Management and Support

#### C.3.6.1 Program Management

The Contractor shall provide the necessary program management, oversight and control necessary to effectively execute the contractor work scope. **The Contractor shall distribute this support to each PWS section as necessary to execute that section.** The Contractor shall not use Program Management for one segment to manage another segment, i.e., from C.6, Drilling, for managing C.4, CH-TRU.

### C.3.6.2 Technical Support

The Contractor shall provide technical support to ensure that a strong technical basis for decision-making has been established and implemented to support execution of work. Technical support includes investigation into commercial and DOE technologies applicable to remediation problems, white papers on regulatory and technical issues relative to this contract EM work scope, obtaining independent subject matter expert support, and documenting information upon which decision-making is based. In addition, the Contractor shall develop strategies to improve work product quality, consistency, and cost effectiveness

The Contractor shall provide necessary technical support including for technology development including analytical analyses and for technical training, conferences and papers.

### C.3.6.3 Regulatory Management

The Contractor shall comply with the applicable regulatory and other requirements in the performance of work under this contract including:

- Environmental laws, regulations, and executive orders (Section J, Attachment J-1, List A),
- Environmental state and local requirements (see Section C.1.9),
- DOE Directives (see Section J, Attachment J-1, List B),
- Existing permits (see Section J, Attachment J-16),
- Existing regulatory documents (see Section C.1.12), and
- Existing Site management documents (see Section C.1.13).

The key list of applicable regulatory and other requirements is identified in this section. This list is inclusive and not exclusive; the Contractor shall comply with all of the necessary and applicable Federal, State, and County of Los Alamos regulations. The Contractor shall integrate across the programs to ensure that deliverables are met, effective use of resources is provided, rework is minimized, required sequences are maintained, and resultant costs are minimized.

The Contractor shall prepare and submit to EM-LA and subsequently to either NMED or EPA all required regulatory and supporting documentation necessary to obtain regulatory approvals necessary to complete all work under this Contract. This document may include permits from one NMED bureau necessary to support approval of a work plan by another NMED bureau. In the case of the regulatory documents for which the NNSA M&O Contractor is responsible (such as the Hazardous Waste Facility Permit), the Contractor shall support the developing of the documents by providing the technical information and data regarding EM-LA activities, as necessary, to the NNSA M&O Contractor.

The Contractor shall proactively work with EM-LA to resolve technical issues arising out of regulator comments and direction.

**NOTE – regulators may provide permittee direction where the Contractor has permit primacy, but may not provide direction that infringes on this contractual relationship with EM and EM-LA.**

### C.3.6.4 Permits and Compliance Documents

The Contractor shall comply with, or assist the Government as appropriate with, all applicable site environmental permits and compliance documents, including supporting reapplications as necessary. The current permits and compliance documents are included in Section J, Attachment J-16. The Contractor shall pay all associated fees and filing costs.

The Contractor shall support (after appropriate coordination with all involved LANL entities) site-wide level regulatory reports, consent order and agreement tracking and closure information, and site-wide permit applications (including permitting operations or facilities included in the Site Treatment Plan). The Contractor shall maintain the RCRA Administrative Record and utilize the existing Information Repository and RCRA databases for all 2016 Consent Order work scope and provide all necessary other RCRA records to the NNSA M&O Contractor in a timely and routine manner to allow the maintenance of the RCRA Administrative Record under the appropriate permit.

**NOTE: The Contractor is only responsible for facility-specific regulatory compliance, record keeping, and permit applications at facilities the Contractor manages.**

Facility-specific issues or actions related to current or ongoing facility-specific permit applications, releases to the environment, and compliance issues are the responsibility of the contractor managing the facility.

Although not specifically regulatory in nature, the Contractor shall provide access to facilities, documents, and meetings to the New Mexico Environment Department, Oversight Bureau to allow EM-LA to meet the Agreements-in-Principle (AIP) - EM-LA will have LANL lead for managing the AIP and associated funding instrument. This effort is with the New Mexico Environment Department for providing non-regulatory oversight of EM legacy cleanup.

Although not specifically a requirements document, the 2012 *Framework Agreement, TA-54, MDA-G Transuranic Waste Removal*, establishes the relative priorities of each of the work segments under this contract. The Contractor shall comply with these priorities as follows:

a) Surface-stored combustible CH-TRU shall take precedence on the subsequent activities – as EM directs through the program splits by Program Baseline Summaries (PBSs) identified in this contract.
b) Groundwater protection activities
c) Surface water protection activities
d) Protection of drinking water supplies

Section J, Attachment J-16, has various existing agreements of mutual interest and involvement by NA-LA and EM-LA and designates NA or EM as the predominant lead on behalf of DOE. NA-LA and EM-LA agree to review each agreement, jointly determine warranted revisions, if any, and prepare draft revisions of each agreement instrument for subsequent review and approval by appropriate NNSA and EM management.

To the extent that any listed agreement requires DOE funding, and until such time as a revised / new agreement is in place, NA-LA and EM-LA agree to continue their respective funding amount or fair share amount consistent with recent past practice to the fullest extent legally practicable.

Although the Contractor will not have been a party to signing these MOUs/MOAs, or agreements; the Contractor shall conduct business to comply with or allow EM-LA to comply with these documents.

### C.3.6.5 Environmental Services

The Contractor shall support an environmental monitoring, analysis, and assessment program, to detect impacts of EM operations and to comply with DOE orders, regulations, and agreement requirements and coordinate with the NNSA M&O contractor (Section J, Attachment J-6) to prevent duplication of monitoring efforts and ensure the LANL site monitoring program is technically based and adequate to identify impacts from operations.

The environmental monitoring program shall provide for on-site effluent monitoring; both on- and off-site environmental surveillance to measure both radiological and non-radiological constituents; and both on- and off-site erosion control monitoring, as required for specific contractor operations. Monitoring and surveillance includes both the continuous recording of data and the collecting of soil, sediment, water, air, and other samples at specific times. Evaluation and analysis of such data will be performed, as necessary. Further, the Contractor shall install additional or modify existing monitoring locations as required or requested by DOE and/or regulatory agencies. The Contractor shall also conduct other monitoring, sampling, or inspection work as required by existing or future agreements with DOE or regulatory agencies.

### C.3.6.6 Habitat and Cultural Resource Management

The Contractor shall comply with the following program plans and shall assume applicable responsibilities in these plans to comply with the Endangered Species Act for candidate species on the LANL, e.g., the Mexican spotted owl, in the execution of EM work scope.

- *Threatened and Endangered Species Habitat Management Plan for Los Alamos National Laboratory,* LANL, LA-UR-14-21863, 2014,
- *Biological Resources Management Plan for Los Alamos National Laboratory*, LANL, LA-UR-07-2595, April 2007,

- *Biological Assessment of the Continued Operation of Los Alamos National Laboratory on Federally Listed Threatened and Endangered Species,* LANL, LA-UR-06-6679, 2006,
- *A Plan for the Management of the Cultural Heritage at Los Alamos National Laboratory,* LANL, LA-UR-04-8964, March 2006 (see Section J, Attachments J-24),
- *Candidate Conservation Agreement with the U.S. Fish and Wildlife Service* (Section J, Attachment J-16).

Work regarding habitat and cultural resources shall be coordinated with NA-LA and the NNSA M&O Contractor to ensure that EM activities are performed in accordance with the plan interpretations and that the controls are acceptable to EM-LA. Work conducted for cultural resources compliance shall be performed by a professional archeologist meeting the Secretary of the Interior standards.

### C.3.6.7 Natural Resource Damage Assessment Support

The Contractor shall support DOE EM and EM-LA for the purpose of complying with the Natural Resource Damage Assessment requirements under Section 107(a) and 120(a) of *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA). The Contractor shall prepare presentations and briefings on environmental remediation activities relative to potential restoration activities and provide monthly meeting support for EM-LA presentation to the NRDA Trustee Counsel. The Contractor shall support assessments and potential contract scopes for assessment by future independent DOE prime contractors only as directed by the Contracting Officer.

### C.3.6.8 National Environmental Policy Act Support

The Contractor shall determine early in the planning stage of any proposed activity whether it may trigger agency compliance with the NEPA and inform EM-LA in writing of the proposed action. The Contractor shall use the Integrated Planning Tool (PRID and EXID) to make initial NEPA determinations (See interfaces in Section J, Attachment J-6). For proposed actions, NEPA values must be addressed to the extent practicable and documentation of how those values are addressed shall be provided to EM-LA for a determination and approval by the NEPA Compliance Officer before the action proceeds.

The Contractor shall submit all NEPA information to EM-LA by the Contractor in a manner and extent that allows DOE to comply with NEPA requirements and to make a NEPA determination. The proposed activity may not proceed until all NEPA requirements have been satisfied. The proposed activity shall be compliant with DOE NEPA published at 10 CFR 1021, NEPA Implementing Procedures, and the DOE's NEPA Policy. The Contractor shall adhere to all requirements and conditions, including the implementation of mitigation measures, identified in any applicable NEPA decision document or categorical exclusion upon which a NEPA determination is based.

The Contractor shall provide support to NA-LA, the NNSA M&O Contractor, or an NNSA NEPA Contractor for the periodic review of the Site-Wide Environmental

Impact Statement for LANL (SWEIS). The Contractor shall also provide program descriptions and analytical information on potential environmental impacts from this contract's work activities, when requested through EM-LA. The Contractor shall coordinate decisions and records for the EM program activities with the NNSA M&O Contractor to ensure the activities are within the analyzed bounds of the SWEIS.

## C.3.7 Other Program Requirements

### C.3.7.1 Personal Property Management

The Contractor shall manage all assigned government-owned accountable and non-accountable personal property in accordance with the requirements listed below and in 41CFR101 and 41CFR109 (EM-LA is not responsible for any real property). The Contractor shall control classified equipment and material, if applicable in accordance with DOE Order 471.6, *Information Security* and high-risk property in accordance with DOE Personal Property Letter, Issue Number 970-3, Revision 1, February 3, 1998. Destruction or "rendering useless" of any component, equipment, and material, which are surplus to the DOE, is the responsibility of the Contractor.

This includes establishing a system to track the assignment and status of high-risk property specifically assigned to the Contractor. Prior to providing property for disposition, the Contractor shall characterize the property, maintain characterization records and provide those records at the time of property transfer.

### C.3.7.2 Information Technology and Cyber Security

The Contractor shall provide an IT infrastructure that includes servers, desktop and mobile workstations, telecommunications, network infrastructure and all other IT functions necessary to support the activities and requirements of this Contract. The Contractor shall protect any Sensitive Unclassified Sensitive Information (SUI) to include Unclassified Controlled Nuclear Information (UCNI) generated, processed, and stored within its facilities, under its administrative control, and/or within subcontracted areas of work performance. Information Security (IS) and Operations Security (OPSEC) procedures shall be developed to comply with DOE Policy 205.1B– Department of Energy Cyber Security Program, the DOE-EM Risk Management Approach Implementation Plan (RMAIP), and with EM-LA requirements for IS and OPSEC. The Contractor shall develop these security procedures before the end of the transition period and provide to EM-LA for acceptability review.

The Contractor shall be pro-active regarding cyber threats and IT systems shall be protected based on evolving threats in accordance with the *Federal Information Security Management Act of 2002* (FISMA). The Contractor shall complete a Federal Information Processing Standards (FIPS) Publication 199 Risk Assessment for each system it intends to operate, and deliver the completed assessment(s) to the Contracting Officer and to the DOE Authorizing Official (AO) for each system within 180 calendar days after completion of Contract Transition. The Contractor shall obtain an Authorized to Operate (ATO)

designation from the DOE Authorizing Official. The Contractor's IT Systems covered under this Contract shall operate in accordance with all terms and conditions specified in the corresponding ATO and shall not operate if a Denial of Authorization to Operate (DATO) has been issued. Subsequent maintenance of the System ATO's shall be contingent upon the Contractor's successful completion of regularly scheduled Continuous Monitoring (CM) Assessments. Regular CM Assessments are scheduled by the AO, usually on an annual basis. The AO may also schedule non-routine CM Assessments based on specific cyber security incidents or internal self-assessment results.

Where the Contractor stores or processes federally-owned data on commercially-provided IT systems (typically referred to as "Cloud" systems, the Contractor shall use only those commercial systems which have been authorized and certified for such use through the Federal Risk and Authorization Management Program (FedRAMP). The Contractor shall document such systems in the appropriate System Security Plan (SSP).

The Contractor shall make provisions in its SSP(s) for its supporting subcontractors' IT systems. The Contractor may apply a graded approach to the application of the requirements of this Contract, and the requirements of any SSP under which a supporting subcontractor may operate.

Major concerns addressed in DOE's cyber security and IT policies are the handling of SUI (to include personally identifiable information (PII), protecting all information and information systems from unauthorized access, and reporting to the DOE Joint Cyber Coordination Center (JC3) any significant attempts or successful intrusions into these systems by unauthorized individuals. The Contractor shall also implement OMB Circular No. A-130*, Management of Federal Information Resources,* Appendix III, Security of Federal Automated Information Resources, November 28, 2000 (https://www.whitehouse.gov/omb/circulars_a130_a130appendix_iiihttps://www.whitehouse.gov/omb/circulars_a130_a130appendix_iii) Implementation Guide.

Applications purchased or developed to support the mission under this contract shall be able to run on mandatory IT baseline security configurations without any deviations and must comply with the appropriate controls as documented in *Security and Privacy Controls for Federal Information Systems and Organizations,* National Institute of Standards and Technology (NIST), Joint Task Force Transformation Initiative Task Force, Special Publication 800-53, Revision 4, 2014 (or subsequent approved revisions). The Contractor shall deploy compensating controls on legacy applications while the applications are in production; such applications shall be replaced as soon as feasible as determined by the AO. All production legacy applications shall be documented in the requisite System Security Plan. The Contractor shall prepare a Plan of Action and Milestones (POAM) and submit to the AO for each legacy application to be replaced. The Contractor shall give priority to the use of federally available enterprise applications and licenses, if they exist, over the direct purchase of commercial products, or the development of custom IT solutions to implement the Contract; including enterprise solutions to provide cyber security.

The Contractor's Cyber Security personnel and privileged IT users, such as systems administrators, may be required to obtain a DOE Q clearance under this Contract. All Cyber Security personnel and IT personnel who have Incident Response and Contingency Planning responsibilities shall have a DOE Q clearance.

**IT Sustainability (Green IT)**

**Data Center Optimization**

Planning for Federal Sustainability in the Next Decade, if applicable, improve data center efficiency by installing and monitoring advanced energy meters in all data centers by FY 2018, and establish a power usage effectiveness (PUE) target of 1.2 to 1.4 for new data centers and less than 1.5 for existing data centers."

**Electronic Stewardship**

1) The Contractor shall deliver, furnish for Government use, or furnish for Contractor use at a Federally controlled facility, only personal computer products, imaging equipment, and televisions that, at the time of submission of proposals and at the time of the award, were EPEAT® silver-registered or gold-registered.

2) The Contractor shall ensure that energy-consuming products are energy efficient (i.e., ENERGY STAR® products or FEMP-designated products) at the time of contract award, for products that are:

    a. delivered;

    b. acquired by the Contractor for use in performing services at a Federally-controlled facility;

    c. furnished by the Contractor for use by the Government; or

    d. specified in the design of a building or work, or incorporated during its construction, renovation, or maintenance (unless the product is not listed or otherwise approved in writing by the Contracting Officer).

3) The Contractor shall ensure that all electronic products (that were furnished for Government or Contractor use are no longer needed) are reused, donated, sold, or recycled using environmentally sound management practices at end of life.

**IT System Inter-connectivity**

The Contractor shall provision its IT infrastructure with coordinated access to the necessary information for contract oversight activities that will be performed by the following entities.

- EM-LA staff of approximately 60 Federal and support service personnel; and
- NMED-Oversight Bureau personnel in their office on Diamond Drive (approximately 10 computers, a plotter, and several printers).

The Contractor shall make provisions for user and data access between the following systems and applications which are administered by the following operators:

| | System Name | Owner | Access (Client-server, web, etc.) | Platform (Oracle, MS, SQL, etc.) | Purpose or Use |
|---|---|---|---|---|---|
| 1. | ArcGIS Desktop<br>Geographic Information System (GIS) | Environmental Systems Research Institute (ESRI) | Client-Server | GIS | Industry standard GIS software. Used for environmental/geographical data analysis, mapping and modeling. |
| 2. | Earthvision | Dynamic Graphics | Client-Server | GIS | 3D geologic/subsurface modelling software. |
| 3. | MKS Toolkit | Martis Kurn Systems | Desktop | Unix Shell | Provides UNIX functionality to the Windows OS. Earthvision needs the MKS Toolkit in order to function. |
| 4. | Hummingbird Exceed | Martis Kurn Systems | Desktop | X Windows System | Allows Earthvision to access an X windows server. Some modules of Earthvision require the Motif Unix windows manager. |
| 5. | Grid Convert | Freeware open software | Desktop | GIS | Converts raster elevation grid data generated in Golden Software's Surfer to ESRI Grid format. Essentially this is simply translational software. |
| 6. | CDF Player | Wolfram Research | Freeware | GIS | A viewer for NetCDF files. |
| 7. | ArcPad Studio | Environmental Systems Research Institute (ESRI) | Desktop | GIS | GPS software for the Trimble GPS units. Serves as an interface for GPS/GIS data. |
| 8. | Font Viewer | Freeware open software | Desktop | GIS | A viewer for looking at system fonts. Useful when designing maps and deciding on what fonts to select. |
| 9. | Opera | Freeware open software | Web browser | GIS | -- |
| 10. | NT Lite | Freeware open software | Desktop | GIS | Packs and unpacks .iso images |
| 11. | CorpsCon6 | Freeware open | Desktop | GIS | Land surveying coordinate |

| | System Name | Owner | Access (Client-server, web, etc.) | Platform (Oracle, MS, SQL, etc.) | Purpose or Use |
|---|---|---|---|---|---|
| | | software | | | conversion utility. |
| 12. | PathFinder Office | Trimble | Client-Server | GIS | Differentially corrects GPS data obtained in the field. |
| 13. | Fugro Viewer | Freeware open software | Desktop | GIS | A viewer for inspecting LiDAR data. |
| 14. | 7Zip | Microsoft WinZip | Desktop | GIS | An alternative file zip utility |
| 15. | ArcHydro | Environmental Systems Research Institute (ESRI) | Client-Server | GIS | Add-in for ArcGIS that is used to analyze GIS data for hydrological purposes -- Stormwater program |
| 16. | Geomorphic Change Detection | LANL EES Program | Client-Server | GIS | Add-in to analyze LIDAR data. |
| 17. | Environmental Information Management System (EIMS) / IntellusNM | LOCUS Technologies, Inc. | Software as a Service (SaaS), hosted via Web Browser, unified cloud-based. | MS SQL with a 'user-friendly' interface | -- |
| 18. | AWD SOLIDS - Automatic Waste Determination (for Solids) | LANS | Integrated into EIMS | MS SQL | Previously used and still available. |
| 19. | NOI - Notice of Intent for Land Disposal of Water | LANS | Integrated into EIMS | MS SQL | Previously used and still available |
| 20. | AWD LIQUIDS - Automatic Waste Determination (For Liquids) | LANS | Integrated into EIMS | MS SQL | Previously used and still available |
| 21. | Integrated Review Tool (IRT) | LANS | Web-based application | -- | -- |
| 22. | Project Requirements Identification (PRID) | LANS | Web-based application | GIS backed | -- |
| 23. | Excavation Identification System (ExID) | LANS | Web-based application | GIS backed | -- |
| 24. | Environmental Management System (EMS) | LANS | Web-based application | Oracle | -- |
| 25. | Waste Compliance Action Tracking System (WCATS) | LANS | Web-based application | Oracle | -- |
| 26. | Los Alamos Material Control and Accountability System (LAMCAS) | LANS | Web-based application | Oracle | -- |

| | System Name | Owner | Access (Client-server, web, etc.) | Platform (Oracle, MS, SQL, etc.) | Purpose or Use |
|---|---|---|---|---|---|
| 27. | Correspondence and Communications Tracking System (CCATS) - Deliverables Tracking Database | LANS NIE Server | Client-Server | Linked to SharePoint, Microsoft Project Database. | |
| 28. | DOCCAT (Document Catalog) | LANS | Web application | Incorporated into SharePoint. | -- |
| 29. | Hydrogeologic Data Repository | LANS | Part of LOCUS Technologies EIMS – Web | MS SQL with a 'user-friendly' interface | -- |
| 30. | Electronic Public Reading Room (EPRR) | LANS | Web-based application | Java | It uses java, css, javascript, xslt for searching/presentation. The search engine is solr. The data is stored in the Library's repository (aDORe). |
| 31. | Facility Information Management System (FIMS) | DOE | Web-based application | Oracle 11G client software; MS ACCESS custom development | Nation-wide system |
| 32. | Chem Database | LANS | Web-based | ACCESS database | -- |
| 33. | Training Database, UTrain | LANS | Web-based | -- | -- |
| 34. | Radiation Protection IT System | LANS | Client-Server | ACCESS database | -- |
| 35. | Potential Release Sites (PRS) database | LANS Resides on DATASRV2 | ACCESS front end for data entry and maintenance. Webbased reporting. Linked to SharePoint for documents. | MS SQL data platform. | -- |
| 36. | RESSLIB - Lotus Domino Records Management and Document Control System | LANS | COTS application | migrated to Documentum | -- |
| 37. | Base Flows 05.xls; GFI Water Level Master 15.xls; PMR Water Levels | LANS | Desktop | Excel spreadsheet with VBA macros. | -- |

| | System Name | Owner | Access (Client-server, web, etc.) | Platform (Oracle, MS, SQL, etc.) | Purpose or Use |
|---|---|---|---|---|---|
| | 109.xls;<br>PMR Time Plots 23.xls;<br>PMR PreGas with Tables 70.xlsm | | | Imports data from ACCESS. | |
| 38. | Land App Queries | LANS | Client-Server | ACCESS database. | -- |
| 39. | Storm Water Tracking System/Erosion Reporting Application (SWTS) | LANS | Client-Server | MS SQL | Integrated into EIMS |
| 40. | Multi-Sector General Permit Discharge Monitoring report application | LANS | Client-Server | MS SQL | Integrated into EIMS |
| 41. | Individual Permit Discharge Monitoring Report | LANS | Client-Server | MS SQL | Integrated into EIMS |
| 42. | Maintenance Connection (MainConn) | Maintenance Connection | COTS Cloud hosted application. Standalone. COTS Mobile Application for MainConn for cloud access from iPad | Maintenance Connection (MC) database, Version 7.0. and iPad IOS software. | Used to manage, assign, and track work for BMPs and Storm water sampling equipment. Maintenance Connection uses a hierarchical structure to identify each Permitted Feature as a child of a rain gage, each SMA as a child of Permitted Feature, and each Station, Site, and BMP as a child of an SMA. Classifications can be used to define the general characteristics of any assigned assets.<br><br>Program also collects data in field for inspections of BMP control measures, sampling, and general inspections. |
| 43. | Hydstra<br>(to manage discharge and precipitation data) | Kisters | COTS application Client Server | MS SQL | Surface water data management software. Archieves stage data as discharge. Feet height to cubic feet per second. Manages precipitation data, Depth of precip every 5 mins. (also has capability to store information from sewer programs). |
| 44. | Xconnect<br>(to manage stormwater radio telemetry from dataloggers) | Sutron | COTS application, resides in Hydstra | ACCESS database interface; currrently being reprogrammed | Used to manage discharge and precipitation radio telemetry data (i.e., raw data), remotely program Sutron dataloggers, and manage the telemetry system. Stormwater program. |

| | System Name | Owner | Access (Client-server, web, etc.) | Platform (Oracle, MS, SQL, etc.) | Purpose or Use |
|---|---|---|---|---|---|
| | | | | to MS SQL. | Located on "Ground Control" server. |
| 45. | Perl (to analyze and plot data) | Freeware open software | Client-Server | Free standing software | Computing software |
| 46. | Python (to analyze and plot data) | Freeware open software | Client-Server | Free standing software | Computing software |
| 47. | Julia (to analyze and plot data) | Freeware open software | Client-Server | Free standing software | Technical computing software |
| 48. | Mathematica (to analyze and plot data) | Wolfram | Client-Server | Free standing software | Mathematical software |
| 49. | R (to analyze and plot data) | Freeware open software | Client-Server | Free standing software | Statistical software |
| 50. | Matlab (to analyze and plot data) | Matlab | COTS application | Free standing software | Mathematical software |
| 51. | Stanislaw Marczk's Excel/Visual Basic Spreadsheets | LANL EM Program | Desktop | Excel spreadsheet with VBA macros. | Used to screen water and sediment data against standards for the Annual Surveillance Environmental Report (ASER) used for the Stormwater program. |
| 52. | TR-55 | USDA | Desktop | Spreadsheet model | A spreadsheet model used to develop rainfall/runoff relationships for the Stormwater program. |
| 53. | HEC-HMS (Hydrogeologic Modeling System) | USACOE | Desktop | Free standing software | Simulate the complete hydrologic processes of watersheds for the Stormwater program. |
| 54. | HEC-RAS (River Analysis System) | USACOE | Desktop | Free standing software | Perform one-dimensional steady-flow, one and two-dimensional unsteady flow calculations, and sediment transport calculations for the Stormwater program. |
| 55. | Paul Mark's Armchair Inspector Program automated software | LANL EM Program | Desktop | ACCESS database; currently being reprogrammed to MS SQL. | Automated software used to determine if gaging stations sampled and to review the health of the gaging stations. |
| 56. | Greg Erpenbeck's Storm Water Tracking Systemn (SWTS) Scripts in Perl | LANL EM Program | Desktop | MS SQL | Automated software used to determine if gaging stations sampled and to review the |

| | System Name | Owner | Access (Client-server, web, etc.) | Platform (Oracle, MS, SQL, etc.) | Purpose or Use |
|---|---|---|---|---|---|
| | | | | | health of the gaging stations. |
| 57. | Orval Hart's EIM Storm Water Tracking System Scripts | LANL EM Program | Desktop | Oracle; currently being reprogrammed to MS SQL. | Used to pull precipitation data from the Weather Machine and XConnect and determine if there were any permit-driven precipitation threshold exceedances. |
| 58. | Orval Hart's Waternet Webpage on the LANL Environmental Webpage | LANL EM Program | Web-based page HTML | Visual Studio | Used by Buckman Direct Diversion (BDD) control room to examine the photos of gaging stations E050.1, E060.1, and stand-alone camera location E062 (downstream of E050.1 and E060.1) for flow confirmation; used by San Ildefonso to examine discharge data from gaging station E099 (required because this data is being transmitted real-time via radio telemetry to BDD); used internally to examine data from discharge data from gaging stations E050.1 and E060.1. |
| 59. | Xiaoguang Yang's RTU (Remote Telemetry Unit) GUI website | LANL EM Program | Web-based page | Visual Studio and GoogleEarth Interface | GIS-based communications website that shows real-time data from SMA sites. |
| 60. | Mike Proicou's RTU Firmware | LANL EM Program | on RTUs, copies on desktops | "C" and Assembly languages | Allows RTUs to interface between the ISCO and the mesh network. |
| 61. | Vinod Kulathumani's RTU Firmware | LANL EM Program | on RTUs, copies on desktops | "C" and Assembly languages | Allows RTUs to interface between the ISCO and the mesh network. |
| 62. | Mike Proicou's ISCO monitoring service | LANL ISR Program | Server based | C Sharp and Visual Studio | Program connects RTU information to Xiaoguang Yang's RTU GUI website |
| 63. | SigmaPlot | Systat | Desktop | Excel background | Statistical software |
| 64. | Surfer 8 | Scientific Software Group | Desktop | GS Scripter - a Visual Basic-compatible programming environment | 3-D mapping. Plots diagrams, maps, contours and images used in Stormwater and Groundwater Programs. |
| 65. | AutoCAD | AutoDesk | Client-Server | Free standing software | Open CAD files and see surveys. Draw and measure dimensional scales, piles, blocks, berms, and splash |

| | System Name | Owner | Access (Client-server, web, etc.) | Platform (Oracle, MS, SQL, etc.) | Purpose or Use |
|---|---|---|---|---|---|
| | | | | | pads. |
| 66. | Civil3D | Autodesk | Client-Server | Free standing software | |
| 67. | Alp 19.2 | Oasys | Client-Server | Free standing software | Predicts pressure, horizontal movements, and shear forces on piles. |
| 68. | HY-8 | Federal Hwy Admin (free) | Desktop | Free standing software | Culvert Analyses program. Analyses hydraulic situation and culvert shapes. |
| 69. | Visual Slope V6 | Visual Slope | Server based | Free standing software | Slope Stability program. Analyses of slope failures. |
| 70. | Win-Situ | In-Situ Inc. | Server based COTS | Free standing software | Groundwater elevation. Used to communicate with pressure transducers. Able to download and view pressure transducer data. The transducers also measure volume in the GW storage tanks. |
| 71. | Well CAD 5.1.1403 | Advance Logic Technology (ALT) | Server based COTS | Free standing software | Process and display borehole geophysical logs. The tools measure natural gamma and electrical conductivity for geological formations. Converts borehole geophysical logs to LAS format. |
| 72. | Matrix | Mount Sopries | Client-Server | Free standing software | Software for communicating with the tool. Drives the borehole tools to the correct depth and rate. |
| 73. | Multi meters | YSI | Equipment based | Free standing software | Use for groundwater field measurements. Measures pH, conductivity, dissolved oxygen, and temperature. |
| 74. | ECO Risk Database | ECO Risk | Client-Server | ACCESS database. | Ecological screening levels and documentation for informational purposes. |
| 75. | PMR exceedances v25 | LANS | Client-Server | Excel spreadsheet with VBA macros. | Program uses a data export from PMR Report in EIMS to screen data to groundwater and surfacewater standards; Provides various Consent Order report formats. |
| 76. | Settlement Report | LANS | Client-Server | Excel spreadsheet with VBA macros. | Program uses a data report export from the Groundwater Settlement Reporting Tool in EIMS and formats it for monthly data review and reporting. |
| 77. | All Analyses, Rejected, | LANS | Client-Server | Excel | Program uses a data feed from |

| | System Name | Owner | Access (Client-server, web, etc.) | Platform (Oracle, MS, SQL, etc.) | Purpose or Use |
|---|---|---|---|---|---|
| | QC | | | spreadsheet with VBA macros. | EIMS for purposes of providing a quick turn formatted data set for project-internal use; separates data (All Analysis, Rejected, QC) |
| 78. | html_tag_producer v04 | LANS | Client-Server | Macro for Excel developed by Stas Marczak. | This macro generates analyte concentration labels to be used on environmental sampling maps. |
| 79. | eRedBook 3.1.011 | Halliburton | Client-Server | Free standing software | well borehole volume calculations |
| 80. | POREGAS | | Client-Server | Macro | -- |
| 81. | TA16RDX | LANS EES Program | Client-Server | Windows | Plots Data |
| 82. | FEHM (Finite Element Heat Model) | LANS EES Program | Client-Server | Unix, Linix (Ubuntu, Redhat), Microsoft Windows, Apple OS X | Groundwater flow, gas phase flow, and contaminant transport modeling - high resolution - main workhorse code |
| 83. | MADS | LANS EES Program | Client-Server | Unix, Linix (Ubuntu, Redhat), Microsoft Windows, Apple OS X | Used for decision analysis, uncertainty quantification, and sensitivity analysis. |
| 84. | AMANZI | Internal (LANL plus other Nat. Labs) | Client-Server | Unix, Linix (Ubuntu, Redhat), Microsoft Windows, Apple OS X | Groundwater flow and contaminant transport modeling. This is a high-resolution model. |
| 85. | PFLOTRAN | LANS EES Program | Client-Server | Unix, Linix (Ubuntu, Redhat), Microsoft Windows, Apple OS X | Groundwater flow and contaminant transport modeling. This is a high-resolution model. |
| 86. | LaGrit | LANS EES Program | Client-Server | Unix, Linix (Ubuntu, Redhat), Microsoft Windows, Apple OS X | Numerical mesh generation for groundwater models. |
| 87. | PHREEQC (pH-REdox-EQuilibrium) | USGS | Desktop COTS | Unix, Linix (Ubuntu, Redhat), Microsoft | Geochemical modeling |

| | System Name | Owner | Access (Client-server, web, etc.) | Platform (Oracle, MS, SQL, etc.) | Purpose or Use |
|---|---|---|---|---|---|
| | | | | Windows, Apple OS X | |
| 88. | RESRAD (RESidual RADioactive materials) | Argonne National Lab | Desktop COTS | Windows | Environmental radiological dose assessment |
| 89. | ProUCL (Upper Confidence Limits) | USEPA | Desktop COTS | Windows | Statistical software for environmental data sets |

Additional systems may be added as the project and business needs change.

Any IT and electronic communication and control equipment that will be transferred from the LCBC to the Contractor shall be identified in the property inventory.

### C.3.7.3 Site Planning Efforts

The Contractor shall provide technical and progress information to support Site strategic planning efforts including site planning tools, documents and activities including developing the *Long-Term Strategy for Environmental Stewardship and Sustainability* and the *Site Ten Year Plan*. The Contractor shall tailor its investigation and environmental remediation schedules, and conduct its activities so as not to interfere with the Manhattan Project National Historical Park.

### C.3.7.4 Coordinated Information Management

The Contractor shall design, develop and implement an integrated information management system to support DOE, NMED, and EPA regulatory commitments and contract goals. The information management system shall use a mix of cloud based and locally hosted data systems to manage schedules, priorities, resources, and reviews of various specifications and design documents provided by information management staff and subcontractors. The system shall manage and coordinate the overall technical business processes; sample planning and management; field data collection and upload; laboratory data upload; data editing; geographic information system (GIS) database, information, tabular and map reporting, and data reporting personnel.

### C.3.7.5 Environmental Information Management System & Public Access

The Contractor shall input its environmental sampling data into the existing Environmental Information Management System (EIMS) database. The Contractor shall take over and manage the existing contract with Locus Technologies, the provider of the database containing the environmental sampling data (Section J, Attachment J-7 and Section J, Attachment J-6). The database provides the capability to organize, manage, and report sampling,

analytical and subsurface data in an external Cloud-based data system. EIMS' capability includes analytical chemistry data management, including auto validation, Electronic Data Deliverable (EDD) error checking, multiple EDD format uploads, and customizable valid values. The Contractor shall adopt the EIM's sample planning module with preprinted Chain-of-Custody forms, work lists, and bottle labels. EIMS interfaces with analytical laboratories to streamline data EDD uploads. It has a customizable permission levels and menus, with secure access, data reporting and data visualization capabilities to export multiple formats including Excel, Text, HTML, and Extensible Markup Language (XML). EIMS also has built-in commonly used statistical functions for trend, forecasting, compliance, and exceedance analysis. EIMS' web-based GIS module allows users to view and print data on maps with a graphical interface. The EIMS' process flow is identified in Section J, Attachment J-11, GFS/I.

EIMS includes roughly fifteen million total data points of which the environmental management work scope provided approximately 96% of the entries. Approximately one to one and a half million data points are generated annually. The Contractor shall NOT attempt to recover old data generated between 1970 and the advent of the 2005 Consent Order for entry into EIMS. The Contractor shall include all environmental data collected under the 2016 Consent Order in EIMS and shall allow the NNSA M&O Contractor and the NMED Oversight Bureau access to record all other environmental data collected at LANL to be input into the same cloud-based system.

The Contractor shall ensure that Intellus New Mexico (IntellusNM), (the cloud based, environmental database application [http://www.intellusnm.com/http://www.intellusnm.com/], which is a component of EIMS) remains operational and accessible for EM-LA, NA-LA, the NNSA M&O Contractor, and the NMED Oversight Bureau to use. IntellusNM is a publicly available, fully searchable data website that directly interfaces with the EIMS database. All environmental analytical data is managed and processed in EIMS, then, the data in EIMS are automatically transformed by nightly replications into IntellusNM.

The Contractor shall ensure that the IntellusNM database also makes analytical results provided in periodic monitoring reports (PMRs) and monthly notifications available to the public. The Contractor shall ensure that IntellusNM results are flagged to comply with the *Protocol for Protecting Confidential Pueblo Information* included in the Memorandum of Agreement between the DOE and the Pueblo de San Ildefonso (see Section J, Attachment J-16) regarding the release of analytical data collected from groundwater and base-flow samples at locations within Pueblo of San Ildefonso boundary.

Within EIMS (and subsequently accessible through IntellusNM), the Contractor shall maintain the Comprehensive Well Inventory database for all wells and boreholes across LANL. This database is the starting point for sample planning with location data. The Contractor shall allow the NNSA M&O Contractor and the NMED Oversight Bureau continued access for sample planning purposes of their own.

### C.3.7.6 Analytical Laboratories

The Contractor shall establish contracts such that all sampling can be processed through independent and off-site analytical laboratories. The Contractor may still collect screening samples for in-process field screening activities, but shall not use these screening results for compliance activities under the 2016 Consent Order, IP for Storm water, or radiological sampling information that will be provided to NMED regarding TRU waste operations. The Contractor shall utilize the NNSA M&O Contractor's analytical contracts with ARS and Southwest Research Institute (SWRI) until separate contracts can be established (See Section J, Attachment J-6 for interfaces with the NNSA M&O Contractor and Section J, Attachment J-7 for the analytical laboratory contractors).

The Contractor shall make whatever arrangements are necessary with the NNSA M&O Contractor until separate and equivalent contractual arrangements are established directly with any necessary analytical laboratories. The Contractor shall ensure that specified analytical methods meet minimum detection limits (MDLs) to satisfy State of NM standards and EPA target action levels for the IP. The Contractor shall require the analytical laboratories to input the sample results directly into IntellusNM through EDD through possible multiple EDD format uploads. The Contractor shall manage the data received from analytical companies, conduct monthly data review meetings, and provide one day and 30 day notifications, as required, to the NMED-HWB of review results in accordance with the 2016 Consent Order requirements (to include modifications).

The Contractor shall use commonly accepted analytical methods for the chemical analysis of water samples called for under federal statutes (such as the Clean Water Act) and approved by EPA. The Contractor shall be responsible for obtaining analytical services that support monitoring activities with samples for laboratory analysis submitted to accredited contract laboratories. The Contractor shall maintain laboratory subcontracts that are in compliance with DOE, NMED and all other regulatory requirements.

Unless EM-LA specifically allows an exemption, the Contractor shall only use accredited analytical laboratories that have successfully completed a Department of Energy Consolidated Audit Program (DOECAP) audit within the required audit period. The Contractor shall support the biannual DOECAP audits of analytical laboratories used for environmental sampling. Additionally, laboratories performing analyses in support of the Contractor for industrial hygiene programs must be American Industrial Hygiene Association (AIHA) accredited; and laboratories supporting personnel monitoring programs must be Department of Energy Laboratory Accreditation Program (DOELAP) approved.

### C.3.7.7 Use of Commercial Treatment, Storage, and Disposal Facilities

Unless EM-LA specifically allows an exemption, all commercial Treatment, Storage, and Disposal Facilities (TSDF) contracted for the Contractor's hazardous and M/LLW programs must be licensed, permitted, and have successfully completed a Department of Energy Consolidated Audit Program

(DOECAP) audit within the required audit period. The Contractor shall support the biannual DOECAP audits of TSDF's used for waste management.

Additionally, the Contractor shall evaluate and give first consideration to the DOE EM Consolidated Business Center waste contract vehicles and receive written approval from the CO to not use these contract vehicles prior to awarding any direct subcontracts or tasks to commercial TSDF's.

#### C.3.7.8 Energy Employees Occupational Illness Compensation Program Act

The Contractor shall support activities regarding the *Energy Employees Occupational Illness Compensation Program Act* (EEOICPA), as directed by EM-LA.

The EEOICPA establishes a program to provide compensation to current and former employees of the DOE, its contractors and subcontractors, companies that provided beryllium to DOE, and atomic weapons employers. Under EEOICPA, the DOE has a requirement to verify employment histories, provide medical records, and provide radiation dose records and other information pertinent to National Institute for Occupational Safety and Health (NIOSH) radiation dose reconstruction and U.S. Department of Labor (DOL) Subtitle B and Subtitle E case preparation for anyone who applies for compensation under EEOICPA.

The Contractor shall establish a program and respond to the requirements of the EEOICPA for all employees for which the Contractor may have records. These activities shall include:

1) Perform the work necessary to complete EE-5 Employment Verification Forms requested by DOL for the EEOICPA Subtitle B program.

2) Perform the work necessary to provide personnel exposure information requested by NIOSH as part of the EEOICPA Subtitle B program:

   a) Research and retrieve records needed to complete claims forms;
   b) If necessary, work with corporate entities or unions to verify employment of former site workers;
   c) Provide visitor personnel exposure or information requested;
   d) Complete declassification, as needed, of records required for the processing of claims form;
   e) Complete and sign off on all necessary claims forms associated with the request; and
   f) Return completed forms and records requested to NIOSH through the DOE Secure Electronic Records Transfer (SERT) system.

3) Perform the work necessary to complete Document Acquisition Requests (DARs) submitted by DOL as part of the EEOICPA Subtitle E program:

   a) Research and retrieve records needed to complete claims forms;

b) If necessary, work with corporate entities or unions to verify employment of former site workers;
c) Complete declassification, as needed, of records required for the processing of claims;
d) Complete and sign off on all necessary claims forms associated with the request; and
e) Return completed forms and records requested to DOL through the DOE SERT system.

4) Perform the work necessary to provide records requested by NIOSH or DOL as part of a site characterization or other special project under the EEOICPA program:

a) Complete declassification, as needed, of records requested by NIOSH or DOL for site characterization research projects; and
b) Coordinate all work with the site EEOICPA POC and the Office of Worker Screening and Compensation Support (AU-14) as applicable.

5) The Contractor shall respond to any other inquiries and perform special projects as required by the EEOICPA and approved by the Office of Worker Screening and Compensation Support (AU-14).

6) Perform other necessary EEOICPA related records work, as needed.

7) Maintain and appropriately arrange EEOICPA case files on all claims processed and ensure properly scheduled in accordance with the NARA-approved DOE Records Disposition Schedules.

8) Maintain local records to track the activities under EEOICPA and submit monthly financial reports through the DOE SERT system.

The response time for tasks (1) through (3) is 60 days from receipt of request.

The Contractor shall comply with the requirements of Section C.3.2.5, Safeguards and Security, and C.3.5.4, Document Control, and C.3.5.5, Records Management, and for the review and release of all records.

The Contractor shall not contest a state workers 'compensation claim or award determined to be valid pursuant to Subtitle D of the EEOICPA.

The Office of Former Worker Screening Programs has developed a list of records that are essential for DOE to fulfill its role under EEOICPA and the Former Worker Medical Screening Program. This list is not all-inclusive, but provides sufficient information to allow the Contractor to understand the types of records, including those under the Privacy Act Systems of Records that are needed by the Government. Also included are records requirements to ensure records preservation.

The Contractor shall interface with the NNSA M&O Contractor for information on employees that were previously NNSA M&O Contractor employees including

obtaining historical information and sharing current information with the NNSA M&O Contractor to settle claims.

### C.3.8 Infrastructure

General infrastructure support will be provided by the NNSA M&O Contractor to the Contractor. The NNSA M&O Contractor maintains site roads including snow removal, weed control, lighting, and sign maintenance up to the EM-owned areas and facilities. The NNSA M&O Contractor maintains other site grounds that are outside of the EM facilities and structures as identified in Section J, Attachment J-6.

The Contractor shall maintain and improve EM-owned infrastructure inside the EM-owned or operationally controlled areas and facilities, as needed, to support EM operations. This only includes infrastructure for which EM is responsible and that is not otherwise provided and maintained by the NNSA M&O Contractor as landlord, such as road spurs to well pads, stormwater control structures, purpose-built lagoons (e.g., chromium), etc. The Contractor shall coordinate planning and implementation of maintenance and improvement activities with the NNSA M&O Contractor, as necessary.

#### C.3.8.1 EM Operational Areas

The Contractor shall maintain the areas around EM operations as mapped in "*EM Operational Areas and Road Maintenance*" map_16-0025-05_EM_Features.pdf. This includes road maintenance on EM-controlled roads; snow removal within EM operationally controlled areas, removing noxious weeds, maintaining firebreaks and reducing fire loading, and other general maintenance. The NNSA M&O Contractor provides maintenance of areas around other EM work areas within the LANL boundaries. The Contractor shall develop and maintain an Interface Agreement with the NNSA M&O Contractor specifically for landlord responsibilities in Area 54.

The Contractor shall control work within all EM Operational Control Areas to implement DOE Conduct of Operations requirements including work authorization, daily work planning and authorization, access controls, fencing for access control, etc. The Contractor shall provide incident commander, safety officer, operations officer, entry teams, decontamination, safety, and rehab off-site or in completely EM operationally controlled areas such as TA-21. For EM Operational Control Areas, the Contractor shall interface with the NNSA M&O Contractor for Doppler radar and fire hazard warnings.

#### C.3.8.2 EM-Maintained Roads

The Contractor shall maintain and improve roads for which EM is responsible as identified on "*EM Operational Areas and Road Maintenance*" map_16-0025-05_EM_Features.pd which includes improved roads and "*Interim Facility-Wide Groundwater Monitoring Plan Sample Locations*,*"* map_16-0025-04_DOE_IFGWMP locations.pdf which includes road spurs to individual wells, well pads, and gage stations". These roads typically are roads for which no other LANL organizations have a use. Activities may include repairing erosion, removing snow, removal of noxious weeds, providing lighting, maintaining

signage, and other activities as needed to ensure sample crews can access the wells and cleanup sites.

The Contractor shall also plan, develop, perform grading and establish new roads, as needed for EM, such as well access roads. The Contractor shall interface with the NNSA M&O Contractor in locating and maintaining these new roads. The NNSA M&O contractor maintains all other site roads.

#### C.3.8.3 EM-Owned Facilities

The Contractor shall operate and maintain the EM-owned buildings and structures as listed in *Memorandum of Understanding between National Nuclear Security Administration (NNSA) Los Alamos Field Office (NA-LA) and Department of Energy Environmental Management Los Alamos Field Office (EM-LA) for Transition of Legacy Environmental Cleanup Work at Los Alamos from NNSA to EM,* Facilities Supplement, List of EM Buildings and Structures. This list includes space that the Contractor shall provide for CCP personnel at TA-54 Area G to support the EM legacy mission. The facilities located within TA-54 Area G will be maintained by the NNSA M&O Contractor in FY2017. However, on October 1, 2018, those facilities identified within Area G necessary for continued operations will be formally transferred to the Contractor, thus requiring the performance of maintenance by the Contractor that was previously conducted by the NSNA M&O Contractor. A revised list of Area G facilities to be transferred are identified on Section J, Attachment J-12.

The Contractor shall maintain needed facilities, equipment, and roads within EM facilities throughout the performance period to function at the same level and in the same condition, less normal wear and tear at the contract effective date. The Contractor shall provide the information updates necessary to support FIMS data reporting and management. FIMS reporting for EM-owned facilities is the responsibility of the Contractor and for NNSA-owned facilities is the responsibility of the NNSA M&O Contractor.

The Contractor shall obtain utility services from the NNSA M&O contractor for facilities listed in the MOU Facilities Supplement, List of EM Buildings and Structures. Utility services must provide adequate building safety and operational support.

The Contractor will maintain the grounds within TA-54 including all wildfire fuel mitigations within the TA-54 Area G Operating Area as required by the NNSA M&O contractor Emergency Management Operations and the Safety Basis requirements for Area G.

#### C.3.8.4 General Facility Management

The Contractor shall obtain services that include, but are not limited to: locksmith services, housekeeping or custodial services including pest control, non-radioactive solid waste disposal (i.e., trash) and recycling; daily mail; space planning and utilization; and moving of furniture and equipment for all EM facilities within this PWS. This scope also includes obtaining materials and services for maintaining print shop capability, copiers, and graphics.

Although EM-LA will provide for office space at the Pueblo School complex (which is the current office space of the LCBC contractor) and trailers for office space in Area-G, the Contractor shall provide minor facility maintenance that is outside the scope of the facility owner and documented in the facility lease agreements. The Contractor shall identify the expected quantities of spaces to allow EM-LA to determine whether additional space will be provided as GFS/I in Section J, Attachment J-11. The access control devices on the doors to the Pueblo complex are administrative controls for personnel access and not security requirements. If the Contractor chooses to retain these devices for facility administrative purposes, they shall isolate them from any NNSA M&O systems and shall make access provisions that includes the EM-LA personnel.

The Contractor shall also provide support in Area-G for five Federal or support contractor staff to oversee Area-G operations. The Contractor shall also provide offices, furniture, computers and IT equipment, and telephones for WIPP Central Characterization Project (CCP) personnel located in Area-G.

### C.3.8.5 Core Facility

The Contractor shall provide a facility for the safe storage of environmental cores and samples that meets preservation requirements of the American Society for Testing and Materials (ASTM) D5079-08, *Standard Practices for Preserving and Transporting Rock Core Samples* (publicly assessable). The current core facility houses 315 boreholes, with an additional 85 or so out for examination, and an additional recent 50 chromium cores still to be inventoried. The Contractor may share the existing Core Facility that is operated by the NNSA M&O Contractor and stores both cores from environmental activities which are the responsibility of the Contractor and cores from non-environmental activities which are the responsibility of the NNSA M&O Contractor. In this case, the Contractor shall consider the lowest cost option for DOE, not just for this contract. The current core facility is a warehouse section approximately 65 feet by 45 feet with five columns of shelves 14 feet high, each column containing 25 shelves, and each shelf containing 50 core boxes. The Contractor shall make the cores available to site geologists to support investigatory activities.

The Contractor shall also maintain a database of the core data; the current database being a Microsoft Access97 platform.

### C.3.8.6 Fleet Operations and Management

The Contractor shall provide or obtain fleet operations and maintenance services for vehicles transferred from the LCBC Contractor to the Contractor. The Contractor shall include up to six vehicles transferred from EM-LA that are to be dedicated to EM-LA. Replacement vehicles will be coordinated and obtained through the Government Services Agency (GSA).

## C.4 CONTACT-HANDLED TRANSURANIC WASTE DISPOSITION

The Contractor shall manage and disposition legacy CH-TRU waste at LANL TA-54 Area G. The CH-TRU wastes stream is included in the Section J, Attachment J-17, *CH-TRU Waste Stream Quantities and Details*. The Contractor shall also manage and disposition the NNSA-owned newly generated CH-TRU that is already within Area G, on a cost recovery basis from the NNSA M&O Contractor. The Contractor shall also manage and disposition some future quantity to be determined of newly-generated CH-TRU expected to be generated by the NNSA M&O Contractor under a contract change for an IDIQ CLIN and on a cost recovery basis from the NNSA M&O Contractor.

The Contractor shall ensure safe and compliant storage and shipping of CH-TRU waste containers, containers that have been re-characterized from TRU waste to M/LLW, secondary waste generated from Area G operations, and empty TRU waste containers that result from repackaging or remediation of TRU waste containers. This scope includes locating containers in above grade storage at TA-54 Area G and movement of containers to support remediation, characterization, and shipping within the Safety Basis.

This scope includes coordinating with the NNSA M&O Contractor to support administrative road closures for transferring containers to and from the Radio-assay and Nondestructive Testing (RANT) Facility for shipments to WIPP.

The Contractor is NOT responsible for remote-handled TRU waste processing except for reporting inventory, operational oversight and control as the Area G operator, and providing data on below grade TRU inventories. The contractor is also NOT responsible for operations of the RANT Facility used as the TRU waste shipping facility, or the LANL TRU Waste Storage Facility (TWF) (the last two of which will be the responsibility of NNSA). NNSA will actually be the shipper of record for EM CH-TRU waste shipments to WIPP.

### C.4.1 Contact Handled-Transuranic Waste Operations

CH-TRU operations scope includes the following waste streams retrieval and processing for final disposal. Some CH-TRU waste inventory may not meet the definition of TRU waste and will require offsite disposition as M/LLW through DOE approved off-site treatment, storage, and disposal facilities (TDSF). The TA-54 Area G waste inventories are broken down to the following subcategories:

- Above Grade Drum Remediation
- Oversized Container (OC) Remediation
- Trenches A-D Retrieval and Remediation
- Pit 9 Retrieval and Remediation
- Corrugated Metal Pipes (CMP) Retrieval and Remediation
- Other Retrievals - Retrieval and Remediation
- MLLW and Low Level Waste (M/LLW) Treatment and Disposal

The Contractor shall manage receipt, preparation, handling, and outgoing transfer of containers, maintain a waste inventory in coordination with the NNSA M&O contractor, manage secondary wastes, store materials and wastes, and provide general worker safety, industrial hygiene, nuclear safety, and radiological protection activities to execute this scope, as necessary.

The Contractor shall process and remediate CH-TRU waste to meet the WIPP Waste Acceptance Criteria (WAC) and shipment to WIPP. The Contractor will standup, operate, and maintain sufficient CH-TRU waste processing lines in Area G to address CH-TRU processing of those inventories, as required.

CH-TRU activities are typically conducted in Nuclear Hazard Category Class 2 and Class 3 TRU waste processing lines, as applicable. Buildings 412 and 375, Dome 231, and other facilities within Area G may be utilized by the Contractor. The Contractor shall modify facilities and waste processing lines to address the various TRU waste inventories through the processing evolutions of the CH-TRU waste campaigns.

WIPP requirements include, but are not be limited to, venting/head space analysis, absence of prohibited items, and ensuring radioactivity and fissile gram quantities meet the WIPP WAC. In addition to the field survey data, the Contractor shall collect, analyze and summarize waste generator records and other records in a report that provides a basis for planning the waste retrieval activities including critical lifts and the mitigation of job hazards. The Contractor shall address key parameters in the report for each waste package for waste/waste package characteristics and location conditions.

Drum venting includes installation of WIPP-approved filter(s), headspace gas analysis to verify drums meet Area G Safety Basis requirements for vented drums, and testing to ensure hydrogen is below the Lower Flammability Limit before transportation to Hazard Category II facilities within Area G for drum remediation or repackaging. Some drum venting equipment is currently in use and will be available.

In handling these CH-TRU wastes, it shall be necessary for some of the personnel to have “L” or “Q” security clearances.

#### C.4.1.1 Above Grade Drum Remediation

The Contractor shall process and remediate the TRU waste drum inventory that are currently stored above ground at LANL TA-54 Area G. This scope includes but is not limited to preparing, sorting, segregating, surveying and non-destructive analysis, processing, and characterization of the drums and their content to meet requirements for disposals at the WIPP or otherwise as M/LLW. WIPP requirements include, but are not be limited to, venting/head space analysis, absence of prohibited items, and ensuring radioactivity and fissile gram quantities meet the WIPP WAC.

The Contractor shall conduct non-destructive assay of the drums to determine whether they contain sufficient TRU waste quantities to be managed as TRU for disposition at WIPP or may be managed as M/LLW.

The Contractor shall prescreen and characterize waste containers to identify and segregate those that meet the definition of TRU waste from drums that are M/LLW. The Contractor shall conduct in-process assays of containers for splitting waste contents into TRU and M/LLW. The Contractor shall assay, sort, and disposition empty drums and secondary wastes.

#### C.4.1.2 Oversized Container Remediation

The Contractor shall perform remediation of several types of TRU waste Oversized Containers (OC) that are not approved for disposal of TRU waste at WIPP.

These OC must be processed and remediated before final characterization, certification, and disposition as CH-TRU waste at WIPP and/or as M/LLW can occur. OC include fiberglass-reinforced plywood (FRP) boxes, corrugated metal boxes, other than standard waste boxes (SWBs), direct-loaded SWBs, and thick-walled steel containment vessels called “Bolas Grandes” containment spheres are approximately 3 ft in diameter and 6 ft in diameter with gross weights ranging from approximately 2,400 pounds to 17,600 pounds that must be remediated.

The contents of the OC’s may include other containers such as drums, containment vessels, gloveboxes, metal cans, pipes, and tanks. OC’s characterized as M/LLW shall be repackaged and/or the contents subject to visual examination to ensure that the waste meets the waste acceptance criteria for the off-site TSDF that will receive and process the waste for final disposition.

The Contractor shall prescreen and characterize waste containers to identify and segregate those that meet the definition of TRU waste from drums that are M/LLW. The Contractor shall conduct in-process assays of containers for splitting waste contents into TRU and M/LLW. The Contractor shall assay, sort, and disposition empty drums and secondary wastes.

#### C.4.1.3 National Nuclear Security Administration Owned Newly-Generated Contact Handled-Transuranic Waste

##### C.4.1.3.1 NNSA-Owned CH-TRU Already Accepted into Area G

The Contractor shall perform remediation of several types of newly generated NNSA-owned CH-TRU waste that are not approved for disposal of TRU waste at WIPP that is already accepted by EM-LA and co-located within TA-54 Area G. The Contractor shall remediate this NNSA-owned CH-TRU through the SSSR process . This scope includes but is not limited to SSSR activities such as preparing, sorting, segregating, surveying and non-destructive analysis, and characterization of the containers and their content to meet requirements for disposals at the WIPP or otherwise as M/LLW.

The Contractor shall collect the costs associated with the handling of the NNSA newly generated CH-TRU and be paid through contractual agreements with the NNSA M&O Contractor, and provide to EM-LA for information only. An estimate of the quantity of these materials is included in the total waste quantities in Section J, Attachment J-17.

##### C.4.1.3.2 NNSA-Owned CH-TRU Not Yet Identified and Not in Area G

The Contractor shall perform remediation of several types of newly generated NNSA-owned CH-TRU waste that are not approved for disposal of TRU waste at WIPP and that have not been currently identified by NNSA and are not within

Area G at this time. The Contractor shall receive, store, and remediate this currently unknown waste stream through the SSSR process. This scope includes but is not limited to SSSR activities such as preparing, sorting, segregating, surveying and non-destructive analysis, and characterization of the containers and their content to meet requirements for disposals at the WIPP or otherwise as M/LLW.

Since this waste stream is not currently identified, the Contractor shall not include this waste stream in their proposal. The total quantity of waste to be processed will be based on NNSA's emerging needs and the Contractor's excess capabilities during the contract period. Therefore, this section shall only be authorized by the Contracting Officer under the IDIQ task orders referenced in Section C.14.5. The Contractor shall collect the costs associated with the handling of the NNSA newly generated CH-TRU and be paid through contractual agreements with the NNSA M&O Contractor, and provide to EM-LA for information only.

#### C.4.1.4 Trenches A-D Retrieval and Remediation

The Contractor shall retrieve and remediate CH-TRU in Trenches A-D consisting of high plutonium-239 equivalent (PE) curie (Ci) content TRU. The Contractor shall repackage drums for which integrity was compromised ("failed containers") and that were placed within reinforced concrete "casks" that had closure lids and subsequently placed below grade, over pack, and double pack retrieved containers as necessary to achieve a safe configuration, and stage the over packed and double packed containers for turnover to operations for processing and disposition. See Section J, Attachment J-17 for a detailed background of the container/casks in Trenches A-D.

The Contractor shall prepare the site including, but not limited to relocation of above grade containers and excess materials, site grading (approximately 2 acres), excavation of overburden covering the buried waste (approximately75,000 $ft^3$, e.g. approximately75% of total over burden), and establishing safety basis controls, including barriers, as needed.

Any high efficiency particulate air (HEPA) filtered containments that may be required shall be determined as necessary to execute the retrieval. The containment design and equipment selection, procurement, installation methods, and operations and maintenance activities will be subject of technical review by EM-LA. Based on the inspection and radiation survey the method of retrieving the waste container shall be approved by EM-LA.

Generally, casks containing structurally sound drums with no external contamination will be retrieved directly from the buried cask using lifting equipment. Retrieved containers will be inspected for identifying information. All drums will be over packed or double packed and vented to yield a safe configuration.

The Contractor shall process the Trenches A-D wastes to meet waste disposal criteria, as necessary. This waste stream will have to be integrated with the other wastes to be processed to ensure material-at-risk (MAR) limits are

maintained. Trenches A-D CH-TRU waste processing and remediation must meet the WIPP WAC and shipment to WIPP.

The Contractor shall restore the site to an interim but acceptable condition including backfilling the former cask locations and excavated area, removal from the site of all equipment and temporary structures including safety basis controls that are no longer needed, and grading and contouring the general site area. Spoil material may be available from a local pile.

#### C.4.1.5 PIT 9 Retrieval and Remediation

The Contractor shall retrieve the CH-TRU in Pit 9, drums (30-gal, 55-gal, 85-gal and 110-gal), boxes (various sizes), and other various containers. See Section J, Attachment J-17 for a detailed background of the drums and containers stored in Pit 9.

The Contractor shall prepare the site including relocation of containers and materials currently located on site, site grading (approximately 4 acres), excavation of overburden covering the buried waste (approximately 260,000 $ft^3$), and establishing safety basis controls including barriers as needed.

Waste retrieval activities may require HEPA filtered containments that may require relocation as the retrieval campaign progresses. Any HEPA filtered containment design and equipment selection, procurement, installation methods, and operations and maintenance activities will be subject of technical review by EM-LA.

The Contractor shall retrieve the Pit 9 CH-TRU waste containers and in situ repackaging waste from failed containers and over pack and double pack retrieved containers as necessary to achieve a safe configuration. It is assumed that structural integrity of approximately 15% of the drums will be impaired and thus will require special handling including, but not limited to, in situ repackaged waste.

The Contractor shall process the Pit 9 wastes to meet waste disposal criteria, as necessary. Pit 9 CH-TRU waste processing and remediation must meet the WIPP WAC and shipment to WIPP.

This waste stream will have to be integrated with the other wastes to be processes to ensure MAR limits are maintained and shipments to WIPP are optimized with containers are fully loaded.

The Contractor shall restore the site to an interim but acceptable condition including backfilling the trench and excavated area, removal of all equipment and temporary structures including safety basis controls that are no longer needed, and grading and contouring the general site area. Spoil material may be available from a local pile.

### C.4.1.6 Corrugated Metal Pipes Retrieval and Remediation

The Contractor shall excavate and retrieve the Corrugated Metal Pipes (CMPs) from below grade storage under about six feet of cover soil. The CMPs were buried in 1986 and the current conditions are unknown. The CMPs are filled with cement from a batch treatment process that mixed Portland cement with several liquid waste streams containing americium and plutonium. Each CMP is approximately 30-inch diameter by approximately 20 feet long, weighing 12,000 to 14,000 pounds as reported in *Corrugated Metal Pipe Category of Transuranic Waste Stored Below Ground within Area G*, LANL, EP2013-5171, LA-UR-13-26921, August 2013.

The Contractor shall appropriately manage the 2,000 to 2,500 cubic yards of earthen cover for potential use as backfill material.

Post retrieval, the Contractor shall process the CMPs CH-TRU wastes to meet waste disposal criteria, as necessary. This waste stream will have to be integrated with the other wastes to be processed to ensure material-at-risk (MAR) limits are maintained. CMPs CH-TRU waste processing and remediation must meet the WIPP WAC and shipment to WIPP.

The Contractor shall restore the site including backfilling the excavated pit with the original cover material plus additional fill from an existing soils stockpile in TA-54 Area G and grade and contour the site to a nominally initial grade, over seeded, and silt fencing installed.

### C.4.1.7 Other Retrievals and Remediation

The Contractor shall retrieve CH-TRU waste packages from shafts 262-266, 235 and 302-306. The waste packages are stored in eleven vertical lined shafts which extend above grade and have concrete caps or steel plates covering the top of the shafts. These waste containers and the configuration are described in *Hot Cell Liners Category of Transuranic Waste Stored Below Ground within Area G* and include the following:

- Hot Cell Liners - Five rectangular boxes approximately 6-ft by 6-ft by 11-ft having a maximum gross weight of about 6,200 pounds.
- Tritium Canisters - Five large canisters, similar in configuration to a remote handled (RH)-TRU canister, weighing up to approximately 2,700 pounds each.

Post retrieval, the Contractor shall process the shaft wastes to meet waste disposal criteria, as necessary. This waste stream will have to be integrated with the other wastes to be processed to ensure material-at-risk (MAR) limits are maintained. This shaft waste processing and remediation is designated SSSR with the objective to meet the WIPP Waste acceptance criteria and shipment to WIPP. Following the retrieval, the Contractor shall restore the site including backfilling the shafts, replacing any necessary concrete caps or steel plate covers on top of the shafts.

The Contractor shall provide field surveys, data collection, and preparation of a report addressing the conditions of the waste packages and Hot Cell Lines shafts 302-306 and Tritium Canister shafts 262–266.

#### C.4.1.8 Mixed Low-Level Waste and Low-Level Disposal

During CH-TRU operations, the Contractor will re-characterize waste that have been identified as TRU waste but after further analysis are determined to be LLW or M/LLW (depending on the availability of information on hazardous constituents). As a result, the disposal path for the waste changes from the Waste Isolation Pilot Plant (WIPP) to an off-site LLW disposal facility or off-site M/LLW TSDF. The quantity of TRU waste that is re-characterize to M/LLW is expected to increase during processing of TRU waste containers that are retrieved from below grade inventories. Much of the TRU waste in below grade storage was placed into storage when the segregation limit for TRU waste was less than the concentration of TRU isotopes in the current definition of TRU waste. The current definition of TRU waste also excludes waste contaminated with isotopes such as uranium-233 that was previously required to be segregated and stored as TRU waste. Overall, it is expected that approximately 30% of the TRU waste drums and the oversized waste containers that are retrieved from below grade storage will be re-characterize to M/LLW.

The Contractor shall ship M/LLW, typically resulting from re-characterization of TRU waste and from secondary waste processing operations, to off-site TSDFs. Additionally, it may be more efficient to decontaminate oversize items and containers to levels below TRU levels of contamination than to size reduce and repackage the containers. Approximately 90% of the oversize containers stored below grade might be decontaminated to/or re-characterize as M/LLW.

Unless EM-LA specifically allows an exemption; all commercial TSDFs contracted for the Contractor's hazardous and M/LLW programs must be licensed, permitted, and have successfully completed a Department of Energy Consolidated Audit Program (DOECAP) audit within the required audit period.

The Contractor shall use DOE national Treatment, Storage, and Disposal contracts where cost effective to do so. If using commercial treatment and/or disposal options, the Contractor shall prepare the DOE M 435.1-1, *Radioactive Waste Management Manual*, exemption requests for use of commercial disposal facilities, and provide to EM-LA to obtain approval.

### C.4.2 Safety Basis Development and Implementation

#### C.4.2.1 Initial Operations under Basis of Interim Operations

The Contractor shall take over initial TRU waste safe storage activities to maintain the current status of CH-TRU in TA-54 Area G under the current or revised Basis of Interim Operations (BIOs). This includes weekly monitoring and RCRA status inspections. CH-TRU processing operations will continue under the existing BIOs and safety analyses. The current BIOs and safety basis documents include the following [CH-TRU Ref-3 through Ref-8]:

- *Basis for Interim Operation for Technical Area 54 Area G,* LANL, January 2014.
- *Technical Safety Requirements for Technical Area 54 Area G*, LANL, January 2014.
- *Safety Evaluation Report for TA-54*, Area G, LANL, Revision 2.1, February 2014.

The Contractor shall be responsible for maintaining the above safety basis documents as necessary to meet the operational and nuclear safety needs for continued safe storage and CH-TRU waste processing activities.

The following documents are for reference only as they only apply to formerly used facilities that are NOT transferring to the Contractor and are NOT available for use. These documents may provide an understanding of what was, as a jumping off place for providing comparable functions within Area G.

- *Basis for Interim Operation for Waste Characterization, Reduction, and Repackaging Facility*, LANL, November 2011.
- *Technical Safety Requirements for Waste Characterization, Reduction, and Repackaging Facility,* LANL, November 2011.
- *Safety Evaluation Report,* LANL, SER WCRRF.01, Revision 2, November 2011.

### C.4.2.2 Readiness Activities

Prior to commencing CH-TRU retrievals for Trenches A-D, Pit 9, CMPs, and Other Retrievals, the Contractor shall conduct or participate in the Readiness Assessments (RAs) that will be conducted in accordance with DOE Order 425.1D, *Verification of Readiness to Start Up or Restart Nuclear Facilities*.

The Contractor shall conduct management self-assessments (MSAs) and contractor RAs as necessary and discuss the results with EM-LA. The Contractor shall prepare for and support EM-LA or EM HQ RAs and/or operational readiness reviews (ORRs) under the direction of EM-LA. The Contractor shall cooperate with EM-LA and provide support for its readiness assessments. The Contractor shall practice and simulate waste retrieval, processing, and shipping operations using non-radioactive materials and mockups to attain proficiency, refine work plans, and to ensure there are no gaps in the Nuclear Safety Management Programs. The Contractor's scope includes fabrication and assembly of mockups, as needed. The Contractor shall correct all deficiencies and findings from readiness activities assigned for its action.

If the LLCC organization, programs, and procedures are significantly different than the current LCBC organization, programs, and procedures, then a readiness review could be required prior to resuming operations.

Operational Readiness shall be required for all Area G TRU waste operations in “cold” or “warm” standby for more than one year. A list of activate TRU waste operations and stand-by operations can be found in Appendix J-12.

#### C.4.2.3 New Documented Safety Analysis

FOR INFORMATION BUT NOT PROPOSAL – EM-LA has separately contracted for development of a new Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR). When completed, EM-LA will provide the new DSA and TSR to the Contractor as GFS/I (listed in Section J, Attachment J-11) as a Contract Change. The Contractor will be provided the opportunity to review the proposed change, develop an implementation plan and cost estimate, and negotiate with EM-LA on the scope and timing of the contract change.

Following successful execution of an agreed to change, the Contractor shall, concurrent with operations under the existing BIOs and safety basis, develop the new suite of implementing operating procedures, and develop and implement the controls necessary to implement the new DSA and TSRs without adversely affecting existing operations. The new DSA and TSRs will be subject to modification to facilitate and enable decommissioning, remediation, and waste management activities based on the Contractor's specific approach. These controls are expected to include both administrative and physical controls. Activities shall include performance of TSR-required surveillances and In-Service Inspections (ISIs).

Following the appropriate readiness activities for the new DSA and TSRs, the Contractor shall operate the necessary facilities and process CH-TRU using the new DSA, TSRs, implementing controls, and operating procedures. The Contractor shall then maintain the DSA and TSRs to reflect any changing conditions or needs in compliance with 10 CFR 830(b).

The Contractor shall NOT propose to anything other than the current BIO and safety basis documentation.

### C.4.3 Contact Handled-Transuranic Waste Operations Support

#### C.4.3.1 Support Services

The Contractor shall provide support activities for all CH-TRU activities at TA-54 Area G, and shipping and safe storage (SS&S) operations at TA-54. The Contractor's support shall be provided for the following functions:

- Engineering for maintaining systems, structures, and components;
- Engineering for procurement reviews, modifications, Unreviewed Safety Question (USQ) support, maintenance work package reviews, and procedure development;
- Engineering for site layout, site preparation, drainage, traffic control, excavations requirements, and storm water control, and site restoration;
- Radiological Protection and Health Physics for all aspects of compliance with the LANL radiation protection program, including oversight of radiological control technicians, review of procedures, development of new radiological engineering controls, surveys, postings, dosimetry, source controls, and bioassay materials and equipment;
- Environment, Safety and Health subject matter expertise and oversight;

- Waste management coordination and technical support to manage M/LLW;
- QA for procurements, procedure reviews, receipt inspections, disposition of non-conforming items, and other aspects of adhering to QA programs;
- Work execution/procurement to interface with the maintenance organization, procurement team, project scheduler, and other logistical activities;
- Emergency management planning and conduct of emergency response activities including, but not limited to, drills and exercises;
- Regulatory compliance planning, execution, and tracking activities; and
- Decontamination services for equipment that is being released from the area or being tasked for other purposes.

#### C.4.3.2 Above Ground Container Retrieval, Handling and Storage Operations

The TA-54 operations center is available to support operations at Area G and can be manned during waste handling operations. The Contractor shall oversee access into the facilities in accordance with the Conduct of Operations requirements for CH-TRU.

The Contractor shall conduct operations and maintenance and provide equipment and supplies for placement, movement, and transport activities to retrieve below-ground waste containers, store, prepare, over-pack, characterize, and ship above-ground waste containers. Typical activities include, but are not limited to:

- Loading and offloading transport vehicles for incoming and outgoing waste containers at Area G.
- Administrative road closures for transferring containers to/from RANT, if RANT is continued to be used, or to another facility providing this function.
- Packaging and transport of waste containers to/from a facility in TA-54 Area G with the functions that used to be performed at WCRRF at TA-50 (that is no longer available for use).
- Over-packing CH-TRU waste containers stored above ground that have degraded over time. Containers may require over-packing into 85-gallon drums or SWBs due to integrity issues and to ensure safety and compliance with regulatory requirements.
- Retrieval, placement, and transport of drums, SWBs, and FRP containers to/from stacked storage arrays; this includes banding and un-banding pallets of stored drums and activities such as forklift movements, loading and unloading, and transport via trucks or other means. Special safety provisions are specified to handle and transport unvented drums.
- Over-pack containers (e.g., drums into SWBs) at TA-54 Area G and package the drums selected for loading into the TRUPACT-IIs. The containers shall be delivered to the RANT facility for loading, if RANT is continuing to be used, or to another facility providing this function.

- Transport to, off-loading, and inspecting containers during the receipt process at the RANT, if RANT is continued to be used, or to another facility providing this function. The Contractor is responsible (activity and cost) for the road closure for the movement of waste to RANT. The Contractor will execute this scope in coordination with the NNSA M&O Contractor. The Contractor will not have a role in the daily operation of RANT.

  Note: Under the LLCC Contract, the Contractor will transport the certified TRU Waste to the RANT Facility which will be operated by the NNSA M&O where the payloads will be assembled. The Contractor shall pay its share for the maintenance and operation of RANT through cost reimbursement with the NNSA M&O Contractor.

- The LANL M&O Contractor will have the role of "Shipper of Record" to WIPP. TRU waste shipments to WIPP will consist of both NNSA Newly Generated TRU waste and EM Legacy TRU waste to optimize payloads. CCP will develop the payloads in consultation with both the NNSA M&O Contractor and the Contractor.

#### C.4.3.3 Waste Isolation Pilot Plant Central Characterization Project Support

The Contractor shall provide the services to support CH-TRU waste operations for the legacy and EM-managed newly-generated CH-TRU already accepted into TA-54, Area G that are performed by others including the WIPP Central Characterization Program (CCP) as identified in Section J, Attachment J-7 and in the WIPP CCP Interface Agreement.

The Contractor shall support CCP activities such as CH-TRU waste characterization, certification, shipping operations, and vent/sample headspace gases in CH-TRU waste containers. CCP staff labor will be paid directly by EM-LA and not by the contractor.

### C.4.4 Disposal of LLW in Pit 38 for NNSA

The Contractor shall operate the last LLW disposal Pit 38 at Area G for a period of three years (FY2018-FY2020) for disposal of LLW received at the gate of Area G from the NNSA M&O Contractor. The Contractor shall not utilize Pit 38 otherwise for EM-generated LLW without specific EM-LA approval. Following completion of LLW disposal, the Contractor shall close Pit 38.The Contractor shall build an operational cover over Pit 38 and the adjacent Pit 37 in the fourth year (FY2021) that will remain in place until the Area G remedy is implemented under the 2016 Consent Order. Pit 37 and part of Pit 38 have been minimally covered with headspace materials.

The remaining disposal capacity of Pit 38 is approximately 2,500 m3 of capacity for disposal of **higher activity LLW** meeting the requirements established in Table 3-1 (Attachment 3) of the *LANL Waste Acceptance Criteria Solid Low-Level Waste (LLW),* P930.1. An additional 6,000 m3 of capacity is estimated to remain in Pit 38 for disposal of **lower activity LLW** meeting the requirements established in Table 3-2 (Attachment 3) of the LANL WAC.

The Contractor shall interface with the NNSA M&O Contractor for the radiological safety basis for Pit 38 that is contained in the *Performance Assessment and Composite Analyses* (PACA). The Contractor shall collect the costs associated with the handling of the operating Pit 38 and closing Pits 37 and 38 and be paid through contractual agreements with the NNSA M&O Contractor, and provide the cost information to EM-LA for information only.

### C.4.5 Facility and Equipment Maintenance

The Contractor shall maintain all facilities including, but not limited to, processing and storage facilities, roads, lighting, fencing, and grounds required at the TA-54 Area-G in proper-working condition. Maintenance of facilities involves routine repairs and upkeep of ancillary offices, storage buildings, roadways, and the surrounding grounds and includes, but is not limited to, vegetation trimming and grass mowing, janitorial services, pest control, and painting.

The Contractor shall maintain equipment that is needed for, but is not limited to, processing and operations, inspections, calibrations, lubrication, and replacement of moving parts including main facility support systems such as heating, ventilation, and air conditioning, communication systems, computer network, and fire protection systems.

### C.4.6 Facility Modifications and Upgrades

The Contractor shall conduct or support as needed on-going modifications and upgrades to nuclear facilities used for management of CH-TRU waste. The Contractor shall perform modifications and upgrades to these facilities if needed to address changes to the nuclear safety basis documents and resulting requirements (Section C.4.2.2). Anticipated modifications and changes include upgrades to fire detection and fire suppression systems, establishment of new Defined Areas that require additional radiological controls and liquid flow controls, and changes to ventilation systems required to process CH-TRU waste. Facility modifications and upgrades may require coordination under the Hazardous Waste Facility Permit with NMED.

### C.4.7 Facility Evaluation for Continued Use

The Contractor shall conduct facility evaluations of the facilities in TA-54 Area G that balance the continued operational needs for the CH-TRU processing and storage, the changes and planned changes in maintenance requirements and costs, changes in access and risks to other continued operations in order to determine whether unnecessary facilities can be excessed for demolition. Because specific facilities in TA-54 Area G that might be excessed for demolition cannot be known at this time, specific facility demolition will be accomplished under the Indefinite Quantity/Indefinite Delivery (IDIQ) task orders, Section C.14.

### C.4.8 Completion Reporting

The Contractor shall prepare and submit to DOE project completion reports for waste steam retrievals including Other Retrievals, Trenches A-D, CMPs, and Pit 9. The completion reports shall include verification that Key Performance Parameters and Project Completion Criteria as described in Project Execution Planning have been met, the project background, project scope, project highlights, schedule, cost summary,

performance metrics, lessons learned, safety performance, abnormal events, and project photographs.

### C.4.9 Waste and Waste Analysis and Control

The Contractor shall provide management of the all wastes inventory located at Area G, including planning, prioritization, and scheduling of container movements, characterization, processing, and disposal shipments to WIPP. The Contractor shall coordinate with the LANL M&O to duplicate, split off an EM copy, and maintain the LANL Waste Compliance and Tracking System (WCATS) information for EM managed wastes (see Section J, Attachment J-6 for interfaces with the NNSA M&O Contractor).

WCATS is the software application that has been specifically designed to manage LANL's waste from cradle to grave. The system provides the proper support needed for characterization, generation, processing, and shipment of all waste created at LANL including EM managed wastes. WCATS provides extensive support for representing waste storage and disposal facilities, buildings, rooms, and grid layouts to support waste and radioactive material inventory management including CH-TRU, MTRU, LLW, MLLW, and other solid waste). Field operations are conducted with mobile personal digital assistants.

Additionally, the Contractor is responsible for developing and implementing site-specific TRU waste program documents (plans) that address applicable requirements and criteria pertaining to packaging, characterization, certification, and shipping of defense TRU waste to WIPP for disposal. The Contractor shall provide technical support for Acceptable Knowledge (AK) report development, maintain waste records, and waste transfers for WIPP certification.

The Contractor shall conduct nuclear material inventory control at TA-54 Area G, including responding to data and information requests from authorized internal and external clientele. The Contractor shall utilize the Los Alamos Material Control and Accountability System (LAMCAS) to track and report shipments of materials that have radiological content that might require tracking (see Section J, Attachment J-6 for interfaces with the NNSA M&O Contractor).

### C.4.10 Remote-Handled Transuranic Waste

Although the Contractor shall NOT be handling or processing RH-TRU, the Contractor shall maintain the repository of information on RH-TRU, support EM-LA in preparation of draft documents for potential NEPA documents, potential exemption requests, possible preliminary project plans, draft specifications for facilities necessary to handle RH-TRU, and operational protocols for handling and processing RH-TRU.

## C.5 GROUND WATER MONITORING PROGRAM

The Contractor shall plan, manage, integrate, and execute all groundwater monitoring and sampling in accordance with a variety of programs listed below including maintenance to keep the structures operable and equipment in good working order. Should there be problems with the sampling program, the Contractor shall determine the criteria for potential replacement groundwater monitoring locations for wells, boreholes, and surface structures to be installed under Section C.6, Drilling. This scope includes all water-level monitoring, packer pressure transducers monitoring, all periodic sampling events, and analytical laboratory support (see Section J, Attachment J-6 for NNSA M&O subcontract interfaces and Section J, Attachment J-7 for other contractor interfaces) necessary to comply with the various sampling plans.

This program does NOT include installation of wells and boreholes (Section C.6), surface water (Section C.7), Research Department Explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) (RDX) (Section C.8), or Chromium remediation (Section C.9).

All program management, project management, document control records management, project controls, environmental information management and interfaces with NNSA M&O activities required to execute this section shall be provided to accomplish this Section and included in the cost basis of this Section CLIN. This support shall not be provided from under any other Section in this contract (outside this CLIN) in order to provide “all in costs” for this work scope.

### C.5.1 Groundwater Monitoring Process

The most significant requirement for monitoring groundwater are identified in the 2016 Consent Order, Section XII, *Groundwater Monitoring*.

#### C.5.1.1 Sample Planning

The Contractor shall plan for sample collection including examination of the current sampling program plan, planning field sampling to meet the three-week long campaign requirements, sample bottle identifiers (IDs) and labels, sequencing collection, facilitating any subcontractor activities, checking monitoring well water levels using telemetry, checking packer pressures provided by telemetry equipment, etc. utilizing the EIMS’ Sample Planning module (see Section J, Attachment J-11, GFS/I, for the EIMS Mind Map).

The Contractor shall include data quality objectives (DQOs) in the planning to optimize the efficiency of the project’s data collection, analysis, and assessment processes, and improve the quality and defensibility of project technical data.

#### C.5.1.2 Sample Collection

The Contractor shall use current LANL SOP for groundwater sampling or develop equivalent sampling procedures to collected groundwater samples from alluvial, intermediate, and regional wells using electric gear-driven submersible pumps (GSPs), bladder pumps, Bennett pumps, Baski pumps, hand bailers, or any other method not previously included.

The Contractor shall follow industrial standards common to environmental sample collection and field measurements that allow meeting NMED quality requirements.

### C.5.1.3 Purge Water and Waste Management and Disposal

The Contractor shall handle and dispose of purge water, contact wastes, decontamination fluids, and returned samples waste streams in accordance with a procedure set that the Contractor shall develop that meets State of New Mexico requirements. The Contractor may blue sheet, use, or replicate the NNSA M&O Contractor procedures set, which includes LANL Procedure P-409, *Waste Management;* LANL Procedure *Management of Environmental Programs Waste*, Revision 0, EP-DIR-SOP-10021, March 2012; LANL Procedure P-930-1, *LANL Waste Acceptance Criteria*; LANL Procedure P-930-2, *Waste Certification Program*, and the current version of the Interim Plan.

Approximately 125,000 gallons of purge water are anticipated to be generated across the seven watersheds annually based on a quarterly monitoring frequency of existing wells and should be escalated based on additional well construction listed in Section C.4, Drilling. All purge water from both existing and new wells shall be managed in accordance with the Notice of Intent (NOI) Decision Tree, approved by the NMED-GWQB, and Discharge Permit-1793. Radionuclide data shall also be reviewed and compared to current groundwater background levels to complete radioactive waste determinations.

The contact waste stream consists of personal protective equipment (PPE) (nitrile gloves), dry decontamination towels (paper towels), bailers, plastic or glass bottles, tygon tubing, discharge hoses, and other solid waste that comes into contact with potentially contaminated environmental media. The decontamination fluid waste stream consists of de-ionized water from decontamination activities including rinse waters. The volume of groundwater samples returned from analytical laboratories is anticipated to be small and infrequent, in that there are rarely returned samples.

### C.5.1.4 Subcontract Issuance and Management

The Contractor shall establish and maintain any subcontracts necessary to accomplish the field sampling campaigns within the schedules specified in the *Interim Facility-Wide Groundwater Monitoring Plan for the 2016 Monitoring Year, October 2015-September 2016* (IFGMP), LANL, EP2015-0085, 2015. These subcontracts shall require limitations on the deviations that might be contractor or subcontractor caused.

### C.5.1.5 Sampling Analytical Laboratories

The Contractor shall send collected samples required for compliance activities to contracted independent laboratories and shall ensure analytical laboratories return the data to EIMS. The Contractor shall review the analytical data from all groundwater monitoring conducted under the 2016 Consent Order received back from analytical laboratories during the previous month by the fifteenth day of

each month and shall notify NMED of any exceedances of six criteria in accordance with 2016 Consent Order, Section XXVI, Quality Assurance/Data Management/Data Review.

The Contractor shall coordinate all audit activities with DOE/Albuquerque Operations Office Analytical Management Program auditors of programmatic commercial analytical laboratories and shall interact with DOE/HQ on National EDD, analytical, and auditing efforts (Section J, Attachment J-11, GFS/I). The Contractor shall visit analytical laboratories to resolve issues of mutual concern and perform data package audits to review data quality on LANL data.

#### C.5.1.6 Data Availability to Projects

Following the data review, the environmental data in EIMS shall be made available to groundwater monitoring project personnel, other project personnel, and interested members of the public. The Contractor's groundwater monitoring program personnel shall support inquiries by the Contractor's other project activities for interpretive and evaluation purposes when groundwater information is needed by the other projects.

#### C.5.1.7 Hydrogeologic Data Repository and Geologic Framework Model

The Contractor shall maintain the Hydrogeologic Data Repository (database) of data obtained from previous well and borehole installations and new well and borehole drilling activities collected under PWS Section C.6. The Contractor shall include all available construction and geophysical testing information collected by the Contractor and the NNSA M&O Contractor for well and borehole activities across LANL. The Contractor shall maintain a Geologic Framework Model (GFM) of subsurface hydrogeological structures for subsurface remediation analyses and for well and borehole drilling activities. The Contractor shall provide requested data and model information to the NNSA M&O Contractor when requested. (See Section J, Attachment J-6, #9)

### C.5.2 Groundwater Monitoring Programs

#### C.5.2.1 Interim Facility-Wide Groundwater Monitoring Plan

The Contractor shall implement the IFGMP to fulfill the requirement in 2016 Consent Order, Section XII, Groundwater Monitoring. The Consent Order anticipates that monitoring plans for specific areas will change as the groundwater investigation objectives in 2016 Consent Order, Section IX, Cleanup Objectives and Cleanup Levels, are met. The IFGMP includes area-specific monitoring groups within seven major watersheds within the LANL boundary:

- Los Alamos/Pueblo Canyons,
- Sandia Canyon,
- Mortandad Canyon,
- Pajarito Canyon, and
- Water Canyon/Cañon de Valle,
- the combined watersheds of Ancho/Chaquehui/Frijoles Canyons, and

- White Rock Canyon.

The IFGMP shall also collect baseline data in areas outside the LANL boundary that have been affected by past Laboratory operations to ensure water leaving the LANL boundaries does not pose an unacceptable risk.

The Contractor shall collect and analyze groundwater samples at specific locations and for specific constituents to fulfill the requirements of the 2016 Consent Order. Groundwater-level data will also be collected to understand the occurrence and movement of groundwater including alluvial groundwater (shallow, near-surface) in the bottom of the canyons, intermediate-perched groundwater, and regional aquifer groundwater beneath the Pajarito Plateau.

The IFGMP describes all groundwater, base flow (persistence surface water), spring sample collection and the objectives for monitoring, the locations of sampling stations, the frequency of sampling, and the field measurements taken at each location.

During sampling, the Contractor shall notify NMED of the sampling schedule and allow the NMED Oversight Bureau to collect or split samples during normal sampling campaigns.

The Contractor shall collect, maintain within environmental and time parameters, package, and then ship all samples to the designated off-site analytical laboratory in a timely manner to allow the laboratory to conduct analyses within proper holding times.

There have been minimal changes to the IFGMP requirements from monitoring year to monitoring year. Typical variability in sampling requirements changes as dictated by NMED as about a 3% change from year to year. New wells or boreholes monitoring changes added each year will increase the IFGMP. In FY2013, these changes included the addition of biennial sampling for low level tritium, perchlorate, metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) at specified wells and all general surveillance monitoring group wells not already sampled for certain constituents; increase semiannual to annually sampling for metals, VOCs, SVOCs, HE and general inorganics at specified wells; and quinquennial sampling of high explosives (HEs), polychlorinated biphenyls (PCBs), dioxins/furans at all wells is specified monitoring groups. In FY2014, these changes included increasing sampling events from semiannually to quarterly at approximately 10 wells, increasing sampling events from annually to semiannually at specific wells, increasing sampling events to annually at approximately 10 wells, and adding multiple wells to the watch list. In FY2015, these changes included quarterly sampling at approximately 10 wells for VOCs and low-level tritium.

#### C.5.2.2 County of Los Alamos Drinking Water Supply Wells

The Contractor shall prepare an annual sampling and analysis plan (SAP) for monitoring the County of Los Alamos drinking water supply well waters (within and near LANL property) based on previous sample results, recent and localized groundwater investigation results, and changes in drinking water regulations.

The Contractor shall collect and analyze well water at the wellhead sample locations and report the results to the County of Los Alamos to ensure that water pumped for public consumption is in compliance with the Safe Drinking Water Act and NMED water quality requirements. Although this function is the responsibility of the NNSA M&O Contractor, the Contractor must support this function in accordance with the mandatory and optional services agreements in Section J, Attachment J-6. Off-site sampling is performed in coordination with Los Alamos County well operations.

#### C.5.2.3 City of Santa Fe Drinking Water Supply Wells at the Buckman Well Field

The Contractor shall prepare an annual SAP for monitoring the City of Santa Fe drinking water supply wells at the Buckman well field based on previous sample results and changes in drinking water regulations. The Contractor shall collect and analyze well water at the wellhead sample locations and report the results to the City of Santa Fe to ensure that water pumped for public consumption is in compliance with the Safe Drinking Water Act and NMED water quality requirements. The Contractor shall complete all groundwater sample collection at the City's Buckman well field; off-site sampling is performed under the annual SAP with the City of Santa Fe.

#### C.5.2.4 Pueblo de San Ildefonso Drinking Water Supply Wells

The contractor shall complete all groundwater sample collection at San Ildefonso in accordance with the annually updated and approved SAP, Appendix A under the "Memorandum of Understanding [MOU] for Environmental Monitoring" among DOE, the Bureau of Indian Affairs, and the Pueblo of San Ildefonso. As agreed to among the Pueblo, the Bureau of Indian Affairs (BIA), and EM-LA, the sampling described in Appendix A to the MOU will be performed by the Contractor and coordinated with DOE EM-LA and NA-LA, NNSA M&O Contractor and Pueblo-designated personnel. All activities shall be conducted in accordance with the June 2015 MOA and protocols. Failure to notify the Pueblo in a timely manner may result in the Pueblo's denying the request or determining an alternate date for sample collection. For any groundwater sample, with the exception of storm water samples (because of insufficient volume), the Pueblo may obtain a split sample as outlined in Section 6.d. of the May 28, 2014 Protocol for Protecting Confidential Pueblo Information (the Confidentiality Protocol).

### C.5.3 Reporting and Deliverables

The Contractor shall plan, track, and deliver products required under the IFGMP, providing deliverables to EM-LA within the timeframes specified in Section J, Attachment J-2, Summary of Contract Deliverables, before the required deliverable due date for DOE review and action.

#### C.5.3.1 Monthly Data Review Notifications

The Contractor shall notify the NMED orally within one business day after review of the analytical data from all groundwater monitoring received from

analytical laboratories during the previous month and submit written notification by the fifteenth day of each month, in accordance with the 2016 Consent Order, Section XXVI, Quality Assurance/Data Management/Data Review. Written notification shall be a letter report that includes in table format: the date or dates of the sampling event, an identification of the well or spring, the location of the well or spring, the depth of the screened interval of the well or zone sampled, a list of the analytical data that triggered the reporting requirement, any known issues with sample quality, and the specific category for which the data is reported under 2016 Consent Order, Section XXVI. The Contractor shall include NA-LA and the NNSA M&O Contractor on all notifications. Exceptions to the 1d and 15d notifications are the data collected from Pueblo, County of Los Alamos and City of Santa Fe wells which have a hold period for making this information public. The 1d and 15d notifications will be made upon expiration of the review period of data (typically 60 days).

#### C.5.3.2 Periodic Monitoring Reports

The Contractor shall prepare and provide PMRs of analytical results obtained from groundwater, base-flow, and spring samples collected under the IFGMP, in accordance with 2016 Consent Order, Section XII, Groundwater Monitoring. The Contractor shall submit PMRs quarterly on November 30, February 28, May 31, and August 31 and include period monitoring events concluded 120 days before the submittal dates. The Contractor shall submit electronic reports of results to the Pueblo of San Ildefonso, Los Alamos County, and City of Santa Fe. The City of Santa Fe shall also be send quarterly letter reports. The Contractor shall comply with the MOU and protocol requirements for data review for the Pueblo de San Ildefonso data.

The Contractor shall report any deviations from planned IFGMP scope identified during sampling campaigns in the appropriate PMR. The Contractor shall maintain a watch list of groundwater monitoring locations that have follow-up actions required because of concerns about the reliability and representativeness of water quality form those wells. The Contractor shall keep EM-LA and NMED-HWB appraised of watch list items.

#### C.5.3.3 Annual Update to the Interim Facility-Wide Groundwater Monitoring Plan

The contractor shall prepare an annual update of the IFGMP in accordance with the 2016 Consent Order, Section XII, *Groundwater Monitoring* and based on monitoring data obtained over the previous year and a search for new regulatory/statutory requirements. The updated IFGMP will specify the locations of alluvial, intermediate-perched, and regional groundwater as well as base flow and surface water monitoring to be sampled at and near the LANL; frequencies at which the sampling will be conducted, and identifies the analytics that will be analyzed for each sampling event.

The Contractor’s groundwater monitoring shall comply with the 2016 Consent Order, the NNSA-owned RCRA Hazardous Waste Facility (HWF) Part B Permit,

Atomic Energy Act (AEA), Toxic Substances Control Act (TSCA), and DOE Order 458.1, Radiation Protection of the Public and the Environment.

#### C.5.3.4 Annual Update to the County of Los Alamos Sample and Analysis Plan

The Contractor shall prepare an annual update to the County of Los Alamos Water-supply Wells SAP in coordination with Los Alamos County and with the participation of EM-LA. Although the Contractor shall prepare the SAP, it shall only be approved by EM-LA and the County of Los Alamos.

#### C.5.3.5 Annual Update to the City of Santa Fe Sample and Analysis Plan for the Buckman Well Field

The Contractor shall prepare an annual update to the City of Santa Fe Buckman Well Field Water-supply Wells SAP in coordination with the City of Santa Fe and with the participation of EM-LA. Although the Contractor shall prepare the SAP, it shall only be approved by EM-LA and the City of Santa Fe.

#### C.5.3.6 Annual Update to the Appendix A Sample and Analysis Plan for the Pueblo of San Ildefonso

The Contractor shall prepare an annual update to the Pueblo de San Ildefonso SAP, Appendix A to the MOU, dated 1996, among DOE, the BIA, and the Pueblo de San Ildefonso (Pueblo), prior to the beginning of the monitoring year (January-December). Although the Contractor shall prepare the SAP (Appendix A), it must be approved by EM-LA and the Pueblo de San Ildefonso Department of Environment and Cultural Preservation (DECP).

#### C.5.3.7 Triennial Update to General Facility Information Document

The Contractor shall prepare triennial updates to the General Facility Information (GFI) document based on the next required submittal in 2017 (by the LCBC Contractor) as required by modification submitted Jan 23, 2012 [EP2012-0009]. The scope of the report is also provided in this section and is a one-time submittal, unless new information becomes available.

#### C.5.3.8 Annual Update to Groundwater Aquifer Contaminant Maps and Fact Sheets

The Contractor shall prepare annual updates to the LANL regional aquifer contaminant maps and other fact sheets for submittal to EM-LA. The Contractor shall prepare a spreadsheet with the data to support these maps, prepare and submit a database update form, and update a booklet type document describing the contaminant plumes. These updates shall be developed, reviewed, and provide to EM-LA by March 1st each year.

### C.5.4 Operations and Maintenance

The Contractor shall operate and maintain the network of groundwater monitoring wells that are being monitored in compliance with the IFGMP in accordance with Monitoring

Well Maintenance Plan (EP2013-0067), which also includes maintenance activities to allow access to the wellhead for groundwater sampling activities.

## C.6 DRILLING

The Contractor shall plan, manage, integrate, and execute the drilling and installation of a variety of wells and boreholes of different types. Drilling wells and boreholes is contingent on the accurate specifications and needs as defined by the other projects and programs activities.

Wells and boreholes are difficult at LANL because of the very complex hydrogeology that varies across LANL, which is represented in Drilling Fact Sheets & Location Maps, and well completion reports in the LANL Electronic Public Reading Room that provide detailed information on borehole drilling, geophysical information and well construction.

All program management, project management, document control records management, project controls, environmental information management and interfaces with NNSA M&O activities required to execute this section shall be provided to accomplish this Section and included in the cost basis of this Section. This support shall not be provided from under any other Section in this contract in order to provide “all in costs” for this work scope. The steps included in drilling include planning, possibly subcontracting, drilling operations, well/borehole examinations, cutting sampling, waste management, well design, well construction, well completion, development, cap completion, and reporting.

### C.6.1 Drilling Process

#### C.6.1.1 Drilling Planning

The Contractor shall determine within the Section what required input needs to be received from the individual project teams (related to other work scopes within other sections of this contract) and request any additional specification required to fully define the work scope to be performed under this section of the contract. The Contractor shall then develop drilling work plans (DWP) under this section to include methods of construction and well configuration based on aquifer configuration, intended well use, and local experience drilling in the vicinity of the proposed location and NMOSE regulations for any of the specified drilling. The project or program requesting drilling (under other sections of this contract) shall provide the specific specifications, drilling location, and performance criteria for those drilling activities.

The Contractor shall develop a preliminary design for the proposed and anticipated well in the DWP. DWPs shall be submitted to EM-LA for approval before submittal to NMED for approval. The Contractor shall also develop a Spill Prevention and Control Countermeasures (SPCC) Plan and a Storm Water Pollution Prevention Plan (SWPPP) for each drilling activity.

#### C.6.1.2 Drilling Operations

In addition to the NMOSE requirements for drilling a well, the Contractor shall perform all drilling, borehole, and well installation and operations in accordance

with NMED's requirements and methods selected to optimize the potential of completing the well without the use of drilling additives in, or immediately above, the target zone of saturation. The Contractor may use fluids and additives to facilitate drilling provided they are consistent with those previously approved or are specifically approved by NMED for used in the drilling program at LANL and have been characterized geochemically. The Contractor shall complete and maintain records, detailing the type, amount, and volume of drilling fluid used, depth of drilling fluid added to the borehole, amount in storage in the borehole, and recovery volume of drilling fluid.

The Contractor shall notify EM-LA and NMED electronically when and where the ground water level is identified during drilling operations.

#### C.6.1.3 Well Examination (Open Hole)

The Contractor shall examine all wells, completed GW detections, and open borehole conditions including lithological logs of cuttings, water-level measurements, video logs, geophysical logs and driller's observations. The geophysical suite shall include, but is not limited to, the following tools: Triple Detector Lithodensity; Accelerator Porosity Sonde; natural and spectral gamma logs (Hostile Environment Natural Gamma Sonde), and Elemental Capture Spectroscopy Sonde.

#### C.6.1.4 Cutting Sampling

The Contractor shall collect bulk cuttings samples at specified intervals from ground surface to total depth (TD) for archiving in core boxes. The Contractor shall also collect sieved fractions (>#10 and >#35 mesh) from ground surface to total depth in chip trays along with un-sieved (whole rock) cuttings for archiving. Cuttings shall be screened for radiological constituents before removal from the site.

#### C.6.1.5 Waste Management and Disposition

The Contractor shall manage all investigation-derived waste (IDW) (drill cuttings, drilling water, development water, purge water, decontamination water, and contact waste) in accordance with RCRA requirements, NMED regulations, DOE orders, and LANL requirements. Drill cuttings shall be managed in accordance with the NMED-approved Decision Tree for Land Application of IDW Solids from Construction of Wells and Boreholes. Drilling, purge, and development waters will be managed in accordance with the NMED-approved NOI Decision Tree for Drilling, Development, Rehabilitation, and Sampling Purge Water. Both decision trees are provided in Section J, Attachment J-11, GFS/I. Any changes to the decision tree must be reviewed and concurred in by NA-LA and the NNSA M&O Contractor.

#### C.6.1.6 Design Final Well Configuration and Construction

The Contractor shall prepare a final well configuration design and obtain EM-LA and NMED approval before well installation. The Contractor shall complete construction in accordance with the approved design. Installation of all wells

shall be considered complete when the well casing has been installed to its final position and the casing rim can be measured relative to the ground surface.

The Contractor shall finish the surface completion construction for monitoring wells as either flush-mounted wells or above-ground completions in accordance with 2016 Consent Order Appendix F requirements, including installation of a locking protective casing around the well casing (riser) to prevent damage or unauthorized entry.

### C.6.2 Well Development and Water Sampling

The Contractor shall develop wells in accordance with the 2016 Consent Order Appendix F and NMED requirements within 30 days of the completion of well installation. The Contractor shall apply appropriate techniques (including both mechanical and chemical means) designed to bring the well to its maximum discharge capacity with attendant optimization of well efficiency, specific capacity, stabilization of aquifer material, and control of sand and suspended solids. The Contractor shall measure water-quality parameters during development and sampling, and IF unable to bring the water-quality parameters within specified measurement limits, the Contractor shall discuss chemical well development with EM-LA and NMED to obtain NMED approval. The Contractor shall consider well development complete when target water-quality parameters are met. The target water-quality parameters are turbidity <5 nephelometric turbidity units, TOC <2 ppm, and other parameters stable.

During development and initial sampling, the Contractor shall collect groundwater samples from the completed well between 10 and 60 days after well development for the full suite of constituents including radionuclides, metals/cations, general inorganic chemicals, high explosives, volatile organic compounds, and stable isotopes. During development and initial sampling, the Contractor shall allow the NMED Oversight Bureau to collect or split samples during development and during normal sampling, respectively. The Contractor shall collect subsequent groundwater samples under the IFGMP. The Contractor shall use the Laboratory's borehole video camera and natural gamma, and induction tools in the open borehole, if conditions allow. The suites run and timing of geophysical logging will depend on borehole conditions.

The Contractor shall conduct aquifer testing and hydraulic testing to identify if the well is in a significant water-producing horizon.

### C.6.3 Reporting and Deliverables

The Contractor shall develop and provide to EM-LA for approval and subsequent delivery to NMED (for their approval) the following reports or provide the following notifications:

1. DWPs including proposed methods, any additives, and the proposed well design.
2. Notifications of observed water level and notification of reaching total depth of drilling.
3. Final Well Configuration Design following well or open hole examination and evaluation.
4. Well completion summary Fact Sheet within 30 days of completion of each

regional aquifer well.

5. Well Completion Report within 120 days clock for regional aquifer wells beginning 30 days after well completion. Details of all drilling and well construction for alluvial and intermediate depth wells shall be included in site- or canyon-specific investigation reports (IRs).

The current knowledge on hydrology is represented on the Fact Sheets and Well Completion Reports for existing wells contained in the EPRR. These documents can be found using simple searches.

### C.6.4 Known Specific Well Activities

#### C.6.4.1 Monitoring Wells (4" Inner Diameter at Depth)

The Contractor shall drill all wells in compliance with the 2016 Consent Order Appendix F to obtain acceptable quality groundwater samples. EM-LA will determine the relative priority and timeframe instead of the completion date included in existing DWPs prepared under the previous contract.

**Construct Regional Aquifer Well R-61r (Replacement)**

The Contractor shall drill a replacement regional aquifer well R-61r to monitor water quality in the regional aquifer and to help define the vertical and lateral extent of chromium contamination known to exist in the vicinity of wells R-42 and R-28, in accordance with the NMED-approved DWPs, *Drilling Work Plan for Regional Aquifer Well R-61-r,* ESHID-600175, 2015-02-02. Timing of the installation of this well should be coordinated with the Chromium Plume Control Interim Measure and Chromium Plume-Center Characterization project as the exact location of the well may be dependent upon information collected during IM and Characterization operations. For planning purposes it is anticipated that this well would be installed the first half of FY2018.

**Construct Regional Aquifer Well R-54r (Replacement)**

The Contractor shall drill a replacement Regional Aquifer Monitoring Well R-54r in Pajarito Canyon, south of Material Disposal Area (MDA)-L, in accordance with the NMED-approved DWP *Submittal of the Drilling Work Plan for Replacement Regional Aquifer Well R-54rr,* ESHID-600287, 2015-03-11. The primary objective is to determine if contamination is present at this location. A secondary objective is to improve the detection efficiency for contaminants originating from S-Site Canyon and Fishladder Canyon.

**Construct Perched Intermediate Well R-55ir (Replacement)**

The Contractor shall drill a replacement Perched-Intermediate Monitoring Well R-55ir (Replacement) in Canada del Buey, adjacent to R-55, in accordance with the NMED-approved DWP *Submittal of the Drilling Work Plan for Replacement Perched Aquifer Well R-55ir,* ESHID-600286, 2015-03-11. The primary objective is to determine if contamination is present at this location. A secondary objective is to improve the detection efficiency for contaminants originating from S-Site Canyon and Fishladder Canyon.

**Construct Perched-Intermediate Monitoring Well R-26i**

The Contractor shall construct a Perched-Intermediate Monitoring Well R-26i in accordance with the NMED-approved DWP *Work Plan - Drilling Work Plan for Perched-Intermediate Well R-26*i *,* ERID-223029, LA-UR-12-23300, EP2012-0174. The primary objective is to determine if PCE detected in groundwater samples collected from R-26 PZ2 is present at this location. A secondary objective is to replace piezometer R-26 PZ2 with a properly constructed monitoring well to better evaluate the geochemistry of perched intermediate groundwater at the R-26 well location. The contractor should plan for installation in the first half of FY2018.

**Construct Perched-Intermediate Monitoring Well R-10i**

The Contractor shall construct a Perched-Intermediate Monitoring Well R-10i in accordance with the NMED-approved DWP *Work Plan for R-10iWork Plan for R-10i*, LA-UR-11-02184, 2011. The primary objective is to determine if nitrate contamination is present at this location. The Contractor shall discuss acceptable timeframe and coordination requirements for the contraction with the Pueblo de San Ildefonso and EM-LA. The Contractor shall prepare any necessary access agreements that EM-LA will need to sign with the Pueblo and shall make payment of fees for this well. (SIMR-2 on Pueblo lands resulted in fees totaling approximately $300,000.)

**Construct Regional Aquifer Monitoring Well R-65**

The Contractor shall construct regional Aquifer Monitoring Well R-65 in accordance with *Drilling Work Plans for R-64 and R-65*, LA-UR-11-00186, 2011.

**Construct Regional Aquifer Monitoring Well R-59**

Although a DWP for R-59 was developed in 2010, the Contractor shall evaluate the history of interactions around TA-50 and MDA-C and propose conditions for location of R-59, see, *Drilling Work Plan for Regional Aquifer Well R-59*, LA-UR-10-06502. NMED has approved six extension requests for providing a recommended location based on a lack of reason and in-opportune timing and priority. The Contractor shall prepare a revised DWP for well R-59 and a proposed location and timing of construction. The Contractor shall base the final well design on hydrogeological conditions encountered during drilling and submit a revised well design document to EM-LA and subsequently to NMED for approval. The Contractor shall not drill R-59 within the hazardous waste site boundary and a Radiation Work Permit shall not be necessary for the drilling activities. This well will support the CME and therefore anticipated installation is FY2019.

**Additional Monitoring Wells**

Additional monitoring wells may be authorized by the Contracting Officer under Section C.14, Additional Assignments, under CLINs 0004, 0007, or 0010.

### C.6.4.2 Core Holes and Piezometers

**Bore Hole Sandia Wetland Borehole 1**

The Contractor shall drill an investigation borehole that includes collecting and analyzing core and pore water from beneath the Sandia Wetland Borehole 1, *Drilling Work Plan for an Investigation Borehole beneath the Sandia Canyon Wetland*, ERID-525192. NMED has directed the Laboratory to drill a borehole and collect core to 400-ft depth at the location to further investigate a resistivity anomaly. Prior to drilling this borehole, the contractor shall determine if data from groundwater monitoring well R-67 has supported no longer needing this well and will work with NMED to remove this required borehole.

**Additional Core and Bore Holes**

When specified by the Contracting Officer, the Contractor shall collect core samples from core holes and shall drill boreholes and install piezometers. There are no specific locations for other core holes, boreholes, or piezometers at this time. These additional core holes and piezometers will be authorized by the Contracting Officer under Section C.14, Additional Assignments, under CLINs 0004, 0007, or 0010.

### C.6.4.3 Additional Injection or Extraction Wells

The Contractor shall drill additional injection or extraction wells at locations determined by analysis of the groundwater remediation projects (e.g., chromium and RDX) as specified by the Contracting Officer. The performance criteria for additional wells are not currently known; however it is anticipated that they will be similar to those installed for the Chromium Plume Control Interim Measure and Chromium Plume-Center Characterization. Information related to these extraction and injection wells can be found on the EPRR. These additional injection or extraction wells will be authorized by the Contracting Officer under Section C.14, Additional Assignments, under CLINs 0004, 0007, or 0010.

### C.6.4.4 Technical Area-21 Westbay Wells and Sampling System Reconfiguration

The Contractor shall reconfigure monitoring wells that include the Westbay well sampling system components and remove those Westbay well sampling system components. The Westbay well sampling system is proprietary information and will require the vendor’s support. The Contractor shall deflate any packers, remove any necessary casings, remove any necessary sampling strings, conduct any logging of the holes, recommend any screens to be retained or those to be abandoned, and provide a revised well and sampling system design for EM-LA and NMED approval. The Contractor shall install purgeable sampling systems that will allow meeting 2016 Consent Order water quality requirements for each well screen required to be kept by NMED in accordance with Appendix F and Section IX, Cleanup Objectives and Cleanup Levels. The Contractor shall isolate each productive screened interval; if any formerly dry screened intervals begin producing water after the Westbay system is removed, the Contractor shall also isolate them.

The Contractor shall reconfigure four wells in the TA-21 monitoring network as follows:

1. R-5 currently has four Westbay intermediate zone/regional aquifer screens and shall finally include a two-pump Baski sampling system with dedicated transducers to sample the intermediate and upper regional aquifer screens.
2. R-7 currently has three intermediate zone/regional aquifer screens and shall finally include a single pump system to sample the regional aquifer screen. An inflatable packer will be installed below the lower intermediate zone screen to prevent any potential future perched water from reaching the regional aquifer, with transducers placed above and below the packer to monitor water levels.
3. R-8 currently has two regional aquifer screens and shall finally include a single pump system to sample a single retained regional aquifer screen.
4. R-9i currently has two intermediate zone screens and shall finally include a single pump system to sample a single retained intermediate aquifer screen.

### C.6.4.5 Well Screen Reconfiguration or Rehabilitation

The Contractor shall reconfigure regional aquifer well R-22 in accordance with the NMED-approved *Work Plan for Regional Aquifer Groundwater Monitoring Well R-22*, Revision 1, LA-UR-12-20585, EP2012-0105, ERID-214994. This work plan includes plugging and abandoning the lower screens in the well (screens 4 and 5), constructing a single screen well in current screen 3 zone, installing a dedicated sampling system, packing off screens 1 and 2 from screen 3, developing screen 3, and removing cross flow prior to sampling for representative groundwater.

The Contractor shall rehabilitate regional monitoring well CdV-R-37-2 to comply with NMED requirements and the 2016 Consent Order and Appendix F guidance. This monitoring well was reconfigured once already as documented in the *Well Reconfiguration of CdV-R-37-2 Field Summary Report*, LA-UR-13-27284, EP2013-0185, ERID-250073, but does not meet the data quality objectives of NMED or the needs of EM-LA. The Contractor shall develop a rehabilitation plan, obtain EM-LA approval, submit the plan to NMED, and resolve technical comments before conducting the rehabilitation.

### C.6.4.6 Plug and Abandonment

The Contractor shall plug and abandon (P&A) an assortment of known wells and boreholes in accordance with 2016 Consent Order, Appendix F, II.D, Well Abandonment, and the NMOSE regulations as a workload leveling activity; this scope is not a high priority item. The Contractor shall prepare a plugging plan, obtain EM-LA approval, and subsequently submit to NMOSE before well abandonment, shall conduct borehole video logging to ensure location and quality of casing perforations, and shall pressure grout the well or hole (by use of packer or grout shoe) from TD to surface with a neat cement grout. Grout shall be placed in lifts, with only one to two screened intervals grouted per lift. The

Contractor shall leave the existing concrete pad intact and the well and protective casing cut flush with the top of the existing well pad, placing concrete from 2 ft below ground surface (bgs) to top of pad elevation to complete the backfill of the well. A surveyed brass cap already exists in the 5' x 10' pad that is to be left in place. The Contractor shall manage waste generated during well abandonment in accordance with NMED regulatory requirements. Specific wells and boreholes include the following:

1. Alluvial groundwater monitoring wells SCA-4 and SCP-1abc in Sandia Canyon that have been compromised by erosion of the stream channel in coordination with the LANL-Wide P&A Program.
2. Regional aquifer well R-25 which will include the removal of the proprietary Westbay casing string, packers (26) and ports (43) from the stainless steel well casing followed by selective perforation of casing intervals above and below screens 1 thru 8.
3. Following replacement and verification of acceptable water chemistry and acceptable quality requirements from a replacement regional aquifer, the contractor shall plug and abandon the existing wells: R-54, R-55i, and R-61.

## C.7 SURFACE WATER MONITORING

The Contractor shall conduct a Storm Water Surface Water Monitoring and Sampling Program, in accordance with the IP for Stormwater with the EPA and NMED requirements, at the array of surface water monitoring stations including gage stations. This program shall include all planning activities, operations, sampling collection, sample shipment, analytical laboratory analyses, and maintenance to keep the structures operable and equipment in good working order.

All program management, project management, document control records management, project controls, environmental information management and interfaces with NNSA M&O activities (identified in Section C.3) to accomplish this Section shall be included in the cost basis of this Section CLIN and shall not be provided from outside this CLIN in order to provide "all in costs" for this work scope. The Contractor shall not provide any associated support under any other section in this contract.

### C.7.1 Surface Water Monitoring Programs

The Contractor shall perform surface water monitoring in accordance with the IP, the 2016 Consent Order for Los Alamos and Pueblo Canyons and Sandia Canyon Wetland monitoring, and the *Memorandum of Understanding Between the U.S. Department of Energy and the Buckman Direct Diversion [BDD] Board Regarding Water Quality Monitoring,* which includes provisions of information for the Buckman Direct Diversion Project.

The Contractor shall plan sampling utilizing the EIMS sample planning module (See Mind Map in Section J, Attachment J-11, GFS/I) including an examination of the current sampling plan, planning field activities sample bottle IDs and labels, sequencing

collection, facilitating any subcontractor activities, checking sample collection status using telemetry where available, etc.

The contractor shall follow guidelines for field procedures from the U.S. Geological Survey (USGS) water sample collection methods and industrial standards common to environmental sample collection and field measurements.

The Contractor shall meet all sampling hold times, environmental preservation requirements, packaging and shipping requirements. The Contractor shall ensure all analytical laboratory contracts met analyses and method requirements and provide EDD of data directly into EIMS.

The Contractor shall manage the data received from analytical laboratories and conduct monthly data review meetings. The Contractor shall provide one day and 30 day notifications, as required, to the NMED-HWB of review results in accordance with the 2016 Consent Order, Section XXVI, Quality Assurance/Data Management/Data Review.

#### C.7.1.1 National Pollutant Discharge Elimination System Individual Permit for Stormwater

The Contractor shall collect and analyze surface water samples at specific locations and for specific constituents in accordance with the NPDES IP for Stormwater number NM0030759. This IP addresses only those storm water discharges associated with SWMUs and AOCs listed in Appendix A of the Permit. (This IP does not address storm water discharges associated with current conventional industrial activities at the LANL facility that might be caused by the NNSA M&O Contractor. Storm water discharges associated with current conventional industrial activities by the NNSA M&O Contractor are covered under EPA's NPDES Multi-Sector General Permit (MSGP) for storm water discharges from industrial activity.) The Contractor shall measure stream flow rates within each watershed in conjunction with sampling events. The following table below indicates the number of IP samples collected from 2011 to 2015.

| Year | # IP Samples Collected | TAL Exceedances Detected | Notes |
|---|---|---|---|
| General Info | High variability in rain fall across LANL; current permit allows only complete samples to be collected; renewal permit allows for partial samples | Number of samples is not a predictive factor; TAL exceedances depend on flow, intensity, and controls; Analysis of site-related versus background/baseline done in IP review process | Collected samples at all sites with adequate flow under current permit; 250 samplers deployed at SMAs- samplers covering multiple sites within an SMA |
| 2011 | 106 samples at 73 SMAs | 68 SMAs were reported with TAL exceedances | First sample season under IP |
| 2012 | 22 samples at 20 SMAs | 18 SMAs were reported with TAL exceedances | Drought during 2012 |
| 2013 | 89 samples at 81 SMAs | 72 SMAs were reported with TAL exceedances | 1,000-year Flood Event Recorded |
| 2014 | 38 samples at 32 SMAs | 32 SMAs were reported with TAL exceedances | |
| 2015 | 13 samples at 11 SMAs | 9 SMAs were reported with TAL exceedances | Confirmed to date; sample season ends November 30, 3015 |

IP = Individual Permit.
LANL = Los Alamos National Laboratory.
SMA = site monitoring area.
TAL = target action levels.

The Contractor shall prepare annual updates to the Sampling Implementation Plan required under the renewal IP, implement sampling and analytical scope, and sample base flow and surface water locations identified.

The Contractor shall monitor compliance under the NPDES IP and report compliance metrics to EM-LA. NMED performs a certain number of Compliance Evaluation Inspections (CEIs) each year for the EPA Region VI to provide EPA with information to evaluate the Permittee's compliance with the NPDES permit. This inspection report is based on information provided by the Permittee's representatives, observations made by the NMED inspectors, and records and reports kept by the Permittee and/or NMED. The Contractor shall prepare responses to this CEI to EM-LA for redistribution to EPA and NMED-SWQB.

#### C.7.1.2 Sediment Sampling in Los Alamos and Pueblo Canyons and in Sandia Canyon

The Contractor shall implement the surface water protection monitoring program as required under the 2016 Consent Order in accordance with the latest version of:

- *Monitoring Plan for Los Alamos and Pueblo Canyon Sediment Transport and Mitigation Project* and
- *Monitoring Plan for Sandia Wetland and Vicinity* included in the September 2011 *Work Plan and Final Design for Stabilization of the Sandia Canyon Wetland* (LA-UR-11-5337).

The Contractor shall interface with and coordinate surface water and sediment sampling with the NNSA M&O Contractor to accomplish the monitoring program scope. The Contractor shall develop and submit an annual stormwater performance report for the combined Los Alamos and Pueblo Canyons and for the Sandia Canyon Wetland, and include cross section surveys, base flow measurements, and piezometer monitoring data. The Contractor shall revise the monitoring plans annually based on the results of the last monitoring period. The Contractor shall conduct maintenance or make changes in the installed controls as necessary to achieve the performance objectives of the monitoring plans. The Monitoring Plan for Los Alamos/Pueblo Watershed Sediment Transport and Mitigation Project is due to NMED by April 30.

#### C.7.1.3 Canyon Performance Monitoring

The Contractor shall conduct surface water monitoring in accordance with the 2016 Consent Order, Section IX.H, Surface water screening levels, and the latest version of a Surface Water Monitoring Plan.

#### C.7.1.4 Sampling at the Early Notification System in Lower Los Alamos and Pueblo Canyons

The Contractor shall support sampling of stormwater flows and maintenance of sampling and flow measurement and verification equipment at the Early Notification System (ENS) in Lower Los Alamos and Pueblo Canyons. The ENS

notifies the Buckman Direct Diversion (BDD) operations center of floods that may contain contaminated sediments that the BDD chooses to avoid diverting. The Contractor shall support biannual technical meetings with BDD staff, provide analytical support to BDD (if requested), and provide support to the DOE in the execution of the *Memorandum of Understanding Between the U.S. Department of Energy and the Buckman Direct Diversion [BDD] Board Regarding Water Quality Monitoring* (MOU). The MOU provides for implementation of several measures that provide for additional protection of water quality for diverted surface water from the Rio Grande which is a primary regional drinking water supply.

The ENS integrates gaging stations located between LANL and the Rio Grande: E050.1 in Los Alamos Canyon, E060.1 in Pueblo Canyon, E-062.1 in the narrow confluence of Los Alamos and Pueblo Canyons (visual verification of flow only), and E099 in Guaje Canyon (water flow notification only). Gage stations E060.1 and E050.1 are also part of the Los Alamos/Pueblo Canyon Watershed Sediment Transport Mitigation Project monitoring.

The Contractor shall also provide technical support to assure ENS system functionality, provide telemetry of field data and images, obtain release of Pueblo de San Ildefonso information for Lower Los Alamos Canyon (largely related to E099) in accordance with the MOU and Protocols with the Pueblo, and to coordinate monitoring approaches between LANL and BDD.

### C.7.2 Reporting and Deliverables

The Contractor shall review analytical data from all surface water monitoring conducted under the 2016 Consent Order received during the previous month. The Contractor shall include the sampling results in the IP deliverables or in the following deliverables to EM-LA for subsequent delivery to the EPA, NMED, or BDD:

1. The Contractor shall notify NMED monthly (in accordance with the MOA/Protocols with the Pueblo as appropriate), with EM-LA authorization, of any surface water exceedances of six criteria in accordance with 2016 Consent Order, Section XXVI, Quality Assurance/Data Management/Data Review. These shall be coordinated with the groundwater PMRs in Section C.5.3.2.
2. Annual submittal of the monitoring report for the Los Alamos/Pueblo Canyon Watershed Sediment Transport Mitigation Project (a performance monitoring report) under the 2016 Consent Order to document the effectiveness of sediment and stormwater controls installed over the past several years, due to NMED on April 30 of each year.
3. Annual submittal of the Sandia Canyon Wetland Performance Report to document the effectiveness of the wetland, due to NMED by April 30 of each year.

### C.7.3 Inspection and Maintenance

The Contractor shall conduct all appropriate inspections and maintenance on surface water sampling locations and system equipment including providing technical oversight of fieldwork associated with monitoring on a site-specific scale to implement the IP for the 400+ individual SWMUs and AOC monitored at 250 Site Monitoring Areas (SMAs).

## C.8 INDIVIDUAL PERMIT SURFACE WATER CORRECTIVE ACTION

The Contractor shall implement corrective actions for NPDES IP exceedances of proscribed Target Action Levels (TALs). This IP is currently being renewed by EPA. The Contractor shall utilize the IP Surface Water Monitoring and Sampling Program results collected under Section C.7 and determine appropriate corrective action pathway to compliance under the IP.

All program management, project management, document control records management, project controls, environmental information management and interfaces with NNSA O&M activities shall be provided with this section and costs for these activities shall not be allowed to be located in other sections.

### C.8.1 Surface Water Results Screening and Determination of Corrective Actions

The Contractor shall conduct a screening of sample results collected following stormwater event results from the analytical laboratories as outlined in Section J, Attachment J-11, GFS/I. The Contractor shall conduct screening to determine whether TALs are exceeded, whether results are within background levels, whether results are from site contributions (i.e., run-on and run-off comparisons), and whether enhanced controls would possibly reduce the flow of contaminants. The Contractor shall review the current status of the IP sites and develop an approach to meet compliance and advance the schedule to satisfy the sites for release under the IP.

### C.8.2 Corrective Action Pathways to Compliance

#### C.8.2.1 Construction of Stormwater Controls

The Contractor shall plan, evaluate alternatives, design, and construct enhanced stormwater controls to obtain Corrective Actions complete status for those sites with Target Action Level (TAL) exceedances that are from site contributing industrial materials, that are not from urban sources, and that are not from background contributions. The Contractor shall use a graded approach in determining control measures to be implemented based on the magnitude of the TAL exceedance when compared with the storm water background and/or TAL value. The Contractor shall coordinate the design and construction or stormwater controls with the NNSA M&O Contractor when within the LANL boundary.

The Contractor shall interface with the County of Los Alamos, USFS, and private property owners in executing some of the IP projects' site access agreements for construction and maintenance. The Contractor shall prepare for EM-LA any access agreements to allow installation of the appropriate stormwater controls. County of Los Alamos projects typically identify PCB sources from County property that are not attributable to site's SWMUs/AOCs resulting in schedule delays and cost impacts as the Contractor will have to provide supporting evidence.

Between FY2016 and FY2020 the typical projects anticipated to be implemented are distributed throughout the five watersheds based on a weighted distribution of the number of proposed sites contained within the March 2014 IP Permit Renewal application, anticipated complexity of these sites relative to storm water basin characteristics, and current history of sample collection within the

watershed. Between FY2021 and FY2023 a limited number of typical projects anticipated to be implemented are distributed in only the Los Alamos and Sandia Canyon systems based on their large urban footprint.

The Contractor shall group construction of enhanced controls into the following canyon areas:

- Possibly 38 SMAs in Los Alamos and Pueblo Canyons
- Possibly 24 SMAs in Sandia/Mortandad Canyons
- Possibly 24 SMAs in Pajarito Canyon
- Possibly 21 SMAs in Water/ Cañon de Valle
- Possibly 15 SMAs in Ancho/Chaquehui Canyons

#### C.8.2.2 Site Contributing Evaluation

The Contractor shall complete site contributing evaluation for those sites that have TAL exceedances, before considering construction of enhanced controls in order to determine whether the site is contributing or the contaminant being observed is from another source. If the Site Contributing Evaluation shows that the site is not contributing to the discharge and exceedance, the information will be provided to EPA with a request to delete the site from the IP. If the site contributing evaluation determines that it is contributing to the TAL exceedances, the Contractor shall proceed with additional corrective actions that might include construction of additional enhanced controls.

#### C.8.2.3 Background Comparison

The Contractor shall complete a background comparison including a review of the Site Discharge Pollution Prevention Plan (SDPPP) information previously prepared by the LCBC Contractor, background study completed by the LCBC Contractor and any associated site characterization sample data from under the 2016 Consent Order to determine whether stormwater sample exceedances are a result of background constituents. On the Pajarito Plateau, background levels of aluminum, arsenic, and manganese in the weathered natural volcanic tuff cause stormwater exceedances that cannot and should not be remediated under the IP. If the background comparison shows that the discharge and exceedance is related to background constituents, the information will be provided to EPA with a request to delete the site from the IP.

#### C.8.2.4 Alternative Compliance Requests

The Contractor shall prepare alternative compliance requests for those sites where other corrective actions pathways (previously identified above) cannot achieve compliance with discharge requirements without exceeding the maximum TALs. The Contractor shall submit these alternative compliance requests to EM-LA for approval before sending on to the US EPA.

Based on the IP screening result, it is anticipated that a minimum of 6-8 alternative compliance request packages will be prepared annually (diminishing after a couple of years). The Contractor shall prepare and post the full packages

for public review, shall collect comments following the appropriate public comment period, provide responses to comments, and submit final alternative compliance packages to EM-LA for approval and subsequent submittal to the US EPA.

### C.8.3 Individual Permit Renewal

The Contractor shall prepare and submit an application for the NPDES IP renewal at the end of the next expected permit renewal cycle; the current permit is expected to be renewed by the LCBC Contractor in April 2016 making the timeframe for developing the next draft IP in Fall 2020. The permit renewal application will request a number of modifications to the existing permit and may include, but not be limited to, reducing the sites/SMAs being regulated, reducing unnecessary analytical requirements, streamlining reporting requirements, simplifying the corrective action process, updating of TALs, providing for consistent regulatory requirements, and accounting for additional information which became available since the last application submittal to EPA. The Contractor shall prepare the draft renewal permit in coordination with EM-LA, NMED-SWQB and participating non-governmental organizations that currently include Communities for Clean Water such that the EPA would better consider a negotiated permit. The Contractor shall submit the draft renewal permit to EM-LA for approval and subsequent submittal to the US EPA.

The Contractor shall be aware that some enhanced controls constructed may not be able to be certified in accordance with Section E of the IP, and/or TAL exceedance(s) will not be related to the historical activities at the site or are from (1) non-developed background and (2) developed background, and/or (3) that the sites are below risk based soil screening levels as defined under the 2016 Consent Order.

### C.8.4 Watershed Integration

The Contractor shall integrate IP controls installation with 2016 Consent Order cleanup such that installation of controls don't impact cleanup activities and installation is an effective measure for the timeframe between cleanup and controls. IF site cleanup under the 2016 Consent Order will impact the timeline required for IP corrective actions, the Contractor shall prepare and submit to EM-LA for subsequent submittal to the EPA, extension requests under the IP force majeure provisions.

### C.8.5 Deliverables

The Contractor shall prepare and submit several IP reports or plans to EM-LA for approval including the following:

1. IP annual update to the five volume SDPPP to include acceptance of all previous comments and red-line changes for newly updated information from this reporting period in accordance with Part I.D.2 and Part I.F of the Permit by May 1st of each year (document in current Permit but date from draft renewal Permit) and post to the IP public website that shall be maintained by the Contractor.

2. IP Annual Report to provide the status of all relevant information on each and every site including physical configurations, latest sampling results, any exceedances, and planned actions for the following year in accordance with Part

1.H.2 of the Permit by March 1st for each calendar year and post to the IP public website that shall be maintained by the Contractor. This report shall include the previous Compliance Status Reports (CSRs) for each SMA in accordance with per Part I.H.1 of the Permit by March 1st for each calendar year (also called DMRs in Permit).

3. IP Annual update to the Sample Implementation Plan (SIP) due by March 1st (document from draft renewal permit).

4. Certification packages following construction of the enhanced controls prepared for EM-LA and Contractor certification signatures for each enhanced control measure in accordance with Section E.4 of the IP, Preparation of and Submittal of Certificate of Installation of Enhanced Controls.

5. Certification of completion of corrective action per IP Part I.E.2.

6. Alternative Compliance requests per IP Part I.E.3.(b)

7. Site Contributing Evaluations (required by draft renewal permit)

8. Run-on and Run-off Evaluations (required by draft renewal permit)

9. Annual inspection reports and evaluation of each IP site per Part I.G.1.

10. Post-storm inspection per Part I.G.2.

### C.8.6 Reporting

The Contractor shall make the following reports:

- 24-hour oral reporting for exceedances of maximum TALs to EPA per IP Part II.B.

- Written submission of notice provided orally for exceedances of maximum TALs to EPA and of requirements specified in IP Part III.D.7 is required within 5 days from the time the Permittee becomes aware of the circumstances.

- Email notification to members of the public regarding compliance with the Permit (the email list of interested members shall be maintained by Contractor) per Part I.I.7(b).

- IP deliverables completion and posting to the IP website.

### C.8.7 Posting to Individual Permit Public Website

The Contractor shall post the following specific documents and types of documents to the IP public website in accordance with the relevant section of the IP, as required per IP Part I.I.7.(a) (no timeline specified for posting to the website):

- Annual update to the SDPPP (IP Part I.D.2. and Part I.F)

- Inspection Reports for Annual inspection and evaluation of each IP site per Part I.G.1 and Post-storm inspection per Part I.G.2.

- CSRs for each SMA due March 1st (reporting period is a calendar year) per Part I.H.1 (also called DMRs in Permit)

- Annual Report due March 1st per Part 1.H.2 ** required to post to public website.

- Correspondence between Permittees and EPA

- Other relevant documents and data including the following:

  - Annual SIP due by March 1st. SIP is integrated into the proposed renewal permit

  - Certification of completion of installation of control measures within 30-days of completion of installation per IP Part I.E.1(c)

  - Certification of completion of corrective action per IP Part I.E.2.

  - Requests for Alternative Compliance per IP Part I.E.3(b)

  - Decision process documentation to address TAL exceedances detected; signature process with EM-LA will assure oversight and agreement with approach determined

### C.8.8 Technical and Operations Support

The Contractor shall facilitate semi-annual technical and public meetings per IP Part I.I.7.(c) for planning updates and results of any potential new contaminants. The technical meetings shall include the Contractor, EM-LA, and the Intergovernmental Organization Communities for Clean Water. The public meetings shall include the Contractor, EM-LA, and the Intergovernmental Organization Communities for Clean Water, the NMED Surface Water Quality Bureau, and the NMED oversight Bureau.

The Contractor shall facilitate annual CEIs by NMED-SWQB to assess compliance under the IP. The Contractor shall prepare responses to the CEI reports including defense of compliance and any efforts to support defense against or implementation of an enforcement order. Any activities for CEI or an Enforcement Order stemming from contractor's negligence or poor performance would be the responsibility of the contractor but shall be completed to the satisfaction of EM-LA.

### C.8.9 Operation and Maintenance

The Contractor shall maintain all baseline and enhanced controls relied upon to prevent exceedances and to control discharges under the IP. The Contractor shall include sediment removal, realignment of rocks and logs, sampler adjustment, and replacement of non-permanent controls such as wattles. The Contractor shall maintain the capability and capacity of the controls for future rain or storm events. Retired baseline controls that have not been shown to contribute to preventing exceedances are not required to be maintained.

## C.9 RDX GROUNDWATER REMEDIATION

The Contractor shall address remediation of a high explosives (largely RDX) plume in the intermediate groundwater located beneath Cañon de Valle. RDX concentration in the regional groundwater are below regulatory standards but are trending up. Surface corrective measures have been underway at Cañon de Valle to remove surface source of RDX and address RDX in the alluvial groundwater during which time additional investigation of the perched and deep intermediate groundwater plume have occurred. The Contractor shall perform activities that include (a) closeout of the surface and alluvial water system corrective measures implementation plan (CMIP) and (b) development of subsurface groundwater corrective measures evaluation (CME) report, development of a CMIP for groundwater, and implementation of the approved remedy.

All program management, project management, document control records management, project controls, environmental information management and interfaces with NNSA M&O activities shall be provided to accomplish this scope and included in the cost basis of this Section CLIN and shall not be provided from outside this CLIN in order to provide “all in costs” for this CLIN. The Contractor shall not provide any associated support under any other section in this contract.

### C.9.1 RDX Remedy Selection and Closeout

#### C.9.1.1 RDX Surface Water Springs Treatment

Under the *Corrective Measures Implementation for Consolidated Unit 16-021(c)-99*, LA-UR-07-4715, Revision 1, July 2007, granulated activated carbon treatment systems were installed at three springs associated with the RDX plume. The Contractor shall continue operation of the springs’ treatment and collect post-treatment samples from each spring monthly until performance criteria established in the surface water CMIP are achieved or, when operation of the spring’s treatment systems is moved to the groundwater CME, until the performance criteria in the CME is met. The Contractor shall comply with any of the provisions of an NPDES permit and any NMED-GWQB response to the Notice of Intent (NOI) to discharge prepared by the previous contractor and issued by the appropriate regulatory organization. The three springs included are Burning Ground, Sanitary Wastewater Systems Consolidation, and Martin Springs. Post treatment data will be reported in the associated Period Monitoring Report under the IFGMP. If

#### C.9.1.2 RDX Surface Water and Groundwater Integration

The previous contractor will have initiated discussions with NMED to integrate any remaining surface water corrective measures with the intermediate and regional groundwater corrective measures evaluation. The Contractor shall resolve any technical issues raised during NMED review to allow for the subsequent NMED approval.

The Contractor shall address all technical issues remaining for the integration for both surface water and groundwater in one combined CME that shall be developed and submitted to EM-LA for subsequent submittal to NMED to meet the regulatory requirements and arrive at the appropriate remedies to reduce risk to the regional aquifer at TA-16. The Contractor shall determine the remaining

scope to evaluate and remediate the RDX contamination remaining at Cañon de Valle activities.

The Contractor shall prepare and submit a remedy completion report (RCR) for the surface corrective measure implementation (CMI) and submit to EM-LA for subsequent submittal to NMED. This RCR shall document the close out of the surface water CMI and reflect the transfer to the Groundwater CME. Until the surface CMI is closed out, the Contractor shall continue to submit Annual Progress Report for Corrective Measures Evaluation/Corrective Measures Implementation for Consolidated Unit 16-021(c)-99 due every year by November 30.

#### C.9.1.3 RDX Groundwater Intermediate and Regional Characterization

The Contractor shall continue characterization activities of the RDX in perched intermediate and regional groundwater at TA-16 including the pumping and treatment of contaminated groundwater from perched-intermediate wells CdV-16-4ip and CdV-16-91i to determine the viability and effectiveness of the pump and treatment technology and approach. The Contractor shall treat and disposition the extracted groundwater in accordance with work plans approved by NMED-GWQB under discharge permits issued by NMED-GWQB (DP-1793). The Contractor shall continue characterization activities operations until the Contractor can demonstrate that the characterization requirements for the CME are met or the Contractor can obtain regulatory and EM-LA approval to do so.

#### C.9.1.4 RDX Groundwater Geochem/Hydrology Studies Technologies Screening

The Contractor shall complete in-situ, bench, and pilot studies of intermediate and deep groundwater at consolidated unit 16-021(c)-99, the building TA-16-260 outfall - focusing on the contaminated intermediate and deep groundwater monitoring wells. The Contractor will model groundwater to predict performance of potential remedies that are to be included in the CME. The Contractor shall evaluate the existing model and ensure that models used in support of the CME meet the appropriate quality assurance requirements for model validation. The studies and modeling shall include monitored natural attenuation (MNA), engineering evaluation of the feasibility of pump and treat, and other active treatment options. The Contractor shall use these activities to propose potential media cleanup standards, points of compliance and objectives of the remedial actions. The Contractor shall review and analyze all studies and identify any additional studies required to complete the CME.

The current modelling approach includes the following: pumping test analyses utilize two open-source codes developed at the Laboratory: WELLS (http://wells.lanl.gov) and MADS (http://mads.lanl.gov). WELLS is applied to simulate the drawdowns caused by the pumping at wells. MADS is applied to (1) deconstruct pumping drawdowns caused by different pumping wells and (2) estimate aquifer properties by matching the simulated and observed hydraulic heads at the observation wells. A three-dimensional unsaturated zone model was developed, but several characteristics are not yet included. The model currently

does not represent (1) the ambient groundwater flow at the site, (2) the long-term water-level changes in the regional aquifer, and (3) the long-term concentration transients observed in the site monitoring wells. The model is calibrated using an automated calibration process employing the Levenberg-Marquardt optimization algorithm as implemented in the code MADS (http://mads.lanl.gov). The computer code LaGriT (http://lagrit.lanl.gov) was used to create the computational grids. The flow and transport simulations were performed with the Finite Element Heat and Mass Transfer code ([FEHM] http://fehm.lanl.gov) (Zyvoloski et al. 1996, 054421; Zyvoloski et al. 1997, 070147). FEHM was developed by researchers at the Laboratory and is capable of simulating three-dimensional, time-dependent, multiphase, non-isothermal flow, and multicomponent reactive groundwater transport through porous and fractured media. FEHM has been used in a wide variety of applications. The software is mature, has users throughout the world, and has been certified through the Yucca Mountain Project Software Quality Assurance Program. FEHM is available to the public and operates under various operating systems (Windows, MAC OS X, Linux, etc.).

#### C.9.1.5 RDX Groundwater Corrective Measures Evaluation

The Contractor shall complete and submit a CME Report to EM-LA for approval and subsequent submittal to NMED for intermediate and deep groundwater at consolidated unit 16-021(c)-99, the building TA-16-260 outfall in accordance with the 2016 Consent Order, Section XVI, Corrective Measures Evaluation. The Contractor shall review and analyze all studies as they identify remedial alternatives. The contractor shall complete modeling in support of a MNA remedy, and an engineering evaluation of the feasibility of pump and treat and other active treatment options in the CME.

The Contractor shall submit the draft CME report for an EM-LA and EM HQ Internal Remedy Review (which should be anticipated to be 10 working days) and address all comments in the CME report before issuance. The Contractor shall prepare and submit the CME for RDX to EM-LA for approval and subsequently to NMED. The Contractor shall facilitate NMED preparation of the Statement of Basis (SOB) including preparation of the Response to Comments (RTC) received from the public and presentations at public meetings.

#### C.9.1.6 RDX Well Determinations

If additional wells are required for any part of the RDX investigation or remedy, the Contractor shall determine the parameters and technical requirements for the well and the location. All further well development and well installation will be in accordance with Section C.6 Drilling.

### C.9.2 RDX Corrective Measures Implementation Plan

Following the approval of the CME, a public comment period, and the formulation of a SOB by NMED, the Contractor shall develop a corrective measures implementation plan (CMIP) in accordance with the 2016 Consent Order, Section XVIII. The Contractor shall include in this CMIP a detailed engineering design and any post-closure monitoring system, and schedule for initiation and execution of the expected project for the remedy.

The Contractor shall submit the CMIP to EM-LA for subsequent submittal to NMED for approval.

### C.9.3 RDX Corrective Measures Implementation

Following EM-LA approval and upon receiving specific Contracting Officer direction to begin, the Contractor shall implement the CMIP to remedy groundwater contaminated with RDX in accordance with the CMIP. Potential corrective measures that may be applied to this problem consist of pumping and treatment of contaminated groundwater from extraction wells followed by reinjection to the subsurface; in-situ bioremediation; monitored natural attenuation, and possibly land application of treated water in accordance with DP-1793.

### C.9.4 Final Remedy Operations

The Contractor shall operate the remedy and determine whether the remedy is performing as designed and anticipated. The Contractor shall adjust operations as necessary to obtain the requisite performance. The Contractor shall prepare and provide an annual report of remedy performance to EM-LA for approval and subsequently submittal to NMED. It is expected that the remedy operations will extend through the life of this Contract; therefore, the Contractor shall prepare a Corrective Measures Implementation report at the end of Option Period 2, if exercised.

### C.9.5 Permitting for RDX Activities

The Contractor shall comply with the NMED-GWQB Discharge Permit DP-1793 issued on July 27, 2015 – 5-yr permit to treat groundwater and land apply the treated groundwater. The Contractor shall complete any necessary environmental assessments, floodplain assessments, inputs to preliminary and final NEPA determination document, and any mitigation action plans associated with the work. The Contractor shall obtain any OSE and injection well permits necessary.

### C.9.6 Deliverables

The Contractor shall prepare and provide the following known deliverables to EM-LA for approval and subsequent submittal to NMED for approval:

1. Annual Progress Report for Corrective Measures Evaluation/Corrective Measures Implementation for Consolidated Unit 16-021(c)-99

2. RCR for the Surface CMI

3. CME Report within eight months of completion of any in-situ, bench, and pilot studies

4. CMIP

5. Remedy operational plan

6. Annual report of remedy performance within four months of the end of the monitoring period.

## C.10 CHROMIUM GROUNDWATER REMEDIATION

The Contractor shall control migration of hexavalent chromium contaminated groundwater across the LANL boundary using a configuration of extraction wells and injection wells, complete plume-center characterization involving a series of field tests pertaining to processes within the aquifer, compile previously collected characterization study information, develop a CME Report for Chromium Plume Remediation, prepare a CMIP, and implement a final remedy.

All program management, project management, document control records management, project controls, environmental information management and interfaces with NNSA M&O activities shall be included in the cost basis of this Section CLIN and shall not be provided from outside this CLIN in order to provide “all in costs” for this CLIN. The Contractor shall not provide any associated support under any other section in this contract.

### C.10.1 Chromium Groundwater Remediation (Operations)

#### C.10.1.1 Plume Control at Los Alamos National Laboratory Boundary

The Contractor shall execute the *Interim Measures Work Plan for Chromium Plume Control* (LA-UR-15-23126 May 2015 EP2015-0089) which describes proposed activities to control chromium plume migration in groundwater at the LANL boundary utilizing extraction and injection wells while long-term corrective action remedies are being evaluated. This work plan follows the *Interim Measures Work Plan for the Evaluation of Chromium Mass Removal*, April 2013, LANL 2013, ERID-241096, prepared in response to NMED requirements in a letter dated January 25, 2013 (NMED 2013, ERID-521862). This work plan directed an assessment of the potential for active long-term removal of chromium from the regional aquifer by pumping with a pilot extraction test well.

The Contractor shall prepare and submit to EM-LA for subsequent submittal to NMED an annual report of the performance of the interim measures (IM) for plume control.

#### C.10.1.2 Plume-Center Characterization

The Contractor shall also execute the *Chromium Plume-Center Characterization Work Plan* which describes activities to be conducted to further investigate the aquifer in the area of highest known concentrations (center) of the chromium plume and to further characterize the nature and extent of the chromium (and related) contamination. This work plan also follows the *Interim Measures Work Plan for the Evaluation of Chromium Mass Removal*, April 2013, LANL 2013, ERID-241096, prepared in response to NMED requirements in a letter dated January 25, 2013 (NMED 2013, ERID-521862).

### C.10.2 Continuation and Completion of Studies

The studies that the Contractor shall take-over in progress follow the *Interim Measures Work Plan for the Evaluation of Chromium Mass Removal*, April 2013, LANL 2013, ERID-241096 that was prepared in response to NMED requirements in a letter dated January 25, 2013 (NMED 2013, ERID-521862).

### C.10.2.1 Geotechnical Studies

The Contractor shall review any in-process experiments and tests, and shall complete laboratory bench-scale experiments and column tests on the geologic core collected from the core holes drilled in fiscal year 2014. The Contractor shall compare mineralogy to formation outcrops, evaluate the capacity for attenuation in the Puye formation, and determine whether vertical stratification of chromium contamination is present. The Contractor shall use the data collected from these tests as a basis for recommending a remedy in the CME Report.

### C.10.2.2 Monitored Natural Attenuation Studies

The Contractor shall complete work in support of understanding natural attenuation mechanisms and rates for Chromium and other subsurface contamination beneath Sandia and Mortandad Canyons including Laboratory Bench and Column Tests with Sonic Core and Field Testing with chromium (Cr) and nitrogen (N) Isotopes.

**Laboratory Bench and Column Tests with Sonic Core**

The Contractor shall continue conducting and complete sequential leach testing of selected sonic core samples to determine if there is any anthropogenic chromium either adsorbed or reduced on its surfaces using successively more aggressive leaching solutions, targeting adsorbed Cr(VI) first and then reduced Cr(III).

The Contractor shall continue conducting and complete batch chromium uptake experiments on selected sonic core samples by contacting water that is elevated in chromium concentrations with uncontaminated core and continue conducting batch desorption experiments on some of the samples used in batch uptake experiments by contacting Cr-free water with samples that clearly took up chromium.

The Contractor shall continue conducting and complete column experiments involving the evaluation of water that is elevated in chromium concentrations through selected sonic core samples that are either low in chromium or devoid of chromium content.

**Field Testing with Cr and N isotopes**

The Contractor shall continue and complete collecting samples from cross-hole tracer tests for analyzing stable isotopes of Cr and N, and analyze the samples for stable N isotopes and isotope analyses for Cr in order to analyze porosity, which may affect Cr rebound in the aquifer.

### C.10.2.3 Injection/Extraction Studies

The Contractor shall continue and complete studies of injection and extraction of treated waters and chromium contaminated water, respectively, in support of determining engineered solutions for remediating Chromium and other

subsurface contamination (perchlorate) beneath Sandia and Mortandad Canyons.

**Injection Studies and Tracer Tests**

The Contractor shall continue and complete large column experiments continuously injecting treated water into columns packed with saturated zone material from core holes, measuring permeability changes of the columns and geochemistry changes in the column effluent. These studies gather data relevant to evaluate injectability of treated water into injection wells. The Contractor shall continuously inject treated water into injection wells during cross-hole tracer tests after the tracers have been injected and monitor water level changes in the wells to determine near-well permeability changes.

**Laboratory Bio treatability Studies**

The Contractor shall continue and complete batch experiments using solids collected from new core holes to better quantify biomass growth rates, changes in biodiversity, nitrate (NO3) and Cr reduction rates, bio stimulant consumption rates, geochemical parameter changes (e.g., pH, oxidation-reduction potential, iron [Fe](II)), and mobilization of undesirable constituents (e.g., arsenic) as a function of bio stimulant identity and concentrations. The Contractor shall continue and complete batch experiments to evaluate effects of micronutrient additions (e.g., phosphorous [P] and N) under promising treatment conditions identified in the batch experiments above. The Contractor shall continue and complete a limited number of column experiments to evaluate rebound, longer term geochemical changes, longer term potential for mobilization of undesirable constituents, biofouling, and to refine kinetic data under the most promising treatment conditions identified in batch experiments.

**Chemical Treatability Studies**

The Contractor shall continue and complete laboratory experiments that complement the laboratory bio-treatability studies in that they evaluate the influence of chemical supplements to bio stimulation to enhance the effectiveness of bio stimulants including the addition of:

- humic or fulvic acids to provide a long-lasting food source for microbes, or
- abiotic reductants (e.g., Fe (II), sulfide) to supplement bio stimulation.

**Field Pilot Treatability Tests**

The Contractor shall continue and complete field pilot treatability tests on the heels of the cross-hole tracer tests conducted under the tracer studies. The Contractor shall inject bio stimulants and perhaps other additives into CH-2 and CH-3 to induce reduction of NO3 and Cr (VI) in the contaminated aquifer while continuing to pump R-28 and R-42 to recover tracers. The Contractor shall define test details in a field pilot treatability test plan and shall submit to EM-LA for approval and subsequently submitted to NMED.

### C.10.3 Groundwater Modeling and Hydrology

The Contractor shall model and analyze the physical and geochemical processes impacting groundwater flow and contaminant transport in the geologic subsurface media (the vadose zone and the regional aquifer below the Sandia and Mortandad Canyons.). The Contractor shall focus the model on the potential preferential flow paths from the ground surface to the water table impacted by spatial distribution of the infiltration recharge on the ground surface as well as spatial distribution of the physical and chemical properties of the geologic strata including the zones of perched saturation within the vadose zone. Modeling shall address the physical and chemical mechanism impacting groundwater flow and contaminant transport in the regional aquifer as well and also explore the impacts of (1) groundwater infiltration, (2) groundwater recharge (water-table mounding) and (3) groundwater discharge (including water-supply pumping) on the groundwater flow and contaminant transport in the regional aquifer.

The Contractor modeling shall also address any unique impacts from Water-Supply Wells; evaluating water-supply pumping effects on the chromium plume and chromium concentrations (spatial and temporal), incorporate existing pumping records for the water-supply wells and the existing transients in the water-level observed in all the regional aquifer monitoring wells located in Mortandad and Sandia Canyons, and include the potential new Los Alamos county water supply well northwest of PM-1 (currently called PM-6).

The Contractor shall provide groundwater model that can meet quality assurance requirements for model validation sufficient that the model can be included in the CME for chromium, e.g., a Visual ModFlow model, Finite Element Heat and Mass Transfer Code, or PFlotran.

The Contractor shall output modeling results to support NEPA and NMOSE Application Processes including evaluation of the pumping effects of the chromium extraction wells on the water resources in the regional aquifer as well as modeling for offset requirements (including the water resources currently tapped by the County of Los Alamos water supply wells).

The current modelling approach includes the following: pumping test analyses utilize two open-source codes developed at the Laboratory: WELLS (http://wells.lanl.gov) and MADS (http://mads.lanl.gov). WELLS is applied to simulate the drawdowns caused by the pumping at wells. MADS is applied to (1) deconstruct pumping drawdowns caused by different pumping wells and (2) estimate aquifer properties by matching the simulated and observed hydraulic heads at the observation wells. A three-dimensional unsaturated zone model was developed, but several characteristics are not yet included. The model currently does not represent (1) the ambient groundwater flow at the site, (2) the long-term water-level changes in the regional aquifer, and (3) the long-term concentration transients observed in the site monitoring wells. The model is calibrated using an automated calibration process employing the Levenberg-Marquardt optimization algorithm as implemented in the code MADS (http://mads.lanl.gov). The computer code LaGriT (http://lagrit.lanl.gov) was used to create the computational grids. The flow and transport simulations were performed with the Finite Element Heat and Mass Transfer code ([FEHM] http://fehm.lanl.gov) (Zyvoloski et al. 1996, 054421; Zyvoloski et al. 1997, 070147). FEHM was developed by researchers at the Laboratory and is capable of

simulating three-dimensional, time-dependent, multiphase, non-isothermal flow, and multicomponent reactive groundwater transport through porous and fractured media. FEHM has been used in a wide variety of applications. The software is mature, has users throughout the world, and has been certified through the Yucca Mountain Project Software Quality Assurance Program. FEHM is available to the public and operates under various operating systems (Windows, MAC OS X, Linux, etc.).

### C.10.4 Additional Well Need Determinations and Criteria

The Contractor shall determine whether additional wells are necessary for the chromium activities in accordance with this section. These additional wells may include extraction wells, injection wells, and source removal wells, and piezometers based on continuing characterization and evaluation of infrastructure performance (such as for fouling). The Contractor shall determine all necessary performance and location criteria to allow construction in accordance with the contract Section C.6 Drilling and chromium work plan schedules, and as specified by the Contracting Officer.

The Contractor shall assess any additional activities against the December 2015 *Finding of No Significant Impact and Mitigation Action Plan and the Final Environmental Assessment and Floodplain Assessment for the Chromium Plume Control Interim Measure and Plume-Center Characterization* prior to implementation. These additional injection or extraction wells will be authorized under Section C.14, Additional Assignments, under CLINs 0004, 0007, or 0010.

### C.10.5 Corrective Measures Evaluation Report

The Contractor shall review all of the available data and study results and prepare a CME Report that evaluates potential remedial alternatives and recommends a remedy that will be protective of human health and the environment and attain the appropriate cleanup goals. The Contractor shall prepare and submit a CME to EM-LA for approval and subsequently to NMED in accordance with the 2016 Consent Order, Section XVI. The Contractor shall plan for EM-LA to have EM HQ perform an Internal Remedy Review (IRR), which should take approximately 10 working days, and then shall resolve comments to EM-LA's satisfaction.

### C.10.6 Statement of Basis

NMED will consider the CME recommendation and issue a SOB documenting the preferred remedy for public comment. The Contractor shall facilitate NMED-HWB review of the CME and development and issuance of a SOB including public meetings and public comment resolution. The Contractor shall support technical discussions with NMED and with stakeholders in conjunction with NMED public notice of the SOB.

### C.10.7 Corrective Measures Implementation Planning

Following the approval of the CME Report, a public comment period, and the formulation of a SOB by NMED, the Contractor shall develop a CMIP in accordance with the 2016 Consent Order, Section XVIII.

### C.10.8 Corrective Measures Implementation

After the final remedy is selected by NMED and direction is provided by EM-LA, the Contractor shall prepare a project CMIP for submittal to EM-LA for approval and subsequently to NMED. Following the approval of the CMIP, the Contractor shall implement the CMIP.

The Contractor shall provide for the design and implementation of the selected final chromium remedy project as directed by EM-LA through the Contracting Officer.

### C.10.9 Final Remedy Operations

The Contractor shall operate the remedy as approved and determine whether the remedy is performing as designed and anticipated. The Contractor shall adjust operations as necessary to obtain the requisite performance. The remedy operations will extend through the life of this Contract; therefore, a remedy completion report will not yet be possible. The contractor shall prepare and provide to EM-LA for approval, for potential submittal to NMED, an annual report of remedy performance.

### C.10.10 Permitting for Chromium Activities

The Contractor will comply with the NMED-GWQB Discharge Permit DP-1793 – 5-yr permit to treat groundwater and land apply the treated groundwater, the December 2015 Finding of No Significant Impact, the Mitigation Action Plan, the Final Environmental Assessment, the Floodplain Assessment for the Chromium Plume Control Interim Measure and Plume-Center Characterization, the DP-1835 for injection, the NMOSE permit requirements (monthly pumping amount reporting), and any other permits that may exist. The Contractor shall obtain any additional NMOSE, land application, and injection well permits necessary and shall be responsible for the preparation of any NEPA document necessary for a project remedy.

### C.10.11 Deliverables

The Contractor shall prepare and submit the following deliverables to EM-LA for subsequent submittal to NEMD for approval:

1. Annual Progress Report for Corrective Measures Evaluation/Corrective Measures Implementation for Consolidated Unit 16-021(c)-99

2. RCR for the Surface CMI

3. CME Report within eight months of completion of any in-situ, bench, and pilot studies

4. CMIP

5. Remedy operational plan

6. Annual report of remedy performance within four months of the end of the monitoring period.

# C.11 AGGREGATE AREAS

## C.11.1 Consent Order Process

### C.11.1.1 Historical information review

All available previous investigatory activities, such as RCRA investigations that were completed in ~1996, were documented in historical investigation reports (HIR) by aggregate areas by the previous contractor and are available in the EPRR. The Contractor will not have to generate any additional HIRs; they are for information.

### C.11.1.2 Investigation work plan

The Contractor shall develop an investigation work plan (IWP) to characterize the aggregate area to determine nature and extent of contamination and provide EM-LA an opportunity to participate in the product peer review. The Contractor shall provide for EM-LA acceptance and signature in accordance with the review schedules identified in Section J, Attachment J-11, GFS/I.

### C.11.1.3 Field investigations

The Contractor shall conduct field investigation activities in accordance with NMED-approved IWPs. Unanticipated field conditions shall be characterized without re-approaching NMED IWP changes. These additional characterizations shall be coordinated with EM-LA. Samples collected from investigation activities shall follow chain of custody procedures through shipment to analytical laboratories.

### C.11.1.4 Analytical laboratory

The Contractor shall develop contracts with certified analytical laboratories to meet 2016 Consent Order standards (Section IX) and New Mexico Water Quality Control Commission (NMWQCC) MDLs sufficient to meet NMWQCC standards. The Contractor shall ensure sample results from the analytical laboratories are loaded directly into EIMS by the analytical laboratory and that they are evaluated for consistency and expectancy. The Contractor shall follow-up with laboratory for inconsistencies.

IntellusNM provides public access to environmental data; the Contractor shall support inquiries by the public.

### C.11.1.5 Clearance of cultural sites

The Contractor shall examine and evaluate cultural sites where cleanups will occur, work with EM-LA and NNSA cultural resources; and provide information for NNSA-prepared State Historic Preservation Officer (SHPO) reports. The Contractor must provide the background information such as site survey data, records search data, and evaluation cultural artifacts and their distribution to allow EM-LA to work with NNSA to either clear cultural sites for the work activities or change investigatory activities to avoid the cultural sites.

#### C.11.1.6 Field Cleanups

The Contractor shall use the established soil screening levels (SSLs) to determine necessary field remediation. During investigatory activities, the Contractor shall conduct field cleanups where contaminants are above SSLs such that post-remediation contaminant concentrations are less than SSLs. The Contractor shall follow-up remediation activities to ensure the media contaminants are below SSLs.

#### C.11.1.7 Waste Disposal

The Contractor shall dispose of remediation wastes and shall restore areas to acceptable conditions as defined in discussions with and communications from EM-LA. The Contractor shall characterize the wastes and generate all waste management documentation, including manifests. The Contractor shall establish its own contracts or utilize Federal waste transportation and disposal contracts to properly dispose of the remediation wastes if more cost effective.

#### C.11.1.8 Investigation Report

The Contractor shall prepare IRs with human health risk assessments against cleanup standards (residential, Industrial including construction worker, or recreational) as specified by EM-LA as appropriate for the expected land use. The Contractor shall allow EM-LA the opportunity to participate in IR peer review process. This deliverable is co-signed by the Contractor and EM-LA, and as such must be provided for EM-LA acceptance and signature in accordance with the review schedules identified in Section J, Attachment J-11, GFS/I.

#### C.11.1.9 Certificates of Completion and Removal from Hazardous Waste Facility Permit

Following NMED approval of IRs, the Contractor shall prepare and submit requests for Certificates of Completion (CoC) for all SWMUs and AOCs that have been remediated or meet acceptable risk exposure levels to EM-LA for approval and subsequent submittal to NMED.

Following NMED approval of CoCs, the Contractor shall prepare permit modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

### C.11.2 Scope by Aggregate Area

#### C.11.2.1 Guaje/Barrancas/Rendija Canyons Aggregate Area

Investigation should be complete with remaining actions only being triennial surface clearance ordnance surveys in Rendija Canyon for SWMUs 00-011(a), 00-011(d), and 00-011(e) and reporting. The Contractor shall conduct the additional triennial surface clearance ordnance surveys by December of each triennial year from the last submittal by the previous contractor (2016). The

Contractor shall prepare access agreements with USFS, the County of Los Alamos, and private individuals, for EM-LA approval.

The Contractor shall conduct biennial asphalt monitoring and removal activities at AOC C-00-041 in 'early fall'. The Contractor shall prepare a report of the results by the end of December of each biennial year, the last documented in *Biennial Asphalt Monitoring and Removal Report for Area of Concern C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate Area,* December 2015, LA-UR-15-29147, ADESH-15-171. Previous contractors have removed the following generally diminishing quantities of asphalt and tar from the site:

| Year of Work | Weight Removed | Volume Removed |
|---|---|---|
| 1995 | N/A | 1,100 55-gallon drum equivalents (300 $yd^{3)}$ |
| 2009 | ~3,220 lbs | seven 55-gallon drums |
| 2011 | ~1,840 lbs | four 55-gallon drums |
| 2013 | 660 lbs | one-half 55-gallon drum |
| 2015 | 1,160 lbs | three 55-gallon drums |

The Contractor shall dispose of this material as appropriate. In addition, the Contractor shall prepare access agreements with US Forest Service and the County of Los Alamos for EM-LA approval. The Contractor shall propose and negotiate criteria to discontinue asphalt monitoring and obtain a Certificate of Completion WITHOUT controls at some point after the 2019 monitoring activity.

CoCs were received from NMED for SWMU 00-011(c) and AOC C-00-020 in *"Certificates of Completion One Solid Waste Management Unit and One Area of Concern in the Guaje/Barrancas/Rendija Canyons Aggregate Area EPA ID #NM0890010515 HWB-LANL-12-008,"* May 16, 2012.

Since CoCs have been approved by NMED, the Contractor shall prepare modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

### C.11.2.2 Upper Los Alamos Canyon Aggregate Area

Twenty-Five CoCs were received from NMED in *"Certificates of Completion Upper Los Alamos Canyon Aggregate Area,"* Los Alamos National Laboratory, EPA ID #NM0890010515, HWB-LANL-10-056, September 10, 2010. One CoC was received from NMED in *"Certificate of Completion One Area of Concern in the Upper Los Alamos Canyon Aggregate Area,"* EPA ID #NM0890010515, HWB-LANL-12-069, December 20, 2012. One CoC was received for AOC-01-007(k) from NMED in *"Certificate of Completion Area of Concern 01-007(k) in the Upper Los Alamos Canyon Aggregate Area,"* EPA ID #NM0890010515, HWB-LANL-15-002, March 16, 2015.

The Contractor shall execute the *Phase II Investigation Work Plan for Upper Los Alamos Canyon Aggregate Area, October 2010,* LA-UR-10-6327, EP2010-0398

for the remaining SWMUs and AOCs (sometimes referred to as townsite or historical properties). The Contractor shall prepare access agreements with the County of Los Alamos and private individuals, for EM-LA approval.

Following the remediation, the Contractor shall develop and submit the Phase II IR and submit remaining CoCs. The Contractor shall submit a modification to the NNSA-owned RCRA HWF Permit to remove the sites from the Permit.

There are 229 original sites within the Los Alamos Canyon Area. Of the original number of sites, 223 have been addressed through a previous phase I investigation and remediation campaign. As of March 2016, there are 6 sites that require further sampling and final remediation under the Consent Order. All 6 remaining sites are located directly adjacent to Los Alamos Townsite on either non-DOE or DOE-owned property.

The Contractor is to complete the work remaining for the 6 sites and prepare the final investigation report for EM-LA review and approval then to the NMED for review and approval. When NMED has approved the investigation report, the Contractor will request Certificates of Completion (CoC) from NMED. Upon receipt of the CoCs for each site, the Contractor shall prepare modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

A current site-specific summary of the SWMUs and AOCs that still require sampling and remediation along Los Alamos Canyon within and adjacent to the Los Alamos Townsite is provided in Table 1.

Table 1. Remaining SWMUs and AOCs Requiring Additional Sampling and Remediation Within and Adjacent to Los Alamos Townsite

| Site ID | Description | Contaminant | Comments |
|---|---|---|---|
| 01-001(g) | Septic tank for former Building X. Building X was used to test radioactive targets. Both the septic tank and building have been removed. The associated outfall discharged into the canyon. The location of the former inlet pipeline is under a building of the Los Arboles townhouses, and the outfall area is undeveloped land owned by DOE. | plutonium 239/240 | Contractor will need to include this information in the Phase II IR, submit request for COC without control, modify RCRA permit. |
| 01-003(b) | Former surface disposal site for construction debris reported below the north rim of the canyon. | arsenic | Contractor will need to include this information in the Phase II IR, submit request for COC without control, modify RCRA permit. |
| 01-006(b) | Drain line from Building D (used to process plutonium) discharged into the canyon. Building D and all associated drain lines were previously removed along with areas of elevated radioactivity on the mesa top. | plutonium 239/240 | Contractor will need to include this information in the Phase II IR, submit request for COC without control, modify RCRA permit. |
| 01-007(a) | Building D and all associated drain lines were previously removed along with areas of elevated radioactivity on the mesa top. Subsequent investigations have identified contamination on the canyon slope on DOE property. | plutonium 239/240 | Contractor will need to include this information in the Phase II IR, submit request for COC without control, modify RCRA permit. |
| 01-007(b) | An area of suspected subsurface contamination near the former drain lines and outfall from Building D-2 (laundry facility for radioactively contaminated clothing and recyclable equipment for the entire technical area). The drain lines discharged into the canyon. Building D-2 and all associated drain lines were previously removed but subsequent investigations identified areas of surface contamination on the canyon side on DOE property below this site. | plutonium 239/240 | Contractor will need to include this information in the Phase II IR, submit request for COC without control, modify RCRA permit. |
| 01-001(d)<br>01-006(h) | These 2 sites are co-located and are associated with a drain line and storm-water drainage system from former Buildings K, R, and Y. Building K was a chemical stock room that contained a mercury still. Building R housed model, glass, carpentry and plumbing shops. Building Y housed a physics laboratory that handled various radionuclides. The outfalls from the drain lines discharged into the canyon. Buildings K, R, and Y were removed as well as the majority of the drain lines with the possible exception of portions of drain lines that are or were beneath structures. | mercury and plutonium 239/240 | Remaining remediation is primarily surface and subsurface soil below the discharge point of the drain lines on DOE property. As currently planned, all soil with contamination levels that exceed residential land use risk scenarios will be removed. Actual volumes of soil removed and waste disposed offsite are subject to additional sampling and analysis and further discussions with NMED. |

| Site ID | Description | Contaminant | Comments |
|---|---|---|---|
| 01-001(f) | Drain lines and septic tank that served Buildings HT and FP. Building HT was used to heat-treat and machine natural and enriched uranium. Building FP was a foundry of nonradioactive and nonferrous metals. The associated septic tank discharged directly into the canyon. Buildings HT and FP and the septic tank were previously removed but the entire mesa-top area of the drain line is developed and the location of the drain lines are under pavement and buildings of the Ridge Park Village. | polychlorinated biphenyls (PCBs) | Remaining remediation is primarily surface and subsurface soil below the discharge point of the drain line and location of the former septic tank on DOE property. As currently planned, all soil and tuff with contamination levels that exceed residential land use risk scenarios will be removed. Actual volumes of soil removed and waste disposed offsite are subject to additional sampling and analysis and further discussions with NMED. |
| 01-001(o) | Sanitary waste line that served Buildings J and ML. Building J was a small research laboratory and Building ML was a medical laboratory. The waste line discharged into the canyon. Buildings J, ML, and the associated waste line was previously removed. | polychlorinated biphenyls (PCBs) | Remaining remediation is primarily surface and subsurface soil below the discharge point of the drain line on DOE property. As currently planned, all soil and tuff with contamination levels that exceed residential land use risk scenarios will be removed. Actual volumes of soil removed and waste disposed offsite are subject to additional sampling and analysis and further discussions with NMED. |
| 01-003(a) | Surface disposal site (Bailey Bridge landfill) used for demolition debris from buildings associated with the Manhattan Project/early Cold War-period between 1964 and 1978. Debris with acceptable levels of radioactivity was deposited into the canyon below the site and later covered with clean fill. Subsequent sampling of the site for radioactivity established extent and indicated levels of contamination well below required cleanup levels. Sampling results, however, indicated the presence of PCB and other organic compounds, primarily PAHs, which require further investigation and remediation. | polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) | Remaining complex cleanup is primarily surface and subsurface soil and other materials on DOE property. As currently planned, all soil and tuff with contamination levels that exceed residential land use risk scenarios will be removed. Actual volumes of material removed and waste disposed offsite are subject to additional sampling and analysis and further discussions with NMED.<br><br>This site will likely require additional sampling and analysis before the scope of the cleanup can be fully defined. It is likely, based on existing and future data, cleanup to residential levels on DOE property will not be considered technically feasible or practical. If this is the case, further discussion will be required with NMED to negotiate a more realistic recreational cleanup threshold. |
| 01-003(d) | Surface disposal area used for empty solvent and paint cans. The majority of paint cans and contaminated soil was previously removed; however, subsequent investigation indicated the presence of antimony (chemical element) in surface and subsurface soils that require further remediation. | antimony | Remaining remediation is primarily surface and subsurface soil on DOE property. Approximately 170 cubic yards of soil will be removed and disposed offsite as hazardous waste. The extent of the cleanup is well defined but considered complex because of the remote location of the site and steep surrounding topography. |

Remediation completed in 2016
Remediation remaining

Following NMED approval of CoCs, the Contractor shall prepare modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

The Contractor shall provide support to the County of Los Alamos and private landowners where SWMUs and AOCs are located within the town sites, including radiological survey or sampling support when property owner activities disturb soils around these SWMUs/AOCs.

#### C.11.2.3 Bayo Canyon Aggregate Area

*Request for Certificates of Completion for Three Areas of Concern and Twenty-Six Solid Waste Management Units in the Bayo Canyon Aggregate Area*, ADESH-15-086, was submitted to NMED-HWB on June 15, 2015 based on the *Investigation Report for Bayo Canyon Aggregate Area*, Revision 1, LA-UR-08-3202, EP2008-0226.

The Contractor shall facilitate NMED-HWB's approval of the CoCs. The Contractor shall provide radiological regulatory support to EM-LA for the closure of SWMU 10-007. The Contractor shall prepare the closure documentation for EM-LA to negotiate with the County of Los Alamos. The Contractor shall work with the County of Los Alamos and may have to prepare access agreements with the County of Los Alamos for EM-LA approval.

#### C.11.2.4 Delta Prime Site Aggregate Area

An *Investigation Report for DP Site Aggregate Area Delayed Sites (Consolidated unit 21-004(B)-99 and Solid Waste Management Unit 21-001B) and DP East Building Footprints at Technical Area 21*, December 2011, ERID-208824 was submitted to NMED. NMED issued a Notice of Disapproval (NOD) for the report in June 2012 because of sampling gaps. The Contractor shall prepare and submit a supplemental Investigation report (SIR) to adequately address NMED concerns and comments in the NOD.

The Contractor shall excavate and dispose of the buried industrial waste lines in the DP West area that run from the DP West building slabs to building TA-21-257 (Radiological Liquid Waste Facility) and that are included in TA-21 Consolidated Unit 022(b)-99.

The Contractor shall conduct the demolition of building TA-21-257 including the facility Infrastructure, legacy tanks, process piping, pumps, dikes, vaults, etc., and their constituents. The Contractor shall also conduct a historical data review, prepare sampling & analysis plan, prepare a demolition plan, etc. as necessary to demolition the facilities and equipment and dispose of all wastes appropriately. The wastes are expected to include asbestos containing materials, universal waste, and PCB-containing materials. All structures, foundations, footings, and piping etc., to a distance of nominally ten (10) feet from the exterior walls shall be removed; however, this shall be coordinated with the exterior buried piping removal from the facility connected to other area slabs.

The Contractor shall demolish and dispose of DP West slabs and below-grade concrete for 11 buildings that were razed prior to 2011. The description of this work in included in the *Investigation Work Plan for the DP Site Aggregate Area Delayed Sites*, September 2009, LA-UR-09-6108. The Contractor shall conduct through-slab sampling to determine contaminant concentrations below the slabs to add to the characterization already conducted around the slabs exteriors (IR referenced above).

The Contractor shall coordinate demolition activities with the soil cleanup in accordance with the DP Site Aggregate Area investigation and cleanup. The Contractor shall coordinate with the NNSA M&O Contractor and shall notify NMED-HWB of the demolition plans to ensure controls are in place to address any associated SWMU in accordance with the NNSA-owned RCRA HWF Permit.

The Contractor shall conduct remaining TA-21 Site Cleanup activities and disposal of wastes including concrete slabs material generated from MDA-B remediation currently being stored at DP East area, ancillary equipment including a decommissioned concrete crusher, dismantled support systems equipment from MDA-B enclosures, two MDA-B mobile enclosures, three excavators, and utility lines and poles across the TA-21 area.

The Contractor shall take confirmatory sampling data after excavation of contaminated soils and following other remediation activities to ensure that any remaining contamination along the industrial waste lines area, below the DP concrete slabs area, and at other remediation sites are below the threshold for the cleanup standard being met. The entire DP West area shall be cleaned up to industrial cleanup standards to the requisite depth (ten (10) feet bgs). The site shall be surveyed and hot spots removed to meet the industrial cleanup standards. The slabs and demolition sites shall be restored to approximate original grade sufficient to meet land transfer requirements and expectations negotiated through EM-LA with NA-LA and the County of Los Alamos. The DP East area shall be surveyed and hot spots removed such that this area is below the threshold for a residential cleanup standard.

The Contractor shall conduct readiness reviews prior to commencing field activities. During these activities at TA-21, the Contractor shall establish EM operational controls to the site and implement the necessary site access controls and Conduct of Operations necessary to accomplish the work. Interface with the NNSA M&O Contractor FOD shall only be required for Doppler radar and hazardous conditions notifications relevant to work at TA-21.

Following NMED approval of CoCs, the Contractor shall prepare modifications to the NNSA–owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

#### C.11.2.5 Middle Los Alamos Canyon Aggregate Area

Middle Los Alamos Canyon Aggregate Area includes 33 SWMUs and AOCs. The previous contractor will have completed the remaining investigation and the currently necessary remediation work and begin preparation of the Supplemental

Investigation Report (SIR) for submittal to the NMED. The Contractor shall pick up the development and finalize the SIR for the Middle Los Alamos Canyon Aggregate Area for submittal to the NMED. This will include addressing peer review comments, finalizing the SIR and submitting to EM-LA for review and approval for submittal to the NMED. The contractor shall submit the remaining CoCs. Following NMED approval of CoCs, the Contractor shall prepare modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

#### C.11.2.6 Upper Sandia Canyon Aggregate Area

The *Supplemental Investigation Report for Upper Sandia Canyon Aggregate Area,* Revision 1, LA-UR-15-26598, EP2015-0146, ESHID-600912-05, was prepared by the LCBC contractor. The Contractor shall prepare an IWP addressing NMED NOD comments, and conduct Phase II field activities as required. The contractor shall prepare and submit an IR and CoCs or required remediation. The Contractor shall allow EM-LA the opportunity to participate in the product peer review process. Following NMED approval of CoCs, the Contractor shall prepare modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit. CoCs were received from NMED for 8 SWMUs and 16 AOCs in *"Certificates of Completion Upper Sandia Canyon Aggregate Area Los Alamos National Laboratory EPA ID #NM0890010515 HWB-LANL-10-099,"* (February 18, 2011).

The Contractor shall monitor the health of the wetland in Upper Sandia Canyon and work with the NNSA M&O Contractor to ensure sufficient water is continuously discharged into the head of Upper Sandia Canyon to maintain conditions necessary to ensure the stability of the hexavalent chromium entrapped within the wetland.

#### C.11.2.7 Lower Sandia Canyon Aggregate Area

A SIR will be prepared by the LCBC contractor in August 2017 to address the following SWMUs in TA-20 and TA-53:

| | | |
|---|---|---|
| 20-001(a) | 20-002(d) | 53-005 |
| 20-001(b) | 20-003(b) | 53-008 |
| 20-001(c) | 20-003(c) | 53-009 |
| 20-002(a) | 20-004 | 53-010 |
| 20-002(b) | 20-005 | 53-012(e) |
| 20-002(c) | 53-001(a) | |

Based on current knowledge, not all sites will be able to be closed without additional field work. Therefore, the Contractor shall prepare a Phase II Work

Plan for Lower Sandia Canyon Aggregate Area. For those sites still above SSLs the Contractor shall conduct any necessary field characterization for these sites IAW the IWP, conduct field cleanup activities for these sites, and submit an IR and CoCs as required. The Contractor shall allow EM-LA the opportunity to participate in the product peer review process. Following NMED approval of CoCs, the Contractor shall prepare modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

#### C.11.2.8 Upper Mortandad Canyon Aggregate Area

An SIR will be prepared by the LCBC contractor in August 2017. The Contractor shall prepare an IWP for those sites still above SSLs, conduct field cleanup activities for these sites, and submit an IR and CoCs or required remediation under the 2016 Consent Order and conduct activities as required. The Contractor shall allow EM-LA the opportunity to participate in the product peer review process. Following NMED approval of CoCs, the Contractor shall prepare modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

#### C.11.2.9 Middle Mortandad and Ten Site Canyons Aggregate Area

NMED granted CoCs for:

- 33 SWMUs and 12 AOCs on June 30, 2011
  - 15 SWMUs not subject to controls include 05-006(h), 35-002, 35-004(b and g), 35-009(b and c), 35-010(a, b, c, and d), 35-014(a), 52-002(a), 60-005(a), and 63-001(a and b);
  - 8 AOCs not subject to controls include 35-004(m) [which was mislabeled a SWMU], 35-007, 35-011(d), 35-014(f and g2), 52-003(a), 60-004(c and e);
  - 18 SWMUs subject to controls include 35-003(a, b, c, d, e, f, g, j, k, l, m, n, o, and q), 35-009(e), 35-014(b), 35-015(a, b); and
  - 4 AOCs subject to controls include 35-003(misc), 35-014(d), 35-016(j), and 35-018(a).
- 3 SWMUs (04-001, 04-002, and 04-003(b)) on May 18, 2015;
- 1 SWMU (35-016(i)) and 1 AOC (35-014(e2)) on September 27, 2013;
- 6 SWMUs (05-001(a and b), 05-002, 05-005(a), and 05-006(b and e)) and 1 AOC (05-001(c)) on September 16, 2015;

- 17 SWMUs (35-003(h and p), 35-004(a and h), 35-008, 35-009(a and d), 35-014(e and g), and 35-016(a, c, d, k, m, o, p, and q)) and 8 AOCs (35-003(r), 35-010(e), 35-014(g3), and 35-016(b, e, f, l, and n)) on October 14, 2015.

The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

### C.11.2.10 Lower Mortandad and Cedro Canyons Aggregate Area

Investigation is completed. CoCs were received for SWMUs 05-003, 05-004, 05-005(b), and 05-006(c) from NMED in *"Certificates of Completion Four Solid Waste Management Units at technical Area 5 Lower Mortandad/Cedro Canyons Aggregate Area,"* EPA ID #NM0890010515, HWB-LANL-15-030, October 28, 2015. The previous contractor will conduct and submit a risk assessment for construction workers for remaining SWMUs and AOCs that was required in the October 28, 2015, response from NMED. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

### C.11.2.11 Upper Cañada del Buey Canyon Aggregate Area

Forty-nine SWMUs and AOCs were investigated and reported in the *Upper Cañada del Buey Aggregate Area Investigation* Report, May 2011. Based on this report, CoCs were received from NMED for 6 SWMUs and 1 AOC in *"Approval of Request for Certificates of Completion for Six Solid Waste Management Units and One Area of Concern in the Upper Cañada del Buey Aggregate Area Los Alamos National Laboratory,"* EPA ID #NM0890010515, HWB-LANL-11-049, July 13, 2012.

The previous contractor submitted a *Upper Canada del Buey Aggregate Area Supplemental Investigation Report*, LA-UR-16-26150, EP2016-0042, August 2016, that include a risk assessment of the previously investigated sites. Following NMED approval of this report, the Contractor shall submit requests for CoC for the 39 SWMUs and AOCs that were recommended for CoCs either without or without controls. One SWMU remains deferred until the facility is no longer operational.

The Contractor shall prepare a phase II IWP and conduct additional sampling and analysis for the following:

- To define nature and extent of contamination for one or more contaminants of potential concern at SWMUs 46-004(b2), 46-004(q), 46-004(u), 46-006(f), and 46-008(b).
- To sample for analytes inadvertently excluded from the previous investigation for VOCs and pesticides at SWMU 46-004(h), total petroleum hydrocarbons diesel range organics (TPH-DRO) at SWMU 46-006(d), and TPH-DRO at SWMU 46-008(g).

- To resample SWMU 46-004(t) drainline at locations 46-611277 and 46-611278 to assure information was obtained from the proper depths. And
- To remediate SWMU 46-004(c) because of trichloroethene exposure under construction worker and residential scenarios and the residential non-cancer risk from mercury and SWMU 46-004(q) because of mercury exposure under construction worker and residential scenarios and ecological risks.

The Contractor shall prepare and submit an IR and CoCs or required remediation under the 2016 Consent Order and conduct activities as required. The Contractor shall allow EM-LA the opportunity to participate in the product peer review process. Following NMED approval of CoCs, the Contractor shall prepare modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

#### C.11.2.12 Middle Cañada del Buey Canyon Aggregate Area

The *Investigation Report for Middle Canada del Buey Aggregate* Area, LA-UR-09-0228, EP2009-0012, documented the investigation of four AOCs in TA-51 and TA-54. CoCs were received from NMED for AOCs 18-005(b), 18-005(c), 51-001, and 54-007(d) in *"Certificates of Completion Middle Canada del Buey Aggregate Area AOCS*," EPA ID #NM0890010515 HWB-LANL-11-015, April 14, 2011. The Contractor shall prepare modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

#### C.11.2.13 Lower Mortandad/Lower Canada del Buey Canyons Aggregate Area

NMED concurred that investigations are not required because there are no SWMUs or AOCs in this area in *"Approval Investigation Work Plan for Lower Mortandad/Canada del Buey Aggregate Area,"* LANL, EPA ID #NM0890010515, March 4, 2009. The previous contractor will have submitted the requests for CoCs to NMED. Upon receipt of the CoCs for each site, the Contractor shall prepare modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

#### C.11.2.14 Starmer/ Upper Pajarito Canyon Aggregate Area

The Contractor shall perform field investigations at the specified in the *Investigation Work Plan for Starmer/Upper Pajarito Canyon Aggregate Area*, Revision 1 (EP2011-0066) for 77 sites requiring investigation at TA-08, TA-09, TA-22, and TA-40 and conduct field cleanup activities for those sites exceeding SSLs. The contractor shall prepare and submit an IR and request for CoCs. The Contractor shall allow EM-LA the opportunity to participate in the product peer review process. Following NMED approval of CoCs, the Contractor shall prepare

modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

### C.11.2.15 Twomile Canyon Aggregate Area

The *Investigation Work Plan for Twomile Canyon Aggregate Area*, Revision 1, LA-UR-10-02899, EP2010-0200 was approved by NMED-HWB in June 2010 (ERID-109652). The Contractor shall complete the investigation and conduct site cleanups for sites exceeding SSLs, prepare and submit an IR following all site completions, and submit CoCs for 70 sites at TA-03, TA-06, TA-07, TA-22, TA-40, TA-50, TA-59, and TA-69.

### C.11.2.16 Threemile Canyon Aggregate Area

The *Supplemental Investigation Report for Threemile Canyon Aggregate Area*, LA-UR-16-20567, EP2015-0192, was completed by the LCBC contractor, and addresses the following SWMUs and AOCs:

| | | |
|---|---|---|
| SWMU 12-001(a) | SWMU 15-008(g) | AOC C-12-001 |
| SWMU 12-001(b) | SWMU 15-009(b) | AOC C-12-002 |
| SWMU 12-002 | SWMU 15-009(c) | AOC C-12-003 |
| SWMU 12-004(a) | SWMU 15-009(h) | AOC C-12-004 |
| SWMU 12-004(b) | SWMU 15-010(b) | AOC C-12-005 |
| SWMU 15-005(c) | SWMU 15-014(h) | AOC C-12-006 |
| SWMU 15-007(c) | SWMU 36-002 | AOC C-36-003 |
| SWMU 15-007(d) | SWMU 36-003(a) | |
| SWMU 15-008(b) | SWMU 36-008 | |

Twenty-one sites were recommended for corrective action complete and can proceed to CoCs. The Contractor shall respond to NMED comments on the SIR if still necessary. The Contractor shall prepare an IWP to address four sites where nature and extent are still not defined: SWMU 15-007(c), SWMU 15-008(b), AOC 15-008(g), and AOC 15-009(b). The Contractor shall remove contaminated soil at SWMUs 15-007(c) and 15-008(b) that still exceed SSLs and conduct any remaining field cleanups on those sites. The Contractor shall prepare and submit an IR following all site completions, and submit CoCs for all completed sites.

### C.11.2.17 Lower Pajarito Canyon Aggregate Area

The HIR and IWP were approved by NMED-HWB with modifications in December 2010 (EP2010-5227). The Contractor shall execute the *Investigation Work Plan for Lower Pajarito Canyon Aggregate Area*, Revision 1 (EP2010-0522) for 31 sites requiring investigation at TA-18 and former TA-27, conduct any remaining field cleanups on those sites exceeding SSLs, prepare and submit an IR following all site completions, and submit CoCs.

### C.11.2.18 Cañon de Valle Aggregate Area

A SIR for TA-14 will be completed by the LCBC contractor to address the following SWMUs and AOCs:

| | | |
|---|---|---|
| SWMU 14-001(a) | SWMU 14-003 | AOC C-14-002 |
| SWMU 14-001(b) | SWMU 14-004(a) | AOC C-14-003 |
| SWMU 14-001(c) | SWMU 14-005 | AOC C-14-004 |
| SWMU 14-001(d) | SWMU 14-006 | AOC C-14-005 |
| SWMU 14-001(e) | SWMU 14-007 | AOC C-14-007 |
| SWMU 14-001(g) | SWMU 14-009 | AOC C-14-008 |
| SWMU 14-002(c) | SWMU 14-010 | AOC C-14-009 |
| SWMU 14-002(f) | AOC C-14-001 | |

The Contractor shall develop an IWP for TA-14 sites still above the risk thresholds and respond to NMED comments, conduct the Phase II investigation field cleanup activities, prepare and submit a final Phase II IR, and submit remaining CoCs.

Although an IWP for TA-15 was approved under the LCBC contractor, the Contractor shall conduct Investigation and field cleanup activities for sites above soil screening levels, conduct risk assessment, prepare and submit an IR, and submit for remaining CoCs.

Although the *Investigation Work Plan for Cañon de Valle Aggregate Area* (EP2006-0224) for TA-16 was approved with modifications in February 2007 (ERID-095478), a field implementation plan (FIP) was prepared in June 2011 and contains deviations to the IWP that make the FIP more consistent with the current approach to collecting analytical samples. The Contractor shall conduct field investigations and cleanups for sites exceeding SSLs, conduct a risk assessment, prepare and submit an IR, and submit for remaining CoCs for 21 sites requiring investigation at TA-15.

### C.11.2.19 Upper Water Canyon Aggregate Area

A *Historical Investigation Report for Upper Water Canyon Aggregate Area*, LA-UR-10-5226, EP2010-0307 was previously prepared. The Contractor shall execute the *Investigation Work Plan for Upper Water Canyon Aggregate Area*, Revision 1, LA-UR-11-0135, EP2010-0516, which was approved with a direction to modify on February 18, 2011 (ERID-111827, EP2011-5079) for 129 sites requiring investigation at TA-11 and TA-16, excavation activities at numerous sites, and preparation of an IR.

### C.11.2.20 Lower Water Canyon Aggregate Area

Lower Water Canyon Aggregate Area has not been investigated to date, nor has an IWP been prepared. The Contractor shall develop, submit for approval, and execute an IWP for Lower Water Canyon Aggregate Area. The Contractor shall

execute the investigation activities, conduct field cleanup activities for those sites exceeding SSLs, prepare and submit an IR, and submit CoCs for six sites requiring investigation at TA-15 and one site in TA-49.

| | |
|---|---|
| SWMUs 15-004(h) | SWMU 15-014(l) |
| SWMU 15-001 | SWMU 15-009(g) |
| SWMU 15-014(d) | AOC C-15-011 |
| One site in TA-49 | |

### C.11.2.21 Potrillo/Fence Canyon Aggregate Area

A *Supplemental Investigation Report for Potrillo and Fence Canyons Aggregate Area*, LA-UR-15-27131, EP2015-0079, was submitted to NMED-HWB on September 30, 2015 that includes a risk assessment and makes a recommendation for site completion based on sites being below human health risk. The Contractor shall facilitate NMED-HWB approval of the SIR and the Contractor shall submit requests for CoCs for the seven sites recommended for corrective actions complete (see the left column of the table below). The Contractor shall conduct additional characterization of seven sites for nature and extent and shall remediate (see the middle column of the table below) and conduct post-remediation confirmatory sampling for three sites (see the far-right column of the table below).

| *CoCs* | *Nature and Extend Characterization* | *Remediation and Confirmatory Sampling* |
|---|---|---|
| SWMU 15-005(b) | SWMU 15-004(b) | SWMU 15-002, former south burn pit |
| SWMU 15-007(a) | SWMU 15-004(c) | SWMU 15-004(f), E-F Firing Site |
| SWMU 15-010(a) | SWMU 15-004(f) | SWMU 15-008(a), surface disposal area at E-F Firing Site |
| SWMU 36-006 | SWMU 15-009(e) | |
| AOC C-15-004 | SWMU 36-001 | |
| AOC C-15-005 | SWMU 36-003(b) | |
| AOC C-15-006 | SWMU 36-005 | |

### C.11.2.22 North Ancho Canyon Aggregate Area

Although an initial investigation was conducted and documented in 2009 and 2010,a *Phase II Investigation Work Plan for North Ancho Canyon Aggregate Area*, Revision 1, LA-UR-11-01817, EP2011-0115, was submitted to NMED-HWB and approved with modifications that do not substantially affect the proposed sampling (ERID-203447, EP2011-5255, HWB-LANL-10-104), the Phase II field investigation has not been executed. The Contractor shall conduct the Phase II field investigation activities, conduct field cleanup activities for those sites exceeding SSLs, prepare an IR that includes a risk assessment, and submit CoCs for 5 sites in TA-39: SWMU 39-001(a), 39-002(b), 39-006(a), 39-007(a), and 39-010.

### C.11.2.23 South Ancho Canyon Aggregate Area

Although the *Historical Investigation Report for South Ancho Canyon Aggregate Area*, LA-UR-15-25431, WP2015-0103, ESHRD-600530, and the *Investigation Work Plan for South Ancho Canyon Aggregate Area*, LA-UR-15-25429, EP2015-0104, ESHID-600531, were submitted to NMED-HWB in FY2015, the field investigation has not been executed. The Contractor shall execute the investigation. The Contractor shall conduct the field investigation activities, conduct field cleanup activities for those sites exceeding SSLs, prepare and submit an IR that includes a risk assessment, and submit CoCs for the following 11 sites requiring investigation at TA-33:

| | |
|---|---|
| SWMU 33-003(a), Soil Contamination | SWMU 33-003(b), Soil Contamination |
| SWMU 33-004(c), Septic System | SWMU 33-004(k), Drainline and Outfall |
| SWMU 33-006(b), Firing Site | SWMU 33-007(a), Firing Site |
| SWMU 33-008(b), Landfill | SWMU 33-010(a), Surface Disposal Area |
| SWMU 33-010(b), Surface Disposal Site | SWMU 33-010(d), Surface Disposal Site |
| AOC C-33-002, Former Transformer | |

### C.11.2.24 Chaquehui Canyon Aggregate Area

An *Historical Investigation Report for Chaquehui Canyon Aggregate Area*An *Historical Investigation Report for Chaquehui Canyon Aggregate Area*, EP2009-0554-2868, 11/30/2009 was previously prepared as was an IR for several areas *Investigation Report for Ancho, Chaquehui, and Indio Canyons, Revision 1,* ERID-204397 ; 2011-07-08.

The Contractor shall execute the remaining field investigations as defined in the *Investigation Work Plan for Chaquehui Canyon Aggregate Area*, LA-UR-09-7401, EP2009-0554, as modified by the NMED *Approval With Modifications for the Investigation Work Plan for Chaquehui Canyon Aggregate Area*, Revision 1, ERID-201242, March 3, 2011. The Contractor shall conduct the initial fieldwork activity, excavation activities at numerous sites, and prepare and submit an IR, submit remaining CoCs, and submit a modification to remove the sites from the NNSA-owned RCRA HWF Permit. The IWP requires investigation at 43 sites within the following Consolidated Units, SWMUs, and AOCs:

| | |
|---|---|
| Consolidated Unit 33-002(a)-99, MDA-K (includes (a), (b), and (c)) | Consolidated Unit 33-004(a)-00, Main Site |
| Consolidated Unit 33-005(a)-00, Potential Soil Contamination | AOC 33-008(c), Surface Disposal Area |
| SWMU 33-011(e), Former Storage Area | SWMU 33-012(a), Former Storage Area |
| SWMU 33-016, Sump, Drainline, Outfall | AOC C-33-001, Former Transformer |
| AOC C-33-003, Potential Soil Contamination | SWMU 33-004(d), Septic System |
| Consolidated Unit 33-004(g)-00, Area 6 Firing Site | SWMU 33-009, Surface Disposal Area |

| | |
|---|---|
| Consolidated Unit 33-001(a)-99, MDA-E | SWMU 33-004(b), Septic System |
| Consolidated Unit 33-004(j)-00, Outfall | SWMU 33-010(g), Surface Disposal Area |
| SWMU 33-004(m), Septic System | SWMU 33-001(b), former Storage Area |

The Contractor shall establish EM operational controls to the site and implement the necessary site access controls and Conduct of Operations necessary to accomplish the work. Interface with the NNSA M&O Contractor FOD shall only be required for Doppler radar and hazardous conditions notifications relevant to work. At a minimum, the Contractor shall install an acceptable personnel exclusion fence up-canyon to provide a physical barrier between NA-LA operational areas and the EM operational control areas.

### C.11.2.25 S-Site Aggregate Area

Although the *Supplemental Investigation Report for S-Site Aggregate Area*, LA-UR-15-28016, EP2015-0065, was completed by the LCBC contractor and submitted to NMED-HWB on November 19, 2015 for approval, responses have not been received and comment must be expected. This SIR addresses 61 SWMUs and AOCs in TA-11 and TA-16. The Contractor shall prepare comment responses to NMED-HWB comment after receipt and shall prepare any revision to the SIR. The Contractor shall submit either remaining CoCs based on what NMED-HWB does approve or shall conduct remediation under the 2016 Consent Order to meet site cleanup standards until CoCs can be obtained. The SIR indicated the following additional work is required:

(a) Six sites in the V-Site Courtyard that could not be directly characterized because of historical property preservation constraints and where periphery data show no potential unacceptable human health risks under the recreational scenario and no unacceptable ecological risk require characterization when the facilities are released. These sites are: SWMU 16-006(h), Pit; SWMU 16-013, Decommissioned Storage Area; SWMU 16-017(q)-99, Storage Building 16-517; SWMU 16-017(r)-99, Former Building 16-519; SWMU 16-017(s)-99, Former Building 16-520; SWMU 16-017(t)-99, High Bay Building 16-516; and SWMU 16-017(v)-99, Former HE Processing Building 16-515.

(b) Three sites in the V-Site Subaggregate that could not be sampled completely or at all because of historical property preservation constraints require characterization when the facilities are released. These sites are: SWMU 16-006(g), Former Septic System; SWMU 16-031(c), Former Drainline; and SWMU 16-017(v)-99, Former HE Processing Building 16-516.

(c) Additional sampling is required for eight sites for which extent is not defined but which pose no potential unacceptable human health risk under one or more scenarios and no unacceptable ecological risk. These sites are: SWMUs 11-011(a), 16-026(e), 16-034(n), 16-003(f), 16-029(h), 16-025(x), 16-029(w), and 16-029(x).

### C.11.2.26 Technical Area-49 Inside Nuclear Environmental Site (NES)

The previous contractor (LCBC) submitted the *Supplemental Investigation Report for Sites at Technical Area 49 Inside the Nuclear Environmental Site* Boundary, LA-UR-16-25263, EP2016-0062, August 2016, that addressed the following ten sites:

- SWMU 49-001(g), Area of Potential Contamination,
- SWMU 49-003, inactive Leach Field and Associated Drain Lines,
- AOC 49-008(c), Area of potential Soil Contamination,
- AOC 49-008(d), Bottle House and Cable Pull Test Facility,
- SWMU 49-001(e), Experimental Shafts,
  and
- SWMU 49-001(a), Experimental Shafts,
- SWMU 49-001(b), Experimental Shafts,
- SWMU 49-001(c), Experimental Shafts,
- SWMU 49-001(d), Experimental Shafts, and
- SWMU 49-001(f), Experimental Shafts

It is expected that NMED-HWB will provide comments on the SIR. The Contractor shall prepare comment responses to NMED-HWB comment after receipt and shall prepare any revision to the SIR. The Contractor shall submit CoCs based on what NMED-HWB does approve as complete (the first five are considered complete). The remaining evaluation recommended for the remaining (last) five sites shall be conducted under Section C.12.2.7 for MDA-AB.

### C.11.2.27 Technical Area-49 Outside Nuclear Environmental Site

The previous contractor (LCBC) submitted the *Supplemental Investigation Report for Sites at Technical Area 49 Outside the Nuclear Environmental Site* Boundary, LA-UR-16-25264, EP2016-0061, August 2016, that addressed the following sites:

- AOC 49-002,
- SWMU 49-004, and
- SWMU 49-005(a).

It is expected that NMED-HWB will provide comments on the SIR. The Contractor shall prepare comment responses to NMED-HWB comments after receipt and shall prepare any revision to the SIR. The Contractor shall submit CoCs based on what NMED-HWB does approve as complete (SWMU 49-005(a) may already be complete). The remaining investigation or evaluation shall be included in Section C.12.2.7 for MDA-AB.

# C.12 MATERIAL DISPOSAL AREAS

## C.12.1 Work Process Including Consent Order

This section described a typical investigation and remediation for each of the Material Disposal Areas (MDA) required under the 2016 Consent Order. Specific work scope for each MDA is provided in that section in C.12.2.

### C.12.1.1 Inspection and Maintenance of Existing Operational Covers

The Contractor shall periodically conduct inspection and maintenance of existing operational covers on the MDAs. Inspections and maintenance for all MDAs shall be in accordance with the *Documented Safety Analysis (DSA) for Surveillance and Maintenance of the Nuclear Environmental Sites [NES] at LANL,* NES-ABD-0101, Revision 1, June 2007 including but not limited to access controls, combustible loading (vegetation) controls, preventing/correcting erosion, and preventing/correcting intrusion of water into the waste disposal pits and shafts.

### C.12.1.2 Historical Information Review

All available previous investigatory activities, such as RCRA investigations that were completed ~ 1996, were documented in HIRs by aggregate area by the previous contractor.

### C.12.1.3 Investigation Work Plans

The Contractor shall develop an IWP to characterize the area to determine nature and extent of contamination. IWPs shall be peer reviewed and EM-LA provided an opportunity to participate. This deliverable is co-signed by the Contractor and EM-LA, and as such must be provided for EM-LA acceptance and signature in accordance with the review schedules identified in Section J, Attachment J-11, GFS/I.

### C.12.1.4 Field Investigations

The Contractor shall conduct field investigation activities at the MDAs in accordance with NMED approved IWPs. Unanticipated field conditions and field investigation activities may be expanded within the IWP without re-approaching NMED for IWP changes under Section XIX of the 2016 Consent Order. These additional characterizations shall be coordinated with EM-LA. Samples collected from investigation activities shall follow chain of custody procedures through shipment to analytical laboratories.

### C.12.1.5 Analytical Laboratory

The Contractor shall develop contracts with certified analytical laboratories to meet 2016 Consent Order standards (Section IX) and NMWQCC MDLs. Laboratory MDLs shall be sufficient to meet NMWQCC standards. Sample results from the analytical laboratories shall be loaded directly into EIMS by the analytical laboratory. The Contractor shall evaluate the data for consistency and

expectancy and the Contractor shall follow-up with laboratory for inconsistencies. IntellusNM provides public access to environmental data; the Contractor shall support inquiries by the public.

#### C.12.1.6 Clearance of Cultural Sites

The Contractor shall examine and evaluate cultural sites where cleanups will occur, work with EM-LA and NNSA cultural resources, and provide information for NNSA prepared New Mexico SHPO reports. The Contractor shall provide the background information to allow EM-LA to work with NNSA to either clear cultural sites for the work activities or change investigatory activities to avoid the cultural sites.

#### C.12.1.7 Waste Disposal

The Contractor shall dispose of remediation wastes and restore disturbed areas to acceptable conditions such that the area is consistent with the surrounding topography, vegetation, and characteristics similar to the adjacent undisturbed areas. The Contractor shall characterize the wastes and generate all waste management documentation including manifests. The Contractor shall establish its own contracts or utilize Federal waste transportation and disposal contracts to properly dispose of the remediation wastes if more cost effective.

#### C.12.1.8 Investigation Report

The Contractor shall prepare IRs with human health risk assessments compared with cleanup standards (residential, industrial including construction worker, or recreational) specified by EM-LA as appropriate for the expected land use. The Contractor shall allow EM-LA the opportunity to participate in the IR peer review process. This deliverable is co-signed by the Contractor and EM-LA, and as such must be provided for EM-LA acceptance and signature in accordance with the review schedules identified in Section J, Attachment J-11, GFS/I.

#### C.12.1.9 Evaluation of Potential Remedies and Alternatives

The Contractor shall evaluate potential treatment options and potential remedy projects in a CME including conceptual level detail for potential remedies. The CME recommends a remedy and proposes a DOE commitment to NMED. The CME shall be reviewed and accepted by EM-LA. The schedule shall include an EM HQ Internal Remedy Review, estimated to require two weeks, that will be conducted immediately after the product peer review.

#### C.12.1.10 Support NMED Statement of Basis

The Contractor shall facilitate and support a public review of the NMED SOB and a decision by NMED to implement a remedy project. In those cases where radiological constituents overshadow hazardous constituents, the Contractor shall develop those products and documents necessary to support DOE's authority for radiological regulatory authority in accordance with MP-05.15, *Regulation and Release of Environmental Sites Containing, or Potentially*

*Containing, Radioactive Material* or EM-LA equivalent procedure (in development).

#### C.12.1.11 Construction of Remedy Projects

The Contractor shall execute Environmental remedy projects. The Contractor shall evaluate the need for and conduct onsite air monitoring during the implementation of the proposed remedy construction activities.

#### C.12.1.12 Remedy Completion Report

Following execution of the remedy the contractor shall prepare a remedy completion report. The Contractor shall provide EM-LA the opportunity to participate in the RCR peer review process. This deliverable is co-signed by the Contractor and EM-LA, and as such must be provided for EM-LA acceptance and signature in accordance with the review schedules identified in Section J, Attachment J-11, GFS/I.

#### C.12.1.13 Certificates of Completion and Removal from Hazardous Waste Facility Permit

Following NMED approval of the remedy completion report, the Contractor shall prepare and submit requests for CoCs for all SWMUs and AOCs that have been remediated or meet acceptable risk exposure levels.

Following NMED approval of CoCs, the Contractor shall prepare modifications to the NNSA-owned RCRA HWF Permit to remove sites from Appendix K. The Contractor shall coordinate with the NNSA M&O Contractor, EM-LA, and NMED to effect removal of the SWMU or AOC from the Permit.

### C.12.2 Scope by Material Disposal Area

There are seven MDAs and long-term monitoring at the Airport Landfill cover within the scope of work.

#### C.12.2.1 Material Disposal Area-A

MDA-A is an inactive subsurface disposal site on DP Mesa located at LANL in TA-21 bounded on the south by Los Alamos Canyon and north by DP Canyon and identified as SWMU 21-014. The facility is comprised of the two General's Tanks, two trenches and a central pit that operated from 1945-1947 and again from 1961 until it closed in 1976. It received contaminated materials from the earliest laboratory operations and may contain both hazardous and radioactive waste.

The Contractor shall establish EM operational controls to the site and implement the necessary site access controls and Conduct of Operations necessary to accomplish the work. Interface with the NNSA M&O Contractor FOD shall only be required for Doppler radar and hazardous conditions notifications relevant to work at TA-21.

**MDA-A General's Tanks Removal Action**

From 1945 to 1947, plutonium residues were discharged into two 50,000-gallon underground storage tanks and identified as SWMUs 21-011(i) and (j). The two tanks are covered by 18 in. of soil, an 8-in. reinforced concrete slab, and 3-5ft of overburden soil. Each of the tanks is 12 ft. in diameter and 63 ft. in length. The tanks are located on the west end of the site and contain plutonium-contaminated sediment from the plutonium recovery operations. Liquid wastes containing Pu 239/240 and Am 241 were to be stored until improved chemical recovery methods could be developed. Supernatant water was eventually removed from the tanks from 1975 to 1981 through access holes cut in the concrete and the tops of the tanks.

All pipes and access holes were sealed in 1985; installation of cofferdams and new access holes was completed in 2011. An estimated 86 ft3 heel of sediment remains in the bottom of each tank. The total radioactive inventory for the two tanks is estimated to be 139 Ci, with 111 Ci in the western tank and 28 Ci in the eastern tank. This is sufficient MAR to categorize the Plutonium Tanks as a Hazard Category 2 nuclear facility.

The Contractor shall develop a project plan, provide project development and authorization documents to EM-LA for approval, develop any necessary work documents, execute the removal of the tanks and their heel material, and dispose of all materials. The Contractor shall conduct an evaluation of the feasibility of various disposal options for the final waste form for waste classification as either M/LLW or CH-TRU. The most recent sampling results and Light Detection and Ranging (LIDAR) surveys in *Characterization of Sludge and Water Samples Obtained from the General's Tanks During April, 2010 Sampling,* Rev. 0, LA-UR-11-06876,provide an initial basis for this determination. If the waste stream is determined to require disposal as TRU, the Contractor shall coordinate with the NNSA M&O Contractor to determine options for preparation and shipment through LANL to TA-54 Area-G. The Contractor shall prepare all appropriate environmental evaluation supporting documentation and safety basis documentation to accomplish the remediation and submit to EM-LA for approval (this will likely require subsequent submittal to EM-HQ for approval).

**MDA-A Pit and Trenches Characterization**

Combustible and noncombustible solid wastes and debris were disposed of in three pits/trenches. Two are located on the eastern portion of the site, and one is located on the central part. Solid wastes disposed of in the eastern pits in 1945-1946 contained a variety of radionuclides and possibly hazardous chemicals. The two eastern pits are estimated to be approximately 28,000 ft3. Very little documentation has been found that detail the types of chemicals and quantities of radionuclides in these pits, but they may contain polonium, plutonium, uranium, americium, radium, lanthanum, and actinium.

The central pit is approximately 500,000 ft3 with 2 to 6 ft. of soil overburden above plutonium-, uranium-, and americium-contaminated decontamination and decommissioning related building waste debris from TA-21. Photographs taken

during partial filling indicated plenums and air-handling equipment, hoods, ducts and other construction debris. LANL compiled a Final Hazard Categorization (FHC) for the MDA-A eastern and central pits in December 2009 that applied a segmentation approach for work processes in accordance with DOE-STD-1027-92 and DOE-STD-1120-2005.

The Contractor shall facilitate getting a response from NMED on the LANL request to change the previous remedy strategy for excavation to a new strategy to further characterize the MDA and conduct a CME, "*Request for Withdrawal of Phase II Investigation/Remediation Work Plan for Material Disposal Area A, Solid Waste Management Unit 21-014, at Technical Area 21, Revision 1*," EP2012-0027, Issued April 12, 2012. The Contractor shall then develop and submit an IWP to EM-LA for approval and subsequently to NMED. The Contractor shall conduct additional trench waste sampling (such as potholing) in accordance with the expected sampling plan and execute further characterization of MDA-A central debris pit and trenches.

**MDA-A Corrective Measures Evaluation**

The FHC of the eastern and central pits can be downgraded to less than Hazard Category 3 if discrete work areas are established during excavation and remediation, retrieved landfill materials must be managed such that MAR is maintained below the Hazard Category 3 threshold, and separation of discrete excavation areas are by minimum distances.

Based on the results of the waste characterization sampling, the Contractor shall prepare a CME report that evaluates potential remedial alternatives and recommends a preferred remedy that will be protective of human health and the environment and attain the appropriate cleanup goals. This CME shall also address the 22 SWMUs and AOCs that were made accessible following TA-21-257 demolition. The Contractor shall prepare and submit the CME for MDA-A to EM-LA for approval and subsequently to NMED.

The Contractor shall facilitate NMED-HWB review of the CME and development and issuance of a SOB including public meetings and public comment resolution and issuance of a Notice of Final Remedy.

**MDA-A Dose Assessment**

The Contractor shall evaluate radiological dose from the radionuclide inventory contained in the disposal shafts that industrial workers and the public would receive when the recommended remedy is implemented. The Contractor shall conduct the assessment to meet DOE requirements of DOE O 435.1. The Contractor shall evaluate existing radiological data, identifying receptors, and inserting the information into the RESRAD (residual radioactive material guidelines) software such that the Contractor can compile the results into a Dose Assessment Report for approval by DOE for consideration in selecting a final remedy. The Contractor shall develop and submit the radiological dose assessment documents and other radiological design criteria documents to EM-LA (as the radiological regulator under DOE's AEA authority for radionuclides.

Specific radiological documentation necessary is included in procedure MP-05.17.

**MDA-A Remedy Project**

After the final remedy is selected by NMED and direction is provided by EM-LA, the Contractor shall develop the potential remedy project CMIP for submittal to EM-LA for approval and subsequently to NMED. The MDA-A presumptive remedy is currently an engineered, evapo-transpiration (ET) cover, as a project and include provisions for post-closure care and monitoring to be implemented during this contract period. The Contractor shall include in this CMIP a detailed engineering design and schedule for initiation and execution of the expected project for the remedy. After approval of the CMIP, the Contractor shall execute the remedy project for MDA-A. The Contractor shall coordinate this project development with the remedy project development for MDA-T and explore the possibility of using one remedy for both MDAs due to their proximity. The Contractor shall prepare all appropriate environmental evaluation supporting documentation and safety basis documentation to accomplish the remediation and submit to EM-LA for approval (this will likely require subsequent submittal to EM-HQ for approval).

### C.12.2.2 Material Disposal Area-C

MDA-C is an inactive 11.8-acre landfill consisting of six disposal pits, a chemical disposal pit, and 107 shafts. Hazardous waste and mixed waste, as well as radioactive wastes were disposed of in the landfill between 1948 and 1974. MDA-C is not a Nuclear Environmental Site.

**MDA-C Soil Vapor Monitoring**

The Contractor shall commence semi-annual monitoring of the vapor plume underneath the facility in accordance with the soil vapor monitoring plan [Ref MDA-5] immediately following contract transition and continuing through construction activities for the remedy project. Vapor samples are collected from existing vapor monitoring wells in and around MDA-C - from 110 sampling ports. The Contractor shall arrange for laboratory analysis of the samples for tritium and volatile organic compounds. The Contractor shall prepare and submit to EM-LA for approval and subsequently submitted to NMED annually an effectiveness monitoring report that documents sampling results and plume response.

**MDA-C Corrective Measures Evaluation**

Investigation and characterization activities are complete at MDA-C and the *Corrective Measures Evaluation Report for Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50*, LA-UR-12-24944, EP2012-0194, was submitted to NMED in September 2012. The CME evaluated several remedial alternatives and recommended installation of an ET cover system with soil vapor extraction (SVE) and institutional controls.

The Contractor shall facilitate NMED-HWB issuance of a SOB including public meetings and public comment resolution and issuance a Notice of Final Remedy.

**MDA-C Dose Assessment**

The Contractor shall evaluate radiological dose from the radionuclide inventory contained in the disposal shafts that industrial workers and the public would receive when the recommended remedy is implemented. The Contractor shall conduct the assessment to meet DOE requirements of DOE O 435.1. The Contractor shall evaluate existing radiological data, identifying receptors, and inserting the information into the RESRAD software such that the Contractor can compile the results into a Dose Assessment Report for approval by DOE for consideration in selecting a final remedy. The Contractor shall develop and submit the radiological dose assessment documents and other radiological design criteria documents to EM-LA (as the radiological regulator under DOE's AEA authority for radionuclides. Specific radiological documentation necessary is included in procedure MP-05.17.

**MDA-C Remedy Project**

After the final remedy is selected by NMED and direction is provided by EM-LA, the Contractor shall develop the project CMIP for submittal to EM-LA for approval and subsequently to NMED. The MDA-C presumptive remedy is currently an engineered, evapo-transpirative cover with post-closure care and monitoring systems as a project to be implemented during this contract period. The Contractor shall include in this CMIP a detailed engineering design and schedule for initiation and execution of the expected project for the remedy. After approval of the CMIP, the Contractor shall execute the remedy project for MDA-C as a project including fully implement the additional post-closure care and monitoring plan. The project must be closely coordinated with EM-LA and NNSA because of its location close to NNSA operational facilities. During this project, the Contractor shall obtain approval from EM-LA and NNSA before blocking or impeding traffic on Pajarito Road. As part of the remedy project, the Contractor shall operate and maintain the SVE at MDA-C and periodically report the mass removal to EM-LA and NMED. The Contractor shall prepare all appropriate environmental evaluation supporting documentation and safety basis documentation to accomplish the remediation and submit to EM-LA for approval (this will likely require subsequent submittal to EM-HQ for approval).

### C.12.2.3 Material Disposal Area-G

MDA-G is LANL's primary low-level radioactive disposal facility (1957 until 1997) and includes ten SWMUs comprised of 229 subsurface disposal units including disposal shafts, trenches, and pits for the disposal of low-level radioactive waste, radioactive infectious waste, asbestos-contaminated waste, PCBs, and temporary placement of TRU waste. Currently, Area G is used by the NNSA M&O Contractor for the disposal of low-level radioactive waste in pits, and by the EM Bridge Contractor for the storage of mixed and TRU waste.

**MDA-G Interim Measures Soil Vapor Extraction System**

The Contractor shall consider whether an SVE IM is warranted before the completion of CH-TRU operations and, if warranted, develop an interim measures work plan and submit to EM-LA for approval and subsequent submittal for approval by NMED, collect baseline vapor samples from 41 sampling ports in 20 monitoring wells near the existing extraction boreholes, and execute the SVE IM collecting data and modeling performance as necessary.

The Contractor shall prepare and submit semi-annual summary reports to EM-LA for approval and subsequent submittal to NMED, if the SVE IM is determined to be appropriate.

**MDA-G Corrective Measures Evaluation**

Investigation and characterization activities are complete at MDA-G and the *Corrective Measures Evaluation Report for Material Disposal Area G, Solid Waste Management Unit 54-013(b)-99, at Technical Area 54, Revision 3,* LA-UR-11-4910, was submitted to NMED in September 2011. The CME evaluated several remedial alternatives and recommended installation of an ET cover system with SVE and institutional controls.

However, EM-LA has withdrawn this CME based on the time needed for CH-TRU under this contract. Therefore, the Contractor shall prepare a CME for MDA-G that evaluates potential remedial alternatives and recommends a preferred remedy that will be protective of human health and the environment and attain the appropriate cleanup goals. The Contractor shall prepare and submit the CME for MDA-G to EM-LA for approval and subsequently to NMED.

The Contractor shall facilitate and support NMED-HWB issuance of a SOB including public meetings and public comment resolution and NMED issuance of a Notice of Final Remedy.

**MDA-G Dose Assessment**

The Contractor shall evaluate radiological dose from the radionuclide inventory contained in the disposal shafts that industrial workers and the public would receive when the recommended remedy is implemented. The assessment shall meet DOE requirements of DOE O 435.1. The Contractor shall evaluate existing radiological data, identifying receptors, and inserting the information into the RESRAD software. The results shall be compiled into a Dose Assessment Report for approval by EM-LA for consideration in selecting a final remedy. The Contractor shall develop and submit the radiological dose assessment documents and other radiological design criteria documents to EM-LA (as the radiological regulator under DOE's AEA authority for radionuclides. Specific radiological documentation necessary is included in EM-LA procedureMP-05.15 (in development).

**MDA-G Remedy Project Planning**

After the final remedy is selected, the Contractor shall prepare a CMIP for submittal to NMED to include a detailed engineering design and schedule for initiation and execution of the expected project for the MDA-G selected remedy.

The MDA-G presumptive remedy is currently expected to be an engineered, evapo-transpirative cover with SVE and institutional controls, and with post-closure care and monitoring systems.

Due to the expectation that the CH-TRU program will continue through this contract, demolition of only a portion of the above-grade surface facilities in Area G at TA-54 are anticipated to be within the potential periods of this contract – See Section C.14.

The MDA-G corrective measures will not be implemented during this contract period. The Contractor shall prepare all appropriate environmental evaluation supporting documentation and safety basis documentation to accomplish the remediation and submit to EM-LA for approval (this will likely require subsequent submittal to EM-HQ for approval).

#### C.12.2.4 Material Disposal Area-H

MDA-H is a 0.3-acre inactive hazardous and radioactive waste disposal area consisting of nine disposal shafts that received classified or sensitive wastes and debris contaminated with radioactive, hazardous, and explosive constituents located at TA-54. The shafts are 6 ft. in diameter and 60 ft. deep. Hazardous wastes, and mixed wastes, as well as radioactive wastes have been stored at TA-54 from the 1950s to the present.

**MDA-H Corrective Measures Evaluation**

Investigation and characterization activities are complete at MDA-H and the *Corrective Measures Evaluation Report for Material Disposal Area H, Solid Waste Management Unit 54-004, at Technical Area 54, Revision* 1, *LA-UR-11-5079,* was submitted to NMED in September 2011. NMED has not yet responded to the CME at this time. The CME evaluated several remedial alternatives and recommended installation of an ET cover system with SVE and institutional controls.

However, EM-LA has withdrawn this CME based on the time needed for CH-TRU under this contract. Therefore, the Contractor shall prepare a CME for MDA-H that evaluates potential remedial alternatives and recommends a preferred remedy that will be protective of human health and the environment and attain the appropriate cleanup goals. The Contractor shall prepare and submit the CME for MDA-H to EM-LA for approval and subsequently to NMED.

The Contractor shall facilitate and support NMED-HWB issuance of a SOB including public meetings and public comment resolution and NMED issuance of a Notice of Final Remedy.

**MDA-H Dose Assessment**

The Contractor shall evaluate radiological dose from the radionuclide inventory contained in the disposal shafts that industrial workers and the public would receive when the recommended remedy is implemented. The Contractor shall conduct the assessment to meet DOE requirements of DOE O 435.1. The

Contractor shall evaluate existing radiological data, identifying receptors, and inserting the information into the RESRAD software such that the Contractor can compile the results into a Dose Assessment Report for approval by DOE for consideration in selecting a final remedy.

**MDA-H Remedy Project**

After the final remedy is selected by NMED, the Contractor shall prepare a CMIP for submittal to EM-LA for approval and subsequently to NMED, to include a detailed engineering design for the remedy and any post-closure care and monitoring systems and schedule for initiation and execution of the expected project for the MDA-H selected remedy. The MDA-H presumptive remedy is currently expected to be an engineered, evapo-transpirative cover with SVE and institutional controls, and with post-closure care and monitoring systems. After approval of the CMIP, the Contractor shall execute the remedy project for MDA-H including fully implementing the additional post-closure care and monitoring plan. The project must be closely coordinated with EM-LA and NNSA because of its location along the egress road to Area G and the RANT off-site shipments of TRU wastes. The Contractor shall prepare all appropriate environmental evaluation supporting documentation and safety basis documentation to accomplish the remediation and submit to EM-LA for approval (this will likely require subsequent submittal to EM-HQ for approval).

### C.12.2.5 Material Disposal Area-L

MDA-L is located within TA-54. MDA-L was used between 1959 and 1986 for disposal of mostly liquid hazardous and radioactive wastes into pits, trenches, and shafts including solvent and other liquid wastes. Some liquid wastes were poured into the disposal shafts while others were disposed of in containers. There is a relatively large VOC vapor plume under MDA-L.

**MDA-L Vapor Monitoring**

Vapor monitoring is necessary to determine whether or not the slow leak continues or if there is a catastrophic container failure event. The Contractor shall conduct semi-annual monitoring of the vapor plume underneath MDA-L; collecting vapor samples from existing vapor monitoring wells in and around MDA-L from 86 sampling ports in 29 wells. The Contractor shall arrange for laboratory analysis of the samples for tritium and VOCs and prepare and submit to EM-LA for approval and subsequently to NMED an annual effectiveness monitoring report to document sampling results and plume response.

**MDA-L Interim Measures Soil Vapor Extraction System**

The Contractor shall continue execution of the SVE IM in accordance with the *Interim Measures Work Plan for Soil Vapor Extraction of Volatile Organic Compounds from Material Disposal Area L, Technical Area 54,* Revision 1, LA-UR-14-26472, September 2014, to remove the overall VOC mass, to decrease maximum VOC concentrations within the plume, to decrease the current extent of the vapor plume so it remains well contained within the upper geologic units, and to help gather design information for a potential final SVE remedy. The

Contractor shall perform VOC monitoring on a quarterly basis for 3 years. The Contractor shall continue to report emissions to the NNSA M&O Contractor for Title V Air Permit reporting. (See Section C.3.4.8)

**MDA-L Corrective Measures Evaluation**

Investigation and characterization activities are complete at MDA-L and a *CME Report for Material Disposal Area L, Solid Waste Management Unit 54-006, at Technical Area 54, Revision 2,* LA-UR-11-4798 was submitted to NMED in September 2011 that recommended installation of an ET cover system with SVE and institutional controls.

However, EM-LA has withdrawn this CME based on the time needed for CH-TRU under this contract. Therefore, the Contractor shall prepare a CME for MDA-L that evaluates potential remedial alternatives and recommends a preferred remedy that will be protective of human health and the environment and attain the appropriate cleanup goals. The Contractor shall prepare and submit the CME for MDA-L to EM-LA for approval and subsequently to NMED.

The Contractor shall facilitate NMED-HWB review of the CME, issuance of a SOB including public meetings and public comment resolution and NMED issuance of a Notice of Final Remedy.

**MDA-L Remedy Project Planning**

The MDA-L corrective measures will not be implemented during this contract period. However, after NMED selects a final remedy, the Contractor prepares a CMIP for submittal to EM-LA for approval and subsequently NMED. The MDA-L presumptive remedy is currently expected to be an engineered, evapo-transpirative cover with SVE and institutional controls, and with post-closure care and monitoring systems. The CMI Plan is to include a detailed engineering design for the remedy and any post-closure care and monitoring systems and schedule for initiation and execution of a project for the MDA-L selected remedy. The Contractor shall prepare all appropriate environmental evaluation supporting documentation and safety basis documentation to accomplish the remediation and submit to EM-LA for approval (this will likely require subsequent submittal to EM-HQ for approval).

### C.12.2.6 Material Disposal Area-T

MDA-T is a 2.2-acre radiological waste disposal site located at TA-21 where the remains of four absorption beds and a series of disposal shafts are all that exist and identified as SWMUs 21-016(a), (b), and (c). MDA-T is currently classified as a Hazard Category 2 nuclear facility due to the radiological inventory in the disposal shafts. The Contractor must manage MDA-T activities in accordance with a DSA for surveillance and maintenance at nuclear environmental sites.

The Contractor shall establish EM operational controls to the site and implement the necessary site access controls and Conduct of Operations necessary to accomplish the work. The Contractor shall interface with the NNSA M&O

Contractor FOD for Doppler radar and hazardous conditions notifications relevant to work at and around TA-21.

**MDA-T Moisture Monitoring**

The Contractor shall continue to conduct a moisture monitoring program pilot study in the vadose-zone at TA-21 that uses heat dissipation probes (HDPs) coupled with an infiltration test that applies water at the ground surface to demonstrate if the HDPs work well under transient conditions that would have been started by the previous contractor. The Contractor shall conduct this pilot in accordance with the *Work Plan for Vadose Zone Moisture Monitoring at Material Disposal Area T at Technical Area* 21, LA-UR-11-3831, EP2011-0019, ERID-204696, and NMED's comments in *Approval With Modifications Work Plan for Vadose Zone Moisture Monitoring at Material Disposal Area T at Technical Area 21*, HWB-LANL-11-056, EP2011-5412. This pilot study also includes installing a deep borehole in an undisturbed area of TA-21 and periodically collecting water/moisture samples. Moisture monitoring shall evaluate the mobilization and transport of soluble contaminants in the subsurface from the wastes buried at the site and help guide and evaluate remedial alternatives.

**MDA-T Corrective Measures Evaluation**

The Contractor shall prepare a CME report that evaluates potential remedial alternatives and recommends a preferred remedy that will be protective of human health and the environment and attain the appropriate cleanup goals. The Contractor shall prepare and submit the CME for MDA-T to EM-LA for approval and subsequently to NMED.

The Contractor shall facilitate NMED-HWB review of the CME and development and issuance of a SOB including public meetings and public comment resolution.

**MDA-T Dose Assessment**

The Contractor shall evaluate radiological dose from the radionuclide inventory contained in the disposal shafts that industrial workers and the public would receive when the recommended remedy is implemented. The Contractor shall conduct the assessment to meet DOE requirements of DOE O 435.1. The Contractor shall evaluate existing radiological data, identifying receptors, and inserting the information into the RESRAD software such that the Contractor can compile the results into a Dose Assessment Report for approval by DOE for consideration in selecting a final remedy. The Contractor shall develop and submit the radiological dose assessment documents and other radiological design criteria documents to EM-LA (as the radiological regulator under DOE's AEA authority for radionuclides. Specific radiological documentation necessary is included in EM-LA procedureMP-05.15 (in development).

**MDA-T Remedy Project**

After the final remedy is selected by NMED and direction is provided by EM-LA, the Contractor shall prepare a project CMIP for submittal to EM-LA for approval and subsequently to NMED. The MDA-T presumptive remedy is currently an

engineered, evapo-transpirative cover with post-closure care and monitoring systems as a project to be implemented during this contract period. The Contractor shall include in this CMIP a detailed engineering design and schedule for initiation and execution of the expected project for the remedy. After approval of the CMIP, the Contractor shall execute the remedy project for MDA-T as a project. The Contractor shall coordinate this project development with the remedy project development for MDA-A and explore the possibility of using one remedy for both MDAs due to their proximity. The Contractor shall prepare all appropriate environmental evaluation supporting documentation and safety basis documentation to accomplish the remediation and submit to EM-LA for approval (this will likely require subsequent submittal to EM-HQ for approval).

#### C.12.2.7 Material Disposal Area-AB

MDA-AB includes 12 SWMUs and portion has been categorized as a Hazard Category 2 nuclear facility, which includes SWMUs 49-001(b), 49-001(c), 49-001(d), and 49-001(g). MDA-AB is located immediately in and around several archaeological sites including an Ancestral Pueblo room block (circa AD 1275 – 1350). Any work performed at this site requires close coordination and reporting between LANL and the New Mexico SHPO.

The Contractor shall establish EM operational controls to the site and implement the necessary site access controls and Conduct of Operations necessary to accomplish the work. Interface with the NNSA M&O Contractor FOD shall only be required for Doppler radar and hazardous conditions notifications relevant to work at TA-49. The Contractor shall coordinate activities to allow the Interagency Fire Response Center within TA-49 to continue operating.

**MDA-AB Archeological Site Evaluation**

The Contractor shall conduct field investigations and archeological site clearances by subject matter experts to delineate archaeological sites, preserve artifacts as necessary, coordinate all work with the SHPO, and provide documentation of any work performed in/around the culturally significant areas.

**MDA-AB Investigation and Corrective Measures Evaluation**

Based on the *Supplemental Investigation Report for Sites at Technical Area 49 Outside the Nuclear Environmental Site* Boundary, LA-UR-16-25264, EP2016-0061, August 2016, the Contractor shall conduct the remaining investigations at TA-49 Outside the Nuclear Environmental Sites in accordance with the *Phase II Investigation Work Plan for Technical Area 49 Sites Outside the NES Boundary (AOC 49-002 and SWMUs 49-005(a) and 49-004*), LA-UR-11-0553, EP2011-0028, for only the following two activities as SWMU 49-005(a) is considered complete:

- Drill at least two boreholes next to the calibration and elevator shafts at AOC 49-002 to investigate the extent of contamination at and beneath the bottom of the 64-ft deep shafts.

- Perform additional sampling and analysis at SWMU 49-004 for dioxins and furans, which were not required in the original investigation.

The Contractor shall also conduct the remaining investigations at TA-49 MDA-AB Inside the nuclear environmental site in accordance with the *Phase II Investigation Work Plan for Technical Area 49 Sites Inside the NES Boundary*, LA-UR-11-01818, EP2011-0108, which addresses the remaining nine SWMUs. The Contractor shall implement the Phase II IWPs to determine vertical extent of contamination in Areas: 1, 2, 3, 4, 10, 11 and 12. The Contractor shall prepare and submit a Phase II IR to EM-LA for approval and subsequent submittal to NMED that should include the installation of vapor monitoring wells for Area 12 to further evaluate Tritium contamination.

Following NMED approval of the Phase II IR, the Contractor shall develop a CME to propose a remedy, if necessary, for the closure and sealing of the 82 shafts at TA-49. The offeror shall propose a remedy with minimum disturbance of radiological materials present at the bottom of each of the 82 shafts.

**MDA-AB Dose Assessment**

The Contractor shall evaluate the radiological dose from the radionuclide inventory contained in the disposal shafts that industrial workers and the public would receive when the recommended remedy is implemented. The Contractor shall conduct the assessment to meet DOE requirements of DOE O 435.1. The Contractor shall evaluate existing radiological data, identifying receptors, and inserting the information into the RESRAD software such that the Contractor can compile the results into a Dose Assessment Report to be submitted to EM-LA for approval for consideration when selecting or supporting a final remedy. The Contractor shall develop and submit the radiological dose assessment documents and other radiological design criteria documents to EM-LA (as the radiological regulator under DOE's AEA authority for radionuclides. Specific radiological documentation necessary is included in EM-LA procedureMP-05.15 (in development).

**MDA-AB Remedy Project**

After the final remedy is selected by NMED and direction is provided by EM-LA, the Contractor shall prepare a CMIP for submittal to EM-LA for approval and subsequently to NMED. The MDA-AB presumptive remedy is currently expected to be an engineered, evapo-transpirative cover with post-closure care and monitoring systems to be implemented during this contract period. The Contractor shall include in the CMIP a detailed engineering design and schedule for initiation and execution of the expected project for the MDA-AB selected remedy. The Contractor shall prepare all appropriate environmental evaluation supporting documentation and safety basis documentation to accomplish the remediation and submit to EM-LA for approval (this will likely require subsequent submittal to EM-HQ for approval).

#### C.12.2.8 Long-Term Monitoring County of Los Alamos Airport Landfill

EM-LA replaced a failed asphalt cover with an engineered Evapo-Transpirative (ET) cover at former DOE Class III RCRA landfill at Former TA-73, currently identified as the Los Alamos County Airport Landfill, in 2016. The Contractor shall conduct the necessary quarterly monitoring for this ET cover as described in the *Long-Term Monitoring Plan (LMP)*, (Dwyer 2016). Monitoring includes the following activities:

- Surface inspection and maintenance,
- Methane monitoring at monitoring locations, and
- Moisture measurement and water balance evaluations.

Monitoring maybe reduced after two years from quarterly to semi-annually if the results indicate that the landfill cover is stabilizing, infrequent maintenance is required, and methane is below 25% of the Lower Explosive Limit (LEL); semi-annually defined as once after winter and again after the rainy season. If after two years, methane is still less than 25% of the LEL, then methane monitoring could be changed to annually. Through the fifth and final year, if the methane, moisture measurements and water balancing continued to remain below 25% of the LEL, then methane monitoring could be discontinued thereafter. The landfill cover surface monitoring would continue annually through this contract period of performance. The Contractor shall provide annual performance reports to NMED before February 14 of every year.

## C.13 PHASE OUT AND CLOSEOUT ACTIVITIES

### C.13.1 Transition to Follow-on Contract

The Contractor recognizes that the work and services covered by this Contract are vital to the DOE mission and shall be maintained without interruption, both at the commencement (as described in Section C.1.2 incoming Contract Transition) and the expiration of this Contract (as described in this section). Therefore:

(a) At the expiration of the Contract term or any earlier termination thereof, the Contractor shall cooperate with a successor contractor or the Government by allowing its employees to interview for possible employment. For those employees who accept employment with the successor contractor, such employees shall be released in a coordinated manner with the successor contractor. The Contractor shall cooperate with the successor contractor and Government with regard to the termination or transfer arrangements for such employees to ensure maximum protection of employee service credits and fringe benefits.

(b) This clause shall apply to subcontracts as approved by the Contracting Officer.

### C.13.2 Phase Out Activities

The EM-LA Field Office acquisition strategy for the time period after this Contract will be determined after the start of this Contract, requiring the Contractor to transition the PWS to one or more contractors. Following notification by the EM-LA Contracting Officer of the specific transition plan to any new contractors, the Contractor shall develop, submit, and execute a phase-out transition plan, as follows:

(a) The Contractor shall submit a *Phase-Out Transition Plan* to include its approach to adequately phase-out all LLCC activities and transition existing status and continuing activities to the incoming contractor. The Phase-Out Transition Plan shall be submitted the EM-LA Contracting Officer at least 60 days prior to the completion of the contract term, or as notified by the DOE EM Contracting Officer.

(b) The Contractor shall perform those activities that are necessary to transition the work under this contract to a successor contractor in a manner that:

- Ensures that all work for which the Contractor is responsible under the contract is continued without disruption;
- Provides for an orderly transfer of resources, responsibilities, and accountability from the Contractor; and
- Provides the incoming contractor the ability to perform the work in an efficient, effective, and safe manner.

(c) The *Phase-Out Transition Plan* shall include a proposed date by which the Contractor will transition responsibility to the incoming contractor. The Contractor will maintain full responsibility for all contract stated work until assumption thereof by the incoming contractor. The Contractor shall execute the proposed plan or any part thereof in accordance with the EM-LA Contracting Officer's direction and approval.

(d) The *Phase-Out Transition Plan* shall also include a schedule of major activities, and address at a minimum:

- A training and orientation program for the successor contractor to inform the incoming contractor of the PWS included in the Contract and other specific requirements associated with work efforts at LANL;
- Communication process including interface agreements between DOE, the Contractor, assigned subcontractors, incumbent employees, other site contractors, Regulators and the public;
- Identification of key transition issues and milestones;
- Identification of a transition team (inclusive of consultants and teaming members, if any);
- Approach to minimizing impacts on continuity of operations;
- Dispute resolution;
- Transition of programs, plans, property and projects;

- Transition and/or modification of necessary permits, which shall include list of permits and purpose.
- Transition of existing management and operating systems, plans, procedures, programs (e.g., Worker Safety and Health plan, QA plan, ISMS program, Occupational Radiation Protection Program, Waste Management Program, Records Management Program, etc.);
- Transition of all Contract responsibilities, functions, and activities;
- Transition of all interface control documents; and
- Transition of any other documents or records that would be required for a successor contractor to adequately and efficiently perform.

(e) The *Phase Out Transition Plan* shall also include a transfer walkthrough of all real and personal property currently accountable to the Contractor. During the phase out, the Contractor shall provide an inventory record of such property in the DOE FIMS and Contractor's personal property databases to the follow-on contractor. Specifically, the following property acceptance requirements shall be implemented:

(1) The Contractor must perform a joint wall-to-wall physical inventory with the incoming Contractor of all accountable high-risk and sensitive property during the follow-on contract transition period and obtain the incoming Contractor's full accountability for the high-risk and sensitive property by the end of transition period.

(2) The Contractor must obtain the incoming Contractor's acceptance, at the end of the follow contract transition period, of the transfer of accountability for the remaining government-owned real and personal property not covered under paragraph (e)(1), based on existing inventory records, on an "as-is, where-is" basis, or perform a wall-to-wall inventory within the transition period of the Contract. The incoming Contractor shall be responsible for reporting any discrepancies from the existing inventory records to the CO. If the physical inventory is not accomplished within the allotted timeframe, the Contractor's records will become the inventory baseline.

(3) The Contractor shall work with DOE Property Manager, Fleet Manager and Realty Officer and provide the property and vehicle reports in accordance with Section J, Attachment J-1.

Upon DOE approval of the *Phase-Out Transition Plan*, the Contractor shall complete the activities described in the plan by the end date of the contract.

### C.13.3 Contract Closeout Activities

The Contractor shall develop and submit to the EM-LA Contracting Officer the following contract closeout documents:

(a) A *Contract Closeout Plan* to document the necessary steps the Contractor shall take to adequately closeout the contract. The Closeout Plan shall include a schedule of major activities, and address at a minimum:

- Identification of all contract deliverables submitted and accepted. The Contractor shall include date submitted, DOE acceptance date (if applicable) and status of any remaining open deliverables;
- Status of all requirements (complete and incomplete) under this contract;
- Identification of all subcontracts along with status of each subcontract's settlement and final payment. The Contractor shall identify for each subcontract under this contract whether final invoices have been paid, date of final payment, current status of settlement, and any other outstanding issues related to final settlement and payment of subcontracts;
- Disposition of Government property and equipment, including special nuclear material;
- Status of activities performed in accordance with the Contractor's *Records Management portion of the Close-Out or Transition Plan*
- Status of the final invoice and any incurred cost audit; and
- Status of the issues raised in the final Contractor Self-Assessment Report that follow-on EM contractors should be aware of; and
- An estimate of the funding needed to support this contract closeout.

The Contractor shall submit the *Contract Closeout Plan* in accordance with this PWS and Section J, Attachment J-2, at least 60 days prior to the completion of the contract term or as directed by the DOE EM Contracting Officer. DOE may withhold final payment until all of the necessary activities are completed by the Contractor.

(b) A final *Contractor Self-Assessment Report* (Deliverable C.1.6.2 (2)) that includes evidence of performance of the contract terms and completion of work. The Contractor shall submit this final *Contractor Self-Assessment Report* to the EM-LA Contracting Officer within 30 days of the completion of the contract term.

Upon completion of the contract, EM-LA and the Contractor will execute a final modification to officially close out the contract. The Contractor shall provide a final release statement that will be included in the closeout modification where the Contractor discharges the Government, its officers, agents and employees from all liabilities, obligations and claims under the contract.

## C.14 ADDITIONAL ASSIGNMENTS (INDEFINITE DELIVERY INDEFINTE QUANTITY CONTRACT LINE ITEM NUMBERS 00004, 00007 AND 00010)

Some additional 'in-scope' requirements are expected to be developed or identified during the contract's period of performance. These types of assignments may involve, but are not necessarily limited to, the following categories of work:

- Wells, boreholes, and piezometers that are expected throughout the contract period whose requirements are not currently established or known shall be drilled in accordance with the Section C.6 process and requirements.
- Emergent environmental remediation activities that are within the contract scope but not currently identified or quantifiable, such as a discovery of a new disposal site identified as a result of initial aggregate area investigations that shall be conducted in accordance with Section C.11 process and requirements. Newly identified SWMU's are those not listed under the current Consent Order, but reside within the aggregate areas otherwise being investigated.
- Currently known environmental remediation activities that are not developed sufficiently to rely on current estimates or allow accurate estimating by the contractor.
- For current CH-TRU disposal areas, there may be additional aggregate area investigations which uncover unexpected contaminant spread from the original disposal sites boundaries which would be conducted in accordance with Section C.11 processes and requirements.

### C.14.1 Additional Monitoring Wells (4" Inner Diameter at Depth)

The Contractor shall drill additional monitoring wells to monitor water quality and to help define the vertical and lateral extent of contamination to obtain acceptable quality groundwater samples as specified by the Contracting Officer, in accordance with the 2016 Consent Order Appendix F, NMED-approved DWPs, and Section C.6, Drilling. These additional monitoring wells may be ordered under the IDIQ CLINs (00004, 00007, and 00010) by the issuance of task orders.

### C.14.2 Additional Core Holes and Piezometers

The Contractor shall collect core samples from core holes and shall drill and install piezometers as specified by the Contracting Officer in accordance with the requirements of the 2016 Consent Order Appendix F, NMED-approved DWPs, and Section C.6, Drilling. There are no specific locations for other core holes or piezometers at this time. These additional core holes and piezometers may be ordered under the IDIQ CLINs (00004, 00007, and 00010) by the issuance of task orders.

### C.14.3 Additional Injection or Extraction Wells

The Contractor shall drill additional injection or extraction wells at locations determined by analysis of the groundwater remediation projects (e.g., Cr and RDX) as specified by the Contracting Officer. The performance criteria for these additional injection and extraction wells are not currently known. These additional injection or extraction wells shall be drilled in compliance with the 2016 Consent Order Appendix F, NMED-approved DWPs, and Section C.6, Drilling and may be ordered under the IDIQ CLINs (00004, 00007, and 00010) by the issuance of task orders.

### C.14.4 Demolition of Excess Facilities at TA-54 Area G

The Contractor shall deactivate, decontaminate is necessary, and demolish excess facilities at TA-54 Area G following their identification as excess during the facility

evaluations conducted in accordance with Section C.4.7. The Contractor shall coordinate with the NNSA M&O Contractor and shall notify NMED-HWB of the demolition plans to ensure controls are in place to address any associated SWMU in accordance with the NNSA-owned RCRA HWF Permit. Demolition activities shall include:

- potential sampling for any RCRA Units permitted under the HWF Permit,
- RCRA Unit closure under NMED-approved closure plans, and
- Notification of NMED of the start of demolition activities such that associated SWMUs are not adversely affected by the demolition activities.

Facility demolition is not conducted under the 2016 Consent Order. The Contractor shall maintain an operational cover over the subsurface disposal pits and trenches at all times during demolition activities. These additional demolition activities may be ordered under the IDIQ CLINs (00004, 00007, and 00010) by the issuance of task orders.

### C.14.5 NNSA-Owned CH-TRU Not Yet Identified and Not in Area G

The Contractor shall perform remediation of several types of newly generated NNSA-owned CH-TRU waste that are not approved for disposal of TRU waste at WIPP and that have not been currently identified by NNSA and are not within Area G at this time. The Contractor shall receive, store, and remediate this currently unknown waste stream through the SSSR process. This scope includes but is not limited to SSSR activities such as preparing, sorting, segregating, surveying and non-destructive analysis, and characterization of the containers and their content to meet requirements for disposals at the WIPP or otherwise as M/LLW.

Since this waste stream is not currently identified, the Contractor shall not include this waste stream in their proposal. The total quantity of waste to be processed will be based on NNSA's emerging needs and the Contractor's excess capabilities during the contract period. These additional CH-TRU waste disposition activities may be ordered under the IDIQ CLINs (00004, 00007, and 00010) by the issuance of task orders. The Contractor shall collect the costs associated with the handling of the NNSA newly generated CH-TRU and be paid through contractual agreements with the LANL M&O Contractor, and provide to EM-LA for information only.