



MICHELLE LUJAN GRISHAM
GOVERNOR

JAMES C. KENNEY
CABINET SECRETARY

Certified Mail - Return Receipt Requested

November 16, 2022

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-20-092

**RE: APPROVAL WITH MODIFICATIONS
REVISED SMALL ARMS FIRING RANGES (SWMU 29-31) REMEDY COMPLETION REPORT
AND RISK ASSESSMENT REPORT
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHNSON SPACE CENTER WHITE SANDS TEST FACILITY
DOÑA ANA COUNTY, NEW MEXICO
EPA ID #NM08800019434
HWB-NASA-17-006**

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) *Revised Small Arms Firing Ranges (SWMU [Solid Waste Management Unit] 29-31) Remedy Completion Report and Risk Assessment Report*, dated August 3, 2020. NMED has completed review of the Reports and hereby issues this Approval with the following modifications.

MODIFICATIONS

1. Remedy Completion Report (RCR), Section 8.2, Remedy Certification, Page 28

NMED Comment: The following RCR Section 8.2 issues must be addressed:

- a. A discrepancy in the cited Permit section for the proposed remedy certification was noted (i.e., Permit Section VII.K.6.a [sic]). Furthermore, the remedy certification required by November 2009 *National Aeronautics and Space Administration White Sands Test [WSTF] Facility Hazardous Waste Permit* (Permit), Section VII.K.6.a,

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Hazardous Waste Bureau - 2905 Rodeo Park Drive East, Building 1, Santa Fe, New Mexico 87505-6313
Telephone (505) 476-6000 - www.env.nm.gov

Remedy Completion Report, only applies to projects implemented under Permit Section VII.K, Corrective Measures Implementation. The project was Approved by NMED upon issuance of the May 29, 2015 *Approval with Modifications NASA WSTF Small Arms Firing (SWMUs 29 -31) Ranges Accelerated Corrective Measures Work Plan and Historical Information Summary*, for the Permit Section VII.L, Accelerated Cleanup Process (see RCR Section 1.2, Regulatory Requirements), and does not require remedy certification; the section only requires submittal of a Remedy Completion Report for NMED review and response. The Remedy Certification section must be removed from the RCR, and revised replacement pages provided.

- b. Based on the current nature and extent of contamination at WSTF in association with other known contaminants of concern released at other WSTF SWMUs, areas of concern, and closed hazardous waste management units, and the respective ongoing investigations and groundwater contamination remediation, submittal of a petition for a “corrective action complete” status determination for SWMUs 29, 30, and 31 is not appropriate at this time; a petition may be considered in the future by NMED with appropriate prior consultation. The RCR may be revised to address NMED’s determination, and any necessary replacement pages provided.

2. Risk Assessment Report (RAR), Section 3.1.4, Exposure Pathways, Pages 4 and 5

Permittee Statement: “Consistent with NMED soil screening methodology, four potential exposure pathways are evaluated: 1) ingestion of lead-contaminated soil; 2) inhalation of airborne lead-contaminated dust; 3) dermal contact with lead-contaminated soil, and 4) ingestion of lead-contaminated groundwater.”

NMED Comment: The Permittee statement must be revised to remove the specific reference to lead as the exposure pathways apply to all contaminants of potential concern (COPCs) that are addressed in the risk assessments for SWMUs 29, 30, and 31. Revise the RAR accordingly and provide the revised replacement pages.

3. Risk Assessment Report, Section 6.0, Risk Screening Levels, Page 10

NMED Comment: The following comments must be addressed:

- a. The Permittee stated that “[t]he RA Guidance [NMED’s Risk Assessment Guidance for Site Investigations and Remediation] does not include SSLs [Soil Screening Levels] for tin, so these screening levels were obtained from EPA [United States Environmental Protection Agency] Regional Screening Levels (RSLs) at the EPA risk assessment website, and adjusted to 1E-05 for cancer risk.” Tin is non-carcinogenic, as such, a carcinogenic correction factor would not be required for use of the screening level during risk evaluation. However, NMED notes that the correct screening levels for the resident and

industrial worker were used during risk assessment. Remove the statement from the RAR and provide a revised replacement page.

- b. For evaluation of tin during the ecological risk assessment the Permittee stated that, "[t]he EPA does not include tin in the Table 1.1 list of metals to be considered in developing ecological soil screening levels." NMED notes that no ecological toxicological data are readily available for tin to derive a screening level for ecological risk screen evaluation. Exclusion of tin from the ecological risk assessment is acceptable and no revisions to the RAR or RCR are required in response to this comment.

4. Risk Assessment Report, Section 7.3.2, STGT (SWMU 29) Ecological Receptors, Pages 12 and 13

Permittee Statement: "Maximum COPEC [contaminant of potential ecological concern] (copper) concentrations were used to generate screening level hazard quotients (SLHQs) for the deer mouse, horned lark, and plant receptor populations. The NMED target hazard of 1 was exceeded for each receptor."

NMED Comment: The HQs on RAR Appendix D, Table 1, Tier I Hazard Quotients for Ecological Receptors at the STGT Firing Range (SWMU 29), indicate all three Tier I SLHQs are either equal to or less than the NMED hazard index 1. As such, a Tier II assessment would not be required. Clarify this apparent discrepancy, and if needed, remove the Tier II screening assessment from the revised RAR and provide revised replacement pages.

5. Risk Assessment Report, Section 7.5.2, WB-2 (SWMU 31) Ecological Receptors, Page 15

Permittee Statement: "The NMED target hazard of 1 was exceeded for the deer mouse, horned lark, and receptors [sic]."

NMED Comment: Clarify the statement to indicate that the risk screen evaluation results also apply to plant receptors. Provide a replacement page with the revised statement.

6. Risk Assessment Report, Table 7.1, Residential, Industrial, and Construction Worker Hazard from Firing Range COPCs, Page 33

NMED Comment: The following issues must be addressed:

- a. A screening level was not listed for tin for the construction worker on Table 7.1 for the SWMU 31 risk screen evaluation, and footnote four indicates that a screening level for the construction worker is not established. The RAR must be revised to address the construction worker and potential risk from tin by providing lines of evidence to address the exclusion of tin in the risk assessment. As exposure to tin in soil is not driven by

inhalation toxicity, lines of evidence that clarify that the residential exposure scenario risk assessment results would also be protective of the construction worker and are acceptable in addition to any other supporting information. Revise the RAR to address risk to the construction worker for tin and provide revised replacement pages.

- b. A hazard quotient (HQ) was calculated for lead for SWMUs 30 and 31 risk screen evaluations, and the HQ was conservatively added to the hazard indices (HIs) for each receptor. While the footnote indicates this was conservative, it is incorrect to include lead in the cumulative risk screen evaluation because the screening levels for lead are not based on an oral reference dose, but rather blood lead levels (see NMED's June 2022 RA Guidance, Section 5.0, Use of the SSL for reference). The required modification does not adversely affect the conclusions of the human health risk assessments for the sites; however, Table 7.1 HIs must be revised to exclude lead from the cumulative risk screen evaluations, and the RAR must be revised to discuss the results of the screening level evaluation for lead and the revised cumulative risk screen results for the remaining COPCs for all SWMUs 30 and 31 human health receptors. Revise the RAR and RCR accordingly and provide revised replacement pages.

The Permittee must provide replacement pages that address NMED's required 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. Electronic copies of the revised RCR and RAR and redline-strikeout versions of the reports showing where all changes were made must be submitted to NMED no later than **January 30, 2023**.

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) 690-5760.

Sincerely,

Rick Shean

Digitally signed by
Rick Shean
Date: 2022.11.16
13:35:02 -07'00'

Rick Shean
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
B. Wear, NMED HWB

HWB 3391
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, New Mexico 87505-6313

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Mr. Timothy J. Davis
Chief, Environmental Office
NASA/WSTF
PO Box 20
Las Cruces, New Mexico 88004-0020

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