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Mr. David Cobrain  
New Mexico Environment Department (NMED)  
Hazardous Waste Bureau  
2905 Rodeo Park Dr. E/Bldg 1  
Santa Fe, NM 87505

RE: Evaluation of Los Alamos National Laboratory's (LANL) response to the Draft Permit for Technical Area 63 (TA-630, Transuranic Waste Facility and responses to Public Notice No. 13-01, dated March 2013.

Dear Mr. Cobrain:

This letter addresses the evaluation of LANL's response to vapor intrusion and vapor monitoring issues of the Draft Permit for Technical Area 63 (TA-63), Transuranic Waste Facility (TWF) and responses to Public Notice No. 13-01. In order to assess the above referenced responses, the January 2013 Draft of the LANL Hazardous Waste Permit was also reviewed along with documents related to the vapor plumes at Material Disposal Area (MDA) C. Based on discussions (emails) with Ben Wear, full tracking of the vapor plume from MDA C will be conducted under corrective actions directly associated with that site. The language included in the draft permit is meant to ensure protection of future workers at the TWF.

Responses to Public Notice No. 13-01

Under Section II.B.1 of the responses to Public Notice No. 13-01 (page 2), the primary complaint from LANL is that the imposition of vapor monitoring under the permit directly conflicts with the 2005 Compliance Order on Consent (Consent Order), as the Consent Order is the "sole mechanisms and only enforceable document for establishing and enforcing corrective action requirements for solid waste management units (SWMUs) and Areas of Concern (AOCs)". When reading the draft permit, and specifically the first paragraph of Section 3.14.3, Subsurface Vapor Monitoring, the intent of the monitoring is stated as "monitoring subsurface vapors to prevent worker exposure to potentially harmful levels of volatile organic compounds and tritium." It appears that the way this permit condition is written, there could be some interpretation as a blurring of permit requirements between corrective action and also Occupational Safety and Health Administration (OSHA) compliance.

Addressing the corrective action concern first, it appears the intent of the permit is not to necessarily require corrective action, but rather to ensure protection of human health and the environment. Under 40 Coder of Federal Regulations §264.4(a) [and as adopted by 20.4.1.500 New Mexico Administrative Code (NMAC)], "The owner or operator must inspect his facility

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for malfunctions and deterioration, operator errors, and discharges which may be causing—or may lead to—(1) release of hazardous waste constituents to the environment or (2) a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.” Thus requiring monitoring to evaluate risks to workers from a release of hazardous waste constituents to the environment is a compliance issue directly related to the intent of a permit. It is agreed that the MDA C evaluation does not denote immediate risk to workers at the proposed TWF nor is the permit condition as currently written forcing LANL into immediate corrective action, but rather including conditions for assessing potential risks to human health. In order to alleviate the concern from LANL that the permit is requiring monitoring that should be conducted under corrective action associated with MDA C under the Consent Order, it may be helpful to revise the intent of the vapor monitoring in Section 3.14.3 to appear to be for RCRA compliance and sway the language away from corrective action. Some suggested text is, “The Permittees shall monitor subsurface vapors to ensure risks to site workers are within acceptable limits in compliance with 40 Code of Federal Regulations (CFR) §264.101 and as adopted by 20.4.1.500 New Mexico Administrative Code (NMAC) and to assess whether corrective actions are required to maintain acceptable risk levels to workers. If corrective action is required, the Permittee shall initiate immediate action in accordance with the 2005 Compliance Order on Consent and as summarized in permit Section 3.14.3.” (Note: as discussed with the Modification of responses table, it is agreed that the conditions currently contained in permit section A.6.10 would be better placed in 3.14.3.)

It is noted that LANL has also taken an OSHA slant in their responses to this condition through referencing of threshold limit values (TLVs) as means for ensuring worker protection (noted in the Response to Public Notice No. 13-01, II.B.2 and II.B.3, pages 3 - 7). It is my experience the intent of a RCRA part B permit is to ensure protection of human health and the environment through assessment of risk and need for corrective action whereas OSHA establishes standards for occupational safety and health. The way the permit is currently written it is understandable the LANL could interpret the condition as following the intent of OSHA. However, in the LANL responses, LANL is suggesting the use of weighted threshold limit values (TLVs) for ensuring worker protection. Even as noted by LANL, TLVs are guidelines; TLVs are actually non-regulatory guidelines that are developed using a combination of scientific (toxicological) data as well as professional judgment but are not developed using explicit risk-based methodologies. TLVs cannot be equated to a specific risk level (such as a cancer risk of 1E-05 or noncancer hazard of 1.0), and as such cannot be used to demonstrate risks to workers are within target risk levels or to trigger corrective action under either this permit or the Consent Order. As such, using TLVs to demonstrate adequacy of protection of human health under the intent of a hazardous waste permit is not valid; rather, acceptable risk-based methodology must be applied. It is noted that internal LANL/corporate policy may include monitoring for OSHA compliance (note that permissible exposure limits (PELs) are evaluated under OSHA), as noted in II.B.3, but OSHA compliance or monitoring for OSHA compliance does not substitute for compliance with 20.4.1.500 NMAC for ensuring protection of human health. As previously noted, to help clarify the intent of the permit is more for demonstrating that the TWF is in compliance with acceptable risk limits, monitoring and comparison to risk-based levels, may be better clarified with some clarification to the currently written permit condition. Some suggested text is, “The Permittees shall monitor subsurface vapors to ensure risks to site workers are within

acceptable limits in compliance with 40 Code of Federal Regulations (CFR) §264.101 and as adopted by 20.4.1.500 New Mexico Administrative Code (NMAC) and to assess whether corrective actions are required to maintain acceptable risk levels to workers. If corrective action is required, the Permittee shall initiate immediate action in accordance with the 2005 Compliance Order on Consent and as summarized in permit Section 3.14.3.”

Section II.B.4 states that the current Fact Sheet does not contain adequate justification for imposing the vapor monitoring and specifically five vapor monitoring wells (VMW) at the TWF. VMWs 1-3 are located just inside of the outer edge of the existing vapor plume as defined by work associated with MDA C. These three VMWs are also located at the boundary of the proposed TWF. Inclusion of these monitoring wells is necessary to evaluate potential exposures to TWF workers and to assess whether corrective actions under the Consent Order may be required. {Note – I am not sure how the locations of VMW-4 and -5 were selected – but these wells are addressed in subsequent comments.} Using the data from the VMWs, assessment of worker risk under RCRA can be conducted to evaluate whether corrective action needs to be triggered. The use of the soil gas screening levels (SGSLs) [or other risk-based action levels derived using current State and/or EPA guidance] outlined in permit condition 3.14.3, were included in the permit over TLVs as TLVs are not risk-based numbers nor do TLVs have regulatory status.

Section II.C.1 (page 7) indicates that NMED cannot include radionuclides in a hazardous waste permit as NMED does not have regulatory authority. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), authorizes the Environmental Protection Agency (EPA) to regulate hazardous substances, including radionuclides. As the State is an agreement agency under the EPA, the State of New Mexico is authorized to regulate radionuclides. However, LANL is not operating under CERCLA but rather a RCRA part B permit. It has been my experience that LANL has always provided assessments of radiological dose required for compliance with Department of Energy (DOE) and Nuclear Regulatory Commission (NRC) regulations as a “courtesy” to NMED but that NMED did not have authority to require action. I believe that this justification of section may require additional input from NMED staff and/or legal.

However, the second part of this response refuted the use of tritium as a tracer. Some review of technical documents was conducted to assess LANL’s claim. One document in specific was interesting ([http://www.pnl.gov/main/publications/external/technical\\_reports/PNNL-13217.pdf](http://www.pnl.gov/main/publications/external/technical_reports/PNNL-13217.pdf)). The authors stated that, “When tritiated water is released from a source into the subsurface environment and migrates downward to mix with groundwater, its daughter isotope, helium-3, begins to build up in the vadose zone and groundwater at the rate of tritium decay. The helium-3 then diffuses away from the source and toward the surface. Throughout this process, helium-3 acts as a non-reactive tracer moving through the vadose zone. By contrast, tritium, as tritiated water in soil gas, is a somewhat reactive tracer, exchanging with water adsorbed on the surface of sediment in the vadose zone. Tritium is thus retarded, to some degree, in its movement through the vadose zone.” Thus, use of tritium may not be best choice of a radionuclide tracer but rather helium-3 may provide a better indication of vapor phase contamination.

Section II.C.2 (page 7 and 8) discuss the methodology for determining soil gas screening levels contained in permit condition 3.14.3. LANL argues that there is no regulatory basis for requiring compliance with mixed State of California and EPA methodology. The 2012 NMED Risk Assessment Guidance for Site Investigations and Remediation clearly states that if “If vapor intrusion into indoor air is a concern, additional analysis of this pathway may be necessary and the latest guidance on evaluating the vapor intrusion pathway should be consulted.” In lieu of inclusion of the methodology, perhaps it may be sufficient to state that the most current NMED or EPA risk-based methodology shall be used in establishing action levels and assessing this pathway. This would also allow more flexibility for changes of methodology and/or guidance. For example, there have been rumors of EPA moving away from the Johnson and Ettinger model. Removing this specific condition would provide NMED more flexibility in requesting a newer approach be applied. As part of this review, the new Draft EPA Vapor Intrusion Guidance (that is out for peer review) was reviewed to see if there were any major modifications forthcoming. No major changes to methodology were noted in the draft document.

Section II.C.3 (pages 8 and 9) outlines some problems noted with the required steps the Permittee must take is vapor levels are detected above action levels. It is clear that steps one and two (notification within 24 hours and conducting continuous air monitoring in the buildings) are warranted. It may be helpful to modify step two to include that the monitoring is to confirm actual levels of vapor in individual buildings. However, steps three through five do indicate corrective action. It is not clear the part B permit is the correct place to include specific steps for corrective action. Rather, it may be more appropriate to revise the permit language to indicate that if the confirmation sampling within the building(s) indicates levels above the risk-based action levels, the Permittees must immediately implement corrective action under the Consent Order. Until such corrective action has been conducted and the Permittee can demonstrate that vapor levels are within acceptable risk levels, additional controls such as additional building ventilation and respiratory protection for workers must be implemented.

Section II.D requests a phased approach to the vapor monitoring with wells being initially established at locations four and five. The intent would be to establish a baseline for the TWF. It is not clear how these wells would represent a baseline as the wells are not located within the TWF, but it is noted that the concentrations would likely be greater at these wells than at wells VMW-1 through 3, and thus provide as an early warning detection. This appears like a reasonable request. LANL indicates that the second phase would be triggered if TLVs are exceeded. As discussed with previous sections, TLVs are not risk-based and do not have regulatory status. The second phase of monitoring should be triggered if risk-based action levels are exceeded and the second phase wells would include installing and monitoring wells VMW-1 through VMW-3 (as currently shown on Figure 56 of Attachment N).

#### Modification Response Tables

Comment No. 12 (Section 3.14.3). The response to this comment is slightly confusing as the response conflicts with the response to Comment No. 28 (Section A.6.10). The response provides suggested changes to the language contained in permit condition 3.14.3, to include referencing the monitoring requirements contained in Section A.6.10). However, in Comment No. 28, LANL requests that this section be moved and incorporated into Section 3.14.3. It is

agreed from reviewing Attachment A of the permit, that the specific monitoring requirements may be better placed within section 3.14.3. On this, the response is adequate. In addition, as discussed with respect to Section II.D of the Response to Public Notice No. 13-01, a phase approach to the monitoring appears reasonable. However, in the response LANL references specifics of the corrective action being conducted at MDA C. This is a little counter-intuitive as LANL has made strong arguments that corrective action associated with this plume should not be included in the permit. Regardless, since the intent of this vapor monitoring is to ensure continued assessment of risk to workers within the TWF, monitoring of these wells should likely be independent of the MDA C activities but data obtained from the monitoring should be used to augment MDA C plume migration data.

The discussion of the use of TLVs is not acceptable, as previously discussed. Data should be compared against risk-based action levels.

The last part of this response concerns the methodology for collecting the sample. The language appears consistent with that currently contained within A.6.10. However, it is suggested that it be specified that sample collection shall not be conducted within 24-hours of a precipitation event, as precipitation (rain, snow, etc.) can have a significant decreasing impact on vapor readings.

Comment No. 13 (Section 3.14.3). If changes to the permit are initiated to include reference to use of the most current State and/or EPA risk-based guidance for developing action levels for the vapor intrusion scenario are made, this comment goes away. Otherwise, it appears LANL is requesting consistency in how referencing are documented.

Comment No. 28 (Section A.6.10). Concur. It is agreed that this information may be better placed within Section 3.14.3.

Comment No. 32 (Attachment N, Figure 56). Non-concur. It is agreed that if NMED agrees to a phased approach, wells VMW-4 and VMW-5 should be noted as first tier monitoring well locations. However, wells VWM-1 through VWM-3 should still be shown on the figure but denoted as phase 2 monitoring wells.

If you have any questions, please contact me at (801) 451-2864 or via email at paigewalton@msn.com.

Thank you,



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cc: Ben Wear, NMED (electronic)  
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