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Date: February 7, 2022
Refer To: N3B-2022-0019

Mr. Rick Shean
 Bureau Chief
 Hazardous Waste Bureau
 New Mexico Environment Department
 2905 Rodeo Park Drive East, Building 1
 Santa Fe, NM 87505-6313

Subject: Response to New Mexico Environment Department's Administratively Incomplete Determination, Class 3 Permit Modification Request for 19 Corrective-Action-Complete Sites in Pueblo Canyon Aggregate Area, Dated December 7, 2021

Dear Mr. Shean:

The United States Department of Energy Environmental Management Los Alamos Field Office (EM-LA) and Newport News Nuclear BWXT-Los Alamos (N3B), collectively the Permittees, have prepared the attached response to the New Mexico Environment Department's (NMED's) letter of December 7, 2021, in which NMED determined that the above referenced Class 3 permit modification request (PMR) to Hazardous Waste Facility Permit EPA ID #NM0890010515 was administratively incomplete.

The Permittees' PMR was submitted to move 19 sites that have achieved corrective action complete without controls status from Table K-1 of the referenced Hazardous Waste Facility Permit to Table K-3 of the referenced Hazardous Waste Facility Permit. In accordance with 40 Code of Federal Regulations 270.42(c), this request has been the subject of public notice, a public informational meeting, and a 60-day public comment period, during which no written comments were received by the Permittees.

With the attached submittal, the Permittees have addressed NMED's comments that form the basis for NMED's administratively incomplete determination of the PMR. All 19 sites included in the PMR were investigated and determined to meet the corrective action assessed by NMED as complete without controls criteria, in accordance with the 2005 and 2016 Compliance Orders on Consent (Consent Orders). As defined by both the 2005 and 2016 Consent Orders, solid waste management units and areas of concern meeting cleanup objectives for human health under the residential scenario and posing no unacceptable risk to ecological receptors shall be eligible for certificates of completion without controls.

In response to NMED's current position of requiring consideration of construction worker soil screening levels (SSLs) because of more restrictive risks posed by certain contaminants, neither the 2005 nor the 2016 Consent Order requires such analysis. Nonetheless, the Permittees are providing the attached information—which includes an evaluation of construction worker SSLs for the sites included in the PMR and an evaluation of construction worker risk for one site—so as to continue progress on this PMR.

With the attached information, the Permittees anticipate NMED will be able to proceed with a technical review of the referenced PMR.

If you have any questions regarding the information provided, please contact Emily Day at (505) 695-4243 (emily.day@em-la.doe.gov) or Arturo Duran at (575) 373-5966 (arturo.duran@em.doe.gov).

Sincerely,



Joseph Murdock
Program Manager
Environment, Safety and Health
N3B-Los Alamos

Sincerely,

M Lee Bishop for Digitally signed by M Lee Bishop
for
Date: 2022.02.07 12:08:34 -07'00'

Arturo Q. Duran, Compliance and Permitting
Office of Quality and Regulatory Compliance
U.S. Department of Energy
Environmental Management
Los Alamos Field Office

Enclosure(s): Three hard copies with electronic files –

1. Response to New Mexico Environment Department's Request for Additional Information for Administratively Incomplete Review, Class 3 Permit Modification Request for 19 Corrective-Action-Complete Sites in Pueblo Canyon Aggregate Area, Dated December 7, 2021

cc (letter and enclosure[s] emailed):

Laurie King, EPA Region 6, Dallas, TX
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Neelam Dhawan, NMED-HWB
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**Response to New Mexico Environment Department Request for Additional Information
for Administratively Incomplete Review, Class 3 Permit Modification Request for
19 Corrective-Action-Complete Sites in Pueblo Canyon Aggregate Area,
Dated December 7, 2021**

INTRODUCTION

The following information has been prepared by the U.S. Department of Energy (DOE) Environmental Management Los Alamos Field Office (EM-LA) and Newport News Nuclear BWXT-Los Alamos (N3B), collectively the Permittees, in response to the New Mexico Environment Department's (NMED's) letter of December 7, 2021, in which NMED determined that the above referenced Class 3 permit modification request (PMR) to Hazardous Waste Facility Permit EPA ID #NM0890010515 was administratively incomplete.

This information addresses NMED's comments that form the basis for NMED's administratively incomplete determination. All of the sites included in the PMR were investigated and determined to meet the corrective action complete without controls criteria defined by both the 2005 and 2016 Compliance Orders on Consent (Consent Orders). As defined by both the 2005 and 2016 Consent Orders, solid waste management units and areas of concern meeting cleanup objectives for human health under the residential scenario and posing no unacceptable risk to ecological receptors shall be eligible for certificates of completion without controls. In response to NMED's current position of additionally requiring consideration of construction worker soil screening levels (SSLs) because of more restrictive risks posed by certain contaminants, the following information includes an evaluation of construction worker SSLs relative to the sites included in the PMR.

To facilitate review of this response, NMED's comments are included verbatim. EM-LA responses follow each NMED comment.

GENERAL COMMENTS

NMED Comment

1. Risk Calculations

For majority of the units (Solid Waste Management Unit (SWMU) 00-018(a), Area of Concern (AOC) 00-018(b), AOC 00-030(d), AOC 00-030(eN), AOC 00-030(j), AOC 00-030(n), AOC 00-030(o), AOC 00-030(p), SWMU 00-039, AOC C-00-043, SWMU 19-001, SWMU 19-002, SWMU 19-003, SWMU 45-001, SWMU 45-002, SWMU 45-003, SWMU 45-004, and AOC C-45-001) only residential and/or recreational risk was evaluated and industrial or construction worker pathway were not evaluated. NMED understands that many of these sites are currently in use as recreational sites due to the steepness of the slopes. However, future trail development may require construction, hence construction worker scenario must be evaluated for these sites. The construction worker risks were historically not evaluated when these sites were reviewed by NMED.

While the residential risk scenario is generally the most conservative risk, however, some constituents of potential concern have a greater inhalation risk under the construction workers scenario. The Permittees must revise the risk to include calculations for construction worker risk scenario in this final evaluation, using data from the most recent investigations.

DOE Response

1. NMED's comment 1 identifies 18 sites for which the construction worker scenario was not evaluated. As described in the permit modification request, risk assessment results for these sites were reported in either the July 2005 remedy completion report for former Technical Area 19 (TA-19) (LANL 2005, 089660), the July 2008 "Investigation Report for Pueblo Canyon Aggregate Area, Revision 1" (LANL 2008, 103243.34), or the September 2010 "Phase II Investigation Report for Pueblo Canyon Aggregate Area" (LANL 2010, 110864). As required by the March 2005 Consent Order, the residential risk scenario was evaluated for each of these 18 sites. Based on current and reasonably foreseeable future land use, the recreational scenario was also evaluated for 11 of the sites, the industrial scenario for 1 site, and the construction worker scenario for 1 site.

NMED's comment indicates that the residential scenario may not be the most protective scenario because some chemicals of potential concern (COPCs) have a greater inhalation risk under the construction worker scenario. NMED's comment also notes that construction activities associated with trail construction may occur at sites being used for recreational purposes. For these reasons, NMED's administratively incomplete determination requires construction worker risk to be evaluated for the 18 sites [we note that construction worker risk was evaluated for Area of Concern (AOC) 00-018(b) as described in the July 2008 "Investigation Report for Pueblo Canyon Aggregate Area, Revision 1" (LANL 2008, 103243.34)].

Several COPCs for the Pueblo Canyon Aggregate Area sites identified in NMED's comment have construction worker soil screening levels SSLs that are lower than residential SSLs. Carcinogenic COPCs for which this is the case include beryllium, cadmium, cobalt, and nickel. Noncarcinogenic COPCs for which this is the case include aluminum; barium; beryllium; chromium (total); 1,1-dichloroethane; manganese; nickel; 2-nitroaniline; 1,2-xylene; 1,3-xylene; 1,3-xylene+1,4-xylene; and xylenes (total). These COPCs were evaluated to determine whether the residential scenario was protective of construction workers at the sites where construction worker risk was not evaluated.

Because both the residential and construction worker scenarios use data from the depth interval 0.0 to 10.0 ft below ground surface (bgs) to calculate exposure point concentrations (EPCs), residential EPCs can also be used to evaluate construction worker risk. Residential EPCs are presented in the July 2005 remedy completion report for former TA-19 (LANL 2005, 089660), the July 2008 investigation report for Pueblo Canyon Aggregate Area (LANL 2008, 103243.34), and the September 2010 Phase II investigation report for Pueblo Canyon Aggregate Area (LANL 2010, 110864). Table 1 presents the maximum construction worker EPC for each of the above COPCs, along with the site where the maximum EPC was detected, and the associated carcinogenic and noncarcinogenic SSLs. All maximum EPCs are less than construction worker SSLs. The maximum EPCs for beryllium; cadmium; 1,1-dichloroethane; 1,2-xylene; 1,3-xylene; 1,3-xylene+1,4-xylene; and xylenes (total) are less than 1% of their respective SSLs, and the maximum EPCs for barium, chromium (total), cobalt, nickel, and 2-nitroaniline are all less than 10% of their respective SSLs. Therefore, even though the construction worker SSLs for these chemicals are less than the residential SSLs, the site concentrations are sufficiently low that these COPCs would not present or contribute to an unacceptable risk under the construction worker scenario.

The only COPCs having maximum EPCs greater than 10% of the SSLs are aluminum and manganese. The maximum EPC for aluminum was 18,289 mg/kg, which is 44% of the construction worker SSL (41,400 mg/kg) and the maximum EPC for manganese was 348.3 mg/kg, which is 75% of the construction worker SSL (464 mg/kg). Aluminum was a COPC at seven sites [AOCs 00-030(d), 00-030(eN), 00-030(j), 00-030(n), 00-030(o), 00-030(p), and C-00-043] and manganese was a COPC at four sites [Solid Waste Management Units (SWMUs) 00-018(a), 19-001, 19-002, and 19-003].

Based on the magnitude of site EPCs compared with construction worker SSLs, no site would pose a potential unacceptable risk to construction workers due to aluminum and manganese unless both were COPCs. No site had both aluminum and manganese as COPCs.

Manganese had the highest EPC relative to the construction worker SSL and has the greatest potential for unacceptable construction worker risk. As noted above, the manganese EPC for SWMU 00-018(a) was 75% of the construction worker SSL. The residential EPC for SWMUs 19-001, 19-002, and 19-003 was 274 mg/kg, which is 59% of the construction worker SSL. No other noncarcinogenic COPCs at SWMUs 19-001, 19-002, and 19-003 had residential EPCs greater than 2% of the construction worker SSL. Thus, the residential scenario should be protective of construction workers at SWMUs 19-001, 19-002, and 19-003.

The potential for manganese to potentially pose a higher risk to construction workers than residential receptors at SWMU 00-018(a) was noted in NMED's December 23, 2010, approval with modifications for the Phase II investigation report for Pueblo Canyon Aggregate Area (LANL 2010, 110864; NMED 2010, 111493). NMED also noted, however, that the EPC for manganese in the depth interval 0.0 to 10.0 ft bgs at SWMU 00-018(a) was less than the construction worker SSL and would not affect the results of the risk assessment and no additional actions were required. The Permittees' October 21, 2014, request for a certificate of completion without controls for SWMU 00-018(a) (LANL 2014, 262524) referred to NMED's approval with modification comments and the conclusion that the results of the risk assessment were not affected. Although the manganese EPC was less than the construction worker SSL at SWMU 00-018(a), it would result in a hazard quotient (HQ) of 0.75, and the contribution of other noncarcinogenic COPCs had not been evaluated to determine if their contribution to construction worker risk would result in a hazard index exceeding NMED's target of 1. Therefore, noncarcinogenic risk for the construction worker scenario was evaluated for SWMU 00-018(a) to verify the conclusions of the approval with modifications for the Phase II investigation report for Pueblo Canyon Aggregate Area (LANL 2010, 110864; NMED 2010, 111493). The results of this evaluation are presented in Table 2. The results in Table 2 show that the construction worker risk for SWMU 00-018(a) is equivalent to NMED's target of 1 (NMED 2021, 701849) (0.97) and SWMU 00-018(a) does not pose an unacceptable human health risk to construction workers. In addition, the evaluation of maximum EPCs and SSLs for the remaining sites indicates the residential scenario will be protective of construction workers at AOCs 00-030(d), 00-030(eN), 00-030(j), 00-030(n), 00-030(o), and 00-030(p); SWMU 00-039; AOC C-00-043; SWMUs 19-001, 19-002, 19-003, 45-001, 45-002, 45-003, and 45-004; and AOC C-45-001.

The Permittees note that the certification of completion of corrective action process implemented in New Mexico by NMED provides formal recognition of completion of the evaluative process as defined by 40 Code of Federal Regulations 264.101, "Corrective Action for Solid Waste Management Units," and set forth by the Consent Order. This process requires definition and evaluation of appropriate environmental and human health risks as dictated by current and reasonably foreseeable land use. Completion of corrective action determinations are important tools relied upon by not only the Permittees and the regulatory authority, but also the local community in order to return the property in question to productive use. As such, each determination must be effective both at the time the completion determination is made as well as in the long term. Absent new information questioning the appropriateness of a completion determination jeopardizes the integrity of that determination.

As described in the PMR, each of the 19 sites has received a certification of completion of corrective action without controls from NMED. This determination indicates each site poses no potential unacceptable risk to human health under current and reasonably foreseeable future land use and poses no potential unacceptable risk to ecological receptors.

NMED Comment

2. Table 2.2-1 Reference Documents for Area of Concern 00-018(b)

NMED's approval letter Approval with Modification Investigation Report for Pueblo Canyon Aggregate Area, Revision 1 (NMED Library ID 00-30039) dated August 22, 2008, directed the Permittees to provide a demolition plan, and subsequent summary of demolition activities for AOC 00-018(b). However, the demolition plan and summary for the AOC 00-018(b), have not been included in Table 2.2-1 for public review and comment. The Permittees must revise this table to provide the demolition information for AOC 00-018(b).

DOE Response

2. The purpose of Table 2.2-1 and all other tables in the main text of the PMR is to provide hyperlinks to regulatory decision documents for each site including investigation reports and certificate of completion request letters and approvals. The complete list of regulatory documents for each of the 19 sites is included in Appendix B of the PMR. The regulatory documents associated with the demolition activities at AOC 00-018(b) are listed on page B-3 of Appendix B. There are a total of 31 regulatory documents associated with AOC 00-018(b). Because the documents describing the demolition activities were included in the PMR, no change to Table 2.2-1 is necessary.

NMED Comment

3. Section 2.7 AOC 00-030(o) Septic Tank

The Permittees must revise the description of the septic tank to clarify if the tank was left in place, and whether the angled boreholes were drilled to collect samples to investigate potential contamination underneath the tank located on the private property.

DOE Response

3. The results of the investigation of AOC 00-030(o) are documented in the July 2008 "Investigation Report for Pueblo Canyon Aggregate Area, Revision 1" (LANL 2008, 103243.34). As indicated in section 2.10.2.1 of the investigation report, the septic tank was located during voluntary corrective action activities in 1996. A portion of the tank was found to be partially beneath a house. Further investigations indicated that the top of the tank had been removed. The eastern and western walls, near the house, could not be located under the foundation of the house. The septic tank was not removed because the homeowner did not want to risk property damage during tank removal (LANL 1996, 062416, p. 97). Drilling activities associated with the tank are also discussed in the investigation report. The site description for AOC 00-030(o) and the investigation activities are addressed in the investigation report. Because the description of the septic tank was included in the 2008 investigation report, which was approved by NMED, (LANL 2008, 103243.34; NMED 2008, 103002) and referenced in the PMR, no change to the site description in the PMR is necessary.

REFERENCES

- LANL (Los Alamos National Laboratory), September 1996. "Voluntary Corrective Action Completion Report for Potential Release Sites 0-030(h,i,n,o,p), Group 0-3 Septic Tanks," Los Alamos National Laboratory document LA-UR-96-3351, Los Alamos, New Mexico. (LANL 1996, 062416)
- LANL (Los Alamos National Laboratory), July 2005. "Remedy Completion Report for the Investigation and Remediation of Consolidated Unit 19-001-99 (Former Technical Area 19/East Gate Laboratory)," Los Alamos National Laboratory document LA-UR-05-0975, Los Alamos, New Mexico. (LANL 2005, 089660)
- LANL (Los Alamos National Laboratory), July 2008. "Investigation Report for Pueblo Canyon Aggregate Area, Revision 1," Los Alamos National Laboratory document LA-UR-08-4765, Los Alamos, New Mexico. (LANL 2008, 103243.34)
- LANL (Los Alamos National Laboratory), September 2010. "Phase II Investigation Report for Pueblo Canyon Aggregate Area," Los Alamos National Laboratory document LA-UR-10-6411, Los Alamos, New Mexico. (LANL 2010, 110864)
- LANL (Los Alamos National Laboratory), October 21, 2014. "Request for Certificate of Completion for One Solid Waste Management Unit in the Pueblo Canyon Aggregate Area – SWMU 00-018(a)," Los Alamos National Laboratory letter (ADESH-14-101) to J. Kieling (NMED-HWB) from M.T. Brandt (LANL) and P. Maggiore (DOE-NA-LA), Los Alamos, New Mexico. (LANL 2014, 262524)
- NMED (New Mexico Environment Department), August 22, 2008. "Approval with Modifications, Investigation Report for Pueblo Canyon Aggregate Area, Revision 1," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2008, 103002)
- NMED (New Mexico Environment Department), December 23, 2010. "Notice of Approval with Modifications, Pueblo Canyon Aggregate Area Phase II Investigation Report," New Mexico Environment Department letter to G.J. Rael (DOE-LASO) and M.J. Graham (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2010, 111493)
- NMED (New Mexico Environment Department), November 2021. "Risk Assessment Guidance for Site Investigations and Remediation, Volume 1, Soil Screening Guidance for Human Health Risk Assessments," Hazardous Waste Bureau and Ground Water Quality Bureau, Santa Fe, New Mexico. (NMED 2021, 701849)

Table 1
Maximum EPCs and Construction Worker SSLs for COPCs with
Construction Worker SSLs less than Residential SSLs

COPC	Maximum EPC, mg/kg	Site(s) with Maximum EPC	Carcinogenic Construction Worker SSL, mg/kg ^a	Noncarcinogenic Construction Worker SSL, mg/kg ^a
Aluminum	18,289 ^b	AOC 00-030(j)	— ^c	41,400
Barium	268.1 ^b	AOC C-00-043	—	4390
Beryllium	1.394 ^b	AOC C-00-043	2710	148
Cadmium	0.76 ^d	SWMUs 19-001, 19-002, 19-003	3610	—
Chromium (total)	12.02 ^b	AOC C-00-043	—	134
Cobalt	37.6 ^d	SWMUs 19-001, 19-002, 19-003	722	—
Manganese	348.3 ^e	SWMU 00-018(a)	—	464
Nickel	13.16 ^b	AOC C-00-043	25,000	753
Dichloroethene[1,1-]	0.0122 ^b	AOC 00-030(d)	—	424
Nitroaniline[2-]	0.232 ^b	AOC 00-030(eN)	—	5.9 ^f
Xylene[1,2-]	0.00037 ^e	SWMU 00-018(a)	—	736
Xylene[1,3-]	0.01 ^b	AOC C-00-043	—	696
Xylene[1,3-]+Xylene[1,4-]	0.00306 ^b	AOC 00-030(o)	—	798
Xylene (total)	0.0092 ^b	AOC 00-030(o)	—	798

^a SSLs from NMED (2021, 701849).

^b EPC from LANL (2008, 103243.34, Appendix H).

^c — = COPC does not have both carcinogenic and noncarcinogenic SSLs.

^d EPC from LANL (2005, 089660, Appendix E).

^e EPC from LANL (2010, 110864, Appendix I).

^f SSL calculated using the equations outlined in NMED (2021, 701849), incorporating toxicity and chemical-specific parameters from the U.S. Environmental Protection Agency's regional screening tables (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>).

Table 2
Construction Worker Noncarcinogenic Screening Evaluation for SWMU 00-018(a)

COPC	EPC, mg/kg ^a	Noncarcinogenic Construction Worker SSL, mg/kg ^b	HQ
Antimony	0.178	1.42E+02	1.26E-03
Barium	86.28	4.39E+03	1.96E-02
Cadmium	0.458	7.21E+01	6.35E-03
Chromium	8.908	1.34E+02	6.66E-02
Copper	27.36	1.42E+04	1.93E-03
Cyanide (total)	0.955	1.21E+01	7.89E-02
Manganese	348.3	4.64E+02	7.51E-01
Mercury	0.462	7.71E+01	6.00E-03
Nickel	4.233	7.53E+02	5.62E-03
Nitrate	16.63	5.66E+05	2.94E-05
Perchlorate	0.00108	2.48E+02	4.36E-06
Selenium	2.835	1.75E+03	1.62E-03
Silver	1.786	1.77E+03	1.01E-03
Zinc	89.85	1.06E+05	8.46E-04
Acetone	0.027	2.42E+05	1.12E-07
Anthracene	0.0131	7.53E+04	1.74E-07
Aroclor-1254	0.0377	4.91E+00	7.68E-03
Benzo(g,h,i)perylene	0.0401	7.53E+03 ^c	5.33E-06
Benzoic acid	0.459	1.07E+06 ^d	4.29E-07
Bis(2-ethylhexyl)phthalate	0.122	1.34E+04	9.11E-06
Butylbenzylphthalate	0.123	5.38E+04 ^d	2.29E-06
Chlordane[alpha-]	0.00318	1.53E+02 ^e	2.07E-05
Chlordane[gamma-]	0.0024	1.53E+02 ^e	1.56E-05
Chloroaniline[4-]	2	1.35E+02 ^d	1.49E-02
Chloroform	0.000231	3.91E+02	5.91E-07
Dichlorobenzene[1,4-]	0.000266	2.48E+04	1.07E-08
Dichloroethene[1,1-]	0.000924	4.24E+02	2.18E-06
Dieldrin	0.00279	1.35E+01	2.07E-04
Di-n-octylphthalate	2.7	2.69E+03 ^d	1.00E-03
Endosulfan sulfate	0.00712	1.61E+03 ^d	4.41E-06
Endrin	0.000568	8.07E+01	7.04E-06
Endrin aldehyde	0.0078	8.07E+01 ^f	9.66E-05
Ethylbenzene	0.000428	5.80E+03	7.38E-08
Fluoranthene	0.0519	1.00E+04	5.17E-06
Heptachlor epoxide	0.00197	4.60E+00 ^d	4.28E-04
Isopropyltoluene[4-]	0.00874	2.74E+03 ^g	3.19E-06

Table 2 (continued)

COPC	EPC, mg/kg ^a	Noncarcinogenic Construction Worker SSL, mg/kg ^b	HQ
Methylene chloride	0.00399	1.21E+03	3.31E-06
Phenanthrene	0.0244	7.53E+03	3.24E-06
Pyrene	0.0474	7.53E+03	6.29E-06
Styrene	0.000484	1.02E+04	4.76E-08
Tetrachloroethene	0.000385	1.20E+02	3.21E-06
Toluene	0.0018	1.40E+04	1.28E-07
Trimethylbenzene[1,2,4-]	0.000245	5.01E+02 ^d	4.89E-07
Xylene[1,2-]	0.00037	7.36E+02	5.03E-07
Xylene[1,3-]+Xylene[1,4-]	0.000817	7.98E+02 ^h	1.02E-06
HI			0.97

^aEPCs from LANL (2010, 110864, Table I-2.2-3).

^bSSLs from NMED (2021, 701849) except as noted.

^cPyrene used as surrogate based on structural similarity.

^dSSL calculated using the equations outlined in NMED (2021, 701849), incorporating toxicity and chemical-specific parameters from the U.S. Environmental Protection Agency's regional screening tables (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>).

^eChlordane used as surrogate based on structural similarity.

^fEndrin used as surrogate based on structural similarity.

^gCumene used as surrogate based on structural similarity.

^hXylenes used as surrogate based on structural similarity.