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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

June 10, 1997

Mr. G. Thomas Todd, Area Manager
Department of Energy
Los Alamos Area Office
Los Alamos, New Mexico, 87544

RE: NOTICE OF DEFICIENCY: TECHNICAL ADEQUACY, PART B PERMIT APPLICATION, OPEN
BURNING/OPEN DETONATION UNITS, TA-14
EPA I.D. # NM0890010515-(OB/OD)₁₄

Dear Mr. Todd:

The Hazardous and Radioactive Materials Bureau (HRMB) of the New Mexico Environment Department (NMED) has reviewed for technical adequacy, the Los Alamos National Laboratory (LANL) September 1996 permit application for the TA-14 Open Burning/Open Detonation (OB/OD) treatment units, as required under the New Mexico Hazardous Waste Management Regulations.

After reviewing the permit application, the NMED has found the it to be technically deficient. The enclosed attachment lists the required information necessary for NMED to declare the application technically complete and begin preparation of a draft permit.

The information requested in the attachment must be submitted to HRMB within thirty (30) calendar days from the date you receive this notice of deficiency (NOD). Failure to submit the required information in this designated time may result in issuance of a Notice of Intent to Deny (NOID) a permit. The HRMB may consider a petition for a deadline extension, provided that a written justification and the expected submittal time are given.

If you have any questions regarding this matter you may contact Teri Davis or Cornelius Amindyas of my staff at (505) 827-1561.

Sincerely,

Benito Garcia, Chief

Hazardous and Radioactive Materials Bureau

cc: Stu Dinwiddie, PM, HRMB
David Neleigh, EPA Region 6
Teri Davis, HRMB
Cornelius Amindyas, HRMB
John Kieling, HRMB

FILE: Red LANL 97
TRACK: LANL, 5/12/97, LANL/DOE, HRMB/CA, RE, RED 97



3857

TA 14

ATTACHMENT A

NOTICE OF DEFICIENCY:

TECHNICAL ADEQUACY REVIEW OF PART B PERMIT APPLICATION SUBMITTED TO HRMB BY LOS ALAMOS NATIONAL LABORATORY (LANL), NEW MEXICO.

June 10, 1997

- A. General Description of the Facility** as required by 20 NMAC 4.1.900 incorporating 40 CFR §270.14(b)(1). LANL (The Permit Applicant) must:
1. Provide general dimensions and a structural description of the Open Burning/Open Detonation (OB/OD) treatment units located at Technical Area 14 (TA-14). (This may include an active trench with adjacent buried trenches, a single active trench that is groomed and reused, an open burn containment device, and secondary containment or other design configurations.);
 2. Submit to the New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau (HRMB), engineering drawings that approximate the units' dimensions horizontally and vertically, shows ramps, berms, fencing and any other man-made features used in association with the OB/OD units;
 3. Provide the best available description of all wastes that have ever been managed or treated at the OB and OD units. Include a summary of historical information on the volume and composition of these wastes;
- B. Topographic Map** as required by 20 NMAC 4.1.900 incorporating 40 CFR §270.14(b)(19). Since the map of TA-14 that HRMB received from LANL was compiled on a scale other than 1 inch to 200, LANL must submit to HRMB, a topographic map which:
1. Shows the terrain for a distance of 1,000 feet (radius) outside the Open Burning/Open Detonation units, at a map scale of 1 inch equal to not more than 200 feet, with appropriate contour lines shown on the map;
 2. Contains a wind rose diagram showing prevailing wind directions and velocities;
 3. Shows the legal boundaries of the OB/OD units. (The map should also have a title);

4. Contains access control to the OB/OD treatment units; and
5. Shows the SWMUs, on-site or off-site wells, buildings, and drainage and flood control barriers at, and in the vicinity of TA-14.

C. Description of the OB/OD Treatment Units as required by 20 NMAC 4.1.900 incorporating 40 CFR §270.23. The Permit Applicant must:

1. Provide detailed plans and engineering drawings of the OB container device in addition to the description that was provided in the Permit Application of September 1996. Include a description of the lining material within and below the OB container device, and the secondary containment that will be located around it.
2. Describe how the OB/OD treatment units will be designed, constructed, operated and maintained to minimize run-off of hazardous constituents during the active life of the units, in compliance with 20 NMAC 4.1.500 incorporating 40 CFR §264.273(b).
3. Explain how a run-on control system will be designed, constructed, operated, and maintained to prevent flow onto the OB/OD units during peak discharge from at least a 24-hour, 25-year storm, as required by 20 NMAC 4.1.500 incorporating 40 CFR §264.273(c). Include a description of how ditches, berms or other diversion structures may need to be designed and constructed to prevent vertical and horizontal migration of waste constituents into the environmental media at and around TA-14.
4. Explain how the OB/OD units will be managed to control the releases of propellants, explosives, pyrotechnics as well as wind dispersal of ash and particulate matter to the environment, in order to meet the standards required by 20 NMAC 4.1.500 incorporating 40 CFR §264.601(a) and 20 NMAC 4.1.900 incorporating §270.23(c).
5. Provide a description of methods to control the deterioration of the open burning devices, and the installation of a cover to prevent the accumulation of precipitation in the OB device during periods of inactivity. Explain how accumulation of precipitation in the OB container device will be handled.

- D. **Contingency Plan** as required by 20 NMAC 4.1.900 incorporating 40 CFR §270.14(b) (7) and 20 NMAC 4.1.500 incorporating 40 CFR §264.53. The Permit Applicant must submit information that:
1. identifies where copies of the Contingency Plan will be located; and
 2. describes a schedule of remedial action.
- E. **Traffic Patterns** in accordance with 20 NMAC 4.1.900 incorporating 40 CFR 270.14(b) (10). Submit to HRMB additional information as follows:
1. Provide an estimate of the number and types of vehicles at and around the TA-14 OB/OD units;
 2. Provide information about hazardous waste transfer or pick-up stations and the loading/unloading procedures;
 3. Include a description of the quantity of waste moved per movement per vehicle; and
 4. Present a description of the route surface composition and load bearing capacity.
- F. **Soil and Vadose Zone Monitoring** in accordance with 20 NMAC 4.1.500 incorporating 40 CFR §264.278; §264.601(b) and §264.13(b).

Provide the following additional information on soil and vadose zone monitoring program:

1. Describe sample collection, sample preservation, shipment, sampling and analysis procedures, and chain of custody control;
2. Indicate the parameters selected and the EPA approved or equivalent acceptable analytical method for each parameter;
3. List background values for each proposed monitoring parameter or hazardous constituent;
4. Give details of the proposed sampling, analysis and statistical comparison procedures for the soil sample analytical results;
5. Specify the sampling method which will be used to obtain a representative sample of the contaminated soil to be analyzed. [A representative soil sample may be obtained

using either one of the sampling methods found in Appendix I of 20 NMAC 4.1.200 incorporating 40 CFR §261 or an equivalent acceptable method];

6. Provide details of the sampling and analysis plan for monitoring the vadose zone during treatment operations and for the potential of waste constituents to migrate into the ground water as required by 20 NMAC 4.1.500 incorporating 40 CFR 264.273;
7. Describe how "kick-out" residues and unexploded ordnance will be managed. Some types of reactive waste will not detonate but rather deflagrate. Results of detonation of these types of wastes can cause dispersions of untreated explosives into the environment. Explain how this has been considered in the management of the reactive wastes at TA-14 OB/OD sites;
8. Describe how background soil samples will be taken, the appropriate locations of the background samples, and depths from which the samples will be obtained; and
9. Explain how the results of soil and soil pore liquid monitoring will be expressed for the determination of statistically significant changes over background values for Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Beryllium, Silver and Antimony. [20 NMAC 4.1.500 incorporating 40 CFR §264.278(f)].

G. Waste Analysis Plan as required by 20 NMAC 4.1.500 incorporating 40 CFR § 264.13(b) and 20 NMAC 4.1.900 incorporating 40 CFR §270.14(b)(3).

1. Land Disposal Restrictions as required by 20 NMAC 4.1.800 incorporating 40 CFR §268.30 and §268.35.
 - a. Explain the chemical composition, and the nature of F005 wastes listed in the part A Permit Application on Page 6 of 7. Are these spent solvent wastes, solvent wastes contaminated with soil and debris, 2-ethoxy ethanol, 2-nitropropane, or benzene?
 - b. What is the characteristic toxicity of the Barium-bearing D005 waste based upon?. Also, explain why LANL plans to detonate these D005, and F005 wastes contrary to the Land Disposal Restrictions that apply to them.
2. Submit separate lists of all the waste propellants, explosives, and pyrotechnics that will be treated at the

OB and the OD units by re-categorizing the list of waste munitions that were provided in Attachment 3 of the September 1996 Part B Permit Application.

3. Present a detailed Quality Assurance/Quality Control Program (QA/QC), or QA/QC Management Plan that will be applied during soil sampling and analysis to ensure that representative discrete soil samples are taken.
 4. Describe how LANL plans to monitor non-reactive hazardous waste treated simultaneously with reactive waste at the OB and OD units. Such non-reactive wastes include lead projectiles of small arms munitions and hazardous constituents of containers, housings, and casings.
 5. Specify where copies of the Waste Analysis Plan (WAP) will be located at TA-14.
 6. Identify the designated personnel position(s) and organization responsible for updating the WAP.
 7. If post-detonation soil monitoring or ground water monitoring is chosen as the method of compliance with the Waste Analysis Plan, describe sampling methods that will be used to obtain discrete representative samples of the soil or water to be analyzed. List the parameters that will be analyzed for in each reactive and non-reactive hazardous waste, the rationale for the selection of these parameters, and the test methods which will be used for these parameters.
 8. Submit to HRMB, the analytical results of soil samples taken from Building 35 located in TA-14. The "Results Summary of the Soil Sampling Survey" presented in Attachment 4-3 of the unit-specific Part B Permit Application is insufficient for NMED to interpret.
- H. **Closure and Post-Closure Plans** in accordance with the requirements contained in 20 NMAC 4.1.500 incorporating 40 CFR §264.112 through §264.115, §264.117-118, and 20 NMAC 4.1.900 incorporating 40 CFR §270.14(b).
1. Explain why closure activities are described for container storage areas, tanks, and surface impoundments on page 9-3, Section 9.1.3 of LANL's General Part B Permit Application. Since these units are not part of the OB/OD units LANL must:

- a. Provide specific information on the container storage areas and tanks, their locations, and the purpose for which they are used at TA-14.
 - b. Submit a separate Part B permit application for the surface impoundments, container storage units, and tanks mentioned on page 9-3 of the LANL *General Part B Permit Application* of August 1996.
2. Provide information on the TA-14 OB/OD units which must include the following information:
- a. Provide a description of the maximum extent of the unclosed portion of the OB/OD units during their permitted life;
 - b. Submit an outline of the procedures for removal of hazardous waste, residues or post investigation derived waste, and contaminated soils as well as the location of disturbed soils when removed;
 - c. Provide the estimated year of closure of the OB/OD units;
 - d. Submit a description of the location and number of copies of the Closure and Post-Closure Plans for OB/OD;
 - e. Name the personnel responsible for storage, updating of facility copies of the Closure and Post-Closure Plans, and the procedure for updating all other copies of the subject plans.
 - f. Explain the potential request for extension of closure time.
 - g. Submit a detailed contingency Post-Closure Plan and Post-Closure Care mechanisms as per 20 NMAC 4.1.500 incorporating 40 CFR §264.603 in order to fulfill the requirements of 40 CFR §264.601. This required information was not included in the Subject Application.

I. Protection of Ground Water

1. **Hydrology** as required by 20 NMAC 4.1.900 incorporating 40 CFR §270.23(b). The Permit Applicant must provide a detailed description of the hydrology below the OB/OD units at TA-14. (This may be available through published

or private reports. Include a copy or copies of the references used.).

2. Provide site-specific data for initially characterizing the OB/OD units and the surrounding area. Hydrology and geology supportive of published reports must be confirmed through direct methods of data collection. Any saturated zones must be identified. Discuss appropriate spacial and temporal intervals for data collection prior to initiating any data collection program.
3. **Prevention of Releases** - Explain what measures will be incorporated into the OB/OD treatment unit design to exclude water from entering the units. [Direct rainfall entering the open burn device and the open detonation pit (created by the blast) could cause a hydraulic head that would drive waste constituents into the vadose zone. Some facilities have used weather covers over their OD pits and burn container devices during periods of inactivity].
4. The location map of water supply wells (**Map Number 6 in Part A Permit Application**) that LANL submitted to HRMB does not show any ground water monitoring or test wells in the vicinity of TA-14. NMED acknowledges receipt of the December 6, 1996 Hydrogeologic Work Plan from LANL. HRMB will evaluate this section within the context of that Plan. However, LANL is required to present the following information to HRMB:
 - a. Submit a Ground Water Detection Monitoring Program in accordance with all the requirements contained in 20 NMAC 4.1.500 incorporating 40 CFR §264.98. The ground water monitoring wells must include one upgradient and at least two downgradient monitoring wells. Attach a topographic map that shows the location of background water quality monitoring wells at the site of the OB/OD treatment units.
 - b. Provide a description of well design, sample collection, preservation, shipment, QA/QC procedures, sampling and analysis procedures, data evaluation and reporting that satisfy the requirements of 20 NMAC 4.1.500 incorporating 40 CFR §264.97. List the indicator parameters and hazardous waste constituents that will be analyzed for, and how monitoring well evacuation will be conducted at TA-14.

5. Provide a description of any plume of contamination that has entered the ground water due to previous OB/OD activities. Indicate on the topographic map the vertical and horizontal extent of the plume.
 6. Present a description of the proposed sampling and analysis and the statistical comparison procedures and data evaluation that will be applied to ground water samples in accordance with 20 NMAC 4.1.900 incorporating 40 CFR §270.14(c)(6)(iv).
 7. Provide an account of how background values for each proposed monitoring parameter or constituent will be determined to meet the requirements contained in 20 NMAC 4.1.900 incorporating 40 CFR §270.14(c)(6)(iii).
 8. Describe how LANL would determine the direction, ground water flow rate, and the rate of plume migration in case of ground water contamination. [20 NMAC 4.1.500 incorporating 40 CFR §264.601(a)(5)].
 9. Provide an account of the precipitation patterns at TA-14, proximity to and withdrawal rates of current and potential ground water users in accordance with the standards required by 20 NMAC 4.1.500 incorporating 40 CFR §264.601(b)(3) and 40 CFR §264.601(b)(5).
 10. Provide an account of water quality standards, water quality data and uses. These data will allow NMED to evaluate the impact of the activities at the OB/OD units on surface aquatic environment in compliance with the requirements of 20 NMAC 4.1.500 incorporating 40 CFR §264.601(b)(7), and 40 CFR §264.601(b)(8).
- J. Air Quality Assessments** as required in 20 NMAC 4.1.500 incorporating 40 CFR §264.601(c)(1) and 20 NMAC 4.1.900 incorporating 40 CFR §270.23(b).

LANL must submit the following information to NMED:

1. Provide a description of the operating conditions of the OB and OD units on a case-by-case basis. [Examples are: not to expose ash residues from the OB unit to the open air when wind speed is greater than 15 miles per hour (24 km/hr), allowable quantities of waste per unit, operating time frames, acceptable meteorological conditions, ambient air monitoring requirements, meteorological monitoring etc.].

2. Submit a description of the effectiveness and reliability of any systems and structures used to reduce or prevent emissions of hazardous constituents to the air. This may be demonstrated by semi-annual sampling and analysis programs following the last semi-annual waste treatment event; [20 NMAC 4.1.500 incorporating 40 CFR §264.601(c)(2)].

K. Risk Analysis

Provide a Risk Analysis that includes the following issues:

1. A description of the existing air quality, other sources of contamination and the potential cumulative impact on human health and the environment. Present an estimate of the individual excess lifetime cancer risk.
2. An outline of the potential for health risks caused by human exposure (including the explosive ordnance disposal personnel) to hazardous waste constituents;
3. A discussion of potential damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to hazardous waste constituents from the OB/OD units. Discuss other exposure pathways such as: plant ingestion by herbivores, prey consumption by carnivores, and water ingestion pathways;
4. An account about the presence of the following endangered or threatened species at or around the TA-14 OB/OD treatment units:
 - a. Bald Eagle (*Haliaeetus leucocephalus alascanus*);
 - b. Jemez Mountains Salamander (*Plethodon neomexicanus*);
 - c. American Peregrine Falcon (*Falco peregrinus anatum*);
 - d. Whooping Crane (*Grus americana*);
 - e. Broad-billed Hummingbird (*Cynanthus latirostris magicus*);
 - f. Southwestern Willow Flycatcher [*Empidonax ludovicianus* (3ssp.)];
 - g. Gray Vireo (*Vireo vicinior*); and
 - h. Meadow Jumping Mouse (*Zapus hudsonius luteus*)
5. A description of any sensitive receptors within a 2 kilometer radius, and an estimate of exposed individuals living and/or working on the OB/OD premises;

6. Calculations of the lifetime cancer risk as a function of downwind concentrations, unit risk value, and exposure duration;
 7. An explanation of how atmospheric air quality will be monitored to detect air borne hazardous waste contaminants and constituents during the active life of the OB/OD units. Section 4.6.4.2 of LANL's Part B Permit Application mentioned that efforts to detect "air borne contaminants at TA-14 have not yet been established", explain why.
 8. Provide a detailed network of receptor points to permit the estimation and identification of receptor points that are exposed to maximum contaminant concentrations.
 9. Provide a detailed estimation of the exposed population. The noninhalation pathways (ingestion and dermal) must be addressed using appropriate pathway exposure models. [The *U.S. Army Environmental Hygiene Agency Guide* may be used for reference].
 10. If operating procedures will require wetting of the open burn area before and after each operation, describe how this will be accomplished and what measures will be taken to minimize release of hazardous waste to the environmental media.
 11. Provide a brief historical description of TA-14 and the OB/OD areas, and the presence of any archeological sites.
- L. Potential Pathways of Exposure and Potential Exposure Magnitude** as required in 20 NMAC 4.1.900 incorporating 40 CFR 270.23(c). The Permit Applicant must describe the potential for the public to be exposed to hazardous wastes. Include
1. Information on how long waste will remain in the unit before it is detonated, the length of time after operation of the unit before re-entry of personnel to the detonation site is allowed, and
 2. Procedures for management of ash residues, unexploded ordnance, and post-detonation soils.

M. Health and Safety Plan

Provide health and safety procedures during waste management operations in the form of a stand-alone health and safety plan for routine operations at the OB/OD units.

N. **Noise Considerations** and the distance of OB/OD units from off-plant inhabited buildings, and minimum safety distances to the property of others in compliance with 20 NMAC 4.1.600 incorporating 40 CFR §265.382.

1. Describe how noise from open detonation activities will be controlled, since noise will be carried in the direction of the wind towards the city of Los Alamos.
2. Describe a method for determination of ground vibration at the OD unit, and specify the maximum ground vibration resulting from OD blasts.