



02

ENTERED

AQS, Inc.
2112 Deer Run Drive
South Weber, Utah 84405

(801) 476-1365
www.aqsnet.com

September 6, 2011

DCN: NMED-2011-30

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 the Response to Notice of Disapproval for the *Phase II Investigation Report for Middle Los Alamos Canyon Aggregate Area*, Los Alamos National Laboratory, New Mexico, dated May 24, 2011.

Dear Mr. Cobrain:

This letter addresses the evaluation of Los Alamos National Laboratory's (LANL) responses to Notice of Disapproval comments on *Phase II Investigation Report for Middle Los Alamos Canyon Aggregate Area*, LANL, New Mexico (May 2011). As noted in an email dated August 24, 2011, Mr. Ben Wear requested an evaluation of the responses to the risk assessment-related comments.

Many of the risk-related responses were adequate as provided. However, several of the comments are still unresolved and are discussed below.

The nature and extent of contamination of dioxin/furan contamination had previously been defined during the Phase I investigation for Middle Los Alamos Canyon Aggregate Area. However, dioxin/furan analyses were only completed at less than half of the sites. Two of the technical area (TA)-02 sites had detected concentrations of dioxins/furans that led to unacceptable risks/hazards under a residential scenario. Because the TA-02 sites are in close proximity with one another, and site history and land uses are similar, there is reason to believe that the areas which were not sampled for dioxins/furans may contain concentrations of dioxins/furans that may pose unacceptable risks/hazards. NMED may wish to re-evaluate the completeness of the nature and extent of contamination of dioxins/furans at Middle Los Alamos Canyon Aggregate Area.

Comment No. 1: LANL argues that the construction worker receptor is not a potential receptor at Middle Los Alamos Canyon Aggregate Area based on current and foreseeable future land use. Current and foreseeable future land use at Middle Los Alamos Canyon Aggregate Area is industrial. The construction worker receptor must be included in risk assessments where land use is industrial. Intrusive activities, such as digging and excavation are likely to occur. Inasmuch as construction activities are not planned at this time, this should not be interpreted as providing proof that construction activities will not occur. In order to protect future construction workers,



Detected concentrations of manganese at several of the sites at Los Alamos Canyon Aggregate Area were determined to be statistically different than background and had exposure point concentrations (that a construction worker would be exposed to) greater than the construction worker soil screening level for manganese. It is likely that concentrations of manganese at these sites would pose unacceptable risks/hazards to construction workers.

Based on LANL's response to this comment, it is clear that they do not intend to evaluate the construction worker receptor in all future risk assessments where land use is industrial. All future risk assessments must include the evaluation of a construction worker at sites where land use is industrial. This is especially true for sites with detected concentrations of manganese, barium, and beryllium, wherein the residential scenario is not protective of a construction worker scenario. This will continue to be an ongoing issue/comment. It is suggested that NMED either request that construction worker receptor be evaluated in the risk assessments at Middle Los Alamos Canyon Aggregate Area or state that if any intrusive activities are to be conducted in the future, the construction worker scenario would require assessment to ensure protectiveness of workers.

Comment No. 2: NMED may wish to re-evaluate the nature and extent of dioxin/furan contamination at Middle Los Alamos Canyon Aggregate Area, as noted in the cover letter.

Comment No. 3: The response is adequate as provided.

Comment No. 4: It is agreed that the likelihood of methylation of mercury in the environment at LANL is minimal and the response is adequate as provided. However, NMED may wish to have LANL confirm that methyl mercury could not have been released as a direct result of site activities.

Comment No. 5: LANL responds to this comment by referring to text in Section H-4.3, which provides a 'qualitative' evaluation of the vapor intrusion pathway. The discussion states that this pathway is incomplete since: 1) buildings will not be built; and 2) the detections of volatile organic compounds (VOCs) were relatively low (i.e., near the estimation quantitation limit).

In the case that LANL is evaluating a residential scenario per the consent order; the vapor intrusion pathway is complete for a hypothetical resident. VOCs were detected at several of the sites, indicating that a source and release mechanism were present, and fate and transport of VOCs through the vadose zone into indoor air is described in the *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings* (USEPA, 2004).

Although LANL states that the detections of VOCs were relatively low (i.e., near the estimation quantitation limit), better justification should be provided to indicate that a more formal screening assessment (quantitative) is not required on a site by site basis (not a facility-wide qualitative approach), showing that cumulative risks/hazards from exposure to VOCs and other identified constituents of potential concern (COPCs) detected at each site would not contribute to unacceptable risks/hazards to hypothetical residents.

Comment No. 10: Response is adequate as provided. However, it is advised that only the final risk estimate be rounded to one significant figure. Rounding of the intermediate calculations will not accurately quantify risks/hazards.

Comment No. 22: Response is adequate as provided.

Comment No. 52: Further clarification is needed on the current extent of arsenic contamination at AOC 02-011(d). As presented, the vertical extent of arsenic contamination has not been defined at sample location 02-01247. LANL explains, in response to Comment Number 65, that demolition and decommissioning was conducted in 2003 at AOC 02-011(d) and surface sediment has been regraded; the medium sampled in 2000 no longer exists as sediment and is likely a mixture of soil, sediment, alluvium, tuff, and fill.

LANL does not provide an explanation as to whether the excavations conducted at AOC 02-004(f) in 2010 (Figure 6.12-1) removed soil from sample location 02-01247, which contained a high detection of arsenic in sediment. Further clarification is needed on the current extent of contamination of COPCs at AOC 02-011(d).

Comment Nos. 53 and 65: LANL argues that concentrations of COPCs at AOCs 02-006(b) and 02-011(d) do not pose unacceptable risks for the residential scenario based on the premise that exposure to arsenic at these sites cannot be distinguished from exposure to naturally occurring levels of arsenic. Since the calculated risk to a residential receptor from exposure to concentrations of COPCs at AOCs 02-006(b) and 02-011(d) were above the NMED target level of 1E-5, it is recommended that land use at AOCs 02-006(b) and 02-011(d) remain designated as industrial. Concentrations of COPCs at AOCs 02-006(b) and 02-011(d) did not pose any unacceptable risks or hazards under the industrial or recreational scenarios.

Comment Nos. 66 through 74: Responses are adequate as provided.

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

Thank you,



Paige Walton
AQS Senior Scientist and Program Manager

cc: Ben Wear, NMED (electronic)
Joel Workman, AQS (electronic)
Sunny McBride, AQS (electronic)