

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



September 8, 2022

Reply to Attn of: RE-22-116

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 August 2022

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

**MICHAEL**  
**ZIGMOND**  
Digitally signed by MICHAEL  
ZIGMOND  
Date: 2022.09.08 13:10:32 -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

## Executive Summary

---

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

- NASA completed shipments of regulated medical waste, hazardous waste, and scrap metal for recycling in August 2022.
- NASA sampled 35 of 36 groundwater monitoring wells scheduled for August 2022 and scheduled 41 groundwater monitoring wells for sampling in September 2022.
- NASA operated the Mid-plume Interception and Treatment System on 29 of 31 days in August 2022 and treated 1.21 acre-feet of contaminated groundwater and 192 gallons of investigation-derived waste (IDW).
- NASA operated the Plume Front Treatment System on 29 of 31 days in August 2022 and treated 39.5 acre-feet of contaminated groundwater.
- NASA continued extraction of perched groundwater at monitoring well 600-G-138.
- NASA has received NMED disapprovals for all four wastewater lagoon investigation reports and continued reviewing and addressing NMED comments in August 2022.
- NASA continued reviewing and responding to NMED comments on investigation work plan for SWMU 33.
- NASA completed and submitted 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 four documents to the NMED Hazardous Waste Bureau in August 2022.
- There was one reportable non-compliance issue in August 2022.

National Aeronautics and Space Administration



Monthly Environmental Activity Report  
August 2022

Report Deadline: September 15, 2022

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

August 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.

**MICHAEL  
ZIGMOND**

Digitally signed by MICHAEL  
ZIGMOND  
Date: 2022.09.08 13:12:08  
-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](http://www.nasa.gov/centers/wstf)

[www.nasa.gov](http://www.nasa.gov)

**Executive Summary**

---

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

- NASA completed shipments of regulated medical waste, hazardous waste, and scrap metal for recycling in August 2022.
- NASA sampled 35 of 36 groundwater monitoring wells scheduled for August 2022 and scheduled 41 groundwater monitoring wells for sampling in September 2022.
- NASA operated the Mid-plume Interception and Treatment System on 29 of 31 days in August 2022 and treated 1.21 acre-feet of contaminated groundwater and 192 gallons of investigation-derived waste (IDW).
- NASA operated the Plume Front Treatment System on 29 of 31 days in August 2022 and treated 39.5 acre-feet of contaminated groundwater.
- NASA continued extraction of perched groundwater at monitoring well 600-G-138.
- NASA has received NMED disapprovals for all four wastewater lagoon investigation reports and continued reviewing and addressing NMED comments in August 2022.
- NASA continued reviewing and responding to NMED comments on investigation work plan for SWMU 33.
- NASA completed and submitted 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 four documents to the NMED Hazardous Waste Bureau in August 2022.
- There was one reportable non-compliance issue in August 2022.

## 1.0 Waste Management Activities

1.1 NASA completed the following waste shipments in August 2022.

Date	Shipped To	Type of Waste	No. of Containers	Amount of Waste	Disposition
8/8/22	Stericycle, Albuquerque, NM	Regulated Medical Waste	1	28-gal tub	Sterilization
8/18/22	W. Silver	Scrap Metal	1	6,960 kg	Recycle
8/19/22	ACT Environmental, Albuquerque, NM	Hazardous	1	1 kg	Incineration
8/19/22*	US Ecology, Beatty, NV	Hazardous	1	85 kg	Macroencapsulation, Solidification, or Off-site Management
8/31/22	W. Silver	Scrap Metal	1	40-cy Roll-off	Recycle

\* See Section 4.0.

## 2.0 Environmental Monitoring

2.1 NASA performed sampling at 35 of 36 groundwater monitoring wells or zones scheduled for sampling in August 2022, in accordance with the approved Groundwater Monitoring Plan (GMP). NASA was not able to sample PL-7-480 because the Westbay zone did not produce water. NASA believes the water level at this location has dropped below this sample port. NASA will monitor the water level during future planned sampling events. 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 ST-3-735 because the sampling system was not operational. NASA acquired a replacement sampling system and expects to install it in the well and perform sampling in September 2022.
- 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.

## NASA White Sands Test Facility

---

- 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.
- 2.3 NASA developed the September 2022 groundwater sampling schedule and plans to sample 41 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)
29 of 31	8.5	1.21	1.20	192

  

Shutdown Date	Restart Date	Shutdown Status	Discussion
8/5/22	8/8/22	Planned	NASA shut the system down to accommodate a scheduled outage of the off-site electrical supply.

#### 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)
29 of 31	323	39.5	38.9	0.63	0.08

  

Shutdown Date	Restart Date	Shutdown Status	Discussion
8/5/22	8/8/22	Planned	NASA shut the system down to accommodate a scheduled outage of the off-site electrical supply.
8/22/22	8/22/22	Unplanned	The system shut down automatically due to a water leak in the air vent valve on the UV reactor.
8/29/22	8/29/22	Unplanned	The system shut down automatically due to low air flow through the air stripper intake filter.

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 August 2022, NASA extracted approximately 205 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. 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.
- On August 9, 2022, NASA provided the fee assessment for NMED review of the *600 Area Perched Groundwater Investigation Report* (June 29, 2022).
- NMED is reviewing the *600 Area Perched Groundwater Extraction Pilot Test Interim Status Report – Project Year 9* (April 26, 2022).

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, 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. NASA is reviewing NMED's comments included in the four disapprovals and planning additional investigation fieldwork to address those comments in revised reports.

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)
- On August 8, 2022, the NMED HWB approved the *NASA WSTF Second TDRSS Underground Storage Tank (SWMU 52) Release Assessment Report* (February 18, 2021; revised April 26, 2022) with a modification that does not require a response or report revision.
- 3.16 Newly Identified SWMU Near 500 Area (Former Oxidizer Burner)
- NASA completed preparation of the historical investigation summary and 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. NASA submitted the *500 Area Former Oxidizer Burner (FOB) Investigation Work Plan (IWP) and Historical Information Summary (HIS)* on August 25, 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). NASA completed subcontracting of well abandonment and coordinated with the subcontractor to schedule well abandonment 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). NASA completed subcontracting of well abandonment and coordinated with the subcontractor to schedule plugging of the lower portion of the borehole 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). NASA completed subcontracting of well abandonment and coordinated with the subcontractor to schedule well abandonment 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). NASA completed subcontracting of well abandonment and coordinated with the subcontractor to schedule well abandonment for late fall 2022, pending NMED approval of the work plan.

### 3.18 Targeted Mobile Remediation Process (TMRP)

- NMED is reviewing the *NASA WSTF Targeted Mobile Remediation Process Pilot Test Report* (March 8, 2022).
- NMED approved the *Targeted Mobile Remediation Process Interim Status Report – Project Year 3* (July 27, 2021) on June 30, 2022 with modifications. NASA addressed the NMED comment and submitted the *Response to Approval with Modifications Targeted Mobile Remediation Process Interim Status Report – Project Year 3* on August 19, 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 approved the *Abbreviated Investigation Work Plan for Groundwater Data Representativeness, Phase 2: FLUTE Well Evaluation* (November 2, 2021) on August 8, 2022. NASA performed the follow-on groundwater sampling described in the work plan and is receiving and reviewing chemical analytical data.

### 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 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. During August 2022, there was one instance of other non-compliance that requires notification under the Permit. The criteria for non-compliance reporting in this report (as defined by 40 CFR 270.30 (I)(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. There were no issues meeting the previously defined criteria (minor items immediately corrected) that were part of a repeating pattern of non-compliance.

On August 16, 2022, NASA identified a container of hazardous waste (IDW-contaminated media) in the WSTF Container Storage Unit that had exceeded the 90-day accumulation time limit allowable under 40 CFR 264.17 after having been placed in the central accumulation area on May 10, 2022. The container was inadvertently overlooked and not included in the scheduled July 2022 waste shipment because of a simple container tracking error. NASA notified NMED of the non-compliance on August 17, 2022 via email and confirmed that formal reporting in the subsequent August 2022 Environmental Activity Report would satisfy the reporting requirements of 40 CFR 270.30 (1)(10). NASA took immediate action to coordinate off-site shipment of the container on August 19, 2022.

## 5.0 Documents Submitted

### 5.1 Documents submitted to the Hazardous Waste Bureau in August 2022

- NASA submitted the *Fee Assessment for the 600 Area Perched Groundwater Investigation Report* on August 9, 2022.
- NASA submitted the *Response to Approval with Modifications Targeted Mobile Remediation Process Interim Status Report – Project Year 3* on August 19, 2022.
- NASA submitted the *Submittal of Comments on the Draft Hazardous Waste Permit for the National Aeronautics and Space Administration White Sands Test Facility (EPA ID No. NM8800019434)* on August 23, 2022.
- NASA submitted the *500 Area Former Oxidizer Burner (FOB) Investigation Work Plan (IWP) and Historical Information Summary (HIS)* on August 25, 2022.

### 5.2 Pertinent documents submitted to other NMED bureaus in August 2022

- NASA submitted the *NASA JSC White Sands Test Facility – FF, NM3590607 – 2020-2028 Drinking Water Asbestos Result* to the Drinking Water Bureau on August 2, 2022.
- NASA submitted the *NASA JSC White Sands Test Facility – FF, NM3590607 – Drinking Water Lead Action Level Exceedance Tier I Public Notification Certification* to the Drinking Water Bureau on August 10, 2022.
- NASA submitted the *NASA White Sands Test Facility (WSTF) Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units – 40 CFR Part 60, Subpart Dc (NSPS Dc) Notification of Initial Startup* to the Air Quality Bureau on August 17, 2022.
- NASA submitted the *NASA White Sands Test Facility (WSTF) Semi-annual Report for Discharge Permit (DP)-1255 – First Half of 2022* to the Ground Water Quality Bureau on August 22, 2022.

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

- NASA submitted the *NASA WSTF Draft Permit Public Comments – Request for 30-Day Extension of Public Comment Period* on July 19, 2022. NMED approved the extension via email and then confirmed by letter on August 1, 2022.
- NASA submitted the *Abbreviated Investigation Work Plan for Groundwater Data Representativeness, Phase 2: FLUTE Well Evaluation* on November 2, 2021. NASA received NMED's December 1, 2021 fee assessment and invoice for review of the plan and provided the

\$7,000 fee for review of the plan on December 14, 2021. NMED approved the plan on August 8, 2022.

- NASA submitted the *NASA White Sands Test Facility Hazardous Waste Operating Permit SWMU 52 Incident Notification* on August 17, 2020. NMED responded to the notification on November 9, 2020 and directed NASA to submit a Release Assessment Report to the Hazardous Waste Bureau no later than February 26, 2021. NASA submitted the *Second TDRSS Underground Storage Tank (SWMU 52) Release Assessment Report* on February 18, 2021. NASA received NMED's April 8, 2021 fee assessment and invoice for review of the report and provided the \$8,500 review fee on April 21, 2021. NMED disapproved the report on March 1, 2022 and directed NASA to address four NMED comments and submit a revised report no later than May 6, 2022. NASA submitted the *Response to Disapproval of NASA WSTF Second TDRSS Underground Storage Tank (SWMU 52) Release Assessment Report* on April 26, 2022. NMED approved the report with a modification on August 8, 2022. The Approval with Modification does not require an additional response from NASA.
- NASA submitted the *Periodic Monitoring Report – Fourth Quarter 2021* on February 1, 2022. NASA received NMED's March 3, 2022 fee assessment and invoice for review of the report and provided the \$5,000 review fee on March 22, 2022. NMED approved the report on August 23, 2022.
- 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 is processing the payment.
- NASA submitted the *NASA WSTF Remediation System Monitoring Plan Annual Update for 2022* on July 29, 2022. NASA received NMED's August 31, 2022 fee assessment and invoice for review of the report and is processing the payment.