



ENVIRONMENTAL

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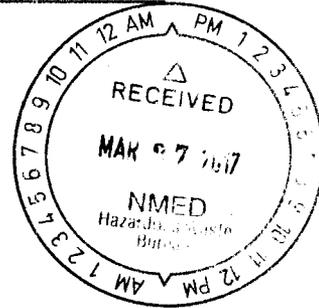


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March 22, 2017

DCN: NMED-2017-14

Mr. David Cobrain
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Dr. East
Building One
Santa Fe, NM 87505



RE: Revised Evaluation of the Response to the Disapproval for the Supplemental Investigation Report for Upper Sandia Canyon Aggregate Area, Los Alamos National Laboratory, EPA ID No. NM0890010515, HWB-LANL-13-042, dated April 14, 2015.

Dear Mr. Cobrain:

Attached please find the revised Evaluation of the Response to the Disapproval for the Supplemental Investigation Report for Upper Sandia Canyon Aggregate Area, Los Alamos National Laboratory, EPA ID No. NM0890010515, HWB-LANL-13-042, dated April 14, 2015 (SIR RTC). The responses to risk-assessment related comments were re-evaluated based on agreements made with LANL during a 2/14/17 meeting. Unless addressed herein, the responses to the comment are adequate as provided.

If you or any of your staff have questions, please contact me at (801) 451-2864 or via email at pwalton@aqsnnet.com.

Thank you,

Paige Walton
AQS Senior Scientist and Program Manager

Enclosure

cc: Neelam Dhawan, NMED (electronic)
Joel Workman, AQS (electronic)

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**Revised Evaluation of the Response to the Disapproval for the
Supplemental Investigation Report for Upper Sandia Canyon Aggregate Area
Los Alamos National Laboratory
EPA ID No. NM0890010515, HWB-LANL-13-042
Dated April 14, 2015**

General Comments

1. **Evaluation of Facility Response to NMED Comment 1:** The facility response partially addresses the issue raised in the original comment. In its response, LANL provides additional discussion and lines of evidence supporting the assertion that PAH exceedances found at some SWMUs and AOCs [eight SWMUs and AOCs are listed as examples in General Comment 1, SWMUs 03-014(k,l,m,n), 03-045(a), 03-015, 03-052(f), AOCs 03-047(g), 03-051(c), and 61-002; AOC 03-053] are not associated with site activities. The response does not address the determination of PAH background concentrations at these sites as suggested in the comment. An evaluation of the lines of evidence presented in each of the discussions comprising the facility response is presented below:

- **SWMUs 03-045(a), 03-015; AOC 03-053:** The first paragraph of the response to General Comment 1 indicates that the discussion of uncertainties associated with the risk estimates (in excess of the NMED target risk level of 1×10^{-5}) at SWMUs 03-045(a), 03-015; AOC 03-053 focuses on the “overestimation” of risk because the maximum detected concentration was used as the exposure point concentration (EPC). As indicated in Section 5.0, Use of the SSLs, of the *Risk Assessment Guidance for Investigations and Remediation Volume I* dated December 2014 (2014 SSG), an exceedance of the NMED target level of 1×10^{-5} is an indication that further evaluation is warranted. While the identification and evaluation of the uncertainties associated with a risk estimate is a valid approach, NMED does not support use of the maximum detected concentration as the EPC as the primary line of evidence for eliminating the exceedance from further consideration in the risk assessment. Since LANL states in their response that they are not making the argument that the PAHs are not site related, additional evaluation is needed to bound the risk. Where issues related to the use of the maximum detected concentration exist, NMED recommends the collection of additional data so that a statistically-derived EPC can be determined and a refined estimate of risk developed.

Further, for example at SWMU 03-045(a), sample 03-608316 was only sampled for total petroleum hydrocarbons resulting in only one sample point, 03-608317, having PAH results. It is not clear that since the PAH data exceed risk, nature and extent has been demonstrated. Nor do the data allow if the sample location represents the worst case location. Additional sampling will resolve these issues.

- **AOCs 03-047(g) and 03-051(c):** The second paragraph of the facility response to General Comment 1 indicates that the “unacceptable risk” at AOCs 03-047(g) and 03-

051(c) under the residential scenario is based on the use of the maximum detected concentrations of PAHs. As indicated in the evaluation for SWMUs03-045(a), 03-015; AOC 03-053, NMED does not support the use of the maximum detected concentration as the EPC as the primary line of evidence for eliminating the exceedance from further consideration in the risk assessment. Additional PAH data should be collected and a statistically derived EPC used to refine risk estimates.

In addition, the second and third paragraphs of the response provide information related to the presence of PAHs at the two sites. The discussion includes several lines of evidence aimed at supporting the assertion that PAHs detected at these sites are not associated with site operations. However, adequate documentation has not been provided in the Revised SIR to assess the applicability of the assumptions. The following must be included in the Phase II IR:

- The second paragraph of the facility response should be incorporated into the text.
 - A reference citation should be provided in the text for the following statement included in the second paragraph of the facility response to General Comment 1: “Low concentrations of TPH, including TPH-DRO, are often present even if the source of the PAHs is asphalt.” LANL should ensure that the cited reference is listed in Section 11.0, References and Map Sources, of the Revised SIR.
 - Reference citations should be provided in the Revised SIR and Appendix I for the worker interviews noted in the third paragraph of the response to General Comment 1. In addition, ensure these interviews or the project documents containing the information from the interviews are listed in Section 11.0, References and Map Sources, of the Revised SIR.
 - Ensure that the MSDS provided in Attachment 2 of the responses is incorporated into the Phase II IR.
- **SWMU 03-014(k,l,m,n):** The second and third full paragraphs on page 3 of the SIR RTC repeat much of the information provided in Appendix I, Section I-4.4.2 for SWMU 03-014(k,l,m,n). As indicated in the evaluation for SWMUs03-045(a), 03-015; AOC 03-053, NMED does not support use of the maximum detected concentration as the EPC as the primary line of evidence for eliminating the exceedance from further consideration in the risk assessment. Additional PAH data should be collected and a statistically derived EPC used to refine risk. The photographs of the SWMUs and the decaying berms provided by LANL as part of Attachment 3 of the SIR RTC have been incorporated into Appendix I as figures. Discussion of the photographs has been added to the uncertainty discussion for SWMU 03-014(k,l,m,n) and the discussion references Figure I-4.4.2 to illustrate sludge beds and decaying berms. The photographs show asphalt in the sludge beds but also show that the berms are integral to the design of these units (i.e., the decaying asphalt berms would not be present if it was not for the presence of the sludge beds). Thus it appears that the PAH contamination at SWMU 03-014(k,l,m,n) is due to the design and operation of these units. The information presented on PAHs at SWMU 03-014(k,l,m,n) in the main text and Appendix I of the Revised SIR and in

the SIR RTC should be reviewed and the Phase II IR include the exceedances of the target risk level under the industrial and residential scenarios. In addition, the Phase II IR should indicate that the exceedances are driven by PAHs associated with the design and operation of the sludge beds. Alternatively, LANL should provide multiple lines of evidence demonstrating that the decaying asphalt berms are not associated with the design and operation of SWMU 13-014(k,l,m,n).

- **SWMU 03-052(f):** The discussion at the bottom of page 3 and top of page 4 in the SIR RTC indicates that the “unacceptable risk” at this site under the industrial scenario is based on the use of the maximum detected concentrations of PAHs. As indicated in the evaluation for SWMUs 03-045(a), 03-015; AOC 03-053, NMED does not support use of the maximum detected concentration as the EPC as the primary line of evidence for eliminating the exceedance from further consideration in the risk assessment. The last sentence of the discussion at the top of page 4 states that 95% UCLs were calculated for SWMU 03-052(f) for use as EPCs although the tools and/or methods used to derive the 95% UCLs are not identified or discussed. In addition, the discussion does not indicate why 95% UCLs were not used as EPCs in the initial risk estimates. The Phase II IR must identify and discuss the approach followed in calculating the 95% UCLs. If ProUCL or another statistical software package was used, the text should reference the location of the input and output files for the computer runs.

LANL may still wish to determine background concentrations for PAHs for some sites as outlined in General Comment 1 as it appears that PAH contamination at some SWMUs and AOCs [e.g., SWMU 03-014(k,l,m,n)] is a result of the design and operation of the units.

Specific Comments

1. **Evaluation of Facility Response to NMED Comment 6: Section 6.4.1.4, Site Contamination, pages 29-30.** The facility response partially addresses the issue raised in the original comment. The information provided in the first paragraph of LANL’s response has been added to Section 6.4.1.4 of the Revised SIR. However, this information is not sufficient to address the issue raised in Specific Comment 6. In the response, LANL cites changes with depth of 0.02 mg/kg to 0.3 mg/kg for COPC concentrations at sampling location 03-608182. Examination of Table 6-4.3 of the Revised SIR indicates that these changes with depth represent increases of 181% and 217% in COPC concentration, respectively. Additional information is needed to demonstrate that risks under a construction worker scenario at SWMU 03-009(a) have been adequately characterized. There are sampling locations at SWMU 03-009(a) other than 03-22537 that provide results at depths greater than those sampled at locations 03-608181 and 03-608182. For example, Table 6.4-3 indicates that benzo(a)pyrene had a concentration of 0.944 mg/kg within the 9 to 10 feet depth interval at sampling location 03-608178. This concentration represents the maximum benzo(a)pyrene concentration measured at SWMU 03-009(a). Estimating the risk to a construction worker using this concentration results in a risk of 4.4×10^{-7} . Thus, estimating risks for COPCs identified as risk drivers using the maximum COPC concentrations at depth

and comparing the results to those reported for the construction worker scenario (e.g., 3E-7) is a line of evidence that can be used to demonstrate that those risks have been adequately characterized. The Phase II IR must demonstrate that potential risks under a construction worker scenario have been adequately characterized at SWMU 03-009(a).

2. **Evaluation of Facility Response to NMED Comment 12, Section 6.7.4.4, Nature and Extent of Contamination, page 65:** The facility response partially addresses the issue raised in the original comment. In the facility response, LANL has provided information on the numerical magnitude of the difference between the sample results at 0-1 foot bgs and 1-2 feet bgs for eight PAHs. In addition, the response proposes alternate values for exposure time and exposure frequency for the industrial scenario. As noted at the end of the response, this information has been incorporated into Section 6.7.4.4 of the Revised SIR. The facility response does not address the risk exceedance for the residential scenario.

As noted in NMED Comment 12, benzo(a) anthracene, benzo(a)pyrene, and benzo(b)fluoranthene were detected above the NMED residential SSLs at all depths at sample location 03-608219. It does not appear that any samples were collected below the 1-2 feet bgs depth interval at any sampling locations associated with SWMU 03-052(f). Because PAH concentrations at location 03-608219 exceed their residential SSLs at the maximum sampled depth and no samples have been collected at SWMU 03-052(f) at depths greater than 2 feet bgs, it appears that the vertical extent of contamination is not defined at the site and additional sampling should be proposed. Additional sampling is needed to define the vertical extent of contamination at SWMU 003-052(f).

3. **Evaluation of Facility Response to NMED Comment 22 Section I-4.4.2, Exposure Evaluation pages I-45 – I-51:** The facility response does not address the issue raised in the original comment. However, the response notes that the issues raised in NMED Comment 22 are addressed in the facility response to NMED Comment 1. As previously indicated, NMED has addressed the outstanding issues related to PAHs at some sites in the evaluation of NMED Comment 1.
4. **Evaluation of Facility Response to NMED Comment 23 Section I-4.4.2, Exposure Evaluation pages I-45 – I-51:** The facility response partially addresses the issue raised in the original comment. LANL has revised Section I-4.5.9 as indicated; however, issues related to existing contamination at SWMUs 03-014(k,l,m,n) remain and are addressed in NMED's evaluation of the facility response to NMED Comment 1.