National Aeronautics and Space Administration

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



August 9, 2022

Reply to Attn of: RE-22-104

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 July 2022

Enclosed is the NASA White Sands Test Facility (WSTF) Monthly Environmental Activity Report for July 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 Digitally signed by AMANDA SKARSGARD Date: 2022.08.09 09:47:53 -06'00'

For: Timothy J. Davis Chief, Environmental Office

3 Enclosures

RE-22-104 2

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 July 2022:

- NASA completed shipments of hazardous waste and universal waste in July 2022.
- NASA sampled 33 of 33 groundwater monitoring wells scheduled for July 2022 and scheduled 36 groundwater monitoring wells for sampling in August 2022.
- NASA operated the Mid-plume Interception and Treatment System on 31 of 31 days in July 2022 and treated 0.92 acre-feet of contaminated groundwater and 224 gallons of investigation-derived waste (IDW).
- NASA operated the Plume Front Treatment System on 31 of 31 days in July 2022 and treated 64.4 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 July 2022.
- 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 July 2022.
- There were no reportable non-compliance issues in July 2022.



# Monthly Environmental Activity Report July 2022

Report Deadline: August 15, 2022

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

July 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 SKARSGARD

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Date: 2022.08.09 09:49:26 -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

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# 1.0 Waste Management Activities

1.1 NASA completed the following waste shipments in July 2022.

Date	Shipped To	Type of Waste	No. of Containers	Amount of Waste	Disposition
7/28/22	Clean Harbors, Aragonite, UT	Hazardous Waste	11	139 kg	Incineration
7/28/22	US Ecology, Beatty, NV	Hazardous	8	320 kg	Macroecapsulation, Solidification, or Off- site Management
7/28/22	Clean Harbors, Eldorado, AR	Hazardous (Fuel Waste)	2	354 kg	Incineration
7/28/22	Veolia, Phoenix, AZ	Universal	18	309 kg	Recycle
7/28/22	Veolia, Phoenix, AZ	Universal (TSCA Waste)	1	44 kg	Incineration

# 2.0 Environmental Monitoring

- 2.1 NASA performed sampling at 33 of 33 groundwater monitoring wells or zones scheduled for sampling in July 2022, in accordance with the approved Groundwater Monitoring Plan (GMP). 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 plans to replace the sampling system and sample the well as soon as possible.
  - 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.

2.3 NASA developed the August 2022 groundwater sampling schedule and plans to sample 36 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)
31 of 31	8.2	0.92	0.92	224

Shutdown Date	Restart Date	Shutdown Status	Discussion
7/5/22	7/6/22	Unplanned	The system shut down automatically because of a suspected power surge that triggered false leak detection alarms.
7/6/22	7/6/22	Unplanned	The system shut down automatically because of a false leak detection alarm.
7/19/22	7/19/22	Planned	NASA shut the system down to clean a UV transmissivity sensor.
7/25/22	7/25/22	Planned	NASA shut the system down to clean a UV transmissivity sensor.
7/31/22	8/1/22	Unplanned	The system shut down automatically because of a suspected power surge that affected the system PLC.

# 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)
31 of 31	467	64.4	63.5	0.36	0.29

Shutdown Date	Restart Date	Shutdown Status	Discussion	
7/19/22	7/19/22	Unplanned	The system shut down automatically because of a low flow alarm on one of the air strippers.	
7/21/22	7/21/22	Planned	NASA shut the system down to clean the interiors of the motor control cabinets at the PFE and PFI wells.	

#### 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 July 2022, NASA extracted approximately 134 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.
- NASA received and is processing the NMED fee assessment invoice for review of the 600 Area Perched Groundwater Investigation Report, submitted on June 29, 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.

#### 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).
- NMED approved the *Targeted Mobile Remediation Process Interim Status Report Project Year 3* (July 27, 2021) on June 30, 2022 with modifications. NASA is addressing an NMED comment and will submit a revised report no later than 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 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. A total of 381 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 geophones were subsequently recovered following one month of deployment. The subcontractor completed passive seismic data processing and reporting in June 2022 and provided a draft report for NASA review on July 2, 2022. Following review, NASA received the final report from the subcontractor on July 13, 2022, and all supporting electronic raw data on July 27, 2022. The processed data and interpreted results of the WSTF Plume Front survey will be incorporated into the site-wide geophysical synthesis and 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 July 2022
  - NASA submitted the Fee Assessment for the Abbreviated Work Plan (AWP) for Abandonment of NASA WSTF NASA 9 and Replacement with Monitoring Well 400-001-GW on July 19, 2022.

- NASA submitted the NASA WSTF Draft Permit Public Comments Request for 30-Day Extension of Public Comment Period on July 19, 2022.
- NASA submitted the NASA WSTF Periodic Monitoring Report Second Quarter 2022 on July 26, 2022.
- NASA submitted the Response to Disapproval for NASA White Sands Test Facility (WSTF) Background Groundwater Study Investigation Work Plan on July 29, 2022.
- NASA submitted the NASA WSTF Remediation System Monitoring Plan Annual Update for 2022 on July 29, 2022.
- NASA submitted the NASA Johnson Space Center White Sands Test Facility 2021 Annual Hazardous Waste Fees on July 29, 2022.
- 5.2 Pertinent documents submitted to other NMED bureaus in July 2022
  - NASA submitted the *Visible Emissions Observation at the 300 and 400 Area Flares* to the Air Quality Bureau on July 6, 2022.
  - NASA submitted the NASA White Sands Test Facility (WSTF) Discharge Plan DP-584 Annual Report to the Groundwater Pollution Prevention Section on July 12, 2022.
  - NASA submitted the NASA-JSC WSTF FF (White Sands Test Facility), NM3590607, Aerospace Data Facility Southwest, Water Tanks, Pumps & Fire Loop Notice of Project Completion to the Drinking Water Bureau on July 12, 2022.
  - NASA submitted the *Compliance Report (NESHAP)(RICE) for 7-2022* to the Air Quality Bureau on July 18, 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) Semi-annual Report for Period January 1 through June 30, 2022 to the Air Quality Bureau on July 26, 2022.
  - NASA submitted the NASA White Sands Test Facility (WSTF) Discharge Permit DP-1170 Semi-Annual Monitoring Report to the Groundwater Pollution Prevention Section on July 26, 2022.
  - NASA submitted the *Analytical Results for Discharge Permit DP-392 (NASA White Sands Test Facility 100 Area, 200 Area, and 600 Area Sewage Lagoons)* to the Groundwater Pollution Prevention Section on July 26, 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 100 Area Wastewater Lagoons Closure (SWMU 2) Interim Status Report on May 29, 2019. NASA received NMED's July 3, 2019 fee assessment for review of the report on July 9, 2019 and provided the \$2,000 review fee to NMED on August 13, 2019. On May 14, 2020 NMED informed NASA that NMED's response to the status report will be incorporated into the pending SWMU 2 Investigation Report documenting the complete investigation of the 100 Area wastewater lagoons. NASA submitted the NASA WSTF 100 Area Wastewater Lagoons Closure (SWMU 2) Investigation Report on August 3, 2020. NASA received NMED's September 22, 2020 fee assessment for review of the report on October 13, 2020 and provided the \$18,000 review fee to NMED on November 30, 2020. NMED disapproved the report on July 5, 2022 and directed NASA to address 20 comments and submit a revised report no later than January 31, 2023.

- NASA submitted the NASA WSTF RCRA Permit Renewal Application on June 5, 2019. NASA received NMED's August 13, 2020 Administrative Completeness Determination via email on August 14, 2020. NASA submitted the Administrative Completeness Determination and Fee Assessment for NASA White Sands Test Facility RCRA Permit Renewal Application on August 31, 2020. This submittal informs NMED that NASA is coordinating electronic payment of the \$70,000 permit renewal fee, to be transferred at a later date. NASA submitted the Administrative Completeness Determination and Fee Assessment NASA White Sands Test Facility RCRA Permit Renewal Application on October 2, 2020. NMED notified NASA on May 25, 2022 that the Draft Permit was available for review and public comment on the NMED website. NASA is reviewing the draft Permit and submitted the NASA WSTF Draft Permit Public Comments Request for 30-Day Extension of Public Comment Period on July 19, 2022. NMED approved the request, extending the deadline for submittal of comments on the draft Permit to August 24, 2022.
- NASA submitted the NASA White Sands Test Facility (WSTF) STGT Wastewater Lagoons Closure (AOC 51) Investigation Report on October 13, 2020. NASA received NMED's December 18, 2020 fee assessment for review of the report on January 27, 2021 and provided the \$18,000 review fee to NMED on February 18, 2021. NMED disapproved the report on July 25, 2022 and directed NASA to address 16 comments and submit a revised report no later than February 28, 2023.
- Because of delays encountered securing the services of a qualified subcontract drilling company, NASA submitted the *Request for Extension of Time for Submittal of the 600 Area Perched Groundwater Investigation Report* on October 5, 2021. NMED approved the request on October 27, 2021, extending the due date for submittal of the report to May 31, 2022. NASA submitted the *Request for Second Extension of Time for Submittal of the 600 Area Perched Groundwater Investigation Report* on March 15, 2022. NMED approved the request on April 7, 2022, extending the due date for submittal of the report to June 30, 2022. NASA 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 on April 18, 2022 and directed NASA to manage and dispose of the waste as solid waste. NASA disposed of 35 1-cubic yard containers of IDW soil as solid waste on June 15, 2022. NASA submitted the 600 <i>Area Perched Groundwater Investigation Report* on June 29, 2022. NASA received NMED's July 26, 2022 fee assessment for review of the report and is processing the fee payment.
- NASA submitted the NASA White Sands Test Facility (WSTF) Background Groundwater Study Investigation Work Plan on February 18, 2021. NASA received NMED's April 8, 2021 fee assessment and invoice for review of the work plan and provided the \$5,000 review fee on April 21, 2021. NMED disapproved the work plan on May 10, 2022 and directed NASA to address two comments and submit a revised work plan no later than July 29, 2022. NASA submitted the Response to Disapproval for NASA White Sands Test Facility (WSTF) Background Groundwater Study Investigation Work Plan on July 29, 2022.
- NASA submitted the NASA WSTF Work Plan for Abandonment of NASA WSTF NASA 9 and Replacement with Monitoring Well 400-001-GW on April 29, 2022. NASA received NMED's June 8, 2022 fee assessment and invoice for review of the report and provided the \$2,000 review fee on July 19, 2022.