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December 28, 2007

DCN 06280.130.ID.010

Mr. David Cobrain
State of New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building One
Santa Fe, New Mexico 87505-6303

Reference: Work Assignment No. 06280.130; State of New Mexico Environment Department, Santa Fe, New Mexico; General Permit Support Contract; Sandia National Laboratories; Technical review of the Sandia Corporation, DOE/Sandia Responses to NMED's "Notice of Disapproval: Mixed Waste Landfill Corrective Measures Implementation Work Plan, November 2005" Comment Set 2 dated January 15, 2007; Task 02 Deliverable

Dear Mr. Cobrain:

TechLaw, Inc. (TechLaw) has evaluated the Sandia Corporation (Sandia) DOE/Sandia Responses to New Mexico Environment Department (NMED) "Notice of Disapproval: Mixed Waste Landfill Corrective Measures Implementation Work Plan, November 2005" Comment Set 2 dated January 15, 2007. The responses to comments (RTCs) were transmitted to NMED via a transmittal cover letter from the National Nuclear Security Administration Sandia Site Office dated January 19, 2007. Per the technical direction provided by NMED representative, Mr. Will Moats to TechLaw representative, Mr. Jim Ashworth via a telephone conference call on December 7, 2007, TechLaw only reviewed the RTCs for Comment Set 2 regarding the *Probabilistic Performance-Assessment Modeling of the Mixed Waste Landfill at Sandia National Laboratories*, which was presented as Appendix E of the *Mixed Waste Landfill Corrective Measures Implementation Plan* dated November 2005.

Our review determined that in general, the RTCs were acceptable, appropriate and adequately provided the clarification, discussion, and/or modifications requested in the NMED comments. TechLaw believes that three RTCs require minor clarification before the responses should be considered acceptable and final. These three issues are discussed below.

- **Comment 4, Section 3.4.2, Page E-35, 2nd paragraph – Explain why future infiltration rates would be less than current rates.** In the response to this comment, Sandia states that future infiltration rates through the Mixed-Waste Landfill (MWL) cover (based on the natural analogue) would be less than the current infiltration rates (based on the engineered cover) due to the increased evapotranspiration resulting from the increasing porosity and hydraulic conductivity of the landfill cap as it reverts to natural soil conditions. While this process may occur, it is not clear how this conclusion was reached. Sandia should clarify if the anticipated increase in evapotranspiration is based on empirical data (i.e., actual infiltration and/or groundwater recharge data from areas with natural soil cover) or modeling simulations.

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- **Comment 6, Section 4, Pages E-59 and E-59a – Revise the trigger evaluation process to follow the corrective action process described in the Consent Order (April 29, 2004) if a trigger level is exceeded (step 3A), provided the Consent Order is still in force at the time the trigger level is exceeded. If the Consent Order has terminated, the trigger evaluation process should follow the standard RCRA corrective action process.** In the response to this comment, Sandia indicated that several modifications were made to the trigger evaluation process based on the requirements of the Consent Order. While these changes do not conform exactly with the requested comment, they are in compliance with the Consent Order. TechLaw does not object to the modifications proposed by Sandia, and recommends that NMED verify that these modifications to the original comment are acceptable.
- **Comment 7 (Section 3.3), Comment 13 (risk to human receptors), and Comment 15 (triggers for tritium, PCE and total VOCs as soil vapor).** In the responses to Comments 7, 13, and 15, Sandia states that only gas-phase tritium has an enforceable regulatory dose, and that the regulatory metrics for radon and PCE are surface flux and groundwater concentration (MCL). Sandia plans to install a FLUTE™ vadose zone soil-gas monitoring system around the MWL, and proposes trigger levels of 20 parts per million by volume (ppmv) for trichloroethylene (TCE) and tetrachloroethylene (PCE), and 25 ppmv for total volatile organic compounds (VOCs) to ensure the MWL is protective of groundwater. While we agree that the MCL is the enforceable regulatory metric for VOCs in groundwater, there is still a concern that VOCs could create a vapor intrusion risk if human receptors are present in the vicinity of the MWL. TechLaw recommends that Sandia modify the text to indicate whether or not a complete exposure pathway exists for either current or future human receptors. In the event, that a complete exposure pathway exists for vapor intrusion then a discussion of the potential risk to human receptors via vapor intrusion should be provided.

It should be noted that in Comment 11, TechLaw generated a comment expressing concern that sufficient documentation was not provided showing how the probabilistic model operated with regard to software quality assurance, validation and verification, and an assessment of bias. In the comment, TechLaw referred to the model as a “black box.” In the RTC, Sandia indicates that additional operational tests, links to the Mathcad models, input and output files, and simulation input/output files were presented on a CD that was attached with the RTCs. Although TechLaw was not provided with a copy of this CD, we are confident that the RTC is adequate; provided the information was included on the CD as stated.

If you have any questions, please feel free to contact me at (770) 752-7585 extension 105 or Mr. Jim Ashworth at (770) 752-7585 extension 102.

Sincerely,



Jasmine Schliesmann-Merkle
Vice President

cc: Mr. Will Moats, NMED
Mr. Jim Ashworth, TechLaw
TechLaw Atlanta Files