

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



March 8, 2022

Reply to Attn of: RE-22-029

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 February 2022

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

TIMOTHY  
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Date: 2022.03.08  
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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

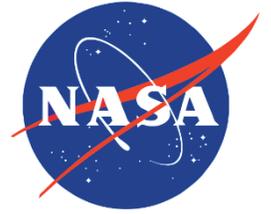
## Executive Summary

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

- NASA completed a shipment of scrap metal in February 2022.
- NASA sampled 31 of 32 groundwater monitoring wells scheduled for February 2022 and scheduled 41 groundwater monitoring wells for sampling in March 2022.
- NASA operated the Mid-plume Interception and Treatment System on 28 of 28 days in February 2022 and treated 1.14 acre-feet of contaminated groundwater and 226 gallons of investigation-derived waste (IDW).
- NASA operated the Plume Front Treatment System on 26 of 28 days in February 2022 and treated 53.6 acre-feet of contaminated groundwater.
- NASA continues follow-on activities associated with the recent perched groundwater investigation. NASA also continued extraction of perched groundwater at monitoring well 600-G-138.
- NASA continued revising the disapproved investigation report for the 200 Area Hazardous Waste Transmission Lines (SWMU 10).
- NASA continued preparing the 700 Area Landfill Phase 1 investigation report.
- NASA continued developing the NMED-required investigation work plan for the newly identified SWMU in the 500 Area (former oxidizer burner).
- NASA continued preparing the pilot test report for the Targeted Mobile Remediation Process Pilot Test initiated in August 2019 and completed in September 2021.
- NASA continued project planning for several monitoring well projects.
- NASA completed fieldwork related to the large-scale passive seismic study in the WSTF Plume Front area.
- NASA submitted three documents to the NMED Hazardous Waste Bureau in February 2022.
- There were no reportable non-compliance issues in February 2022.

National Aeronautics and Space Administration



Monthly Environmental Activity Report  
February 2022

Report Deadline: March 15, 2022

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

February 2022

NM8800019434

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Timothy J. Davis  
Chief, Environmental Office

See Electronic Signature

Date

National Aeronautics and Space Administration

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## 1.0 Waste Management Activities

1.1 NASA completed the following waste shipments in February 2022.

Date	Shipped To	Type of Waste	No. of Containers	Amount of Waste	Disposition
2/23/22	W. Silver, Santa Teresa, NM	Scrap Metal	1	20 CY	Recycle

- NMED is reviewing the Response to Approval with Modifications Closure Certification Report for the NASA WSTF Fuel Treatment Unit (FTU) (August 31, 2020).

## 2.0 Environmental Monitoring

2.1 NASA performed sampling at 31 of 32 groundwater monitoring wells or zones scheduled for sampling in February 2022, in accordance with the approved Groundwater Monitoring Plan (GMP). NASA was unable to sample well BLM-21-400 because the sampling system is inoperable. NASA plans to troubleshoot and repair the sampling system in March 2022. 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.
- 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 plug and abandon this well (Section 3.17) and remove it from the GMP.
- The Water FLUTE sampling system was removed from well WW-4 to support the collection of groundwater samples in accordance with the *Abbreviated Investigation Work Plan Groundwater Data Representativeness Phase 1: Water FLUTE Well Evaluation* (July 30, 2019; revised). NASA replaced the Water FLUTE system in this well in late February 2022 and plans to resume routine groundwater sampling required by the GMP in April 2022.

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 March 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)
28 of 28	9.7	1.14	1.13	226

Shutdown Date	Restart Date	Shutdown Status	Discussion
2/10/22	2/10/22	Planned	NASA shut the system down to inspect and verify instrument and controls wiring for drawing updates.
2/14/22	2/14/22	Planned	NASA shut the system down to inspect and verify instrument and controls wiring for drawing updates.
2/15/22	2/15/22	Planned	NASA shut the system down to inspect and verify instrument and controls wiring for drawing updates.
2/16/22	2/16/22	Unplanned	The system shut down automatically because of a disruption in the off-site electrical power supply.
2/24/22	2/25/22	Planned	NASA shut the system down to accommodate a scheduled outage of the local area network.
2/25/22	2/26/22	Unplanned	The system shut down automatically because of a low transmissivity/UV Log Reduction alarm.

#### 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)
26 of 28	556	53.6	59.25	0.21	0.36

Shutdown Date	Restart Date	Shutdown Status	Discussion
2/4/22	2/7/22	Unplanned	The system shut down automatically because of a leak detection alarm believed to have been caused by condensation in a portion of the extraction well piping.
2/16/22	2/17/22	Unplanned	The system shut down automatically because of a disruption in the off-site electrical power supply.

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## NASA White Sands Test Facility

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2/22/22	2/22/22	Planned	NASA shut down the system to perform scheduled work on the flow meter at well PFE-2.
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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

- NASA resumed perched groundwater extraction activities on February 1, 2022 immediately following completion of the drilling component of the 600 Area perched groundwater investigation and demobilization of subcontractor equipment. In February, NASA extracted approximately 110 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*. Extracted groundwater was containerized for treatment at the Mid-plume Interception and Treatment System (MPITS) and discharged in accordance with DP-1255.
- Following the installation of conventional perched groundwater monitoring well 600A-001-GW adjacent to the north corner of the Closure and conventional monitoring well 600A-002-GW downgradient to the west of the Closure in andesite bedrock in January, NASA continued with 600 Area perched groundwater investigation follow-on procurement and fieldwork activities. Ongoing fieldwork includes well development, sampling, and flowmeter testing activities at new wells 600A-001-GW and 600A-002-GW. Flow vector evaluations are also planned for conventional perched groundwater monitoring well 600-G-138 and the network of adjacent conventional wells in the vicinity of the Closure. The final investigation report is due to NMED by May 31, 2022.

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

- NMED is reviewing the *NASA White Sands Test Facility (WSTF) 200 Area Wastewater Lagoons Closure (SWMU 8) Investigation Report* (November 25, 2019), the *NASA White Sands Test Facility (WSTF) 600 Area Wastewater Lagoons Closure (SWMU 34) Investigation Report* (November 26, 2019), 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])

- NASA continued revising the *NASA WSTF 200 Area HWTL (SWMU 10) Investigation Report* (July 30, 2019) to address 16 NMED comments from the November 16, 2020 disapproval. The report will be submitted in early March 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)
- NMED is reviewing the revised *SWMU 33 Historical Investigation Summary and Investigation Work Plan* (August 17, 2020).
- 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)
- NASA continued preparation of the required Phase I investigation report, which is due to NMED by April 29, 2022.
  - NASA received NMED approval of the *Revised Discussion Phase IA and Phase IB Soil Vapor Survey (SVS) Component of the Ongoing 700 Area Landfill Phase I Investigation* on February 11, 2022 and will forgo the Phase IB passive soil vapor survey. NASA will complete all other Phase I investigation activities and reporting proposed in the March 2019 *SWMU 49 700 Area Landfill Phase I Investigation Work Plan* and subsequent response to the NMED Disapproval in accordance with the latest schedule approved by NMED on March 15, 2021.
  - NASA initiated the plugging and abandonment of shallow soil borings installed for the Phase IA survey in accordance with the March 2019 *SWMU 49 700 Area Landfill Phase I Investigation Work Plan* and subsequent response to the NMED Disapproval.
- 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)
- The NMED Hazardous Waste Bureau is reviewing the *Second TDRSS Underground Storage Tank (SWMU 52) Release Assessment Report* (February 18, 2021).
- 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).
- NASA continued developing the required response to NMED's January 18, 2022, approval with modifications of the *NASA WSTF Well Reconfiguration Work Plan for Well BW-4* (June 29, 2021). The response is due to NMED by March 11, 2022.
- NMED is reviewing the *NASA WSTF Work Plan for Drilling and Installation of Monitoring Well 600B-001-GW* (BLM-28 replacement; August 31, 2021).
- NMED is reviewing 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).

3.18 Targeted Mobile Remediation Process (TMRP)

- NASA continued developing the pilot test report, which will be submitted to NMED in early March 2022.
- NMED is reviewing the *NASA White Sands Test Facility Monitoring 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

- NMED is reviewing the *Report on Tracer Testing in the 200/600 Areas and Mid-plume Constriction Area* (August 31, 2020).

3.21 Site-wide Geophysics Investigation

- During the week of February 14, 2022, NASA and the off-site geophysics subcontractor retrieved 381 passive seismic geophones within the designated passive seismic study area. The geophones were deployed across a 1 x 2-mile rectangular grid striking northwest at the Plume Front in an area that incorporates the Plume Front remediation wells, footprint of the westernmost groundwater plume, and the Western Boundary Fault Zone. The geophones recorded passive seismic data from the subsurface for approximately 28 days. Passive seismic data download, processing, and reporting by the subcontractor is anticipated to require approximately 12 weeks to complete.

#### 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 February 2022

- NASA submitted the *Annual Waste Accumulation Areas Location Map* on February 1, 2022.
- NASA submitted the *Periodic Monitoring Report – Fourth Quarter 2021* on February 1, 2022.
- NASA submitted the *Work Plan for Abandonment of NASA WSTF Well PL-6 and Replacement with Monitoring Well 600C-002-GW* on February 1, 2022.

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

- NASA submitted the *2021 Solid Waste Management Annual Report White Sands Test Facility (WSTF) 700 Area Post-Closure Solid Waste Landfill* to the Solid Waste Bureau on February 7, 2022.

##### 5.3 Status of documents previously submitted to the NMED Hazardous Waste Bureau for which additional correspondence was recorded in February 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 WSTF Periodic Monitoring Report – Second Quarter 2021* on July 28, 2021. NASA received NMED's September 8, 2021 fee assessment and invoice for review of the report and provided the \$5,000 review fee on September 28, 2021. NMED approved the PMR with modifications on February 21, 2022. NMED directed NASA to address three comments and submit a revised report no later than April 15, 2022.
- NASA submitted the *NASA White Sands Test Facility (WSTF) 2022 Soil Vapor Risk Based Concentrations (RBC) Memorandum Update* on December 14, 2021. NMED approved the memorandum update on February 11, 2022 with a modification related to updates of the screening levels for two contaminants of concern in the memo. NMED directed NASA to address the comment and submit a revised memo no later than May 6, 2022.