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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

December 12, 2019

Tim Davis
Chief, Environmental Officer
National Aeronautics and Space Administration
White Sands Test Facility
P.O. Box 20
Las Cruces, NM 88004-0020

Attention of: RE-19-157

**RE: APPROVAL WITH MODIFICATIONS
RESPONSE TO DISAPPROVAL NASA WSTF PERIODIC MONITORING REPORT
FOURTH QUARTER 2018
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHNSON SPACE CENTER WHITE SANDS TEST FACILITY
DOÑA ANA COUNTY, NEW MEXICO
EPA ID #NM08800019434
HWB-NASA-19-001**

Dear Mr. Davis:

The New Mexico Environment Department (NMED) has received the National Aeronautics and Space Administration Johnson Space Center White Sands Test Facility (Permittee) *Response to Disapproval of NASA WSTF Periodic Monitoring Report – Fourth Quarter 2018 (PMR)*, dated October 24, 2019. NMED has completed review of the PMR and hereby issues this Approval with the following modifications.

MODIFICATIONS

1. Section 7.3.5, Plume Front Iso-concentration Maps, Page 16

Permittee Statement: “In previous PMR’s, NASA reported that low-level NDMA [N-nitrosodimethylamine] detections in several wells were not associated with the WSTF groundwater contamination plume. To comply with the NMED requirement to consider and report all low-level NDMA detections NASA has used inconsistent and sporadic low-level NDMA detections above the groundwater cleanup level in several sentinel wells to construct the 1.1 ng/L [nanograms per liter] iso-concentration line. Figure 7.9 presents a revised conceptualization of the leading edge of the NDMA plume. The extrapolated NDMA plume in these areas is represented by a dashed iso-concentration line to reflect the inconsistent and potentially unreliable nature of these detections.”

NMED Comment: Remove the statement from the PMR. Appropriate representative conceptual modeling of the NDMA groundwater contaminant plume would require that the NDMA Cleanup Level iso-concentration contour be extended to encompass Plume Front sentinel wells where reported NDMA concentrations have exceeded the cleanup level; however, pending the results of a groundwater sample representativeness investigation at sentinel wells, this is not required at this time. Use of an additional extrapolated NDMA iso-concentration contour for low-level NDMA detections at Plume Front sentinel wells is not appropriate and must not be used in any other NDMA concentration conceptual model figures. Therefore, remove the additional extrapolated low-level NDMA dashed iso-concentration contour from Figures 4.2, 7.2, and 7.9. Continue to report the low-level NDMA detections at respective Plume Front sentinel wells in the section discussion, on Figures 4.2 and 7.9, and in Appendix E, Time Concentration Plots. Revise all affected sections of the PMR accordingly and provide respective replacement pages and figures.

2. Appendix E, Time Concentration Plots

NMED Comment: The following Appendix E comments must be addressed as follows:

- a. Remove the dashed extrapolated low-level NDMA iso-concentration contour from the Appendix E groundwater contamination conceptual model figure. Continue to track low-level NDMA detections at Plume Front sentinel wells and any other wells on the Appendix E figure (i.e., orange color coded boxing) and continue to report low-level NDMA concentration data on the appendix table. Revise the Appendix E figure accordingly and provide a replacement figure.
- b. Groundwater monitoring wells JER-1, JER-2, ST-6, ST-7, WW-4, and WW-5 were reported on the Appendix E table as completed as Westbay multi-port sampling system monitoring wells. However, current information indicates the monitoring

wells have been converted from Westbay to FLUTE multi-port sampling systems. Clarify why the wells have been listed as Westbay multi-port monitoring wells or correct the discrepancies and provide a revised table.

- c. Monitoring well PL-5 has been listed on the table as having been completed as a conventional well. Well records and PMR figure information indicate the well was completed with a Westbay multi-port sampling system. Correct the discrepancy and provide a revised table.
- d. No information was included in the extraction efficiency data columns for the PL-5 NDMA Method 607 sample results. Ensure that the revised Appendix E table contains the applicable extraction efficiency information and provide a revised table.
- e. No information was included in the extraction efficiency data column for the BLM-37 maximum concentration for NDMA Method 607. Additionally, the last sampling date for the monitoring well was noted in the extraction efficiency data column, not in the sampling date column. Finally, include low-level NDMA sample analysis data for the monitoring well on the table or clarify that low-level NDMA sample analysis data was not collected in the applicable table data columns. Correct the discrepancies and provide a revised table.
- f. Provide the well type for BLM-37. Include the additional information in the Appendix E table and provide a revised replacement table.
- g. Appendix E table information indicates monitoring well BLM-41-420 is designated as a "non-detect" well; however, appendix figure data interpretation information indicates the well is being tracked on the figure as a "natural migration-no overall trend" monitoring well. Correct the discrepancy and provide replacement pages.
- h. No data interpretation designation has been provided on the Appendix E figure for wells WW-2-489 and WW-2-664. Appendix E table information indicates the wells are designated as "non-detect" wells. Revise the Appendix E figure to match the table information and provide a revised figure.
- i. Provide a sample collection year for the maximum reported low-level NDMA concentration for monitoring well BLM-40-688. Revise the Appendix E table to include the omitted information and provide a replacement table.
- j. Appendix E low-level NDMA concentration table data for monitoring well BLM-6-488 indicates the last sample was collected in 2001; however, NDMA groundwater database information indicates the well was last sampled for low-level NDMA in 2014, which corresponds to the last well sampling year for Method 607 NDMA

sampling. The reported concentration result is also incorrect. The groundwater database indicates NDMA was below the reporting limit for both samples. Correct the discrepancies and provide a revised table.

- k. Provide a sample collection year for the maximum reported low-level NDMA detection for monitoring well PL-7. Revise the Appendix E table to include the omitted information and provide a replacement table.
- l. The Appendix E low-level NDMA concentration table data for monitoring well ST-2-466 indicates the last sample was collected in 2004; however, groundwater database information indicates the well was last sampled for low-level NDMA in 2018. The reported last concentration result is also incorrect. The groundwater database indicates the NDMA sample analysis result was below the reporting limit. Correct the discrepancy and provide a replacement table.
- m. The reported maximum and last low-level NDMA sample concentration result (0.96 ng/L) and sample years provided for monitoring well ST-5-481 do not correlate with groundwater database information. Review the provided data, correct any discrepancy, and provide a replacement table.
- n. A concentration value transcription error was noted for the maximum low-level NDMA concentration (06.66 ng/L) for monitoring well JP-3-509. Correct the transcription error and provide a revised table.
- o. A discrepancy in the reported maximum low-level NDMA concentration for monitoring well WW-3 was noted. The maximum concentration is reported as below the method detection limit (5000 ng/L). The provided concentration data does not correlate with groundwater database information. Correct the discrepancy and provide a revised table.
- p. Ensure that all Appendix E data and information is accurate and complete.

The Permittee must provide replacement pages that address NMED's modifications. In addition, a response letter that cross-references where the modifications were addressed must be provided. The response letter must also be provided as an electronic copy. An electronic copy of the redline-strikeout version of the PMR and revised PMR must also be submitted to NMED no later than **January 31, 2020**.

Mr. Davis
December 12, 2019
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This approval is based on the information presented in the document as it relates to the objectives of the work identified by NMED at the time of review. Approval of this document does not constitute agreement with all information or every statement presented in the document.

If you have any questions regarding this letter, please contact Gabriel Acevedo at (505) 476-6043.

Sincerely,



Dave Cobrain
Acting Chief
Hazardous Waste Bureau

cc: B. Wear, NMED HWB
G. Acevedo, NMED HWB
L. King, EPA Region 6 (6LCRRC)
M. Zigmond, NASA WSTF

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