

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



January 7, 2016

Reply to Attn of: RE-16-002

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

Subject: WSTF Monthly Environmental Activity Report for December 2015

Enclosed is the WSTF Monthly Environmental Activity Report for December 2015. 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 known violations.

If you have any questions or comments concerning this submittal, please contact me at 575-524-5024

A handwritten signature in black ink, appearing to read "Timothy J. Davis".

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

Mr. Baird Swanson (*CD only)
Ground Water Quality Bureau
New Mexico Environment Department
121 Tijeras Avenue NE, Suite 1000
Albuquerque, NM 87102

Executive Summary

The following summarizes important information associated with NASA White Sands Test Facility (WSTF) environmental program activities in December 2015:

- NASA completed two shipments of waste concrete in December 2015.
- NASA performed sampling at 42 of 46 groundwater monitoring wells and completed all required groundwater remediation system sampling scheduled for December 2015.
- The Mid-plume Interception and Treatment System operated on 31 of 31 days in December 2015 and treated approximately 1.92 acre-feet of groundwater and investigation-derived waste.
- The Plume Front Treatment System operated on 22 of 31 days in December 2015 and treated approximately 91.4 acre-feet of contaminated groundwater. Scheduled maintenance of the system's two air strippers was completed.
- NASA completed investigation fieldwork at SWMU 16 and SWMU 19.
- NASA continued fieldwork associated with the investigation and closure of the WSTF wastewater lagoons.
- NASA completed reviewing and processing analytical and field data for the investigation of three closed small arms firing ranges and continued planning follow-on cleanup work.
- Post-introduction sampling required for the 200/600 Area and MPCA groundwater dye tracer test was performed and samples were submitted to the off-site laboratory for analysis.
- NASA removed three unused septic tanks, inspected the bottom of the SWMU 22 septic tank, and continued planning and preparation for the investigation and removal of additional WSTF septic tanks.
- NASA extracted 120 gallons of perched contaminated groundwater from monitoring well 600-G-138 in December 2015.
- There were no reportable non-compliance issues in December 2015.



National Aeronautics and
Space Administration

Monthly Environmental Activity Report

December 2015

Submitted January 14, 2016

NM8800019434

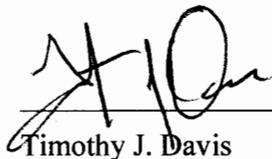
NASA Johnson Space Center White Sands Test Facility

12600 NASA Road Las Cruces, New Mexico 88012

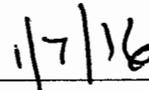
NASA Johnson Space Center White Sands Test Facility
Monthly Environmental Activity Report

December 2015

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.



Timothy J. Davis
Chief, Environmental Office



Date

Executive Summary

The following summarizes important information associated with NASA White Sands Test Facility (WSTF) environmental program activities in December 2015:

- NASA completed two shipments of waste concrete in December 2015.
- NASA performed sampling at 42 of 46 groundwater monitoring wells and completed all required groundwater remediation system sampling scheduled for December 2015.
- The Mid-plume Interception and Treatment System operated on 31 of 31 days in December 2015 and treated approximately 1.92 acre-feet of groundwater and investigation-derived waste.
- The Plume Front Treatment System operated on 22 of 31 days in December 2015 and treated approximately 91.4 acre-feet of contaminated groundwater. Scheduled maintenance of the system's two air strippers was completed.
- NASA completed investigation fieldwork at SWMU 16 and SWMU 19.
- NASA continued fieldwork associated with the investigation and closure of the WSTF wastewater lagoons.
- NASA completed reviewing and processing analytical and field data for the investigation of three closed small arms firing ranges and continued planning follow-on cleanup work.
- Post-introduction sampling required for the 200/600 Area and MPCA groundwater dye tracer test was performed and samples were submitted to the off-site laboratory for analysis.
- NASA removed three unused septic tanks, inspected the bottom of the SWMU 22 septic tank, and continued planning and preparation for the investigation and removal of additional WSTF septic tanks.
- NASA extracted 120 gallons of perched contaminated groundwater from monitoring well 600-G-138 in December 2015.
- There were no reportable non-compliance issues in December 2015.

1.0 Waste Management Activities

- 1.1 NASA completed shipments of concrete waste to the Foothills Landfill in Las Cruces, NM on December 16 and 17, 2015. The shipments consisted of 19,323 kilograms of concrete for disposal.

2.0 Environmental Monitoring

- 2.1 NASA performed sampling at 42 of 46 groundwater monitoring wells or zones scheduled for sampling in December 2015, including those rescheduled from November for various reasons. Four wells scheduled for sampling in December 2015 were rescheduled to January 2016 because of resource limitations imposed by other ongoing field projects at WSTF.
- 2.2 Sampling of operational groundwater remediation system influent, effluent, and extraction wells was performed in accordance with applicable permits and approved plans.

3.0 Corrective Actions/Investigations

3.1 Mid-plume Interception and Treatment System

- MPITS Operation – The MPITS operated on 31 of 31 days in December 2015 and treated approximately 1.92 acre-feet of groundwater and 307 gallons of IDW. All treated water was discharged to the infiltration basin.
- MPITS Shutdowns, Repairs, and Modifications –The system remained inactive after a November 26, 2015 shutdown. NASA performed troubleshooting of the leak detection system, resolved the problem, and restarted the system on December 1, 2015. There was an additional unplanned shutdown of the MPITS on December 26, 2015, when the system shut down automatically because of an interruption in the electrical power following an off-site event during a winter storm. Power was restored and the system was inspected prior to being restarted on December 27, 2015.

3.2 Plume Front Treatment System

- PFTS Operation – The PFTS operated on 22 of 31 days in December 2015 at an average flow rate of 736 gallons per minute. The system extracted and treated approximately 91.4 acre-feet of groundwater, most of which was injected into the aquifer following treatment. Approximately 0.14 acre-feet of groundwater were discharged to the on-site Modu-tank system during system startup events. Approximately 1.41 acre-feet of groundwater were discharged to grade at the PFI wells during injection well backwashing and system startup activities.
- PFTS Shutdowns, Repairs, and Modifications – The system remained offline at the beginning of December 2015 following a November 16, 2015 shut down to perform scheduled maintenance of the two air strippers. Each unit was completely disassembled, inspected, and cleaned. New seals and boots were installed in both units during reassembly. The system was restarted on December 3, 2015. There were three unplanned shutdowns and two planned shutdowns in December 2015. On December 12, 2015 the system shut down automatically when extremely high winds created an air pressure imbalance for the air strippers. The system was restarted on December 15, 2015. On December 16, 2015 the system was shut down to investigate leakage at a quartz tube sleeve wiper in the UV reactor. The inspection was completed and the system was restarted within two hours. There was a planned shutdown of the system on December 22, 2015 to repair the leak at the quartz tube. The system was restarted within three hours. On December 26, 2015 the system shut down automatically when the electrical power supply was interrupted following an off-site event during a winter storm. A planned shutdown to upgrade system software commenced December 28, 2015 and the PFTS remained inactive through the end of December 2015.

3.3 200 Area Investigation

- NMED completed review of the *200 Area Phase II Investigation Report* (June 29, 2015), and approved the report with modifications on November 30, 2015. In December 2015, NASA initiated project planning for the required quantitative assessment of soil vapor intrusion in the 200 Area.

3.4 600 Area Perched Groundwater Extraction Pilot Test

- NASA continued extracting perched groundwater from monitoring well 600-G-138 in December 2015 in accordance with NMED's March 1, 2013, *Approval Time Extension for Implementation of the Perched Groundwater Extraction Pilot Test at the 600 Area*. Approximately 120 gallons of perched groundwater were removed from 600-G-138 in December 2015.

3.5 SWMUs 1, 3 and 15 (100/600 Area Burn Pit and Container Storage Area)

- The *NASA WSTF SWMUs 1, 3, and 15 (100 Area Burn Pit, 100 Area Container Storage Area, and 600 Area Burn Pit) Investigation Report* (November 23, 2015) remains under NMED review.

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

- After previous complications with the analysis of sludge samples collected from the 100 Area wastewater lagoons, NASA collected preliminary sludge samples from the 200 Area wastewater lagoon and shipped them to the off-site laboratory for analysis. As with previous samples from the 100 Area wastewater lagoon, the laboratory determined that the samples contained insufficient solids for the requested analyses. NASA initiated efforts to secure the services of an alternate laboratory with better analytical capabilities to analyze sludge samples from the wastewater lagoons.

3.7 SWMU 10 (200 Area Hazardous Waste Transmission Line)

- The *200 Area HWTL (SWMU 10) Investigation Work Plan and Historical Information Summary* (July 29, 2015) remain under NMED review.

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

- NASA performed investigation fieldwork at the soil pile in accordance with the NMED-approved *600 Area Bureau of Land Management Off-Site Soil Pile (SWMU 16) Investigation Work Plan* (May 28, 2015, revised). The required shallow soil borings were installed within the soil pile and deeper borings (to 25 ft bgs) were installed at two locations adjacent to the pile using a hollow stem auger rig. Soil samples were collected and managed as required before shipment to the off-site laboratory for analysis.
- Soil cuttings generated during the investigation are being managed at the investigation site as hazardous waste pending the receipt of analytical results that will be used to support final waste characterization in accordance with the work plan.
- NASA initiated development of the investigation report.

3.9 SWMU 19 (800 Area Below Grade Storage Tank)

- NASA performed investigation fieldwork at the BGST in accordance with the NMED-approved *800 Area Below Grade Storage Tank (SWMU 19) Abbreviated Investigation Work Plan* (June 25, 2015). Because rocky surface conditions prevented the use of hand auger equipment at this location, shallow soil samples were collected from small pits excavated with on-site heavy equipment. Deeper borings (to 9 and 30 ft bgs) were installed at the required

locations using a hollow stem auger rig. Soil samples were collected and managed as required prior to shipment to the off-site laboratory for analysis.

- Soil cuttings and BGST debris generated during the investigation are being managed at the investigation site as hazardous waste pending the receipt of analytical results that will be used to support final waste characterization in accordance with the work plan.
- NASA initiated development of the investigation report.

3.10 SWMUs 21-27 (Septic Tanks)

- NASA removed three septic tanks from locations at Building 272 on December 16, 2015. The non-hazardous concrete debris from the tanks was transported to a local landfill and disposed of as clean fill.
- NASA performed an inspection of the SWMU 22 septic tank and confirmed that the tank has no bottom. NASA began planning for the collection of soil samples from inside the tank prior to its removal and investigation.
- NASA continues to plan for the removal of several more septic tanks and the investigation of the SWMU 22 tank location, which will be performed after non-SWMU tanks are removed in early 2016.

3.11 SWMUs 29-31 (Small Arms Firing Ranges)

- NASA completed reviewing and processing analytical and field data collected during field screening at three small arms firing ranges in accordance with the *Small Arms Firing Ranges (SWMUs 29 – 31) Accelerated Corrective Measures Work Plan* (February 26, 2015).
- NASA continued planning activities for the required follow-on cleanup work.

3.12 Groundwater Dye Tracer Test

- NASA continued a groundwater dye tracer test in accordance with the NMED-approved *Work Plan for Tracer Testing in the 200/600 Areas and Mid-plume Constriction Area* (May 10, 2012). Four fluorescent dyes were introduced at four locations (two in the 200 Area and two in the Mid-plume area) in June 2014, and post-introduction groundwater monitoring continued through December 2015 in accordance with the plan.
- Groundwater tracer samples have been regularly collected since dye introduction and submitted to the off-site contracted analytical laboratory as described in the work plan. Data are being received and reviewed by NASA project personnel. Rhodamine WT, which was introduced in monitoring well BLM-14-327, has been detected at three monitoring wells in the Mid-plume area. Eocene, which was introduced in monitoring well BLM-15-305, has been detected at three different monitoring wells to the southwest of the Mid-plume area. To date, there have been no confirmed detections of tracer dyes released in the 200 Area.

3.13 JER Anomalous NDMA Detections

- NASA completed and submitted the *Investigation Report for Evaluating Anomalous Detections of NDMA in JER-1 and JER-2* on September 29, 2015. NASA received NMED's October 14, 2015 fee assessment for review of the report and submitted the \$7,500 review fee on November 23, 2015.

3.14 Westbay Monitoring Well Conversion

- NASA performed sampling of the Water FLUTE systems in monitoring wells WW-4 and WW-5, which were converted from Westbay sampling systems in November 2015.

- The off-site vendor responsible for the construction of the dedicated low-flow bladder pump system (with packer) planned for installation in the borehole at monitoring well BLM-28 was notified by a supplier that they were ceasing operations and would not be able to provide the required packer. An alternate supplier was located and the packer has been designed and ordered. However, the substantial lead time for the new supplier is expected to delay the installation of the system at BLM-28 until January 2016.
- Because of several delays encountered during Westbay conversion activities, NASA submitted a *Request for Extension of Time for Conversion of Westbay Wells BLM-28, WW-4, and WW-5* (October 29, 2015). NMED approved the request on December 2, 2015 and granted an extension for conversion of all wells to January 31, 2016.

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 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 NASA submitted only routine documents in December 2015.

5.2 Status of documents submitted in previous months

- NASA submitted the *200 Area HWTL (SWMU 10) Investigation Work Plan and Historical Information Summary* on June 29, 2015. NASA received NMED's August 21, 2015 Fee Assessment for review of the IWP and submitted the \$10,000 review fee on September 28, 2015.
- NASA submitted the *Investigation Report for Evaluating Anomalous Detections of NDMA in JER-1 and JER-2* on September 29, 2015. NASA received NMED's October 14, 2015 Fee Assessment for review of the report and submitted the \$7,500 review fee on November 23, 2015.
- NASA submitted the *Request for Extension of Time for Conversion of Westbay Wells BLM-28, WW-4, and WW-5* on October 29, 2015. NMED approved the request on December 2, 2015.
- NASA submitted the *Transmittal of Class 1 Permit Modification Request for the NASA White Sands Test Facility (WSTF) Hazardous Waste Permit No. NM8800019434 Attachment 16* on November 17, 2015.
- NASA submitted the *NASA WSTF SWMUs 1, 3, and 15 (100 Area Burn Pit, 100 Area Container Storage Area, and 600 Are Burn Pit) Investigation Report* on November 23, 2015.

UNITED STATES POSTAL SERVICE

PERMISSION TO REPRODUCE THIS MATERIAL IS GRANTED BY THE POSTAL SERVICE PROVIDED THAT THE ORIGINAL SOURCE IS ACKNOWLEDGED.

11 1993 36



First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

**National Aeronautics and
Space Administration**

Mail Code: *RE-16-002*
**Lyndon B. Johnson Space Center
White Sands Test Facility
Post Office Box 20
Las Cruces, NM 88004-0020**

004002020



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Gabriel Acevedo
 Hazardous Waste Bureau
 2905 Rodeo Park Drive East, Bldg 1
 Santa Fe, NM 87505

COMPLETE THIS SECTION ON DELIVERY

A. Signature

x Martha Juarez

Agent

Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from Item 1? Yes

If YES, enter delivery address below: No

3. Service Type

Certified Mail

Express Mail

Registered

Return Receipt for Merchandise

Insured Mail

C.O.D.

4. Restricted Delivery? (Extra Fee)

Yes

2. Article Number

(Transfer from service label)

7011 2970 0004 4020 1110