



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, and the )  
NOTICE OF INTENT TO DENY A PERMIT )  
FOR OPEN BURN UNITS TA-16-388 AND )  
TA-16-399 FOR LOS ALAMOS NATIONAL )  
LABORATORY. )  
\_\_\_\_\_ )

Nos. HWB 09-37 (P)  
HWB 10-04 (P)  
Consolidated



WRITTEN TESTIMONY OF JAMES P. BEARZI

My name is James P. Bearzi, and I am the Chief of the Hazardous Waste Bureau of the New Mexico Environment Department (the Department). I am presenting this written testimony on behalf of the Department in the hearing concerning the issuance of a renewal permit for storage and treatment of hazardous waste at Los Alamos National Laboratory (LANL), the denial of a permit to treat hazardous waste at the Technical Area (TA) 16 open burn units at LANL, and the approval of interim status closure plans for the TA-16 open burn units. The proposed hazardous waste facility permit for LANL, dated February 2, 2010 (Proposed Permit), is marked as **NMED Exhibit 1 (AR 33170)**. The Fact Sheet, dated February 2, 2010, explaining the basis for the Department's decision to deny the permit for open burning is marked as **NMED Exhibit 2 (AR 33110)**. This testimony is marked as **NMED Exhibit 3**.

**I. QUALIFICATIONS**

I hold a Bachelor of Science degree in Geology and Geography from Portland State University, and a Master of Science degree in Earth Sciences from Montana State University,



where I conducted and published original research on the effects of post ice-age climate change and tectonism on river systems in southwest Montana. I was enrolled in the doctorate program at University of New Mexico, and although I did not finish my Ph.D., my research was focused on effects of earthquakes and crustal deformation in desert landscapes in the southwestern United States. I have completed dozens of short courses related to hazardous waste management, public health, and management, including a short course in *Strategic Management of Regulatory and Enforcement Agencies* at Harvard's Kennedy School of Government in 2002.

I have held the position of Chief of the New Mexico Environment Department's (NMED, or sometimes "the Department") Hazardous Waste Bureau since May 10, 1999, except for a 10 month period between July 2003 and May 2004 when I was on assignment to the Governor's Office. As Chief of the Hazardous Waste Bureau, I oversee the State program for the regulation of the generation, transportation, storage, treatment, and disposal of hazardous wastes. I oversee a staff of approximately 50 professional and administrative staff, and an annual budget of approximately \$5.4 million. Under this program, my Bureau regulates hazardous waste management facilities, including the operation, closure, and cleanup of such facilities. The Bureau regulates through permits approximately 20 facilities that treat, store, or dispose of hazardous waste, are subject to closure or post-closure requirements, or both. Additionally, the Bureau regulates approximately 1,700 generators and transporters of hazardous waste that are subject to regulatory requirements, but not permitting. The Bureau regulates and directs corrective action (i.e., cleanup) activities at permitted facilities, ensuring that the sites are not and do not become threats to human health and the environment. Each permit requires intense negotiations with the applicant, and often with other interested parties. I am the lead negotiator for all permits, including that for LANL. Another major component of New Mexico's hazardous

waste program is inspection and enforcement of regulated facilities. I am intimately involved with every enforcement action the Bureau initiates and the lead negotiator for purposes of settlement as well. Perhaps the most significant negotiations in my career concerned the March 1, 2005 Administrative Order on Consent for the comprehensive investigation and cleanup of environmental contamination at LANL.

I have been employed with the Department (or its predecessor agency, the Environmental Improvement Division of the Health and Environment Department) since 1989, except for approximately one year. For the last eighteen years of that time, I have managed programs that deal with toxic contamination, releases from underground storage tanks, liquid waste disposal, public health, and drinking water supplies. In that time, I have testified in front of the state legislature dozens of times concerning topics in my areas of responsibility, including implementation of New Mexico's hazardous waste program, and particularly, LANL. Earlier in my career with the Department, I held positions that were strictly technical in nature, reviewing scientific documents concerning contamination, polluted groundwater, and dangerous vapor accumulation.

I have owned and been principle scientist for Lassen Environmental Services, Inc. (dissolved in 1996), which specialized in hydrogeology, environmental assessment, and well testing for private clients. I have also worked for a small environmental consulting firm, Glorieta Geoscience, Inc., which conducted work similar to that conducted by Lassen. I was also employed by the U.S. Geologic Survey Water Resources Division as a hydrologist, where most of my work involved seismic assessments and water resource assessment in militarily strategic areas.

In addition to my employ with the Department, since 2008 I have also been employed by University of New Mexico – Los Alamos as adjunct faculty. In that capacity, I have taught college-level courses in physical science, environmental science, and physical geography.

A copy of my resume is marked as **NMED Exhibit 4**. It is accurate and up-to-date.

## **II. SUMMARY**

I am here to testify on the background of the Department's preparation and issuance of a renewed hazardous waste facility permit, the "Proposed Permit," (NMED Ex. 1), for LANL. With other Department witnesses, I will testify on certain questions we have addressed in drafting the Proposed Permit, and proposing to deny a permit for the TA-16 open burn units. The issues covered by my testimony are:

### III. Factual background:

- A. Regulatory structure
- B. Permit history
- C. Units to be permitted
- D. Open detonation units
- E. Permit organization
- F. Permit terms
- G. Enforcement history

### IV. Issues at this hearing:

- A. Relation of Proposed Permit to Consent Order
- B. Outreach and community participation in the permitting process
- C. Community relations and environmental justice
- D. Information repository

- E. E-mail notification
- F. Community relations plan
- G. RACER
- H. Seismic location standards
- I. Radioactive Liquid Waste Treatment Facility regulation
- J. Risk level for closure and corrective action
- K. The “enforceable document” regulation
- L. Closure provisions for regulated units and surface units; post-closure care.
- M. Closure of regulated units – specific issues
- N. Groundwater monitoring
- O. Financial assurance
- P. Open burning at TA-16 – notice of intent to deny
- Q. Closure plans for TA-16 open burn units

### **III. FACTUAL BACKGROUND**

#### **A. Regulatory Structure**

In 1976 the Resource Conservation and Recovery Act (RCRA)(42 U.S.C. §§ 6901, *et seq.*) was passed by the U.S. Congress to regulate “cradle to grave” management of hazardous waste. RCRA mandates the development of regulations governing the generation, transportation, treatment, storage, or disposal of hazardous wastes. On November 19, 1980, RCRA regulations became effective, and it became unlawful to treat, store, or dispose of hazardous waste without having, or having applied for, a permit.

In accordance with RCRA, which provides for authorized states to implement a state hazardous waste regulatory program in lieu of the federal program, the U.S. Environmental

Protection Agency (EPA) has authorized the State of New Mexico (the State) to implement and enforce hazardous waste management requirements, including corrective action requirements, under its own hazardous waste management program. The State's authority for the program is the Hazardous Waste Act, 74-4-1 *et seq.* NMSA 1978 (HWA), which: 1) authorizes the New Mexico Environmental Improvement Board (EIB) to adopt hazardous waste management regulations; and 2) authorizes the Department to implement and enforce regulations issued under the HWA. These regulations, the Hazardous Waste Management Regulations, 20.4.1 NMAC (HWMR), incorporate by reference, with certain modifications and omissions, pertinent sections of the Code of Federal Regulations (CFR) – 40 CFR Parts 260 through 270, 273, and 280. Occasionally in my testimony I will refer only to the federal regulation, without referencing the State regulation which incorporates it. However, it is the State regulation that is applicable and enforceable.

The HWA and HWMR require each person owning or operating an existing facility or planning to construct a new facility for the treatment, storage, or disposal of hazardous waste to have a HWA permit (see 42 U.S.C. § 6925 and 20.4.1.900 NMAC [incorporating 40 CFR § 270.1]). A treatment, storage, or disposal facility in existence on November 19, 1980 is eligible for “interim status.” Interim status authorizes an existing facility to continue operation, subject to interim status standards in section 20.4.1.600 NMAC, (incorporating 40 CFR Part 265), until the Department issues or denies a HWA permit or until interim status is otherwise terminated. LANL was eligible for interim status in November 1980, and some of LANL's hazardous waste management units still retain interim status.

The HWA and HWMR require corrective action at a permitted facility for all releases into the environment of hazardous waste or hazardous constituents from any solid waste

management unit (SMWU), regardless of when waste was placed in such a unit. (42 U.S.C. § 6924(u); 74-4-4.2(B); NMSA 1978; 20.4.1.500 NMAC [incorporating 40 CFR § 264.101(a)]. . Corrective action is also required for releases into the environment of hazardous waste or hazardous constituents from so-called “Areas of Concern.” (61 Fed. Reg. 19432, 19443 (May 1, 1996)).

The HWMR also require proper closure of all hazardous waste management units. If waste is left in place after closure, the regulations also require post-closure care. (20.4.1.500 NMAC [incorporating 40 CFR Part 264, Subpart G]).

On January 25, 1985, the State received EPA authorization to implement its hazardous waste program under the HWA in lieu of the federal RCRA program. (50 Fed. Reg. 1515 [Jan. 11, 1985]). On July 25, 1990, the State received EPA authorization to regulate the hazardous component of mixed waste, *i.e.*, waste containing both hazardous and radioactive components. (55 Fed. Reg. 28397 [July 11, 1990]). On January 2, 1996, the State received EPA authorization to implement a corrective action program under the HWA. (60 Fed. Reg. 53708 [Oct. 17. 1995]; 61 Fed. Reg. 2450 [Jan. 26, 1996]).

Owners or operators of hazardous waste management facilities are required to submit a comprehensive permit application covering all aspects of design, operation, maintenance, and closure of their facilities. The application consists of Parts A and B. Part A is a standard form that requires the name of the owner/operator, a list of the types of wastes managed, a facility diagram, and the waste management activities requiring a permit. Part B is an extensive document submitted in a narrative, tabular, and schematic format that includes general information about hazardous waste management facilities, as well as unit-specific information.

Part B also provides information necessary to establish corrective action requirements for releases from Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs).

### **B. Permit History**

The U.S. Department of Energy National Nuclear Security Administration (DOE) and Los Alamos National Security, LLC (LANS) are the Applicants herein, seeking issuance of a renewal permit to replace the original permit issued for LANL. The term “Applicants” refers to DOE and LANS and, when the context requires, the University of California, which was LANS’s predecessor. In the Proposed Permit, the Applicants are appropriately called the “Permittees.”

On August 13, 1980 the Applicants submitted to EPA a RCRA “Notification of Hazardous Waste Activity” for LANL. On November 19, 1980 they submitted to EPA a Part A RCRA Permit Application (**AR 11194**). The Applicants also sent a copy of the Part A application to the Environmental Improvement Division of the New Mexico Department of Health and Environment (Division), predecessor to the Department. The Part A Application covered hazardous waste treatment, storage, and disposal activities and included approximately 130 hazardous waste streams. On April 30, 1985, the Applicants submitted the Part B Permit Application (**AR 14844**).

On November 8, 1989, the Division issued a Hazardous Waste Facility Permit to the Applicants to operate a hazardous waste treatment and storage facility at LANL (**AR 8662, AR 15027**). The Permit covered hazardous waste container storage areas at Technical Area 50 (TA-50) and TA-54, hazardous waste storage and treatment tanks at TA-54, and hazardous waste incinerators at TA-16 and TA-50. The tanks and incinerators were later closed. The 1989 Permit was due to expire in November 1999 and was extended pursuant to 40 CFR § 270.51

based upon the Applicants' submittal of a Permit Renewal Application in August 1996. The 1989 permit, as modified, remains in effect.

In August 2003, the Applicants submitted their General Part B Permit Renewal Application, Revision 2.0, which addresses the proposed hazardous waste treatment and storage operations sought to be permitted and describes proposed operations (*e.g.*, waste analysis, inspection, training, contingency plan, closure, and post-closure). The Applicants have also submitted Part B applications for TA-specific hazardous waste management activities. The Applicants have revised the Part A Permit Application several times, most recently on June 30, 2009. The latest Part A, Revision 5.0, lists hazardous waste management units to be permitted, the processes to be used at those units, and the EPA Hazardous Waste Numbers (*i.e.*, waste codes) designating wastes to be managed at those units. The most current and most recent permit application, including both Part A and Part B, and the Part B applications for TA-specific hazardous waste management activities, is marked as **NMED Exhibit 5 (AR 4461; AR 5589; AR 8932; AR 11809; AR 16149; AR 31720)**.

Throughout this permit proceeding, through the issuance of the Proposed Permit, the Department has compiled and maintained an administrative record (Administrative Record) supporting the Proposed Permit for LANL. The Administrative Record contains all of the documents and other information that the Department considered in preparing the Proposed Permit, and in making decisions on the terms and conditions in the Proposed Permit. One of the duties of the staff that I supervise is to compile the administrative record for permits. The Index to the Administrative Record for the Proposed Permit, which itself is over 700 pages long, is an electronic disked marked as **NMED Exhibit 6**.

On February 2, 2010, based on the permit application, the comments the Department received on drafts of the permit from members of the public, meetings and discussions with the interested parties, and other information in the Administrative Record, the Department issued the Proposed Permit, which is the subject of this hearing. Also on that date, the Department announced its intent to deny the permit for treatment of hazardous waste by open burning at TA-16, and issued a Fact Sheet explaining the reasons for the denial. The public participation process that preceded the issuance of these documents is described below.

**C. Units to Be Permitted**

The Proposed Permit would authorize the Applicants:

1. to store and otherwise safely manage specific hazardous wastes in containers in the following units:

TA-3, Building 29, Room 9010 and portions of Rooms 9020 and 9030;

TA-50, Building 69, Rooms 102 and 103 and Outdoor Pad;

TA-54, Area G, Pads 1, 3, 5, 6, 9, 10, and 11; Storage Shed 8; and Building 33;

TA-54, Area L within the fence line;

TA-54 West, the High Bay and Low Bay and Outdoor Pad; and

TA-55, Building 4, Rooms B05, B40, B45, and K13, Vault, Building 185, and Outdoor Pad.

2. to store and otherwise safely manage specific hazardous wastes in tanks in the following unit:

TA-55, Building 4;

3. to treat by stabilization and otherwise safely manage specific hazardous wastes at the following unit:

TA-55, Building 4; and

4. to close the following hazardous waste disposal units:

TA-54 Material Disposal Area G (MDA G);

TA-54 MDA H; and

TA-54 MDA L.

**D. Interim Status Open Burn and Open Detonation Units**

The Proposed Permit does not address five hazardous waste management units now used by LANL to treat high explosive wastes by burning or detonation without confinement. The sites are all operating under interim status. The Department has chosen not to permit these units at this time to expedite the permitting process for the units subject to the Proposed Permit. The Department anticipates that these units will either discontinue operation and be closed or will be incorporated, through a permit modification, into the Permit after it is in effect. Thus, the Proposed Permit provides in Permit Section 1.4.1 that documentation shall be submitted within 180 days of the effective date of the Permit to operate or to close the interim status units in Permit Attachment J, Table J-1. The Department anticipates that any permit modification request that seeks to add any of these five units as permitted units will include an ecological screening assessment or site-specific ecological assessment, an air emission model, or both, in complete form as may be needed to show compliance with 40 CFR Part 264, Subpart X.

The open burn treatment units at TA-16 (TA-16-388 and TA-16-399) are also operating under interim status. The Department proposes to deny a permit for these units. If denied, the

units must undergo closure under interim status rules. The proposed denial and closure of these units will be addressed later in my testimony.

**E. Permit Organization**

The Proposed Permit is comprised of Parts (1-11) and Attachments (A-N). The Parts contain terms and conditions for Applicants' treatment and storage of hazardous and mixed waste, closure of units (including disposal units), and certain corrective actions at the Facility. Permit terms are based on applicable regulations, the Applicants' commitments, or protection of human health or the environment. The Permit Parts and Attachments are as follows:

**Part 1: *General Permit Conditions*** contains conditions that apply to all hazardous waste management units, most of which are based on 40 CFR Part 270.

**Part 2: *General Facility Conditions*** contains conditions for the operation of hazardous waste management units at LANL, based largely on 40 CFR Part 264 Subparts B through E.

**Part 3: *Storage in Containers*** contains conditions for storage of hazardous waste in container storage areas, based on 40 CFR Part 264, Subpart I.

**Part 4: *Storage and Treatment in Tanks*** contains conditions for storage of hazardous waste in tank units and treatment of hazardous waste in tanks in TA-55, based on 40 CFR Part 264, Subparts J and X.

**Part 5: (reserved)** will address any new and different hazardous waste process units, so that all process units may be grouped together in the Permit.

**Part 6: (reserved)** was planned to contain requirements for treatment of reactive and ignitable hazardous waste by open burning. The Department has determined to deny such a permit. This Part will address open burning units, should any be permitted in the future.

**Part 7: (reserved)** will address open detonation units, should any be permitted in the future.

**Part 8: (reserved)** will address any new and different hazardous waste process units, so that all process units may be grouped together in the Permit not addressed in Part 5.

**Part 9: *Closure*** contains conditions for closure of hazardous waste management units.

**Part 10: *Post-Closure Care*** contains conditions for post-closure care of surface impoundments, landfills, miscellaneous units, and other units where it is not possible to achieve “clean closure.”

**Part 11: *Corrective Action*** contains corrective action requirements for units subject to the Proposed Permit, to ensure appropriate management of releases of hazardous waste and hazardous constituents.

**Attachment A** contains Technical Area-specific unit descriptions.

**Attachment B** identifies the EPA Hazardous Waste Numbers (waste codes) for those hazardous wastes authorized to be managed at each permitted unit.

**Attachment C** is the Waste Analysis Plan, fulfills the requirement of 40 CFR § 264.13(c) for a waste characterization plan.

**Attachment D** is the Contingency Plan, is required by 40 CFR §§ 264.51 and 264.52, which call for a plan that describes the actions facility personnel will take in response to fires, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous constituents to air, soil, or surface water at the Facility.

**Attachment E** is the Inspection Plan, which requires the owner and operators to conduct regular inspections of the permitted units, is required by 40 CFR § 264.15(b)(1). See also 40 CFR § 270.14(b)(5).

**Attachment F** is the Personnel Training Plan, is required by 40 CFR § 264.16(d)(3).

**Attachment G** contains the closure plans for permitted storage and treatment units, as required by 40 CFR § 270.14(b)(13).

**Attachment H (reserved)** is reserved for post-closure care plans.

**Attachment I** is the Compliance Schedule, showing the date that all document submittals required by the Permit must be received by the Department.

**Attachment J** lists the hazardous waste management units at the Facility. Table J-1 shows the active portion of the Facility, Table J-2 shows permitted units in post-closure care, and Table J-3 shows the closed portion of the Facility.

**Attachment K** is comprised of three lists of Solid Waste Management Units and Areas of Concern: (a) those requiring corrective action, (b) those where corrective action is complete with controls, and (c) those where corrective action is complete without controls.

**Attachment L** lists off-site facilities that may return treatment derived waste or waste residuals to LANL or may otherwise send waste to LANL.

**Attachment M** contains cost estimates to support financial assurance for certain closure activities.

**Attachment N** contains the figures referenced elsewhere in the Permit.

**Attachment O (reserved)** is reserved for long-term maintenance and monitoring plans for Solid Waste Management Units and Areas of Concern with controls in place after corrective action is complete.

#### **F. Permit Terms**

The Proposed Permit contains terms that are more specific than the regulations. This degree of specificity is necessary to ensure that the terms and conditions of the permit are clear to the Department, to the Applicants (ultimately, the Permittees), and to members of the public. It will reduce the likelihood of disagreement over what is required. It will make the permit more easily enforceable if its terms are violated, and reduce the possibility of costly litigation over the

meaning of general, vague, or ill-defined terms. Further, this degree of specificity is in accordance with the federal and State permitting regulations.

The Hazardous Waste Management Regulations, like the federal regulations, provide that “Each RCRA permit shall include permit conditions necessary to achieve compliance with the Act and regulations.” (20.4.1.900 NMAC [incorporating 40 C.F.R. § 270.32(b)(1)]). When it issued its consolidated permit regulations in 1980, EPA explained the benefits of permit specificity:

“one of the most useful purposes of issuing a permit is to prescribe with specificity the requirements that a facility will have to meet, both so that the facility can plan and operate with knowledge of what rules apply, and so that the permitting authority can redirect its standard-setting efforts elsewhere.” (45 Fed. Reg. 33290, at 33312 [May 19, 1980]).

Thus, permit conditions may be tailored specifically to the individual facility so that the applicable rules will be clear. The Department has followed this principle in drafting many of the Permit conditions. The specific regulation that supports each condition is identified in Mr. Steve Pullen’s testimony.

The Department has incorporated several terms in the Proposed Permit that go beyond the strict language of regulations. The Hazardous Waste Act authorizes the Department to “issue a permit subject to any conditions necessary to protect human health and the environment for the facility. NMSA 1978, § 74-4-4.2(C). The Hazardous Waste Management Regulations, and the federal regulations, include a similar “omnibus” provision that “Each permit . . . shall contain terms and conditions as the [Secretary] determines necessary to protect human health and the environment.” (20.4.1.900 NMAC [incorporating 40 CFR § 270.32(b)(2)]). EPA views its authority under this provision to add permit conditions beyond those specified in the regulations. 50 Fed. Reg. 28702, 28722 (July 15, 1985).

## **G. Enforcement History**

The recent enforcement history under the existing permit and related orders is important background information. The Department has experienced significant and recurring difficulties in achieving compliance by the Applicants with the terms of its permit and orders. In some instances, hoped-for compliance has led to disputes and, in many cases, penalties. As a result, the Department has learned that achieving compliance requires clear and explicit permit terms and conditions.

The compliance difficulties can be divided into two categories: 1) violations of the hazardous waste management provisions of the Applicants' current permit and the HWMR; and 2) violations of the requirements to conduct corrective action, or cleanup, of wastes and waste constituents at LANL.

### **1. Permit and HWMR Violations**

On May 7, 1998 the Department determined that the Applicants had violated the permit by failing to make a timely report of unlawful storage of hazardous waste. The matter was negotiated, and the parties signed a Stipulated Final Order on May 20, 2002, imposing a civil penalty of \$165,000.00. The Order is marked as **NMED Exhibit 7 (AR 16777)**.

On July 8, 1997 the Department determined that the Applicants had violated the permit and interim status requirements by failing to ensure personnel received annual refresher training at permitted and interim status units, and had numerous violations of the HWMR. These matters were negotiated, and the parties signed a Stipulated Final Order on December 2, 2002, imposing a civil penalty of \$190,270.00. The Order is marked as **NMED Exhibit 8 (AR 32598)**.

On August 10, 1998 the Department determined that the Applicants had violated their permit and the interim status requirements by failing to ensure personnel received annual

refresher training and failing to maintain adequate operating records at permitted and interim status units, and had numerous generator violations. These matters were negotiated, and the parties signed a Stipulated Final Order on January 16, 2004, imposing a civil penalty of \$282,033.00. The Order is marked as **NMED Exhibit 9 (AR 16786)**.

On April 23, 2001 the Department determined that the Applicants had violated their permit by failing to mark the accumulation start date on containers of mixed waste, and had violated several regulatory requirements applicable to generators of hazardous waste. The Department issued an Administrative Order Requiring Compliance and Assessing a Civil Penalty, which is marked as **NMED Exhibit 10 (AR 32591)**. On March 31, 2003, the Department determined that the Applicants had violated their permit and the interim status requirements by failing to provide all required operating record information at interim status and permitted storage areas and had numerous generator violations. The Department issued the Applicants a Notice of Violation, which is marked as **NMED Exhibit 11 (AR 16785)**. After negotiations, the parties signed a Stipulated Final Order on September 22, 2005, imposing a civil penalty of \$94,923.00. The Order is marked as **NMED Exhibit 12(AR 33185)**. On March 22, 2004 the Department conducted an inspection of LANL and found that the Applicants had violated their permit by failing to label a container with its accumulation start date, failing to demonstrate that greater than one year storage was necessary for one container of waste subject to the Land Disposal Restrictions (LDRs), and failing to retain required LDR notification on site for three years. The Applicants also had violated several generator requirements in the HWMR. On February 28, 2005, the Department conducted an inspection of LANL and found that the Applicants had violated their permit by failing to maintain inspection records and accurate operating records and had violated the generator requirements. On April 20, 2005, the

Department sent the Applicants a Notice of Violation, which is marked as **NMED Exhibit 13 (AR 16790)**. After negotiations over these violations, the parties signed a Settlement Agreement and Stipulated Final Order on September 8, 2005, imposing a civil penalty of \$60,328.00. A copy of the Order is marked as **NMED Exhibit 14 (AR 33187)**.

On April 3, 2006, the Department determined that the Applicants had violated their permit by failing to have a complete operating record for a permitted storage unit or to provide the information in a timely manner and failing to update the list of emergency coordinators in the main contingency plan. The Department sent the Applicants a Notice of Violation, which is marked as **NMED Exhibit 15 (AR 32592)**. After negotiations, the Parties signed a Settlement Agreement and Stipulated Final Order on January 24, 2008, imposing a civil penalty of \$26,613.00. A copy of the Order is marked as **NMED Exhibit 16 (AR 32600)**.

On October 25, 2006, the Department sent the Applicants a Notice of Violation for (a) staging hazardous remediation waste in an unapproved staging pile in violation of 20.4.1.500 NMAC (incorporating 40 CFR § 264.554(b)), and (b) placing prohibited hazardous waste in a land disposal unit (the Sigma Mesa waste pile) without meeting the treatment standards or other applicable requirements, including failure to obtain a permit, in violation of the existing Hazardous Waste Facility Permit. A copy of the notice is marked as **NMED Exhibit 18 (AR 6652)**. The parties signed a Settlement Agreement and Stipulated Final Order on April 10, 2007, which imposed a civil penalty of \$119,845.00. A copy of the Order is marked as **NMED Exhibit 17 (AR 33158)**.

On January 22, 2007, the Department determined that the Applicants had violated their permit by failing to properly fill out inspection record forms and had violated several generator requirements of the HWMR. The Department sent the Applicants a Notice of Violation, which

is marked as **NMED Exhibit 19 (AR 32593)**. After negotiations, the parties signed a Settlement Agreement and Stipulated Final Order on August 20, 2008, which imposed a civil penalty of \$49,622.00. A copy of the Order is marked as **NMED Exhibit 20 (AR 33184)**.

## **2. Corrective Action Violations**

The Applicants have been reluctant to comply with corrective action requirements. In the 1980s and 1990s, the Applicants submitted to the Department a series of requests for a waiver from the groundwater monitoring requirements for various hazardous waste units, asserting that there was a low potential for migration of hazardous constituents to groundwater. (20.1.4.500 NMAC [incorporating 40 C.F.R. § 264.90(c)]). The first request, dated July 26, 1984, covered MDA G and MDA L at TA-54, and is marked as **NMED Exhibit 21 (AR 14828)**. The second request, dated December 15, 1987, covered MDA P and the open burn ground at TA-16, and is marked as **NMED Exhibit 22 (AR 5884)**. The third request, dated March 22, 1989, covered several surface impoundments (no longer in use) at TA-35, and is marked as **NMED Exhibit 23 (AR 5047)**. The fourth request, dated April 1, 1992, covered several surface impoundments (no longer in use) at TA-53, and is marked as **NMED Exhibit 24 (AR 4272)**. The Department denied the requests on May 30, 1995, by letter marked as **NMED Exhibit 25 (AR 5970)**.

In May 1998, in response to the Department's denial and at the Department's direction, the Applicants proposed to install 32 groundwater monitoring wells to characterize the nature and extent of groundwater contamination at LANL. This proposal was known as the Hydrogeologic Workplan. The primary objectives of the Workplan were to characterize the hydrologic and geologic conditions beneath LANL, to supply information to properly design a contaminant detection and monitoring network, and to define areas of existing or potential groundwater contamination. The Workplan focused on aquifer characterization rather than

groundwater contaminant detection or monitoring, even though the regional aquifer below the Pajarito Plateau is the sole drinking water source for LANL and Los Alamos County. This is a reflection of the Applicants' longstanding position – later proven to be false – that groundwater was not affected by historical laboratory operations.

In fact, many of the wells installed under the Hydrogeologic Workplan were not even designed or constructed to be effective for detection monitoring, which should be located proximal to disposal units or other industrial sites. Additionally, many of the wells were not specifically designed to detect contaminants at different depths within the aquifer, or even installed with the ability to actively pump groundwater from the wells (that is, they were installed with the intention that the well water would not be “purged” before the actual sample is taken). This latter point is crucial in obtaining groundwater samples from wells that are representative of aquifer conditions. From 1999 to 2003, fifteen regional aquifer wells were installed with no-purge multi-screened sampling systems, known as Westbay wells. Groundwater quality results obtained soon after the installation of the first two Westbay wells indicated that the wells were not providing representative samples of groundwater. Nevertheless, the Applicants continued to implement the Hydrogeologic Workplan and installed 13 additional wells without modifying the well designs to improve their capability to detect contamination

On May 2, 2002, the Department determined that the management of solid and hazardous waste at the LANL facility “may present an imminent and substantial endangerment to health and the environment” under the Hazardous Waste Act, NMSA 1978 § 74-4-13. The Department released for public comment a draft administrative order requiring the Applicants to conduct a comprehensive investigation and cleanup of contaminants at LANL. On November 26, 2002, the Department issued a final cleanup order under section 74-4-13. The Applicants challenged the

order and the Department's authority to issue the Order in the New Mexico Court of Appeals and the federal district court. After lengthy negotiation, on March 1, 2005, the parties signed an Administrative Order on Consent (Consent Order) for the comprehensive investigation and cleanup of environmental contamination at LANL. A copy of the Consent Order is marked as **NMED Exhibit 26 (AR 32111)**. The Consent Order includes stipulated penalties for violation of its terms.

By the time Department issued the final cleanup order (November 26, 2002) – over four years since initial execution of the Hydrogeologic Workplan – the Applicants had installed only 11 of 32 wells, and several were defective. The Workplan was replaced by the Consent Order. Even so, the Applicants have been slow to correct issues of improperly located and installed wells, and the slow pace of groundwater contamination investigation and cleanup at LANL. The Department has brought to the Applicants' attention their inability to meet Consent Order milestones and otherwise comply with established deadlines, and the need to replace or rehabilitate specific wells, abandon defective well screens, and replace no-purge sampling systems with active pumping systems. Many of the Department's enforcement actions related to corrective action are discussed below, and were based at least in part on the Applicants' failure to obtain valid data generated from a reliable monitoring well network – data upon which sound corrective action decisions must be based. The Department's correspondence related to the deficiencies in the Applicants' groundwater monitoring programs is marked as **NMED Exhibit 27 (AR 14652), NMED Exhibit 28 (AR 14664), NMED Exhibit 29 (AR 30499), NMED Exhibit 30 (AR 30554), NMED Exhibit 31 (AR 30564), NMED Exhibit 32 (AR 30587), NMED Exhibit 33 (AR 32095), NMED Exhibit 34 (AR 32130), and NMED Exhibit 35 (AR 33105)**.

On July 12, 2006, the Department sent the Applicants a Notice of Violation for improper implementation of the cleanup of an ash and debris pile at LANL, which is marked as **NMED Exhibit 36 (AR 4963)**. The Applicants sent the removed material to a municipal landfill, contrary to the terms of the *Corrective Action Work Plan for Solid Waste Management Unit (SWMU) 73-002 (Incinerator Ash Removal)*, dated September 2005, which the Department had approved under the March 1, 2005 Consent Order.. The parties signed a Settlement Agreement and Stipulated Final Order on February 23, 2007, imposing a civil penalty of \$50,095.00. A copy of the Order is marked as **NMED Exhibit 37 (AR 33157)**.

On September 13, 2006, the Department sent the Applicants a notice of “Intent to Assess Stipulated Penalties” for failure to timely submit the *Investigation Report for Corrective Action of SWMU 73-002 and Consolidated Unit 73-002-99*, in violation of the March 1, 2005 Consent Order. The notice is marked as **NMED Exhibit 38 (AR 4972)**. The Department assessed a total of \$407,999.63 in stipulated penalties against the Applicants from September 13, 2006 through December 11, 2007, as shown in letters marked as **NMED Exhibit 39 (AR 4977), Exhibit 40 (AR 4985), Exhibit 41 (AR 12735), Exhibit 42 (AR 14805), Exhibit 43 (AR 14806), Exhibit 44 (AR 30630), Exhibit 45 (AR 30635), and Exhibit 46 (AR 30637)**.

On September 15, 2006, the Department sent the Applicants a Notice of Violation for (a) failure to meet reporting requirements for newly discovered releases from SWMUs and AOCs pursuant to the Consent Order and, (b) failure to meet reporting requirements for newly discovered releases above background from SWMUs in violation of the existing Permit. The Applicants had failed to report to the Department the detection of significant levels of chromium in groundwater. A copy of the notice is marked as **NMED Exhibit 47 (AR 2858)**. The parties signed a Settlement Agreement and Stipulated Final Order on June 14, 2007, which imposed a civil penalty of \$251,870.00. A copy of the Order is marked as **NMED Exhibit 48 (AR 30180)**.

On December 20, 2006, the Department sent the Applicants a notice of “Intent to Assess Stipulated Penalties” for failure to substantially comply with the specifications set forth in the Consent Order concerning the Applicants’ *Investigation Report for Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50* (Report). The Report was not in substantial compliance with the Consent Order because it did not include the results of four boreholes required by the approved work plan. A copy of the notice is marked as **NMED Exhibit 49 (AR 9067)**. The Department assessed a total of \$345,268.00 in stipulated penalties against the Applicants from December 20, 2006 through October 7, 2007, as shown in letters marked **NMED Exhibit 50 (AR 9069), Exhibit 51 (AR 9072), Exhibit 52 (AR 9074), Exhibit 53 (AR 9078), Exhibit 54 (AR 12726), and Exhibit 55 (AR 30433)**.

On November 20, 2007, the Department sent the Applicants a notice of “Intent to Assess Stipulated Penalties” for failure to substantially comply with the specifications set forth in the approved work plan and the Consent Order concerning the Applicants’ *Delta Prime Site Aggregate Area Investigation Report, at Technical Area 21* (Report). The Report was not in substantial compliance with the Consent Order because it did not include the results of investigations conducted at all sites included in the approved work plan. A copy of the notice is marked as **NMED Exhibit 56 (AR 30289)**. The Department assessed a total of \$363,291.00 in stipulated penalties against the Applicants from November 20, 2007 through June 24, 2008, as shown in letters marked as **NMED Exhibit 57 (AR 30300), Exhibit 58 (AR 30303), Exhibit 59 (AR 30316), Exhibit 60 (AR 30322), Exhibit 61 (AR 30327), and Exhibit 62 (AR 30334)**.

On January 4, 2008, the Department issued a Notice of Violation to the Applicants for failure to timely submit the *Status Report for Supplemental Sampling at Material Disposal Area (MDA) A, Technical Area 21*, due to the Department on November 30, 2007. A copy of the

notice is marked as **NMED Exhibit 63 (AR 33138)**. No penalties were assessed as a result of this violation.

On September 26, 2008, the Department sent the Applicants a notice of “Intent to Assess Stipulated Penalties” for failure to substantially comply with the specifications set forth in the Consent Order concerning the Applicants’ *Corrective Measures Evaluation Report for Material Disposal Area G, Consolidated Unit 54-013(b)-99* (CME Report). The CME Report for MDA G was not in substantial compliance with the Order because it lacked, and continues to lack, adequate groundwater data and does not evaluate all alternatives considered by the Applicants in accordance with the approved CME Plan and the Consent Order. A copy of the notice is marked as **NMED Exhibit 64 (AR 30564)**. The Department assessed a total of \$1,252,500.00 in stipulated penalties from September 26, 2008 through November 23, 2009, as shown in letters marked as **NMED Exhibit 65 (AR 30592)** and **Exhibit 66 (AR 32234)**.

On February 25, 2009, the Department sent the Applicants a notice of “Intent to Assess Stipulated Penalties” for failure to substantially comply with the specifications set forth in the Consent Order concerning the Applicants’ *Periodic Monitoring Report for Vapor-Sampling Activities at Material Disposal Area T (MDA-T), Consolidated Unit 21-016(a)-99, Technical Area 21, Fiscal Year 2008* (Report), dated February 14, 2009. The Report for MDA T did not substantially comply with the Consent Order because it did not include: 1) four quarters of sampling results for borehole locations 21-25262 and 21-25263; 2) collection of samples from Port #2 at 21-25262 that were intended to substitute for samples to be collected from Port #2 at 21-603059; and 3) the fourth quarter (December 2008) sampling results for the remaining three borehole locations. A copy of the notice is marked as **NMED Exhibit 67 (AR 30370)**. The Department has assessed a total of \$126,118.14 in stipulated penalties against the Applicants

from February 29, 2009 through September 15, 2009, as shown in letters marked as **NMED Exhibit 68 (AR 31633)** and **Exhibit 69 (AR 32016)**.

On May 22, 2009, the Department sent the Applicants a Notice of Violation for failure to implement the requirements set forth in the *Work Plan to Plug and Abandon Mortandad Canyon Wells Test Well 8 and MCOBT-4.4*, dated October 31, 2007. The failure to plug and abandon Test Well 8 and MCOBT-4.4 as prescribed in the approved Work Plan was a violation of the requirements of the Consent Order. A copy of the notice is marked as **NMED Exhibit 70 (AR 31634)**. The parties signed a Settlement Agreement and Stipulated Final Order on November 30, 2009, which imposed a civil penalty of \$1,295,156.00. A copy of the Order is marked as **NMED Exhibit 71 (AR 33139)**.

#### **IV. ISSUES AT THIS HEARING**

##### **A. Relation of Proposed Permit to Consent Order**

The March 1, 2005 Consent Order (NMED Ex. 26) addresses corrective action to clean up releases of hazardous wastes at LANL. The Proposed Permit does not change the Consent Order. If the Proposed Permit is issued, site investigation and cleanup of contaminated soils, surface waters, or groundwater would be governed by one of two documents: the Proposed Permit or the Consent Order. The Department's intent is to establish a clear regulatory process for any cleanup based on these two documents.

The Consent Order was executed in 2005 because the Department urgently needed to establish comprehensive corrective action procedures. The corrective action procedures in the Proposed Permit are very similar to those in the Consent Order. The two documents differ principally in that the Consent Order includes a different enforcement procedure, has requirements and schedules for specific sites, and addresses mainly contamination already

known to exist. The Proposed Permit requires coordination of any corrective action with that conducted under the Consent Order. Thus, a release from a permitted unit that commingles with a release covered by the Consent Order is to be cleaned up under the Consent Order. (Permit Section 11.2).

The Proposed Permit regulates corrective action in four instances that are expressly excluded from the Consent Order, *viz.*: (1) new releases and newly discovered releases from hazardous waste management units (in the Consent Order known as “operating units”), (2) closure and post-closure care of hazardous waste management units, (3) implementation of controls for any solid waste management units or areas of concern which have been listed as having corrective action complete with controls, and (4) releases occurring or discovered after the Consent Order terminates. (*See* Consent Order § III.W.1)(NMED Ex. 26). The same four items are listed in Permit Section 11.2. All other corrective action is covered by the Consent Order, until it is terminated.

#### **B. Outreach and Community Participation in the Permitting Process**

The Department is committed to issuing HWA permits in a context of transparency and public participation. In this case, from July 2008 to March 2009, the Department hosted a series of “Listening Sessions” to better understand northern New Mexico residents’ issues and perceptions regarding LANL. The intent of the sessions was to provide a forum for the public to express their concerns and perceptions and for the Department to listen. By listening to what people had to say, the Department would be better able to answer questions and to address communities’ interests in Department regulatory actions. Over an approximate six month period, the Department held seven two-hour listening sessions in six communities: Santa Fe (July 22, 2008), Española (September 30, 2008), Los Alamos (October 7, 2008), Taos (November 20,

2008), Española (December 2, 2008), Albuquerque (December 9, 2008), and Dixon (March 28, 2009).

In August 2007 the Department issued a draft permit (**AR 31313**), based upon then-current Part A and Part B Applications, for public comment. The Department also prepared a Fact Sheet (AR 31313) on the draft permit, and it sent a copy of the Fact Sheet to the Applicants. The Department sent a notice (AR 31313) announcing the availability of the draft permit and the Fact Sheet to the Applicants and all persons on the Department's list of persons interested in the Laboratory. The notice stated, among other things, that members of the public could comment on the draft permit and request a hearing. The Department also caused the notice to be published in the *Albuquerque Journal*, the *Santa Fe New Mexican*, the *Los Alamos Monitor*, and the *Rio Grande Sun*, and to be broadcast by KUNM and KANW radio stations. The Department allowed an initial comment period of 60 days until October 26, 2007; it later extended the comment period, in response to requests from the Applicants and other members of the public, by 75 days until January 11, 2008, and by another 20 days until February 1, 2008. The Department received extensive comments from the Applicants, EPA, and twelve other interested parties, including Santa Clara and San Ildefonso Pueblos. Several commenters requested a public hearing. When a draft permit is issued and a timely written notice of opposition and request for a public hearing are received, the Department and the applicant are required to attempt to resolve the objections. If the issues are resolved, the opponent may withdraw the request for a hearing. (20.4.1.901.A.4 NMAC). Thus, the Department on July 15, 2008 invited persons who had commented and requested a hearing to confer with the Department and the Applicants in an attempt to resolve the issues. (**AR 31403-411**). The Department convened more than 35 meetings with members of

the public during the period August 2008 to June 2009. Based on the discussions, the Department developed the “Revised Draft Permit.” (**AR 31820**).

Participants in the discussions entered into a Stipulation on Permit Language, dated June 26, 2009. (**AR 31724**). The Stipulation states that the Applicants and the Interested Parties agree to support, and not to contest, the Revised Draft Permit, except as specifically stated in exceptions on behalf of each party. Exceptions to this agreement are set forth separately as to the Applicants and each Interested Party. An excepting party is free to take any action, including to demand a hearing, seek judicial review, or challenge the excepted terms.

The Department issued the Revised Draft Permit for public comment on July 6, 2009, together with a revised Fact Sheet. The revised Fact Sheet is marked as **NMED Exhibit 72 (AR 31819)**. Again, the Department issued a notice (**AR 31766**) that the Revised Draft Permit was available, and that members of the public could comment on the Revised Draft Permit and request a hearing. The Department sent a copy of the notice and the Fact Sheet to the Applicants; it sent a copy of the notice to all interested persons; and it had the notice published in the newspapers and broadcast by the radio stations. The Department allowed public comment for a period of sixty days, until September 4, 2009. The Department received comments from more than 1,400 individuals and organizations, and 11 persons requested a hearing.

The Proposed Permit (NMED Ex. 1) contains further revisions to the Revised Draft Permit based on continuing discussions with the Applicants and Interested Parties. There is, in addition, a Second Stipulation on Permit Language, marked as **NMED Exhibit 73 (AR 33220)**, whereby the Applicants and certain Interested Parties generally agree that they will not request a public hearing, and agree not to appeal the Proposed Permit, if approved and issued in the same

substantive form. Exceptions are set forth in separate attachments. The Department circulated the Proposed Permit to persons who had requested a hearing on January 20, 2010.

After issuance of the Revised Draft Permit on July 6, 2009, the Department convened a public meeting on that permit on July 28, 2009 at the Ohkay Casino Resort Conference Center, located north of Española at Ohkay Owingeh Pueblo. This was a further opportunity for members of the public to comment on the Revised Draft Permit.

Several provisions are incorporated in the Proposed Permit that are not specifically based in RCRA or the HWA but serve to address concerns of nearby communities. For instance, sampling data from environmental media are to be made public through the Risk Analysis Communication Evaluation Reduction (RACER) data base. (Permit Section 1.10.1). Members of the public may receive e-mail notification of occurrences or notices of interest made to the Department under the permit. (Permit Section 1.13). There is a requirement for a Community Relations Plan and an Information Repository. (Permit Section 1.12, 1.10). There is notice to the Department of the prospective transfer of land that is subject to the Permit, and an opportunity for the Department to state that additional cleanup actions are necessary before transfer. (Permit Section 1.16). Further, the Department has listened closely to the objections of nearby residents in deciding to deny the permit application as to open burning units, as I will discuss.

### **C. Community Relations and Environmental Justice**

The Department is keenly aware that communities of color, and minority or socioeconomically disadvantaged populations are living in the vicinity of LANL. We take it as our responsibility, to the extent practical and within the bounds of the law, to protect the interests of people in those communities. In so doing, we have paid attention to the EPA's guidance on

compliance with Title VI of the Civil Rights Act of 1964, which protects against discrimination in federally funded and assisted programs. (Title VI Public Involvement Guidance for EPA Assistance Recipients Administering Environmental Permitting Programs, 71 Fed. Reg. 14207 [March 21, 2006])(*EPA Title VI Guidance*). We have specifically incorporated the following concepts in our public involvement activities:

1. “Meaningful outreach and public participation early and throughout the decision-making process is critical to identify and resolve issues, and also to assure proper consideration of public concerns.” (71 Fed. Reg. at 14209).
2. The agency “should work to ensure that decision-making processes are open and accessible to all interested groups, including those with limited financial and technical resources, English proficiency, and/or past experience participating in environmental decision-making.” (71 Fed. Reg. at 14210).
3. The agency should “fully engage as many members of the affected community as possible in the discussions and decisions made regarding issues in their community.” (71 Fed. Reg. at 14210).

As EPA has advised, the Department has sought to tap community views and concerns from early in the permitting process. Notices and letters to interested persons are issued in Spanish as well as English. We conducted listening sessions promptly after the first draft permit was made public, and after issuance of the Revised Draft Permit we held a large public meeting near Española. We have included representatives of minority communities in discussions of contested permit terms. The Department frequently consults with representatives of affected pueblos, including the San Ildefonso and Santa Clara Pueblos, on a government-to-government basis. Further, there are specific provisions in the Proposed Permit that enable affected

communities to participate in the administration of the Permit. Many of the items about which e-mail notice would be given are also occasions for comment or participation by the public.

#### **D. Information Repository**

The Proposed Permit in Section 1.10 requires the Applicants to establish an electronic “information repository,” accessible through the internet and containing specific documents concerning the issuance and operation of the Permit. Establishment of an information repository is not mandatory but is supported by 40 CFR §§ 124.33(c) through (f) and 270.30(m).

Some commenters have advocated a “physical” repository containing paper copies of relevant documents. The Department considers an electronic information repository to be more readily accessible and therefore more likely to be utilized. The Department has found that there are more than 1,000 computers available for public use in connecting to the Internet at locations in northern New Mexico (**NMED Exhibit 74 (AR 33148)**). Such computer access, together with privately owned computers, provides many more points of access to the information repository than would be given by a single physical office. The Proposed Permit also requires the Applicants to inform the public of the availability of the repository to encourage its use. In addition, the Applicants are required to conduct annual training, free of charge, to enable inexperienced computer users to use the information repository. Public notice of the training is also required. We believe that this system will engage the maximum number of interested persons.

Permit Section 1.10 lists the documents to be included in the repository, which are documents associated with the Proposed Permit. Documents associated with the 1989 permit or the March 1, 2005 Consent Order are not required. The documents are to be indexed, the index

searchable, and the documents printable. New documents are to be added within 10 days after their submittal to, or receipt from, the Department.

The Department considers the requirement to include particular documents in an electronic information repository to be easier to enforce because the Department can get access to an internet-based information repository at any time. The Department's experience with physical information repositories is that they are often incomplete, documents are difficult to retrieve, and they impose a burden on third parties to ensure that documents are not removed or altered. In any event, the Department maintains a physical copy of documents in the information repository in its Administrative Record, which is also available for public access at the Environment Department, Hazardous Waste Bureau office.

**E. E-mail Notification**

The Proposed Permit requires the Applicants to issue e-mail notice of the submittal to the Department of specific documents of interest to the public. (Permit Section 1.13) Interested persons may add their e-mail address to a list maintained by the Applicants. When specified documents are submitted to the Department, the Applicants must provide notice within seven days to those on the list and include a link to an electronic version of the document. This requirement is imposed under the Department's omnibus authority, 40 CFR § 270.32(b)(2). The Applicants shall provide e-mail notification of the following:

Permit Section 1.9.12.2 Five day written report (threatening incident or noncompliance);

Permit Section 1.9.19 Extensions of time;

Permit Section 1.14.1 Dispute resolution invocation;

Permit Section 1.15 Submission and notices under current compliance schedule

Permit Section 1.16 Land transfer notice;

Permit Section 2.2.1 Notice of receipt of treatment residues with no disposal path;

Permit Section 4.4 Tank systems and stabilization unit containment (releases);

Permit Section 9.2.2.1 Notice of inability to attain closure performance standard;

Permit Section 9.2.2.2 Petition for alternative closure standards;

Permit Section 9.2.2.3 Notice of inability to attain closure performance standard;

Permit Section 9.4.1 Closure schedule (expected date to initiate closure);

Permit Section 11.3.1.1 Notification of detections;

Permit Section 11.4.1.1 Proposal of groundwater cleanup level based on risk assessment;

Permit Section 11.6.2 Variance to cleanup levels;

Permit Section 11.8.2.1 Department-initiated interim measures;

Permit Section 11.8.2.2 Permittee-initiated interim measures;

Permit Section 11.8.3 Emergency interim measures;

Permit Section 11.8.9 Accelerated cleanup process.

**F. Community Relations Plan**

The Proposed Permit in Permit Section 1.12 directs the Applicants to establish and carry out a community relations plan to inform nearby communities and members of the public of permit-related activities. In addition, the plan will provide for feedback and input to the Applicants and will seek to minimize disputes and resolve differences between the Applicants and interested parties. This requirement is based on the Department's omnibus authority, 40 CFR § 270.32(b)(2).

Permit Section 1.12 requires the Applicants (1) to ask all communities and interested members of the public annually how they may be made better informed of issues related to the

Permit and (2) to post on the Applicants' web site a compilation of all public comments "as approved by those entities." The Department intends that comments shall be unedited.

The Department is committed to conducting government-to-government consultation on matters of hazardous waste regulation at LANL that are of interest to affected pueblos. Such consultation is in keeping with the January 17, 2003 *Statement of Policy and Process* executed by Governor Richardson and reaffirmed in Executive Order No. 2005-004.

#### **G. RACER**

RACER refers to Risk Analysis Communication Evaluation Reduction, a publicly accessible database of environmental data pertinent to LANL and environs through the internet. The RACER web site is administered and maintained by the New Mexico Community Foundation, and can be accessed at: <http://www.racernm.com>. Permit Section 1.10.1 provides that each month the Applicants must enter into the RACER database all data from sampling of environmental media conducted under the Proposed Permit that are entered into LANL databases. This time period begins when data is added to the Applicants' databases. It may take considerably longer than one month between collecting a sample, having it analyzed, verifying that analysis, and finally placing that data in a LANL database. These data are not associated with hazardous waste characterization.

#### **H. Seismic Location Standards**

Proposed new or enlarged units are required to show compliance with the seismic location standard of 40 CFR §§ 264.18(a) and 270.14(b)(11)(ii). These regulations prohibit location of a new facility closer than 200 feet to a fault that has had displacement in Holocene time. The regulations speak only of a "new facility" and do not apply to currently permitted or interim status units. The Department, however, applies this requirement not only to any new facility, but

to any new unit or new portion of an existing unit. The Department does so under its omnibus authority of 20.4.1.900 NMAC (incorporating 40 CFR § 270.32(b)(2)).

EPA's regulatory preamble calls for examination of a fault zone to determine whether a proposed new unit will be subject to seismic displacement because it lies within the zone of deformation of a recently active fault. (46 Fed. Reg. 2802 [Jan. 12, 1981]). EPA explains that the investigation may be based upon published data, aerial reconnaissance, analysis of aerial photographs, geological reconnaissance, or trenching. If Holocene faults or lineaments are present within 3,000 feet of a proposed new unit, a comprehensive geologic analysis is required to establish that no faults pass within 200 feet of the unit (*see* 40 CFR §§ 270.14(b)(11)(ii)(A) and (B)).

We have prepared an exhibit that shows the locations of the new units and the fault zones and lineaments that called for a more detailed inquiry. The exhibit is marked as **NMED Exhibit 75**). Based on the Applicants' TA-specific seismic reports and examination of the geologic strata that included a field visit, the Department has determined that there are no Holocene faults within 200 feet, and the seismic standard is satisfied for the following new units: (1) the new TA-54 Area L Building 39, (2) the new TA-54 Area G Building 375, and (3) the new TA-55 indoor storage area at Building 185.

Several commenters stated that a 2007 report reported a 50% increase in seismic risk at LANL. This information is outside the scope of the RCRA regulations. RCRA regulations that address seismic hazards are few and specific. EPA has acknowledged that 40 CFR § 264.18(a) addresses only part of the risk of seismic activity, *i.e.*, site impacts due to surface displacement, but not ground motion. (46 Fed. Reg. at 2811). EPA stated that "few data exist that relate ground motion dynamics to adequacy of engineering design for various types of hazardous waste

facilities.” (*Id.*). Thus, EPA could not support a criterion based on potential ground motion. (*Id.*). The Department has adopted EPA’s rule. Based on that rule, the areas subject to examination present no risk from surface displacement and thus pass seismic scrutiny. A new assessment of the probability of seismic activity does not affect compliance with 40 CFR § 264.18(a).

We have examined the 2007 report, Wong, I., et al., *Update of the Probabilistic Seismic Hazard Analysis and Development of Seismic Design Ground Motions at the Los Alamos National Laboratory*, URS Corp. (25 May 2007), marked as **NMED Exhibit 76 (AR 33204)**, which shows an increase in the calculated hazard compared with a 1995 study. The authors suggest several possible factors, including an increase in projected recurrence rates, an increase in the mean slip rate, and an increase in the stochastic soil attenuation rate, without knowing exactly how different factors contributed. (Wong at 9-6 through 9-7). The change in risk estimates reflects improved data and enhanced analysis. The results do not, however, affect compliance under RCRA site standards.

Commenters also said that the 2007 report identified areas of investigation concerning seismic hazards, and the investigations are not being conducted. It is true that the report recommends further studies, stating that the “results of such studies will aid in refining specific seismic source and site parameters, which have been incorporated into the [May 25, 2007 *Update*], and reduce their associated uncertainties.” (Wong at 10-1). This is only to say that new data will lead to better projections of the probability of seismic activity. Such projections are not used in applying 40 CFR § 264.18(a). Whether the recommended investigations are being conducted might not be known until the work is published. I am unaware of any published results.

Commenters further stated that the 2007 report noted DOE's failure to install and operate a network of seismometers to monitor ground motion and that the three current seismometers are not kept in calibration. But there is a network, the Los Alamos Seismic Network, with seven operating stations. Their location and other information are available at:

<http://www.lanl.gov/orgs/ees/ees11/geophysics/lasn/lasn.html>

(AR 33172).

I add that several provisions of the Proposed Permit were written in the interest of safety in event of seismic activity. Stacking of containers is limited to a height of three containers. (Permit Section 3.5.1(2)). Containers that are stacked must be placed on pallets and the layers secured with banding to make a rigid unit, resistant to toppling. (*Id.*). Containers may not be stored closer than five feet from a wall or building, to reduce the chance of damage in case a wall fell. (Permit Section 3.5.1(3)).

#### **I. Radioactive Liquid Waste Treatment Facility Regulation**

The Proposed Permit places conditions on operation of the Radioactive Liquid Waste Treatment Facility. Permit Section 4.6 states, in full, as follows:

The Permittees shall discharge all treated wastewater from the TA-50 Radioactive Liquid Waste Treatment Facility (RLWTF) through the outfall permitted under Section 402 of the federal Clean Water Act, or as otherwise authorized by the terms of an applicable Clean Water Act permit that regulates the treatment and use of wastewater. If the Applicants intentionally discharge through a location other than the permitted outfall, they will fail to comply with this requirement, and as a consequence the wastewater treatment unit exemption under 40 CFR § 264.1(g)(6) will no longer apply to the RLWTF. The Applicants shall not accept listed hazardous wastes as specified at 40 CFR Part 261 Subpart D at the RLWTF.

Thus, Permit Section 4.6 requires that all treated wastewater from the TA-50 Radioactive Liquid Waste Treatment Facility be discharged through the outfall permitted under section 402 of the federal Clean Water Act (33 U.S.C. § 1342), or otherwise as required or permitted by an

applicable Clean Water Act permit. It also states that, if the Applicants intentionally fail to comply with this requirement (*e.g.*, if the Applicants route wastewater to a location other than the outfall), the wastewater treatment unit exemption under 40 CFR § 264.1(g)(6) will no longer apply.

The State and federal regulations create an exemption for the “owner or operator of . . . a wastewater treatment unit as defined in § 260.10 of this chapter.” (20.4.1.500 NMAC [incorporating 40 CFR § 264.1(g)(6)]). Section 260.10, in turn, defines “wastewater treatment unit” as a device which:

- (1) is part of a wastewater treatment facility that is subject to regulation under either section 402 or 307(b) of the Clean Water Act; and
- (2) Receives and treats or stores an influent wastewater that is a hazardous waste as defined in § 261.3 of this chapter, or that generates and accumulates a wastewater treatment sludge that is a hazardous waste as defined in § 261.3 of this chapter, or treats or stores a wastewater treatment sludge which is a hazardous waste as defined in § 261.3 of this chapter; and
- (3) Meets the definition of tank or tank system in § 260.10 of this chapter.”

The Radioactive Liquid Waste Treatment Facility at LANL is a wastewater treatment unit. It discharges through an outfall (discharge point) into Mortandad Canyon that is regulated by a permit issued by EPA under section 402 of the Clean Water Act. The purpose of that exemption is to avoid duplicative regulation—under the Hazardous Waste Act (or RCRA) and Clean Water Act—of a single wastewater treatment facility. Thus, to be exempt from the Hazardous Waste Act, the unit must be fully covered by the Clean Water Act, not intermittently so. As EPA stated:

“The underlying assumption used in justifying the wastewater treatment unit exemption was that tanks used to handle hazardous wastewaters at these facilities would be provided with EPA oversight under the Clean Water Act, thereby ensuring no significant decrease in environmental control afforded at these facilities.” (Letter from David Bussard, EPA Office of Solid Waste, to J.C. Mulligan, June 1, 1990) (NMED Exhibit 77 (AR 33177)).

Therefore, EPA construes the exemption to require that the wastewater treatment unit discharge treated wastewater exclusively through the Clean Water Act-regulated outfall, and that diversion to other points of discharge voids the exemption. *See* Letter from Elizabeth A. Cotsworth, EPA Office of Solid Waste, to S. Pendleton, April 9, 1998, marked as **NMED Exhibit 78 (AR 33205)**; Letter from Sylvia K. Lowrance, EPA Office of Solid Waste, to T.A. Hopkins, Aug. 15, 1990 (R.O. 11551), marked as **NMED Exhibit 79 (AR 33173)**; Memorandum from Marcia E. Williams, EPA Office of Solid Waste, to W.A. Whittington, Dec. 21, 1987 (R.O. 13112), marked as **NMED Exhibit 80 (AR 33178)**; EPA, Hazardous Waste Management System; Standards for Hazardous Waste Storage and Treatment Tank Systems, 53 Fed. Reg. 34079, 34080 (Sept. 2, 1988). The Department agrees with EPA's interpretation of the exemption.

The Applicants have advised the Department that in the past they have diverted treated wastewater to impoundments at TA-53. (*See* Applicants' February 21, 2008 letter to Department, Position Paper) (**NMED Exhibit 81 (AR 30445)**). Therefore, the Department has added Permit Section 4.6, which requires that all discharges of treated wastewater flow through the Clean Water Act outfall or otherwise as required or permitted by a Clean Water Act permit.

Permit Section 4.6 prohibits listed wastes from the Radioactive Liquid Waste Treatment Facility. This prohibition corresponds to the present practice, as described by the Applicants (**NMED Exhibit 82 (AR 30439)**; NMED Ex. 81). The Department is only describing the unit as it has been described to it. This is a reasonable limitation on the management of hazardous waste in a unit that has been allowed a broad exemption.

#### **J. Risk Level for Closure and Corrective Action**

The cleanup levels set forth in the Proposed Permit follow the Department's general standard of human health target risk level of one in 100,000, or  $10^{-5}$  (sometimes written as 1E-5),

for carcinogens and a Hazard Index of 1.0 for noncarcinogens. Some commenters have said that the Department should apply a more stringent risk target of  $10^{-6}$  for carcinogens. They note that EPA has stated its preference for a cleanup target of  $10^{-6}$ . EPA has no such preference.

EPA has said that any cleanup within the range of  $10^{-6}$  to  $10^{-4}$  is acceptable, and the Department's target is in the middle of that range. More importantly, whether to apply a target risk level of  $10^{-5}$  or  $10^{-6}$  is a major policy question, which is much broader than the Proposed Permit for LANL. The Department has, for many years, applied a target risk level of  $10^{-5}$  for carcinogens in its permits, regulations, and cleanup actions across several different programs. A change in that policy would necessitate a rulemaking proceeding; it is not appropriate for a proceeding on an individual facility permit.

The risk level of  $10^{-5}$  defines the target at which to aim in cleaning up a site under corrective action, or in carrying out closure where releases have occurred. Specifically, it is “a total excess cancer risk of  $10^{-5}$  for carcinogenic substances . . .” (Permit Section 9.2.2). The term means that, after cleanup, a person who uses the site property for defined purposes (*e.g.*, residential, industrial, or recreational use) will be exposed to a maximum risk of  $10^{-5}$ , or one in one hundred thousand, in a 70-year lifetime, of contracting an “excess” cancer, *i.e.*, a cancer that would not have occurred otherwise. The  $10^{-5}$  term appears at the following places in the Proposed Permit:

- a. Permit Section 9.2.2 concerning closure where clean closure is not attainable.
- b. Permit Section 11.4 concerning cleanup levels in general.
- c. Permit Section 11.4.1 concerning groundwater cleanup levels.
- d. Permit Section 11.4.2.1 concerning soil cleanup levels
- e. Permit Section 11.4.2.2 concerning soil PCB cleanup levels

- f. Permit Section 11.12.5.9 concerning risk screening levels
- g. Closure plans, Sec.4.1(c), concerning closure standards.

A cleanup standard is ultimately a policy choice as to the amount of illness that is tolerable in the aftermath of hazardous waste management for persons exposed in different ways to residual contamination. In New Mexico, the  $10^{-5}$  risk target level is consistently applied in several environmental permitting and cleanup programs, either as a matter of policy or promulgated regulations. Such consistency is important, first because it promotes fairness and equity among regulated facilities, and among the persons living near those facilities now or in the future. Second, such consistency is important because the hazardous waste program frequently applies cleanup standards that are established under other programs. For example, during closure of a hazardous waste management unit, all contaminated ground water must be cleaned up until it meets New Mexico groundwater quality standards (or, in some cases, federal maximum contaminant levels or MCLs). Corrective action for releases of hazardous waste or hazardous constituents must also meet New Mexico groundwater quality standards, or drinking water MCLs. I will discuss the New Mexico programs that apply a target risk level of  $10^{-5}$ .

The first program is the groundwater program under the New Mexico Water Quality Act (NMSA 1978, § 74-6-1 *et seq.*). Under this program, the Water Quality Control Commission (Commission) promulgates groundwater quality standards. (20.6.2.3191 NMAC). The Department implements the program by issuing groundwater discharge permits, and by requiring abatement, or cleanup, of groundwater contamination. (20.6.2.3101 to 20.6.1.4115 NMAC). The groundwater quality standards govern both discharge permits and abatement or groundwater pollution. The Commission has adopted pollutant-specific numerical human health standards for groundwater that are based upon a cancer risk of  $10^{-5}$ . In re *Adoption of Amendments to the*

*Water Quality Control Commission Regulations*, hearing, July 14, 1981, at 101-20; In re *Adoption of Amendments to the Water Quality Control Commission Regulations*, hearing, Sept. 5, 1985, at 309-20. In addition, the Commission has adopted a list of “toxic pollutants,” defined as any listed contaminant or combination thereof “creating a lifetime risk of more than one cancer per 100,000 exposed persons.” (20.6.2.7.WW NMAC).

Second, for the surface water program, the Commission has adopted standards for interstate and intrastate surface waters (20.6.4 NMAC). The regulations provide in section 20.6.4.900.B NMAC:

“Surface waters of the state designated for use as domestic water supplies shall not contain substances in concentrations that create a lifetime cancer risk of more than one cancer per 100,000 exposed persons.”

These standards are applicable to federal surface water permits issued by EPA.

Third, the Solid Waste Regulations, 20.9.9 NMAC, direct establishment of groundwater protection standards for carcinogens that “represents a concentration associated with an excess lifetime cancer risk of more than one cancer per 100,000 exposed persons.” (20.9.9.13.I.3 NMAC).

Finally, the hazardous waste program itself has consistently applied a  $10^{-5}$  risk target level for permits and cleanup orders issued under the Hazardous Waste Act. This risk target level is included in permit conditions in the hazardous waste facility permits for the United States Army White Sands Missile Range, the NASA White Sands Test Facility, Ft. Wingate Depot Activity, Navajo Refinery, and the Mixed Waste and Chemical Waste Landfills at Sandia National Laboratories. This target risk level is also in the proposed permits for Kirtland Air Force Base and Sandia National Laboratories. This target risk level is also in the March 1, 2005 Consent Order for the LANL cleanup. (Consent Order § VIII)(NMED Ex. 26). It is also in the cleanup

orders for Sandia National Laboratories and the Western Refining Bloomfield Refinery. This risk level applies to soil and groundwater cleanup.

Thus, the standards applicable to groundwater discharge permits, groundwater abatement, surface water permits, solid waste disposal permits, and corrective action at hazardous waste facilities are all based upon a risk level of  $10^{-5}$ .

The Department's approach to applying risk levels is entirely consistent with that of EPA. Under the National Contingency Plan (NCP), the EPA regulations that govern cleanups under the federal Superfund program, EPA applies an acceptable cancer risk range of  $10^{-4}$  to  $10^{-6}$ . (40 CFR § 300.430(e)(2)(i)(A)(2) (2009).) The  $10^{-5}$  risk level that the Department applies falls squarely in the middle of the EPA risk range. The NCP also states that in identifying preliminary remediation goals, EPA will generally start with a  $10^{-6}$  "point of departure." (*Id.*). But EPA recognized, in its most recent revisions to the NCP, that "[f]actors related to exposure, uncertainty and technical limitations may justify modification of initial cleanup levels that are based on the  $10^{-6}$  risk level" and that the goal of  $10^{-6}$  may be revised to a different level within the range of  $10^{-4}$  to  $10^{-6}$ . (55 Fed. Reg. 8666, 8717 (March 8, 1990)). Such factors would cause the risk level to increase.

The State water quality regulations specify the  $10^{-5}$  level not as a "point of departure" but as a regulatory standard requiring compliance. In addition, where (for example) soil contamination and ground water contamination are both implicated in a cleanup project, it is essential to apply the same cleanup test to both media. For such reason,  $10^{-5}$  has also been adopted by the Department as the standard for contaminated soil under the HWA. The Department does not regard the  $10^{-5}$  level as merely a "point of departure" that is subject to increase as site-specific and project-specific factors arise. Instead, the Department has identified

10<sup>-5</sup> as the performance standard. Thus, the level used by the Department, 10<sup>-5</sup>, is fully consistent with cleanup standards used by EPA.

#### **K. “Alternative Requirements”**

The Hazardous Waste Act, like RCRA, requires that all hazardous waste facility permits must require corrective action for releases into the environment of hazardous waste and hazardous constituents. (NMSA 1978, §74-4-4(A)(5)(h)). Yet EPA recognized that state regulatory agencies, like EPA itself, have a variety of legal authorities in addition to corrective action authority that they use to attain environmental cleanup. Therefore, in certain circumstances the regulations allow a regulatory agency to implement “alternative requirements” – other than the corrective action requirements – under an “enforceable document” – including mechanisms other than the hazardous waste facility permit – to require cleanup of hazardous waste and constituents in the environment. An “enforceable document” is defined in 40 CFR § 270.1(c)(7) as “an order, a plan, or other document issued by EPA or by an authorized State under an authority that meets the requirements of 40 CFR § 271.16(e) including, but not limited to, a corrective action order issued by EPA under section 3008(h), a remedial action under the federal Comprehensive Environmental Response, Compensation, and Liability Act (42 USC 9601 *et seq.*), commonly known as Superfund, or a closure or post-closure plan.” In this case, the March 1, 2005 Consent Order (NMED Ex. 26), which provides for comprehensive environmental cleanup at LANL, meets the definition of an “enforceable document.”

According to the regulations, the Department may replace all or part of the requirements of 40 CFR Part 264, subpart F, §§ 264.91-264.100, with alternative requirements for groundwater monitoring and corrective action for releases of hazardous wastes or hazardous constituents to groundwater specified in the permit or in an enforceable document where the

Department finds that: 1) the regulated unit is situated among solid waste management units (SWMUs) or areas of concern (AOCs); 2) a release has occurred; 3) both the regulated unit and one or more SWMUs or AOCs are likely to have contributed to the release; and 4) it is not necessary to apply the groundwater monitoring and corrective action requirements of §§ 264.91 through 264.100 because alternative requirements will protect human health and the environment. (40 CFR § 264.90(f)). A similar provision applies to interim status facilities. (40 CFR § 265.90(f)). These regulations have been adopted in New Mexico. (20.4.1.500, 20.4.1.600 NMAC).

In the Proposed Permit, the Department has followed 40 CFR § 264.90(f) in adopting alternative requirements for groundwater monitoring. We have prepared a set of maps that show the various solid waste management units near the locations of the regulated units (MDAs G, H, and L) at TA-54. The maps are marked as **NMED Exhibits 83, Exhibit 84, and Exhibit 85**. There have undoubtedly been releases of hazardous waste and constituents from solid waste management units and areas of concern within each of the MDAs, and the releases are mingled. (See *Investigation Report for Material Disposal Area G, Consolidated Unit 54-013(b)-99, at TA-54, LA-UR-05-6398, at Plates 6.3-1 through 6.6-2, Sept. 2005 (NMED Exhibit 86 (AR 11896))*). In addition, investigations required by the Consent Order (NMED Ex. 26) include the present and future installation of several monitoring wells in and around the regulated units. In this situation, the Department has determined that alternative requirements contained in the Consent Order will protect human health and the environment. We have prepared maps and a cross-section illustrating the existing and planned regional and intermediate wells, and the complex hydrogeology, at the regulated units at TA-54 that necessitates the use of alternative

requirements (**NMED Exhibit 87 and Exhibit 88**). Permit Section 11.3.1 contains applicable alternative requirements by reference to the Consent Order:

The Permittees shall coordinate such monitoring with the monitoring conducted under the Interim Facility Wide Groundwater Monitoring Plans and any Department-approved Long-term Groundwater Monitoring Plans for the Facility, as approved under the Consent Order. So long as the Consent Order is in effect, fulfilling the groundwater monitoring requirements of Consent Order shall fulfill the groundwater monitoring requirements of 40 CFR §§ 264.90 through 100.

There are additional provisions as to notification of detections and response to detections contained in the Proposed Permit. Thus, the alternative requirements are partly in the enforceable document – the Consent Order – and partly in the permit itself, as the regulations allow.

Further, the regulations state that the Department may replace all or part of the closure and post-closure requirements of 40 CFR Part 264, Subpart G (and the unit-specific standards referenced in 40 CFR § 264.111(c) applying to a regulated unit) with alternative requirements set out in a permit or an enforceable document, where the Department determines that the regulated unit is situated among SWMUs or AOCs, a release has occurred, and both the regulated unit and one or more SWMUs or AOCs are likely to have contributed to the release, and it is not necessary to apply the closure requirements of Subpart G because alternative requirements will protect human health and the environment and will satisfy the closure performance standard of § 264.111(a) and (b). (40 CFR § 264.110(c)). A similar provision applies to interim status facilities. (40 CFR § 265.110(d)). Again, these regulations have been adopted in New Mexico. (20.4.1.500, 20.4.1.600 NMAC).

The Department has determined that, as to the regulated units, MDAs G, H, and L, alternative closure requirements will be fully protective and will satisfy the closure performance standard of 40 CFR § 264.111(a) and (b). The alternative requirements are those contained in

and called for by the Consent Order. Under the Consent Order investigations are going forward which will lead to the submission of a Corrective Measures Evaluation Report and, after the Department has decided upon a remedy or cleanup plan, a Corrective Measures Implementation Plan. The Department has determined that it will be fully protective and will meet the standards for closure to combine the ongoing corrective action process with the satisfaction of closure requirements. Thus, Permit Section 9.3 states:

Closure of the regulated units must meet the corrective action requirements of the March 1, 2005 Compliance Order on Consent (Consent Order). The Consent Order is an enforceable document that sets forth alternative closure requirements in accordance with 40 CFR § 264.110(c). The Permittees shall propose remedies in the Corrective Measures Evaluation Report under the Consent Order that achieve compliance with the closure performance standards at 40 CFR § 264.111. Fulfilling the requirements of the approved Corrective Measures Implementation Plan under the Consent Order shall also satisfy the requirements of 40 CFR Part 264, Subpart G.

Post-closure care of regulated units under the Proposed Permit will be governed by the Permit.

#### **L. Closure and Post-Closure Care Requirements**

Part 9 of the Proposed Permit contains general provisions for closure and post-closure care of hazardous waste management units subject to the Permit. Permit Section 9.1 describes the types of permitted units subject to this Permit Part and identifies the closure regulations this Permit Part is based on. The units covered under this Permit Part can be divided into three categories: 1) so-called “regulated units,” which are landfills no longer in operation; 2) indoor container storage and treatment units; and 3) outdoor container storage and treatment units.

##### **1. Closure**

The permitted units are categorized based upon the closure processes they follow. The term “regulated unit” is based upon 40 CFR §§ 264.110 through 264.116. A regulated unit is “a surface impoundment, waste pile and land treatment unit or landfill that receives hazardous waste after July 26, 1982.” (40 CFR 264.90(a)(2)). The term “regulated unit” may seem to be a

misnomer, as all the units subject to closure are by definition regulated. The term derives from the fact that even though these units are no longer operating, they are nevertheless regulated. The terms indoor container storage and treatment units and outdoor container storage and treatment units come from the Applicants' Part B permit renewal applications. Table J-1 in Permit Attachment J lists each permitted unit and its category.

Permit Section 9.1.1 states that the regulated units (*i.e.*, MDAs G, H, and L) are not permitted to accept hazardous waste and are required to close. It states that the Applicants must follow the closure requirements in Permit Sections 9.2, 9.3, and 9.5 for these units.

Permit Section 9.1.2 describes an indoor unit, states the specific closure requirements for a permitted indoor unit, and identifies the performance standards for closure of an indoor unit.

Permit Section 9.1.3 describes an outdoor unit, states the specific closure requirements for a permitted outdoor unit, and identifies the performance standards for closure of an outdoor unit.

Permit Section 9.2 states the closure performance standards for each type of unit. For "clean closure" of an indoor unit, Permit Section 9.2.1(1) states that all hazardous waste residues and hazardous constituents must be removed from the permitted unit at closure. This standard applies to indoor permitted container storage and treatment units and to structures and equipment at outdoor container storage and treatment units. Such a requirement is based on 40 CFR § 264.112(b)(4), which states that the closure plan must include a detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, and structures. This rule does not allow hazardous constituents to be left in place; therefore, the Department sees no reasonable justification for a performance standard other than non-detect. This standard is protective of human health and the environment.

For “clean closure” of an outdoor unit, Permit Section 9.2.1(2) requires that the Applicants ensure that contaminated environmental media (*i.e.*, soils, groundwater) do not contain concentrations of hazardous constituents greater than the cleanup levels established in Permit Section 11.4 and 11.5. These cleanup levels address both human health and ecological risk. For soils the human health cleanup levels shall be established based on residential use. The Applicants must also demonstrate that there is no potential to contaminate groundwater, by showing that leaching of contaminants from the unsaturated (or “vadose”) zone to groundwater shall not occur, using the conservative modeling assumptions presented in the most recent version of the Department’s Technical Background Document for Development of Soil Screening Levels.

The clean closure standards of Permit Section 9.2.1 distinguish indoor units and outdoor units. The standards are based on 40 CFR § 264.112(b)(4), which states that the Applicants’ closure plan must include a detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated soils. Because outdoor permitted units incorporate asphalt or concrete pads, which are permeable, there is a greater potential for a release of hazardous constituents to environmental media such as soil at an outdoor unit than at an indoor unit. The Department therefore deems it necessary to implement a different performance standard for these outdoor units. This standard is protective of human health and the environment, because if hazardous constituents are detected during sampling and analysis at closure, and the removal of all hazardous constituents from the soil is not practicable, the Applicants must meet the residential soil screening level identified in Part 11 of the Proposed Permit (*Corrective Action*).

Further closure standards apply in the event that the Applicants cannot attain clean closure standards. Under Permit Section 9.2.2, if the Applicants cannot meet an applicable clean closure standard, to properly close the unit they must: 1) control hazardous waste residues, hazardous constituents, and contaminated media so that they do not exceed a total excess cancer risk of  $10^{-5}$  for carcinogens or a Hazard Index of 1.0 for non-carcinogens and meet ecological screening levels; 2) minimize the need for further maintenance; and 3) control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to groundwater, surface waters, or atmosphere (*see* 40 CFR § 264.111). These regulatory standards would be met by the more stringent clean closure requirements and must be met in any closure.

Permit Section 9.2.2.1 states that if the Applicants can demonstrate to the Department that the closure performance standards in Permit Section 9.2.1(1) and (2) are not attainable for indoor storage units (*e.g.*, TA-3-29), the Applicants must then submit a closure plan amendment to explain why they cannot meet the Permit Section 9.2.1(1) or (2) standards for clean closure. The Applicants must concurrently submit a permit modification request that describes measures that will attain compliance with closure performance standards contained in Permit Section 9.2.2(1), (2), and (3) and a post-closure plan for maintenance and monitoring of the closure measures to ensure long-term protection. This alternative requirement applies only in the event that the Applicants demonstrate to the Department that all appropriate measures were taken to remove or decontaminate hazardous waste residues, but such measures were not successful in attaining clean closure standards.

Permit Section 9.2.2.2 states that, if the Applicants demonstrate to the Department that closure performance standard in Permit Section 9.2.1(1) and (2) are not attainable for an outdoor unit co-located with a regulated unit (*e.g.*, TA-54 Area G Pad 9), the Applicants may, pursuant to 40 CFR § 264.110(c), propose to the Department to replace all or part of the closure requirements with alternative closure requirements set out in an enforceable document. The outdoor units in this category are above-ground storage units situated among the regulated units, MDAs G and L. Corrective action applicable to the two regulated units is governed by the Consent Order (*see also* Permit Section 9.3) which constitutes the 40 CFR § 264.110(c) “enforceable document.”

Permit Section 9.2.2.3 states that, if the Applicants can demonstrate to the Department that the closure performance standards in Permit Section 9.2.1(1) and (2) are not attainable for other (non-co-located) outdoor units (*e.g.*, TA-50-69), the Applicants shall then submit a closure plan amendment to explain why they cannot meet the Permit Section 9.2.1(1) and (2) standards to attain the clean closure performance standard. The Applicants must concurrently submit a permit modification request that describes measures that will attain compliance with closure performance standards contained in Permit Sections 9.2.2(1), (2), and (3) and a post-closure plan for maintenance and monitoring of the closure measures to ensure long-term protection. This alternative requirement applies only in the event that the Applicants demonstrate to the Department that all appropriate measures were taken to decontaminate contaminated structures and media, but such measures were not successful in attaining clean closure.

Permit Section 9.3 governs closure of the regulated units (MDAs G, H, and L). It states that closure of the regulated units must meet the corrective action requirements of the March 1, 2005 Consent Order (NMED Ex. 26). The Consent Order is an enforceable document that sets

forth alternative closure requirements in accordance with 40 CFR § 264.110(c). Under the Consent Order, the Applicants are required to submit to the Department for its review and approval a Corrective Measures Evaluation (CME) Report (*see* Section VII of the Consent Order) for each of the regulated units. The CME Report must evaluate potential remedial alternatives and shall recommend a preferred remedy that will meet the closure performance standards of 40 CFR § 264.111(a) and (b), as well as attain the human health and ecological risk clean-up levels required in the Consent Order and Permit Sections 11.4 and 11.5. For regulated units L and G, the Applicants shall also include in their CME Report all soil sampling analyses collected at outdoor permitted units co-located with a regulated unit (*see* Permit Section 9.1.3(1)) if results indicate any detections above the residential soil screening levels identified in Permit Part 11 (*Corrective Action*). The Department will select a proposed remedy in accordance with the Consent Order and issue a statement of basis. The Department's decision is subject to public comment, in accordance with 20.4.1.901 NMAC and as described in Section VII.D.7 of the Consent Order, before it is made final.

Upon the Department's selection of the remedy, the Applicants must develop a Corrective Measures Implementation (CMI) Work Plan, which must satisfy the requirements for closure plans in 40 CFR § 264.112, and must outline the design, construction, operation, maintenance, and performance monitoring for the selected remedy and contain a schedule for its implementation. The CMI Plan is, in effect, a closure plan and must be submitted to the Department for its review and approval. Department approval is subject to public review and comment in accordance with 20.4.1.901 NMAC. The Applicants must comply with 40 CFR § 264.112(c) to amend their approved closure plan, if necessary. In issuing the Proposed Permit, the Department makes no assumption as to the method of closure that will be approved by the

Department and implemented by the Applicants for the regulated units. These units will be permitted not to receive waste but only to conduct closure.

## **2. Post-Closure Care**

Post-closure care begins after closure is completed and certified pursuant to Permit Section 9.5. (*See* 40 CFR § 264.117(a)(1)). Permit Part 10 regulates post-closure care and specifies the timing and process of amending the Proposed Permit to account for post-closure care at units that are closed with waste in place. Part 10 principally follows the substance of the regulations at 40 CFR §§ 264.117 through 264.120. Part 10 requires the Applicants to submit a request to modify the Permit to include a post-closure care plan within 90 days of the time when they determine that the unit will not be closed by removal of all waste (“clean closure”). The post-closure care plan is to describe the post-closure care for which the Applicants will be responsible, *e.g.*, monitoring and maintenance for a period of 30 years or more.

The obligation to submit a proposed post-closure care plan and to seek its adoption as a permit modification arises only when the Applicants determine that the permitted unit will be closed with waste in place, including hazardous constituents or waste residues. (Permit Section 10.1). In the case of the permitted hazardous waste units, the Applicants cannot make that determination until the Department has approved a closure plan (or a remedy under corrective action) for a given unit. It will then become clear whether the remedy includes removing all waste from the unit or, on the other hand, leaving some waste, contamination, or residues in place. At that time, the Applicants have the information needed to submit a post-closure care permit application.

Permit Section 10.1, concerning post-closure care, incorporates by reference the terms of 40 CFR §§ 264.117 through 264.120. It specifies that post-closure care begins after closure is

complete and continues for 30 years after that date and includes: 1) monitoring and reporting in accordance with Subparts F, N, and X; and 2) maintenance and monitoring of waste containment systems in accordance with Subparts F, N, and X. These requirements are taken directly from 40 CFR § 264.117(a)(1).

#### **M. Closure of Regulated Units**

Material Disposal Areas (MDAs) G, H, and L are units where hazardous waste was placed in the ground after July 26, 1982, with no intention of removing it and are therefore “disposal” units (NMED Ex. 83, Ex. 84, and Ex. 85). Disposal units are required to meet landfill closure requirements, including satisfying financial assurance requirements (under 40 CFR § 264.140(b)(1), and ensuring protection of human health and the environment by controlling, minimizing, or eliminating the escape of the waste. Closure must also minimize the need for maintenance of long-term or permanent controls.

The term “regulated unit” is used in the Proposed Permit in referring to MDAs G, H, and L at TA-54, the three landfills that are no longer operating and must be closed. The term is used at various places in the Proposed Permit:

1. Permit Section 2.13.1, calling for closure cost estimates upon which financial assurance is based. Such cost estimates are due when certain corrective measures documents are submitted as to the three regulated units, MDAs, G, H, and L.
2. Permit Section 9.1, 9.1.1, 9.2.2.2, and 9.3, concerning closure of regulated units and storage units associated with them. Section 9.3 contains the closure process for the three regulated units.
3. Permit Section 10.1.2, concerning post-closure care plans.
4. Permit Section 11.3.1, which directs groundwater monitoring of all regulated units.

5. Permit Attachment J and Table J-1, which list MDAs G, H, and L as regulated units.

The Applicants, in their comments, have objected to the use of the term “regulated unit” to refer to MDAs G, H, and L. The Applicants have contended that only a few discreet disposal pits and shafts at MDAs G, H, and L are “regulated units” subject to the closure requirements. Specifically, the Applicants apparently view only pit 29 and shaft 124 at MDA G, shaft 9 at MDA H, and shafts 1, 13-17, and 19-34 and impoundments B and D at MDA L as regulated units, as stated in their comments. The many, many other pits, shafts, trenches, and impoundments at MDAs G, H, and L, according to the Applicants, have never been used for the disposal of hazardous waste and therefore are not “regulated units” under the Hazardous Waste Act or the regulations.

The Department disagrees with these comments, as explained below. MDAs G, H, and L, in their entirety, are “regulated units” – specifically landfills – that must be closed in accordance with the regulations. The Department’s view is supported by the regulations, is consistent with various documents that the Applicants prepared and submitted to the Department in support of their initial permit application, and is the only practical approach to the closure of these units.

### **1. Definition of “Regulated Unit”**

Contrary to the contention of the Applicants, it is the Department’s interpretation of Subpart F that each MDA – G, H, and L – is in its entirety a “regulated unit.”

The term “regulated unit” appears in 40 CFR § 264.90(a)(2), and it is defined:

“A surface impoundment, waste pile, and land treatment unit or landfill that receives hazardous waste after July 26, 1982 (hereinafter referred to as a ‘regulated unit’) must comply with the requirements of §§ 264.91 through 264.100 in lieu of § 264.101 for purposes of detecting, characterizing, and responding to releases to the uppermost aquifer.”

EPA further defines “unit” as:

“A waste management unit is a contiguous area of land on or in which waste is placed. A waste management unit is the largest area in which there is a significant likelihood of mixing of waste constituents in the same area. . . . Today’s regulations establish specific requirements for surface impoundments, waste piles, land treatment units, and landfills. Generally, each of these four terms is synonymous with the concept of a waste management unit. . . . Landfills may, however, present an exception to this general rule. Some landfills are designed as a series of adjacent trenches that are separately lined. In this situation, the term “landfill” can refer to the entire set of trenches. Yet, each individual trench is a separate waste management unit under today’s regulations.” (47 Fed. Reg. 32274, at 32289 (July 26, 1982)).

By EPA’s reasoning, the numerous *unlined* disposal pits, trenches, and shafts at each disposal area (MDA G, H, and L) collectively comprise one “regulated unit.” There is, in fact, a significant likelihood of mixing of waste constituents in the area of each MDA. Investigation has indicated the presence of hazardous constituents beneath and adjacent to the MDAs which cannot be traced to a specific pit or shaft, indicating the likelihood of mixing of constituents. (See *Investigation Report for Material Disposal Area G, Consolidated Unit 54-013(b)-99, at TA-54, LA-UR-05-6398, at Plates 6.3-1 through 6.6-2, Sept. 2005*)(NMED Ex. 86).

If pit 29 and shaft 124 at MDA G and shaft 9 at MDA H were each an individual regulated unit subject to Subpart F, as the Applicants contend, they would need to be separately monitored by upgradient and downgradient wells. Subpart F would also call for compliance monitoring (40 CFR § 264.99), corrective action (40 CFR § 264.100), and detection monitoring (40 CFR § 264.98) at each regulated unit. But it would make little sense, given the other unlined pits and shafts upgradient and downgradient of pit 29 and shaft 124, to call one pit and shaft “regulated units” and monitor them separately.

The Applicants have also commented that certain solid waste management units and areas of concern at TA-54 (which includes MDAs G, H, and L) have been identified, and they argue that, therefore, each MDA cannot be a “regulated unit.” But the identification of solid

waste management units or areas of concern for purpose of corrective action does not bear upon the status of MDAs as “regulated units.” Likewise, the fact that the March 1, 2005 Consent Order (NMED Ex. 26) states that corrective action under the Consent Order will meet Subpart F requirements for corrective action takes nothing from the “regulated unit” definition. Finally, the Applicants argue that they have submitted closure plans that identify this single pit and these two shafts as “discrete hazardous waste units” and others as solid waste management units, but, again, this does not mean that the MDAs are not “regulated units” under 40 CFR § 264.90(a)(2).

## **2. Permitting History**

The documentary history of the Applicants’ initial permit application demonstrates that MDAs G, H, and L are each regulated units, subject to closure in their entirety under the regulations. Both the Applicants and the Department’s predecessor, the Environmental Improvement Division of the Health and Environment Department (Division), shared this view.

On November 19, 1980 DOE submitted its Part A permit application to obtain interim status, which is marked as **(AR 11194)**. The submission included maps that covered MDAs G and L and the location of MDA H. DOE stated in its cover letter,

“It is our interpretation of RCRA regulations that disposal may occur anywhere at TA-54 and still be part of an existing disposal facility.”

Thus, DOE sought to obtain interim status for all of TA-54. The initial Part A showed 100 acre-feet of disposal (D80) capacity. DOE’s maps showed the existing and future pits and shafts: pits 1 through 38, trenches A through H, and outlines of shaft fields.

The Division advised DOE that it was required to have a closure plan that identifies the steps to completely or partially close the facility in a June 22, 1984, in a Notice of Violation, marked as **(AR 16421)**. A letter to the Applicants, marked as **(AR 11203)**, noted that:

“LANL’s intent has consistently been to obtain interim status for 100 acres of TA-54, including all of Areas G and L . . .”

In a comment letter dated September 7, 1984, the Division also noted:

“Therefore, LANL’s closure plan for Area G must address both the area set aside primarily for non-radioactive waste and the larger area set aside primarily for radioactive waste but which also contains regulated hazardous chemical waste as well.” (*Id.*)

The Division contemplated post-closure care of the entirety of each landfill. The letter is marked as **(AR 11199)**.

On October 26, 1984, the Division demanded closure and post-closure plans for all of MDAs G and L. The Division made clear that the MDA G and L landfills were “regulated units”:

“For disposal units which have received wastes since January 26, 1983, a special post-closure permit, subject to the post-closure standards of 206.D., is required before closure under interim status may proceed (see 301.A.). LANL’s landfills—and, until proven otherwise, its surface impoundments—fall into this category. The post-closure standards of 206.D include the ground-water monitoring and corrective action requirements of 206.D.1.”

This letter is marked as **(AR 16426)**.

In April 1985 the Applicants submitted a revised Part A permit application, stating that the

“Permit request is being dropped for the following facilities:

TA-54, Area G – No longer used for non-radioactive waste disposal.  
TA-54, Area L – Surface impoundment not used in lieu of treatment tanks.”

The revised Part A is marked as **(AR 14841)**. Thus, the Applicants withdrew their application for disposal at MDAs G and L. No disposal processes were shown on the revised Part A. The Division inquired specifically what 100 acre disposal area was covered by the previous Part A and asked for a closure plan for MDA G in a letter dated April 10, 1985, which is marked as **(AR 14842)**. In a letter dated June 7, 1985, DOE responded that Area G is 63 acres and would be

closed out for RCRA wastes under interim status. The DOE letter is marked as **(AR 14848)**.

The map accompanying the letter shows that the remaining 37 acres, said to have interim status, include MDA H.

On September 13, 1985, the Division advised DOE that the closure plans for TA-54 should describe partial closure for each landfill cell as well as groundwater monitoring, indicating again that the Division regarded the MDAs themselves as disposal units. The letter is marked as **(AR 14859)**. On September 27, 1985 DOE submitted a new closure plan for MDAs G and L, which is marked as **(AR 16444)**. DOE accepted the obligation to close the entirety of MDA G:

“Burial facilities include pits and shafts, all of varying dimensions. Certain radioactive mixed and nonradioactive hazardous chemical wastes have been buried along with the radioactive wastes at Area G. Area G is a waste disposal facility operated under a Resource Conservation and Recovery act (RCRA) Part A permit. A Part B permit is not being sought for this facility and Area G will be closed under interim authority.

The active portion of the site comprises a total area of 63 acres. Burial/storage facilities within the area include pits, shafts, trenches, and pads, all of varying dimensions. The facility has only been used for pit and shaft disposal of regulated wastes.” (pages 1-1, 2-1)

LANL recognized that closure of individual pits and shafts constituted “partial closure.” (*Id.* at 4-1). Shaft 124 and Pit 29 were mentioned as the only pit and shaft still open that had received a regulated (RCRA) waste. (*Id.* at 4-2). The Division by letter dated October 2, 1985, marked as **(AR 11215)**, approved:

“deletion of TA-54 Area G as an approved landfill disposal site. Closure will be as required by RCRA regulations under a closure plan approved in accordance with HWMR-2 Section 206.C.2.”

DOE acknowledged the Division’s approval and added: “Area G stopped receiving RCRA waste on May 1, 1985.” The DOE letter, dated Nov. 22, 1985, is marked as **(AR 11218)**.

## **N. Groundwater Monitoring**

Since MDAs G, H, and L are “regulated units” under 40 CFR § 264.90, they are subject to the 40 CFR Part 264, Subpart F monitoring and response requirements. “Regulated units” are defined as a landfill (or other land-based unit) that receives hazardous waste after July 26, 1982. (*See* EPA, 47 Fed. Reg. 32274, 32289)(July 26, 1982). A landfill such as MDA G, which has adjacent unlined pits and trenches, constitutes a single unit. In such case, the groundwater monitoring requirements of Subpart F apply to the entire landfill. (*See* 47 Fed. Reg. at 32315). Monitoring includes a means to detect, characterize, and respond to releases that threaten groundwater. Specifically, Subpart F requires: 1) a detection monitoring program to detect the release of a hazardous constituent; 2) a compliance monitoring program when a hazardous constituent is detected; and 3) corrective action when the groundwater protection standard is exceeded.

Under Subpart F, unless alternative requirements are implemented, a detection monitoring program must be established to provide a reliable indication of the presence of hazardous constituents in groundwater. A compliance monitoring program must be established if the detection monitoring program yields evidence of contamination. It is designed to verify the results of detection monitoring results, add new constituents to the detection monitoring program, and revise, if necessary, the groundwater protection standard.

As noted, the Department has decided to regulate groundwater monitoring of regulated units through the alternative requirements and enforceable document mechanism pursuant to 40 CFR § 264.90(f). The Proposed Permit directs the Applicants to “coordinate such monitoring with the monitoring conducted under [Consent Order plans]” and to “conduct groundwater monitoring for each regulated unit.” (Permit Section 11.3.1). It states that, so long as the

Consent Order (NMED Ex. 26) is in effect, monitoring under the Consent Order will fulfill the groundwater monitoring requirements of 40 CFR §§ 264.90 through 100. (*Id.*) The Consent Order requires an Interim Facility-Wide Groundwater Monitoring Plan (Consent Order section IV.A.3.b), followed by long-term monitoring plans for each watershed. (*Id.*) The monitoring function is being fulfilled. Under Permit Section 11.3.1.1, the Applicants are to review monitoring data promptly to enable early detection of contaminants and to notify the Department of “any new detections.” Notice will be given of:

1. detection of a hazardous constituent that is an organic compound in a spring or screened interval where it has not previously been detected,
2. detection of a hazardous constituent that is an inorganic compound at a concentration above background if such exceedance has not previously been detected,
3. detection of a hazardous constituent in a spring or screened interval that exceeds one half the cleanup level, if that concentration has not previously been detected,
4. detection of perchlorate in a spring or screened interval at a concentration of 2µg/l if such concentration has not previously been detected,
5. detection of a hazardous constituent that is an inorganic compound in a spring or screened interval at a concentration more than two times background for the third consecutive sampling, and
6. detection of a hazardous constituent in a spring or screened interval at a concentration more than one-half the cleanup level, where the level has increased in three consecutive samples.

Further, detection of a concentration exceeding the cleanup levels in Permit Section 11.4.1 requires the Applicants to give notice to the Department and to take “all steps necessary to contain or otherwise mitigate the release.” (Permit Section 11.3.1.2)

The Department has concluded, based on its familiarity with the geology and hydrology of the LANL Facility, that the permit will be fully protective if it requires, as described above: 1) monitoring pursuant to plans developed and applied under the Consent Order; 2) prompt reporting of detection of hazardous constituents not previously found, or not found in such concentrations; and 3) corrective action to contain or mitigate the release when a hazardous constituent is detected in excess of the cleanup level. Thus, the Proposed Permit skips the intermediate step of compliance monitoring, primarily because groundwater contamination has already been detected beneath the regulated units at TA-54, and the approach in the Proposed Permit moves more quickly to corrective action than Subpart F. Moreover, the complex hydrogeology beneath TA-54 (NMED Ex. 87), and the Department’s long-standing position that all groundwater must be protected, demands a monitoring network much more robust than that called for at a “point of compliance” defined at 40 CFR §§ 264.95.

**O. Financial Assurance**

The Proposed Permit requires LANS, a co-operator of the Facility and a co-applicant, to ensure that it has sufficient funding to cover the costs of closing the permitted hazardous waste facilities at LANL and of conducting any post-closure care. Also included in the Permit is an estimate of some of those costs and a requirement to update those cost estimates periodically.

References in the Proposed Permit to financial assurance appear at:

1. Permit Section 2.12.2: Requirement that cost estimates be contained in the Operating Record.

2. Permit Section 2.13: Requirement to submit cost estimates for closure and post-closure care.
3. Permit Section 2.14: Requirement of financial assurance for closure and post-closure care.
4. Permit Section 2.15: Requirement of insurance for liabilities.
5. Permit Section 2.16: Addresses incapacity of operators, guarantors, or financial institutions.

The Applicants state that EPA has interpreted the federal financial assurance requirements at 40 CFR Part 264, Subpart H, §§ 264.140-264.151 as excluding any governmentally-owned sites, citing EPA publications. But EPA's reading is not consistent with the regulatory language. Section 264.140(c) states that "States and the Federal government are exempt from the requirements of this subpart." A private operator of a federal facility is not a "government"; thus, the exemption does not apply to LANS.

EPA's interpretation of the financial assurance requirements is not entirely objective on this issue, as the interpretation applies only to sister agencies of the federal government. EPA therefore has less credibility.

Further, New Mexico is not required to give the same interpretation to 40 CFR § 264.140(c) that EPA applies. EPA itself has stated, concerning states that have adopted federal regulations:

"[W]e recognize that individual states can and do interpret the same regulations differently. States that are authorized to implement the RCRA hazardous waste program, as Indiana is, are not bound by EPA's interpretation of the federal regulations. Although they usually follow federal interpretations, authorized states may interpret the regulations more strictly than EPA does." Letter from Sylvia Lowrance, EPA Office of Solid Waste, to R.J. Mahoney, Feb. 11, 1991, marked as **NMED Exhibit 89 (AR33176)**.

The State of New Mexico has previously interpreted 40 CFR § 264.140(c) differently from EPA. The Waste Isolation Pilot Plant (WIPP) has long had a privately-owned operator. The WIPP Hearing Officer stated that the “regulations require financial assurances whether or not the Hearing Officer deems them necessary.” In re *Final Permit Issued to the U.S. DOE and Westinghouse Electric Company Waste Isolation Division for a Hazardous Waste Act Permit for the Waste Isolation Pilot Plant*, HRM 98-04, at 71 (Sept. 9, 1999)(see also 43, 69-72), *affirmed*, *Final Order of the Secretary* (Oct. 27, 1999), marked as **NMED Exhibit 90 (AR 33210)** and **Exhibit 91 (AR 33207)**. That interpretation stands as the rule applicable to the Proposed Permit.

The Applicants contend that Congress has specially exempted LANL and its operators from financial assurance requirements. But the statute they cite does not exempt LANL’s operator. Pub. L. 106-113, § 220 (1999), reads as follows:

“No form of financial responsibility requirement shall be imposed on the Federal Government or its contractors as to the operation of any waste management facility which is designed to manage transuranic waste material and is owned or operated by a department, agency, or instrumentality of the executive branch of the Federal Government and subject to regulation by the Solid Waste Disposal Act (42 U.S.C. 6901 *et seq.*) or by a State program authorized under that Act.”

LANL is a national laboratory, not a “waste management facility which is designed to manage transuranic waste material.” That language plainly applies to WIPP, not LANL.

Section 220 was passed to resolve a dispute between DOE and the Department as to the application of financial responsibility rules to WIPP’s private operator. Senator Domenici spearheaded the effort to exempt WIPP and, on the enactment of section 220, stated that he had “today succeeded in gaining approval of a legislative effort that will ensure New Mexico continues to receive federal funding for hosting the [WIPP] but also restrict the state from imposing a bonding requirement on this major federal project.” (News Release, Sen. Pete V. Domenici, Nov. 16, 1999, marked as **NMED Exhibit 92 (AR 33208)**). He did not suggest that

the legislation might apply to any project other than WIPP, and clearly no such application was intended.

Significantly, in 2004, when Sandia National Laboratories faced financial responsibility requirements, DOE did not claim that section 220 exempted Sandia. Instead, DOE returned to Congress for additional legislation. Congress enacted, Pub. L. 108-199, § 127 (Jan. 23, 2004), granting Sandia its exemption. But there is no such special legislation for LANL, which has no exemption.

The Applicants assert that the Consent Order (NMED Ex. 26) bars financial assurance for closure and post-closure care, as the Order states that it fulfills the requirements of Part 264 Subpart F (Consent Order § 111.A). The Applicants also rely on sections III.W.2 and III.W.4 of the Consent Order. These sections state that corrective action is to be carried out pursuant to the Consent Order, but they expressly except the four items named in section III.W.1. Thus, section III.W.2 states that

“there shall be only one enforceable instrument for corrective action relating to the Facility, *except as provided in Section III.W.1 . . .*”

And section III.W.4 states:

“The renewed Permit . . . will not include any corrective action requirements, nor any other requirement that is duplicative of this Consent Order. *The Permit . . . can include the four excepted items . . . described in Section III.W.1.*”

Section III.W.1 in turn provides that corrective action shall be conducted under the Consent Order, with four exceptions, one being:

“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 . . .”

Under the Proposed Permit, financial assurance is needed for closure and post-closure care costs. Closure and post-closure care are not corrective action and are not carried out pursuant to

Subpart F but Subpart G, 40 CFR §§ 264.110 through 264.120. In fact, there was no need to except closure and post-closure from the declaration, in section III.W.1 of the Consent Order, that corrective action occurs under the Consent Order – because closure and post-closure are not corrective action at all.

Corrective action and closure are both independently required by statute and regulations. Corrective action is a remedy for releases, while closure occurs when operations terminate; closure must comply with 40 CFR § 264.111 and the performance standards of Permit Section 9.2, which are separate from the requirements of corrective action. Thus, when the Consent Order states that compliance with that Order shall satisfy Subpart F, it does not address, and does not bar, closure and post-closure care requirements under the Proposed Permit – including financial assurance. And the explicit exclusion of closure and post-closure from section III.W.1 of the Consent Order makes it doubly clear that those processes are governed by the Permit. The Proposed Permit confirms this by incorporating the Consent Order exclusions in Permit Section 11.2.

Indeed, the DOE's own Northern New Mexico Citizens' Advisory Board supports financial assurance and recommends that estimates be prepared of full life-cycle costs, including closure, post-closure care, long-term monitoring and long-term stewardship, for each Material Disposal Area. (**AR 31335**).

There is, in addition, a practical need for financial assurance. Financial assurance is a legal requirement, and it is not necessary to show a need for it. But a need exists. There is a real risk that, unless financing is assured, closure of the MDAs may be frustrated by funding shortfalls. This situation shows that the Department's interpretation of 40 CFR § 264.140(c) is a reasonable and prudent one.

The DOE Inspector General (IG) has reported that LANL has fallen behind its Consent Order commitments due, in large part, to “funding constraints.” *Audit Report, The Department’s Progress in Meeting Los Alamos National Laboratory Consent Order Milestones*, DOE/IG-0793, at 2 (April 2008), marked as **NMED Exhibit 93 (AR 31639)**. The report states:

“Funding has been a major concern since 2005 when the Department signed the agreement. In fact, in 2005 the Los Alamos Site Office Manager wrote that he had strong reservations that the appropriate resources had not been identified to fully execute the environmental restoration program needed to meet the requirements of the Consent Order.” (*Id.*).

Further:

“Based on the November 2007 baseline, a projected shortfall exists each year through 2012. Additionally, the projected funding for Consent Order activities does not cover \$947 million in ‘unfunded’ contingencies.” (*Id.*)

In June 2007 the Government Accountability Office (GAO) investigated DOE’s plans to clean up sites where transuranic waste is buried, and reported that DOE’s preliminary estimate of the cost “will likely increase substantially” (**AR 31640**). The DOE IG reported in February 2005 that DOE was unlikely to complete removal of transuranic waste from LANL by 2010 and projected that the cost could increase by \$70 million (**AR 31641**).

Numerous press reports highlight funding shortfalls causing delays and failures in environmental performance at LANL, resulting in further cost increases:

1. *State Proposes \$1.87 M Fine on DOE*, Albuquerque Journal, May 23, 2009 (“Resource limitations” prevented LANL from completing well abandonment), marked as (**AR 31642**).
2. *Cleanup Likely to Fall Behind*, Albuquerque Journal, April 16, 2008 (“Funding has been a major concern since the [consent order] was signed”), marked as (**AR 31644**).
3. *Lack of Funds May Slow LANL Cleanup*, Albuquerque Journal, April 10, 2008

(“It’s really embarrassing and very troubling when they enter into an agreement and then the feds come along and don’t have the money to do it,” Domenici said in an interview after the hearing. ‘And that’s where we are now.’”), marked as (**AR 31645**).

4. *Shortfall May Slow Cleanup*, Albuquerque Journal, Oct. 19, 2007 (“Sue Stiger [of LANL] is quoted as saying that the lab needs more in 2008 than the \$140 million that funded cleanup activities in 2007 or it may not be able to meet its regulatory demands. ‘To stay in full compliance, we need the \$80 million . . . so that certain milestones stay on schedule in the out-years,’ said Stiger, the lab’s associate director for environmental programs, according to the publication.”), marked as (**AR 31647**).

5. *Domenici Decries Lack of Cleanup Funds*, Albuquerque Journal, March 8, 2007 (“The U.S. Department of Energy has steadily reduced money for environmental cleanup, adding billions of dollars to the final cost of cleaning up contaminated sites – including \$660 million more at Los Alamos National Laboratory, Sen. Pete Domenici said.”), marked as (**AR 31648**).

6. *Cleanup Tied to Lab Funds*, Albuquerque Journal, March 6, 2007 (“An ‘untenable budget situation’ is delaying environmental cleanup at Los Alamos National Laboratory, and a cleanup agreement between the federal and state governments may need to be changed to reflect those federal budget restraints, according to U.S. Sen. Pete Domenici, R-N.M.”), marked as (**AR 31649**).

Normally, financial assurance for closure must be established for any operating disposal unit before it can begin receiving hazardous waste. (See 40 CFR §§ 264.142, 264.143). The

Proposed Permit provides that financial assurance for closure of the regulated units will not be required until after submission of corrective measures studies under Permit Section 2.13.1 and approval of estimates under Permit Section 2.14. To establish financial assurance, the Department needs a valid cost estimate, based on a valid closure plan. Neither of these exists for any of the regulated units. However, Permit Section 9.3 requires submittal of a Corrective Measures Evaluation (CME) Report that presents remedies that meet the closure standard of 40 CFR § 264.111, and it requires that the Corrective Measures Implementation (CMI) Plan satisfy Subpart G requirements (Closure and Post-Closure). Closure cost estimates will be submitted in the CME report for Department approval, and financial assurance must be established within 180 days after such approval. The CMI plan must include specific estimates for the selected alternative and requires Department approval; additional financial assurance will be established within 180 days after approval. This schedule parallels that proposed for financial assurance for corrective action. (*See* 51 Fed. Reg. 37854, 37860 (Oct. 24, 1986)).

Closure and post-closure cost estimates must be prepared in accordance with 40 CFR §§ 264.142 and 264.144. The Proposed Permit provides that the cost estimate for closure (§ 264.142) and for post-closure care (§ 264.144) for permitted units listed in Table J-1 of Permit Attachment J must include “the cost of closing the facility in accordance with the requirements in § 264.111 through § 264.115 and applicable closure requirements . . . .” The estimates are intended to be detailed and to track the closure plans “[b]ecause the cost estimates are based directly upon the closure and post-closure plans and serve as the basis for financial assurance, the cost estimates must contain sufficient detail to allow them to be evaluated.” (51 Fed. Reg. 16422, 16436 (May 2, 1986)).

The rules state:

“The estimate must equal the cost of final closure at the point in the facility’s active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan . . . .” 40 CFR § 264.142(a)(1).

The “most expensive” closure for storage and treatment units would normally be removal of all wastes, decontamination, and verification. At the LANL facility, the greatest costs will involve the disposal sites, which are probably at their most expensive now.

Permit Section 2.13.2 requires post-closure care cost estimates for each permitted unit that will be closed with waste in place. The estimate must be submitted with the permit modification request to adopt a post-closure care plan.

Permit Section 2.13.3 provides that cost estimates must be adjusted for inflation annually before the anniversary date of the financial assurance. Estimates must also be adjusted when there is a change in the underlying closure or post-closure care plan, including when clean closure is attained.

Permit Section 2.13.4 requires the Applicants to retain in the Operating Record the latest closure and post-closure cost estimates, pursuant to 40 CFR §§ 264.142(d) and 264.144(d), which are incorporated by reference.

Permit Section 2.14 requires LANS to establish financial assurance for closure and post-closure care 180 days after (a) the closure cost estimate is approved by the Department and (b) the Department approves the post-closure care permit modification, respectively. (See 40 CFR §§ 264.143 and .145). Thus, LANS must establish financial assurance for closure 180 days after the Proposed Permit becomes effective, since certain approved closure cost estimates will be contained in Permit Attachment M. LANS is required, as to the units addressed in Attachment M, to provide financial assurance for closure and post-closure care in accordance with 40 CFR §§ 264.143 and 264.145, supported by documentation in conformity with 40 CFR § 264.151, in at least the amount of the estimates in Attachment M. Until LANS submits and obtains approval of its own estimates for closure costs of these units, the Attachment M estimates shall apply. (See Permit Section 2.13.1)

Permit Section 2.15 addresses liability coverage for sudden and accidental occurrences and for non-sudden accidental occurrences, incorporating the terms of 40 CFR §§ 264.147(a) and

(b). Section 264.147(a) requires the owner or operator to demonstrate financial responsibility for certain injuries or damages. EPA interprets the liability coverage requirements to apply “during the operating life of the facility.” (51 Fed. Reg. 25350 (July 11, 1986); 53 Fed. Reg. 33938 (Sept. 1, 1988)). The Department interprets the requirement similarly. Thus, liability requirements must be met from the time the Proposed Permit becomes effective.

The obligation to comply with Permit Section 2.16, which incorporates 40 CFR § 264.148, addressing incapacity of a relevant entity to meet financial assurance obligations, exists “whenever necessary.”

**P. Notice of Intent to Deny Permit for Open Burning**

The Applicants submitted a Part B permit renewal application specific to hazardous waste treatment units at Technical Area (TA)-16 in August 2003 pursuant to 20.4.1.900 and 902 NMAC (**AR 6437**). The units sought to be permitted are units that are currently operating under interim status. In the application, the Applicants seek to permit these interim status units to allow treatment of high explosive hazardous waste. The Department has determined that it must deny the permit application for open burning treatment operations at TA-16 for the hazardous waste management units known as “TA-16-388” and “TA-16-399.”

Open burning is the process of burning of any materials that produces gases that are directly emitted into the air without first passing through a stack or chimney from an enclosed chamber. The two open burn units at TA-16 burn off-specification and discarded high explosive wastes and wastes contaminated with high explosives. Open burning is a method to treat the hazardous component of the waste to remove the characteristic of reactivity. These wastes are placed in a raised steel pan or tray (called a flash pan or burn tray), which are designed to withstand extremely high temperatures. At TA-16-388, propane burners apply a flame to the

explosive waste in the pan or tray to ensure sufficient temperature is reached to ensure complete destruction of the explosive component of the wastes. At TA-16-399, waste is placed in the burn tray with dunnage (i.e., combustible material such as wood or cardboard) and diesel fuel on top of the waste. The Applicants requested authority to cumulatively burn 12,500 pounds of waste per year at the TA-16 units.

During the open burn process, several hazardous constituents may be released to the atmosphere. The type of emissions depends on the wastes being treated. Common emission products are metals; however, if plastics or other chlorinated items are present, open burning results in the formulation and emissions of dioxin and furan congeners. The Department is concerned about dioxins and furans because they pose a health risk to both human and ecological receptors at lower levels than most metals. The permit application indicated that the high explosives treated at the open burn units contain plastics that are capable of generating dioxins and furans (**NMED Exhibit 94 (AR 6679)** and **Exhibit 95 (AR 12718)**). Due to concerns that the release of dioxins and furans into the environment from the treatment of waste at the burn units, the July 6, 2009 Revised Draft Permit (AR 31820) included a prohibition on treating wastes capable of generating dioxins and furans. This prohibition was based upon three factors: 1) the Department conducted air modeling which resulted in the potential for excess risk to ecological receptors from exposure to dioxins and furans; 2) subsequent soil sampling conducted by the Applicants indicated elevated levels of dioxins and furans; and 3) the screening level risk assessment using the results from the limited soil sampling indicated dioxin and furan concentrations in excess of Ecological Screening Limits (ESLs) and the Department's target risk limit.

The Department understood that the prohibition on the open burning of wastes capable of generating dioxins and furans would effectively prohibit the operation of the open burning units. However, based upon the air modeling data, limited soil sampling results, and the Applicant's initial screening level assessment, the Department concluded that, based on this information, a decisive determination as to whether operation of the open burn units at TA-16 will result in excess ecological risk could not be made at the time of permit issuance.

The July 6, 2009 Revised Draft Permit (AR 31820) also stated that the Applicants may seek relief from the prohibition on wastes that generate dioxins and furans by submitting a Class 3 permit modification request supported by a demonstration that open burning of such wastes will only be conducted in a manner that is protective of human health and the environment. Such a demonstration would, at a minimum, have to include a collection and analysis of a statistically appropriate number of soil samples that refutes the air modeling and screening level assessment's prediction of an unacceptable level of risk to ecological receptors. At the time of issuance of the Revised Draft Permit, such a risk assessment had not been conducted. The Revised Draft Permit also contained special waste characterization requirements, certain prohibitions, and annual volume and batch limits on waste to be treated by open burning. The Revised Draft Permit also required soil monitoring and surface water monitoring to determine the impact of open burning, and the submission of a study of alternatives to open burning.

In response to the air modeling and initial screening level risk assessment, the Department determined that additional soil samples were needed to verify or refute the conclusions that the open burn units were not protective of human health and the environment. Discrete surface soil samples were collected by the Applicants at 36 locations for analysis for dioxin/furan congeners and at 31 locations for metals analysis. The Applicants submitted a risk

assessment (*Transmittal of Human Health and Ecological Screening Assessment for the Technical Area 16 Burn Ground, Revision I*, dated January 8, 2010) based on these samples to the Department (**AR 32346**). Evaluation of this risk assessment is presented in Ms. Paige Walton's testimony.

The Department has received considerable comment from members of the public concerning the open burning operations at LANL, almost all of it in opposition. Approximately 1,400 individuals registered their opposition to continued open burning. The principal objection has been to the use of unconfined burning to treat high explosives and high-explosive contaminated waste, which results in uncontrolled releases to the atmosphere. Citizens have cited health risks to wildlife, public health, and the environment. Commenters point out that open burning is particularly objectionable to persons with allergies or other sensitivities to airborne pollutants. They also suggest that alternative treatment methods to open burning exist that would be more protective of human health and the environment. The Department has carefully considered this opposition.

The Applicants submitted assessments of various alternatives to open burning to the Department in August 2002 (**AR 6371**) and March 2007 (NMED Ex. 94). Those assessments identified the existence of alternatives, including the shipping of the applicable waste off-site. The Department believes that the Applicants should reevaluate the alternatives to open burning, considering the recent ecological risk findings and their acknowledgement that they have the ability to reduce high-explosive waste streams. In fact, the Applicants are required to institute such measures in any event, as a waste minimization program in compliance with 40 CFR § 264.73(b)(9) is mandatory. This program must reduce the volume and toxicity of hazardous wastes generated to the degree determined by the Applicant to be economically practicable.

However, the proposed method of treatment, storage, or disposal that is the practicable method currently available to the Applicant must also minimize the present and future threat to human health and the environment. The Applicants have not provided sufficient information demonstrating compliance with the requirements for waste minimization for wastes they propose to treat at TA-16 by open burning. The Department is confident that alternative methods can be found to treat high explosives and high-explosive-contaminated wastes that do not entail repeated uncontrolled releases to the atmosphere.

The Applicants also have asserted that even if alternatives exist, the high-explosive waste currently treated at the open burn units cannot be safely transported on roads, and that U.S. Department of Transportation regulations prohibit such transport for that reason (**NMED Exhibit 96 (AR 33271)**). The Department disagrees with that assertion. The explosive wastes identified by the Applicants include RDX, HMX, TNT, TATB, and compounds that are largely a mixture of these substances – PBX 9501 and PBX 9502 (**NMED Exhibit 97 (AR 33303)**). All of these explosives are highly stable at room temperatures and require a detonator, an initiating source, or both, in order for them to be reactive. In addition, research indicates that all of these wastes may be easily stabilized (**AR 33295**).

The regulations outlined in 49 CFR do not contain any provisions forbidding the transportation of explosive waste if the waste is stabilized properly. In fact, all of the high explosive components referenced above (RDX, HMX, TNT, and TATB) are allowed for transport by the Department of Transportation if the waste is “desensitized” or “wet”. Desensitization of waste means that the explosive compounds are combined with a diluting agent, other inert material, or both to lower the sensitivity, energy output, and flame temperature of the compositions and improve their ability to burn in a controlled manner by increasing the

burn time. A detailed hazardous material table that includes requirements for packaging, limitations on quantity, types of shipping vessels, and other special provisions is provided in 49 CFR §172.100. RDX, HMX, and TNT would be considered a 1.1D Hazard Class, while TATB, which is actually the most stable of these explosives, would be considered Class 1.6. According to the transportation guidelines in 49 CFR §172.100, all of these classes of explosives are allowed to be transported over public roads.

Transportation of stabilized high-explosives is allowed under the Department of Transportation regulations outlined in 49 CFR. The explosive waste generated at LANL would be shippable as long as it was stabilized properly as a D003 EPA Hazardous Waste. In fact, all reactive wastes that are treated at TA-16 are transported from the point of generation to the treatment units by vehicle, albeit not on public roads. The Applicants have not provided any information in their permit application or in any supplemental material demonstrating that the wastes generated at LANL for treatment at TA-16 should be not considered stable, or cannot be stabilized, and are therefore unsafe for transport.

Because the Applicants have not provided sufficient demonstration that continued operation of the burning units would not result in adverse risk to the environment, the extensive public opposition to open burning, and the Department's belief that there may be preferable and viable alternatives to burning the high explosive waste, the Department intends to deny a permit to the Applicants to treat waste by open burning at TA-16.

A consequence of the denial of the permit application for the TA-16 open burn units is that the units must close in a timely manner in accordance with the applicable hazardous waste regulations. To facilitate a timely closure of the TA-16 open burn units, the Department, at the

same time notice of its intent to deny was made, gave notice of the availability of the closure plans for the TA-16 open burn units for public comment and review.

#### **Q. Interim Status Closure of the TA-16 Open Burn Units**

The interim status treatment units at TA-16 (TA-16-388 and TA-16-399) must undergo closure pursuant to 40 CFR § 265.110 through 116. The Department issued draft closure plans for TA-16-388 (**NMED Exhibit 98 (AR 33293)**) and TA-16-399 (**NMED Exhibit 99 (AR 33294)**) for public comment on February 2, 2010 (NMED Ex. 2).

Upon denial of the permit application for the TA-16 treatment units, the units will lose interim status, treatment of hazardous wastes must immediately cease, and closure must begin. The draft closure plans are substantively identical to the closure requirements in Part 9 of the Proposed Permit (NMED Ex. 1). The Applicants must meet the performance standards required by 40 CFR § 265.111. The Applicants must conduct a records review to confirm the types of waste that were managed at the units, and whether or not any releases occurred during the operational life of the units. Additionally, the Department expects that at closure the Applicants will, through the records review, determine whether or not any actions were taken to address releases to the environment documented in the Operating Record, and the results of those actions. The Applicants must also conduct a structural assessment to visually inspect each unit for evidence of releases of materials associated with treatment operations, and for evidence of damage to the open burn units that could result in the accumulation of hazardous constituents or the creations of a pathway for migration of such constituents. The closure plans must be modified as necessary to incorporate these additional sampling locations identified in the review and assessment.

The closure plans for each unit include provisions for the decontamination or removal of all hazardous waste residues and contaminated components, as required by 40 CFR §§ 265.112(b)(3) and 265.114. All removed equipment and structures, including concrete pads, ancillary piping and other construction materials, must be either decontaminated and sampled for the presence of hazardous waste and hazardous constituents or disposed of appropriately.

In addition to the removal of equipment and structures, the Applicant must investigate and remove, to the extent necessary to achieve the closure performance standards, all contaminated environmental media (*e.g.*, soils, sediment, stormwater) affected by facility operations. The closure performance standards in the closure plans for purposes of cleanup of contaminated media are the same as the standards established in Sections 11.4 and 11.5 of the Proposed Permit.

To investigate whether or not releases of hazardous waste or hazardous constituents have occurred, the closure plans require the collection of surface and subsurface soil samples at the loading areas of TA-16-388 and TA-16-399, and in the surrounding area of the units, including drainage areas, to evaluate for the presence of hazardous waste and hazardous constituents. A sediment sample must also be collected from the storm water discharge point from the units.. Samples must be sent to a chemical analytical laboratory for analysis of the hazardous constituents identified in the records review as having been managed or present at the site during the operational life of the unit.

#### **V. FURTHER TESTIMONY**

Further testimony on behalf of the Department regarding the Proposed Permit will be presented by the following witnesses:

1. Steve Pullen of my staff will testify in support of the remainder of the requirements in Parts 1, 2, 3, 4, and 10 and a majority of the Attachments that I have not discussed.
2. Rebecca J. Cram of my staff will testify concerning specific closure requirements in Part 9, and closure plans in Attachment G.
3. David Cobrain of my staff will testify concerning corrective action requirements in Part 11.
4. Jerzy Kulis of my staff will testify concerning installation and construction of groundwater monitoring wells.
5. Paige Walton, the Department's consultant, will testify concerning risk assessment, including that of open burning operations.
6. Kathryn Roberts of my staff will testify concerning the Proposed Permit Section 1.17, and appended lists of SWMUs and AOCs in Attachment K.
7. Mohamed Nur, the Department's consultant, will testify concerning cost estimates contained in Attachment M to the proposed Permit.
8. James D. Werner, the Department's consultant, will testify concerning the practical need for financial assurance.

## **VI. ADDITIONAL EXHIBITS**

Other Department witnesses and I will be referring to additional demonstrative exhibits, not specifically addresses in testimony. These exhibits are:

1. Map of Los Alamos National Laboratory (**NMED Exhibit 100**)
2. Hazardous Waste Management Units at TA-3 (**NMED Exhibit 101**)
3. Hazardous Waste Management Units at TA-16 (**NMED Exhibit 102**)
4. Hazardous Waste Management Units at TA-50 (**NMED Exhibit 103**)

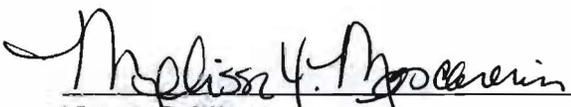
5. Hazardous Waste Management Units at TA-54 (NMED Exhibit 104)
6. Hazardous Waste Management Units at TA-55 (NMED Exhibit 105)
7. Aboveground Units at TA-54 Area G (NMED Exhibit 106)
8. Aboveground Units at TA-54 Area L (NMED Exhibit 107)
9. Well Construction Diagram (NMED Exhibit 108)

This concludes my testimony.

I, James P. Bearzi, swear under penalty of perjury that the foregoing is true and correct.

  
\_\_\_\_\_  
James P. Bearzi  
Chief  
Hazardous Waste Bureau  
New Mexico Environment Department  
Santa Fe, New Mexico

Subscribed and sworn to before me this 19<sup>th</sup> day of March, 2010 by James P. Bearzi

  
\_\_\_\_\_  
Notary Public

My commission expires:

April 3, 2011