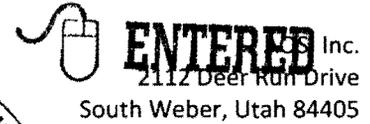
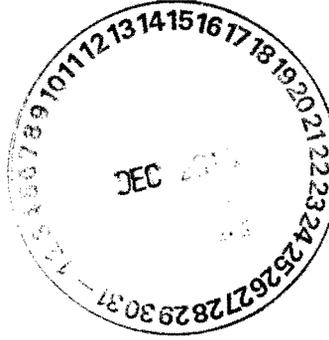




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December 10, 2010

DCN: NMED-2010-39

Mr. David Cobrain
NMED - Hazardous Waste Bureau
2905 Rodeo Park Dr. E, Building 1
Santa Fe, NM 87505

RE: Draft Technical Evaluation of the *Investigation Report for Upper Cañada del Buey Aggregate Area*, Los Alamos National Laboratory, New Mexico, dated November 2010

Dear Mr. Cobrain:

This letter serves as a deliverable and addresses the draft technical review of the risk assessment conducted for the *Investigation Report for Upper Cañada del Buey Aggregate Area*, Los Alamos National Laboratory (LANL), New Mexico (November 2010).

For Solid Waste Management Unit (SWMU) 46-006(b), one sample location (46-611369) had no detections of aroclor-1242 and aroclor-1254 in surface soil (0-1 feet below ground surface) but had increasing detections of aroclor-1242 and aroclor-1254 in subsurface soil (3-4 feet below ground surface), suggesting that the vertical extent of aroclor-1242 and aroclor-1254 may not be defined. In addition, acetone was not detected in surface soil at sample location 46-611371, but was detected in subsurface soil. LANL states that the vertical extent of contamination is defined since the detections were below the estimated quantitation limits (EQLs) and concentrations decreased downgradient. As the detected concentrations do not appear significant, and are essentially within laboratory limits, the data do not necessarily indicate extensive contamination. However, it is not clear whether additional sampling at depth would result in significant detections. NMED may wish to further evaluate the nature and extent of aroclor-1242, aroclor-1254, and acetone at SWMU 46-006(b).

For SWMU 46-002, LANL states that the lateral and vertical extent of contamination of silver is defined as silver concentrations decreased with depth at all locations and decreased downgradient. However, it appears that concentrations of silver did not decrease with depth at sample location 46-611374. Initially, concentrations decrease, but then slightly increase again with increasing depth, and a deeper sample may or may not reveal increasing concentrations of silver. NMED may wish to further evaluate the nature and extent of silver at SWMU 46-002.

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If you or any of your staff have 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

Enclosure

cc: Dan Comeau, NMED (electronic)
Joel Workman, AQS (electronic)
Sunny McBride, AQS (electronic)

**Draft Technical Evaluation of the Investigation Report for Upper Cañada del Buey
Aggregate Area, Los Alamos National Laboratory, New Mexico, dated November 201**

General Comments

1. The USEPA Regional Screening Levels (RSLs) for mercury (inorganic salts) were utilized for the residential and industrial scenarios, and a soil screening level (SSL) for the construction worker was calculated using toxicity data from the RSL tables and equation and parameters from NMED (2009). Clarify whether analytical results define speciation of mercury, thus justifying the use of the RSLs and toxicity data for mercury salts.
2. For constituents of potential concern (COPCs) with no available SSLs in NMED (2009), construction worker SSLs were calculated based on toxicity criteria listed in the RSL tables and NMED (2009) input parameters and calculations. The calculated SSLs for the construction worker could not be duplicated. Provide the spreadsheets with input parameters and formulae used to calculate the construction worker SSLs.
3. The SSLs and toxicity data for butylbenzene[n-] and butylbenzene[sec-] were taken from the Region 6 (2007) SSL tables and are based on National Center for Environmental Assessment (NCEA) data. NCEA data are no longer appropriate for use in risk assessments as these data have not undergone an extensive peer-review process and are not included in the current hierarchy of toxicological data summarized in NMED (2009). The Region 6 (2007) SSL tables are outdated, and Region 6 currently refers to Region 3 or Region 9 for risk-based media specific screening levels. Modify the risk assessment to utilize the current hierarchy of toxicological data.

Specific Comments

1. Table I-2.2-4. The exposure point concentration (EPC) for tetrachloroethene (0.0141 mg/kg) for the industrial scenario at SWMU 46-004(m) is based on the maximum detected concentration and is inconsistent with the maximum detected concentration of 0.000432 mg/kg presented on Table 7.21-3. It is noted that the greater value was used as the EPC and does not affect the results of the risk assessment. However, clarify this inconsistency and update any subsequent calculations that would be affected.
2. Table I-2.2-4. The EPC for xylene[1,3-]+xylene[1,4-] (0.00259 mg/kg) for the industrial scenario at SWMU 46-004(m) is based on the maximum detected concentration and is inconsistent with the maximum detected concentration of 0.000358 mg/kg presented on Table 7.21-3. It is noted that the greater value was used as the EPC and does not affect the results of the risk assessment. However, clarify this inconsistency and update any subsequent calculations that would be affected.
3. Table I-4.2-16. Trichloroethene is not included in residential screening at SWMU 46-004(m). It was detected in surface soil at a concentration of 0.00378 mg/kg and should be included in carcinogenic risk screening for the residential scenario. Modify Table I-4.2-16 to include a risk estimate for trichloroethene, and modify the total excess cancer risk accordingly.
4. Table I-4.2-20. The EPC for butylbenzene[n-] (0.00545 mg/kg) is inconsistent with the EPC of 0.000545 mg/kg presented on Table I-2.2-8. Although the EPC that was used is the more

conservative of the two values and would not affect the results of the risk assessment, modify Table I-4.2-20 to include the correct maximum detected concentration for butylbenzene[n-].

5. Table I-2.2-9. The EPC of 0.00545 mg/kg for butylbenzene[n-] is based on a maximum detected concentration and is inconsistent with the maximum detected concentration of 0.000545 mg/kg on Table 7.35-3. Although the EPC that was used is more conservative than the maximum detected concentration and would not affect the results of the risk assessment, modify Table I-2.2-9 to include the correct maximum detected concentration for butylbenzene[n-].
6. Table I-4.2-14. The SSL for copper (20,600 mg/kg) is inconsistent with the SSL provided in NMED (2009) of 12,400 mg/kg. Modify Table I-4.2-14 to include the correct SSL for copper.
7. Section 7.35.4.4 states that acetone was detected at sample location 46-611371 at SWMU 46-006(b) at a concentration of 0.00241 mg/kg from 1–2 feet below ground surface (ft bgs). This is inconsistent with Table 7.35-3 and Plate 5 which indicate that acetone was not detected from 1-2 ft bgs and was detected from 2-3 ft bgs. Therefore, concentrations of acetone are increasing with increasing depth suggesting that the vertical extent of contamination may not be defined. Modify the text in Section 7.35.4.4 to include the correct depths at which acetone was detected, and determine if the vertical extent of contamination of acetone is defined.
8. Section 7.2.4.4 states that the lateral and vertical extent of silver are defined at SWMU 46-002 as silver concentrations decreased with depth at all locations and decreased downgradient. According to Plate 1 and Table 7.2-2, concentrations of silver did not decrease with depth at sample location 46-611374. Initially, concentrations decrease, but then slightly increase again with increasing depth, and a deeper sample may or may not reveal increasing concentrations of silver. Modify the text to indicate that initially concentrations are decreasing but then increase again with depth, and discuss whether the vertical extent of contamination of silver is defined.
9. Table I-5.3-1. The ecological screening levels (ESLs) for the following constituents and receptors are inconsistent with the values presented in the Ecorisk (Version 2.5) database:
 - Cyanide (American kestrel [intermediate carnivore], American kestrel [top carnivore], and red fox);
 - Selenium (American kestrel [intermediate carnivore], American kestrel [top carnivore], American robin [herbivore], American robin [insectivore], American robin [omnivore], deer mouse, desert cottontail, earthworm, plant, montane shrew, and Red fox);
 - Silver (American kestrel [intermediate carnivore], American kestrel [top carnivore], American robin [herbivore], American robin [insectivore], American robin [omnivore], deer mouse, desert cottontail, plant, montane shrew, and red fox);
 - Zinc (American kestrel [intermediate carnivore], American kestrel [top carnivore], American robin [herbivore], American robin [insectivore], American robin [omnivore], deer mouse, desert cottontail, earthworm, plant, montane shrew, and red fox);
 - Anthracene (plant);

- Benzo(a)anthracene (American kestrel [intermediate carnivore], American kestrel [top carnivore], American robin [herbivore], American robin [insectivore], American robin [omnivore], plant, and red fox);
- Benzo(a)pyrene (American kestrel [intermediate carnivore], American kestrel [top carnivore], American robin [herbivore], American robin [insectivore], American robin [omnivore], deer mouse, desert cottontail, montane shrew, and red fox);
- Benzo(b)fluoranthene (plant);
- Chrysene (red fox);
- Fluoranthene (earthworm);
- Fluorene (earthworm);
- Naphthalene (American kestrel [intermediate carnivore], American kestrel [top carnivore], American robin [herbivore], American robin [insectivore], American robin [omnivore], deer mouse, desert cottontail, Montane shrew, and Red fox);
- Phenanthrene (earthworm); and
- Pyrene (earthworm).

It is noted that these errors do not affect the calculations, and the correct ESLs were used throughout the remainder of the ecological risk assessment. However, clarify the reason for these inconsistencies, and modify Table I-5.3-1 to include the ESLs that are consistent with those listed in Ecorisk (Version 2.5).

10. Section I-5.3.5. The text states that the hazard indices (HIs) were greater than 1.0 for the robin and deer mouse at SWMU 46-006(g). However, according to Table I-5.3-9, the plant (24) and montane shrew (6) receptors also had HIs greater than one. Modify the text to state that the plant and montane shrew receptors also had HIs greater than one.
11. Section I-5.4.4 presents a discussion of comparing EPCs (i.e., upper confidence limits) to background datasets, concluding that site concentrations are not substantially different from background concentrations. As a result, several inorganic constituents of potential ecological concern (COPECs) were eliminated from further analysis in the ecological risk assessment. It is incorrect to eliminate COPECs from further consideration based on comparing upper confidence limits (UCLs) with background comparison values. Comparisons of site concentrations with background values were already conducted and discussed previously in the report, and resulted in the identification of COPCs. Furthermore, background values are used for point-to-point comparisons and because the UCL is not a point estimate, it cannot be used as an estimate of an individual site observation for comparison to background threshold values. Delete this discussion in Section I-5.4.4 and delete corresponding Tables I-5.4-1, I-5.4-2, I-5.4-3, and I-5.4-4. Include the inorganics that were eliminated as constituents of potential ecological concern in the refined ecological risk assessment.
12. Table I-5.4-15. The EPCs listed for SWMU 46-002 for mercury (0.138 mg/kg) and bis(2-ethylhexyl)phthalate (0.119 mg/kg) on Table I-5.4-15 are inconsistent with the EPCs presented on Table I-2.2-2 (1.283 mg/kg and 1.43 mg/kg, respectively). It is noted that this inconsistency does not affect the calculation of the adjusted HI for the American robin (insectivore) at SWMU 46-002. However, modify Table I-5.4-15 accordingly.