

Permit 3/19/10



**STATE OF NEW MEXICO  
BEFORE THE SECRETARY OF ENVIRONMENT**

**IN THE MATTER OF:**

**APPLICATION OF THE UNITED STATES )  
DEPARTMENT OF ENERGY AND )  
LOS ALAMOS NATIONAL SECURITY, LLC )  
FOR A HAZARDOUS WASTE FACILITY )  
PERMIT FOR LOS ALAMOS NATIONAL )  
LABORATORY )**

**No. HWB 09-37(P)  
HWB 10-04(P)**

**TESTIMONY OF DAVID McINROY**

My name is David McInroy. I am the Program Director for Corrective Actions Program at Los Alamos National Laboratory (LANL). I have been Program Director for approximately 3 years and have worked in the Environmental Restoration Corrective Actions Program at the Laboratory since 1990.

I received a Bachelor of Science in Agriculture from NMSU and have continued my education through courses and programs at LANL, NMSU, UNM, UCLA, DOE, EPA, and many other venues. I am currently a Certified Project Management Professional (PMI) and have 20 years of relevant experience in environmental investigation, protection and remediation.

I joined LANL in 1985 as a technical staff member in the Environmental Surveillance Group. I became the Project Leader for the Environmental Restoration Program in 1992 and worked on the program in this capacity and also as the acting Program Manager on two different occasions until May of 2003. In 2003, I became the Program Director for Environmental Restoration and Surveillance. I led, coordinated and managed all environmental restoration and surveillance activities at LANL. I was the principal interface between LANL and DOE for remediation activities, worked with integrated teams, and was responsible for financial and technical project management.

I became Deputy Program Director for the Environmental Programs Directorate's (EP's) Corrective Actions Program in 2006, and in 2007, I became Program Director. As Program Director, I am responsible for program leadership, management and execution of environmental characterization and remediation activities as required by the New Mexico Environment Department's Consent Order. I am a primary interface between LANS and DOE/NNSA, as well as with state and federal regulators for environmental restoration activities occurring at firing sites, on-site industrial areas, material disposal areas, and former Laboratory properties transferred to private ownership.



I am familiar with the requirements for corrective action and the scope of work captured by the 2005 Compliance Order on Consent (Consent Order). The Consent Order addresses corrective actions for releases of contaminants from solid waste management units (SWMUs) and areas of concern (AOCs) at LANL.

In preparation of this testimony, I reviewed the following:

- Proposed Hazardous Waste Facility permit issued January 20, 2010.
- NMED Fact Sheet dated July 6, 2009, entitled "Intent to Issue a Hazardous Waste Facility Permit under the New Mexico Hazardous Waste Act, Los Alamos National Laboratory (LANL), Los Alamos County, New Mexico."
- Comments received from interested members of the public.

### **Regulatory History of Corrective Actions at LANL**

The Corrective Actions Program at LANL was begun in the late 1980s in response to DOE Order requirements pursuant to DOE's authority under the Atomic Energy Act (AEA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The program continued under DOE's authority until 1990, when the U.S. Environmental Protection Agency (EPA) issued Module VIII to LANL's Hazardous Waste Facility Permit. Module VIII of the Facility Permit established corrective action requirements pursuant to the Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA). Per RCRA/HSWA, permits issued to treatment, storage or disposal facilities require corrective action for releases of hazardous waste or hazardous constituents from SWMUs at the permitted facility and, where necessary, beyond the facility boundary. 42 U.S.C. § 6924(u) and (v). At that time, New Mexico was not authorized by EPA to administer the RCRA/HSWA requirements of RCRA, so EPA was responsible for administering Module VIII of the Permit (New Mexico had administrative authority for the remainder of the permit). Because RCRA does not regulate radionuclides covered by the Atomic Energy Act, DOE maintained corrective action authority for releases of radionuclides. In 1996, EPA granted New Mexico authority to administer the RCRA/HSWA requirements. At that time, New Mexico assumed authority for corrective actions being implemented under the Permit, Module VIII.

In March 2005, the corrective action requirements in Module VIII of the Facility Permit were replaced by the Compliance Order on Consent (Consent Order), which was the result of settlement negotiations between NMED, and DOE and the University of California (the LANL operating contractor at that time). The Parties entered into the Consent Order with the understanding that the Consent Order, not the Facility Permit, is the only enforceable instrument for corrective action relating to LANL (except as provided in Section III.W.1). Consent Order, Section III.W.2

## Scope and Organization of Corrective Actions Under the Consent Order

The purposes of the Consent Order are to fully determine the nature and extent of releases of contaminants at or from LANL; to identify and evaluate, where needed, alternatives for corrective measures to clean up these contaminants; and to implement these corrective measures. The Consent Order fulfills the RCRA/HSWA statutory and regulatory requirements for corrective action for releases of hazardous waste or waste constituents and groundwater requirements. The contaminants regulated under the Consent Order do not include radionuclides, which are regulated by DOE. Consent Order, Section III.A.

The Consent Order specifically states that the corrective actions being undertaken pursuant to the Consent Order shall not be included in "any current or future" Permit. Section III.W.1 of the Consent Order States:

The Department has determined that all corrective action for releases of hazardous waste or hazardous constituents at the Facility, required by sections 3004(u) and (v) of RCRA, 42 U.S.C. §§ 6924(u) and (v), and sections 74-4-4(A)(5)(h) and (i) and 74-4-4.2(B) of the HWA, shall be conducted solely under this Consent Order and not under the current or any future Hazardous Waste Facility Permit ("Permit"), with the exception of the following four items which will be addressed in the Permit and not in this Consent Order: (1) new releases of hazardous waste or hazardous constituents from operating units at the Facility; (2) the closure and post-closure care requirements of 20.4.1.500 NMAC (incorporating 40 C.F.R. Part 264, Subpart G), as they apply to operating units at the Facility; (3) implementation of the controls, including long-term monitoring, for any SWMU on the Permit's Corrective Action Complete With Controls list, which is described in Section III.W.3.b; and (4) any releases of hazardous waste or hazardous constituents that occur after the date on which this Consent Order terminates pursuant to Section III.E.2. The Department has determined that setting forth corrective action requirements in this Consent Order in lieu of the Permit fully complies with the requirements of section 3004 of RCRA, 42 U.S.C. § 6924, and section 74-4-4.2(B) of the HWA.

As described below, LANL is currently undertaking corrective action at SWMUs and AOCs under Consent Order, including corrective action at MDAs G, H and L. The Consent Order specifically states that NMED has determined that corrective action shall be conducted "solely under the Consent Order" and not under "the current or future" Permit; and that compliance with the terms of the Consent Order constitutes compliance with the corrective action requirements under RCRA and the HWA. The renewed Permit, however, can include the four excepted items listed above, and a list of SWMUs requiring corrective action under the Consent Order, for tracking purposes only. Consent Order, Sections III.W.1 and 2. In addition, section III.W.4 states that the renewed RCRA Permit "will not include any corrective action requirements, nor any other requirement that is duplicative of this Consent Order"

The principal activities conducted by LANL under the Consent Order are:

- Investigations – which are performed to determine the nature and extent of contaminant releases and to determine whether these releases pose an unacceptable risk to human health or the environment.
- Interim Measures – which are performed to control the release or migration of contaminants and to reduce risk while long-term corrective measures are being evaluated and implemented.
- Accelerated Corrective Actions – which are cleanups that are not complex and can be implemented quickly without the need to evaluate alternatives.
- Corrective Measures Evaluations (CMEs) – which are performed to identify and evaluate corrective measures alternatives needed to protect human health and the environment from releases of contaminants.
- Corrective Measures Implementations (CMIs) – which are performed to implement the corrective measures alternative(s) selected by NMED.
- Facility-wide Groundwater Monitoring – which is performed to characterize groundwater contamination at the site and evaluate whether contaminant releases have impacted groundwater.

At the time of the Facility Permit in 1990, LANL had identified approximately 2100 potential release sites; i.e., SWMUs or AOCs. Approximately 700 of these sites were formally approved for no further action by NMED or EPA under the Permit and were not subject to further corrective actions under the Consent Order. Thus, the Consent Order addresses the remaining SWMUs and AOCs. For purposes of implementing the Consent Order, these sites are organized into three main categories – material disposal areas (MDAs), aggregate areas and canyon watersheds.

MDA investigations and corrective actions specifically identified in the Consent Order address ten major mesa-top MDAs – MDAs A, B, T, U, and V at Technical Area (TA)-21, MDA C at TA-50, MDAs G, H, and L at TA-54, and MDA-AB at TA-49. Because of the magnitude of the contaminant inventories associated with these MDAs, Consent Order activities for MDAs are expected to include implementation of corrective measures (e.g., CMEs/CMIs or other cleanup activities).

The Consent Order specifically includes corrective action requirements for the SWMUs and AOCs at MDAs G, H, and L at TA-54, including investigation, CME and CMI requirements Consent Order, Sections IV.C and XII. While there are certain regulated units at these three MDAs, they are co-located or situated among SWMUs and AOCs subject to investigation, remediation and monitoring under the Consent Order. 40 CFR §264.110(c) allows alternative closure for regulated units “situated among” SWMUs and AOCs to be incorporated into Consent Order work (e.g., the approved MDA H CME Report). The Permittees have identified the specific regulated units at G, H and L in comments and Gian Bacigalupa’s testimony. Exhibits 1 and 2 illustrate how regulated units are situated among Consent Order units at Areas G and L.

Aggregate areas consist of 29 watershed-based geographic areas within or in the vicinity of LANL. All SWMUs and AOCs within an aggregate area are investigated as a single project. Over 90 percent of the corrective action units subject to the Consent Order are being investigated in aggregate area investigations. Aggregate area investigation activities are directed toward characterizing the nature and extent of contaminant releases from individual SWMUs and AOCs.

Canyon watershed investigations address the seven main watersheds at LANL and primarily focus on fate and transport of contaminants from the point of origin to the drainage system and, if necessary, to the regional aquifer. Media investigated includes canyon alluvial sediments, surface water, and groundwater

The Consent Order contains a mechanism for long term maintenance and monitoring of all final remedies. NMED must approve completion of corrective action for each SWMU or AOC. Once that happens, DOE and LANS submit a class 3 permit modification to move that SWMU/AOC from a list of units to be addressed to one of two other lists in the Permit: "complete with controls" or "complete without controls." "Complete with controls" indicates that although no further investigation or cleanup is necessary, long-term controls are needed to assure protection of human health and the environment under current and reasonably foreseeable future land use. Controls may include such things as land use restrictions or long-term maintenance and monitoring of a remedy. All controls are enforceable through the RCRA Permit and comprise those actions identified as item (3) in Section III.W.1, described above. "Complete without controls" indicates that the site can be used for any purpose without residual site contamination posing an unacceptable risk to human health or the environment.

### **Implementation of Consent Order Activities**

All work performed by LANL under the Consent Order is subject to approval by NMED and is performed in accordance with enforceable schedules. The Consent Order schedule contains deadlines for submittal of investigation work plans for the ten major MDAs, including MDAs G, H and L, as well as the 29 aggregate areas and canyon watersheds. When investigation work plans are approved by NMED, schedules are established for submittal of the subsequent investigation reports. When investigations are completed, the need for any additional work is evaluated and, if necessary, recommendations are developed for additional work (e.g., additional phases of investigation, cleanup, etc.). When the investigation report is approved by NMED, the scope of additional work is defined, and a schedule is established for this work (e.g., submittal of a Phase II investigation work plan). In this manner, work proceeds under NMED-approved, enforceable schedules until corrective actions are completed. Because the entire scope of work required at a site is developed under this iterative process, the exact date that corrective actions will be completed may not be known when investigations begin. Enforceable deadlines for completion of corrective actions at identified MDAs, including MDAs G, H and L, and at all sites within specific watersheds are specified in the Consent Order, however.

All work performed by LANL under the Consent Order is also performed in accordance with NMED-approved work plans. LANL prepares these work plans and submits them to NMED for review and approval. When a work plan is approved by NMED, NMED may also modify the plan to direct additional work scope. Any work added in this manner, although it may not have been originally proposed by LANL, becomes an enforceable requirement of the Consent Order. Under this approval process, NMED makes the final determination of the scope of work that is required for each investigation or other work activity. Direction from NMED for increased work scope beyond the original approved work plan is enforceable under the Consent Order.

The investigation and cleanup process under the Consent Order is directed toward achieving a status of "corrective action complete" for all sites. The steps needed to achieve corrective action complete will vary from site to site and may range from a single phase of investigation to implementation of corrective measures. The overall process is described below.

The first step in the Consent Order corrective action process is preparation of an investigation work plan. This work plan identifies the actions to be taken to collect data needed to determine the nature and extent of contaminant releases and evaluate the risk posed by these releases. After the investigation work plan is approved by NMED, the investigation is implemented and the results are presented in an investigation work plan. Based on the results of the investigation, LANL may recommend sites for "corrective action complete" status if nature and extent is defined and the site poses no unacceptable human health or environmental risk under current and foreseeable future land use

Based on the results of the investigation, NMED may require implementation of the Consent Order corrective measures process. Both Corrective Measures Evaluations (CME) and Corrective Measures Implementations (CMI) will likely be conducted for many of the large MDAs; CMEs have been prepared for the MDAs G, H and L at TA-54. Under this process, LANL will conduct a CME that identifies and evaluates corrective measures alternatives for the site. The Consent Order contains specific evaluation criteria that are to be used to evaluate these alternatives. Based on the results of the CME report, NMED will select a recommended corrective measure alternative, prepare a statement of basis supporting this recommendation, and issue the statement of basis for public comment.

Members of the public may also request a public hearing regarding remedy selection. Following receipt and consideration of public comments and, if necessary, a public hearing, NMED will select a final remedy. Once the remedy is selected, LANL will prepare a Corrective Measures Implementation (CMI) Plan that specifies how the selected remedy is to be implemented. After the CMI Plan is approved by NMED, LANL will implement the CMI and document the completion of the CMI in a Remedy Completion Report.

If the remedy requires long-term controls, such as monitoring or maintenance, these would be incorporated into the Hazardous Waste Facility Permit and enforced by NMED through the Permit. A permit modification, with the associated public comment process, will be required to incorporate these long-term controls into the permit.

## **Funding and Budgeting of Consent Order Activities**

All work performed by LANL under the Consent Order is funded by the DOE Office of Environmental Management (EM). The annual budget for EM is established in the annual congressional appropriation for DOE. The budget finally approved by Congress may or may not be what was actually requested by DOE. The annual funding provided by EM for cleanup activities at LANL since fiscal year 2005, when the Consent Order was signed, is shown in Exhibit 3. As shown in Exhibit 3, funding levels have increased substantially since the Consent Order was signed to meet the commitments of the Order (to approximately \$200 million for FY 2010).

To support determination of annual fiscal year budget requests to Congress (and in accordance with DOE Order requirements), LANL has established a life-cycle baseline schedule and cost estimate for the entire environmental cleanup program. The work scope contained in this baseline is based on the best available information and understanding of what is expected to be required to achieve final cleanup and closure of all corrective action sites. The baseline is refined as better information becomes available concerning future work scope (e.g., as investigation reports are approved and work plans are developed for future phases of work). DOE's annual budget request to Congress is based on the best information on required work scope available at the time of the request.

Based on the Congressional budget process, annual fiscal year budget requests must be submitted approximately one year in advance (i.e., the budget request for federal fiscal year 2012 will be submitted in 2010). The budget request must be based on the work scope NMED has approved to date; however, NMED may increase the work scope during the fiscal year. As a result, there is some uncertainty of the scope of work that will actually be required in the budget year. For example, work plans may be approved with modifications that increase the work scope for a fiscal year after the budget request for that year has been submitted or approved. As work plans are approved, the baseline is updated to reflect actual approved work scope. If the scope of work for the current year increases after the annual budget is approved (e.g., when a work plan is approved with modifications), funding for individual projects may need to be reprioritized.

## **Status of Progress Under the Consent Order**

LANL has made substantial progress in implementing the requirements of the Consent Order. LANL is meeting the Consent Order schedule for submitting work plans, reports, and other deliverables. Investigation work plans have been approved and the initial phase of investigation has been completed or is underway for 80% of the sites subject to corrective action under the Consent Order. By the end of 2010, this number will reach 98%. Of the sites where at least the first phase of investigation under the Consent Order has been completed, 47% were recommended for corrective action complete, 40% were recommended for additional investigation to determine extent of contaminant releases, and 13% were recommended for some type of cleanup activity (e.g., removal of limited areas of contaminated soil).

Significant progress has also been made on investigation and cleanup of major MDAs. The status of the ten MDAs specifically addressed in the Consent Order, including MDAs G, H and L, is as follows:

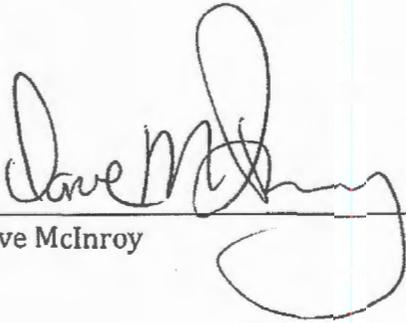
- MDA A – Phase II Investigation/Remediation Work Plan approved – Cleanup ongoing.
- MDA B – Investigation/Remediation Work Plan approved – Cleanup ongoing.
- MDA C – Phase III Investigation Work Plan submitted – Investigation ongoing.
- MDA G – Corrective Measures Evaluation Report submitted – Remedy evaluation ongoing.
- MDA H – Corrective Measures Evaluation Report approved – Remedy selection ongoing.
- MDA L – Corrective Measures Evaluation Report submitted – Remedy evaluation ongoing.
- MDA T – Phase III Investigation Report submitted – Investigation ongoing.
- MDA U – Investigation Report approved – Cleanup completed.
- MDA V – Investigation Report approved – Disposal site cleanup completed, subsurface vapor investigation ongoing.
- MDA AB – Investigation Work Plan approved – Investigation ongoing.

In addition, remediation has been completed at MDA P, MDA Y and MDA M.

### **Conclusions**

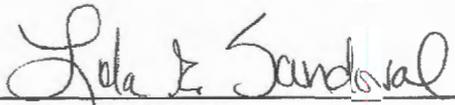
- The Consent Order replaced the RCRA permit requirements for corrective action, including those for MDAs G, H and L. The Consent Order is an enforceable document and provides a comprehensive framework for investigating and remediating historical contamination at LANL.
- The Consent Order contains provisions for the transfer of enforceable long-term controls (e.g., monitoring and maintenance) to the Hazardous Waste Facility Permit.
- Under the Consent Order, NMED establishes and approves the scope and schedule for corrective action activities that must be performed by LANL.
- LANL is complying with the requirements of the Consent Order and has made considerable progress since the Consent Order was signed to investigate and remediate sites, under the direction of NMED.
- Funding for cleanup activities at LANL has increased since the Consent Order was signed and DOE is committed to assuring that adequate funding is available to meet future requirements.
- Based on my review of the proposed Facility Permit, there are certain provisions relating to MDAs G, H and L that are covered by the Consent Order and thus are duplicative of and inconsistent with Consent Order requirements.

FURTHER AFFIANT SAYETH NAUGHT

  
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Dave McInroy

STATE OF NEW MEXICO        )  
  ) ss.  
COUNTY OF LOS ALAMOS    )

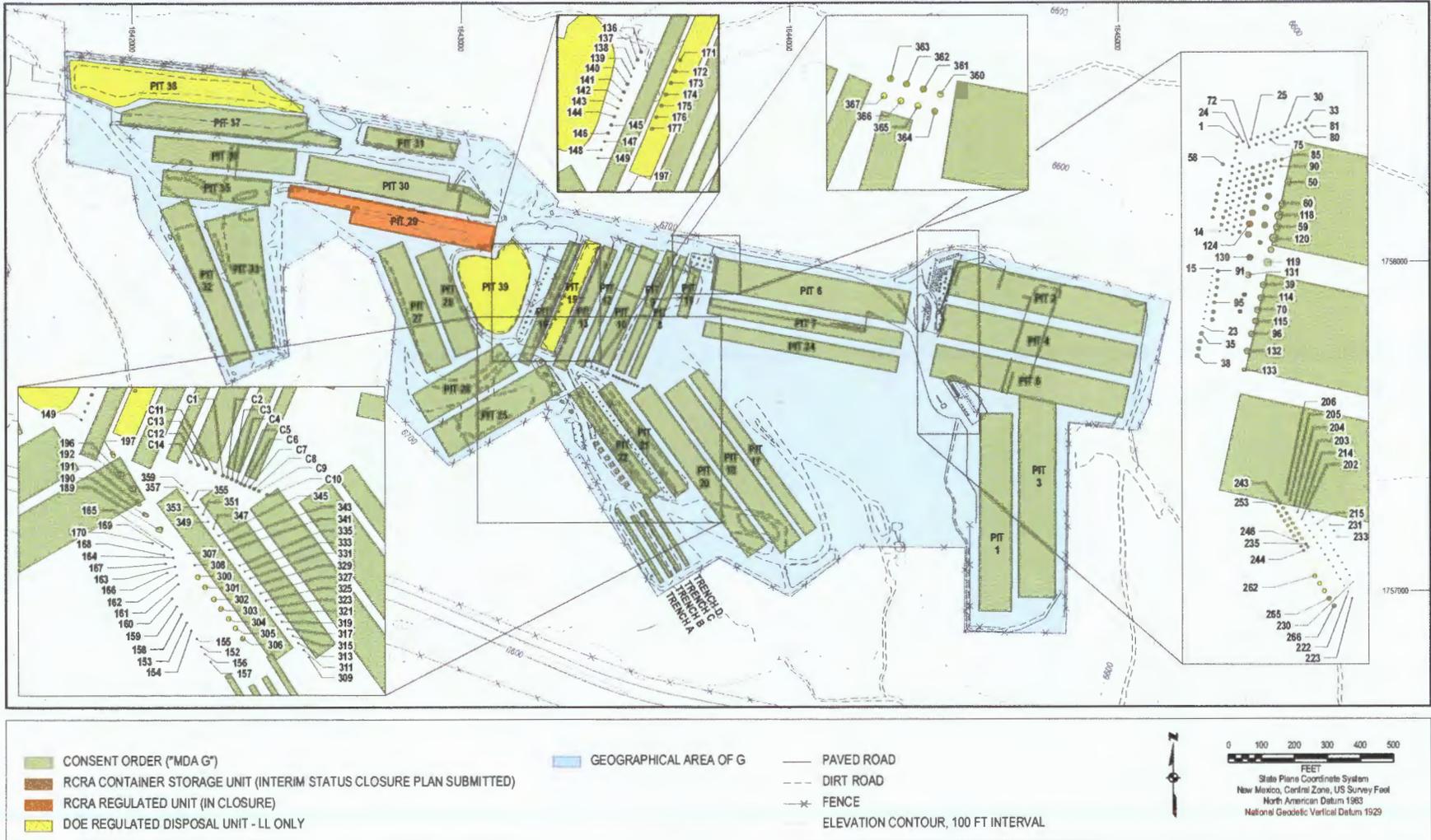
SUBSCRIBED, SWORN TO AND ACKNOWLEDGED before me this 19<sup>th</sup> day of March, 2010

  
\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires:

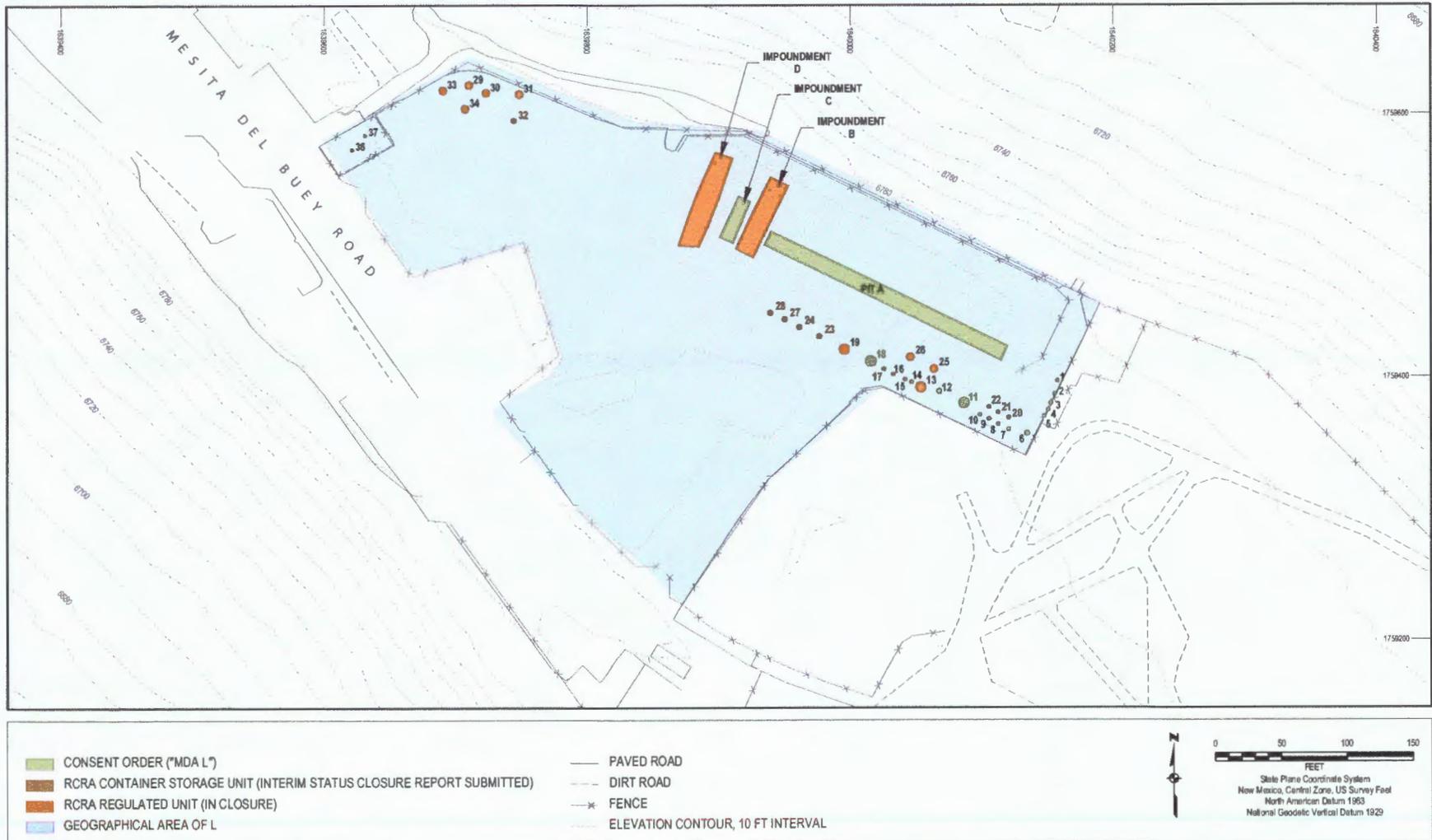
December 24, 2013

# EXHIBIT 1. UNDERGROUND UNITS AT G



LA-UR-08-05647

## EXHIBIT 2. UNDERGROUND UNITS AT L



LA-JR-08-05647

**Exhibit 3.**  
**Annual Funding for Consent Order Implementation**

