



**DEPARTMENT OF ENERGY**  
Environmental Management Los Alamos Field Office (EM-LA)  
Los Alamos, New Mexico 87544

EMLA-2020-1608-02-001

September 17, 2020

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

Subject: Submittal of the Interim Facility-Wide Groundwater Monitoring Plan for the 2021 Monitoring Year, October 2020–September 2021, Revision 1

Dear Mr. Pierard:

Enclosed please find two hard copies with electronic files of the “Interim Facility-Wide Groundwater Monitoring Plan for the 2021 Monitoring Year, October 2020–September 2021, Revision 1.” Enclosure 1 includes an electronic copy of a redline strikeout version of the plan that incorporates all changes made in response to the New Mexico Environment Department’s (NMED’s) comments. A meeting was held on July 28, 2020, between NMED and Newport News Nuclear BWXT-Los Alamos, LLC (N3B) to discuss resolutions to NMED’s comments, and a copy of the meeting minutes is included as Enclosure 2.

If you have any questions, please contact Steve Veenis at (505) 309-1362 (steve.veenis@em-la.doe.gov) or Hai Shen at (505) 257-7943 (hai.shen@em.doe.gov).

Sincerely,

**Arturo Duran**

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Arturo Q. Duran  
Compliance and Permitting Manager  
Environmental Management  
Los Alamos Field Office

Enclosures:

1. Two hard copies with electronic files (including a redline strikeout version) – Interim Facility-Wide Groundwater Monitoring Plan for the 2021 Monitoring Year, October 2020–September 2021, Revision 1 (EM2020-0404)
2. Meeting to Discuss N3B Responses to NMED Comments Regarding the MY2021 IFGMP, Meeting Minutes, July 28<sup>th</sup>, 2020

CC (letter with hard-copy enclosure[s]):

Steve Veenis, N3B

CC (letter with CD/DVD enclosure[s]):

Harry Burgess, Los Alamos County, Los Alamos, NM (2 copies)

Michelle Hunter, NMED-GWQB

CC (letter and enclosure[s] emailed):

Laurie King, EPA Region 6, Dallas, TX

Raymond Martinez, San Ildefonso Pueblo, NM

Dino Chavarria, Santa Clara Pueblo, NM

Richard Carpenter, City of Santa Fe, NM

Jack Richardson, Los Alamos County, NM

Chris Catechis, NMED-DOE-OB

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# Meeting to Discuss N3B Responses to NMED Comments Regarding the MY2021 IFGMP

Meeting Minutes

July 28<sup>th</sup>, 2020

## Meeting Purpose and Objectives:

The purpose of this technical team meeting was to discuss N3B responses to NMEDs comments regarding the MY2021 IFGMP as listed below. The meeting minute summaries are intended to document the topics discussed and any agreements and actions that resulted from discussions in an effort to guide future discussions between Newport News Nuclear BWXT – Los Alamos (N3B) and the State of New Mexico Environment Department (NMED).

Specific topics covered in this meeting included:

- Discussion of NMED's draft comments
- Potential changes to MY2021 IFGMP sampling campaigns due to COVID-19/EMCA impacts

## Meeting Outcomes:

Note: Technical discussions and information are working group discussions and do not represent final agreements until such time as the Technical Team representatives confirm that (1) the summation accurately and adequately captures the agreements and (2) has management approval. Presentation materials and technical materials are considered working level products unless otherwise noted.

## MY2020 IFGMP Comment Response Discussion:

- 1.) Introductions of participants (see attachment 1)
- 2.) Discussion regarding N3B responses to comments provided by NMED regarding the MY 2021 IFGMP (see attachment 2 for draft comments and responses)
  - a. Comment 1 regarding monitoring of Outfall 051
    - i. N3B response in the draft comments is appropriate
    - ii. This language will be included in subsequent revisions of the MY 2021 IFGMP and will also name the specific wells being monitored
  - b. Comment 2 regarding specific language in Section 3.2 of the MY 2021 IFGMP
    - i. Discrepancy with "generally thickened to the west" language
      1. This language was fixed with a replacement page in last year's IFGMP and the language is unchanged this year
    - ii. Question regarding the presence of and ability to monitor intermediate zones around R-42 and R-62
      1. NMED agrees and appreciates the response provided in the draft comments
      2. Simplified, but similar language will be included in subsequent revisions of the MY 2021 IFGMP
  - c. Comment 3 regarding integration of the Chromium IM with the groundwater sampling program

- i. To better integrate the work performed across programs, monthly sampling and tracer sampling in the Chromium Investigation Group will be included in the MY 2021 IFGMP
    - ii. Updated language and tables reflecting this will be included in subsequent revisions of the MY 2021 IFGMP
  - d. Comment 4 regarding declining water levels in MCOI-5 and ability to monitor this intermediate zone with well MCOI-6
    - i. Due to reduced discharge from Outfall 051, water level in the intermediate zone is no longer sufficient for sampling at MCOI-5
    - ii. A number of factors need to be discussed to ensure an appropriate path forward to monitor this zone
    - iii. Additional discussions regarding these issues will be incorporated as part of Chromium Technical meetings
  - e. Comment 5 regarding omission of low-level 1,4-dioxane and low-level nitrosamines from Appendix C, Table C-1
    - i. 1,4-dioxane and nitrosamines will be sampled using low-level methods at the same frequency as SVOCs as part of the MY 2021 IFGMP
    - ii. Appendix C will be updated to include these methods in subsequent revisions of the MY 2021 IFGMP
  - f. Comment 6 regarding Appendix E, Table E-1.0-1 “Watch List for Deep Monitoring Wells”
    - i. Rational for removing MCOI-4 from Table E-1.0-1
      - 1. N3B response in the draft comments is appropriate
    - ii. Rational for including R-25b with reduced purging requirements in Table E-1.0-1
      - 1. N3B response in the draft comments is appropriate
    - iii. Rational for including CdV-R-37-2 S2 with increased purging requirements in Table E-1.0-1
      - 1. N3B response in the draft comments is appropriate
  - g. Comment 7 regarding omission of sampling frequency for general inorganics at R-46
    - i. The omission was inadvertent and will be corrected in subsequent revisions of the MY 2021 IFGMP
- 3.) Discussion regarding Potential changes to MY2021 IFGMP sampling campaigns due to COVID-19/EMCA impacts
  - a. N3B states there might be a need to postpone or cancel the White Rock Canyon General Surveillance Monitoring Group sampling campaign due to impacts from the ongoing COVID-19 pandemic
  - b. NMED states the MY 2021 IFGMP will be approved with all currently included sampling campaigns. Additionally, any deviations from sampling need to be included in the respective periodic monitoring report and provide ample justification for why samples were not collected
  - c. A follow-up meeting between N3B and NMED (HWB and DOE OB) is suggested to help determine a best path forward regarding sampling this monitoring group
- 4.) Determination of resubmittal of MY 2021 IFGMP
  - a. NMED states it is preferable to resubmit document as a revised report as opposed to replacement pages.
  - b. NMED also asks that comments with responses be included with the revised report.

**Attachment 1: List of Participants**

Neelam Dhawan	NMED – HWB
Christopher Krambis	NMED – HWB
Megan Green	NMED – DOE OB
Christian Maupin	N3B – Regulatory Compliance
Steve Veenis	N3B – Monitoring and Compliance
Zoe Duran	N3B – Groundwater Management
David Fellenz	N3B – Groundwater Management

## Attachment 2

### The New Mexico Environment Department's Draft Comments on the *Interim Facility-Wide Groundwater Monitoring Plan for the 2021 Monitoring Year* October 2020-September 2021, May 2020

June 24, 2020

#### Specific Comments

1. **Section 3.2, page 15** – Please include a discussion on how the monitoring plan being proposed in the MY2021 IFGMP will monitor for the potential effects from the two documented discharges from Outfall 051.

**Response:** As part of the current NMED Groundwater Quality Bureau authorization for discharge at outfall 051, TRIAD LLC, and NSSA monitor two alluvial wells and one intermediate well quarterly, as well as three regional wells annually to ensure water quality parameters are being achieved. Proposed to provide replacement pages to the MY2021 IFGMP.

2. **Section 3.2, page 16** – Please resolve the apparent discrepancy between the MY2021 IFGMP, which states that the perched zone in the Puye formation above the basalt “generally thickened to the west”, and the MY2020 IFGMP, which states that this zone “generally thinned to the west.”

**Response:** The language “generally thickened to the west” was updated in response to NMED comments to the MY 2020 IFGMP sent on June 27, 2019 asking for a revision to section 3.2. Upon review of data, it was determined that the statement saying the Puye “thinned” was incorrect and the language was updated. The revised language was included as part of replacement pages to the MY 2020 IFGMP and was not changed in the MY 2021 IFGMP.

Explain the addition from the previous IFGMP of the statement “*Additionally, some saturation may have been encountered below the Cerros del Rio basalt in the Puye Formation at both wells R-42 (LANL 2009, 105026) and R-62 (LANL 2012, 215008)*”, and whether DOE plans to monitor this zone.

**Response:** The intent of the statement was to provide consistency with previously published reports related to these wells and the Chromium project. Video logging in the open borehole at R-42 indicated that one gpm or less was entering the hole at a depth interval of 685.9 to 690 ft bgs (LANL 2009, 105026). It is possible that the observed water seeping into the R-42 borehole was potable water used for drilling R-42 returning back into the open borehole. Additional drilling and extensive subsurface investigations in the vicinity of R-42 indicate that significant perched saturation is not present. In 2001, borehole MCOBT-8.5 was advanced to a depth of 740 ft bgs to determine the presence of perched saturation in the Cerros del Rio basalt and Puye Formation sediments underlying the basalts. The MCOBT-8.5 borehole was located about 850 feet west of R-42. The borehole penetrated 30 feet into the Puye Formation beneath the

basalts at a depth of 710 ft bgs. The investigation involved the examination of information and data from drill cuttings, open-borehole video, geophysical logging, and water-level monitoring and side-wall coring. Results from this investigation determined “that no intermediate saturated zones had been encountered” (LANL 2002, MCOBT-4.4 and 8.5 completion report LA-13993-MS). In 2014 and 2015, sonic-drilled coreholes CrCH-3 and CrCH-4 were positioned approximately 200 feet and 1,100 feet west of R-42, respectively. A third corehole, CrCH-2, was drilled 1000 feet east of R-42. Each of these coreholes penetrated the Cerros del Rio basalt and Puye Formation, and reached total depth about 100 feet below the regional water table. Borehole cuttings and sonic core were collected at each borehole. No perched saturation in the lower portion of the basalts and underlying Puye Formation was encountered. Results from this investigation provided additional evidence that perched saturation near R-42 is not present.

- 3. Section 3.3, page 17** – This section states “*Beginning in MY 2019, the objective for the Chromium Investigation monitoring group incorporated performance monitoring associated with the IM.*” Please clarify if the IM sampling program and the IFGMP have been integrated.

**Response:** It is proposed that with a revision to the MY 2021 IFGMP, all sampling within the Chromium Investigation Monitoring Group will incorporate the wells, suite, and monitoring frequency for performance monitoring for the chromium interim measure. Future changes to performance monitoring will be reflected exclusively in the annual IFGMP, as necessary.

- 4. Section 3.4, page 18** – Please discuss whether the groundwater quality monitoring currently conducted at MCOI-6 will be sufficient for characterization if MCOI-5 can no longer be sampled due to the decline in the water table at the base of the Cerro del Rio Basalt.

**Response:** While the zone of saturation at both wells is within the lower portion of the Cerros del Rio basalt, the sufficiency of characterization and monitoring in the perched-intermediate zones within the Cerros del Rio would be dependent on many factors including reasons that MCOI-5 might be going dry. Additional considerations regarding MCOI-5 can be discussed as part of chromium technical team discussions.

- 5. Appendix C, Table C-1** – Provide a justification for not including low-level 1,4-dioxane and low-level nitrosamine analyses in the MY2021 IFGMP. These analyses were included in the MY2020 IFGMP. During the February 24, 2020 pre-submittal meeting, NMED directed DOE continue the use of low-level method for both 1,4-dioxane, and low-level nitrosamine analyses for more accurate results.

**Response:** Low-level methods will continue to be used in MY 2021 to analyze 1,4 dioxane and nitrosamines. Collection of these samples will be at the same frequency as SVOCs. These analyses are included in all sampling tables (2.4-1 through 8.3-1). Appendix C, Table C-1 has been updated to reflect use of low-level methods. Propose to provide replacement pages to the MY2021 IFGMP.

- 6. Appendix E, Table E-1.0-1** – Provide the rationale regarding the removal of MCOI-4 from the table and include whether water levels can still be monitored during MY2021.



**Response:** MCOI-4 has been included in both Appendix E, Table E-1.0-1 “Watch List for Deep Monitoring Wells” as “monitor for water levels only” and Table 1.9-1 “Frequencies for Locations Assigned to Water-Level Monitoring Only” since the MY 2014 IFGMP. Furthermore, MCOI-4 continues to have insufficient water to sample (0.7 ft above the bottom of the screen as of March 2020). Therefore, it was removed from Table E-1.0-1 to eliminate the redundancy of continuing to include this well. However, MCOI-4 will continue to be monitored for water levels and therefore is included in Table 1.9-1 of the MY 2021 IFGMP.

Explain why the sample purging method for R-25b was changed from using the N3B-ER-SOP-20032 to purging 1.5 casing volumes regardless of stabilization, especially considering that DOE does not consider samples collected from this well as representative of formation conditions.

**Response:** R-25b has been sampled at 1.5 casing volumes (CV) regardless of stability since MY 2013 to account for a rapid increase of turbidity when additional purging of the well occurs. This direction was previously captured in Attachment 15 of the Groundwater Sampling Standard Operating Procedure (SOP) (ER-SOP-20032, R0). Attachment 15 has been removed from the recent revision of this SOP (N3P-SOP-ER-3003, R0). The list of purge variations that were included in this table have been moved to Table E-1.0-1, which identifies deep monitoring wells that are purged less than 3 CVs.

Explain why the sample purging method for CdV-R-37-2 S2 was changed from using the N3B-ER-SOP-20032 to purging 12 casing volumes regardless of stabilization, especially considering that DOE does not consider samples collected from this well as representative of formation conditions.

**Response:** CdV-R-37-2 S2 is a converted Westbay well. Since its conversion in 2013, the well has shown evidence of reducing conditions which would yield non-representative water chemistry for some constituents that are redox sensitive. Evidence of reducing conditions include elevated iron and manganese and abnormally low dissolved oxygen for the formation in which it is completed. CdV-R-37-2 S2 has often been sampled following extended purges, but has not been purged beyond 3 CVs since MY 2015 Q4 following a 36 CV purge. During the MY 2021 IFGMP Second Pre-Submittal Meeting with NMED discussions on Appendix H, it was determined that CdV-R-37-2 S2 should once again undergo an extended purge to determine if extended purging can facilitate collection of representative data from this well. Since Attachment 15 is no longer included in the most recent revision of the Groundwater Sampling SOP (N3B-SOP-ER-3003, R0), the extended purge is included in Table E-1.0-1, which identifies deep monitoring wells on which reliability assessments are conducted.

- 7. Appendix H, Table H-3** – For general inorganics sampled from R-46, no sampling frequency is provided for MY2021. Please correct Table H-3 or provide an explanation for this apparent omission.

**Response:** This omission was inadvertent. The appropriate frequency of “A” will be provided in replacement pages.