

National Aeronautics and
Space Administration

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



October 13, 2022

Reply to Attn of: RE-22-132

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 September 2022

Enclosed is the NASA White Sands Test Facility (WSTF) Monthly Environmental Activity Report for September 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.

AMANDA
SKARSGARD

Digitally signed by
AMANDA SKARSGARD
Date: 2022.10.13
08:43:08 -06'00'

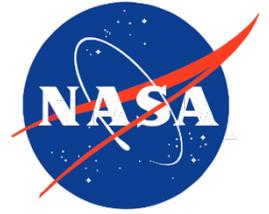
For: Timothy J. Davis
Chief, Environmental Office

3 Enclosures

cc:

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

National Aeronautics and Space Administration



Monthly Environmental Activity Report
September 2022

Report Deadline: October 15, 2022

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

September 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.

AMANDA SKARSGARD  Digitally signed by AMANDA
SKARSGARD
Date: 2022.10.13 08:43:35 -06'00'

See Electronic Signature

For: Timothy J. Davis
Chief, Environmental Office

Date

National Aeronautics and Space Administration

Johnson Space Center
White Sands Test Facility
12600 NASA Road
Las Cruces, NM 88012
www.nasa.gov/centers/wstf

www.nasa.gov

Executive Summary

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

- NASA completed shipments of hazardous waste in September 2022.
- NASA sampled 42 of 42 groundwater monitoring wells scheduled for September 2022 and scheduled 40 groundwater monitoring wells for sampling in October 2022.
- NASA operated the Mid-plume Interception and Treatment System on 30 of 30 days in September 2022 and treated 0.95 acre-feet of contaminated groundwater and 102 gallons of investigation-derived waste (IDW).
- NASA operated the Plume Front Treatment System on 30 of 30 days in September 2022 and treated 43.1 acre-feet of contaminated groundwater.
- NASA continued extraction of perched groundwater at monitoring well 600-G-138.
- NASA continued reviewing and addressing NMED comments in their disapprovals of all four wastewater lagoon investigation reports.
- NASA prepared and submitted the response to NMED's disapproval of the investigation work plan for SWMU 33.
- NASA continued project planning for several monitoring well projects.
- NASA submitted three documents to the NMED Hazardous Waste Bureau in September 2022.
- There were no reportable non-compliance issues in September 2022.

1.0 Waste Management Activities

1.1 NASA completed the following waste shipments in September 2022.

Date	Shipped To	Type of Waste	No. of Containers	Amount of Waste	Disposition
9/15/22	Clean Harbors, Phoenix, AZ	Hazardous	3	2,322 kg	Incineration
9/22/22	Clean Harbors, Aragonite, UT	Hazardous	11	250 kg	Incineration
9/22/22	US Ecology, Beatty, NV	Hazardous	4	1,370 kg	Macroencapsulation, Solidification, or Off-site Management
9/22/22	Clean Harbors, El Dorado, AR	Hazardous	1	94 kg	Incineration

2.0 Environmental Monitoring

2.1 NASA performed sampling at 42 of 42 groundwater monitoring wells or zones scheduled for sampling in September 2022, in accordance with the approved Groundwater Monitoring Plan (GMP). This includes well ST-3-735 that was postponed from June 2022 because the sampling system was not operational. NASA acquired a replacement sampling system, installed it in the well, and performed sampling in September 2022. Previous deviations from the planned sampling schedule are described below and have been reported to NMED in previous monthly reports:

- NASA could not sample well PL-7-480 in August 2022 because the Westbay zone did not produce water. NASA believes the water level at this location has dropped below this sample port and will monitor the water level during future planned sampling events.
- 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, PFE-2, and PFE-3 because they were not operational due to equipment failure.

NASA White Sands Test Facility

2.3 NASA developed the October 2022 groundwater sampling schedule and plans to sample 40 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	7.8	0.95	0.95	102

Shutdown Date	Restart Date	Shutdown Status	Discussion
9/13/22	9/13/22	Unplanned	The system shut down automatically because of a disruption in the off-site electrical supply.
9/15/22	9/15/22	Planned	NASA shut the system down to test batteries in the main PLC uninterruptable power supply.
9/19/22	9/19/22	Planned	NASA shut the system down to replace fuses and an input module damaged by a lightning strike.
9/20/22	9/20/22	Planned	NASA shut the system down to clean the UV transmissivity sensor.
9/21/22	9/21/22	Planned	NASA shut the system down to replace an input module damaged by a lightning strike.
9/26/22	9/26/22	Planned	NASA shut the system down to replace the UV transmissivity sensor check valve.

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)
30 of 30	323	43.1	42.3	0.25	0.20

Shutdown Date	Restart Date	Shutdown Status	Discussion
9/13/22	9/14/22	Unplanned	The system shut down automatically because of a disruption in the off-site electrical supply.

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 September 2022, NASA extracted approximately 154 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 2.88 feet of perched groundwater within this well. This perched groundwater thickness has been relatively consistent since the inception of extraction activities in 2013. Extracted groundwater was containerized for treatment at the Mid-plume Interception and Treatment System (MPITS) and discharged in accordance with DP-1255.
- NMED is reviewing the *600 Area Perched Groundwater Extraction Pilot Test Interim Status Report – Project Year 9* (April 26, 2022) and the *600 Area Perched Groundwater Investigation Report* (June 29, 2022).

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

- NASA continued planning additional fieldwork necessary to address NMED comments in their disapprovals of the *NASA White Sands Test Facility (WSTF) 200 Area Wastewater Lagoons Closure (SWMU 8) Investigation Report* (November 25, 2019) on June 6, 2022, the *NASA White Sands Test Facility (WSTF) 600 Area Wastewater Lagoons Closure (SWMU 34) Investigation Report* (November 26, 2019) on June 16, 2022, the *NASA White Sands Test Facility (WSTF) 100 Area Wastewater Lagoons Closure (SWMU 2) Investigation Report* (August 3, 2020) on July 5, 2022, and the *NASA White Sands Test Facility (WSTF) STGT Wastewater Lagoons Closure (AOC 51) Investigation Report* (October 13, 2020) on July 25, 2022.

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 addressed NMED's 13 comments in their May 9, 2022 disapproval of the *SWMU 33 Historical Investigation Summary and Investigation Work Plan* (August 17, 2020) and submitted the *Response to Disapproval of NASA WSTF 300 Area Test Stand 302 Cooling Water Pond (SWMU 33) Investigation Work Plan (IWP) and Historical Information Summary (HIS)* on September 14, 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 Newly Identified SWMU Near 500 Area (Former Oxidizer Burner)

- NASA is expecting NMED's fee assessment for review of the *500 Area Former Oxidizer Burner (FOB) Investigation Work Plan (IWP) and Historical Information Summary (HIS)* (August 25, 2022).

3.16 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 is scheduled for late fall 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 late fall 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 Multipoint Soil Vapor Groundwater Monitoring Wells 200-SG-2 and 200-SG-3* (November 30, 2021). Abandonment is scheduled for late fall 2022.
- NMED is reviewing the *NASA WSTF Work Plan for Abandonment of NASA WSTF NASA 9 and Replacement with Monitoring Well 400-001-GW* (April 29, 2022). Abandonment is scheduled for late fall 2022.

3.17 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).

3.18 Groundwater Data Representativeness Evaluation

- NASA continued reviewing analytical data from samples collected in accordance with the NMED-approved *Abbreviated Investigation Work Plan for Groundwater Data Representativeness, Phase 2: FLUTE Well Evaluation* (November 2, 2021).

3.19 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).

3.20 Site-wide Geophysics Investigation

- NASA continued using the processed data and interpreted results of the WSTF Plume Front survey to update the site-wide geophysical synthesis and prepare the site-wide geophysical investigation report that will be submitted to NMED in October 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 September 2022

- NASA submitted the *Fee Assessment for Periodic Monitoring Report for Second Quarter 2022* on September 6, 2022.
- NASA submitted the *Response to Disapproval of NASA WSTF 300 Area Test Stand 302 Cooling Water Pond (SWMU 33) Investigation Work Plan (IWP) and Historical Information Summary (HIS)* on September 14, 2022.
- NASA submitted the *Plugging and Abandonment of WSTF Wells 400-KV-142, 400-LV-125, BLM-2-482, NASA 8, PFE-4, and PFE-6* on September 20, 2022.

5.2 Pertinent documents submitted to other NMED bureaus in September 2022

- NASA submitted the *NMED Routine Report MACT Report - Opacity/Visible Emissions Test Results for Units 1, 4-17, and 17* to the Air Quality Bureau on September 13, 2022.

- NASA submitted the *NASA WSTF (White Sands Test Facility) Discharge Permit DP-697 Quarterly Analytical Results – Third Quarter 2022* to the Groundwater Pollution Prevention Section on September 14, 2022.
- NASA submitted the *NASA JSC White Sands Test Facility – FF (NM3590607) Certification of Lead Consumer Notice Issuance* to the Drinking Water Bureau on September 14, 2022.
- NASA submitted the *NASA White Sands Test Facility (WSTF) Written Release Notification* to the Ground Water Quality Bureau on September 16, 2022.
- NASA submitted the *NASA White Sands Test Facility - FF Third Quarter 2022 Disinfectant Residual Monitoring Report* to the Drinking Water Bureau on September 21, 2022.

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

- NASA submitted the *200 Area and 600 Area Vapor Intrusion Assessment Report* on June 18, 2018. NASA received NMED's July 11, 2018 fee assessment for review of the report on August 13, 2018 and provided the \$4,500 review fee to NMED on October 2, 2018. NASA received NMED's June 5, 2019 disapproval on June 10, 2019 and submitted the *Request for Extension of Time for Response to Disapproval 200 Area and 600 Area Vapor Intrusion Assessment Report* on September 17, 2019. NMED approved the request on October 7, 2019, extending the due date for the revised report to December 20, 2019. NASA submitted the *Request for Second Extension of Time for Response to Disapproval 200 and 600 Area Vapor Intrusion Assessment Report* on December 17, 2019. NMED approved the request on January 16, 2020, extending the due date for submittal of the revised report to February 3, 2020. NASA submitted the *NMED Disapproval Response for 200 Area and 600 Area Vapor Intrusion Assessment Report* on January 30, 2020. NMED disapproved the report on September 20, 2022, and directed NASA to address three multipart comments and submit a revised report no later than April 28, 2023.
- NASA submitted the *NASA WSTF Periodic Monitoring Report – Second Quarter 2022* on July 26, 2022. NASA received NMED's August 24, 2022 fee assessment and invoice for review of the report and provided the \$5,000 review fee on September 6, 2022.
- NASA submitted the *500 Area Former Oxidizer Burner (FOB) Investigation Work Plan (IWP) and Historical Information Summary (HIS)* on August 25, 2022. NASA received NMED's September 29, 2022 fee assessment and invoice for review of the work plan and is processing the payment.