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FACT SHEET

JULY 6, 2009

**INTENT TO ISSUE A HAZARDOUS WASTE FACILITY PERMIT
UNDER THE NEW MEXICO HAZARDOUS WASTE ACT
LOS ALAMOS NATIONAL LABORATORY (LANL)
LOS ALAMOS COUNTY, NEW MEXICO**

Facility Name: Los Alamos National Laboratory

EPA Identification Number: NM0890010515

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GENERAL BACKGROUND

The New Mexico Environment Department (Department) intends to issue a hazardous waste permit (Permit) to Los Alamos National Laboratory (LANL, or the Facility) to store and treat hazardous waste and to close hazardous waste disposal units in accordance with the New Mexico’s Hazardous Waste Act (HWA) and its associated regulations. The Department is charged with issuing a permit that will ensure that LANL’s hazardous waste operations are properly managed to protect human health and the environment.

Prior to issuing a permit, the Department is required by regulation to release a draft of the permit for public comment. The Department is also required to issue a fact sheet which serves two functions: 1) to facilitate public review of that draft permit; and 2) to provided the basis for any requirements not specified in state regulations. This is that fact sheet.

The initial portion of this fact sheet describes the general background for the revised draft Permit, including; a physical description of LANL, its hazardous waste activities, the revised draft Permit, how the public may be involved in the permitting process, and a brief description of how the Department is addressing the most controversial issues. The latter portion of this fact sheet explains these issues and others in considerably more detail and provides the technical and regulatory basis for permit requirements and conditions.

LANL is located in Los Alamos County approximately 60 miles north-northeast of Albuquerque and 25 miles northwest of Santa Fe and occupies approximately 40 square miles. The Facility is situated on the Pajarito Plateau which consists of a series of finger-like mesas separated by deep east-west trending canyons. Ephemeral or intermittent streams lie at the bottoms of all the canyons. The mesa tops range in elevation from approximately 7,800 feet (ft) above mean sea level (amsl) at the flank of the Jemez Mountains, located to the west of Los Alamos, to about 6,200 ft amsl at their eastern extent where they terminate above the Rio Grande. The Facility is divided into smaller geographical areas known as technical areas (TAs). The U.S. Department of Energy (DOE) / National Nuclear Security Administration (DOE/NNSA) owns the facility, and the DOE/NNSA and Los Alamos National Security, LLC (LANS) operate the facility. These entities are collectively referred to as “Permittees” in the revised draft Permit. These entities are also sometimes referred to as “LANL” in this fact sheet.

LANL generates hazardous waste primarily from its general operations, research and development activities, environmental restoration activities, and decontamination and decommissioning projects. In 2006 LANL generated approximately 330 different types of hazardous wastes or “waste streams” (*see* 2007 LANL Biennial Report). Hazardous wastes that contain a radioactive component are referred to as “mixed waste.” Of LANL’s 330 different types of hazardous wastes, approximately 55, or one-sixth, were mixed waste. In 2008 LANL generated approximately 255,000 lbs. of hazardous wastes, of which 35,000 lbs. were nonradioactive hazardous wastes, 107,000 lbs were mixed transuranic waste, and 14,000 lbs were mixed low level wastes (*see* 2008 LANL Hazardous Waste Minimization Report). In 2008 remediation waste (wastes from cleanup activities) classified as hazardous wastes amounted to approximately 99,000 lbs. Other types of waste generated at LANL include “solid” wastes including paper, plastic, general refuse, and radioactive waste.

The revised draft Permit addresses the storage (generally for periods longer than 90 days) and treatment of hazardous waste. When finalized, the Permit will authorize hazardous waste management at 22 container storage units, one tank storage unit, one unit where waste may be stabilized using cement, and two units where LANL will be authorized to treat (through open burning) explosive wastes. (See, however, the discussion below of limitations upon open burning.) LANL does not seek, and the Department is not issuing, a permit for hazardous waste disposal. However, hazardous waste was disposed of in the past at Material Disposal Areas

(MDAs) G, H, and L at TA-54. The draft Permit addresses the closure and potential post-closure care of these units. .

The revised draft Permit includes 11 permit parts and 14 permit attachments. The parts address how LANL shall adhere to specific hazardous waste treatment and storage procedures, how LANL shall terminate the use of the of the treatment and storage facilities (referred to as “closure” of a unit), and how LANL shall conduct cleanup of contaminated soil, surface water, or groundwater (referred to as “corrective action”). The parts also include general requirements that apply to all permitted hazardous waste facilities throughout the state (*e.g.*, duration of a permit) and general requirements that apply to LANL as a facility (*e.g.*, characterization of waste).

The attachments consist of waste management “plans,” including a waste analysis plan for determining which wastes are hazardous, a contingency plan (emergency response), an inspection plan, a personnel training plan, and closure plans for each of 26 permitted hazardous waste management units. The attachments also include a list of units that are to be permitted, a list of corrective action sites, a list of off-site facilities from which LANL may receive wastes, and a compliance schedule that lists when LANL must complete specific tasks. The attachments also include estimates of the cost to close certain of the permitted hazardous waste management units and all figures referenced in the draft Permit.

The revised draft Permit is a new version (sometimes referred to as a “renewal” permit) of a permit that was first issued to LANL in November of 1989. The Department currently enforces the 1989 permit. Included in the revised draft Permit are nearly twice as many hazardous waste management units as were in the original permit. Units that were added include former “interim status” units, or units that existed when the hazardous waste regulations first took effect in November 1980 and met other regulatory requirements. Also included in the revised draft Permit are three new units that did not have interim status.

The Department first released a draft renewal Permit for public comment on August 27, 2007; with extensions to the public comment period granted by the Department, the comment period ended on February 1, 2008. The Department received public comment and requests for public hearing on the August 27, 2007 version of the draft permit. As required by its rules, the Department in conjunction with the Permittees attempted to resolve the issues giving rise to opposition to the draft Permit. The August 2007 draft Permit is now being withdrawn. Comments and requests for hearing on the August 2007 draft Permit are therefore moot. The revised draft Permit now being issued is a revision of the August 2007 draft permit, and hereinafter is referred to as the “revised draft Permit.” It reflects the Department’s attempt to resolve the issues which were brought forth during the comment period and additional issues brought forth during discussions with the Permittees and those who opposed the August 2007 draft Permit and requested a hearing.

The revised draft Permit addresses both hazardous waste and mixed waste. The U.S. Congress established separate laws regulating hazardous and radioactive wastes: the Resource Conservation and Recovery Act (RCRA) for the hazardous wastes and the Atomic Energy Act (AEA) for the radioactive materials. Mixed wastes at LANL managed under the revised draft

Permit are categorized as either mixed low-level waste or mixed transuranic waste. Mixed transuranic waste (TRUW) at LANL comes primarily from the use of plutonium in the fabrication of nuclear weapons. TRUW is defined by DOE as “waste contaminated with alpha-emitting radionuclides of atomic number greater than 92 (that is, heavier than uranium; hence, the term transuranic) and half-lives greater than 20 years in concentrations greater than 100 nanocuries per gram.” Low-level waste (LLW) is defined as radioactive waste that is not spent nuclear fuel, high level waste, or transuranic waste. LLW at LANL includes all radioactive waste that is not TRUW. In 2004 LANL generated 53 cubic yards of mixed low level waste and 33 cubic yards of mixed transuranic waste.

If the revised draft Permit is issued as proposed, site investigation and cleanup of contaminated soils, surface waters, or groundwater, referred to as “corrective action,” would be governed at LANL through two documents, the revised draft Permit and the March 1, 2005 Compliance Order on Consent (Consent Order). The Department’s intent in establishing these two enforceable documents is to address all possible cleanup requirements and establish a clear regulatory process by distinguishing which situations are addressed in which document. The Consent Order was executed in 2005 because the Department urgently needed to establish new and comprehensive corrective action procedures at LANL. The general site investigation and cleanup procedures in the revised draft 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, specific requirements and schedules for specific sites, and addresses mainly contamination that already exists or is already known. The Consent Order addresses all corrective action currently occurring at LANL.

There are four circumstances when the revised draft Permit will govern the corrective action process. First, the revised draft Permit governs any new releases or spills from any of the 26 permitted hazardous waste management units or any of the existing interim status units, whereas the Consent Order governs releases elsewhere at the facility. Second, closure and post-closure care of hazardous waste management units are governed by the revised draft Permit, and not the Consent Order. Thus, should wastes be left in the ground after a hazardous waste management unit’s use is terminated, LANL would be required to conduct post-closure care of the unit in accordance with the implementing regulations and Part 10 of the revised draft Permit. Third, if during cleanup under the Consent Order it is determined that long term controls are necessary to maintain protection (*e.g.*, a deed restriction prohibiting use as a residence), the revised draft Permit shall govern such controls. Finally, because LANL will continue to store and treat hazardous wastes after corrective action under the Consent Order is complete, the revised draft Permit will govern all corrective action after the Consent Order is terminated.

The revised draft Permit requires coordination of any corrective action with that conducted under Consent Order. To accomplish this, a release from a hazardous waste management unit regulated by the revised draft Permit that combines or commingles with a release covered by the Consent Order is to be cleaned up under the requirements in the Consent Order.

The Consent Order requires remedy completion at MDAs G, H, and L at Technical Area (TA) 54 on a schedule that ends in 2015. This corrective action will significantly impact the permitted storage units at TA-54. The Department anticipates that 10 permitted storage units will, as a

result of corrective action, have to discontinue operation and be closed prior to that year. LANL will also have to exhume approximately 5000 containers of wastes temporarily stored below ground at MDA G.

MDAs G, H, and L are units where hazardous waste was placed in the ground with no intention of removing it and are therefore referred to as “disposal” units. As such, these units are required to meet closure requirements, including 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 further maintenance of controls. MDAs G, H, and L have undergone soil investigation under the Consent Order. When the Department determines that the groundwater associated with the units has been sufficiently investigated, LANL will be required to complete a report evaluating future options (*i.e.*, a Corrective Measures Evaluation report), the Department will choose a solution with opportunity for public involvement, and then LANL will be required to produce a plan to execute that chosen option (Corrective Measures Implementation Work Plan) as required by the Consent Order. This Plan will be equivalent to a closure plan under the implementing regulations and Part 9 of the revised draft Permit. It will also be subject to public review and comment.

There are significant opportunities for the public to learn about and become involved in the regulation of hazardous waste at LANL, including the corrective action processes in the revised draft Permit and Consent Order. Documents pertinent to permitting and corrective action activities submitted to or issued by the Department are available for public review in the Department’s administrative record at 2905 Rodeo Park Drive East, Building 1, Santa Fe, New Mexico. This Fact Sheet is in part an effort to involve the public, and at the end of this Fact Sheet is a description of how the public may comment on the revised draft Permit.

Regulations require public involvement any time there is a modification to change the Permit. That process involves public notices and may include an opportunity for public comment. Public notices are provided in local newspapers and letters to individuals on the facility mailing list are sent that include notification of requested modifications. The facility mailing list is maintained by the Department and any interested person may request to be placed on it to be informed of such actions.

The revised draft Permit requires LANL to establish a community relations plan, whose goal is to foster community understanding and involvement in its environmental programs. The revised draft Permit requires LANL to establish an “information repository,” where Permit-related documents, including the Permit, may be viewed. Furthermore, the revised draft Permit requires LANL to issue e-mail notices to the public of the filing of specific documents that are of interest to the public. Interested persons are to be allowed to add their e-mail address to a list maintained by LANL. When specified documents are submitted to the Department, LANL is to provide notice within seven days to those on the list and include a link to an electronic version of the applicable document.

The revised draft Permit does not address four hazardous waste management units now used by LANL to treat high explosive wastes without confinement by burning (“open burning”) or detonation (“open detonation”). The Department has chosen not to permit these units at this time

in an effort to expedite the permitting process. The sites are regulated under the “interim status” portions of the implementing regulations. The Department anticipates that these units will either discontinue operation and be closed or will be incorporated, through the permit modification process, into the Permit after the revised draft Permit is in effect.

The revised draft Permit authorizes LANL to receive four types of hazardous wastes from facilities other than LANL (“off-site” facilities). First are wastes that were generated by LANL, shipped off-site to be treated, and returned to LANL. Second are wastes from a LANL cleanup site. A limited number of these sites exist just outside the LANL facility boundary (*e.g.*, canyons below LANL and properties in the town of Los Alamos). Third are wastes from the non-contiguous LANL TA at Fenton Hill. Finally, LANL may receive a limited amount of “sealed source” wastes.

“Sealed source” waste here refers to a mixed hazardous and radioactive waste in the form of small metal capsules that are permanently sealed and contain a specific amount of radioactive material. These sources were used in defense-related processes, primarily for instrument calibration or energy supply. The Department understands LANL is collecting these wastes to better control their world-wide distribution. The revised draft Permit authorizes LANL to receive only sealed source wastes that are eligible for disposal at the Waste Isolation Pilot Plant (WIPP). The revised draft Permit also authorizes LANL to receive no more than one 55-gallon drum of sealed source waste per year, except that two drums may be received in one of the first three years of the Permit; the sealed source waste may be stored for no more than one year.

The revised draft Permit requires LANL to invoke an emergency response plan when there is a fire, explosion, release of waste, or any other incident at a permitted hazardous waste facility that may endanger human health or the environment. This plan is called the Contingency Plan. Terms of the revised draft Permit include required emergency equipment, testing and maintenance of emergency equipment, communication and alarm systems, emergency response procedures, establishment of a chain of command, and post-emergency procedures. LANL must notify the Department of emergencies. However, the Department does not take any part in directing or managing emergency response.

The Department has determined that LANL has sufficiently demonstrated that earthquake hazards are not a significant threat at the permitted hazardous waste management units for which such an analysis is required.

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

The revised draft Permit generally limits the duration of permitted storage of hazardous wastes to one year. However, the Department recognizes that mixed wastes can often be difficult to dispose of off-site and therefore has entered into an agreement—the “Site Treatment Plan”—with LANL to identify and track those problematic wastes, to plan a disposal pathway, and to allow them to be stored at LANL for longer than one year if necessary.

The revised draft Permit addresses how LANL may sell, donate, or otherwise “transfer” property within its boundary to other entities. The Department has an obligation to ensure that transferees are aware of environmental contaminant risks associated with the land. Further, because LANL is regulatorily obligated to notify and cooperate with the Department regarding the release of any hazardous constituents within its boundaries, the Department must be aware of those boundaries and any environmental problems associated with the land discovered at the time of transfer.

The revised draft Permit requires LANL to maintain a program that minimizes the amount of wastes created at the facility and reduces the toxicity of those wastes.

PUBLIC REVIEW OF THE DRAFT PERMIT

The Administrative Record for this proposed action consists of the Permit application, the revised draft Permit, the Public Notice, this Fact Sheet, and supporting documentation. The Administrative Record may be reviewed, with prior appointment, at the following location during the public comment period.

NMED - Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone: (505) 476-6000
Monday – Friday: 8:00 a.m. to 5:00 p.m.
Contact: *Pam Allen*

A copy of the revised draft Permit, the Public Notice, and this Fact Sheet is available on the Department’s website at: www.nmenv.state.nm.us/HWB/lanlperm.html under LANL Draft Permit. To obtain a copy of the Administrative Record or a portion thereof, please contact Ms. Pam Allen at (505) 476-6000, or at address given above. The Department will provide copies, or portions thereof, of the Administrative Record, including the revised draft Permit, at a cost to the requestor.

The Department issued a public notice on **July 6, 2009**, to announce the beginning of a 60-day comment period that will end at **5:00 p.m. MDT, September 4, 2009**. Any person who wishes to comment on the revised draft Permit or request a public hearing should submit written or electronic mail (e-mail) comment(s) with the commenter’s name and address to the address below. Only comments and/or requests received before **5:00 p.m. MDT on September 4, 2009** will be considered.

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Ref: LANL Draft Permit

Written comments must be based on reasonably available information and include, to the extent practicable, all referenced factual materials. Documents in the administrative record need not be re-submitted if expressly referenced by the commenter. Requests for a public hearing shall provide: (1) a clear and concise factual statement of the nature and scope of the interest of the person requesting the hearing; (2) the name and address of all persons whom the requester represents; (3) a statement of any objections to the revised draft Permit, including specific references to any conditions being addressed; and (4) a statement of the issues which the commenter proposes to raise for consideration at the hearing. The Department will provide a thirty (30) day notice of a public hearing, if scheduled.

All written comments submitted will be considered in formulating a final decision and may cause the revised draft Permit to be modified. The Department will respond in writing to all public comments. This response will specify which provisions, if any, of the revised draft Permit have been changed in the final decision and the reasons for the changes; and briefly describe and respond to all public comments raised during the public comment period. All persons presenting written comments or who requested notification in writing will be notified of the decision by mail. These responses will also be posted on the Department's website.

After consideration of all the written public comments received, the Secretary of the New Mexico Environment Department may issue a final permit. The Secretary will make the final decision publicly available and shall notify the Permittees by certified mail. All persons submitting written public comment, who filed an Entry of Appearance, or requested notification in writing, shall be notified of the decision by first class regular mail. The Secretary's decision shall constitute a final agency decision and may be appealed as provided by the HWA (Chapter 74, Article 4 NMSA 1978).

ARRANGEMENTS FOR PERSONS WITH DISABILITIES

Persons having a disability and requiring assistance or auxiliary aid to participate in this process should contact Judy Bentley at the New Mexico Environment Department, Human Resources Bureau, P.O. Box 5469, 1190 St. Francis Drive, Santa Fe, New Mexico, 87502, telephone number: (505) 827-9872. TDY users please access her number via the New Mexico Relay Network at 1-800-659-8331.

REGULATORY BACKGROUND

In 1976 RCRA was passed by the U.S. Congress to regulate "cradle to grave" management of hazardous waste. RCRA was enacted as an amendment to the Solid Waste Disposal Act of 1965. RCRA mandates the development of regulations governing the actions of owners or operators of facilities that generate, transport, treat, store, or dispose of solid wastes.

On November 19, 1980, the RCRA regulations became effective, and it became unlawful to treat, store, or dispose of hazardous waste without having, or having applied for, a permit. For existing treatment, storage, or disposal facilities (TSDFs), the requirement to submit an application is satisfied by submitting the "Part A" portion of the application; the "Part B" portion may be submitted at a later time. The roles of these Parts are clarified in 40 CFR § 270.10.

The United States 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 HWA, which: (1) authorizes the State's 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 are known as the Hazardous Waste Management Regulations (HWMR).

Thus, the EIB has adopted regulations concerning hazardous waste management and the issuance of hazardous waste permits. These regulations incorporate by reference pertinent sections of the Code of Federal Regulations (CFR) – 40 CFR Parts 260 through 270, 273, and 280 – and are codified in the HWMR, 20.4.1 NMAC.

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 TSDF in existence on or before November 19, 1980 is eligible for "interim status" (IS). Interim status authorizes an existing facility to operate, subject to the interim status standards set forth in 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 of 1980, and some of LANL's hazardous waste management units still retain that status.

Under the HWMR, if a permit application is withdrawn as to a given unit, the unit loses interim status and is required to close. Certain LANL units lost interim status when LANL withdrew its application for them, and they were required to close. Further, on November 8, 1985, RCRA mandated the termination of interim status for land disposal units that had been granted interim status before November 8, 1984, unless the owner/operator had submitted a Part B portion of an application and had submitted certification of compliance with the groundwater monitoring and financial responsibility requirements.

The HWA and HWMR require corrective action for all releases of hazardous waste or hazardous constituents, regardless of when waste was placed in such a unit, from any solid waste management unit (SMWU) at a facility seeking a permit. (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 beyond the facility boundary (42 U.S.C. § 6924(v); 20.4.1.500 NMAC, incorporating 40 CFR § 264.101(c)).

On January 26, 1983, RCRA subjected "units" managing and disposing of hazardous waste to the closure and post-closure standards of 40 CFR Part 264, Subpart G and Part 265, Subpart G and required a post-closure care permit in some circumstances.

On January 25, 1985, the State received from EPA authorization to implement its hazardous waste program under the HWA. 50 Fed. Reg. 1515 (Jan. 11, 1985). Subsequent program revisions were approved effective on April 10, 1990, July 25, 1990, December 4, 1992, August 23, 1994, December 21, 1994, July 10, 1995, January 2, 1996, March 10, 1997, July 13, 1998, October 9, 2001, and October 16, 2007.

On July 25, 1990, the State received from EPA authorization to expand its hazardous waste program under the HWA, including the authority to regulate the hazardous component of mixed waste. 55 Fed. Reg. 28397 (July 11, 1990).

On January 2, 1996, the State received from EPA authorization to implement the corrective action program under the HWA. See 60 Fed. Reg. 53708 (Oct. 17, 1995); 61 Fed. Reg. 2450 (Jan. 26, 1996).

Application Requirements

Owners or operators of hazardous waste management facilities (including interim status facilities) are required to submit a comprehensive permit application covering all aspects of design, operation, maintenance, and closure of their facilities. The Permit 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 layout diagram, and the activities requiring a permit. Part B is an extensive document submitted in a narrative, tabular, and schematic format that includes general information requirements for all hazardous waste management facilities, as well as unit-specific information. The Part B also provides information necessary to establish corrective action requirements for releases from SWMUs and Areas of Concern (AOCs).

LANL PERMIT HISTORY

On August 13, 1980, the Applicants submitted to EPA a “Notification of Hazardous Waste Activity” for the Facility pursuant to RCRA. On November 19, 1980 the Applicants submitted to the EPA a Part A RCRA Permit Application for the Facility. 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, the predecessor to the Department. The Application covered hazardous waste treatment, storage, and disposal activities at TA-54 and included approximately 130 hazardous waste streams. The Applicants have revised the Part A Permit Application several times since it was first submitted, including, among other things, to notify the Department that LANL would not seek a permit for hazardous waste disposal activities. The most recent Part A Application was submitted on June 30, 2009.

On November 8, 1989, the Department’s predecessor agency issued a Hazardous Waste Facility Permit (Permit) to DOE and its co-operator, then the University of California, to operate a hazardous waste treatment and storage facility at the Facility pursuant to Section 74-4-4.2 of the HWA. The Permit covered hazardous waste container storage areas at 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 with the Department approval.

The 1989 Permit, which was due to expire in November 1999, was administratively extended pursuant to 20.4.1.900 NMAC (incorporating 40 CFR § 270.51) because the Permittees submitted a Part B Permit Renewal Application in August 1996. The 1989 permit in modified form remains in effect.

The Consent Order arose as follows: On May 2, 2002, pursuant to Sections 74-4-10.1 and 74-4-13 of the HWA, the Department issued a Determination of an Imminent and Substantial Endangerment to Health and the Environment and a Draft Order proposing a series of investigation and corrective action tasks to DOE and the University of California. On November 26, 2002, the Department issued a Final Order and revised Determination containing a set of investigation, monitoring, and corrective action tasks and a schedule for implementation of those tasks. The parties engaged in settlement negotiations from December 2002 through March 2005 to resolve the lawsuits filed by DOE and the University of California concerning the Order and Determination. A result of those negotiations is the final Consent Order governing corrective action under RCRA and HSWA, signed by the parties on March 1, 2005.

On June 1, 2006 LANS replaced the University of California as co-operator of the Facility.

Part A Permit Application

On June 30, 2009, the Applicants submitted to the Department the most recent version of its Part A Permit Renewal Application, Revision 5.0. This version of the Part A Application is the Department's basis for the list of hazardous waste management units to be permitted at the Facility, the waste management processes the Applicants propose to utilize at those units, and the specific EPA Hazardous Waste Numbers (*i.e.*, waste codes) applied to waste to be managed at those units.

Part B Permit Application

In August 2003, the Applicants submitted their most recent version of their General Part B Permit Renewal Application, Revision 2.0. This General Part B Application addresses the requirements that apply to hazardous and mixed waste treatment and storage facility operations at the Facility and contains a description of the Facility and its various operating plans (*i.e.*, waste analysis, inspection, personnel training, contingency, closure, and post-closure). The Permittees also submitted Part B permit applications for TA-specific hazardous waste management activities.

In August 2007 the Department issued a draft Permit, based upon the then extant Part A and Part B Applications, for public comment. During a 90-day comment period the Department received extensive comments from LANL, the U.S. EPA, and twelve other interested parties including the Santa Clara and San Ildefonso Pueblos. Several of the commenters requested an extension of the public comment period, and a public hearing on the draft Permit. The comment period was extended through February 1, 2008. Additionally, under the Department's rules, when a draft permit is issued and a timely written notice of opposition to the permit and a request for a public hearing are received, the Department, along with the applicant, is required to respond to the request in an attempt to resolve the issues giving rise to the opposition. If the issues are resolved, the opponent may withdraw the request for a hearing. (20.4.1.901.A.4 NMAC).

The Department on July 15, 2008 issued an invitation to persons who commented on the draft Permit and requested a hearing to meet and confer with the Department and the Permittees in an attempt to resolve the issues. The Department convened over 35 meetings with the participants, beginning in August 2008 and concluding in June 2009. The Department managed the

discussions in an effort to hear all bases for opposition and to elicit possible grounds of agreement. Based on the discussions, the Department has developed the revised draft Permit.

Further, as a result of discussions the participants have entered into a Stipulation on Permit Language, dated June 26, 2009. A copy of the revised draft Permit is attached to the Stipulation. The Stipulation constitutes a partial agreement concerning the terms of the revised draft Permit, with stated exceptions. The Stipulation states that the Permittees (as Applicants) and the signatory Interested Parties agree to the terms of the revised draft Permit, agree that they will not request a public hearing on the revised draft Permit, and agree not to appeal the revised draft Permit, if approved and issued in the same substantive form. The exceptions to this agreement are set forth separately as to the Applicants and each signatory Interested Party. As to the matters excepted, the excepting party is free to take any action, such as to demand a hearing or to seek judicial review, to contest or challenge the excepted terms. The parties to the Stipulation agree not to request an extension to the public comment period for the revised draft Permit. This Stipulation does not address the Fact Sheet.

The August 2007 draft Permit is now withdrawn, and the comments and requests for hearing received by the Department on that draft Permit are therefore now moot. The Department has revised the draft Permit (herein referred to as the “revised draft Permit”), and is now issuing it for public comment. Any member of the public may comment and request a hearing on the revised draft Permit, regardless of whether he or she did so on the draft Permit previously.

The Applications, correspondence between the Department and the Permittees, additional materials submitted by the Permittees, and relevant materials reviewed by the Department together comprise the Administrative Record (“AR”). The AR is the basis for the Department’s action on the Application. The AR is available for review by members of the public during business hours at the offices of the New Mexico Environment Department - Hazardous Waste Bureau, 2905 Rodeo Park Drive East, Building 1, Santa Fe, NM 87505.

TYPES OF HAZARDOUS WASTES MANAGED AT THE FACILITY

The criteria for establishing a waste as a hazardous waste are provided in 40 CFR Part 261, incorporated in 20.4.1.200 NMAC. A waste is considered hazardous if it meets the definition of a solid waste described in 40 CFR § 261.2; is not exempted by 40 CFR § 261.4; and exhibits any of the characteristics of hazardous waste identified in 40 CFR Part 261, Subpart C; or is listed in 40 CFR Part 261, Subpart D.

Hazardous waste types, or “streams,” may be of uniform physical composition (*i.e.*, homogeneous) or of dissimilar or diverse composition (*i.e.*, heterogeneous). Homogeneous waste contains only one material, substance, or waste, and when a sample of the waste is collected, it represents the entire waste stream. Homogeneous waste streams can be either solids or liquids. Heterogeneous waste contains multiple components that differ in density, specific gravity, or other physical properties, are located in different places within the waste, or are discrete and different articles. Heterogeneous wastes (*e.g.*, debris) do not lend themselves to representative sampling and analysis.

EPA hazardous wastes codes with the prefixes, "U", "F", P, "K", and "D", identified at 20.4.1.200 NMAC (incorporating 40 CFR Part 261, Subparts C and D), apply to hazardous waste streams managed at LANL. Specifically: (1) D codes denote the characteristics of ignitability (D001), corrosivity (D002), reactivity (D003), and toxicity (D004- D043); (2) F codes signify wastes from non-specific sources; (3) K codes signify wastes from specific sources; and (4) P and U codes denote discarded commercial chemical products, off-specification species, container residues, and spill residues thereof, with the P codes signifying acutely hazardous wastes and the U codes signifying toxic wastes.

UNITS TO BE PERMITTED

The revised draft Permit would authorize the following waste management by the Permittees (note – waste quantities specified in gallons denote volumes, not necessarily liquid wastes):

- 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 (18,500 total gallons);
 - TA-50, Building 69, Indoor (Rooms 102 and 103) & Outdoor Pad (31,500 total gallons);
 - TA-54, Area G, Pads 1, 3, 5, 6, 9, 10, and 11; Storage Shed 8; and Building 33 (3,664,150 total gallons);
 - TA-54, Area L within the fenced line (408,480 total gallons);
 - TA-54 West, Indoor (the High Bay and Low Bay) and Outdoor Pad (11,660 total gallons); and
 - TA-55, Building 4, Rooms B05, B40, B45, and K13, Vault, Building 185, and Outdoor Pad (178,500 total gallons).
- To store and otherwise safely manage specific hazardous wastes in tanks in the following unit:
 - TA-55, Building 4 (137 total gallons);
- To treat by stabilization and otherwise safely manage specific hazardous wastes at the following unit:
 - TA-55, Building 4 (150 total gallons);
- To treat by open burning and otherwise safely manage high explosive hazardous wastes at the following units:
 - TA-16, Structure 388 (Flash Pad);

TA-16, Structure 399 (Burn Tray);

- To close the following hazardous waste disposal units:

TA-54 Area G;

TA-54 Area H; and

TA-54 Area L

See the discussion below of limitations on open burning at TA-16.

PERMIT ORGANIZATION

The revised draft Permit is comprised of Parts (1-11) and Attachments (A-N). The Parts contain terms that the Department would require the Permittees to adhere to while treating and storing hazardous and mixed waste, closing units (including formerly used disposal units), and conducting certain corrective actions at the Facility.

Permit terms are established to ensure compliance with New Mexico's HWA and HWMRs and are derived from applicable regulatory requirements, the Permittees' commitments, or requirements established by the Department to ensure adherence with the regulations or to protect human health or the environment as provided at 20.4.1.900 NMAC, incorporating by reference 40 CFR § 270.32(b)(2).

This Fact Sheet and the revised draft Permit generally refer to regulations by citing the federal hazardous waste management regulations, 40 CFR Parts 260 through 273, rather than the New Mexico Hazardous Waste Management Regulations, 20.4.1 NMAC, which incorporate by reference the federal regulations, with certain exceptions. Where relevant, the New Mexico HWMRs are cited directly.

Parts: Each revised draft Permit Part is briefly described below.

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

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

Part 3: *Storage in Containers* contains permit conditions the Permittees must follow when storing hazardous waste in container storage areas at the Facility. It addresses the requirements for managing hazardous waste in containers in accordance with 40 CFR Part 264, Subpart I.

Part 4: *Storage and Treatment in Tanks* contains permit conditions the Permittees must follow when storing hazardous waste in tank units and in treating hazardous waste in tanks in TA-55. It addresses tank waste management in accordance with 40 CFR Part 264, Subparts J and X.

Part 6: *Treatment by Open Burning* contains permit conditions the Permittees must follow for treatment by open burning of reactive and ignitable hazardous waste. It addresses operational requirements specific to open burn units in accordance with 40 CFR Part 264, Subpart X.

Part 7 (reserved) - The Department anticipates that this Part will address open detonation units, should any be permitted in the future.

Part 8 (reserved) - The Department is holding this Part in reserve to address any permit modification requests to incorporate a new and different hazardous waste process, and so that all processes may be grouped together in the Permit.

Part 9: *Closure* contains permit conditions the Permittees must follow for closure of hazardous waste management units. Three subsurface waste disposal areas, MDAs G, H, and L, will undergo a process of combined corrective action and closure, to be completed by 2015. Several surface container storage units overlie these MDAs and must also close to enable closure of the MDAs. Consequently, closure of these surface units will occur in the near future. All permitted units are required to have an approved closure plan.

Part 10: *Post-Closure Care* contains permit conditions the Permittees must follow for post-closure care of surface impoundments, landfills, miscellaneous units, and any other unit at which it is not possible to accomplish “clean closure” by removal of all waste, hazardous constituents, and waste residues.

Part 11: *Corrective Action* contains corrective action requirements for the hazardous waste management units that are the subject of the revised draft Permit. These permit conditions ensure that the Permittees appropriately address releases of hazardous waste and hazardous constituents to the environment. Permit Part 11 also addresses requirements for groundwater monitoring, especially at the disposal areas MDAs G, H, and L. These requirements include the processes for implementing corrective action, cleanup levels, general methods and procedures for conducting field activities, laboratory procedures, general procedures for conducting risk assessments and determining background levels, general requirements for drilling and well installation, and requirements for reporting on corrective action activities conducted under this Permit.

Attachments:

Attachment A contains TA-specific unit descriptions. The Permittees supplied descriptions of each permitted hazardous waste management unit in their permit applications, including their dimensions, materials of construction, security procedures, and emergency equipment. The Department assembled the material into a single document, eliminating discussion of matters not important to health and safety in management of hazardous wastes.

Attachment B identifies the U.S. EPA Hazardous Waste Numbers (waste codes) authorized to be managed at each permitted hazardous waste management unit.

Attachment C, the Waste Analysis Plan, fulfills the requirement contained in 40 CFR § 264.13(c) for a “written waste analysis plan which describes the procedures which [the Permittees] will carry out to comply with paragraph (a) of this section.” Paragraph (a) states that “[b]efore an owner or operator treats, stores, or disposes of any hazardous wastes ... he must obtain a detailed chemical and physical analysis of a representative sample of the wastes. At a minimum, the analysis must contain all the information which must be known to treat, store, or dispose of the waste in accordance with this part and part 268 of this chapter.” Other language authorizes use of various published data and requires that the analysis be repeated as necessary to ensure that it is accurate and up to date.

The Permittees submitted a Waste Analysis Plan with their application. The waste analysis plan under 40 CFR § 264.13(c) must specify:

1. parameters for which waste will be analyzed and the rationale,
2. test methods,
3. sampling methods,
4. frequency with which the initial analysis will be reviewed or repeated.

The Department is satisfied that the final version incorporated as Attachment C meets the requirements of 40 CFR § 264.13. The Department reviewed the Permittees’ submittal and made several changes:

1. The Department restated the procedures in mandatory terms to ensure that the terms of the Waste Analysis Plan are enforceable Permit requirements.
2. The Department replaced the Permittees’ description of characterization of mixed transuranic waste, which described the process of characterizing waste for shipment to WIPP, with a description of the Permittees’ “pre-screening” process, obtained from Permittees, which describes the characterization process that the Permittees apply as the basis for waste storage. The Department takes the view that the waste analysis plan must describe the process undertaken *before* an owner or operator treats, stores, or disposes of waste. The separate discussion on “non-WIPP” mixed transuranic waste was deleted.
3. The Department deleted provisions about characterization of waste for open detonation, which is not authorized by the draft Permit.

4. The Department edited the plan to change most references to “waste streams” to refer to types of waste streams, since the definition of “waste stream” in the Permit is more specific than that assumed in the Permittees’ draft.
5. The Department added requirements for minimum high explosive (HE) content to HE characterization, and changed some characterization requirements for HE waste.
6. The Department edited the plan to remove unneeded descriptions and conclusions, and to enable the reader to see the basic requirements of the waste analysis plan.

Attachment D, the Contingency Plan, is required by 40 CFR §§ 264.51 and 264.52. Under 40 CFR § 264.52, the contingency plan must describe 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. The plan must describe arrangements with local first responders, list all qualified emergency coordinators, list all emergency equipment, and include an evacuation plan. (40 CFR § 264.52)

The Permittees submitted a contingency plan with their application. The Department reviewed and edited that plan and is satisfied that it meets the requirements of 40 CFR §§ 264.51 and 264.52. The Department made the following changes:

1. The Department restated some of the procedures in mandatory terms to ensure that many of the terms of the Contingency Plan are enforceable Permit requirements.
2. The Department edited the plan to remove language that repeats the content of revised draft Permit terms, to prevent unnecessary conflicts.
3. The Department made editorial changes for clarity and brevity.

Attachment E, the Inspection Plan, responds to the regulatory requirement that the “owner or operator must develop and follow a written schedule for inspecting monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.” 40 CFR § 264.15(b)(1). See also 40 CFR § 270.14(b)(5).

The Permittees submitted an inspection plan with their application. The Department has reviewed and edited that plan. The final plan meets the requirements of 40 CFR §§ 264.15(b)(1) and 270.14(b)(5). Changes made by the Department are as follows:

1. The Department restated the procedures in mandatory terms to ensure that the terms of the Inspection Plan are enforceable Permit requirements.
2. Deletion of a provision that the Inspection Record Form may be modified by the Permittees. The form may only be changed through a permit modification.
3. Addition of requirements for inspection pursuant to 40 CFR Part 264, Subparts BB and CC for air emission controls.

Attachment F, the Personnel Training Plan, is required to meet the terms of 40 CFR § 264.16(d)(3), which calls for a “written description of the type and amount of both introductory and continuing training that will be given to each person filling a position” related to hazardous

waste management. The Permittees submitted a training plan with their application. The Department has edited that plan and is satisfied that the final plan meets the terms of 40 CFR § 264.16. Changes made by the Department are as follows:

1. The Department restated the procedures in mandatory terms to ensure that the terms of the Training Plan are enforceable Permit requirements.
2. The Department added a requirement that various emergency response personnel be trained in their respective specialties.
3. The Department added a requirement that personnel involved in waste characterization documentation be trained in that specialty.
4. The Department added requirements that personnel operating radiography equipment or conducting visual examination to characterize waste receive formal and on-the-job training and that radiography operators requalify every two years.
5. The Department edited the text for clarity and brevity.

Attachment G contains the closure plans for the permitted hazardous waste storage and treatment units. Closure plans are required at 40 CFR § 270.14(b)(13) to be included in a Part B permit application and must address the closure performance standards at § 264.111, the specific contents at § 264.112(b), the schedule at § 264.113, the container specific requirements at § 264.178, and the tank system specific requirements at § 264.197. The Department has edited the closure plans and is satisfied that they meet the terms of the regulations.

The Department is utilizing the 40 CFR § 264.110(c) provision to address the closure requirements for MDAs G, H and L by replacing the Part 264 requirements with alternative requirements under the Consent Order.

Attachment H is reserved for post-closure care plans. At the time the revised draft Permit becomes effective there will be no units in post-closure care and none required to undergo post-closure care. Therefore there are no post-closure care plans in the Attachment. Should the Department determine that hazardous wastes may remain in place after a hazardous waste management unit completes closure, the Department will require the Permittees to submit a permit modification request to operate under post-closure care. That request will contain the information specified at 40 CFR §§ 270.28 and 264.117 through 120.

Attachment I is the Compliance Schedule. This Attachment is a compilation of all Permit-required submittals, including those required once and those required on a periodic basis. This Attachment is organized chronologically in order with the submittal schedule. The Department includes the Compliance Schedule to improve the enforceability of the Permit. (*See* 40 CFR § 270.33).

Attachment J lists the hazardous waste management units at the Facility. The Attachment includes three tables: 1) Table J-1 shows the active portion of the Facility, listing active units including those treating and storing wastes, those in closure, and those in interim status; 2) Table J-2 shows permitted units in post-closure care, listing units that are not active, have completed closure, and are in post-closure care; 3) Table J-3 shows the closed portion of the Facility, listing unit that are not active, have completed closure, and are not in post-closure care because their

clean closure certification has been approved by the Department. The Department includes interim status units in Table J-1 and units that are considered to be clean closed in Table J-3 only so that the Permit may identify all hazardous waste management units that have existed or continue to exist at the Facility. The revised draft Permit places no requirements on the interim status units or the units that are clean closed.

The Permittees are required to initiate a permit modification to alter Table J-1 in association with the Permit Section 9.4.1 closure requirement to notify the Department that they expect to begin closure of a permitted hazardous waste management unit. This modification would alter the Table's General Information column to include the statement "unit has received the known final volume of hazardous wastes and closure has begun." This modification shall be considered a Class 1 modification.

The Permittees are required to propose a permit modification to alter Tables J-1 and J-3 in association with the Permit Section 9.5 requirement to submit to the Department a certification that a hazardous waste management unit has been closed in compliance with the appropriate closure plan. This modification would move the reference to the applicable unit from Table J-1 (Active Portion of the Facility) to Table J-3 (Closed Units not in Post-Closure Care). This modification shall be considered a Class 1 modification. It is not necessary to require an additional modification for units transitioning from being active to post-closure care because Permit Section 10.1 already requires a permit modification.

Attachment K comprises three lists of SWMUs and AOCs: (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 is a list of off-site facilities that may return treatment derived waste or waste residuals to LANL or are otherwise eligible to send waste to LANL.

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

Attachment N contains the figures referenced elsewhere in the Permit.

Attachment O is reserved for long-term maintenance and monitoring plans for SWMUs and AOCs with controls in place after corrective action is complete.

BACKGROUND INFORMATION ON SIGNIFICANT ISSUES:

GROUNDWATER

In the Los Alamos area, groundwater generally occurs in three modes:

1. water in shallow alluvium and underlying tuff in some of the larger canyons;
2. intermediate perched zone groundwater (a perched groundwater body above a less permeable layer and separated from the underlying aquifer by an unsaturated zone); and
3. the regional aquifer of the Los Alamos area.

Alluvial Groundwater Occurrence

Infiltration of surface water from effluent discharges, spring discharge, or stormwater runoff maintains shallow groundwater in the alluvium of some canyons. Alluvial groundwater is unconfined and is perched primarily on underlying Bandelier Tuff, Cerros del Rio basalts, or Puye Formation. In wet canyon bottoms, infiltration of surface water maintains shallow groundwater in the alluvium. Wet canyons generally have large surface water flow, head in the Jemez Mountains, or receive effluent discharges. Groundwater levels are typically highest in the late spring due to snowmelt runoff and in mid-to-late summer due to thunderstorms. Groundwater levels and extent of saturation decrease during the winter and early summer when runoff is at a minimum. Dry canyons have little surface water flow. In these canyons, groundwater may occur seasonally in the alluvium. Dry canyons are generally those that head in the eastern portion of the Pajarito Plateau.

Intermediate perched zones occur beneath major canyons, particularly in wet canyons that receive effluent discharges, have large surface water flow, or head in the Jemez Mountains. These intermediate perched zones occur primarily in the Guaje Pumice Bed at the base of the Bandelier Tuff, the underlying Cerros del Rio basalts, and the Puye Formation. The location of intermediate perched zones is determined by presence of sufficient recharge, permeability variations of the rocks (reflecting lithologic variations), and geologic structure. Intermediate perched zones may be confined or unconfined. Intermediate perched zones beneath canyons do not generally extend laterally beneath the mesas. The regional aquifer of the Los Alamos area is the only aquifer known to be capable of providing the Los Alamos County community's and the Facility's water supply (Purtymun 1984). The surface of the regional aquifer rises westward from the Rio Grande primarily within the Santa Fe Group into the lower part of the Puye Formation beneath the central and western parts of the Pajarito Plateau. The depth to the regional aquifer below the mesa tops (and adjacent canyons) ranges from about 600 ft at the eastern margin of the plateau (or near the surface at the Rio Grande) to about 1,200 ft along the western margin (or 900 ft below the deepest canyons). According to Purtymun (1984), the regional aquifer exhibits artesian conditions in the eastern part along the Rio Grande. Throughout the plateau, continuously recorded water level measurements collected in test wells since the Fall of 1992 indicate that the regional aquifer responds to barometric and earth tide effects in a manner typical of confined aquifers.

BASIS FOR DRAFT PERMIT CONDITIONS

The Permittees are required to apply for and obtain a permit from the Department to manage hazardous waste at a TSDF pursuant to the HWA, RCRA, and their implementing regulations. The Department's issuance of the revised draft Permit is in response to the Permittees' Permit Renewal Application. The revised draft Permit addresses hazardous waste management at treatment and storage units. The Permittees do not seek, and the Department is not issuing, a permit for disposal of hazardous waste. However, the revised draft Permit does address the closure and possible post-closure care of hazardous waste disposal units located at TA-54 MDAs G, H, and L. The revised draft Permit also addresses how the Permittees will conduct corrective action activities for certain SWMUs and AOCs, and conduct groundwater monitoring. The

revised draft Permit also addresses how corrective actions under the March 1, 2005 Compliance Order on Consent integrate with closure and corrective action under the revised draft Permit.

GENERAL CONDITIONS

Important general issues concerning the revised draft Permit are as follows:

Relation of Permit to Consent Order: Corrective action to clean up releases of hazardous wastes at LANL has proceeded since March 1, 2005 under an agreed-upon Consent Order that addresses hazardous and mixed waste contamination throughout the LANL Facility. The revised draft Permit does not change any part of the Consent Order.

The revised draft Permit regulates hazardous waste storage and treatment at 26 specific permitted hazardous waste management units. Further, the revised draft Permit regulates corrective action in four instances that are expressly excluded from application of 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) corrective action to address releases occurring or discovered after the Consent Order terminates. (*See* Consent Order III.W.1). The four items that are covered by the revised draft Permit are listed in Permit Section 11.2. All other corrective action is covered by the Consent Order and not by any RCRA Permit, until such time as the Consent Order is terminated.

Exception #2, closure of hazardous waste management units, is the most important exception in the present circumstances. The Consent Order requires the completion of corrective action at numerous SWMUs by deadlines occurring in 2009-15. Such corrective action involves, among other units, MDAs G, H, and L, disposal units which are to undergo closure under the revised draft Permit. The corrective action at these units under the Consent Order will require the closure of the disposal units and of any hazardous waste management units co-located with (*i.e.*, overlying) the units. The closure regulations allow a closure plan to be replaced by an “enforceable document” (40 CFR § 264.110(c)), which may be the Consent Order or a document submitted pursuant to that Order. This is the structure contemplated by the revised draft Permit. In such situation, closure is still to be executed under the authority of the Permit; which makes reference to the “enforceable document.” “Enforceable document” is defined at 40 CFR § 270.1(c)(7).

Since MDAs G, H, and L are “regulated units” under 40 CFR § 264.90, they must satisfy 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). Such a groundwater monitoring program includes means to detect, characterize, and respond to releases from the unit that threaten groundwater. Specifically, Subpart F states that the program must: (1) call for compliance monitoring whereby hazardous constituents are detected as shown by statistically significant evidence of contamination, (2) call for corrective action when the

groundwater protection standard is exceeded as shown by statistically significant evidence of increased contamination, and (3) require a detection monitoring program. Monitoring must meet the standards of 40 CFR § 264.97, which calls for a system of wells that yield representative samples of background and affected water and detect migration from the regulated unit. Statistical methods to evaluate monitoring data are required. (40 CFR § 264.97(g)-(i)). Further, if statistically significant evidence of contamination is present, Subpart F states that the owner/operator must notify the regulator, sample all monitoring wells, resample where contamination was detected, propose a compliance monitoring program, and submit a feasibility plan for a corrective action program. (40 CFR § 264.98(g)) Subpart F states that, if sampling indicates that concentration limits are exceeded, the owner/operator must notify the regulator, apply for a permit modification to establish a corrective action program, and submit a plan for groundwater monitoring (which may be based on compliance monitoring) that will demonstrate the effectiveness of the corrective action. (40 CFR § 264.99(h)) The objective of corrective action is to bring regulated units into compliance with the groundwater protection standard, which is specified in the permit. (40 CFR § 264.100) Corrective action is carried out by removing the hazardous constituents or treating them in place. (40 CFR § 264.100(b))

In response to these Subpart F regulations, Part 11 of the revised draft Permit directs the Permittees to “conduct groundwater monitoring for each regulated unit” (11.3.1) to enable early detection of contaminants and to notify the Department of “any new detections,” as described in 11.3.1.1. Prompt notice is to 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 of 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, under Permit Section 11.3.1.2, detection of a concentration exceeding the cleanup levels in Section 11.4.1 requires the Permittees to give notice to the Department and to take “all steps necessary to contain or otherwise mitigate the release.” (PS 11.3.1.2)

The Department has concluded, particularly in light of its familiarity with the geology and hydrology of the Facility, that responses to monitoring data here may be specified as (a) reporting of detection of hazardous constituents not previously found, or not found in such concentrations, and (b) corrective action when a hazardous constituent is detected in excess of the cleanup level. Thus, the revised draft Permit skips the intermediate stage of compliance

monitoring and calls for corrective action in response to any exceedance. This permit structure moves more quickly to corrective action for regulated units than the Subpart F regulations might require and, therefore, is similar in concept to the system required by Subpart F but clearly more protective.

The cleanup levels set forth in the revised draft Permit follow the Department's general standard of human health target risk level of 10^{-5} for carcinogens and a Hazard Index of 1.0 for non-carcinogens. Similar standards are contained in the Consent Order. (Consent Order § VIII). In case of impracticability of achieving these standards, alternative cleanup levels may be used based on a site specific risk assessment and Department approval. (PS 11.6.2). The Consent Order has a similar provision. (Consent Order § VIII.E).

The revised draft Permit calls for an independent monitoring program for the MDAs. (PS 11.3.1). The Consent Order requires an Interim Facility-Wide Groundwater Monitoring Plan (Consent Order § IV.A.3.b), to be followed by long-term monitoring plans for each watershed. (*id.*) The revised draft Permit states, further, that monitoring under the Permit shall be coordinated with monitoring under the Consent Order. (PS 11.3.1). Monitoring of the MDAs under the revised draft Permit is directly related to the permit-based administration of closure of MDA G, H, and L — a function excluded from the Consent Order.

The Department requires the Permittees to adhere to the schedule included in the Consent Order unless an extension of time is granted for submittal of a corrective action document as provided for in Consent Order §§ III.H and III.J. The Permittees are subject to enforcement action under Consent Order §§ III.G and III.U if the Permittees do not comply with the Consent Order schedule. Such enforcement action may include requirements to complete additional investigation, monitoring and remediation to mitigate deficiencies with work already completed.

Permit Section 11.2 states “[t]he Permittees shall coordinate all corrective action conducted under this Permit with corrective action conducted under the Consent Order. Corrective action for releases from operating units that commingle with releases originating from other sources shall be conducted under the Consent Order.” The revised draft Permit directs that the Corrective Measures Evaluation report and the Corrective Measures Implementation Plan (see Consent Order § VII.E) satisfy the requirements of a Closure Plan for regulated units MDAs G, H and L. Public participation is required by the Consent Order upon remedy selection (see Consent Order § VII.D.7).

Permit Section 11 closely follows §§ VII, VIII, IX, X, XI of the Consent Order. In addition, portions of the Consent Order § III related to document submittals are also included in Permit Sections 1 and 11.

The third category of circumstances where the revised draft Permit regulates corrective action to the exclusion of the Consent Order is the implementation of controls for any SWMUs or AOCs that have been listed as having corrective action complete with controls. The Department will include such SWMUs and AOCs in Attachment K (*Listing of SWMUs and AOCs*), Table K-2 (*SWMUs and AOCs – Corrective Action Complete with Controls*). The specific controls associated with the sites will be specified in the documents associated with the completion of the corrective action and in the Permit and at Table K-2. These sites will undergo a Class 3 permit

modification to move them from Table K-1 (*SWMUs and AOCs Requiring Corrective Action*) to Table K-2 in accordance with Consent Order § III.W.3.b. Permit Section 11.7.1 requires a long-term maintenance and monitoring plan for sites where corrective action is complete with controls and states that such plans will be maintained at Permit Attachment O.

Closure of Material Disposal Areas G, H, and L: the “regulated units.”

By issuing a revised draft Permit to allow the MDAs to carry out closure and, if necessary, post-closure care, the Department has recognized that the closure obligation extends to the entirety of these TA-54 landfills. The regulatory history shows the basis for this requirement.

The Permittees’ predecessors (hereinafter, Permittees) filed their Part A application on Nov. 19, 1980 with EPA Region VI. LANL included maps of the entire laboratory, with TA-54 marked in red. The maps showed both existing and planned pits and shafts at Area G and Area L. Area H is located in the western part of TA-54. The Permittees stated:

“It is our interpretation that disposal may occur anywhere at TA-54 and still be part of an existing disposal facility.” (DOE letter, Nov. 19, 1980).

The Department’s predecessor (the Environmental Improvement Division or EID) on June 22, 1984 requested, inter alia, a written closure plan and post-closure plan, stating that the 100 acre area has interim status:

“Only the original 100 acres of land disposal has interim status; the balance does not and may not be used for land disposal without a permit. The EID requires a revised Part A reflecting this original 100 acres, and an accurate map showing the boundary of this original 100 acre plot or plots, as well as showing the existing fence lines of Areas G and L.”

The Permittees responded on July 26, 1984, stating that “drawings are included with the [Oct. 1983] revised Part A that shows the original 100 surface acres.” The Department met with the Permittees in September 1984 and 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 . . . LANL has had interim status for 100 acres of landfill, including Areas G and L, since 1980. In LANL’s response to EID’s NOV earlier this month, LANL again requested interim status for the same 100 acres of landfill at TA-54.” (NMED memo, Sept. 7, 1984).

In the same comment document the Department emphasized the extent of the interim status closure plans required for TA-54 (see HWMR § 206(c)(2))(HWMR-2, Jan. 5, 1984). Thus, the Department stated that the closure plan 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 regulate hazardous chemical waste as well.”

The Permittees submitted a revised Part A application on April 2, 1985. The Part A lists only storage and treatment capacity—not disposal. The Permittees stated:

“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.”

Thus, the Permittees withdrew their permit request to conduct disposal at Areas G and L at TA-54.

The Department on April 10, 1985 asked for specificity about the location of landfill disposal:

“The RCRA Part A currently on file for your facility identifies a 100 acre landfill (Code D-80) which we understood referred to Tech Area 54 Area G. Please identify specifically the area to which this code is to apply as your revised Part A states on Page 2 that TA-54 Area G will no longer be used.”

The Department also requested closure plans for any disposal areas being closed for hazardous waste:

“If it is your intention to cease use of TA-54 Area G for landfill of hazardous wastes, please submit for approval a closure plan for this area (Section 206.C.2).”

The Permittees confirmed on June 7, 1985 that Area G would be closed:

“Area G is 63 acres and will be closed out for RCRA wastes under interim status; therefore, only 37 acres remain to be permitted. A drawing delineating these 37 acres is attached.” (DOE letter, June 7, 1985).

The Department advised the Permittees on Sept.13, 1985 that the closure and post-closure plans for TA-54 must address partial closure requirements for each landfill cell, including groundwater monitoring requirements and compliance with disposal requirements, citing HWMR-2, § 302.A.4.b.(1)(m). The Permittees on Sept. 27, 1985 submitted new closure and post-closure plans for TA-54, Area G and Area L. The Permittees acknowledged the obligation to close all of Area G. The plan says:

“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.” (at 1-1).

“The facility has only been used for pit and shaft disposal of regulated wastes.” (at 2-1)

“Partial closure has occurred at Area G when pits and shafts were closed as they were filled.” (at 4-1).

Other records, such as the OU-1148 Data Report and the OU-1148 Work Plan, show that the Permittees have at best inadequate records of the nature of disposed materials, that some of the

pit contents are clearly hazardous waste, that other disposal sites are said to contain chemicals of “unknown nature” and that conflicting information exists as to the dates of operation of many disposal sites. Numerous records show that several MDA G pits were in operation in 1980 or later or were closed after that date and should have been operated under RCRA and closed in accordance with an approved closure plan. (See OU-1148 Data Report; OU-1148 Work Plan; August 1987 Part A).

The Department on October 2, 1985 told the Permittees that, based on the April 1, 1985 revised Part A, and submittals dated April 30 and June 7, 1985, the Department approved deletion of TA-54 Area G from the permit and called for a closure plan:

“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.” (NMED letter, Oct. 2, 1985).

On Nov. 22, 1985 the Permittees responded to the Department’s October 2, 1985 letter, concurring that the Department’s approval had included:

“Deletion of Area G as an approved RCRA landfill disposal site.

Area G stopped receiving RCRA waste on May 1, 1985. A closure/post-closure plan was submitted with our response to the NOV.”

The 1985 closure plan was inadequate, and in the intervening years the Department repeatedly sought a closure plan for the entirety of the Material Disposal Areas. (NMED letter, Oct. 30, 1990; NMED letter, Aug. 17, 1992).

In 1980 from six months after the promulgation of regulations identifying or listing hazardous wastes (see 42 U.S.C. § 6925(a); 74-4-4(A)(6) NMSA 1978), it was unlawful to treat, store, or dispose of hazardous waste without having, or having applied for, a RCRA permit. Concerning interim status, RCRA provides as follows:

Any person who:

1. owns or operates a facility required to have a permit under this section in which the facility:
 - i. was in existence on November 19, 1980; or
 - ii. is in existence on the effective date of statutory or regulatory changes under this chapter that render the facility subject to the requirement to have a permit under this section;
2. has complied with the requirements of section 6930(a) of this title; and
3. has made an application for a permit under this section, shall be treated as having been issued such permit until such time as final administrative disposition of such application is made . . . (42 U.S.C. § 6925(e)).

For “existing HWM facilities” the requirement to submit an application is satisfied by submitting Part A, with Part B to be submitted later. Existing HWM facilities are those that were in operation on November 19, 1980 (see 40 CFR §§ 270.1, 270.2, 270.10(e)).

Thus, the Permittees' initial Part A submission sought interim status for all of TA-54, including Areas G, H and L. The Permittees later withdrew their request for interim status for land disposal in any portions of TA-54. Interim status for such areas, previously obtained, therefore terminated. Under RCRA regulations, interim status terminates upon final administrative disposition of a permit application (40 CFR § 270.73(a)). Interim status also terminates upon failure to furnish a requested Part B application on time (40 CFR §§ 270.10(e)(5); 270.73(b)). HWMR then in effect are similar (HWMR §§ 206.C.2.(c)(3), 302.C.4). The Part B application was due on May 1, 1985 (EPA letter, Aug. 7, 1984; NMED letter, Oct. 26, 1984). When submitted, the Part B requested no permit for disposal at Area G, H, or L. Interim status therefore terminated for Areas G, H, and L as disposal sites, based upon LANL's withdrawal of any request for a disposal permit for such areas, effectively amending its Part A to exclude such disposal, and by LANL's failure to follow the submission of a Part A covering such areas with the submission, when due, of a Part B application for disposal at such areas.

In addition, under 40 CFR § 270.73(c), interim status for land disposal facilities which were granted interim status before November 8, 1984 terminated on November 8, 1985, unless the owner/operator submitted a Part B permit application and certified compliance with ground water monitoring before that date. This provision would also call for termination of interim status at Areas G, H and L. The Permittees recognized that interim status at Area L terminated under 40 CFR 270.73(c) on November 8, 1985 (DOE letter, Nov. 25, 1985).

Areas G, H and L, as interim status facilities, were each required to have a closure and post-closure care plan for the entire "facility." (40 CFR §§ 265.110-120)(45 Fed. Reg. 33242-43)(May 19, 1980). No later than 15 days after termination of interim status, the owner or operator was required to submit a closure plan to the Department (HWMR § 206.C.2.(c)(3)(a)). Regulations provided a process for Department approval and, thereafter, execution of the closure plan. (HWMR 206.C.2.(d)(2)). EPA stated that the "current regulations [in 1985] specify that the owner or operator and a professional engineer must certify that the facility (including all partial closures) has been closed in accordance with the closure plan." (50 Fed. Reg. at 11074). Thus, certification must establish that "the entire facility has been closed in accordance with the approved closure plan" (51 Fed. Reg. at 16430).

As stated above, the permit regulates the closure of three waste disposal sites. MDAs G, H, and L are currently undergoing corrective action under the 2005 Consent Order. Closure will be carried out by requiring LANL to submit Corrective Measures Evaluation (CME) Reports that meet, in addition, the closure rules for regulated units, 40 CFR § 264.111(a) and (b). After public review and comment, the Department will select an effective remedy and direct LANL to submit a Corrective Measures Implementation (CMI) Work Plan which must also meet the requirements for a closure plan in 40 CFR § 264.112. After further public input and possible changes, the Department will direct LANL to implement that plan. Further, if the remedy includes leaving waste in place at any unit, LANL will be required to submit a post-closure care plan for that unit.

Facility-wide groundwater monitoring is currently required under the Consent Order in the Interim Facility-wide Groundwater Monitoring Work Plan (IFGMP). The investigations and monitoring conducted under the Consent Order, while not yet complete, will result in compliance

with 40 CFR Part 264, Subpart F. Under the revised draft Permit, if post-closure care is required for MDAs G, H, and L, it is likely to include groundwater monitoring in more than one watershed.

Financial assurance: Regulations under the HWA require the Permittees to provide financial assurance for closure and post-closure care of hazardous waste management units. (40 CFR §§ 264.143, 264.145). One of the Permittees, LANS, is a non-governmental entity to which these regulations apply. This Department has so ruled. 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 43, 69-72 (Sept. 9, 1999), *affirmed by Final Order of the Secretary*, Oct. 27, 1999. Consequently, LANS will be required under the revised draft Permit to submit closure cost estimates for all units and, if a unit is to be closed with waste in place, a post-closure care cost estimate. Upon the Department's approval of these estimates, LANS will be required to submit financial assurance to support the estimated costs.

The financial assurance requirements apply to all hazardous waste management facilities. (See EPA, 47 Fed. Reg. 15032)(April 7, 1982). They are not discretionary. As the WIPP permit Hearing Officer stated, “[t]he regulations require financial assurances whether or not the Hearing Officer deems them necessary.” (at 71).

In any case, there are important grounds upon which to require financial assurance of LANS. There is a real risk that, unless financing is assured, the process of closing the MDAs may be frustrated by funding shortfalls. The Inspector General of DOE has reported that LANL has fallen behind in performing 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). The audit 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 investigated DOE's plans to clean up sites where transuranic waste is buried and reported that DOE's preliminary estimate of the cost to address the buried waste “will likely increase substantially.” GAO, *Nuclear Waste, Plans for Addressing Most Buried Transuranic Wastes Are Not Final, and Preliminary Cost Estimates Will Likely Increase*, GAO-07-761(June 2007), at 5. The DOE Inspector General reported in February 2005 in *Audit Report, Transuranic Waste Management at Los Alamos National Laboratory*, DOE/IG-0673 (Feb. 2005), that DOE was not likely to complete removal of legacy transuranic waste from LANL by the scheduled date of 2010 and projected that the cost of completing the waste disposition could increase by \$70 million (at 1, 2, 4).

There have been numerous reports in the public press about funding shortfalls causing delays and failures in environmental performance at LANL, resulting in further cost increases. See:

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

In May 2009 DOE submitted its FY 2010 budget request to Congress. The total budget for Defense Environmental Cleanup was stated at \$189,000,000—a sharp decrease from \$222,734,000 in FY 2009 (U.S. DOE, FY 2010 Congressional Budget Request, Laboratory Tables, Preliminary, at 46). Clearly, DOE has not demonstrated a continuing commitment to its environmental cleanup obligations at LANL, and financial assurance is necessary to ensure compliance. See the detailed discussion in this fact sheets’ discussion of the bases for specific permit sections at Permit Sections 2.13 and 2.14.

Department regulation of mixed waste: The Department regulates the Permittees under the New Mexico Hazardous Waste Act. That statute regulates “hazardous waste” which, by definition, does not include radioactive materials that are classified as source, special nuclear, or byproduct materials under the Atomic Energy Act. 74-4-3(M) NMSA 1978. These radioactive materials are regulated by DOE. Much of the waste at LANL is “mixed waste” — which contains both materials that are hazardous and regulated under the Hazardous Waste Act and those that are radioactive and regulated under the Atomic Energy Act. Such wastes have a form of dual regulation, that is, the hazardous components are regulated under the Hazardous Waste Act and the radioactive components are regulated under the Atomic Energy Act.

Various court decisions hold that by the Atomic Energy Act Congress has, in general, preempted the field of health and safety concerns with regard to radioactivity, and that state efforts to regulate such aspects are invalid. *See, e.g., Pacific Gas & Electric Co. v. State Energy Resources Conservation & Development Commission*, 461 U.S. 190 (1983).

However, under a RCRA permit, two congressional enactments address the situation — RCRA and AEA — and Congress addressed the interplay between the two. That is, Congress has said that solid waste does not include source, special nuclear, or byproduct materials (42 USC § 6903(27)) and that RCRA shall not apply to activities or substances that are subject to the AEA to the extent that such application is “inconsistent with the requirements of” the AEA (42 USC § 6905(a)). Congress has, simultaneously, waived sovereign immunity with regard to hazardous waste regulation and has directed that hazardous waste permits shall include terms “necessary to protect human health and the environment.” (42 USC § 6925(c)(3); 40 CFR § 270.32(b)(2)).

Thus, EPA and DOE conclude uniformly that a RCRA permit may regulate the hazardous component of radioactive mixed waste. *See*, EPA, Clarification of Interim Status Qualification Requirements for the Hazardous Components of Radioactive Mixed Waste, 53 Fed. Reg. 37045 (Sept. 23, 1988); EPA, State Authorization to Regulate the Hazardous Components of Radioactive Mixed Waste under the Resource Conservation and Recovery Act, 51 Fed. Reg. 24504 (July 3, 1986). DOE expressly supports a reading of the law that “affords the greatest scope to the RCRA regulatory scheme, consistent with the requirements of the AEA.” 52 Fed. Reg. 15937, 15939 (May 1, 1987). DOE has observed that “RCRA was intended to have some applicability to materials that were already regulated under the AEA” and supports “complementary regulation under both statutes of substances that under prior law might have been regulated exclusively by the AEA.” (*id.* 15940 n.9). EPA reviewed NRC regulations to identify inconsistencies between RCRA and AEA-based regulations. “No inconsistencies were identified as a result of this comparison although RCRA was more prescriptive in some instances and differences in stringency were observed. Differing or more stringent requirements do not necessarily constitute inconsistent requirements.” (53 Fed. Reg. at 37048). Only in case of direct conflict with AEA requirements must the RCRA permit cede to the AEA.

Courts have supported the Department’s imposition of conditions as to radionuclide releases when used in support of valid hazardous waste regulation. In *United States v. New Mexico*, 32 F.3d 494 (10th Cir. 1994), the court sustained the Department’s regulation of an incinerator at LANL with permit conditions that required LANL to monitor the exhaust gas and to limit the radionuclide content of that gas. The court sustained the permit conditions on the ground that they “serve to implement the state standard requiring that only permitted hazardous waste is being disposed of under the hazardous waste permit.” 32 F.3d at 498. Here, the Department has limited treatment of wastes by open burning, forbidding the treatment of the hazardous component of mixed radioactive and hazardous wastes. (PS 6.1) As to all stored waste, Permit Section 2.4.1 requires that the Permittees determine whether a waste is a mixed waste. Permit Section 3.6 requires that containers holding mixed wastes be labeled “radioactive.” And Permit Section 4.1 limits the storage and treatment of strictly mixed wastes at TA-55, Room 401.

In addition, the Department has received a letter dated June 10, 2009, from Donald L. Winchell, Jr., DOE, stating that the DOE will, when collecting radionuclide data in connection with closure

or corrective action activities conducted under the Permit, voluntarily provide that data to the Department. The Department accepts the DOE's offer of such assistance and will rely upon and use such data in the administration of the revised draft Permit.

Subpart X Open Burning (OB) Units: Open burning is the burning of any materials that produce air contaminants that are directly emitted into the air without first passing through a stack or chimney from an enclosed chamber. The two OB units at the Facility contemplated by the revised draft Permit (TA-16-388 and TA-16-399) burn off-specification and discarded high explosive wastes, and wastes contaminated with high explosives, in a raised steel pan or tray designed to withstand extremely high temperatures. The purpose of this kind of treatment is to destroy the explosive component of the waste, which is considered hazardous. LANL is prohibited by the Department of Transportation from shipping this type of waste off site due to the potential for the waste to ignite or react. Furthermore, while there are certain requirements LANL must adhere to in order to ensure the protection of human health and the environment, it is authorized by New Mexico statute and regulation to treat these wastes so long as they do so in accordance with a RCRA hazardous waste facility permit.

OB units are considered RCRA miscellaneous units, which are regulated by 40 CFR Part 264, Subpart X. Because there are no federal rules specifically for open burn units (unlike the rules for containers, as an example (*see* 40 CFR Part 264, Subpart G)), these types of units are subject to the federal miscellaneous unit requirements (*see* 40 CFR §§ 264.600- 264.603).

The Department has included a prohibition on treating wastes capable of generating dioxins and furans. This prohibition is based upon the Department's air modeling and subsequent site sampling by the Permittees and an associated screening level risk assessment that identified furan concentrations in excess of Ecological Screening Limits (ESLs). The Department understands that the majority of the high explosives treated at the OB units contain plastics that are capable of generating dioxins and furans. The Department also understands that the prohibition upon the open burning of wastes capable of generating dioxins and furans effectively prohibits the operation of the open burning units.

Department modeling of air emissions indicated that Ecological Screening Levels (ESLs) for certain animal species would be exceeded by the release of furans during open burning. Based on these modeling results, the Permittees collected soil samples at five locations near the OB units to determine the current concentrations of furans. Sampling was conducted, and on June 25, 2009 the Permittees submitted an Ecological Risk Screening Assessment reporting and interpreting the results of the sampling. The sampling results confirm that furans are present in concentrations that would exceed ESLs. Based on this information a conclusive determination as to whether operation of the OB units at TA-16 will result in excess ecological risk cannot be made at the time of permit issuance.

The Department has therefore determined to grant a permit to allow open burning but that restrictions should be imposed regarding dioxins and furans. Open burning may only be conducted based on prior notice to the Department accompanied by a certification that the wastes are not capable of generating dioxins and furans.

The revised draft Permit also states that the Permittees may seek relief from the prohibition on wastes that generate dioxins and furans by requesting a Class 3 permit modification supported by a showing that open burning of such wastes will be conducted in a manner that is protective of human health and the environment. Under the process contained in the revised draft Permit, if the screening level ecological risk assessment indicates unacceptable risk, the Permittees shall conduct a risk assessment. (Permit Section 11.10.5) Such a risk assessment must include a statistically appropriate number of soil samples and may either confirm or refute the screening level assessment's prediction of an unacceptable level of risk to biotic receptors. Such a risk assessment has not been conducted.

Waste to be treated by open burning will have special characterization requirements, certain wastes shall be prohibited, and there are annual and batch limits on waste treated by open burning. Open burning may not be conducted during electrical storms or high winds. The revised draft Permit prescribes detailed operating procedures and time limits for open burning and several operational safety precautions. Further, the Department will require soil monitoring and surface water monitoring to determine the impact of open burning, and will require submission of a study of alternatives to open burning.

Open Burning - Air Modeling: Air modeling of the open burn activities authorized by the revised draft Permit is an assessment of the migration of waste constituents produced by the open burning process and released into the air. The primary objective of the air modeling is to assess adverse effects to human health and the environment.

Title 40 CFR § 264.601(c) requires that the operation of miscellaneous units be protective of air by preventing any release that may have adverse effects on human health or the environment due to the migration of waste constituents. The Department required the Permittees to demonstrate compliance with this regulation by conducting an air modeling analysis of the constituents treated at the OB units [*LANL TA-16 Burn Ground Air Pathway Assessment Report, Revision 0*, August, 2007 (LA-UR-07-5711)]. The Department determined the Permittees' air modeling report for the open burn units to be deficient due to insufficient information (*see July 22, 2008 NMED Notice of Deficiency Technical Review of the September 7, 2007 LANL TA-16 Burn Ground Air Pathway Assessment Report, Revision 0*). Therefore, the Department itself modeled the air emissions from the open burn operations.

The Permittees' and the Department's air models differed most significantly in the algorithms that were utilized; the Permittees used CALPUFF, which employs a point source algorithm, while the Department used OBODM, which uses an area source algorithm. The Department considers the area source algorithm preferable because it better accounts for the difference in density between the heat plume and the ambient air and the effects of radiative heat loss. The Department's air model also evaluated the effects to individuals at the facility and found that the greatest impact is directly proportional to the individual's proximity to the open burn process.

Open Burning - Air Monitoring: Air monitoring as it applies to open burning in the Permit is the process of collecting continuous ambient air samples representative of atmospheric emissions from the burning of hazardous wastes. Air monitoring of open burn processes is unusual because of the small area of the burn units, the minimal burn sizes, and the sporadic nature of

meteorological conditions, such as winds, combined with intermittent and short duration burns. These combined factors make air monitoring of open burn processes in the Permit technically challenging, because the likelihood of the plume passing through the air monitoring station is marginal. Air monitoring is typically associated with stack emissions from facilities such as coal fired power plants. It can be difficult to attribute measured concentrations to specific sources, especially with increasing distance from the source. Instead of air monitoring, emissions from open burn processes at LANL are typically addressed through air modeling.

Open Burning - Air Quality Permit: On March 29, 2005 the Department's Air Quality Bureau issued a New Source Review (NSR) Construction Permit for various activities at LANL, including non-RCRA open burning activities at the TA-16-388 flash pad (*see* NSR Air Quality Permit No. 2195-J). On January 10, 2006, while the permit was under appeal, the Permittees informed the Department that they would no longer be conducting the types of activities at TA-16-388 authorized by the permit and requested cancellation of the permit. The NSR Air Quality Permit's authorization to use an open flame generated from propane burners on a concrete pad to ignite or burn residual high explosive material from equipment used at LANL is now considered by the Department to be a hazardous waste management activity subject to permitting under RCRA.

Offsite waste: Under the revised draft Permit, the Permittees would not be allowed to receive waste from off site, with specific exceptions that are intended to ensure that the Facility's waste inventory is not enlarged by the addition of new wastes for which no off-site disposal pathway exists. Exceptions are:

1. LANL may send waste off site for treatment and later receive the wastes or treatment residues derived from such wastes, but only with proof that no other site is then available for final disposal, or, if a disposal site is available, LANL may receive treatment residues for storage for 60 days only;
2. LANL may receive wastes from its own Fenton Hill site;
3. LANL may receive waste from the investigation or remediation of specific LANL SWMUs or AOCs; and
4. LANL may receive "sealed sources" constituting mixed waste, so long as they can be disposed of at WIPP, and subject to a limit of one 55-gallon drum per year and two 55-gallon drums in one of the first three years.

The sealed source exception requires explanation. The Department understands the term "sealed sources" to refer to small metal capsules that are permanently sealed and contain a specific amount of radioactive material used in various defense-related processes for measurement or calibration. DOE has implemented a program at LANL to recover and manage radioactive sealed sources from sites within and outside the country. Under the revised draft Permit such wastes may be received at the Facility if they (a) have a valid defense determination establishing that they can be disposed of at WIPP and (b) meet the WIPP waste acceptance criteria.

Further, the Department understands that the Permittees shall undertake to confirm that any off-site waste received at the Facility meets the conditions of Permit Section 2.2.1 at the time the Permittees examine the shipping manifest, and that any off-site waste that does not meet Permit

Section 2.2.1 must be refused and returned to its source. Authorized off-site facilities, from which LANL may receive waste, are listed at Attachment L.

Interim Status Subpart X Open Detonation (OD) and Open Burn (OB) Units: The Department believes that including the four interim status units in the revised draft Permit would result in a protracted permitting process. Therefore, the Department has chosen to address these units as a permit modification after the renewal permit is issued. The units appear to have interim status. Title 40 CFR § 270.73(g) provides that a facility that obtains interim status before Nov. 8, 1984 loses that status on Nov. 8, 1992 unless a Part B application has been submitted by Nov. 8, 1988. Part As and a Part B for the OD units were received prior to the time they would have lost interim status. (Part As received Nov. 19, 1980, Oct. 7, 1983, and Nov. 1, 1984; Part B dated April 30, 1985). The record does not indicate why the Part B application was not processed at that time. The Department lists the interim status units at Attachment J for information purposes only. The Department intends to call in a draft permit modification from LANL to incorporate the interim units after the revised draft Permit becomes effective.

Relation of Permit to Federal Facility Compliance Order: The Federal Facility Compliance Act (FFCA) was enacted in 1992 to resolve a state-federal deadlock over DOE's failure to comply with waste treatment requirements of the Land Disposal Restrictions (LDR) under RCRA. The FFCA makes penalties imposed under state hazardous waste statutes for the management and storage of hazardous waste enforceable against federal entities. Penalties are not enforceable, however, if the state and the federal entity have reached an agreement on a plan for waste treatment. With the help of that statute, the Department reached agreement with LANL in 1995 upon terms of a Site Treatment Plan (STP) applicable to LDR-prohibited wastes stored at LANL. This plan is enforced by a contemporaneous Federal Facility Compliance Order (FFCO). The STP identifies specific volumes, types of wastes, and dates for shipping the waste off-site for treatment or treatment and disposal. All penalties for noncompliance are authorized under the HWA.

The FFCO and STP are revised annually to show wastes that enter and leave the waste population. Permit Section 2.3.1 prohibits the storage of hazardous waste beyond one year from the date that the wastes were first placed into storage at a permitted unit. That storage is exempt if the Permittees demonstrate to the Department "that such storage is solely for the purpose of accumulating such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal." The FFCO and the STP clarify the application of this exemption. The terms of the treatment requirement are not contained in the Permit, because the FFCA specifically requires an order as the vehicle for resolving the treatment issue.

Seismic location standard: Proposed new or enlarged units are, in the Department's interpretation, subject to the requirement 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. In terms the regulations are applicable only to a "new facility" and are not applicable to currently permitted or interim status units. The Department, in exercise of its omnibus authority under 40 CFR § 270.32(b)(2), will apply that test to any new unit or new portion of an existing unit. EPA's regulatory preamble, explaining the seismic standard, 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 has explained that the necessary showing to satisfy the standard may be based upon published data, aerial reconnaissance, analysis of aerial photographs, geological reconnaissance, or trenching. If Holocene faults or lineaments are present within 3000 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)).

Based on Permittees' TA specific seismic reports transmitted June 29, 2009 and an examination of the geologic strata at the sites 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.

Omnibus provision: A RCRA permit may contain terms that are more specific than the regulations, for the sake of enforceability. The earliest RCRA regulations specified that the permit would be based upon the regulations: Thus, the permit would

“establish conditions in permits for the individual programs, as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of the appropriate Act and regulations.” (Sec. 122.8, 45 Fed. Reg. at 33426).

EPA said that

“this section now explicitly states the general duty of the permit writer to include conditions in the permit which are necessary to ensure compliance with the appropriate Act and regulations.” (45 Fed Reg at 33307).

EPA referred to the benefit 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 at 33312).

The regulations on RCRA permit contents appear in Part 270. (48 Fed Reg at 14146 et seq.). Section 270.32(b) authorizes the permitting authority to incorporate regulations by reference or “establish other permit conditions that are based on these parts.” (48 Fed Reg at 14242). The clear implication is that permit conditions may be tailored specifically to the individual facility so that the applicable rules will be clear.

Permit terms going beyond the regulations may also be included to protect human health and the environment under legislation from 1984:

“Congress amended § 3005(c) to provide that each RCRA permit issued shall contain such terms as the Administrator (or the State) determines necessary to protect human health and the environment. The accompanying legislative history indicates a

Congressional intent to authorize the Administrator to add permit conditions beyond those specified in the regulations. S. Rep. No. 284, 98th Cong., 1st Sess. 31 (1983). The Agency is today implementing this amendment by adding a new subsection to the RCRA regulations, concerning the establishment of permit conditions, [§ 270.32\(b\)\(2\)](#).

* * *

Improvements and changes in control and measurement technology are factors that Congress intended the Administrator to take into account when adding permit terms and conditions as necessary to protect human health and the environment. *Id.* Accordingly, the Administrator has the authority under section 3005(c) to add conditions necessary to protect human health and the environment when reviewing an application for permit renewal. In addition, the Administrator shall consider any changes that may have occurred in operation of the facility since the permit was issued, and other information concerning the impact of the facility on human health and the environment.

Section 3005(c) provides that each RCRA permit issued under section 3005(c) shall contain such terms as the Administrator deems necessary to protect human health and the environment (emphasis added). The Congressional intent underlying this amendment is to authorize the Agency to impose permit conditions beyond those mandated by the regulations, such as new or better technologies or other new requirements. S. Rep. No. 284, 98th Cong., 1st Sess. 31 (1983).” EPA, 50 Fed Reg. at 20702, 20722-23 (July 15, 1985).

The Department has incorporated several terms in the revised draft Permit that go beyond the strict language of RCRA regulations. Many of these may be seen as statements of the specific way in which RCRA regulations apply to the units and operations being regulated at the Facility. Others may be seen as supported by the “omnibus” provision that protects health and safety.

Closure planning: The revised draft Permit contains closure plans for 23 storage units and 3 treatment units. Because of the cleanup called for under the Consent Order, numerous LANL storage and treatment units will, in fact, be closed within the ten-year life of the permit. Thus, the Department proposes not only to issue the revised draft Permit, but also to approve closure plans for all permitted storage and treatment units; many such plans are likely to be carried out within a few years. Closure, under Part 9 of the revised draft Permit, requires the Permittees to remove all waste residues and hazardous constituents and to ensure that contaminated media (*e.g.*, soils) do not contain concentrations of hazardous constituents greater than cleanup levels specified in Part 11. If the Permittees cannot remove all waste residues and hazardous constituents at a unit undergoing closure, they will be required to satisfy health-based standards through site-specific controls and to carry out post-closure care at the unit.

Retrievably stored waste: Approximately 1,000 cubic meters, or about 5,000 drums of transuranic wastes are now “retrievably” stored at MDA G in below-grade earthen-covered pits, pipes, shafts and trenches. These wastes comprise approximately one-third of the transuranic wastes stored at Area G. Some of these below-ground wastes are mixed waste. (*See* 2006 SWEIS at H-60, I-57 (June 2006); LA-UR-06-1280 at 5). The below-ground wastes in question are in storage and have not been disposed of. Further, under the Hazardous Waste Act, any

hazardous wastes and hazardous constituents must be removed upon closure of a hazardous waste management unit, except for waste that has been disposed of. The Department dealt with a similar situation in its order addressing the Transuranic Waste Inspectable Storage Program, which required that buried stored waste be retrieved and characterized as it was brought into permitted storage. In re *United States DOE and University of California*, Consent Agreement; Compliance Orders 93-01, 93-02, 93-03, 93-04 (Dec. 9, 1993). The Department expects the Permittees to carry out a similar retrieval, characterization and storage project with respect to the existing buried waste. Further, the Department expects the remedy to be proposed by the Permittees for MDA G under the Consent Order will include the retrieval, followed by temporary above-ground storage, of these wastes.

Land disposal restrictions: The Land Disposal Restrictions (LDRs) are part of the HWMRs. The LDRs prohibit the land disposal of certain hazardous wastes unless they have been treated to meet regulatory standards. They also prohibit the storage of LDR-prohibited wastes for more than one year unless treatment standards have been met or other exceptions apply. These restrictions are included in the Permit. Further, regulations require the waste generator to accompany each shipment of hazardous waste with a certification as to the characterization of the waste under LDR requirements. This requirement is also stated in the revised draft Permit and applies as an obligation of the Permittees. It has been established by court decision that a LDR exemption for waste designated for disposal at WIPP does not apply to waste at locations other than WIPP. *Washington v. Chu*, 558 F.3d 1036, (9th Cir. 2009).

Emergency response: The revised draft Permit contains a Contingency Plan (Attachment D) which requires LANL to implement its emergency response plan when there is a fire, explosion, release of waste, or any other incident that may endanger human health or the environment. The revised draft Permit requires LANL to notify the Department of any incident that calls for implementation of the Contingency Plan. In addition, members of the public who have requested notification will be advised by e-mail of the incident.

Permit-as-shield: The permit shield provision in Permit Section 1.4, authorized by 40 CFR § 270.4, applies only to activities specifically authorized or addressed by the revised draft Permit. This approach means that waste management not fully disclosed by the permit application, and thus not mentioned in the revised draft Permit, will not escape enforcement action. See the explanatory OSWER Directive at 1987 WL 417946 (Nov. 19, 1987), calling for limitation of permit shield terms to “those management practices specifically authorized by this permit.” It should also be noted that all current HWA regulations that the Department seeks to enforce at the permitted units are identified or referenced in the revised draft Permit.

Land transfers: The revised draft Permit contains conditions that must be met before land subject to the requirements of the revised draft Permit may be transferred. The Permittees must give notice 120 days before the planned transfer and describe the status of any investigation or remediation. The Department will then determine whether closure, post-closure, or corrective action efforts are sufficiently protective in light of the intended use and, if not, what further efforts are needed. If no further efforts are needed, DOE may transfer the property. DOE may be required to restrict future use of the land to those uses consistent with its cleanup level (*e.g.*,

industrial use only). A change in the Facility boundary will also require a modification to the Permit.

Regulation of LANL as a waste generator: LANL generates most of the waste regulated under this revised draft Permit at sites throughout the Facility both within and without the permitted hazardous waste management units. The process of waste generation is regulated separately from treatment or storage. Thus, 40 CFR Part 262 regulates hazardous waste generators, requires the generator to make a hazardous waste determination, and limits the duration of storage of waste to 90 days or, alternatively, allows accumulation of up to 55 gallons of hazardous waste or one quart of acutely hazardous waste. 40 CFR § 262.34. Title 40 CFR Part 263 regulates transporters and requires that any transporter of hazardous waste must clean up any discharge that occurs during transportation. 40 CFR § 263.31.

Community relations plan: The revised draft Permit directs the Permittees to establish and carry out a community relations plan to inform the nearby communities and members of the public of permit-related activities. In addition, the plan will give these entities a means to give feedback and input to the Permittees and will seek to minimize disputes and resolve differences between the Permittees and interested parties.

Information repository: The revised draft Permit requires the Permittees to establish an information repository (IR) containing specific documents concerning the issuance and operation of the Permit. The Department requires that the IR be located either as a virtual or electronic repository, at a physical location, or both. The Department considers an electronic IR available through the internet to be more readily accessible and therefore more utilized. The Department considers the requirement to include particular documents in an electronic IR to be easier to enforce because the Department can access an internet-based repository at any time. The Department's experience with physical IRs is that they are often incomplete and that they create a burden on third parties to ensure that documents are not removed or altered. The Department encourages the Permittees to collaborate with interested parties to determine an effective and reasonable IR. In any event, the Department maintains a physical copy of information in the IR in its Administrative Record.

The IR is to include only documents associated with the revised draft Permit. The Permittees are not required to include documents associated with the original permit or documents associated with Consent Order.

E-mail notification: The revised draft Permit requires the Permittees to issue e-mail notification of the filing of specified documents that will be of interest to members of the public. Specifically, interested persons may enter their e-mail address in a list maintained by the Permittees. When specified documents are filed, the Permittees will give notice within 7 days to those on the list and include a link to an electronic version of the document. Requirements to give e-mail notification appear throughout the revised draft Permit.

See detailed discussion at Permit Section 1.13.

Consultation with Pueblo governments: 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. The Department has done so with regard to the revised draft Permit and expects to do so in the future. Such consultation is in keeping with the January 17, 2003 *Statement of Policy and Process* executed by Governor Richardson and the Governors of the 19 Pueblos and reaffirmed in Executive Order No. 2005-004. In the *Statement of Policy and Process*, the State and the Pueblos “recognize the importance of full and open communication and cooperation on issues of shared interest or concern.” The document also explicitly states that “[t]he Governor and Pueblo governing bodies shall direct and cause all cabinet secretaries, departments, agencies, units, and subdivisions of their respective governments under their supervision and control to respect the principle of government-to-government relations in all interactions between State and Pueblo governments.”

Unclassified Controlled Nuclear Information: Unclassified controlled nuclear information (UCNI) is included in both the Part A and Part B portions of the LANL permit applications and is considered sensitive information. Therefore, UCNI is restricted to Department personnel only and is not for release to the public. UCNI, stored in a separate, secure location at the Department, generally consists of floor plans depicting hazardous waste storage and treatment unit locations. In the event that the public has particular questions regarding UCNI information, they are instructed to contact Michelle Baran, Security Officer at LANL, directly at 505-665-7492.

All scientific and technical information generated at the Laboratory and intended for public release must be reviewed and processed before publication to ensure that the release occurs in accordance with the requirements of the Atomic Energy Act of 1954 (42 U.S.C. § 2011 *et seq.*), the Energy Reorganization Act of 1974 (P.L. 93-438), and DOE Order 241.1 regarding restricted information. As a result of that review, documents may be subject to security provisions that may restrict viewing to authorized personnel with a need to know. *See* PS 1.9.8.

RESRAD code: RESRAD is a computer model designed to estimate radiation doses and risks from RESidual RADioactive materials and is used for the evaluation of radioactively contaminated sites. Revisions and/or updates to the RESRAD code have been released, and the Department anticipates that additional versions of the code may become available. The Department has decided that it should not tie the Permittees to a specific version of the RESRAD code and should accept the current version. Referring in the revised draft Permit to a specific version of RESRAD code might create the need for a permit modification to use updated versions of RESRAD. The Department’s best business practice requires that Permittees use the most currently accepted version of the RESRAD code(s), including dose conversion factors and toxicity data, in health assessments.

Administrative Record: The Department maintains the Administrative Record (AR) of issuance of the revised draft Permit. The Administrative Record comprises the Application and all the materials considered by the Department in determining whether to issue the revised draft Permit and the terms and content of the revised draft Permit. This Record is available for review by any member of the public during normal business hours at the offices of the Department’s Hazardous Waste Bureau.

PART SPECIFIC CONDITIONS

Part 1 - General Permit Requirements

This Part contains many provisions that follow the form contained in EPA's model permit for RCRA regulation. (see <http://www.epa.gov/epawaste/hazard/tsd/permit/sample.htm>)

Part 1 contains the following provisions:

PS 1.1 – **Authority:** The section refers to the statutory authority underlying the revised draft Permit, namely: the Hazardous Waste Act (HWA), the Hazardous Waste Management Regulations (HWMR), and the Resource Conservation and Recovery Act (RCRA).

PS 1.2 – **Permittees and Permitted Activity:** This section identifies the Permittees as the United States Department of Energy (DOE) and Los Alamos National Security, L.L.C. (LANS). It recites that the activities regulated are hazardous waste management, storage and treatment, and closure and post-closure care.

PS 1.3 – **Citations:** This section explains the revised draft Permit system for references to regulations.

PS 1.4 – **Effect of Permit:** This section contains a permit-shield provision, providing that compliance with the Permit shall constitute compliance with RCRA and HWA as to activities specifically authorized or addressed by the Permit, except for requirements becoming effective by statute after the Permit is issued. The permit shield provision in Permit Section 1.4 applies only to activities specifically authorized or addressed by the permit. This approach means that waste management not fully disclosed in the permit application including the hazardous waste generator requirements at 40 CFR Part 262, and thus not mentioned in the permit, will not escape enforcement action. See the explanatory OSWER Directive at 1987 WL 417946 (Nov. 19, 1987), calling for limitation of permit shield terms to “those management practices specifically authorized by this permit.” All current HWA regulations that the Department seeks to enforce at the Facility are identified or referenced in the revised draft Permit.

The section also states that compliance does not provide a defense to any order or action brought to enforce the HWA or RCRA and does not constitute an authorization to infringe the rights of others nor relieve the Permittees from responsibility to comply with all applicable laws. This provision follows the form contained in EPA's model permit for RCRA regulation. (See <http://www.epa.gov/epawaste/hazard/tsd/permit/sample.htm>)

PS 1.4.1 – **Effect of Permit on Interim Status Units:** The section states that interim status units are not authorized, addressed, or regulated by the Permit.

PS 1.5 – **Effect of Inaccuracies in Permit Application:** The section states that the revised draft Permit is based upon information in certain Applications and that any inaccuracies may be grounds for termination, revocation and reissuance or modification of the Permit. The Permittees are directed to inform the Department of any deviations from or changes in the information contained in the Application.

PS 1.6.1 - Duration of Permit: The Permit is effective for a fixed term of ten years. This section is based upon 40 CFR § 270.50(a).

PS 1.6.2 – Permit Modification: Modifications are required to comply with the applicable regulations, 40 CFR §§ 270.41 through 270.43. When requesting a permit modification, the Permittees shall include all proposed necessary permit language changes.

PS 1.6.4 – Permit Suspension, Termination and Revocation and Re-Issuance: The revised draft Permit refers to applicable regulations as to suspension, termination, and revocation and reissuance. *See* 40 CFR §§ 270.41, 270.43.

PS 1.6.5 – Permit Re-Application: This section calls for submission of any renewal application at least 180 days before the expiration date of the Permit. This section is based upon 40 CFR § 270.10(h)(1).

PS 1.6.6 – Continuation of Expiring Permit: This section states that a timely renewal application maintains the expiring permit in effect until a new permit is effective, on stated conditions. This section is based upon 40 CFR § 270.51.

PS 1.6.7 - Permit Review by the Department: This section states that the Department will review the closure and post-closure requirements in the permit five years after the effective date of permit issuance and may seek to modify it. Members of the public have requested that the Department review the entire permit. There is a regulatory requirement that the Department review each permit for a land disposal facility five years after issuance. (40 CFR § 270.50(d)). The Department shall conduct such a five-year review of the portions of the Permit that concern land disposal (*e.g.*, closure of MDAs G, H, and L). In light of the resources required for a review, the Department will limit its review to land disposal matters.

PS 1.7.1 – Severability: This section states that if any permit provision is found invalid, the remainder shall not be affected.

PS 1.8 – Definitions: Defined terms are stated in this section. Among the significant terms are the following:

PS 1.8 - “Facility” definition – The Department has established the term “Facility” (with an upper case “F”) in the permit to refer to the entirety of LANL. The term “facility” (with a lower case “f”) is used in the regulations and the revised draft Permit to refer to a permitted unit. 40 CFR § 270.2.

PS 1.8 - “Hazardous Constituent” definition - The definition of ‘hazardous waste constituent’ or ‘hazardous constituent’ incorporates the 40 CFR Part 261 Appendix VII constituents. The Department added the 40 CFR Part 264 Appendix IX ground water monitoring constituents (1) to be consistent with the Consent Order; and (2) to ensure that nitrates and perchlorate were included. By including Appendix IX constituents, the Department ensures that “hazardous waste constituents” in Appendix IX are included for purposes of monitoring and verification activities associated with closure, post-closure, and corrective action.

PS 1.8 - **“Hazardous Waste” definition** - The revised draft Permit definition includes wastes that are listed in 40 CFR Part 261, Subpart D, has any characteristics identified in 40 CFR Part 261, Subpart C, or is a mixture of solid waste and one or more hazardous wastes listed in 40 CFR Part 261, Subpart D. The revised draft Permit definition has also been augmented to incorporate mixed waste.

PS 1.8 – **“Permitted Unit” versus “Hazardous Waste Management Unit”**– Permitted units are a subset of hazardous waste management units (HWMUs). HWMUs include both permitted and interim status units. Permitted units include units in operation, in closure, and in post-closure care.

PS 1.8 – **“Release” definition** – The definition of release applies only to hazardous waste management units at the Facility. This is specified at Permit Section 11.2, which identifies releases addressed by the revised draft Permit as being only new releases and newly discovered releases of hazardous waste or hazardous constituents from hazardous waste management units at the Facility. Releases addressed under the Consent Order include all other releases at the Facility.

PS 1.8 - **“Waste Stream” definition** – The definition states that a waste stream is a waste material generated from a single process or from an activity that is similar in the materials from which it was generated, similar in physical form and hazardous constituents, and distinguishable from other wastes by EPA hazardous waste numbers and land disposal restriction (LDR) status.

PS 1.9.1 – **Duty to Comply**: This section states the Permittees’ duty to comply with Permit terms. The requirement is supported by 40 CFR § 270.30(a).

PS 1.9.2 – **Enforcement**: This section identifies the orders and sanctions available in case of noncompliance.

PS 1.9.3 – **Transfer of Permit**: This section requires Department approval for any transfer of the Permit. Transfer requires modification or revocation and re-issuance. The requirement is supported by 40 CFR § 270.30(l)(3). The transfer of a Facility permit may require filing of a disclosure statement pursuant to 74-4-4.7 NMSA 1978.

PS 1.9.4 – **Need to Halt or Reduce Activity Not a Defense**: This section states that it is no defense to an enforcement action that the Permittees would need to reduce permitted activities in order to comply with the Permit. The requirement is supported by 40 CFR § 270.30(c).

PS 1.9.5 – **Duty to Mitigate**: This section states that in event of noncompliance, the Permittees shall take all reasonable steps to minimize releases and to prevent adverse effects on health and the environment. The requirement is supported by 40 CFR § 270.30(d).

PS 1.9.6 – **Proper Operation and Maintenance**: This section states that the Permittees shall properly operate and maintain all facilities, including effective performance; adequate funding, staffing, and training, and adequate process controls. The requirement is supported by 40 CFR § 270.30(e).

PS 1.9.7 - Duty to Provide Information: The Permittees are required to furnish to the Department within a reasonable time any relevant information that the Department may request regarding compliance with or possible modification or revocation, etc. of the Permit. Access to information is subject to reasonable limitations based upon security requirements. In this context, “security” restrictions mean actual classification under existing procedures. The requirement is supported by 40 CFR § 270.30(h).

PS 1.9.8 – Inspection and Entry: The Permittees are required to allow Department representatives to have access to and inspect any facilities regulated under the Permit and to provide records required under the Permit. Access to regulated facilities is subject to reasonable limitations based upon security requirements. In this context, “security” restrictions mean actual classification under existing procedures. Photographs taken by the LANL personnel and provided to the Department within a reasonable time will be considered by the Department to satisfy this permit section’s requirement to allow the Department to take photographs. The requirement is supported by 40 CFR § 270.30(i).

PS 1.9.9.1 – Representative Sampling: This section requires that all samples and measurements taken by the Permittees under the Permit shall be representative of the medium, waste, or material being sampled. Methods are specified. The requirement is supported by 40 CFR § 270.30(j)(1).

PS 1.9.10 – Reporting Planned Changes: This section requires the Permittees to give written notice of planned changes to any permitted unit. The requirement is supported by 40 CFR § 270.30(l)(1).

PS 1.9.11 – Reporting Anticipated Noncompliance: This section requires the Permittees to give advance written notice of any planned changes or activity that may result in noncompliance with the Permit. The requirement is supported by 40 CFR § 270.30(l)(2).

PS 1.9.12 – Twenty Four Hour and Subsequent Reporting: The Permittees are required to report to the Department, orally and in writing, any noncompliance that may endanger human health or the environment or requires implementation of the Contingency Plan. The first report is due within 24 hours. The requirement is supported by 40 CFR § 270.30(l)(6).

PS 1.9.12.1 – 24 Hour Oral Report: The Permittees are required to make an initial report within 24 hours of becoming aware of the noncompliance or incident referred to in PS 1.9.12. Elements of the report are stated. The requirement is supported by 40 CFR § 270.30(l)(6).

PS 1.9.12.2 – 5 Day Written Report: The Permittees are required to make a written report within five days after becoming aware of the noncompliance or incident under PS 1.9.12. Elements of the report are stated. The Department may allow the report to be made within 15 days. The requirement is supported by 40 CFR § 270.30(l)(6)(iii).

The permit section requires the Permittees to report information concerning a release or discharge of hazardous waste or hazardous waste constituents, or a fire or explosion at a permitted unit, which may threaten the environment or human health inside or outside the

permitted unit. The Department expects the results of available air monitoring under Permit Section 2.11.6.5 to be included in this report.

PS 1.9.13 – Written Reporting of a Non-Threatening Release: This section requires the inclusion in the report made under Permit Section 1.9.14 of information about any release (as defined in PS 1.8) not deemed to be a threat to human health or the environment. Elements of the report are stated. This requirement is supported by the omnibus provision, 40 CFR § 270.32(b)(2), in that it is important for the Department to be informed about the volume and frequency of releases at the Facility. Further, the Department may need to inquire further into a reported release and may not agree that no endangerment existed.

PS 1.9.14 – Other Noncompliance: This section requires an annual report of all instances of noncompliance not reported under PS 1.9.11. Elements of the report are stated. This report shall be incorporated into the Permittees' annual Environmental Surveillance Report and that Report shall be prominently posted on the Permittees' environmental web page. The requirement is supported by 40 CFR § 270.30(l)(10).

PS 1.9.15 – Omissions or Misstatements in Applications or Other Reports: The Permittees are required to report promptly any failure to submit relevant facts or submission of incorrect information. The requirement is supported by 40 CFR § 270.30(l)(11).

PS 1.9.16 – Signatory Requirement: This section requires signing and certification of all submissions. The requirement is supported by 40 CFR §§ 270.11 and 270.30(k).

PS 1.9.17 – Submissions to the Department: This section contains directions as to making submissions to the Department.

PS 1.9.18 - Approval of Submittals: This section principally states that upon the Department's written approval, all submittals and associated schedules shall become enforceable as part of this Permit in accordance with the terms of the Department's written approval (74-4-10(A) NMSA 1978), and such documents, as approved, shall control over any inconsistent requirements of this Permit. This section also states that the document approval process shall be performed in accordance with 20.4.2 NMAC. The process of approval should be understood in the context of the permit modification regulations, which may also apply and require a public process before permit conditions may be modified. See 40 CFR §§ 270.41 through 270.43. This section does not pertain to documents submitted under the Consent Order.

PS 1.9.19 – Extensions of Time: This section allows the Permittees to seek an extension of time to comply with a permit requirement. The Department includes this provision under its omnibus authority to protect health and the environment to provide needed flexibility with regard to scheduling. (40 CFR § 270.32(b)(2)) It is also supported by the authorization to adopt a compliance schedule. (40 CFR § 270.33).

PS 1.9.20 – Confidential Information: This section authorizes the Permittees to claim that any information submitted to the Department is confidential and should not be made public. This provision is supported by 74-4-4.3(D) and (F) NMSA 1978 and 40 CFR §§ 260.2 and 270.12.

PS 1.9.21 – New or Modified Permitted Units: This section prohibits treatment of storage of waste in a new or modified permitted unit except in compliance with the rules for permit modification and for certification that construction has been completed as authorized. See 40 CFR §§ 270.30(l)(2)(i), 270.42.

PS 1.10 – Information Repository: This section requires that the Permittees establish an information repository with key documents about the Permit. The documents shall be available during normal business hours. The section lists the documents to be included in the repository, which are important documents relating to the issuance and operation of the Permit. The establishment of an information repository is supported by 40 CFR §§ 124.33(c) through (f) and 270.30(m). Section 124.33(c) states “the information repository shall contain all documents, reports, data, and information deemed necessary by the Director to fulfill the purposes for which the repository is established.” The documents are to be indexed, and 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. There are provisions for informing the public of the availability of the repository. The Department requires that the IR be either an electronic (virtual) repository or a paper based (physical) repository, or both.

The IR is to include only documents associated with the revised draft Permit. The Permittees are not required to include documents associated with the original permit or documents associated with the Consent Order.

PS 1.10.1 – RACER: RACER refers to Risk Analysis Communication Evaluation Reduction. RACER makes LANL environmental data available to the public on the internet. The RACER web site is at: <http://www.racernm.com>. The section requires the Permittees to provide environmental data collected under the Permit and incorporated into LANL databases to the RACER database on a monthly basis. This time period begins when data is added to the Permittees’ 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.

Environmental data generated under the Consent Order is required to be incorporated into RACER in accordance with the June 14, 2007 Settlement Agreement and Stipulated Final Order. That Agreement and Order arise from the Applicants’ failure to report releases of chromium in the groundwater at the Facility. The Permit does not alter the requirements under this “Chromium Settlement Agreement” but adds that data generated under the Permit shall also be included in RACER.

PS 1.11 – General Documents and Information to be Maintained at the Facility: This section specifies documents to be maintained at the Facility. The items include the Permit with all attachments, a topographic map required by 40 CFR § 270.13(l), the Waste Analysis Plan required by 40 CFR § 264.13(b), and copies of all emergency response agreements made pursuant to 40 CFR § 264.37. These items are basic reference documents needed for Facility operation and are required under the Department’s omnibus authority, 40 CFR § 270.32(b)(2).

PS 1.12 – Community Relations Plan: This section requires the Permittees to set up a community relations plan to establish working relationships with communities and interested members of the public and government-to-government consultation processes with local tribes and pueblos, to disseminate information about permit actions, to seek to minimize disputes, and to receive feedback from communities and members of the public. This requirement is imposed under the Department’s omnibus authority, 40 CFR § 270.32(b)(2).

This section requires the Permittees to ask all communities and interested members of the public annually how they may be made better informed of the issues related to this Permit and post on the Permittees’ web site a compilation of all such comments “as approved by those entities.” This phrase is interpreted by the Department to mean that comment shall be unedited.

PS 1.13 – Public Notification via Electronic Mail: The revised draft Permit requires the Permittees to issue e-mail notification of the filing of specified documents that will be of interest to members of the public. Specifically, interested persons may enter their e-mail address in a list maintained by the Permittees. When specified documents are filed, the Permittees will give notice within seven days to those on the list and include a link to an electronic version of the document. Specific actions requiring e-mail notification and the information that must be included appears throughout the revised draft Permit. This requirement is imposed under the Department’s omnibus authority, 40 CFR § 270.32(b)(2).

The following are the actions for which the Permittees shall provide e-mail notification:

- 1.9.12.2 5 day written report (threatening incident or noncompliance);
- 1.9.19 Extensions of time;
- 1.14.1 Dispute resolution invocation;
- 1.15 Submission and notices under current compliance schedule
- 1.16 Land transfer notice;
- 2.2.1 Notice of receipt of treatment residues with no disposal path;
- 4.4 Tank systems and stabilization unit containment (releases);
- 9.2.2.1 Notice of inability to attain closure performance standard
- 9.2.2.2 Petition for alternative closure standards
- 9.2.2.3 Notice of inability to attain closure performance standard
- 9.4.1 Closure schedule (expected date to initiate closure);
- 11.3.1.1 Notification of detections;
- 11.4.1.1 Proposal of groundwater cleanup level based on risk assessment
- 11.6.2 Variance to cleanup levels;
- 11.8.2.1 Department-initiated interim measures;
- 11.8.2.2 Permittee-initiated interim measures;
- 11.8.3 Emergency interim measures;
- 11.8.9 Accelerated cleanup process.

PS 1.14 - Dispute resolution: These sections, Permit Sections 1.14.1 through 1.14.5, provide a process to resolve a dispute concerning the Department’s decision on a submittal. Within 30 days after receiving the Department’s decision, the Permittees may serve notice of disagreement, with an explanation of the reasons. The parties then have 30 days to meet to resolve the issue.

In the absence of agreement, the Department will issue its decision on the issue. Other provisions of the Permit are not affected by the pendency of a dispute resolution process. This requirement is imposed under the Department’s omnibus authority, 40 CFR § 270.32(b)(2).

There is some concern that this process might effectively modify the Permit without complying with the applicable regulations. However, the dispute resolution process is not intended to modify the Permit but to address the Department’s response to a “submittal.” Thus, the disputes will involve differences about reports, plans, proposals, and other submittals that do not call into question the terms and conditions of the Permit. Resolution of such disputes would not require a permit modification. A dispute resolution will not by itself modify the Permit and will not bypass the permit modification procedures.

PS 1.15 – Compliance Schedule: The section directs the Permittees to adhere to the compliance schedule, Attachment I. A compliance schedule is authorized by 40 CFR § 270.33(a). In addition, further compliance schedules to be submitted in accordance with the Permit will be incorporated into Attachment I upon their approval.

PS 1.16 – Land Transfers: The revised draft Permit contains conditions that must be met before land subject to the requirements of the Permit may be transferred. The Department considers this provision as supported by the omnibus authority, 40 CFR § 270.32(b)(2).

The land transfer requirements in the revised draft Permit apply only to properties within the permitted units. There is a provision in the Consent Order (§ III.Y) that applies to other Facility property.

Under the revised draft Permit, LANL must give notice 120 days before the planned transfer and describe the status of any investigation or remediation. The notice must describe the property to be transferred, the purchaser, and the location on the property of any unit subject to the Permit or solid waste management unit or area of concern that may have undergone corrective action. It must also describe the presence of any known contaminants (hazardous waste, hazardous constituents, or radionuclides) and the status of investigation or remediation. The notice must comply with CERCLA § 120(h), 42 USC § 9620(h), and indicate any restrictions on future use of the property.

PS 1.16.1 – Determination of Need for Further Action: This section states that the Department will then determine whether closure, post-closure or corrective action efforts are sufficiently protective in light of the intended use and, if not, what further efforts are needed. If no further efforts are needed, DOE may transfer the property. The Permittees must advise the purchaser of any future obligations as to the property. A permit modification is required to update the map of the Facility.

1.16.2 – Restricted Use: If cleanup has achieved less than a cleanup to residential-use levels, DOE shall be required to include a deed restriction to limit future use of the land to those uses consistent with its cleanup level (*e.g.*, industrial use only).

1.16.3 – Enforceability Against Transferee: This section states that the deed covenant required by CERCLA § 120(h)(3)(A)(ii), which warrants that all necessary remedial action has been taken

and any further such action shall be taken by the United States, and the deed restriction calling for restricted use, shall be an obligation of the transferee enforceable by the Department and the transferor.

1.16.4 – EPA Institutional Controls Tracking System: This section requires that EPA Region 6 be advised of any deed restriction.

1.16.5 – Transfer of Facility Property to Another Federal Agency: This section provides for notice under Permit Section 1.16.1 120 days (or as soon as possible if the Permittees learn of the transfer less than 120 days before) before any transfer of operational control to another federal agency.

1.17 – Notice of Demolition Activities: This section contains the substance of a settlement agreement between the Permittees and the Department regarding annual notice of planned demolition of buildings or structures that may contain hazardous materials. The Department considers this notice provision supported by the Settlement Agreement and Stipulated Final Order (Stipulated Order), dated April 10, 2007 and by its omnibus authority, 40 CFR § 270.32(b)(2).

1.17.1 – Content and Format of Notice: This section contains the elements of the annual notice of planned demolition activities, which includes a list of buildings and other fixed structures that may contain hazardous material scheduled to be demolished in the following federal fiscal year (October 1 through September 30). This section's requirements come from the Stipulated Order, Section 21, Paragraph d(4) including a requirement to identify any SWMU or AOC within 50 feet of the building to be demolished.

1.17.2 – Demolition Activities Update: This section requires quarterly updates of the list of buildings to be demolished. This Section's requirements come from the Stipulated Order, Section 21, Paragraph c.

1.17.3 – Demolition Actions: This section requires the Permittees to give 30 days notice of the commencement of actual demolition of any buildings or structures for which the Department requests such notice. The Permittees are also required to provide any demolition completion report for such building or structure. This Section's requirements come from the Stipulated Order, Section 21, Paragraph f.

Part 2 - General Facility Requirements

PS 2.1 - Design, construction, maintenance and operation: This section requires design, construction, maintenance and operation to minimize the possibility of fire, explosion, or unplanned release. This term is supported by 40 CFR § 264.31.

PS 2.2 – Authorized Wastes: Permit Section 2.2 limits the Permittees to management of only those wastes listed in their Part A application. Such is the purpose of the Part A. 40 CFR § 270.13(j).

PS 2.2.1 – Hazardous Waste from Off-Site Sources: Permit Section 2.2.1 identifies the off-site wastes that the Permittees may manage at the Facility, *viz*:

1. treatment-derived waste or residues from wastes generated at the Facility may be received: a) if it is reported to the Department that there is no available site for final disposal, or b) if an off-site disposal facility exists, the waste is kept at the Facility only for 60 days;
2. hazardous waste from the Fenton Hill site, Facility TA-57;
3. hazardous waste generated by the Permittees in investigation or remediation of corrective action sites located outside the Facility boundary; and
4. mixed waste sealed sources having a defense determination and otherwise eligible for disposal at WIPP, subject to volume limits.

Sealed source waste is subject to a one-year storage limitation. No off-site waste may be disposed of at the Facility.

The Department has attempted to limit the receipt of any new waste at the Facility in light of the unavailability of hazardous or mixed waste disposal capacity at the Facility, the anticipated shortage of waste storage capacity as Area G moves toward closure, the limitations on the Facility's waste characterization capacity, and the overarching need for LANL to clean up existing waste and contamination, rather than adding to it.

Thus, treatment-derived wastes or residues are allowed to be returned to the Facility, but the terms encourage the Permittees to arrange for disposal of treatment-derived wastes or residues at available disposal sites, rather than accepting them for continued storage at the Facility.

The revised draft Permit allows receipt of hazardous waste generated at TA-57 and in corrective action. The Fenton Hill site is LANL TA-57 but is located several miles from the Facility proper. Moreover, certain corrective action sites are located outside the Facility boundaries. Thus, waste generated at such sites is, by definition, off-site waste. Waste generated in Permittees' corrective action programs under this Permit and the related Consent Order should be accepted at permitted units for storage and possible treatment.

The revised draft permit allows introduction of mixed waste sealed sources. The Department understands the term to refer to small metal capsules that are permanently sealed and contain a specific amount of radioactive material used in various defense-related processes for measurement or calibration. Pursuant to the Atomic Energy Act, the Low Level Waste Policy Act, and the Low Level Policy Act Amendments, LANL has implemented an off-site source recovery program to recover and manage radioactive sealed sources from sites within and outside the country. Under the revised draft Permit such wastes may be received at the Facility if they (a) have a valid defense determination establishing that they can be disposed of at WIPP and (b) meet the WIPP Waste Acceptance Criteria. Thus, sealed sources without a disposal path are not acceptable at the Facility. Further, sealed sources are subject to volume limits including two 55-gallon drums of waste in the one of the first three years of the Permit and one 55-gallon drum at other times. The initial increased volume is to accommodate a backlog of sealed source mixed waste currently stored at a commercial TSDF.

A request to modify the list of off-site facilities (Attachment L) shall be a Class 1 modification request.

PS 2.2.2 – Hazardous Waste from Foreign Sources: Permit Section 2.2.2 prohibits the acceptance or management of waste from foreign sources. The Department has applied a policy of limiting the receipt of off-site waste in light of the Permittees' limited characterization and storage capacity and lack of disposal capacity. Thus, off-site wastes are limited in Permit Section 2.2.1 to certain treatment-derived wastes and certain sealed sources. Of these, only sealed sources could possibly be from foreign sources, but since a defense purpose is required to enable disposal at WIPP, it is not likely that any foreign sealed sources would be acceptable in any case. Thus, the prohibition on foreign wastes does not add significantly to the off-site waste restrictions. In any event, since there is limited storage and no disposal capacity at the Facility, and no good purpose has been advanced for shipment of foreign wastes to the Facility for treatment or characterization, the Department finds a prohibition on foreign wastes to be necessary to prevent wastes being shipped to the Facility and becoming orphan wastes with no path forward.

PS 2.2.3 – PCB-Contaminated Waste: This section prohibits storage of liquid hazardous wastes containing PCBs in excess of 50 parts per billion, except for storage for less than one year in compliance with 40 CFR § 761.65(b) (*See* 40 CFR § 268.50(f)). Title 40 CFR § 761.65(b) addresses structural design issues associated with the storage building. The Department is not including the 40 CFR § 761.65 requirements associated with non-hazardous radioactive PCB waste.

PS 2.3.1 – One Year Storage Limit: This section contains the one year limit upon hazardous waste storage at a permitted unit based on the Land Disposal Restrictions (LDR), 40 CFR § 268.50. Stated exceptions are (1) storage to accumulate a quantity necessary for proper recovery, treatment, or disposal, (2) waste meeting all LDR treatment standards, and (3) mixed waste documented on the Site Treatment Plan data base under the Federal Facility Compliance Order. Exception 1 is derived from 40 CFR § 268.50(a)(1) and (2). Exception 2 is based upon 40 CFR § 268.50(e). Exception 3 is based upon the Federal Facility Compliance Act, 42 USC 6961 note, which states that the waiver of sovereign immunity shall not apply with respect to mixed waste storage by DOE, so long as a plan and an order pursuant to 42 USC § 6939c(b) are approved and in effect. The Department considers the storage time limits at 40 CFR § 262.34 (a) and (c) for less than 90-days storage areas and satellite accumulation areas respectively to be separate and not cumulative with the one year limit for the permitted units. The labeling and recordation requirement to date the beginning of storage is adopted to enable enforcement of the substantive requirement and is supported by 40 CFR § 270.32(b)(2).

PS 2.3.2 – Prohibition on Dilution: Permit Section 2.3.2 prohibits the dilution of waste that is subject to the land disposal restrictions, or its residual, as a substitute for treatment pursuant to 40 CFR § 268.3. In addition to incorporating the rule by reference, the permit term prohibits dilution by addition of a solid waste and ineffective treatment that fails to destroy, remove, or immobilize hazardous constituents. It also states that aggregating or mixing wastes in a legitimate treatment process is not prohibited. RCRA § 3004(m) requires that hazardous constituents be destroyed, removed, or immobilized before land disposal. Cases hold that

hazardous constituents are not destroyed, removed, or immobilized by simple dilution. *Chemical Waste Management v. EPA*, 976 F.2d 2, 16-20 (D.C. Cir. 1992), *cert. denied*, 507 U.S. 1057 (1993). The regulation, therefore, expresses the current law as to the land disposal restrictions.

PS 2.3.3 – Documentation of Exclusion or Exemption: Permit Section 2.3.3 requires that the Permittees place a one-time notice in the Operating Record for any LDR prohibited wastes that the Permittees determine are excluded from the definition of hazardous or solid waste or exempted under 40 CFR §§ 261.2-261.6 after generation. The applicable regulation, 40 CFR § 268.7(a)(7) requires that a generator who determines that he is managing a LDR-prohibited waste that is excluded or exempted after generation must place a one-time notice describing the generation and exclusion or exemption of the waste in the facility's files. The Department, by this permit term, has required that the Permittees make the same record. Potential exemptions include, for example, (a) addition of adsorbents in containers, (b) wastewater treatment unit, (c) elementary neutralization unit, (d) emergency response, (e) closed recycling unit, evaporator bottoms, among others. Nearly all of the waste managed by the Permittees is generated on site, so that, although the revised draft Permit authorizes storage and treatment, the Permittees are also generators, subject to § 268(a)(7), and obligated to make the one-time notice called for. The notice must be specific to the waste stream involved and explain the circumstances said to give rise to an exclusion or exemption. Further, since the exemption may arise from events well after generation, it is appropriate to impose the requirement upon the Permittees under their storage and treatment permit. Under this provision, on-site files include files created by LANL as generator. This permit condition is included to ensure that the Permittees are using RCRA exemptions and exclusions appropriately, that they are accurately and comprehensively documenting those exemptions, and their use is more transparent to the Department. The regulatory requirement at § 268.7(a)(7) is made more specific by the revised draft Permit.

PS 2.4.1 – General Waste Characterization Requirement: This section contains general waste characterization requirements. The Permittees' waste characterization must follow (a) 40 CFR § 264.13, (b) Part 2 of the Permit, (c) Attachment C, the Waste Analysis Plan, and (d) the requirements of 40 CFR Parts 264 and 268 as to information needed to treat, store, or otherwise manage a hazardous waste stream. Specific elements of characterization are enumerated:

1. EPA waste numbers;
2. characterization needed to determine LDR status;
3. characterization needed to comply with compatibility rules, to prevent impairment of containers, tanks,, and secondary containment systems for tanks by incompatible wastes;
4. characterization needed to prevent ignition or reaction of wastes;
5. whether the waste is a mixed waste; and
6. wastes containing free liquids.

The requirement of 40 CFR § 264.13 is supported by the regulation itself. The bases for Part 2 are explained herein. The bases for Attachment C are explained below. The information called for by Parts 264 and 268 are required by the regulations in those respective Parts. Specifically,

1. EPA hazardous waste numbers are required to determine whether the waste is authorized under the Permit, which specifies wastes to be managed.
2. Characterization to determine LDR status is required by 40 CFR § 268.7 as to generators and treatment facilities, which LANL is, and records kept for purposes of storage. Characterization for LDR purposes must identify any underlying hazardous constituents that would require application of the one-year storage limitation.
3. Characterization for compatibility purposes is necessary to comply with rules applicable to storage of incompatible wastes, such as 40 CFR §§ 264.17, 264.172, 264.177, 264.193(c)(1), 264.199.
4. Characterization to prevent ignition and reaction is necessary to comply with rules applicable to storage of ignitable and reactive wastes, such as 40 CFR §§ 264.17, 264.177, 264.198.
5. Characterization for whether a waste is a mixed waste is necessary to comply with rules applicable to storage of mixed waste, including air emission regulations, such as 40 CFR § 264.1080(b)(6).
6. Characterization for free liquids is necessary to comply with rules applicable to storage of wastes containing free liquids, such as 40 CFR § 264.175(a) and (b).

Permit Section 2.4.1 requires documentation of information for individual hazardous waste streams, including identification of the waste stream, its generation location, and a detailed description of its generation process. Such information is part of the process of characterizing waste according to individual waste streams. The requirement calls for adherence to a characterization system, making the regulatory characterization requirement enforceable. Such a requirement is supported by 40 CFR § 264.13(b), which calls for adherence to a waste analysis plan. The requirement for a detailed description of the waste stream generation process at Permit Section 2.4.1(10) does not require that this information be entered in full on the Waste Profile Form but instead only requires the information be kept in the Operating Record.

Permit Section 2.4.1 also requires use of Department-approved sampling and analysis methods and acceptable knowledge. These methods include those described in the EPA publication, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (U.S. EPA Publication SW-846), which contains characterization methods that have been approved through a public process. Numerous regulations call for application of methods contained in SW-846. *See, e.g.*, 40 CFR §§ 260.11(c)(3), 261.22, 261.24, 268.7. The use of acceptable knowledge is conditioned upon the Permittees' determination that such information provides the data called for by items (1) – (7) above. If such information is insufficient, the revised draft Permit requires that sampling and analysis be used in addition to complete characterization.

Permit Section 2.4.1 requires that all waste characterization information be kept in the Operating Record or available by means of a traceable identifier. It is necessary to retain waste characterization information while the waste is on site for purposes of waste management. It is necessary to retain such information when waste is sent off site for reference by off site storage or disposal facilities in their waste management. The information should be kept for the operating life of the Facility for enforcement purposes.

PS 2.4.2 – Sampling and Analysis for Hazardous Wastes: Permit Section 2.4.2 requires that sampling and analysis follow Department-approved procedures, including methods contained in SW-846 and those specified in Attachment C, Tables C-16, C-17, and C-18. These are methods that have been approved by EPA and have been used by the Permittees in waste characterization under the existing permit and found adequate.

The requirements that samples be representative of the chemical composition of the entire volume of the waste stream and that sampling procedures preserve the original physical form and composition and ensure prevention of contamination and changes in concentration express basic principles of sampling for characterization.

The requirement of a quality assurance/quality control (QA/QC) program in accordance with SW-846 imposes another safeguard called for in the EPA publication, SW-846. The Permittees must retain records of QA/QC procedures for purposes of verification and enforceability of this requirement. The specific requirement of analysis of method blanks, duplicates, and control samples identifies individual components of a QA/QC program.

The requirement that any independent contract laboratory operate in accordance with the Permit waste analysis requirements seeks to ensure consistency in characterization methods and quality and, therefore, health and safety. The section requires that the Permittees document an agreement with contract laboratories performing waste characterization to perform that characterization in accordance with the draft Permit. This PS is the primary enforcement mechanism ensuring that the contract laboratory is aware of and abiding with the waste analysis conditions in the revised draft Permit. It is a means to ensure that contract laboratories are aware of the waste characterization requirements of the revised draft Permit (particularly the WAP). The current permit requires the following: “The Permittee will notify any contract laboratory of the requirements of this section and permit.” (PC II.C.2) It is supported by the Department’s omnibus authority. Should LANL seek to keep documents concerning such agreement confidential, it may request that the documents remain confidential in the Department files. (see PS 1.9.20)

Permit Section 2.4.2 directs the Permittees to submit a written request for permission to use a characterization method other than a Department-approved method, with supporting data, 90 days in advance of the proposed use. This requirement is designed to afford the Department sufficient time to analyze the proposal and to compare its effectiveness with the methods already approved. Note that a change in methods to conform with new agency guidance or regulations shall not require approval based on supporting data and shall require instead a Class 1 permit modification.

PS 2.4.3 – Acceptable Knowledge: Permit Section 2.4.3 authorizes the Permittees to use acceptable knowledge (AK) for waste characterization in addition to, or in place of, sampling and analysis. Such practice is supported by EPA guidance on waste characterization. *Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Wastes—A Guidance Manual*; U.S. Environmental Protection Agency, Research Triangle Park, NC, 1994; EPA-OSWER 9938.4-03. The Permittees’ internal AK guidance (Laboratory Implementation Guidance Document LIG 404-00-02.0) recognizes the possibility of inconsistent AK documentation and provides a resolution procedure at Section 7.4. The PS requires the inclusion

in AK documentation of all background information assembled and used in the characterization process relevant to the decision to use AK. Further, the Permit Section requires documentation of resolution of any data discrepancies between different sources of AK. AK documentation must include all relevant documentation including any contradictory information and resolution of any and all discrepancies. If rigorously maintained, AK records of the generation of a waste stream contain complete information as to the content of the waste stream. In addition, some waste streams (*e.g.*, heterogeneous debris) are not amenable to characterization by representative sampling and are best characterized by AK. This permit term requires the Permittees to document all uses of AK, to preserve the underlying information, and to explain any resolution of conflicting AK discrepancies. Thus, no background information may be discarded without explanation. Further, the AK record is to be maintained in form suitable for audit for enforcement purposes. Such terms are supported by the omnibus authority in 40 CFR § 270.32(b)(2).

PS 2.4.4 – Characterization Associated with Wastes Received from Off-Site: Permit Section 2.4.4 requires that the Permittees obtain from any off-site facility that sends treatment-derived waste or sealed source waste to LANL a detailed characterization of a representative sample of the waste following the requirements of Permit Section 2.4; the characterization information shall include any acceptable knowledge documentation. Such information is necessary to enable the Permittees to store, treat, or otherwise manage the waste. If acceptable knowledge is used for the characterization of waste received from off-site, the Applicants shall require the off-site facility to provide all acceptable knowledge documentation used to characterize the waste. The Department requires complete AK documentation for off-site wastes to be consistent with the requirements for on-site wastes at Permit Section 2.4.3. The Department requires the Permittees to obtain complete AK characterization documentation for off-site wastes to ensure adherence to the 40 CFR § 264.13(a)(1) requirement to obtain “all information” necessary to properly manage wastes.

Permit Section 2.4.4 also requires the Permittees to ensure that the waste matches the identity of the waste described in accompanying shipping documents. The revised draft Permit is altered to reflect new manifest requirements at 40 CFR § 264.72 that the State of New Mexico adopted after the draft permit was first issued. The Department references these regulations rather than including them in the revised draft Permit.

PS 2.4.5 – Treatment-Derived Waste: Permit Section 2.4.5 requires the Permittees to characterize treatment-derived waste to determine whether the applicable LDR treatment standard has been met, if such was the purpose of treatment. Such requirement is supported by 40 CFR § 268.7(b). Further, the notification and recordkeeping requirements of 40 CFR § 268.7(b)(3)(ii) and the general characterization requirements of Permit Section 2.4.1 continue to apply. Thus, this section requires characterization of waste residues remaining after open burning or stabilization processes.

PS 2.4.6 – Thermal Treatment: Permit Section 2.4.6 requires the characterization of new waste streams submitted for thermal treatment (open burning) to establish appropriate operating (*i.e.*, open burn batch treatment) conditions (referred to as waste quantity and auxiliary fuel feed) and potential pollutants. Characterization must include: (1) heating value of waste; (2) waste

constituent emission factors; (3) halogen and sulfur content; and (4) concentrations of lead and mercury. The characterization for items (1), (3), and (4) is required under 40 CFR § 265.375 for the purposes stated. Section 265.375 is an interim status regulation, and EPA has stated that thermal treatment units are to be permitted under Part 264 Subpart X. Further, “when . . . permitting new units, the applicable portions of Part 265 Subpart P standards . . . will be incorporated during issuance of Subpart X permits” (52 Fed. Reg. 46946, 46952)(Dec. 10, 1987). Characterization for waste constituent emission factors is necessary for the modeling of the behavior of combustion products and is required under the Department’s omnibus authority, 40 CFR § 270.32(b)(2).

PS 2.4.7 – Waste Characterization Review: Permit Section 2.4.7 requires the review and repetition of characterization of waste streams to verify that the characterization is accurate and up-to-date. Such review is required under the Department’s omnibus authority, 40 CFR § 270.32(b)(2). Accuracy of characterization is of prime importance to safe waste management. The review called for is:

1. Annual reevaluation of all waste streams generated to verify waste stream characterization. This requirement applies to all waste streams generated in a given year. It is simply a repeat of the process to provide assurance.
2. Recharacterization of waste streams where there is a change in the process or analytical results indicate a change in the waste stream. A process change is an indication that characterization may change as well and should be checked.
3. Annual verification by quantitative chemical analysis of one percent of the waste streams managed at TA-54 in any given year that are characterized by acceptable knowledge. Excluded are mixed TRU wastes, debris, and wastes listed in 40 CFR Part 261, Subpart D. Mixed TRU waste is excluded because the WIPP characterization process is considered to contain its own safeguards. Debris is excluded because it is not amenable to characterization by chemical analysis of a representative sample. Part 261 Subpart D wastes are excluded because they are manufactured products subject to listing.
4. Recharacterization when the Permittees are told by a receiving off-site facility that the waste received does not match the manifest or waste analysis. The Permittees are required to notify the Department within three days of the receipt of a notice of a discrepancy.

This Permit Section requires recharacterization of hazardous wastes whenever there is a change in the waste-generating processes which includes a change in the status of the waste for purposes of Land Disposal Restrictions or when analytical results indicate a change in the waste stream. The Department considers a new waste stream to have been generated when the chemistry of the waste changes significantly, which would include a change to the list of associated underlying hazardous constituents or a change to the applicable LDR treatment standards. The requirement adds specificity to the requirement and makes it enforceable.

PS 2.4.8 – Waste Characterization for Compliance with RCRA Air Emission Requirements: Permit Section 2.4.8 requires waste characterization in compliance with 40 CFR Part 264 Subpart CC. It requires a determination of average VOC concentration. The standards

exempt a tank, surface impoundment or container for which all waste entering the unit has an average VO concentration of less than 500 ppmw at the point of waste origination (40 CFR § 264.1082(c)(1), a value that must be determined anew every 12 months. The standards state that determination of the average concentration is to be done by procedures specified in § 264.1083(a). The revised draft Permit requires annual redetermination and allows use of § 264.1083(a) procedures or acceptable knowledge. The use of acceptable knowledge to determine VO concentration is supported by the Department's omnibus authority, 40 CFR § 270.32(b), because in this instance there will be many containers that are known to come from processes that have no VOCs. Further, there are stated exemptions that are fully supported by the regulations:

1. containers that store mixed waste. (40 CFR § 264.1080(b)(6)).
2. containers storing wastes with a total capacity of less than 0.1 cubic meters. (40 CFR § 264.1080(b)(2)).
3. containers that have stopped receiving hazardous waste and are undergoing closure. (40 CFR § 264.1080(b)(3)).

Further, the Permittees are not required to determine average VOC concentration if pollution control is achieved using container construction specifications and operating requirements of 40 CFR § 264.1086(b), which refers to the Container Level 1 and 2 standards. Such terms are based on the regulation cited.

PS 2.4.9 – Waste Characterization for Compliance with Land Disposal Restrictions: Permit Section 2.4.9 requires characterization to meet the Land Disposal Restrictions before any hazardous waste is managed at a permitted unit. The purpose of characterization is to identify any underlying hazardous constituent that would trigger, in addition to the disposal prohibition, the one-year storage prohibition at 40 CFR § 268.50 and the waste dilution prohibition at 40 CFR § 268.3. The requirement to make a land disposal prohibition status determination applies to the generator as specified at 40 CFR § 268.7(a). The Department interprets the regulation to require that a prohibition status determination must be made early so that the waste is not subsequently managed in violation of the prohibitions referenced above. The Department therefore requires that the LDR prohibition status be made before wastes arrive at a permitted unit.

The permit section requires that, when using laboratory analysis as part of a hazardous waste characterization, the Permittees require the laboratory to report concentrations of all hazardous constituents listed at 40 CFR § 268.48, *Table of Universal Treatment Standards*, that the analytical test method used is capable of measuring as specified at the most recent version of the U.S. EPA's Test Methods for Evaluating Solid Wastes (SW-846). The Department believes that requiring laboratory analysis for all possible constituents an analytical method is capable of measuring would ensure that the Permittees comply with the 40 CFR § 264.13(a)(1) requirement to obtain a detailed chemical analysis of wastes and the §§ 264.13(b)(6) and 268.7 requirement to characterize wastes for their land disposal restriction status. The Department has found through facility inspections that facilities, including LANL, will often limit laboratory chemical analysis to only a particular constituent and ignore other relevant information the test would reveal. The Department's requirement would prohibit this practice, obtain as much information as the test is

capable of providing, and possibly identify additional underlying hazardous constituents in the waste in conformance with 40 CFR § 268.9. Because the Permittees generally base waste characterization on knowledge of the waste, and when the Permittees use laboratory analysis it generally indicates a deficiency in the characterization information, the Department believes that requiring a complete chemical analysis would be a justified acceptable knowledge quality assurance procedure. Further, the Department believes that the Permittees' suggestion of 10 to 20% additional costs is not onerous and is a reasonable cost of appropriately managing hazardous waste.

The Permittees must do the LDR status characterization regardless of planned disposal path because of the 40 CFR Part 268 long-term storage and dilutions prohibitions and because of the need for a basis for listing the waste on the Facility's Site Treatment Plan (STP). However, the Department is not requiring WIPP-bound waste to be characterized to determine all applicable underlying hazardous constituents listed in 40 CFR § 268.48, because it is not necessary for safe storage or treatment at the Facility and is not required for disposal at WIPP.

WIPP-bound wastes must undergo a LDR status characterization because the WIPP Land Withdrawal Amendment Act, Pub. L. 104-201 (1996), limits the applicability of the LDRs at WIPP but not at LANL (*See Washington v. Chu*, 558 F.3d 1036 (9th Cir. 2009)).

The Permit requires, further, that when analyzing a waste for compliance with treatment standard concentrations in 40 CFR § 268.40, the Permittees shall ensure that quantification limits do not exceed the regulatory standard. The purpose of such requirement is to avoid any false negative reports, where the relevant constituent cannot be detected, and constitutes a specific requirement for application of characterization requirements in 40 CFR §§ 264.13 and 268.7(b). Requiring analytical PQLs to be below LDR treatment standards ensures that the Permittees comply with the 40 CFR § 264.13(a)(1) requirement to obtain a detailed chemical analysis of wastes and the § 264.13(b)(6) requirement to characterize wastes for their land disposal restriction status.

The Permittees are also required to characterize treatment-derived waste to determine whether they are hazardous and to meet the notification and recordkeeping requirements of 40 CFR § 268.7(b)(3)(ii), the one-time notice rule. Such requirements are directly supported by the regulations. Similarly, the requirement to characterize treatment-derived waste against the criteria in 40 CFR §§ 268.40, 268.45, 268.48, 268.49, 268.7(b)(3)(ii), and 268.2(i) comes directly from the regulations.

PS 2.5 – Security: This section contains security requirements, the purpose of which is to prevent the unknowing entry and minimize the possibility of unauthorized entry of persons or livestock onto permitted units, based on 40 CFR § 264.14(a). Pursuant to 40 CFR § 264.14(b), the section requires a 24-hour surveillance system, controlled access gates, and security fences.

PS 2.5.1 – Warning signs: This section requires warning signs, based upon the direction of 40 CFR 264.14(c). Signs are bilingual in English and Spanish and are also posted in Tewa at boundaries with San Ildefonso Pueblo and as requested by Santa Clara Pueblo, as 264.14(c) directs.

PS 2.6 – General Inspection: This section contains general inspection requirements. The first paragraph is taken, with some revisions, from 40 CFR § 264.15(a) and (b). The second paragraph directs implementation of Attachment E (*Inspection Plan*). The third paragraph, concerning maintenance of the Inspection Plan at each permitted unit, is derived from 40 CFR § 264.15(b)(2), requiring the inspection schedule to be kept at the facility. Possession of an electronic copy is deemed compliance.

PS 2.6.1 – Inspection Schedule: This section requires Permittees to conduct inspections often enough to correct problems before they become a threat. This requirement comes from 40 CFR § 264.15(a). The requirement to inspect permitted units and associated structures and equipment paraphrases § 264.15(b)(1). The requirement to inspect areas subject to spills daily comes from § 264.15(b)(4).

PS 2.6.2 – Repairs: Permittees are required to remedy any deterioration or malfunction that may cause a hazard: to mitigate it within 24 hours of discovery and to remedy a hazard immediately when it is imminent or already exists. These requirements are taken from 40 CFR § 264.15(c), and the time for action is made more specific for enforceability. The Department specifies 24 hours to add specificity to the requirement at 40 CFR § 264.15(c) and to make the requirement enforceable and protective. Allowing the Permittees to remedy significant equipment or structural problems “on a schedule which ensure that the problem does not lead to an environmental or human hazard” could only be enforceable once a hazard has occurred.

PS 2.6.3 – Inspection Logs: This section requires inspection logs and records of actions taken. The language of this section is largely from 40 CFR § 264.15(d). For specificity and enforceability, additional language in this section requires that specific forms be used, that records be legible and corrections attributed to a specific person. These requirements, in effect, articulate the application of the regulation to this Facility. This Permit Section requires that the Permittees record the results of inspections on the Hazardous and Mixed Waste Facility Inspection Record Form in Attachment E. This inspection form was provided in the General Part B application and specifies the critical environmental and human safety criteria that will be inspected, as is required at 40 CFR §§ 270.14(b)(5) and 264.15(b). For this reason the Department requires use of this particular form and that any change to the form be done through the 40 CFR § 270.40 *et seq.* permit modification process.

This Permit Section requires that errors found in an inspection record are crossed out with a single line, initialed, and dated by the individual making the correction. The Department includes this condition to ensure the accuracy of inspection records and to improve enforceability. The requirement to record the results of inspections at § 264.15(d) implies a requirement to keep an accurate record. Identifying changes to that record must include an attribution of the change. The revised draft Permit relies heavily on the inspection logs at closure to identify past spills or releases. To increase confidence that the log or record is accurate, the Permit must contain specific procedures for altering the log or record.

The section also requires that other actions be recorded in the Operating Record, namely: preventive maintenance, malfunctions, errors potentially affecting waste containment or Permit compliance, cracks or gaps in base material, discharges of hazardous wastes, hazardous

constituents or fire suppression water, and any occurrences causing or exacerbating contamination. Such information bears upon the investigations and decontamination to be carried out upon closure. Errors “potentially affecting” waste containment are those whose consequences are not fully known at the time of the error but which deserve investigation at closure.

The Department has adopted these additional terms under its omnibus authority under 40 CFR § 270.32(b)(2) to protect health and safety, in an effort to keep a record of events that may compromise the ability of a permitted unit to contain contaminants or may reflect attempts to reverse or repair such events. These terms are clearly supported by that authority.

PS 2.7 – Training: This section imposes the requirements of 40 CFR § 264.16 and Attachment F (*Personnel Training Plan*). Section 264.16 outlines necessary training and, as a regulation, is required to be reflected in the Permit when relevant. The training requirements of Attachment F are discussed below.

PS 2.8 – Ignitable, reactive, incompatible waste: This section reflects the requirements as to ignitable, reactive, and incompatible wastes. The first paragraph refers to 40 CFR §§ 264.17, 264.176, 264.177, 264.198, and 264.199, which are applicable regulations. The requirement that containers with ignitable or reactive wastes be located 15 meters from the facility (*i.e.*, TA-specific) boundary reflects the requirement in 40 CFR § 264.176, with the modification that the boundary so protected is that of the Technical Area. The Department has reasoned that the boundaries of Technical Areas indicate limits beyond which personnel and members of the public are present who are likely to be unfamiliar with the risks presented by wastes in storage within the adjoining Technical Area. The Department believes that the intent of 40 CFR § 264.176 is to ensure that persons unaware of the existence or proximity of ignitable or reactive wastes are kept a safe distance from that waste. Thus, the 15 meter buffer zone should apply at the TA boundary to protect human health and the environment. 40 CFR § 270.32(b)(2). Listed requirements (1) through (5) are based upon 40 CFR § 264.17(b).

PS 2.8.1 – Ignitable and Reactive Waste Precautions: This Permit Section calls for several precautions in handling ignitable or reactive wastes. Items (1) through (6) require precautions to prevent accidental ignition or reaction of ignitable or reactive wastes, following in part 40 CFR § 264.17(a) and adding requirements as to fire response, such as clearance around hydrants; inspection, testing and monitoring of fire protection equipment; and compatibility of fire suppression equipment. Such added requirements are clearly protective of human health and the environment and thus supported by the omnibus authority, 40 CFR § 270.32(b)(2). The limitation on stacking of ignitable and reactive wastes to two drums is supported by the omnibus authority.

The Permit Section requires, among other things, that the Permittees ensure that appropriate lightning protection is provided for all storage and treatment units. The Department includes this permit condition to better ensure protection of human health and the environment. The Permittees address lightning strikes in their Documented Safety Analysis (DSA) for nuclear facilities (including mixed waste facilities). The Applicants provided as an example the DSA for the WCRRF with a cover letter dated May 15, 2008. Section 1 of that document (Site

Characteristics), subsection 1.5 (Natural Event Initiators), subsection 1.5.5 (Severe Weather), subsection 1.5.5.3 (Lightning Strikes), states the following:

“Lightning in Los Alamos can be frequent and intense during thunderstorms. Lightning strike data based on the informal communication with LANL personnel previously assigned to Environment, Safety, and Health (ESH-17 – now part of Meteorology Services in the Environment and Remediation Support Services Division) and information obtained from the National Oceanic and Atmospheric Administration (NOAA) website (Ref.23) indicate a local lightning strike density/frequency of approximately six strikes/km²/yr. This frequency is among the highest in the United States. “

The Department includes this condition because of its significance as an environmental and human health issue, and because of its relevance at non-nuclear as well as nuclear facilities.

The Permit Section requires that the Permittees assume that all containers that hold mixed transuranic wastes and that are not vented have hydrogen gas and that the associated wastes are considered ignitable. These drums are primarily legacy wastes that may have accumulated significant gas pressures and the Department anticipates these containers will be managed at the permitted units. This requirement is included to ensure protection and is supported by the Department’s omnibus authority at 40 CFR § 270.32(b).

PS 2.8.2 – Incompatible Waste Precautions: This section contains rules for the separation of incompatible wastes. The first paragraph is based on 40 CFR § 264.177(c). The second and third paragraphs require that incompatible wastes not be stored within or on the same secondary containment or so that they may commingle in a fire suppression water containment system. It clearly creates an undue risk if incompatible wastes are present in containers that contain free liquids which may leak or spill into the same secondary containment. The Permittees committed in their application to separate incompatible wastes with secondary containment pallets (June 2003 TA-54 Permit Renewal Application, Section 2-13). The Department’s concern regarding the fire suppression water drains is due to incompatible wastes and materials not necessarily being liquids and therefore not necessarily being stored on containment systems, and potentially commingling in the drain system.

The fourth paragraph adopts the Department of Transportation’s compatibility groupings (49 CFR § 177.848) as rules for segregation and storage, and the fifth paragraph prohibits storage of cyanides with acids if a mixture will generate hydrogen cyanide and storage of corrosive (class 8) liquids near flammable (class 4) or oxidizing (class 5) wastes, except where it is known that mixing would cause no danger. The use of the DOT regulations are based upon the Permittees’ commitment at the June 2003 Part B Permit Renewal Application, Section 2.8 and the Department’s omnibus authority under 40 CFR § 270.32(b)(2). The Department is utilizing the DOT’s compatibility groupings and is not expanding its authority to include the referenced regulation addressing placement of incompatible materials within vehicles. The last paragraph is based on 40 CFR §§ 264.177(b) and 264.199(b).

PS 2.9 – Waste minimization: This section requires a waste minimization program to reduce the volume and toxicity of hazardous wastes generated at the Facility. The regulations (see 40 CFR § 264.73(b)(9)) require an annual certification by the Permittees that they have in place a

program to reduce the volume and toxicity of hazardous waste generated. In this section the Department has included specific program requirements to make the condition enforceable and protective. The requirements are taken from the U.S. EPA's model RCRA Permit, HSWA Module (*see* U.S. EPA letter, Honker to Garcia July 7, 1995), and are similar to requirements in the Applicants' current hazardous waste permit "HSWA module" (Module VIII, Section B.1). The U.S. EPA is encouraging states to enforce the waste minimization requirements at 40 CFR § 264.73(b)(9). The Department requires that the waste minimization program be a forward-looking document for planning purposes to integrate the waste minimization program into LANL's operating principles.

PS 2.10 – Preparedness and prevention: This section contains the general requirement of safe operation in 40 CFR § 264.31 and renders enforceable the preparedness and prevention requirements and equipment lists contained in Attachment A (*Facility description*) and Attachment D (*Contingency plan*). A February 2007 DOE Office of Health, Safety and Security, and the Office of Emergency Management Oversight, Office of Independent Oversight, Office of Health, Safety and Security, and Office of the Secretary of Energy report, entitled "Independent Oversight Inspection of Emergency Management at the Los Alamos Site Office and Los Alamos National Laboratory" reports on an inspection of the Permittees' emergency planning. The inspection "focused on a detailed assessment of six key emergency management programmatic elements, as well as the performance of key emergency response decision-makers and support functions during performance tests." The inspectors found that the essential hazard surveys and emergency planning hazards assessment showed "significant weakness." The Department has reviewed the application's preparedness and prevention procedures and the emergency response contingency plan and found them to conform to the applicable regulations. Further, the Department has no indication that any of the deficiencies identified in the referenced Report applied specifically to the Permittees' waste management programs.

PS 2.10.1 – Required equipment: This section requires the Permittees to maintain the equipment listed in tables in Attachment A and Attachment D. The requirement is a specific application of the regulation at 40 CFR § 264.32 to this facility. In addition, the section requires maintenance of an environmental monitoring network as described in Attachment D to detect releases and requires equipment to mitigate impacts of a power outage. These requirements are imposed under the Department's omnibus authority, 40 CFR § 270.32(b)(2). Concerning equipment to mitigate a power outage, *see* 40 CFR §§ 270.14(b)(8)(iv) and 270.32(b)). This equipment must be batteries, generators, or some other form of backup power supply and must be capable of operating evacuation alarms, emergency communication equipment, automatic fire suppression systems, and lights in buildings without daylight illumination. The Department regards the 40 CFR § 270.14(b)(8)(iv) invitation to address a power outage with "procedures, structures, or equipment" as vague and insufficiently protective.

PS 2.10.2 – Testing and maintenance of equipment: This section requires testing and maintenance of emergency response equipment. The Permittees are required to test equipment listed in Attachment E, section E.1.1 "to ensure its functionality in event of an emergency." In other words, the equipment must be operated as would be done in event of an emergency and maintained as needed. Such requirement is supported by 40 CFR § 264.33. Regular inspections pursuant to Attachment E (Inspection Plan) are required by 40 CFR § 264.15. The Department

has added the requirement that missing or nonfunctioning equipment be promptly repaired. The regulations, at 40 CFR § 264.15(c), require repair of any deterioration or malfunction. Since this section concerns emergency response equipment specifically, the Department requires that substitute equipment be made available, employees be trained in its use, and that malfunctioning equipment be labeled “out of use.” Such requirements are within the Department’s omnibus authority, 40 CFR § 270.32(b)(2). The Department has encountered malfunctioning emergency equipment during Facility inspections and includes this permit condition(s) to better ensure protection of human health and the environment.

PS 2.10.3 – Access to communications or alarm system: This section follows 40 CFR § 264.34 and requires that during hazardous waste management, all personnel must have access to an alarm or emergency communication device, and any employee working alone must have access to an emergency communication device, without entering another building. The Department includes this requirement to ensure appropriate protection of human health and the environment, and to improve its ability to enforce the regulatory requirement. 40 CFR § 264.34(a) requires “immediate access” to emergency communication devices. The Department considers “immediate access” in this permit section as not having to enter another building.

At TA-16, the Department does not consider it appropriate for personnel to utilize radios because radio signals are often used to initiate a burn or detonation. Individuals working at the burn tray or at the flash pad while being monitored by the video camera system in the control room shall not be considered to be working alone.

PS 2.10.4 – Spill response: This section specifies steps to be taken in response to a spill, including isolation of the spill area, containment of the spill, defining the nature and extent of the spilled waste, packaging the spilled waste and contaminated materials in containers, and decontaminating the area, equipment, and personnel. This section is intended to list, in no necessary order, the elements of a spill response, leading to complete cleanup of the waste in issue. The Department included this provision to ensure that even minor releases are cleaned up in a disciplined manner protective of health and safety. (40 CFR § 270.32(b)(2)).

PS 2.10.5 – Arrangements with local authorities: The section directs the Permittees to maintain agreements with local emergency response authorities. Such arrangements are clearly authorized by 40 CFR § 264.37.

PS 2.11.1 – Implementation of Contingency plan: The section directs that Permittees shall implement the Contingency Plan (*Attachment D*) on the occurrence of:

1. an incident at a permitted unit that could threaten human health or the environment,
2. release of a hazardous waste:
 - a. that cannot be contained with secondary containment or application of sorbents;
 - b. of inflammable material creating a fire or explosion hazard; or
 - c. that results in toxic fumes.
3. explosions:
 - a. if an unplanned explosion involving hazardous waste occurs; or
 - b. if an imminent danger of an explosion involving hazardous waste exists;
4. fires:

- a. if a fire involving hazardous waste occurs; or
- b. if any building, grass, forest, or non-hazardous waste fire exists that threatens to volatilize, react, or ignite hazardous waste.

The conditions for implementing the contingency plan do not require that there be a threat to persons off the site of the Facility. The circumstances calling for implementation of the contingency plan parallel those contained in 40 CFR § 264.52(a) and are clearly supported by the regulation.

This section also requires that the Permittees have available adequate trained emergency response personnel at all times. The Department expects that, in support of its compliance with this requirement, the Permittees would present information, such as an expert analysis, supporting the size of an emergency response staff that would be appropriate for a facility of the size, population, and nature of the risks at LANL.

PS 2.11.2 – Content of contingency plan: This section specifies the plan content for each permitted unit, namely: (1) a description of actions to be taken, based on 40 CFR § 264.52(a), (2) a description of arrangements with local emergency responders, based on 40 CFR § 264.52(c), (3) a description of contracts or Memoranda of Understanding with emergency response contractors, a requirement added by the Department based on the omnibus provision, 40 CFR § 270.32(b)(2) in light of the Facility's use of contract personnel, (4) names and phone numbers of primary and alternate emergency managers, based on 40 CFR § 264.52(d), (5) a list of all on-site emergency equipment at each permitted unit, based on 40 CFR § 264.52(e), and (6) an evacuation plan, based on 40 CFR § 264.52(f).

PS 2.11.3 – Distribution: This section requires that copies of the Contingency Plan be kept at each permitted unit, the Emergency Management and Response Office, and the Operating Record. Such requirement is based on 40 CFR § 264.53, with additions to reflect the extent of the Facility. Thus, the Contingency Plan and all revisions and amendments must be maintained at numerous locations including the permitted units, at the Emergency Management and Response Office, and at the entities which the Applicants have mutual assistance agreements. The Applicants are also required to distribute copies of the Contingency Plan to the State of New Mexico's Department of Homeland Security and Emergency Management (DHSEM) Area 3 Emergency Coordinator. In a May 21, 2009 communication with the Department, Mr. Donald Mathiasen, the DHSEM's Area 3 Emergency Coordinator, agrees that his position is appropriate to be the central point of information gathering and distribution.

The Department requires complete and up to date versions of the Contingency Plan be kept at each of these locations to better ensure protection of human health and the environment. The Department believes that protection is enhanced and confusion is reduced if each entity reliant upon the Plan is required to have identical versions. The permit section requires current versions of the Plan be maintained at the permitted units to increase compliance with the Plan because the Plan outlines emergency response responsibilities for individuals at the permitted units.

This permit section requires dissemination of the Contingency Plan within ten days of the effective date of the revised draft Permit and within ten days of receipt of any Department

approval to a modification of the Contingency Plan, that all copies of the Contingency Plan distributed outside the Facility are sent by certified mail with a return receipt, or by an equivalent method, to ensure distribution, and that a record of compliance with this requirement shall be maintained in the Facility Operating Record. The Department requires these actions to improve protection of human health and the environment and to improve compliance and enforceability of 40 CFR § 264.53.

This permit section requires evacuation routes for a permitted unit to be prominently posted at each permitted unit. The Department requires this action to improve protection of human health and the environment and to improve the compliance and enforceability of the regulatory requirement, 40 CFR § 264.52(f). Further, prominent posting of the evacuation plans is the Department's preferred method of ensuring compliance with the regulation.

PS 2.11.4 – **Amendments to plan:** This section requires a review and amendment, if necessary, of the Contingency Plan. It is largely based on 40 CFR § 264.54. Additional occasions for review were included by the Department, since plan amendment may be required if the Facility Emergency Management plan is revised, a Building Emergency Plan is revised and conflicts with the Contingency Plan, or the permitted unit design or operation affects the emergency response, and whenever the Permittees review and evaluate their emergency response resources and capabilities with respect to hazardous waste management and find deficiencies. The Facility and the contingency plan are multifaceted, and the occasions calling for review and amendment are several at LANL. The Department requires these amendments to ensure protection of human health and the environment under its omnibus authority, 40 CFR § 270.32(b)(2).

As a further precaution, and in the exercise of its omnibus authority, the Department added the requirement that the Emergency Managers listed in Attachment D (Contingency Plan) review the Contingency Plan annually and log each review in the Facility Operating Record. The Department requires these actions to ensure protection of human health and the environment and to improve enforceability. (40 CFR § 270.32(b)(2)) The Department believes that requiring all primary and alternate Emergency Managers review the Contingency Plan assists in making the Plan more current and assists the Managers in remaining familiar with the Plan. The Permittees have a history of failure to maintain an accurate Contingency Plan, as was documented in a January 24, 2008 compliance order. (See Compliance Monitoring and Enforcement Compliance Summary, report run May 7, 2008)

PS 2.11.5 – **Emergency Manager:** This section incorporates by reference the requirements of 40 CFR § 264.55, as to the emergency coordinator, who is to be responsible for all emergency response measures relating to hazardous waste. Further, the Permittees are required to inform the Department of changes to the Emergency Manager designations within seven days of the change. Thus, the Permittees must keep an up-to-date list of persons designated as Emergency Managers. This requirement is imposed under 40 CFR § 264.52(d), which states that the contingency plan must include a list of persons qualified to act as emergency coordinator, “and this list must be kept up to date.” The Department believes that seven-day notification will be sufficient to maintain efficient communication if an emergency arises.

PS 2.11.6 – Required Emergency Procedures: The Permit requires notice to the Department upon implementation of the Contingency Plan. The notice requirements follow those of 40 CFR § 264.56, which requires notice of an emergency (§ 264.56(d)(2)(Permit Section 2.11.6.3.2 requires a report within 24 hours) and a follow-up report within 15 days (§ 264.56(i))(Permit Section 2.11.7 requires a report within five days.). The initial report, required within 24 hours, need not contain the level of detail contained in the later report but is essential to state the scope of the problem. Further, 40 CFR § 270.30(l)(6)(i) requires 24-hour reporting of (A) releases that “may cause endangerment to public drinking water supplies,” or (B) releases, fires, or explosions “which could threaten the environment or human health outside the facility.” It should be noted that the Department does not take any part in directing or managing emergency response.

PS 2.11.6.1 - Immediate Actions: This section parallels parts of 40 CFR § 264.56. Building or area personnel are designated to activate the alarm, since the Emergency Coordinator may be at a distant location. Notice to local first responders follows 40 CFR § 264.56(a)(2). The remainder of § 264.56 is incorporated by reference. The section also provides that one individual is identified as Incident Commander, to ensure clear authority.

PS 2.11.6.2 – Release, fire or explosion: This section is based upon 40 CFR § 264.56(b) and (c).

PS 2.11.6.3 – Reporting Findings: This section is based on 40 CFR §§ 264.56(d), (d)(1), (d)(2). The specific matters to be reported follow the list in 40 CFR § 264.56(d)(2).

PS 2.11.6.4 – Mitigative Measures: This section is based on 40 CFR § 264.65(e).

PS 2.11.6.5 – Monitoring: The permit section requires that during an emergency, the Emergency Manager utilize available air monitoring resources to measure and characterize any air emissions caused by the fire or release. The Department includes this requirement to improve protection. This requirement is supported by the Department’s omnibus authority at 40 CFR § 270.32(b). The second paragraph is based on 40 CFR § 264.56(f).

PS 2.11.7 – Post-Emergency Procedures: This section is based on 40 CFR §§ 264.56(g) and (h).

PS 2.11.8 – Need for Further Corrective Action: This section states the Department’s authority, upon learning of a release of hazardous waste or a hazardous constituent, to determine whether the spill has been entirely remediated and to determine that corrective action may be required and to so order pursuant to Permit Part 11. This authority would be present even if not mentioned, but the Department considers it appropriate to state it for clarity. As stated above, the Department does not direct or manage emergency response.

PS 2.11.9 – Notification and Record Keeping: This section states that the Permittees must notify the Department of implementation of the Contingency Plan. The regulation (40 CFR § 264.56(i)) calls for a written report within 15 days of the incident. The Permit section, Permit Section 1.9.12, requires a report within 24 hours and a written report within five days.

A further notice to the Department, local authorities, and tribal governments is required before operations resume in the areas affected. This requirement is based upon the Department’s

judgment that health and safety will be advanced by it. 40 CFR § 270.32(b)(2). As another addition, the Department requires a record of all instances when a fire suppressant was activated and contacted a waste pad.

PS 2.12 – Record Keeping and Reporting: This section requires compliance with all record keeping and reporting requirements contained in the Permit and in 40 CFR § 264.73(a), which contains a list of items to be placed in the Facility Operating Record.

PS 2.12.1 – Manifest Systems: This section incorporates by reference the manifest requirements of 40 CFR §§ 264.71, 264.72, and 264.76.

PS 2.12.2 – Facility Operating Record: This section requires maintenance of a Facility Operating Record for each permitted unit until the Department has approved either the closure certification statement or, if the unit enters post-closure care, the post-closure certification statement with respect to such unit. The Department assumes that any permitted unit subject to corrective action which is completed with controls will not be closed nor will post-closure care be completed during the pendency of such controls. For documents that address the entire Facility (*e.g.*, certifications of a Facility program to reduce the volume and toxicity of hazardous waste), the Permittees shall maintain these documents throughout the active life of the Facility including the post-closure care period. These retention periods are based on the Department's omnibus authority at 40 CFR § 270.32(b).

Permit Section 2.12.2(11) requires the OR to include applicable LDR information for disposed wastes. The relevant LDR, 40 CFR § 268.7, was adopted in 1986, and this requirement would not apply to waste disposed of before the regulation was issued. The required information is that in the Treatment Facility Paperwork Requirements Table in § 268.7(b) and includes applicable EPA hazardous waste numbers, constituents of concern for particular F-listed wastes, underlying hazardous constituents of characteristic wastes, applicable wastewater/nonwastewater categories, and available waste analysis data. *See* 40 CFR § 268.7(c)(1).

The Department will allow electronic records to substitute but will specify the format. Any alterations to the electronic record must be documented and dated. Items (1) through (13) in the Operating Record largely follow 40 CFR § 264.73(b). Items (14) through (18) are records that the Department has required to be made and maintained to enable enforcement of Permit requirements. (40 CFR § 270.32(b)(2))

PS 2.12.3 – Availability of Facility Operating Record: This section requires that the Facility Operating Record and other Permit records will be reasonably available for inspection on behalf of the Department. This is based upon 40 CFR § 264.74(a). It is understood that security constraints may delay disclosure but not for an extended period. The Department again exercises its omnibus authority to allow disclosure on paper or electronic format.

PS 2.12.4 – Record Retention: This section requires retention of all records during the pendency of any enforcement action. *See* 40 CFR § 264.74(b).

PS 2.12.5 – Biennial Report: This section requires a biennial report pursuant to 40 CFR § 264.75, which is incorporated by reference.

The public has access to the Biennial Report through the Department’s administrative record and at the information repository.

PS 2.13.1 – Closure Cost Estimates: The sections concerning closure and post-closure cost estimates and financial assurance were prepared by the Department based upon the expectation that LANS will provide financial assurance for these activities. Closure and post-closure cost estimates must be prepared in accordance with 40 CFR §§ 264.142 and 264.144. The cost estimate for closure (§ 264.142) and for post-closure care (§ 264.144) for permitted units listed in Table J-1 of Attachment J are required to 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. The Agency expects the detailed cost estimates to support the detailed activities described in the closure and post-closure plans.” 51 Fed. Reg. at 16436.

Closure cost estimates are to be submitted for the Table J-1 units permitted to store or treat wastes within 180 days after the effective date of the Permit.

Closure cost estimates are to be submitted for the Table J-1 Material Disposal Areas (MDAs) initially at the time of submission of the Corrective Measures Evaluation report and a final estimate submitted at the time of submission of the Corrective Measures Implementation Work Plan.

The regulations requiring financial assurance for closure and post-closure care costs specifically exempt facilities owned and operated by State or Federal government agencies: 40 CFR § 264.140(c) specifically states that “States and the Federal government are exempt from the requirements of this subpart.” However, since LANS is a private operator under contract with DOE, it must comply with financial assurance requirements.

LANS can choose from several different financial instruments listed in 40 CFR § 264.143: trust fund, surety bond with standby trust fund, irrevocable letter of credit, financial test and corporate guarantee, or a combination of these instruments. In the event that LANS does not perform closure and post-closure as specified in the approved plans, then the Department can effectively take possession of the funds and direct closure and post-closure work directly.

The Permittees have not provided any cost estimates of closure costs. The estimates in Attachment M are based on calculations by the Department’s contractor, Techlaw, Inc., and are based on closure activities (sampling and analysis) required in Part 9 of the revised draft Permit.

The cost estimates for closure and post-closure care of MDA G, H and L are not included in Attachment M, because the Department is reluctant to predetermine the closure processes for the units.

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” § 264.142(a)(1).

Because final decisions have not been made as to the types of closure, the cost estimates must include the most expensive type of closure, which in the case of storage and treatment units would normally be removal of all wastes, decontamination, and verification. The rules look to the *time* when closure would be most expensive, not necessarily the most expensive method. In the LANL situation, the greatest costs will involve the disposal sites, and they are probably at their most expensive point now.

PS 2.13.2 – Post-Closure Cost Estimates: This section requires post-closure cost estimates for each permitted unit that will be closed with waste in place. The estimate shall be submitted with the permit modification request to adopt a post-closure care plan.

PS 2.13.3 – Adjustments to the Cost Estimates: Cost estimates shall be adjusted for inflation annually before the anniversary date of the financial assurance. Cost estimates shall also be adjusted when there is a change in the underlying closure plan or post-closure care plan, including when clean closure is attained at a permitted unit, as required by 40 CFR §§ 264.142(d) and 264.144(d). The provision is supported by those regulations.

PS 2.13.4 – Records of the Cost Estimates: This section requires the Permittees 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.

PS 2.14 – Financial Assurance for Closure and Post-closure: This section 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, 264.145).

LANS must establish financial assurance for closure of the 26 units permitted to manage hazardous wastes 180 days after the day the revised draft Permit becomes effective, since approved closure cost estimates are contained in Attachment M. LANS is required, as to the units to which the Attachment M estimates relate, to provide financial assurance in accordance with 40 CFR §§ 264.143, 264.147, and 264.151, 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 PS 2.13.1)

PS 2.15 – Liability Requirements: This section requires LANS to show compliance with 40 CFR § 264.147(a) and (b).

PS 2.16 – Incapacity of Operators, Guarantors, or Financial Institutions: This section incorporates by reference 40 CFR § 264.148 and requires LANS to comply with it in event of incapacity of the owner, operator, or a financial institution that supports the financial assurance. The entirety of Subpart H is incorporated by reference.

Part 3 - Container Storage

The container storage provisions require, overall, that the Permittees comply with 40 CFR Part 264, Subpart I - Use and Management of Containers and Attachment A, the General Facility description. Storage of hazardous waste containers is limited to the units and capacities shown in Attachment J, Table J-1 and further limited to those waste codes listed in Attachment B, the Part A Application.

PS 3.2 – Condition of Containers: This permit section requires that hazardous waste containers be in good condition and that waste must be transferred from a container in bad condition to a sound container is based on the regulatory requirement of 40 CFR § 264.171. The 24 hour requirement is added to ensure enforceability pursuant to 40 CFR § 270.32(b)(2).

PS 3.3 – Acceptable Containers: This permit section limits the Permittees to storage containers that comply with Subpart I. For wastes that will undergo transportation, the permit section requires that containers meet Department of Transportation regulations, 49 CFR Parts 173 and 178. The pre-transportation requirement conforms with 40 CFR § 262.30. The Department will not enforce the pre-transportation container type requirement when wastes are in storage, but will enforce the requirement if wastes are placed on a vehicle for off-site transport, the vehicle is located at a permitted unit, and there is a signed manifest that includes a non-compliant container.

PS 3.3 – Uncontainerized waste: This permit section authorizes the Permittees to store solid oversized waste items contaminated with hazardous wastes, that cannot be containerized in existing waste containers, and that have been wrapped in two layers of plastic to prevent dispersion of hazardous wastes, subject to the requirements of storage under part 3. The Permittees have advised that these items consist of gloveboxes or glovebox parts, vacuum pumps, tanks, and oversize facility equipment (*e.g.*, stationary tools, duct work, piping, and HEPA filters) which have been deemed waste and are awaiting dismantlement and size reduction or the procurement of suitable containers larger than usually available, and the authorization should be understood as limited to that purpose. (Permittees' transmittal, March 16, 2009). The Permittees' description of the storage is as follows:

“Additionally, solid items greater than the above mentioned sizes (not to include waste containing liquids) will be staged and wrapped tightly prior to being shipped in DOT approved containers. The wrapping will consist of clean and compatible materials (*e.g.*, shrink wrap, clear plastic wrap, or plastic bag out bags). The items will be wrapped with a minimum of two layers of material to provide confinement and will be closed and sealed or taped to prevent leakage. Each wrapped item will be labeled appropriately as hazardous waste.”

In allowing this practice, the Department assumes that it will be used for items too large for normally available containers and that, once wrapped in plastic, items will not be moved until a container is available. Further, storage of such items shall be subject to the usual requirements of container storage, *e.g.*, secondary containment for free liquids (40 CFR § 264.175), compatibility of the item with waste contained therein (40 CFR § 264.172), separation of the items from containers or items storing incompatible wastes (40 CFR § 264.177), placement of items

containing ignitable or reactive wastes (40 CFR § 264.176), and transfer of wastes into containers in good condition (40 CFR § 264.171).

PS 3.4 – Container Compatibility: This permit section requires use of containers or liners that are not incompatible with the wastes therein, based upon 40 CFR § 264.172.

PS 3.5(1) – Closed Containers: This permit section requires that containers be kept closed, except during waste addition or removal or repackaging, based on 40 CFR § 264.173(a).

PS 3.5(2) – CSU Boundary Demarcation: This permit section requires demarcation of the boundaries of container storage area permitted units, using paint, tape, or other permanent visible marking. The Department includes this requirement to ensure the enforceability of the Permit. Department inspectors can more efficiently conduct inspections at the Facility if the boundaries of permitted units are clearly identified by paint, tape, or other permanent visible markings. While touring the facility on February 12, 2009 and May 28, 2008 Department personnel identified several instances where it was not possible to tell where one permitted unit ended and another began (*i.e.*, Pads 1, 3, 9, and 10 at TA-54). (*see* April 23, 2009 Memo to file regarding permitted unit demarcation) A fence or other permanent structure marking the boundary suffices as demarcation. Additionally, this requirement will aid the Permittees with regard to sampling and decontamination requirements at closure.

PS 3.5(3) – Elevating Containers: This permit section requires that waste drums stored in portable buildings that do not have grated floors are elevated, as by dollies or pallets. The purpose of this provision is to protect the containers from contact with accumulated liquids, as required by 40 CFR § 264.175(b)(2).

PS 3.5(4) – Container Location Documentation: This permit section requires that the Permittees document the location of each container and revise the documentation when containers are moved. *See also* Permit Section 2.12. The purpose of this requirement is to enable the Permittees and the Department to monitor compliance with Permit terms addressing capacity limits, storage duration, compatibility of wastes, and similar requirements.

PS 3.5.1(1) – Aisle Space: This permit section requires the maintenance of adequate aisle space at all times to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment within the permitted units. The purpose of this requirement is to enable the Permittees and the Department to monitor compliance with Permit, which requires adequate aisle space in storage areas, in accordance with 40 CFR § 264.35. It also requires emergency egress aisles two feet wide. Such requirement follows from the several requirements for preparation for fire or other emergencies. *See, e.g.*, 40 CFR § 264.32.

PS 3.5.1(2) – Container Stacking Limit: This permit section limits stacked containers greater than or equal to 30 gallons of hazardous waste to no more than three containers high and that these stacked containers be palletized and each layer shall be bound together. The Department limits stacking of hazardous waste containers to establish a specific and enforceable application of the 40 CFR § 264.173(b) prohibition on storing containers in a manner that may rupture a container or cause it to leak. Further, large container stacking is limited to facilitate container

inspection. The Permittees' TA-50, Part B Renewal Application, Section 2.1.3 (2002) references stacking of containers "two-high." Further, the Basis for Interim Operation for Waste Characterization, Reduction, and Repackaging Facility (WCRFF)(April 2007) limits stacking of TRU waste containers to a maximum of four feet. (see revised draft Permit Section 4.5.6.2). This Documented Safety Analysis (DSA) explains that TRU waste containers should not be stacked or lifted higher than the container-certification drop-test criterion and explains that a four foot limit "helps prevent the probability of a drop that could breach the container." A container might be dropped during handling, and a limit on container height limits the potential impact of an accident. This requirement is also imposed as a precaution against unstable container storage configurations in an area of known seismic activity. Further, the Department is requiring that stacked containers be palletized (*i.e.*, placed on a rigid flat panel) and the individual containers be bound together. That is, where a pallet contains multiple layers of four containers, those containers must be wrapped with plastic or the equivalent to create a rigid structural unit, adding stability to the stack. Such a requirement is supported by the Department's omnibus authority under 40 CFR § 270.32(b)(2).

PS 3.5.1(3) – Container Location: This permit section requires that containers stored outdoors be stored no closer than five feet from the perimeter fence, any permanent structure, or a roadway. The purpose is to enhance safety by keeping waste containers at least five feet from sources of danger (persons or vehicles outside the perimeter, vehicles on a roadway), to ensure emergency access, and to facilitate container inspection. 40 CFR § 264.35 requires maintenance of sufficient space to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area within a permitted unit. The Department considers five foot spacing between buildings and fences a minimum amount of space to provide emergency access. The requirement is imposed under the Department's omnibus authority under 40 CFR § 270.32(b)(2).

PS 3.5.1(4) – Gas Cylinders: This permit section requires that gas cylinders containing hazardous waste be stored in racks, baskets, or special pallets "that provide support and restraint." The purpose is to keep the cylinders from being displaced from their storage location and colliding with objects that might break open a cylinder. The Permittees' June 2003 TA-54 Part B Renewal Application, Section 2.1.1.3, commits to utilizing this process.

PS 3.5.1(5) – Protection from Precipitation: This permit section requires that containers stored outdoors and are not being actively managed be protected from precipitation. Mixed waste containers have vent ports that may allow water to infiltrate the container. This permit requirement prevents water from entering containers that could result in the alteration of the characteristics of the waste, the mobilization of the waste, or corrosion of the container. Weather protection also protects container labels from detaching or becoming illegible. The phrase "active management" in this permit condition refers to the act of moving or intentionally managing the contents of containers.

PS 3.6(1) - Container Labeling: This permit section requires that containers storing hazardous waste be labeled "hazardous waste" for safety purposes and in accordance with 40 CFR § 262.34(a)(3). The permit section also requires the label identify the following; generator's name, address, EPA identification number; all applicable EPA hazardous waste numbers; and the date

when the container was placed in storage at the permitted unit. The generator information assists in enforcing Permit limitations upon permissible waste sources. (*See* Permit Section 2.2.1). The date of placement in storage is necessary to enforce limits upon storage duration. (*See* Permit Section 2.3.1; 40 CFR § 268.50(a)(2)(i)). The EPA hazardous waste numbers assists in enforcing compatibility requirements. (*See* 40 CFR §§ 268.50(a)(2)(i), 264.177(c)) The September 2003 TA-55 Part B Permit Application, Section 2.1.6.2 commits to including this information on labels

Containers holding mixed waste are required to be labeled “radioactive.” This is an appropriate use of the 40 CFR § 270.32(b)(2) omnibus authority, since radiological hazards must be considered in responding to an incident involving mixed waste. Further, the Permittees utilize the RCRA air emission exemption for containers holding mixed wastes. Therefore, a “radioactive” label is necessary for the Department to concur that a container has exempt status. Other DOE RCRA permits require radiological data. In the Idaho National Laboratory storage permit (Rev. Jan. 31, 2006), Attachment 2, calls for a waste profile form with information on “Radiological characteristics of Waste ...” The required data include fissile content, radiation at contact (mR/hr), TRU content, and assay results. (Appx. IX at 4) The LANL September 2003 TA-55 Part B Permit Application, Section 2.1.6.2 commits to including this information on labels

PS 3.6(2) – Free Liquid Label: This permit section requires that containers holding free liquids have a “free liquids” label. It is an appropriate precaution to identify containers with free liquids because the presence of a liquid is a significant consideration in handling, storing, and in responding to an incident involving a container. There are numerous specific requirements regarding management of containers holding free liquids (*e.g.*, secondary containment at 40 CFR § 264.175 and Permit Section 3.7). Further, the revised draft Permit limits the areas where waste containing free liquids may be stored (*e.g.*, unit at TA-54-4, B05 identified at Permit Attachment J, Table J-1). The Department requires free liquids labels to better ensure protection of human health and the environment and to facilitate compliance and enforcement of the regulations and Permit requirements.

The presence of free liquids is determined by the “paint filter” test. EPA has stated that the paint filter test is mandatory for determining whether a waste sample contains free liquids. (50 Fed. Reg. 18370, 18372)(Apr. 30, 1985).

PS 3.7 – Container Corrosion: This permit section requires containers be stored in a manner that prevents contact with any accumulated liquids. This is a statement of the requirement contained in 40 CFR §§ 264.175(b)(2) and 175(c).

PS 3.7.1(1) – Secondary Containment: This permit section incorporates by reference the secondary containment requirement for container storage that is set forth in 40 CFR § 264.175. For outdoor units the permit section requires run-on controls in the form of berms and sloping to prevent run-on into a permitted unit. Section 264.175(b)(4) requires run-on controls unless the collection system has sufficient excess capacity to “contain any run-on which might enter the system” in addition to required containment capacity associated with the liquid wastes. Since calculation of containment capacity and the amount of “any run-on” have several uncertain

elements, the Department has elected to require simply that run-on be prevented. “Run-on” is defined as “any rainwater, leachate, or other liquid that drains over land onto any part of a facility.” (40 CFR § 260.10)

PS 3.7.1(2) – Secondary Containment Evacuation: This permit section requires removal of spilled or leaked waste and accumulated precipitation from sumps or secondary containment systems either: (a) within 24 hours of detection if the sump or secondary containment is the sole means of secondary containment or immediately if necessary to prevent overflow; or (b) otherwise, in as timely a manner as necessary to prevent overflow of the containment system. Title 40 CFR §§ 264.175(b)(4) and (5) require maintenance of the § 264.175(b)(3) secondary containment capacity and removal of waste or precipitation to prevent overflow. Title 40 CFR § 264.175(b)(3) requires that containment systems have sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater. The Department’s provision does not allow the required capacity to be diminished for longer than 24 hours, and its specific deadline for removal makes the requirement enforceable. If the applicable time frames impinge upon the Permittees, they may consider using containment pallets for all waste containers in the structure holding free liquids so that more than one form of secondary containment is available. Further, the Department considers the storage of large quantities of fluids (*e.g.*, Dome 230 sump holds greater than 18,000 gallons) in a containment structure for long periods of time to unnecessarily increase the potential for releasing those fluids to the sub-soils. The Dome 230 sump has held large quantities of fluid in the past which had frozen due to an opening in the Dome’s fabric covering. The Department considered the expansion potential of frozen fluid to threaten the integrity of the sump.
PS 3.7.1(3) – Secondary Containment Seal: This permit section requires that Permittees maintain the base of secondary containment systems so that it is impervious to leaks, spills, and precipitation. The purpose is to prevent migration of hazardous wastes through defective containment systems. The provision contains the substance of 40 CFR § 264.175(b)(1).

PS 3.7.1(4) – Sealant Documentation: This permit section requires the maintenance of documentation that any coating or sealant used as a secondary containment system was applied and maintained in accordance with the manufacturer’s specifications. (*See* June 2002 TA-54 Part B Application, Section G.2.4. discussion regarding sealant in TA-54-32) This requirement seeks to provide assurance that the principle of § 264.175(b)(1)—an impervious base—is adhered to and enforceable. As such, it is an appropriate use of the Department’s omnibus authority to include terms to protect human health and the environment. (40 CFR § 270.32(b)(2)).

PS 3.7.1(5) – Flexible Liner Documentation: This permit section requires, after July 1, 2014, the maintenance of documentation in the Facility Operating Record that the flexible liner was installed and maintained in accordance with the manufacturer’s recommendations. This requirement seeks to provide assurance that the principle of § 264.175(b)(1) – an impervious base – is adhered to and enforceable. As such, it is an appropriate use of the Department’s omnibus authority to include terms to protect human health and the environment. (40 CFR § 270.32(b)(2)).

PS 3.7.1(6) – Secondary Containment Repair: This permit section requires repair of damage to a secondary containment system within 15 days of identification of the problem. Such a

requirement articulates the substance of 40 CFR § 270.175(b)(1), requiring that the base be impervious, and of 40 CFR § 264.15(c) (remedy of deterioration or malfunction); thus, it is an appropriate application of the regulation to the specific situation. Further, it is an appropriate use of the Department’s omnibus authority to include terms to protect human health and the environment. (40 CFR § 270.32(b)(2)). The duty to record repairs supports development of correct closure plans. (*See* Permit Section 9.4.6.2).

PS 3.7.1(7) – **Secondary Containment Pallet:** This permit section requires that the number of waste drums on a secondary containment pallet not exceed the design capacity of the pallet. This requirement ensures that, in the specific case of use of such pallets, the terms of 40 CFR § 264.175(b)(3), calling for particular secondary containment capacity, are fulfilled.

PS 3.7.1(8) - **Metal Secondary Containment Pallets:** This permit section requires that metal secondary containment pallets be treated with “chemically-resistant urethane,” which must be maintained. Such requirement, in effect, specifies how the mandate of 40 CFR § 264.175(b)(3) will be fulfilled in this case and is a proper permit term.

PS 3.7.2(1) – **Area Drainage:** This permit section contains requirements for storage areas where wastes without free liquids will be stored. It requires that the storage areas be sloped or otherwise designed to drain liquids and that containers be elevated to protect them from contact with liquids. These requirements are based upon 40 CFR §§ 264.175(c)(1) and (2).

PS 3.7.2(2) – **Secondary Containment for F-listed Wastes:** This permit section requires secondary containment for hazardous waste containers having specified waste codes, following the terms of 40 CFR § 264.175(d).

PS 3.7.2(3) – **Units Prohibited from Managing Free Liquids:** This permit section requires that units identified by the Permittees as storing non-liquid wastes only are managed accordingly. The requirement is based upon the Application. (*See* TA-55 Part B, Section G.2)

PS 3.8(1) – **Inspection Frequency:** This permit section requires weekly inspection of container storage units for evidence of leaks or deterioration in the containment system. The requirement closely follows the language of 40 CFR § 264.174. A container storage unit that is not in use, (*i.e.*, where no waste is stored), need not be inspected.

PS 3.8(2) – **Container Inspection:** This permit section requires containers be stored in a manner that allows them to be inspected for leaks, corrosion, and deterioration. The requirement closely follows the language of 40 CFR § 264.174. This permit section also requires that containers be stored so that labels may be read without moving the container. 40 CFR § 262.34(a)(2) requires that the date upon which each period of accumulation begins is clearly marked and visible for inspection on each container. The permit requirement closely follows that regulation and it is supported by the Department’s omnibus authority under 40 CFR § 270.32(b)(2).

PS 3.9(1) – **Air Emissions:** This permit section directs that air emissions from containers be controlled in accordance with 40 CFR Subpart CC. Such condition is clearly based upon the applicable regulation. In accordance with 40 CFR § 1080(c), the air emission control requirements are incorporated in the Permit when reissued.

PS 3.9(2) - Exemption from Air Emission: This permit section contains the exemptions from air emission controls stated in 40 CFR § 1080(b)(1) through (8). The Department includes the exemptions in the revised draft Permit to aid Department inspectors during inspections.

PS 3.9(3) – Mixed Wastes: This permit section requires labeling of containers that hold mixed waste and are therefore exempt under 40 CFR § 264.1080(b)(6). The requirement is justified by the need to enforce the application of the exemption and to facilitate inspections by the Department.

PS 3.9(4) - Exemption from Air Emission: This permit section provides that container air emissions may be controlled by adherence to Container Level 1 specifications contained at 40 CFR § 1086(b)(i)(1), (c)(i)(1), (c)(3) and (c)(4). The requirement is justified by the need to enforce the application of the requirements and is supported by the regulation.

PS 3.9(5) - Documentation of Exemption from Air Emission: This permit section requires maintenance of a list of containers subject to Container Level 2 controls. All containers not exempted from Subpart CC requirements will be subject to Container Level 1 requirements; a separate list of containers subject to container Level 2 requirements shall be kept. The listing requirement is included to enable enforcement of the air emission requirements. Enforcement of air emission requirements calls for identification of the containers in “light material service” (40 CFR § 264.1086(b)(1)(iii)). Without a list of such containers, the Department would be unable to enforce this requirement. 40 CFR 270.32(b)(2).

PS 3.9(6) – Characterization for Air Emissions: This permit section requires that wastes subject to emission controls be characterized in accordance with other Permit conditions. Thus, it simply restates an existing requirement of the revised draft Permit and facilitates Department inspections.

PS 3.10.1 – TA-3 Storage Locations: This permit section requires that storage of hazardous waste in TA-3 conform to the unit description in Attachment A and Attachment J. The list of locations is referenced in the Permittees’ September 1999 TA-3-29 Part B Application, Sections 2.1.1 and G.1.

PS 3.10.2 – TA-3 Floor Sealant: This permit section requires that the floors in Rooms 9010, 9020, and 9030 be painted with epoxy sealant and maintained. Such a requirement simply makes specific for this unit the regulatory requirement of 40 CFR 264.175(b)(1), *i.e.*, the impervious base able to contain leaks and spills. Further, the requirement is a commitment referenced in the Permittees’ September 1999 TA-3-29 Part B Application, Sections G.1.1, G.1.2, and G.1.3.

PS 3.11.1(1) – TA-50 Storage Locations: This permit section requires that storage of hazardous waste in TA-50 conform to the unit description in Attachment A and Attachment J. The locations are referenced in the Permittees’ August 2002 TA-50 Part B Application, Sections 2.1 and G.1.

PS 3.11.1(2) – Ignitable Waste inside a Glovebox: This permit section prohibits storage of ignitable waste inside the glovebox in the indoor permitted unit. This requirement is based upon

the serious safety issue raised by the presence of ignitable waste inside a glovebox, namely, that it is very difficult to control or extinguish a fire in a glovebox. This is an appropriate use of the Department's omnibus authority. 40 CFR § 270.32(b). Further, the requirement is a commitment referenced in the Permittees' August 2002 TA-50 Part B Application, Section 2.1.10.

PS 3.11.1(3) – **TA-50 Fire Access Lane:** This permit section requires a fire access lane between TA-50-69 outdoor and indoor permitted units. This fire lane provides access to a fire hydrant and TA-perimeter fire access gate on the northwest boundary of the unit. The purpose of this condition is to ensure proper egress of personnel in event of fire. This is an appropriate use of the Department's omnibus authority. 40 CFR § 270.32(b)(2).

PS 3.11.2 – **Loading Limits:** This permit section forbids loading and unloading waste at TA-50 during precipitation. The requirement is a commitment referenced in the Permittees' August 2002 TA-50 Part B Application, Section G.2.4.1.

PS 3.11.3 – **TA-50 Runoff/Run-on:** This permit section requires the Permittees to prevent runoff from the TA-50 outdoor unit to other areas and to inspect and maintain drainage swales so that run-on is diverted from the unit. 40 CFR § 270.14(b)(8)(ii) requires a permit application to describe means used to prevent runoff to other areas of the facility or environment. The Permittees' August 2002 TA-50 Part B Application, Section G.2.4.2 commits to preventing runoff and having erosion controls that are "designed to guide surface waters away from waste management activities and into the natural drainages." The Department requires maintenance of the drainage swales located south of the permitted unit between the permitted unit and Material Disposal Area (MDA) C, and located on the west side of the permitted unit between Pecos Drive and the TA-50 fence line (*see* Part B Application Figure A 11) to establish a specific and enforceable application of 40 CFR §§ 264.175(b)(4) and (c)(1).

PS 3.12.1(Area G)(1) - **Dome 224 Standing Liquids:** This permit section requires evacuation of all fluids above the HDPE liner at TA-54 Area G, Dome 224 within 24 hours of detection. Department personnel inspection of the dome in February 2005 revealed the existence of standing fluid in the sump accessing the top of the liner (*See* Memo to file dated April 27, 2009).

As a result of Permit negotiations the Permittees have agreed to use secondary containment pallets in Dome 224 instead of using the domes' engineered secondary containment system. The HDPE liner is a part of that engineered system. However, the engineered system has been used to provide secondary containment in the past as evidenced by the Permittees' June 2002 TA-54 Part B Application, Section G.3.4.5 and the Permittees have provided no data showing that contamination does not exist within the system. The Department does not anticipate a thorough investigation of the system until closure of the dome. Further, the Department considers the existence of fluids standing on a HDPE liner or in a sump for long periods of time to unnecessarily increase the potential for releasing those fluids to the sub-soils. The Department therefore believes it is imperative that liquids in the substrate below stored hazardous wastes and above the HDPE liner be removed. The Department includes this requirement to better ensure protection of human health and the environment and the requirement is supported by the Department's omnibus authority, 40 CFR § 270.32(b)(2).

PS 3.12.1(Area G)(2) – **Secondary Containment Pallets at Area G:** This permit section requires that all containers storing hazardous waste with free liquids at Area G be placed on containment pallets, except within Domes 230, Sheds 144, 145, 146, 177, 1027, 1028, 1029, 1041, and Building TA-54-412. The enumerated structures all have secondary containment systems of their own. (*see* the Permittees’ June 2003 TA-54 Part B Renewal Application, Section 2.6) The remaining storage areas at Area G require secondary containment by other means, *i.e.*, containment pallets. The explicit statement of the requirement does not add to the Permittees’ obligations and better enables the Permittees and the Department to monitor compliance with Permit terms.

PS 3.12.1(Area L)(1) – **Area L, Dome 215:** This permit section addresses the Area L, Dome 215 holding tank and directs that it be inspected monthly and that any detected fluids be characterized and removed within three days. On December 2, 2006 a fire suppression line froze and broke, releasing 43,000 gallons that drained the length of the Dome 215, entered a drain line, and then entered a 13,000 gallon holding tank. (*See* Dec. 5, 2006 HWB Incident Report) At the time the tank held approximately 3000 gallons of water contaminated with tritium. Overflow of the tank resulted in 33,000 gallons released to the environment. The Permittees have not explained the source of the tritium in the water. The Department considers floors of hazardous waste storage areas to have numerous potential sources of contamination and any water contacting those floors to be a potential source of contamination. It clearly serves safety and the environment to remove accumulated liquids from the Dome 215 holding tank and is supported by the Department’s omnibus authority, 40 CFR § 270.32(b)(2).

PS 3.12.1(Area L)(2) – **Secondary Containment Pallets at Area L:** This permit section requires that all containers storing hazardous waste with free liquids at Area L be placed on containment pallets, except within the following: Sheds 31, 68, 69, 70; concrete pad with canopy TA-54-32; concrete pads TA-54-35 and TA-54-36; building TA-54-39 (Room 101 and South Containment Pad); and modular unit TA-54-58. The enumerated structures all have secondary containment systems of their own. (*See* the Permittees’ June 2003 TA-54 Part B Renewal Application, Section 2.6) The remainder of storage areas at Area L requires secondary containment by other means, *i.e.*, containment pallets. The explicit statement of the requirement does not add to the Permittees’ obligations and better enables the Permittees and the Department to monitor compliance with Permit terms.

PS 3.12.1(TA-54 West) – **TRUPACT Containers:** This permit section allows storage of mixed TRU wastes in sealed NRC certified Type B shipping containers at the TA-54-West Outdoor permitted unit without secondary containment and weather protection. The containers referred to are TRUPACT-II shipping containers that have been loaded to ship transuranic waste to WIPP. (*See* LANL Comments on draft Permit, January 10, 2008, Comment #129) The container has sufficient integrity that it is not necessary to add secondary containment for liquids. Waste prepared for transportation to WIPP is, in any event, determined to contain no more than 1% free liquids, which is well within the capacity of the TRUPACT-II container. In addition, weather protection is not necessary in light of the integrity of the container, which is sealed.

PSs 3.12.2, 3.12.2.1, 3.12.2.2, and 3.12.2.3 – **Run-on Controls:** These permit sections require repair and maintenance of the ramps used to prevent run-on into the permitted units at TA-54

West, Domes 153 and 283, Storage Shed 8, and TA-54-33 and sloping and maintenance of concrete pads to prevent run-on. Under 40 CFR § 264.175(b)(4), run-on into the containment system must be prevented. The Department incorporates this commitment from the Permittees' June 2003 TA-54 Part B Renewal Application, Section 2.10.3, to establish a specific and enforceable provision.

PSs 3.12.3.1 through 3.12.3.7 – **Sealants**: These permit sections require treatment of concrete sumps, pads, berms, curbs, floors, and interiors with an epoxy sealant to contain potential leaks, spills, or precipitation. These are unit specific and enforceable requirements meant to ensure compliance with 40 CFR § 264.175(b)(1), *i.e.*, the impervious base able to contain leaks and spills. Further, the requirements are consistent with Permittees' commitments referenced in the September 1999 TA-3-29 Part B Application, Section G.1.

PS 3.12.3.8 - **Dome 224**: The permit section requires the Permittees to store all waste containers in Dome 224 holding free liquids on secondary containment pallets. The Permittees commit to no longer relying upon the HDPE liner in the dome for containment because they could not produce the manufacturer's specifications nor demonstrate adherence to them. The Permittees committed to this requirement during permit negotiations.

PS 3.13.1 – **TA-55 Storage Locations**: This permit section properly limits container storage in TA-55 to the permitted units identified in Attachment A. The locations are referenced in the Permittees' September 2003 TA-55 Part B Application, Sections 2.1 and G.1.

Part 4 - Tank Storage and Treatment by Stabilization

The tank storage and stabilization treatment provisions require, overall, that the Permittees comply with 40 CFR Part 264, Subpart J – Tank Systems, 40 CFR Part 264, Subpart X, Miscellaneous Units, and Permit Attachment A, the General Facility and Technical Area Specific Unit Descriptions. Storage of hazardous waste in tanks and treatment by stabilization is limited to the units and capacities shown in Attachment J, Table J-1 and further limited to those waste codes listed in Attachment B, the Part A Application.

PS 4.1(5) – **Incompatibility**: This permit section requires that mixed wastes or treatment reagents not be placed in the storage tank or stabilization units if they could cause the units, their ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail. The permit section is based on 40 CFR § 264.194(a). Further, the Department's decision to make this tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by the 40 CFR § 264.601 term that states “[p]ermit terms and provisions must include those requirements of subparts I through O [including subpart J, the tank system requirements] . . . that are appropriate for the miscellaneous unit being permitted.” The stabilization unit is made of similar materials and therefore has similar compatibility issues.

PS 4.2 – **Tank Integrity Assessment**: This permit section requires maintenance in the Facility Operating Record of the written integrity assessments of all existing tank unit systems provided with the Permittees' Permit Application. The integrity assessments in the Permittees' September 2005 TA-55 Part B Application, Supplements H.1, H.2A, H.2B, H.2C, and H.3 contain detailed descriptions of the tank system components, their materials of manufacture, and the testing and

evaluation that was performed on each component. The Department requires maintenance of these descriptive documents in the Facility Operating Record to ensure their availability during enforcement actions and to enable the Permittees and the Department to monitor compliance with Permit terms. The Department requires the maintenance of the integrity assessment to ensure compliance with 40 CFR § 264.191.

PS 4.3(1) – **Repairs:** This permit section requires either that storage tank or stabilization system repairs are performed in accordance with 40 CFR §§ 264.196(e)(2) through (4), or that the system be closed in accordance with the conditions of this Permit and 40 CFR § 264.197. The permit section is based on the referenced regulations. Further, the Department’s decision to make this tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by the 40 CFR § 264.601 (see basis at PS 4.1(5)).

PS 4.3(2) – **Replacement:** This permit section requires that during the replacement of tank unit systems and stabilization unit ancillary equipment that proper handling procedures are adhered to prevent damage to the units, their components, or any ancillary equipment. The permit section is based on 40 CFR § 264.192(b). Further, the Department’s decision to make this tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by 40 CFR § 264.601 (see basis at PS 4.1(5)).

The requirement that replacement equipment be made of the same or similar materials as those described in Attachment A (*General Facility and TA-Specific Description*) is based on those materials being those committed to in the Permittees’ September 2003 TA-55 Part B Application, Sections H.1 and I.1.

PS 4.3(3) – **Replacement:** This permit section requires that prior to replacing a portion of the tank or stabilization unit systems, a registered engineer trained and experienced in the proper installation of tank systems or components inspects the system. This permit section is based on 40 CFR § 264.192(b). Further, the Department’s decision to make this tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by the 40 CFR § 264.601 (*See* basis at PS 4.1(5)).

PS 4.3(4) - **Certification of Repair:** This permit section requires that if the storage tank unit or the stabilization unit systems are repaired, the Permittees shall certify that the system is capable of handling mixed wastes without release for the intended life of the system. This permit section requirement is based on 40 CFR § 264.196(f). Further, the Department’s decision to make this tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by the 40 CFR § 264.601 (see basis at PS 4.1(5)).

PS 4.3(5) – **Tightness Testing:** This permit section requires that replacement tanks, their ancillary equipment, and stabilization unit ancillary equipment shall be tested for tightness prior to being placed into use, and if a replacement tank, tank ancillary equipment, or stabilization unit ancillary equipment is found not to be tight, all repairs necessary to remedy the leak(s) in the system(s) shall be performed prior to the system being placed into use. This permit section requirement is based on 40 CFR § 264.192(d). Further, the Department’s decision to make this tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by the 40 CFR § 264.601 (see basis at PS 4.1(5)).

PS 4.3(6) – **Operating Record:** This permit section requires the Permittees obtain and keep in the Facility Operating Record the written statements required at 40 CFR § 264.192. This permit section requirement is based on 40 CFR § 264.192(g).

PS 4.4(1) – **Secondary Containment:** This permit section requires that the tank and stabilization units have an associated secondary containment system that conforms to the requirements specified at 40 CFR § 264.193. This permit section incorporates by reference that regulatory requirement. Further, the Department’s decision to make this tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by the 40 CFR § 264.601 (see basis at PS 4.1(5)).

The permit section also requires that the walls and floor of Room 401 be considered the secondary containment system for the storage tank and the stabilization units. This design consideration is a commitment in the Permittees’ September 2003 TA-55 Part B Permit Application, Sections H.3 and I.3.1.

PS 4.4(2) – **Spill Prevention:** This permit section requires the use of appropriate controls and practices to prevent spills and overflows from the storage tank unit, the stabilization unit, or their associated containment system. This permit section requirement is based on 40 CFR § 264.194(b). Further, the Department’s decision to make this tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by the 40 CFR § 264.601 (see basis at PS 4.1(5)).

PS 4.4(3) – **Evacuation of Secondary Containment:** This permit section requires that spilled, leaked, or otherwise accumulated liquids be removed from the secondary containment system, including but not limited to the sumps, within 24 hours of detection of the spill, leak, or accumulation. The Permittees may seek an extension of time if the Permittees can demonstrate that removal of the released waste or accumulated liquids cannot be accomplished within 24 hours (*see* 40 CFR § 264.193(c)(4)). Such documentation must be made 24 hours of detection of the spill, leak of the released waste. The Department’s permit provision establishes a specific and enforceable application of the 40 CFR § 264.193(c)(4) allowance to seek an extension to remove accumulated liquids.

This permit section also requires notification to the Department of any accumulated liquids within the secondary containment system within five days of detection of such liquids. The Department requires this notification so that it may enforce numerous permit requirements, including but not limited to; the Permit Section 4.3(1) requirement to perform proper repairs, the Permit Section 4.3(3) requirement to have an engineer review repairs, and the Permit Section 4.4(7) requirement to remove a leaking unit from service. This requirement is also supported by the Department’s omnibus authority, 40 CFR § 270.32(b).

PS 4.4(4) – **Secondary Containment Sealant:** This permit section requires that the secondary containment system comprised in part by floor, wall, or joint sealants, be installed and maintained in accordance with the sealant manufacturer’s recommendations, and that the Permittees maintain documentation of this fact in the Facility Operating Record. (*See* September 2003 TA-55 Part B Application, Section H.3 discussion regarding sealants in Room 401) This documentation shall include a copy of the manufacturer’s recommendations and a certification

from a registered engineer stating the Permittees' installation and maintenance procedures were performed in accordance with the recommendations. This requirement seeks to provide assurance that the principle of 40 CFR § 264.193—secondary containment—is adhered to and enforceable. As such, it is an appropriate use of the Department's omnibus authority to include terms to protect human health and the environment. (40 CFR § 270.32(b)(2)).

PS 4.4(5) – Secondary Containment Sealant: This permit section requires that secondary containment systems utilizing sealants existing at the time of this Permit's issuance but not having associated sealant manufacturer's recommendations or an associated certification statement shall be re-sealed within 90 days of the effective date of this Permit. This requirement seeks to provide assurance that the principle of 40 CFR § 264.193—secondary containment—is adhered to and enforceable. As such, it is an appropriate use of the Department's omnibus authority to include terms to protect human health and the environment. (40 CFR § 270.32(b)(2)).

PS 4.4(6) – Secondary Containment: This permit section requires that all tank and stabilization unit ancillary equipment have secondary containment and that above ground waste piping, including welded flanges, joints, and connections, shall be inspected for leaks each operating day. This permit section requirement is based on 40 CFR § 264.193(f). Further, the Department's decision to make this tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by the 40 CFR § 264.601 (see basis at PS 4.1(5)).

The Department has defined "each operating day" in association with the tank storage and waste stabilization units as being each day that waste is present in a tank or stabilization unit. The Department limits the definition to establish a specific and enforceable application of 40 CFR § 264.193(f).

PS 4.4(7) – Leaking System: This permit section requires that a storage tank unit, stabilization unit, secondary containment system, or a portion of these units or systems, from which there has been a leak or spill, or which is unfit for use, be removed from service immediately and otherwise comply with the requirements of 40 CFR § 264.196. This permit section incorporates by reference that regulatory requirement. Further, the Department's decision to make this tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by the 40 CFR § 264.601 (see basis at PS 4.1(5)).

PS 4.4(8) – Release to the Environment: This permit section requires that any release of mixed waste from a storage tank or stabilization unit to the environment (*e.g.*, soil, surface water, groundwater, atmosphere) be reported to the Department by e-mail or facsimile within 24 hours of its detection, and that, within 30 days of detection of a release to the environment, the Permittees shall submit a written report to the Department containing the information at 40 CFR § 264.196(d)(3). This permit section requirement is based on 40 CFR § 264.196(d). The Department decision not to include the exemption from reporting of a release to the environment of one pound of waste (*see* § 264.196(d)(2)) is due the potential significance of any release that might migrate through two highly engineered, ten-inch thick floors. (*See* Permittees' September 2003 TA-55 Part B Application, Section 2.2.2) Further, the Department's decision to make this

tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by the 40 CFR § 264.601 (see basis at PS 4.1(5)).

PS 4.5 – Ignitable and Reactive Wastes: This permit section requires that the Permittees ensure that the mixed waste storage tank and stabilization units do not manage ignitable or reactive waste. The Permittees commit to not managing these wastes at their September 2003 TA-55 Part B Application, Section 2.2.4 and 2.3.4.

PS 4.5 – Incompatible Wastes: This permit section requires that incompatible wastes, or wastes and other materials that are incompatible, are not placed in the same tank system or stabilization unit. This permit section requirement is based on 40 CFR § 264.199. Further, the Department's decision to make this tank system requirement applicable to the stabilization unit (a miscellaneous unit) is supported by the 40 CFR § 264.601 (see basis at PS 4.1(5)).

PS 4.6 – RLWTF: This permit section requires that the discharge of all treated wastewater from the TA-50 Radioactive Liquid Waste Treatment Facility (RLWTF) be through the outfall permitted under Section 402 of the federal Clean Water Act, or otherwise as may be required or permitted by the terms of an applicable Clean Water Act permit. A consequence of the Permittees' intentional failure to comply with this requirement (*e.g.*, the Permittees route wastewater to a location other than the outfall) is that the wastewater treatment unit exemption under 40 CFR § 264.1(g)(6) will no longer apply to the RLWTF.

The RLWTF, a wastewater treatment unit, discharges through an outfall (discharge point) into Mortandad Canyon that is regulated by a permit issued by EPA under § 402 of the federal Clean Water Act. Title 40 CFR § 264.1(g)(6) exempts a wastewater treatment unit (as defined in 40 CFR § 260.10) from regulation under RCRA. That regulation has been construed to require that the exempted unit discharge treated wastewater exclusively through the regulated outfall and that diversion to other points of discharge voids the exemption. *See:* Letter, E.A. Cotsworth to S. Pendleton, April 9, 1998 (R.O. 14262); Letter, S.K. Lowrance to T.A. Hopkins, Aug. 15, 1990 (R.O. 11551); Letter, D. Bussard to J.C. Mulligan, June 1, 1990 (R.O. 11519); RCRA Hotline, Oct. 1988 (R.O. 13226); RCRA Hotline, July 1988 (R.O. 13203); Memorandum, M.E. Williams to W.A. Whittington, Dec. 21, 1987 (R.O. 13112); EPA, Hazardous Waste Management System; Standards for Hazardous Waste Storage and Treatment Tank Systems, 53 Fed. Reg. 34079, 34080 (Sept. 2, 1988). The Permittees have advised the Department that in the past they have diverted treated wastewater to other locations, namely, impoundments at TA-53. (*See* Permittees' February 21, 2008 letter to Department, Position Paper page 3) As a condition to maintaining the exemption, the Department has added the requirement that all discharges of treated wastewater must flow through the Clean Water Act outfall or otherwise as required or permitted by a Clean Water Act permit. The Permittees have advised that in the future they plan to direct treated wastewater to uses such as cooling of equipment and that they also plan to discharge such treated wastewater to certain evaporation tanks to reduce outfall discharges. The Department would agree that the exemption would not be lost in such circumstances, so long as EPA, the issuer of the Clean Water Act permit, states unambiguously that the new configuration would be regulated by EPA as part of the Permittees' Clean Water Act compliance and meets the definition contained in 40 CFR §§ 264.1(g)(6) and 260.10. Further, the exemption would not be

lost if another discharge point were used by inadvertence, such as when a leak developed, but the intentional diversion of treated wastewater voids the exemption.

Part 6 - Open Burn Units

(Note: TA-16-399 is referred to as the burn tray and TA-16-388 is referred to as the flash pad.)

PS 6.1.2 - Maximum Annual and Single Treatment Quantity Limits: This permit section limits the Permittees to treat no more than 12,500 pounds of the HE or HE-contaminated waste per year at the two open burn units. The Department conducted a screening level air modeling and risk analysis based on the 20,000 pound annual treatment amount identified in the Permittees' June 2003 *TA-16 Part B Renewal Application* (See LA-UR-03-3903) and the March 29, 2007 "*Transmittal of Protocol for Air Dispersion Modeling at TA-16 Burn Ground and Alternatives Analysis for Open Burning at LANL*" (See LA-UR-07-1986). In negotiations, the Permittees stated that the two open burn units have not historically treated the annual amount of 20,000 pounds and accepted an annual limit of 12,500 pounds for treatment of HE waste categories. This amount more accurately reflects current open burning operation treatment amounts.

This permit condition further limits the single treatment amounts at TA-16-388 to no more than 200 pounds of dry or wet bulk HE per event and no more than 1,000 pounds of HE-contaminated waste per event. It also limits single treatment amounts at TA-16-399 to no more than 1,000 pounds of bulk HE per event including 100 pounds of flake trinitrotoluene, and no single piece or assembly at TA-16-399 may exceed 250 pounds. The Permittees' Standard Operating Procedures (SOP) for the two open burn units (See LA-UR-08-07027), Section 8.6.1, states that no more than 200 pounds of solid HE, HE machining scrap, or sludge will be treated at one time at TA-16-388. Section 3.2 states that no more than 1000 pounds of dry bulk HE including 100 pound of flake trinitrotoluene, and no single piece or assembly exceeding 250 pounds will be treated at one time at TA-16-399. The Department is therefore limiting the Permittees to historic levels of wastes treated, to encourage the minimization of explosive wastes treated at the permitted open burn units. Such terms are supported by the omnibus authority in 40 CFR § 270.32(b)(2).

PS 6.1.3 – Specific Requirements for the TA-16-388 Flash Pad: This section contains specific requirements for the TA-16-388 Flash Pad, including limitations on the nature and amount of waste treated. The requirements are supported by the omnibus provision, 40 CFR 270.32(b)(2):

PS 6.1.3(1) – Waste Limitation: The limitation to bulk HE and HE-contaminated waste constrains unit use to wastes considered in air dispersion modeling.

PS 6.1.3(2) – Prohibition on Asbestos: This permit section prohibits the burning at TA-16-388 of HE-contaminated equipment containing asbestos, unless the asbestos concentrations are in *de minimis* quantities. The prohibition on *de minimis* quantities of asbestos should be understood to allow only those amounts that remain in equipment after diligent efforts, within limits of reasonable safety, to disassemble equipment and remove any contained asbestos. The Department limits the burning of large quantities of asbestos to minimize human exposure and

distribution of asbestos to the environment. The prohibition is based on the Department's omnibus authority at 40 CFR § 270.32(b)(2).

PS 6.1.3(3) - Liquids with 25% HE: This permit section requires that liquids to be burned (*e.g.*, water, bulk oils, DMSO) shall have a minimum of 25% HE by volume. The Department requires liquid wastes have a minimum of 25% by volume of HE to establish a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements necessary to protect human health and environment. The Department includes this requirement to ensure that the wastes undergoing treatment at the open burn units are in fact reactive and to ensure that unnecessary treatment of non-reactive waste is not occurring. In addition, Section 3.2.2 (on page 5 of 14) of the Permittees' March 2007 *TA-16 Burn Ground Air Pathway Assessment Protocol* (*see* LA-UR-07-1986), states, "this [liquids] waste stream is expected to consist primarily of solvents with high HE content (usually greater than 25 percent) from research operations."

PS 6.1.3(4) - Use of Only the Two Propane Burners on the Sides of Flash Pad: This permit section limits fuel-assisted burning to use of two propane burners located on each side of the Flash Pad, except when equipment is treated, for which a third burner is allowed. The Department specifies burn procedures that will adhere to the conditions of the air dispersion model to establish a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements necessary to protect human health and environment. The Permittees have explained that the use of the middle propane burner is problematic because it deflects the heat from the two side propane burners away from the waste, which interferes with the complete thermal degradation of the HE waste.

PS 6.1.3(5) - Minimum Temperature: This permit section requires the Permittees to achieve and maintain a minimum temperature of 400 degrees Celsius during open burning to ensure complete thermal degradation of bulk HE and HE contaminated wastes. The Department specifies this minimum burn temperature to establish a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements necessary to protect human health and environment. The Department requires wastes undergo an efficient and complete burn. Moreover, the temperature of 400 degrees Celsius is necessary to duplicate the process modeled for air dispersion. The Permittees' June 2003 *TA-16 Part B Permit Renewal Application*, Section G.1.1 states that the propane assisted burn at the Flash Pad "provides adequate heat to bring the material being flashed to a temperature sufficient to destroy HE, typically to a temperature above 400 degrees centigrade."

PS 6.1.3(6) – Timing of Waste Placement: This section requires that waste be placed on the Flash Pad within four hours of treatment, so that the unit is not used for storage. When needed, the Permittees may take 48 hours for staging complex equipment. This section defines the limits of storage at this site.

PS 6.1.3(7) – Use of Screens and Trays: This section requires that debris and liquids be treated within screens and trays that would prevent escape of waste or residues. It is supported by the omnibus provision, 40 CFR § 270.32(b)(2).

PS 6.1.3(8) – **Equipment to be Disassembled:** The requirement that equipment be disassembled supports removal of prohibited components and liquids and promotes safety and complete treatment of internal residues. It is supported by the omnibus provision, 40 CFR § 270.32(b)(2).

PS 6.1.4 – **Specific Requirements of the TA-16 Burn Tray:** This section limits use of the Burn Tray to dry bulk HE and prohibits pieces that may contain materials that would be projected as shrapnel. It is supported by the omnibus provision, 40 CFR § 270.32(b)(2).

PS 6.2 - **Constituent Prohibitions:** This permit section prohibits the open burning of the following wastes or materials:

1. the hazardous component of mixed wastes and beryllium;
2. chlorinated solvents and ammonium perchlorate;
3. polyvinyl chloride (PVC);
4. small control boxes or electronic equipment;
5. blasting caps, electric detonators, HE units containing electric detonators, or mild detonating fuse arrays;
6. solvents in bulk except for dimethyl sulfoxide (DMSO) and water; non-chlorinated solvents, including F003, F004, and F005 may be treated only in *de minimis* quantities;
7. soils contaminated with HE, except that the Permittees may treat filter sands contaminated with HE from the TA-16 HE Waste Water Treatment Facility;
8. wastes generated in demolition and decommissioning of structures or structural components: and
9. wastes capable of generating dioxins and furans.

The Department requires potential atmospheric emissions from the open burning of reactive or explosive waste be limited to the extent possible. To accomplish this, the Department has imposed the treatment prohibitions identified in this Permit Section.

The Department has determined that the Permittees have no need to treat mixed wastes, beryllium, chlorinated solvents, and aluminized ammonium perchlorate, and has therefore prohibited these items. Because there are in certain instances F003, F004, and F005 solvents that may contain some mixture of non-chlorinated and chlorinated solvents, the certification requirement in this provision enforces the prohibition on treating chlorinated solvents and ensures that the Permittees abide by this permit condition. The prohibition on all but *de minimis* quantities of non-chlorinated solvents should be understood to allow only those amounts that remain in equipment after diligent efforts, within limits of reasonable safety, to disassemble equipment and remove any contained solvents.

The Department's prohibition on the treatment of the hazardous component of mixed wastes effectively prohibits the burning of radionuclides without expressly doing so. This prohibition is supported by a June 16, 2009 memorandum from DOE to LANS received by the Department from DOE under a cover letter dated June 10, 2009 directing LANS to "ensure that no radionuclides are treated at the open burning units at TA-16." The Department considers uranium and depleted uranium to be radionuclides and therefore also prohibited from being treated at the open burn units at TA-16.

The revised draft Permit includes a prohibition on polyvinyl chloride (PVC), which produces high concentrations of dioxins. The Permittees' Standard Operating Procedure (SOPs) (*see* LA-UR-08-07027) indicates that blasting caps, electric detonators, HE units containing electric detonators or mild detonating fuse arrays, and small control boxes or electronic equipment are prohibited open burning items. Therefore, to ensure protection of human health and the environment, the Department has imposed these same conditions in the Permit.

The revised draft Permit contains a prohibition on treatment of remediation waste and soils from the corrective action program.

Regarding the prohibition on D&D waste, the Permittees have not provided the Department with appropriate information concerning this waste category (*e.g.*, what the materials might consist of, the chemical composition of the materials, associated emission factors). Because the contents of D&D materials might be so variable, the Department cannot model potential emissions from this material and therefore cannot determine potential threats. Therefore, the Department prohibits the treatment of D&D waste.

This permit section allows the Permittees to treat the filter sands from the High Explosive Waste Water Treatment Facility at TA-16. The sands are considered detonable and reactive as a result of the percentage of HE they contain.

The revised draft Permit includes a prohibition on treatment of wastes capable of producing furans and dioxins. The Department recognizes that this prohibition effectively precludes operation of the OB units, as the Department understands that HE and HE-contaminated wastes contain plastics that generate dioxins or furans when combusted. This prohibition is based upon the Department's air modeling and subsequent site sampling by the Permittees and an associated screening level risk assessment that identified furan concentrations in excess of Ecological Screening Limits (ESLs). The certification requirement in this provision enforces the prohibition on treating materials capable of generating dioxins and furans, and ensures that the Permittees abide by this permit condition.

PS 6.3 – Design, Construction, Operation, and Routine Maintenance Requirements: Compliance with these requirements should affirmatively appear in the Operating Record.

PS 6.3.1 – Restrictions on Operations:

PS 6.3.1.1(1) – Vegetation: The Permit Section requires that all vegetation within a 200 ft radius of the open burn units be trimmed to six inches before treatment. The U.S. EPA's February 2001 draft Open Burning/Open Detonation Permitting Guidance, Section 3.2 suggests permits should require removal of combustible materials around the burn units to assist in the mitigation of fires as a result of open burning activities. Considering the semi-arid conditions in the area, and that the OB units at LANL are located in a forest, the Department deems this provision protective to human health and the environment. (40 CFR § 270.32(b)(2))

PS 6.3.1.1(2) - Control Building Barricade closed for 10-hour Cool Down: This permit section requires the barricade at the control building (TA-16-389) to be closed for the duration of treatment and for the ten-hour cool-down period after treatment to prevent the entry of

unauthorized personnel into the area. The Department requires limited access to the site during and after waste treatment to establish a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements as are necessary to protect human health. Further, Section 8.1 of the Unit 388 portion the Permittees' SOP (*See LA-UR-08-07027*) states that personnel shall "...close the gate (Structure 349) on the access road to prevent unauthorized personnel from entering the area."

PS 6.3.1.1(3) - Personnel Present During Treatment Operations: This permit section requires a minimum of two people and no more than five people be present in the control building (TA-16-389) for the duration of a treatment event at one of the open burn units. The time period addressed is the duration of preparation and treatment. The section also requires an individual to observe in the control building, using a computer or video display, each treatment event for its duration via the camera located in between the open burn units. These requirements are a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements necessary to protect human health and the environment. Further, Section 3.1 of the Unit 388 portion the Permittees' SOP (*See LA-UR-08-07027*) states that "...a maximum of five people can be present during a burn at the TA-16-389 Control building."

PS 6.3.1.1(4) - 24 Hour Limit between Burn Treatments: The permit section requires a minimum of 24 hours shall elapse between open burning treatment events before reuse of TA-16-388 and TA-16-399 to allow the surface to cool. The Department requires there be sufficient time before explosive wastes are placed on a previously hot surface. This requirement is a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements necessary to protect human health. In addition, page 2-2 of the U.S. EPA's April 2002 guidance entitled *Draft RCRA Miscellaneous Treatment Units Encyclopedia X Technical Resource Document*, suggests permits should require a 24 hour wait time to allow the surface to cool. Further, Section 11.6 of the Unit 388 portion of the Permittees' SOP (*see LA-UR-08-07027*) states that "at least 24 hours must elapse before ashes are collected and the pad is prepared for another burn."

PS 6.3.1.1(5) - Covering Burn Tray and Flash Pad: This permit section requires that the OB units' containment devices (*e.g.*, pans, trays, pads) be covered when not in use to prevent precipitation collection and runoff. The Department requires procedures to prevent precipitation collection and runoff as a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements as are necessary to protect the environment. In addition, page 2-2 of the U.S. EPA's April 2002 guidance entitled *Draft RCRA Miscellaneous Treatment Units Encyclopedia X Technical Resource Document*, suggests permits should require pans to be covered when they are not in use to prevent precipitation from entering them. Further, Section 11.12 of the Unit 388 portion of the Permittees' SOP (*see LA-UR-08-07027*) states that post-burn procedures calls for the replacing of unit covers "before leaving at the end of the day."

PS 6.3.1.1(6) - Non-Sparking Tools: This permit section requires that only non-sparking tools be utilized at the open burning units when waste is present at either of the two permitted units. The Department requires procedures to prevent inadvertent explosions as a specific and

enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements necessary to protect human health and the environment. Further, the Permittees' June 2003 *TA-16 Part B Permit Renewal Application*, Section 2.5, states “[p]rior to treatment at the TA-16 OB units, the wastes are protected from sources of ignition or reaction.” Section 8.2.1 of the Unit 388 portion of the Permittees' SOP (See LA-UR-08-07027) also states that only non-sparking tools can be used.

PS 6.3.1.2(1) - Hours of Operation: This permit section requires that open burning be conducted only during the time period beginning one hour after sunrise and ending one hour before sunset. The Department limits burn activities to times of the day with sufficient daylight to provide visibility to establish a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements necessary to protect human health and the environment. Further, the U.S. EPA's February 2001 draft Open Burning/Open Detonation Permitting Guidance Section 3.2 suggests permits should limit OB operations to daylight hours.

PS 6.3.1.2(2) - Prohibition on Concurrent Burns at the Two Units: This permit section prohibits concurrent open burning treatments at TA-16-388 and TA-16-399. The Department limits the number of burn activities happening at one time as a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements as are necessary to protect human health and the environment. Permit Section 6.3.1.1(3) requires burn operations to be continuously monitored at the TA-16-389 Control Building using the video camera and monitor associated with that building. The existence of only one camera at the building limits the number of burn operations.

PS 6.3.1.3 – Weather: This permit section prohibits open burn operations during the following adverse weather conditions:

1. When an electrical storm(s) exists within three miles of the OB units;
2. During precipitation or inclement weather, or if storms are forecasted to occur within four hours at the location of the OB units;
3. When wind speeds at the TA-16-389 control building exceed 15 mph; and
4. During High, Very High, or Extreme Fire Danger conditions, as designated by the National Oceanic and Atmospheric Administration's National Weather Service.

The Department prohibits burn activities during adverse weather conditions to establish a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements necessary to protect human health and the environment. The Department's prohibitions seek to prevent an unintentional ignition or a wild fire and to avoid weather conditions not considered during air modeling. Further, the Permittees' June 2003 *TA-16 Part B Permit Renewal Application*, Section G.2.1 states “[o]perational procedures require that OB not be undertaken at a time of impending electrical storms and during high wind conditions. OB may also be restricted during periods of high fire danger and adverse atmospheric conditions.” In addition, Section 9.1 of the Unit 388 portion of the Permittees' SOP (see LA-UR-08-07027) states that a burn must be cancelled if “wind, lightning, or rain” is

forecasted for the day of a burn. It also states that “[b]urning cannot be conducted during extreme or red flag fire danger conditions.”

PS 6.3.2 - Run-On and Run-Off Controls: This permit section requires the Permittees to inspect weekly, and on the day of treatment, and maintain as necessary, the surface water run-on and runoff control features (*e.g.*, all associated rock retention structures, retaining walls, covers, berms, ditches) associated with TA-16-388 and TA-16-399. The Department requires inspection and maintenance of these storm water control features to establish a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements necessary to protect human health and the environment. Further, these requirements are called for at 40 CFR § 264.601(b) to prevent any release that may have an adverse effect on human health or the environment due to migration of waste constituents in surface waters, soils, and groundwater. The Permittees’ August 2003 *General Part B Permit Application*, Section C.4 commits to inspecting run-on and runoff controls each day an open burn occurs and weekly on weeks that a burn does not occur. Further, the Permittees’ June 2003 *TA-16 Part B Permit Renewal Application*, Section G.2.7.6 refers to figure illustrating the engineering controls that are in place to prevent run-off of wastes.

PS 6.3.3 – Routine Maintenance: The following sections describe a checklist of procedures all of which establish specific and enforceable applications of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements as are necessary to protect human health and the environment.

PS 6.3.3.1(1) – Notification of Planned Burn: This permit section requires the Permittees to notify the day before a scheduled burn Permittees’ Emergency Management and Response organization and the Los Alamos Fire Department of the starting and ending times of the scheduled burn. Section 6.0 of the Unit 388 portion of the Permittees’ SOP (*see* LA-UR-08-07027) states that “EM&R and the Fire Department are also notified of all burns, starting and ending times.”

PS 6.3.3.1(3) – Camera Function: This permit section requires OB unit operators ensure the camera located in the TA-16-389 control building is functional before HE waste is sent to the Burn Ground for treatment. The Permittees shall document this in the inspection record. Since the Department has required the Permittees to observe each treatment via the camera, the Department deems it necessary that this equipment should be tested prior to a treatment to ensure its proper functioning.

PS 6.3.3.1(4) – Propane Burner and Squib Testing: This permit section requires testing of the two propane burners and the squib prior to staging of HE waste at the Burn Ground. The Permittees shall document this in the inspection record. Section 5.2 of the Unit 399 portion of the Permittees’ SOP (*see* LA-UR-08-07027) states that “the squib, or electric match firing system shall be tested prior to the delivery of HE wastes.”

PS 6.3.3.1(5) – Observer During Staging: This permit section requires that at least one person shall be present in the TA-16-389 control building to observe the staging operations through the camera located in the building. Section 3.1 of the Unit 388 portion of the Permittees’ SOP (*see*

LA-UR-08-07027) states that “at least one worker must be stationed in the TA-16-389 Control Building observing the loading through the camera ...”

PS 6.3.3.1(5) – **Personnel Present During Staging Operations:** This permit section requires a minimum of 2 and a maximum of 4 people be present during the staging operations of HE waste at the unit. Section 3.1 of the Unit 388 portion of the Permittees’ SOP (*see* LA-UR-08-07027) states “a minimum of 2 and maximum of 4 people can be present during loading operations of HE contaminated materials or wet HE.”

PS 6.3.3.1(6) – **Pretreatment Patrol:** This permit section requires the Permittees to patrol the Burn Ground the morning of the scheduled burn to ensure that no unauthorized personnel or wildlife are present in or around the Burn Ground. Section 5.5 of the Unit 399 portion of the Permittees’ SOP (*see* LA-UR-08-07027) states that “before waste is transported to the Burn Ground, sweep the area to ensure no unauthorized personnel are present.”

PS 6.3.3.2 - **Post Burn Maintenance:** This permit section requires the Permittees cover the waste containment devices (*e.g.*, pans, trays, pads) and inspect the unit and all associated equipment within ten hours of the last open burn treatment. The Department requires this inspection to ensure the treatment process is complete and to protect against the dispersion of treatment residues (*i.e.*, ash) to establish a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements necessary to protect human health and environment. The Permittees’ June 2003 TA-16 Part B Permit Renewal Application, Section G.1.2 states that after a burn the ash is inspected for unburned HE or other residues that do not appear to be fully treated and the cover is placed over the residues.

PS 6.3.3.3 - **Treatment Residue:** This permit section requires that the Permittees clean all open burn waste containment devices (**e.g.**, pans) of any treatment residues within 24 hours of a treatment event, including re-treatment. The Department requires this inspection for and neutralization of any remaining high explosives to establish a specific and enforceable application of the 40 CFR § 264.601 requirement for miscellaneous unit permits to contain terms and operating requirements necessary to protect human health and environment. In addition, the U.S. EPA’s February 2001 draft Open Burning/Open Detonation Permitting Guidance, Section 3.3 suggests a permit should require each OB containment device should be routinely cleaned of all ash and residues after each treatment event, as soon as this can safely be accomplished.

PS 6.4 - **Alternative Assessment:** This permit section requires the submittal of an open burn alternative treatment assessment report to the Department no later than the eighth anniversary of the effective date of this Permit. The Department requires an assessment of alternatives to maximize protection of human health and the environment. The U.S. EPA’s February 2001 draft Open Burning/Open Detonation Permitting Guidance, Section 2.3 suggests that permit applications should have a rationale for not using alternative treatment technologies. The Department questioned the Permittees regarding open burn alternatives in two letters regarding their permit renewal application (*see* NMED NODs dated December 21, 2001 and July 2, 2002). Based on the response to those NODs, the Department is satisfied that the Permittees have evaluated alternatives. In addition, the Permittees provided in their March 29, 2007 “*Transmittal*

of Protocol for Air Dispersion Modeling at TA-16 Burn Ground and Alternatives Analysis for Open Burning at LANL” (see LA-UR-07-1986) an alternatives assessment to open burning (see Addendum 2). The Department requires an alternatives assessment be performed eight years after the effective date of this Permit to ensure that the Permittees consider newly developed technologies at the time of permit renewal. Such a requirement to provide an alternatives assessment is supported by the omnibus authority in 40 CFR § 270.32(b)(2).

PS 6.5.1 - Soil Monitoring: This permit section requires a soil sampling and analysis program to monitor for hazardous constituents released to soils during open burning treatment events. The Department requires this initial and long term soil sampling to establish a specific and enforceable application of the 40 CFR § 264.601(b) requirement to prevent any releases that may have an adverse effect to soils or surface waters. The Department requires this soil sampling to establish existing contaminant levels to use as a basis for future measurements (baseline), to determine whether conditions constitute acceptable human health and environmental risks, and to confirm the results of air modeling performed for the site. This permit section requires soil monitoring for the following constituents; total RCRA metals, explosive compounds, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), perchlorate, and dioxin/furan compounds. The Department specifies these hazardous constituents to be monitored to establish a specific and enforceable application of the 40 CFR § 264.601(b) requirement to prevent any releases that may have an adverse effect to soils or surface waters. The Department has included on this list constituents that could result from the open burning process. Perchlorate is a toxic pollutant under 20.6.2.7 NMAC. All recent permits and orders issued by the Department (e.g., White Sands Missile Range, Fort Wingate Depot Activity) contain action levels for perchlorate. According to the Permittees’ Application Attachment A (*Waste Analysis Plan*), there is strong evidence of past use of perchlorate at the Facility (it was used in nuclear chemical research) and the application identifies recent contamination of perchlorate to groundwater.

PS 6.5.2 - Surface Water Monitoring: This permit sections requires the collection of storm water samples on a periodic basis at a location down gradient of the permitted open burn units. This location is different from that identified in the Surface Water Pollution Prevention Plan (SWPPP). The Department requires monitoring of storm water at particular times and for particular constituents to establish a specific and enforceable application of the 40 CFR § 264.601(b) requirement, which contemplates the prevention of releases to surface waters that may have an adverse effect on human health and the environment. The Department considers the December 17, 2008 SWPPP (See WFO-PLA-EV-0028) insufficient for monitoring the permitted open burn units because the sample location monitors run-off not just from the open burn units, but also from areas outside the burn units, including surrounding SWMUs and AOCs. It also does not require the sampling of particular constituents that could potentially be released from open burning activities. The following hazardous constituents not identified in the SWPPP are required to be monitored through this permit section: VOCs; SVOCs; barium; chromium; explosive compounds; perchlorate; and furans. The Department is not requiring air or groundwater monitoring in association with the burn units. The Department performed air modeling instead of requiring air monitoring because of the sporadic nature of the burn activity and the fact that air monitoring is only appropriate for a continuous process, such as stack emissions at a power plant. The Department is not requiring groundwater monitoring in

association with the burn units because to date there has not been any soil contamination or suggestion of a pathway to groundwater identified. The Department is monitoring groundwater nearby in Canon de Valle in association with hydrogeologic investigations under the Consent Order.

Part 9 - Closure

PS 9.1 - Introduction: This section contains a general description of the types of permitted units that are subject to this Permit Part, identifies the closure rules this Permit Part is based on, and identifies the different categories of units that are covered under this Permit Part. They are: regulated units (landfills), indoor container storage and treatment units, and outdoor container storage and treatment units. The permitted units have been divided into three categories based upon the different closure processes they follow. The regulated units are called as such based upon 40 CFR § 264.110-116. The terms, indoor container storage and treatment units and outdoor container storage and treatment units, come from the Permittees' Part B permit renewal applications. Table J-1 in Permit Attachment J lists each permitted unit and the category in which the unit belongs.

PS 9.1.1 - Regulated Units: This section states that the regulated units (*i.e.*, the material disposal areas G, H, and L) are not permitted to accept hazardous waste and are required to close. It also states that the Permittees must follow the closure requirements in Permit Section 9.3. These requirements are quite different from those for other units because their process for closure of disposal sites necessarily varies from that for indoor and outdoor container storage and treatment units. Permit Section 9.3 explains this process and states the regulated units' general requirements for closure and closure plans. The only sections in this Permit Part which apply to the regulated units are Permit Sections 9.1, 9.2, 9.3, and 9.5; all other Part 9 Permit Sections apply only to the permitted indoor and the outdoor container storage and treatment units.

PS 9.1.2 - Indoor Units: This section describes what constitutes an indoor unit, states the specific closure requirements for a permitted indoor unit, and identifies the performance standards an indoor unit should achieve at closure.

PS 9.1.3 - Outdoor Units: This section describes what constitutes an outdoor unit, states the specific closure requirements for a permitted outdoor unit, and identifies the performance standards an outdoor unit should achieve at closure.

PS 9.2 – Closure Performance Standards: This section states the closure performance standards each type of unit is required to achieve at closure. Permit Section 9.2.1 states the standard for “clean closure.”

For clean closure, 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. The Department deems this standard to be protective of human health and the environment.

For clean closure, Permit Section 9.2.1(2) requires that the Permittees ensure that contaminated environmental media (*i.e.*, soils, groundwater) do not contain concentrations of hazardous constituents greater than the cleanup levels established in accordance with Permit Sections 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. Because clean closure results in no groundwater monitoring, the Permittees must also demonstrate that there is no potential to contaminate groundwater. Such demonstration requires a showing that the leaching of contaminants from the vadose zone to groundwater shall not occur. Such demonstration shall utilize 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 standard of Permit Section 9.2.1(2) applies primarily to outdoor permitted container storage and treatment units. Such a requirement is based on 40 CFR § 264.112(b)(4), which states that the Permittees' 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 media at an outdoor unit than at an indoor unit. The Department therefore deems it necessary to implement a different performance standard for these units. The Department considers this standard to be 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 Permittees must meet the residential soil screening level identified in the Permit's *Corrective Action* Part 11.

PS 9.2.2 - Inability to Achieve Clean Closure Performance Standards:

Further closure standards apply in the event that the Permittees are not able to attain the clean closure standards. Under Permit Section 9.2.2, if the Permittees are unable to meet an applicable clean closure standard, they must close a unit on the following terms: Permittees 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 the groundwater, surface waters, or atmosphere (*see* 40 CFR § 264.111).

These regulatory standards would be met by clean closure and must be met in any closure.

PS 9.2.2.1 - Indoor Units:

If the Permittees can demonstrate to the Department that closure performance standard 9.2.1(1) and (2) are not attainable for indoor storage units (*e.g.*, TA-3-29), the Permittees shall then submit a closure plan amendment to explain why they are unable to meet the Permit Section 9.2.1(1) or (2) standards to attain the clean closure performance standard. The Permittees shall concurrently submit a permit modification request that describes measures that will attain compliance with closure performance standards at PS 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 Permittees demonstrate to the Department that all appropriate measures were taken to remove or decontaminate hazardous waste residues, but such measures were not successful in removing all residues.

P.S. 9.2.2.2 - Outdoor Units Co-located with Regulated Units:

If the Permittees can demonstrate to the Department that closure performance standard 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 Permittees 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 contained in the Consent Order (*see* Permit Section 9.3) which constitutes the 40 CFR § 264.110(c) “enforceable document.”

P.S. 9.2.2.3 – Other Outdoor Units: If the Permittees can demonstrate to the Department that closure performance standard 9.2.1(1) and (2) are not attainable for other outdoor units (*e.g.*, TA-50-69) or outdoor units associated with open burning operations (*e.g.*, TA-16-388), the Permittees shall then submit a closure plan amendment to explain why they are unable to meet the Permit Section 9.2.1(1) and (2) standards to attain the clean closure performance standard. The Permittees shall concurrently submit a permit modification request that describes measures that will attain compliance with closure performance standards at 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 Permittees 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.

PS 9.3 - Closure of the Regulated Units: This section states that closure of the regulated units (Material Disposal Areas G, H, and L) must meet the corrective action requirements of the Consent Order. The Order is an enforceable document that sets forth alternative closure requirements in accordance with 40 CFR § 264.110(c).

Under the Consent Order, the Permittees are required to submit to the Department for its review and approval a Corrective Measures Evaluation (CME) Report (*see* Section VII of the Order) for each of the regulated units. The CME Report shall evaluate potential remedial alternatives and shall recommend a preferred remedy that will meet the closure performance standards in accordance with 40 CFR § 264.111(a) and (b), as well as attain the appropriate human health and

ecological risk clean-up levels as required in the Order and Permit Sections 11.4 and 11.5. For regulated units L and G, the Permittees 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 Order, before it is made final.

Upon the Department's selection of the remedy, the Permittees shall develop a Corrective Measures Implementation (CMI) Work Plan, which shall satisfy the requirements for closure plans specified in 40 CFR § 264.112, and which shall outline the design, construction, operation, maintenance, and performance monitoring for the selected remedy, and a schedule for its implementation. The CMI Plan is, in effect, a closure plan and shall be submitted to the Department for its review and approval on a schedule established by the Department. Department approval shall be subject to public review and comment in accordance with 20.4.1.901 NMAC. The Permittees shall comply with 40 CFR § 264.112(c) to amend their approved closure plan, if necessary.

In issuing the revised draft Permit, the Department makes no assumption as to the method of closure that will be approved by the Department and implemented by the Permittees for the regulated units. These units would be permitted under the revised draft Permit not to receive waste but only to conduct closure.

PS 9.4 - Closure Requirements for Indoor and Outdoor Units: The following sections address the 40 CFR §§ 264.111-116 closure requirements for permitted above-ground container storage and treatment units.

PS 9.4.1 - Closure Schedule: This section states that the Permittees must notify the Department in writing at least 45 days prior to the date on which they expect to begin closure of any permitted container storage or treatment unit. In addition, members of the public who have requested notification will be informed by e-mail of the Permittees' intent to close a permitted unit. The Permittees shall begin closure of any permitted container storage or treatment unit no later than 90 days after the date on which the unit receives the known final volume of hazardous waste or, if there is a reasonable possibility that the permitted unit will receive additional hazardous wastes, no later than one year after the date on which the unit received the most recent volume of hazardous wastes. Both schedule requirements are based on 40 CFR §§ 264.112(d)(1) and 264.113(a).

The Department expects that the Permittees shall file a Class 1 permit modification under 40 CFR § 270.42 upon Permittees' notification of the forthcoming final volume of hazardous waste. Such modification will add a comment to the entry on Table J-1, stating that closure is proceeding as to the specific unit.

PS 9.4.1.1 - Time Allowed for Closure: This section states that the Permittees must complete all closure activities in compliance with Permit Part 9 (*Closure*) within 180 days after receiving the final volume of hazardous waste at a permitted unit. An extension may be requested of, and

approved by, the Department. These schedule conditions follow 40 CFR §§ 264.113(b)(1) and (2). In addition, members of the public who have requested notification will be informed by e-mail if an extension is approved by the Department.

PS 9.4.2 - Removal of Hazardous Waste: This section states that within 90 days of the final receipt of waste at a permitted unit, the Permittees are required to treat, remove from the unit, or dispose of on- or off-site, all hazardous waste in accordance with the Department-approved closure plan (*see* Permit Attachment G). This condition is based upon 40 CFR § 264.113(a).

PS 9.4.3 - Decontamination and Removal: This section states that the Permittees shall decontaminate, remove, or both, all structures and related equipment and materials. To protect human health and the environment, 40 CFR § 264.114 contemplates appropriate disposal or decontamination of equipment, structures, and soils. In addition, 40 CFR § 264.112(b)(4) also requires that the closure plan contain a detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils. The Department deems the requirements of this Permit Section necessary to effectuate decontamination and disposal and to satisfy the closure performance standards in Permit Section 9.2.

PS 9.4.3.1 - Decontamination of Structures and Related Equipment: This section states that the Permittees shall decontaminate by pressure-washing or steam-cleaning the floor, walls, and ceiling (up to 11 feet from the floor) of all structures at permitted indoor and outdoor units as well as all related equipment (*e.g.*, railings, stairs, secondary containment pallets, piping). The Department's basis for this requirement is found in 40 § CFR 264.112(b)(4).

The height of 11 feet was determined based on the historical and permitted practices as to container stacking heights. The height of two 55-gallon drums including two pallets equals approximately eight feet. The probability of waste residues or hazardous constituents contaminating walls above the stored height would realistically be limited to 3 feet above the tallest drum. Therefore, to ensure the protection of human health and the environment, the extra 3 feet were added. Thus the Department finds the height of 11 feet to be practical and protective.

To achieve the performance standards for volatile organic compounds (VOCs), the Permittees are required to decontaminate all structures and related equipment at indoor and outdoor permitted units at least twice. Steam-cleaning or pressure-washing will assist in the removal of potential residual hazardous VOCs or SVOCs on surfaces and equipment. Sampling for such constituents is impracticable; thus, the Permit requires that a double cleaning process be used.

The Permittees, however, are not required to decontaminate the outdoor permitted unit asphalt pads. Since there are hazardous constituents inherent in the materials that comprise asphalt, and it would be difficult to distinguish whether remaining contamination was from the materials in the pad or from hazardous waste management practices, decontamination is not required. The Permittees are, however, required to decontaminate the concrete pads at the two open burn treatment units in the event that the Permittees plan to keep the pads in place. If the Permittees decide at closure to dispose of the pads, they will not be required to decontaminate them, and they must dispose of them, along with the asphalt pads, according to the requirements in this Permit (*see* Permit Section 9.4.5)

PS 9.4.3.2 - Removal of Structures, Related Equipment, and Pads: This section states that the Permittees shall ensure that structures and related equipment that cannot be decontaminated are removed (or containerized). The requirement is supported by 40 CFR § 264.114. The Permittees are also required to remove the asphalt pad in its entirety after the structural assessment and records review. As explained, it is not practical to decontaminate asphalt pads, and the Department therefore, to protect human health and the environment, requires the removal of asphalt pads. In addition, if sampling and analysis indicate hazardous waste constituents in soils underneath the concrete pads at the permitted open burn units, the Permittees shall remove the concrete and dispose of it. These conditions are based on actions described in the Permittees' Part B Permit Renewal Applications. These conditions are supported by the omnibus provision, 40 CFR § 270.32(b)(2).

PS 9.4.4 - Decontamination Verification: This section requires that the Permittees verify that each indoor and outdoor permitted unit has been decontaminated to meet the closure performance standards in 40 CFR § 264.111 and Permit Section 9.2. Verification is to be accomplished by sampling and analysis, except that, since sampling for VOCs and SVOCs is impracticable, verification of decontamination of VOCs and SVOCs is accomplished by completing the double decontamination process in accordance with Permit Section 9.4.3.1.

This section also addresses the use of radionuclide wipe samples as surrogates for hazardous constituent sampling. The Permittees' 2006 closure plans stated that wipe samples for radionuclides would be collected in units where radionuclides were stored with hazardous waste. If these samples did not detect any radionuclide contamination, then the Permittees would consider the permitted unit to be free of hazardous waste contamination. The Department does not deem this method to be an effective or protective way to determine that the closure performance standards in 40 CFR § 264.111 and Permit Section 9.2 have been achieved.

P.S. 9.4.4.1 - Decontamination Verification Activities: This section states that sampling shall be used pursuant to Permit Section 9.4.7 to verify the extent of contamination after decontamination. Structures and related equipment at indoor and outdoor units shall be sampled for metals, SVOCs, and polychlorinated biphenyls (PCBs). Soils underlying pads at outdoor permitted units shall be sampled for total metals, SVOCs, PCBs, and explosive compounds, as applicable and appropriate.

P.S. 9.4.5 - Management and Disposal Procedures for Waste Generated During Closure: This section contains the requirements in 40 CFR § 264.114, which states that all contaminated equipment, structures, and soils must be properly disposed of or decontaminated. It also states that, in removing any hazardous wastes or hazardous constituents, the Permittees must handle waste in accordance with all applicable requirements of 40 CFR Part 262.

P.S. 9.4.6 - Records Review and Structural Assessment: This section states that the Permittees must conduct a records review for and a structural assessment of each permitted unit prior to closure, as follows.

PS 9.4.6.1 - Records Review: This section states that the Permittees shall review the permitted unit's Facility Operating Record, including but not limited to inspection and contingency plan implementation records, and that as a result of the review, shall update the list of hazardous

constituents in the SAP, as necessary, to accurately reflect at the time of closure the hazardous wastes managed at the unit. In this review, the Permittees shall determine whether any spills or releases, defects, deterioration, damage, or hazards (*e.g.*, damage to the flooring or other building materials) affecting waste containment occurred or developed during the operational life of the unit. If the records indicate any such incidents, the Permittees shall include the locations of the incidents, as well as applicable sampling methods and procedures, in the updated SAP for purposes of the spill release assessment. Past closure plans submitted by the Permittees to the Department have not always included a full review of the Operating and Inspection Records. This review is necessary as there may be incidents that reflect possible releases to the unit that were not covered in the initial SAP. In addition, operations at the permitted units are continuing since the closure plans were submitted; therefore, a full records review should be conducted to evaluate whether a release, or possible release, has occurred since their submission and whether different hazardous waste constituents were stored or treated at the unit. Such occurrences should be included in an updated SAP, which forms part of the closure plan and is subject to public comment in the amendment process. This activity was proposed in the Permittees' closure plans submitted to the Department in December 2006 as part of their Part B permit renewal application and is supported by the omnibus provision.

PS 9.4.6.2 - Structural Assessment: This section states that a structural assessment will be conducted to evaluate a permitted unit's physical condition at closure. The Permittees shall notify the Department at least 60 days prior to conducting the assessment to provide the Department the opportunity to participate in the unit's physical condition review. If the assessment reveals any evidence of a release (*e.g.*, stains) or damage (*e.g.*, cracks, gaps, chips) to the flooring or building materials, the Permittees must incorporate these locations for sampling, and applicable sampling methods and procedures, in the updated SAP (40 CFR § 270.32(b)(2)). The justification for the permit requirement is similar to that for the records review.

PS 9.4.7 - Closure Plans: This section states that the Permittees must have an approved closure plan that describes how each permitted unit will be closed to meet the closure performance standards in Permit Section 9.2. This Permit requirement satisfies the rule in 40 CFR § 264.112(a) and (b).

PS 9.4.7.1 - Sampling and Analysis Plans: This section states that each closure plan shall have a sampling and analysis plan (SAP). Each SAP shall verify that all structures and all related equipment have been decontaminated and shall also determine whether a release of hazardous constituents to any environmental media has occurred. The SAP must include sampling for all the constituents listed in Appendix VIII of 40 CFR Part 261 and Appendix IX of 40 CFR Part 264. If the Permittees can demonstrate that the Facility Operating Record is complete with respect to the history of hazardous waste management operations at the permitted unit undergoing closure and that fewer than all of the constituents listed in Appendix VIII and IX were managed at the unit, then the Permittees may amend that list at the time of closure. To be protective, all soils will be sampled below pipes, at the joints of pipes, at the discharge point of all underground piping, beneath all sumps and catch basins, secondary containment areas, and stormwater run-off locations. All sampling at the indoor and outdoor units will be based on a 900 square foot grid system (*i.e.* one sample every 900 square feet), except that loading and unloading zones shall be sampled every 250 square feet. The Department believes this to be

sufficient sampling coverage to ensure that the area is adequately evaluated for any potential releases.

P.S. 9.4.8 - Amendment of the Closure Plan: This section states that the Permittees shall submit a permit modification request to seek authorization of a change in the approved closure plan upon the occurrence of events listed in 40 CFR §§ 264.112(c)(2). Amendment is required when new hazardous constituents or sampling locations are to be added to the closure plan. Amendment is also required in the instances listed in 40 CFR § 264.112(c), *e.g.*, changes in operations or design affecting the closure plan, a change in the expected year of closure, unexpected events arising during closure and requiring modification, or a request to apply alternative requirements under 40 CFR §§ 264.90(f), 264.110(c), or 264.140(d). The amended closure plan is subject to public comment.

PS 9.4.9 – Variance to Decontamination Verification Standards: This section authorizes the Permittees to seek a variance to decontamination standards based upon the properties of materials contained in structures and equipment. The purpose is to allow sampling for waste residues to be free from the influence of the compounds present in structures and equipment.

P.S. 9.5 – Closure Certification Report: This Section requires that the Permittees submit a closure certification report to the Department within 60 days after completion of closure. The report is required to include the report of all investigations, the management of remediation waste, decontamination, verification sampling, and results of all chemical analyses and characterization activities. Any variance from the closure plan shall be noted; the structural assessment and records review shall be documented, and all sampling shall be fully documented. A survey plat is required if waste is left in place. A certification statement shall be submitted to verify closure was conducted in accordance with the rules of the Permit as well as the unit specific closure plans. The Permittees' closure certification report should be accompanied by a Class 1 permit modification (under 40 CFR § 270.42) to move the listing of the unit undergoing closure from Table J-1 (*Active Portion of the Facility*) to either Table J-2 (*Permitted Units Undergoing Post-Closure Care*) or Table J-3 (*Closed Portions of the Facility not in Post-Closure Care*) as applicable.

Part 10 - Post-closure

Part 10 regulates post-closure care and specifies the timing and process of amending the 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 Permittees 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 Permittees will be responsible, *e.g.*, monitoring and maintenance for a period of 30 years.

The obligation to submit a proposed post-closure plan and to seek its adoption as a permit modification arises only when the Permittees 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 in the draft permit, the Permittees cannot make that determination until the Department has approved a closure plan (or a specified remedy under corrective action) for a given unit. At the time of the Department's approval, it will 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 Permittees have the information needed to submit a post-closure permit application.

PS 10.1 – Post-Closure Care: This section 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).

The requirement of 40 CFR Part 264, Subpart F, monitoring and reporting will be satisfied by the Permittees' continuation of monitoring and reporting in accordance with Permit Sections 11.3.1 through 11.3.8. Monitoring under Subpart X, at 40 CFR 264.602, refers to compliance with 40 CFR §§ 264.601, 264.15, 264.33, 264.75, 264.76, 264.77, and 264.101. These sections do not directly discuss monitoring. Maintenance and monitoring under Subpart N is set forth in 40 CFR § 264.310(b), which requires: (1) maintenance of the integrity of the cover, (2) operating a leachate collection system, (3) maintenance and monitoring of the leak detection system, (4) monitoring of ground water in accordance with subpart F, (5) preventing run-on and run-off from damaging the cover, and (6) maintaining benchmarks used in surveying. The section also states that at any time before closure or during the post-closure care period, the Department may shorten or lengthen the post-closure care period. This authority is supported by 40 CFR § 264.117(a)(2). It directs the Permittees to carry out post-closure care activities in accordance with an approved post-closure care plan. This direction is supported by 40 CFR § 264.117(d).

This section states that the Permittees shall submit a permit modification request to conduct post-closure care within 90 days of the date when the Permittees or the Department determine that the permitted unit shall be closed with waste in place. Closure with waste in place includes the circumstance when hazardous constituents or waste residues remain. The modification request shall include the post-closure care plan. This section is supported by 40 CFR § 264.118(a), which calls for submission of such a plan within 90 days after determining that certain units will be closed with waste in place. The Department has determined that such a procedure should be followed for all of the permitted units and so directs under its omnibus authority, 40 CFR § 270.329b(2).

PS 10.1.1 – Post-Closure Care Plan: This section specifies the content of the post-closure care plan. Following 40 CFR § 264.118(b), the plan is required to state the nature and frequency of (1) monitoring, (2) maintenance of containment systems and monitoring equipment, (3) identification of contact person, and (4) applicable alternative requirements.

PS 10.1.2 – Amendment of Post-Closure Care Plan: This section authorizes the Permittees to submit a request for an amendment to the post-closure care plan at any time during the active life or post-closure care period. The Permittees must so request if there are (1) changes in operating

plans or design affecting the post-closure care plan, (2) a change in the closure date, (3) events affecting the approved post-closure care plan, or (4) the Permittees request application of alternative requirements. Such terms directly follow the language of 40 § CFR 264.118(d).

PS 10.2 – Notices and Certifications;

PS 10.2.1 – Notification Requirements: This section requires the Permittees to maintain copies of documentation submitted to the local zoning authority. Under 40 CFR § 264.119 the owner or operator must submit to the local zoning authority and to the Department a record of the type, location, and quantity of hazardous waste disposed of within each cell or other disposal unit; such information shall be based on “the best of his knowledge” for pre-January 12, 1981 disposal.

PS 10.2.2 – Record Requirements: This section requires the Permittees to maintain documentation of certification of closure of HWMUs. Such requirement is supported by the Department’s omnibus authority under 40 CFR § 270.32(b)(2).

This section also requires recordation of a deed notation so that it will be examined during a title search, notifying potential purchasers that the land has been used for hazardous waste management, which its use is restricted under RCRA regulations, and the survey plat of disposal locations has been filed with the Department. This requirement is supported by 40 CFR § 264.119(b).

PS 10.2.3 – Completion of Post-Closure Requirements: This section requires the Permittees to submit to the Department, no more than 60 days after completion of post-closure care, a certification that post-closure care was performed in accordance with the post-closure care plan. Supporting documentation is required. This requirement is supported by 40 CFR § 264.120 and 270.32(b)(2).

Part 11 - Corrective Action

PS 11.1 – Corrective Action Requirements under the Consent Order: This section recites that the Department and the Permittees have agreed to a Compliance Order on Consent (Consent Order) dated March 1, 2005, which is an enforceable document pursuant to section 20.4.1.500 NMAC (incorporating 40 CFR § 264.90(f)), and section 20.4.1.900 NMAC (incorporating 40 CFR § 270.1(c)(7)). The Consent Order requires the Permittees to conduct corrective action through a comprehensive investigation and cleanup of contaminants in the environment at the Facility. This Permit Section states that Permit Part 11 does not modify the Consent Order.

PS 11.2 – Corrective Action Requirements under the Permit: This section addresses the circumstances in which corrective action is conducted under the Permit, namely: (1) new releases and newly discovered releases of hazardous waste or hazardous constituents from hazardous waste management units at the Facility; (2) compliance with closure and post-closure care requirements of 40 CFR Part 264, Subpart G, as they apply to hazardous waste management units at the Facility; (3) implementation of the controls, including long-term monitoring, for any SWMU or AOC on the Permit’s Corrective Action Complete with Controls list; and (4) corrective action to address releases that occur or are discovered after the Consent Order

terminates. This section states that Permit Part 11 applies only to these circumstances. Further, corrective action under the Permit is to be coordinated with corrective action under the Consent Order. Corrective action of releases at interim status units are to be managed under the Permit. In implementing the Consent Order, the Department has construed the term “operating units” to mean permitted or interim status hazardous waste management units.

PS 11.2.1 – Identification of SWMUs and AOCs Requiring Corrective Action: This Section refers to Attachment K, Table K-1, which lists SWMUs and AOCs requiring corrective action under the Consent Order. Newly identified SWMUs and AOCs will be added. Table K-2 lists SWMUs and AOCs where corrective action is complete with controls addressing future activity. Table K-3 lists SWMUs and AOCs where corrective action is complete without controls. Attachment J, Table J-1 includes lists of hazardous waste management units and their status.

PS 11.3.1 – Groundwater Monitoring: This Section addresses groundwater monitoring for the three “regulated units”, MDAs G, H, and L. The Permit specifies that groundwater monitoring for the regulated units shall be coordinated with groundwater monitoring conducted under the Consent Order. It states specifically that, so long as the Consent Order is in effect, fulfilling the groundwater monitoring requirements of the Consent Order shall fulfill the groundwater monitoring requirements of 40 CFR §§ 264.90 through 264.100.

The term “regulated unit” is defined in 40 CFR § 264.90(a)(2) as including a landfill that receives hazardous waste after July 26, 1982. The three MDAs all received hazardous waste after that date. EPA’s release issued upon the promulgation of Subpart F explains that the definition of the term “unit” should denote the largest area in which there is a significant likelihood of mixing of waste constituents. EPA, 47 Fed. Reg. 32274, 32289 (July 26, 1982). Thus, where a landfill is comprised of unlined pits with no system of leachate control, there is a significant likelihood that waste constituents may be released from one or more pits, enter the soil, and become mixed with waste constituents released from other pits, and the term “unit” applies to the entire landfill. This interpretation applies to each of the MDAs G, H, and L; thus, each such MDA is a “regulated unit.”

The Permittees have asserted at various times that only specific pits and shafts at the MDAs should be considered “regulated units.” (*See, e.g.,* Closure/Post-Closure Plan for the Technical Area 54 Area G Landfill (Pit 29 and Shaft 124), LA-UR-06-1984, at 4, 5). The Department does not accept the Permittees’ assertions as to the timing and nature of waste disposal at MDA G. Numerous records of the Permittees’ operations show that, even if the individual pits at MDA G were considered separate “units” (an interpretation that the Department rejects), several MDA G pits were in operation in 1980 or later or were closed after that date and therefore should have been operated under RCRA and closed in accordance with an approved closure plan. These include pits 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 36, 37. Curiously, several pits are listed as closed in March 1980, shortly before RCRA regulations became effective. (Pits 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 16, 17, 18, 19, 20, 21, 22, 24). Numerous shafts were in operation in or after 1980. (Shafts 21, 22, 23, 35, 36, 37, 93, 94, 95, 97-109, 114-15, 118-41, 151-60, 189-92, 196, C1-C13). Again, curiously, several shafts are listed as closed in July 1980, shortly before RCRA regulations came into effect. (Shafts 1-20, 24-34, 38-92, 96, 109-12, 150).

Moreover, the Permittees' records of the nature of waste disposed of in the MDAs are seriously deficient. They strongly indicate that hazardous waste disposal occurred in numerous pits and shafts and wholly fail to exclude that interpretation—again, assuming that each pit and shaft should be deemed a separate unit—an assumption that the Department declines to make. The Permittees' Data Report for OU-1148, which includes TA-54, contains numerous entries that suggest the burial of hazardous wastes. Thus, records show that the Permittees buried “possible lead, beryllium, mercury, carbon tetrachloride, benzene,” also treatment plant sludge, “carcinogens,” beryllium, “unknown chemical wastes,” “chemical waste of unknown nature and concentration,” “lead slags,” and the like. The Department cannot proceed on the premise, which has not been established, that all but a few of the waste pits and shafts are outside the jurisdiction of RCRA and the HWA. *See* OU-1148 Data Report (1992); Sept. 1985 Closure Plan, OU-1148 Work Plan (May 1992); Aug. 1987 Part A Application.

If waste is left in place at any closed HWMU, residual contamination is present at concentrations greater than established cleanup levels, or groundwater contamination is present in the vicinity of any closed HWMU, the Permittees must conduct post-closure care, which must include groundwater monitoring in accordance with 40 CFR §§ 264.91 through 264.100. The Department may replace all or some of the requirements of 40 CFR §§ 264.91 through 264.100 with alternative requirements, as set forth in a permit or other enforceable document, in accordance with 40 CFR § 264.90(f). Currently, the Consent Order is the enforceable document under which groundwater investigation and monitoring is conducted. If any or all of MDAs G, H, or L are closed with waste left in place or residual contamination in environmental media present at concentrations greater than established cleanup levels, groundwater monitoring is required as part of post-closure care.

Under the Consent Order, the Permittees are in the process of investigating groundwater contamination in the vicinity of MDAs G, H, and L and evaluating the existing wells that comprise part of a groundwater monitoring network around TA-54. The Permittees are required to establish a groundwater monitoring network for all regulated units as defined in 40 CFR § 264.90(a)(2). Alternative groundwater monitoring requirements contained in an enforceable document may be used in stated circumstances pursuant to 40 CFR § 264.90(f). Title 40 CFR § 270.1(c)(7) defines “enforceable document” and states, further, that an enforceable document for post-closure care must impose the requirements of 40 CFR § 265.121. Section 265.121, in turn, states that the full terms of 40 CFR §§ 264.91-100 must be met; therefore, it might be read to state that alternative requirements are effectively unavailable. However, EPA has explained that “site-specific requirements” may be used in lieu of full Subpart F requirements. (63 Fed. Reg. 56710, 56714)(Oct. 22, 1998).

The groundwater monitoring program at TA-54 will be conducted to check for previously undetected contaminants, monitor changes in contaminant concentrations already detected in the vicinity of TA-54, assess releases from sources upgradient of MDAs G, H, and L, and evaluate corrective actions, if necessary to mitigate releases of contaminants from sources at TA-54 or from other sites at the Facility.

Some members of the public have objected to (a) use of metallic well screens, (b) use of drilling muds or additives, (c) use of multiple screened intervals, (d) use of long well screens, and (e) use of conventional fluid circulation. The Department is aware of the problems presented by these

drilling methods and intends to review the drilling plans carefully. However, the Department is also concerned that the revised draft Permit language not unduly constrain drilling operations, which take place in a context of rapid-fire changes in well behavior and field conditions, requiring flexibility and quick decisions as to the drilling approach, and also of high costs, making delay very expensive. It would be shortsighted to prescribe drilling methods with great specificity, thus requiring a permit modification if any variation is called for. The revised draft Permit describes drilling methods that “may be appropriate” but requires no specific methods. Most importantly, it stipulates that the drilling method must enable the collection of representative samples. (PS 11.11.2). Further, use of drilling muds is required to have minimal impact on the surrounding formation and water, and the Department may require additional sampling and testing to ensure that data are not affected by residual drilling fluids. (PS 11.11.3, 11.11.3.2). Also, the Department plans to stay in close contact with Permittees’ personnel before, during, and after drilling operations. The Department believes that the public is better protected with this approach, which sets the criterion of performance—*i.e.*, sampling that is truly representative.

Some comments also dispute the Department’s reliance on wells included in the LANL Interim Facility-Wide Groundwater Monitoring Plan (IFGMP), both for reasons of well design and based on the need for data broadly reflecting the regional aquifer. It must be emphasized that the IFGMP is used for a limited period to bring all existing monitoring wells into the sphere regulated by the corrective action process. It is not a final monitoring plan. Additional data will be gathered throughout the life of the Consent Order to further inform corrective action. Criticisms of the Department’s groundwater monitoring program should recognize that the monitoring network is a work in progress and that the present program will evolve into a larger, more comprehensive monitoring system that will fully track contamination in the intermediate and regional aquifers.

PS 11.3.1.1 – Notification of Detections: Permit Section 11.3.1.1 lists notification requirements for detection of contaminants that correspond to the notification requirements in Consent Order IV.A.3.g. The notification requirements listed in Permit Section 11.3.1.1 are more stringent than the requirements in 40 CFR §§ 264.98(g) and 264.99(d) [referencing § 264.97(h)] to determine statistically significant evidence of contamination or a statistically significant increase in contamination, respectively.

The notification requirements are more stringent because the Permittees are required to review groundwater sampling chemical analytical results and provide notification on a monthly basis for (1) any first-time detection of an organic compound, (2) any first-time detection of an inorganic compound that exceeds the established background concentration, (3) any first-time detection of a constituent that exceeds one half the established cleanup level, (4) any first-time detection of perchlorate at a concentration of 2 µg/L or greater, (5) any detection of an inorganic compound that exceeds two times the background for three consecutive samples, and (6) any detection of a constituent that exceeds one half the established cleanup level and has increased for three consecutive sampling events.

The notification criteria are easily measured and do not require repeated measurements to accumulate sufficient data to conduct a statistical analysis. This approach is likely to result in reporting of detections sooner than the seven days after determination of a statistically significant

change required by 40 CFR §§ 264.98(g)(1) and 264.99(h)(1), since statistical analysis requires multiple samples. In addition, the requirements of Permit Section 11.3.1.1 preclude any delay in reporting of contaminant detections due to statistical uncertainty.

Currently, all groundwater monitoring at the Facility is being conducted under the Consent Order in accordance with the IFGMP and approved investigation work plans intended to evaluate groundwater conditions across the Laboratory (*e.g.*, intermediate and regional well installations) or in the vicinity of SWMUs and AOCs. The results of these investigations and Facility-wide groundwater monitoring are used to select locations for further groundwater investigations, where necessary, and for groundwater monitoring in the vicinities of both permitted units and other locations where releases of contaminants to the environment have occurred. The monitoring conducted under the IFGMP functions to check for new detections of contaminants and to monitor concentrations and migration of previously detected contaminants. As watershed-specific investigations are completed, site- or aggregate area-specific remedies are implemented, and permitted units go into post closure care, the groundwater monitoring conducted under the Consent Order will be removed from the IFGMP and transferred to watershed- or area-specific long-term or post closure care monitoring plans.

PS 11.3.1.2 – Source Identification and Corrective Action: This Section addresses notification of exceedances within seven business days, as required by 40 CFR § 264.99(h)(1), identification of the source, determination of nature and extent, and containment or mitigation of the release. This is the section that authorizes corrective action (*i.e.*, “all steps necessary”) to restore the level of contaminants to a level no greater than background concentrations. See 40 CFR § 264.100.

PS 11.3.2 – Groundwater Monitoring Reporting: This Section requires monitoring reports for all groundwater monitoring data generated pursuant to the Permit. Such reporting shall follow the schedule applicable to the monitoring conducted under the Consent Order.

PS 11.3.3 – Corrective Action Beyond the Facility Boundary: This Section directs the Permittees to conduct corrective action beyond the Facility boundary as necessary to protect human health and the environment. Such action is authorized and directed by 40 CFR § 264.101(c).

PS 11.3.4 – Off-site Access: This Section requires the Permittees to use their best efforts to obtain access for themselves and for the Department to off-site property that should be subject to corrective action. Such requirement is supported by 40 CFR § 264.101(c).

PS 11.3.5 – Newly Discovered Releases: This Section requires notice to the Department of any newly discovered release of hazardous waste or hazardous constituents from any hazardous waste management unit. The notice should be given promptly after discovery of the release. Such notice will enable the Department to determine whether further investigation or corrective action is needed. (*see* EPA Proposed Rule, Corrective Action for Solid Waste Management Units, 55 Fed. Reg. 30789, 30804, 30849 (July 27, 1990 (Subpart S))).

PS 11.3.6 – Field Activities: This Section requires the Permittees to notify the Department 15 days in advance of any field activities, such as sampling, so that the Department may participate.

Such notice is supported by the draft Subpart S at 30810 (calling for a “high level of interaction between the permittee and the agency”).

PS 11.3.7 – Health and Safety Plan: This Section requires all field activities to be based upon a health and safety plan. Such a requirement clearly contributes to health and safety and is authorized by the omnibus provision, 40 CFR § 270.32(b)(2).

PS 11.3.8 – Recordkeeping: This Section requires retention of any data assembled in the course of investigating and carrying out corrective action for a period of three years after the end of the operating life of the Facility or the post-closure care period of any unit affected by the corrective action. It should be understood that, if corrective action is undertaken, such records must be retained during the duration of such activities.

PS 11.4 – Cleanup Levels: This Section contains the cleanup levels specified by the Department as targets for the conduct of corrective action. The overall human health target risk levels are 10^{-5} for carcinogens and a Hazard Index of 1.0 for non-carcinogens. (*see* Subpart S at 30825-28) For the most part the constituent-specific cleanup levels are contained in regulations that have already been developed and published for the protection of ground water, soils, surface water, and air. In addition, ecological risk is to be measured in accordance with the Department’s published guidance.

PS 11.4.1 – Groundwater: The groundwater cleanup targets are mostly derived from existing regulations.

PS 11.4.1.1 – Groundwater Cleanup Levels: Contaminant cleanup levels are based upon:

- a. WQCC groundwater quality standards, 20.6.2.3103 NMAC.
- b. Toxic pollutant cleanup levels in 20.6.2.7.WW.
- c. Maximum Contaminant Levels (MCLs) adopted by EPA under the Safe Drinking Water Act, 42 USC 300f to 300j-26 or the EIB, 20.7.10 NMAC.

These cleanup standards are all contained in regulations issued pursuant to public process. See Subpart S at 30800. In the absence of a WQCC standard or a MCL, the Department will use EPA’s Regional Screening Levels for Chemical Contaminants at Superfund Sites (RSLs). Where toxicological information is published, the risk levels cited in Section 11.4 shall be used.

PS 11.4.1.2 – Groundwater Cleanup Level for Perchlorate: This Section specifies that the current cleanup level for perchlorate shall be based upon a Hazard Index of 1.0, if perchlorate is detected at a level of 4 µg/L or more. If an MCL or a groundwater quality standard has been adopted, it shall fix the cleanup level.

PS 11.4.2 – Soil and Sediment: This section specifies that the cleanup level for soils and sediments shall be the levels selected for soils. Further, it specifically states that, if the Permittees are unable to attain the stated cleanup levels, they shall conduct a risk assessment pursuant to PS 11.10.4 and 11.10.5.

PS 11.4.2.1 – Soil Cleanup Levels: This Section provides that the soil cleanup levels are the soil screening levels specified by the Department based on the risk levels cited in Section 11.4. Where some migration of contaminants may have occurred, the Department may call for use of a dilution-attenuation factor of one, which attributes no impact to dilution or attenuation. Where no soil screening level has been set, cleanup shall be governed by EPA RSLs for contaminants designated as “n”, “max”, and “sat” or ten times the human health SSL for compounds designated as “c”. Based on the future land use, cleanup may be based on a risk assessment using the risk levels cited in PS 11.4.

PS 11.4.3 – Surface Water Cleanup Levels: Permit Section 11.4.3 contains the requirement for the Permittees to comply with the surface water quality standards outlined in the Clean Water 20 Act (33 U.S.C. §§ 1251 to 1387), the New Mexico WQCC Regulations (20.6.2 NMAC), and the State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC). (The Consent Order contains the same requirement in Section VIII.C.) The Permittees must demonstrate compliance with these requirements at each SWMU and AOC in order to obtain a Corrective Action Complete determination. Such demonstration can be made through collection and analysis of surface water samples obtained at the Department-approved locations downstream of the subject site or by providing conclusive evidence that surface water does not migrate across the site in sufficient volume or energy to cause potential erosion and transport of soils and contaminants.

PS 11.5 – Ecological Risk Evaluation: This Section requires that screening for ecological risk be based upon levels published in LANL, *Screening Level Ecological Risk Assessment Methods*, LA-UR-99-1405, or EPA’s ECO-SSLs. If no screening level is contained in the ESL data base, a screening level may be derived using the methodology in the Department’s *Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-Level Ecological Risk Assessment* or in the above-cited LANL publication. Site-specific risk shall be evaluated consistently with the cited Departmental guidance or in *Assessing Ecological Risks Posed by Radionuclides: Screening-Level Radioecological Risk Assessment*.

The Hazardous Waste Bureau notifies all RCRA-permitted facilities and other stakeholders in writing each time a guidance document is issued or updated. The purpose of the notification is not only to provide the latest guidance to interested parties but also to solicit feedback with the objective of correcting errors and making improvements to the guidance. Any member of the public interested in receiving written notification of updates to guidance documents may contact the Hazardous Waste Bureau with a request to be added to the distribution list at the address provided in this Fact Sheet.

PS 11.6 – Variance from Cleanup Levels: This Section governs applications for variances from cleanup levels.

PS 11.6.1 – Water Quality Standards: This Section states that the Permittees may seek an alternative abatement standard pursuant to the WQCC regulations, 20.6.2.4103.E and F.

PS 11.6.2 – Other Cleanup Levels: The Permittees may present a case to the Department, showing that the attainment of a cleanup level is impracticable. Proposed alternative cleanup

levels must be based on a showing of a proposed action and a site-specific risk assessment. Risk assessments are discussed further in PS 11.10.4 through 11.10.6.1.

PS 11.7 – Permit Modification for Corrective Action Complete: This Section states that the Permittees may seek to move a unit from the listing of “corrective action required” to “corrective action complete”, using a Class 3 permit modification.

PS 11.7.1 – Long-term Maintenance and Monitoring: This section states that, when a SWMU or AOC is classified as Corrective Action Complete with Controls, the Permittees shall present for approval by the Class 3 permit modification required by PS 11.7 a plan for long-term maintenance and monitoring. Such a plan shall describe future on-site efforts required, such as maintenance of engineered controls, maintenance of access controls, or continued environmental monitoring of media. The requirement to submit a plan for long-term maintenance and monitoring applies to SWMUs and AOCs undergoing corrective action both under the Permit and under the Consent Order. All long-term maintenance and monitoring plans will be included in the Permit at Attachment O.

PS 11.8 – Corrective Action Procedures: This Section lays out the procedure for conducting corrective action at sites where a release has occurred from a permitted unit. The process includes the following steps:

- a. Release assessment report (PS 11.8.1.1).
- b. Requirement to Proceed by the Department (PS 11.8.1.2)
- c. Interim Measures, where necessary to minimize or prevent migration of hazardous constituents (PS 11.8.2; 11.8.2.1; 11.8.2.2)(See Subpart S at 30838-40).
- d. Emergency Interim Measures, where necessary to address an immediate threat of harm (PS 11.8.3; 11.8.4, 11.8.4.1.i - iii).
- e. Corrective Action Investigations (PS 11.8.5 through 11.8.5.3)(See Subpart S at 30810-12).
- f. Corrective Measures Evaluation (PS 11.8.6 through 11.8.6.7). These provisions require the Department to evaluate remedy alternatives based upon four threshold criteria, *viz:*
 1. be protective of human health and the environment;
 2. attain media cleanup standards;
 3. control the source of releases so that further releases are reduced or eliminated to the extent practicable; and
 4. comply with standards for waste management.(See Subpart S at 30823). In addition, each remedy alternative shall be evaluated by a balancing approach under the following criteria:
 1. long-term reliability and effectiveness.
 2. reduction of toxicity, mobility, or volume.
 3. short-term effectiveness.
 4. implementability
 5. cost.

(See Subpart S at 30824). The Corrective Measures Evaluation is supported by the EPA draft regulation on corrective measures studies, Subpart S at 30813-14, 30821-23, 30875-77. The Department will select a remedy, publish a Statement of Basis, and receive public comment on the proposed remedy. A public hearing may be held.

- g. Corrective Measures Implementation (PS 11.8.7 through 11.8.7.4)(See Subpart S at 30834-36).
- h. Remedy Completion (PS 11.8.8 through 11.8.8.1)(See Subpart S at 30837-38).
- i. Accelerated Cleanup Process (PS 11.8.9 through 11.8.9.2). The Permit refers in Permit Section 11.8.9 to “presumptive remedies” to be accomplished through an accelerated corrective measures process. “Presumptive remedies are preferred technologies for common categories of sites, based on historical patterns of remedy selection and EPA's scientific and engineering evaluation of performance data on technology implementation.” (61 Fed. Reg. at 19430-40)(May 1, 1996). Permit Section 11.8.9 further narrows the application of such remedies to small-scale and relatively simple sites where groundwater contamination is not an issue. The Department would expect that “presumptive remedies” will be used where there is not likely to be any dispute whether the remedy is fully effective and promptly resolves the contamination. See EPA’s Guidance documents, *Presumptive Remedies: Policies and Procedures*; *Presumptive Remedy for CERCLA Municipal Landfill Sites*; *Presumptive Remedies: Site Characterization and Technology Selection for CERCLA Sites with Volatile Organic Compounds in Soils*; and, *Presumptive Remedies for Soils, Sediments and Sludges at Wood Treating Sites*.

PS 11.10 – Methods and Procedures: This Section specifies the requirements of work plans, reports and submittals used in conducting corrective action. The Section sets forth minimum requirements for environmental investigation and sampling, together with oversight by the Department. (See Subpart S at 30832). The elements of this Section include:

- a. Standard Operating Procedures (PS 11.10.1).
- b. Investigation, Sampling, and Analysis Methods (PS 11.10.2 through 11.10.6.1). This section, inter alia:
 - 1. lists available drilling methods (PS 11.10.2.4.i), which are subject to the overall requirement to “provide accurate data for the evaluation of site conditions, the nature and extent of contamination and contaminant migration, and for remedy selection and implementation, where necessary” (PS 11.10).
 - 2. Further, the methods of well purging and groundwater sampling are set forth in detail (PS 11.10.2.8 through 11.10.2.8.iv).
 - 3. Requirements for analysis of samples by accredited contract laboratories are stated (PS 11.10.3 through 11.10.3.2). Procedures are subject to the overall requirement to collect representative samples (PS 11.10.3.4.i).
 - 4. The section also outlines the elements of human health and ecological risk assessment (PS 11.10.4 through 11.10.6.1). The Permittees are required to prepare a human health risk assessment reporting support of corrective action and, if necessary, to support closure under Permit Part 9. If the Permittees cannot meet the cleanup levels in PS 11.4.2, they are required to conduct a

site-specific risk assessment. They are required to submit a workplan for the Department's review and approval that contains site-specific exposure assumptions and any necessary sampling. A human health risk assessment must be based upon a conceptual site model, which incorporates the identification of suspected sources, contaminants, releases, transport mechanisms, and affected media. The model must also address land use scenarios, potential receptors under the current land use scenario and under the future land use scenario and potential routes of exposure (PS 11.10.4.1). In this context, the analysis of future use should cover a substantial period of time in the long term during which changes may be observed, *e.g.*, 10,000 years. (*See, e.g.*, LANL, RFI Report for Material Disposal Areas G, H, and L at Technical Area 54, LA-UR-00-1140 (March 2000) at 7-28 through 7-41 and Appendix F). PS 11.10.4 includes the requirement to determine exposure point concentrations, for soil, groundwater, surface water, sediment, and biota, at a 95% estimate of the upper confidence limit on the arithmetic mean for chronic exposures and the maximum detected site concentration for acute exposures. Carcinogenic risk and non-carcinogenic hazard are to be established using toxicity data or surrogates if necessary. PS 11.10.5 addresses ecological risk assessment, stating that if a screening level assessment exceeds screening values, a report must be prepared in support of corrective action and, if necessary, in support of closure under Part 9.

PS 11.11 – Monitoring Well Construction Requirements: This Section discusses the installation and abandonment of monitoring wells. Permit Section 11 closely follows Consent Order Section X. (Monitoring Well Construction Requirements). The overall requirement is: “The drilling method shall allow for the collection of representative groundwater samples” (PS 11.11.2).

Permit Section 11.11.1 differs from Consent Order Section X in that the revised draft Permit prohibits the installation of multiport wells with more than two screened intervals. The prohibition is based on the demonstrated inability of the Permittees to actively pump their existing Westbay® multiport wells, the results of watershed- and area-specific well evaluations, and a well screen analysis conducted by the Permittees under the Consent Order. While the Well Screen Analysis Report and well evaluations were considered during preparation of the revised draft Permit, the descriptive portions of Permit Section 11.11 were not modified from the original Consent Order text. Permit Section 11.11 is intended to provide descriptions and guidance for well installation while allowing for flexibility to accommodate the highly variable subsurface conditions encountered beneath the Pajarito Plateau. The Department has modified its policies and requirements for well installation, development, rehabilitation, and purging in response to the information collected during implementation of the Consent Order. The Department strongly discourages the use of drilling fluids except where their use is unavoidable based on drilling conditions to achieve site-specific objectives or the Permittees are able to demonstrate that their use in a portion of the vadose zone will have no impact on data quality.

Installation of wells at the Facility is expensive and often time-consuming; therefore, the Department attempts to make use of all existing wells, including wells where problems with

construction and well development have limited the quality of data generated. As a result of the well screen analyses and well network evaluations, the Department has required the abandonment or rehabilitation of selected well screens, restricted the use of selected wells or well screens, required or intends to require the replacement of selected wells and restricted reliance on the groundwater quality data collected from selected wells pending replacement of the wells or installation of wells at preferred alternate locations.

PS 11.12 – Reporting Requirements: This Section outlines the requirements for Permittees' reports on the conduct of investigations, corrective action, monitoring, risk assessment, and corrective measures evaluation. (See Subpart S at 30812-13, 30836).

Under Construction