

National Aeronautics and
Space Administration
Lyndon B. Johnson Space Center
White Sands Test Facility
P.O. Box 20
Las Cruces, NM 88004-0020



July 12, 2022

Reply to Attn of: RE-22-090

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

Subject: NASA White Sands Test Facility (WSTF) Monthly Environmental Activity Report
for June 2022

Enclosed is the NASA White Sands Test Facility (WSTF) Monthly Environmental Activity Report for June 2022. This reporting format includes an Executive Summary that provides important events/observations as Enclosure 1, a paper copy of the report as Enclosure 2, and a CD-ROM with the report in PDF as Enclosure 3.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or comments concerning this submittal, please contact Amanda Skarsgard of my staff at 575-571-9668.

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For: Timothy J. Davis
Chief, Environmental Office

3 Enclosures

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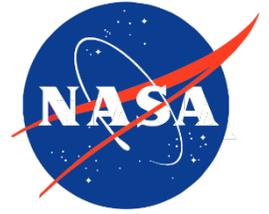
Mr. Gabriel Acevedo
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Executive Summary

The following summarizes important information associated with NASA White Sands Test Facility (WSTF) environmental program activities in June 2022:

- NASA completed shipments of hazardous waste and solid waste in June 2022.
- NASA sampled 30 of 31 groundwater monitoring wells scheduled for June 2022 and scheduled 33 groundwater monitoring wells for sampling in July 2022.
- NASA operated the Mid-plume Interception and Treatment System on 30 of 30 days in June 2022 and treated 1.16 acre-feet of contaminated groundwater and 150 gallons of investigation-derived waste (IDW).
- NASA operated the Plume Front Treatment System on 24 of 30 days in June 2022 and treated 55.6 acre-feet of contaminated groundwater.
- NASA completed and submitted the report on the recent 600 Area perched groundwater investigation. NASA also continued extraction of perched groundwater at monitoring well 600-G-138.
- NASA received NMED disapprovals for two of four wastewater lagoon investigation reports and began reviewing and addressing NMED comments.
- NASA continued addressing NMED comments on the work plan for SWMU 33.
- NASA continued developing the NMED-required investigation work plan for the newly identified SWMU in the 500 Area (former oxidizer burner).
- NASA continued project planning for several monitoring well projects.
- NASA submitted six documents to the NMED Hazardous Waste Bureau in June 2022.
- There were no reportable non-compliance issues in June 2022.

National Aeronautics and Space Administration



Monthly Environmental Activity Report
June 2022

Report Deadline: July 15, 2022

NASA Johnson Space Center White Sands Test Facility
Monthly Environmental Activity Report

June 2022

NM8800019434

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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See Electronic Signature

For: Timothy J. Davis
Chief, Environmental Office

Date

National Aeronautics and Space Administration

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1.0 Waste Management Activities

1.1 NASA completed the following waste shipments in June 2022.

Date	Shipped To	Type of Waste	No. of Containers	Amount of Waste	Disposition
6/2/22	Clean Harbors, Aragonite, UT	Hazardous Waste	13	318 kg	Incineration
6/2/22	Clean Harbors, Eldorado, AR	Hazardous (Fuel Waste)	1	830 kg	Incineration
6/15/22	Corralitos Landfill, Las Cruces, NM	Solid Waste (Soil)	35	34,630 kg	Landfill
6/17/22	Clean Harbors, Aragonite, UT	Hazardous Waste	1	36 kg	Incineration

2.0 Environmental Monitoring

2.1 NASA performed sampling at 30 of 31 groundwater monitoring wells or zones scheduled for sampling in June 2022, in accordance with the approved Groundwater Monitoring Plan (GMP). NASA could not sample well ST-3-735 because the sampling system was not operational. NASA plans to replace the sampling system and sample the well as soon as possible. Previous deviations from the planned sampling schedule are described below and have been reported to NMED in previous monthly reports:

- Wells 400-IV-123 (scheduled for sampling in January 2022), BLM-1-435 (scheduled for sampling in April 2021), PL-3-453 (scheduled for sampling in December 2020), and 400-C-118 (scheduled for sampling in November 2020) have not been sampled because the water levels are not sufficient for sampling.
- Well NASA 9, scheduled for sampling in October 2020, cannot be sampled because access to the screened interval was prevented by the intrusion of roots into the well casing and screen. NASA evaluated the monitoring well and has determined that it should be abandoned. NMED approved the 2021 GMP with a modification that required submittal of a work plan to replace well NASA 9 no later than April 29, 2022. NASA submitted the work plan for well replacement on April 29, 2022.
- Well BLM-28-515, scheduled for sampling in July 2019, cannot be sampled because of sampling system issues described in previous monthly reports. NASA plans to abandon and replace this well (Section 3.17).

2.2 NASA performed other regulatory groundwater sampling requirements as scheduled and as allowed by operational status. NASA did not sample wells PFE-1 and PFE-3 because they were not operational due to equipment failure.

2.3 NASA developed the July 2022 groundwater sampling schedule and plans to sample 33 groundwater monitoring wells or zones based on GMP requirements.

3.0 Corrective Actions/Investigations

3.1 Mid-plume Interception and Treatment System Operations

Days Operated	Average Flow Rate (gpm)	Volume Extracted and Treated (acre-feet)	Volume of Groundwater Discharged to Infiltration Basin (acre-feet)	Volume of IDW Treated and Discharged to the Infiltration Basin (gallons)
30 of 30	8.1	1.16	1.16	150

Shutdown Date	Restart Date	Shutdown Status	Discussion
6/16/22	6/16/22	Unplanned	The system shut down automatically because of a disruption in the electrical power supply.
6/19/22	6/19/22	Unplanned	The system shut down automatically because of a disruption in the electrical power supply.
6/24/22	6/24/22	Unplanned	The system shut down automatically because of a false high level alarm at the surge tank.
6/28/22	6/28/22	Unplanned	The system shut down automatically because of a transmissivity reading error.

3.2 Plume Front Treatment System Operations

Days Operated	Average Flow Rate (gpm)	Volume Extracted/ Treated (acre-feet)	Volume Injected (acre-feet)	Volume Discharged to Grade (acre-feet)	Volume Discharged to Modu-Tank (acre-feet)
24 of 30	546	55.6	54.9	0.21	0.19

Shutdown Date	Restart Date	Shutdown Status	Discussion
6/16/22	6/21/22	Unplanned	The system shut down automatically because of a disruption in the electrical power supply.
6/24/22	6/27/22	Unplanned	The system shut down automatically because of a communications loss.

3.3 200 Area Investigation

- NMED is reviewing the *NMED Disapproval Response for 200 Area and 600 Area Vapor Intrusion Assessment Report* (January 30, 2020).

3.4 400 Area

- NMED is reviewing the *Response to Disapproval of 400 Area Supplemental Groundwater and Soil Vapor Monitoring Plan* (July 14, 2021), the *NASA WSTF 400 Area Closure Investigation Report – NMED Third Disapproval Response* (July 27, 2021), and the *Response to Disapproval of 300 Area Supplemental Abbreviated Drilling Work Plan* (July 14, 2021).

3.5 600 Area Perched Groundwater Extraction Pilot Test and Investigation

- In June 2022, NASA extracted approximately 160 gallons of perched groundwater from monitoring well 600-G-138 in accordance with NMED’s March 1, 2013 *Approval Time Extension for Implementation of the Perched Groundwater Extraction Pilot Test at the 600 Area*. Groundwater elevation measurements indicate there is approximately 2.98 feet of perched groundwater within this well. Extracted groundwater was containerized for treatment at the Mid-plume Interception and Treatment System (MPITS) and discharged in accordance with DP-1255.
- NASA prepared and submitted the *600 Area Perched Groundwater Investigation Report* on June 29, 2022.
- NASA prepared and submitted the *Request for a “Contained-in” Determination for Contaminated Media Associated with the 600 Area Perched Groundwater Abbreviated Investigation Work Plan* on March 22, 2022. NMED approved the request and granted a “no longer contained in determination” on April 18, 2022. NASA shipped the soil cuttings generated from the drilling activities off-site on June 15, 2022 for disposal as solid waste.

3.6 SWMUs 2, 8, and 34 and AOC 51 (Wastewater Lagoons)

- NMED disapproved the *NASA White Sands Test Facility (WSTF) 200 Area Wastewater Lagoons Closure (SWMU 8) Investigation Report* (November 25, 2019) on June 6, 2022 and the *NASA White Sands Test Facility (WSTF) 600 Area Wastewater Lagoons Closure (SWMU 34) Investigation Report* (November 26, 2019) on June 16, 2022. NASA is reviewing NMED’s comments included in the two disapprovals. NMED continued reviewing the *NASA White Sands Test Facility (WSTF) 100 Area Wastewater Lagoons Closure (SWMU 2) Investigation Report* (August 3, 2020) and the *NASA White Sands Test Facility (WSTF) STGT Wastewater Lagoons Closure (AOC 51) Investigation Report* (October 13, 2020).

3.7 SWMU 10 (200 Area Hazardous Waste Transmission Lines [HWTL])

- NMED is reviewing the *Response to Second Disapproval of NASA WSTF 200 Area HWTL (SWMU 10) Investigation Report and Risk Assessment Report* (March 4, 2022).

3.8 SWMU 16 (600 Area BLM Off-site Soil Pile)

- NMED is reviewing the *Accelerated Corrective Measures Work Plan for the NASA WSTF SWMU 16 (600 Area BLM Off-Site Soil Pile)* (September 28, 2021).

3.9 SWMUs 21-27 (Septic Tanks)

- NMED is reviewing the *Response to Second Disapproval of NASA White Sands Test Facility (WSTF) Septic Tanks (SWMUs 21-27) Investigation Report* (May 18, 2021).

3.10 SWMUs 29-31 (Small Arms Firing Ranges)

- NMED is reviewing the *Response to Second Disapproval Small Arms Firing Ranges (SWMUs 29-31) Remedy Completion Report and Risk Assessment Report* (August 3, 2020).

- 3.11 SWMU 33 (Test Stand 302 Cooling Water Pond)
- NASA continued work to address NMED's 13 comments in their May 9, 2022 disapproval of the *SWMU 33 Historical Investigation Summary and Investigation Work Plan* (August 17, 2020). NMED directed NASA to address the comments and submit a revised work plan no later than September 15, 2022.
- 3.12 SWMU 47 (500 Area Fuel Storage)
- NMED is reviewing the *Response to Second Disapproval of 500 Area Fuel Storage (SWMU 47) Investigation Work Plan* (June 29, 2021).
- 3.13 SWMU 49 (700 Area Landfill)
- NMED is reviewing the *700 Area Landfill Closure (SWMU 49) Phase I Investigation Report* (April 29, 2022).
- 3.14 SWMU 50 (TDRS Diesel Release)
- NMED is reviewing the *Response to Disapproval of First Tracking Data Relay Satellite System (TDRSS) Diesel Release (SWMU 50) Investigation Report and Risk Screen Evaluation Report* (November 9, 2020).
- 3.15 SWMU 52 (Second TDRS UST)
- NMED is reviewing the *Response to Disapproval of NASA WSTF Second TDRSS Underground Storage Tank (SWMU 52) Release Assessment Report* (April 26, 2022).
- 3.16 Newly Identified SWMU Near 500 Area (Former Oxidizer Burner)
- NASA continued developing an investigation work plan for the former oxidizer burner in the 500 Area. The unit will be identified as a SWMU in the Permit at an appropriate time. The work plan is due to NMED no later than August 31, 2022.
- 3.17 Groundwater Monitoring Well Abandonment, Installation, and Reconfiguration
- NMED is reviewing the *NASA WSTF Westbay Well Reconfiguration Work Plan for Wells PL-7, PL-8, PL-10, ST-5, and WW-3* (April 29, 2021).
 - NASA continued planning for the abandonment of well BLM-28 in accordance with NMED's January 10, 2022 approval of the *Well Abandonment Work Plan for Well BLM-28* (April 29, 2021). Abandonment of the well is scheduled for the summer/fall of 2022.
 - NASA continued planning the reconfiguration of well BW-4 as described in the *Response to Approval with Modifications of NASA WSTF Well Reconfiguration Work Plan for Well BW-4* (March 8, 2022). Plugging of the lower portion of the borehole is scheduled for the summer/fall of 2022.
 - NASA continued planning for well installation activities in accordance with NMED's May 2022 approval of the *NASA WSTF Work Plan for Drilling and Installation of Monitoring Well 600B-001-GW* (BLM-28 replacement; August 31, 2021) and the *Work Plan for Drilling and Installation of Monitoring Well 600C-001-GW at the NASA White Sands Test Facility (WSTF)* (deeper well adjacent to BLM-10-517; August 31, 2021).
 - NASA continued planning for the abandonment of wells 200-SG-2 and 200-SG-3 in accordance with NMED's January 10, 2022 approval of the *Well Plugging Plan of Operations for Multiport Soil Vapor Groundwater Monitoring Wells 200-SG-2 and 200-SG-3* (November 30, 2021). Plugging of these wells is scheduled for the summer/fall of 2022.

3.18 Targeted Mobile Remediation Process (TMRP)

- NMED is reviewing the *NASA WSTF Targeted Mobile Remediation Process Pilot Test Report* (March 8, 2022).
- NASA continued project planning and procurement activities for the small soils investigation to be performed at well ST-1-541 in accordance with the NMED-approved *Well ST-1-541 Contaminated Groundwater Release Abbreviated Investigation Work Plan* (June 3, 2021).

3.19 Groundwater Data Representativeness Evaluation

- NMED is reviewing the *Abbreviated Investigation Work Plan for Groundwater Data Representativeness, Phase 2: FLUTE Well Evaluation* (November 2, 2021).

3.20 Dye Tracer Test Investigation

- NASA continued evaluating NMED's comments in the April 5, 2022 approval with modifications of the *Report on Tracer Testing in the 200/600 Areas and Mid-plume Constriction Area* (August 31, 2020).

3.21 Site-wide Geophysics Investigation

- NASA and the off-site geophysics subcontractor completed the passive seismic field survey in the WSTF Plume Front area in February 2022. Geophones were deployed across a 1 x 2-mile area that incorporates the Plume Front remediation wells, footprint of the westernmost groundwater plume, and the Western Boundary Fault Zone. The subcontractor completed passive seismic data processing and reporting in June 2022 and provided a draft report for NASA review on July 2, 2022. NASA expects to receive all final data from the subcontractor in July 2022 and process the data for inclusion in the site-wide geophysical investigation report that will be submitted to NMED in the fall of 2022.

4.0 Non-compliance Issues

The NASA Hazardous Waste Permit requires that other non-compliance conditions be reported to NMED. There were no instances of other non-compliance conditions during this reporting period that require notification under the Permit. The criteria for non-compliance reporting in this report (as defined by 40 CFR 270.30 (l)(10) and EPA interpretations at RCRA Faxbacks 13142 and 13686) would be any non-compliance with permit conditions that is not classified as minor recordkeeping, reporting, and similar oversights that were corrected once discovered. Additionally, there were no issues meeting the previously defined criteria (minor items immediately corrected) that were part of a repeating pattern of non-compliance.

5.0 Documents Submitted

5.1 Documents submitted to the Hazardous Waste Bureau in June 2022

- NASA submitted the *Request for Third Extension of Time for Submittal of the Site-wide Geophysical Survey Investigation Report* on June 8, 2022.
- NASA submitted the *Fee Assessment for the 600 Area Perched Groundwater Extraction Pilot Test (PGEPT) Interim Status Report (ISR) Year 9* on June 28, 2022.
- NASA submitted the *Fee Assessment for Periodic Monitoring Report for First Quarter 2022* on June 28, 2022.

- NASA submitted the *Fee Assessment for the Groundwater Monitoring Plan (2022 Update)* on June 28, 2022.
- NASA submitted the *Fee Assessment for the 700 Area (SWMU 49) Phase I Investigation Report* on June 28, 2022.
- NASA submitted the *600 Area Perched Groundwater Investigation Report* on June 29, 2022.

5.2 Pertinent documents submitted to other NMED bureaus in June 2022

- NASA submitted the *NASA White Sands Test Facility 700 Area Landfill Detection Monitoring Results for 2022 First Semi-annual Sampling Event* to the Solid Waste Bureau on June 14, 2022.
- NASA submitted the *NASA WSTF (White Sands Test Facility) Discharge Permit DP-697 Quarterly Analytical Results – Second Quarter 2022* to the Groundwater Pollution Prevention Section on June 14, 2022.
- NASA submitted the *Fiscal Year 2022 Petroleum Storage Tank Registration Fees for the NASA White Sands Test Facility – Owner ID 14245* to the Petroleum Storage Tank Bureau on June 28, 2022.
- NASA submitted the *NASA White Sands Test Facility - FF Second Quarter 2022 Disinfectant Residual Monitoring Report* to the Drinking Water Bureau on June 28, 2022.

5.3 Status of documents previously submitted to the NMED Hazardous Waste Bureau for which additional correspondence was recorded in June 2022

- NASA submitted the *NASA WSTF Drilling Work Plan for Abandonment of Well BLM-30 and Drilling of New Monitoring Well BLM-43* on August 29, 2019. NASA received NMED's September 20, 2019 fee assessment for review of the work plan on September 23, 2019 and provided the \$1,000 review fee to NMED on October 31, 2019. NMED approved the work plan with modifications on November 5, 2020 and directed NASA to address three comments and submit a revised plan no later than January 29, 2021. NASA submitted the *Response to Approval with Modifications Work Plan for Abandonment of NASA WSTF Well BLM-30 and Replacement with Monitoring Well BLM-43* on February 3, 2021. Some of NASA's off-site service providers are experiencing heavy workloads related to easing COVID-19 work restrictions, resulting in delays in NASA's ongoing fieldwork. To accommodate these schedule impacts, NASA submitted the *Request for Extension of Time for Submittal of the Completion Report for Monitoring Well BLM-30 Abandonment and Installation of Replacement Well BLM-43* on September 28, 2021. NMED approved the request on October 27, 2021, extending the due date for submittal of the well completion report to November 30, 2022. In order to align the schedule for installation of well BLM-43 with two recently approved additional groundwater monitoring wells, NASA submitted the *Request for Second Extension of Time for Submittal of the Completion Report for Monitoring Well BLM-30 Abandonment and Installation of Replacement Monitoring Well BLM-43* on April 26, 2022. NMED approved the request on June 6, 2022, extending the due date for submittal of the well completion report to April 28, 2023.
- NASA submitted the *NASA White Sands Test Facility (WSTF) 200 Area Wastewater Lagoons Closure (SWMU 8) Investigation Report* on November 25, 2019. NASA received NMED's January 15, 2020 fee assessment for review of the report on February 3, 2020 and provided the \$7,500 review fee on February 25, 2020. NMED disapproved the report on June 6, 2022 and directed NASA to address 14 NMED comments and submit a revised report no later than December 30, 2022.

- NASA submitted the *Discussion Relative to the Phase 1A and Phase 1B Soil Vapor Survey (SVS) Component of the Ongoing 700 Area Landfill Phase I Investigation* on October 19, 2021. NMED disapproved the status letter on November 12, 2021 and directed NASA to address four comments and submit a revised status letter no later than December 31, 2021. NASA submitted the *Revised Discussion Relative to the Phase 1A and Phase 1B Soil Vapor Survey (SVS) Component of the Ongoing 700 Area Landfill Phase I Investigation* on December 21, 2021. NMED approved the revised status letter and authorized NASA to forgo the Phase 1B passive soil vapor survey at the 700 Area landfill. NASA submitted the *NASA White Sands Test Facility (WSTF) 700 Area Landfill Closure (SWMU 49) Phase I Investigation Report* on April 29, 2022. NASA received NMED's June 8, 2022 fee assessment and invoice for review of the report and provided the \$18,000 review fee on June 28, 2022.
- NASA submitted the *NASA WSTF Period Monitoring Report – Third Quarter 2021* on October 28, 2021. NASA received NMED's November 23, 2021 fee assessment and invoice for review of the report and provided the \$5,000 fee for review of the report on December 14, 2021. NMED approved the report on June 9, 2022.
- NASA submitted the *Request for 30-day Extension of Hazardous Waste Accumulation Time Limit* by email on May 27, 2022. NMED approved the request on June 9, 2022.
- NASA submitted the *NASA White Sands Test Facility (WSTF) 600 Area Wastewater Lagoons Closure (SWMU 34) Investigation Report* on November 26, 2019. NASA received NMED's January 15, 2020 fee assessment for review of the report on February 3, 2020 and provided the \$7,500 review fee on February 25, 2020. NMED disapproved the report on June 16, 2022 and directed NASA to address 15 NMED comments and submit a revised report no later than December 30, 2022.