

National Aeronautics and  
Space Administration

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



December 9, 2015

Reply to Attn of: RE-15-131

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 November 2015

Enclosed is the WSTF Monthly Environmental Activity Report for November 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 "T 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  
5500 San Antonio Drive NE  
Albuquerque, NM 87109

## Executive Summary

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

- NASA completed five waste shipments in November 2015.
- NASA performed sampling at 29 of 42 groundwater monitoring wells and completed all required groundwater remediation system sampling scheduled for November 2015.
- The Mid-plume Interception and Treatment System operated on 25 of 30 days in November 2015 and treated approximately 1.74 acre-feet of groundwater and investigation-derived waste.
- The Plume Front Treatment System operated on 16 of 30 days in November 2015 and treated approximately 62.14 acre-feet of contaminated groundwater. Scheduled maintenance was performed on the system's two air strippers.
- NASA submitted the *NASA WSTF SWMUs 1, 3, and 15 (100 Area Burn Pit, 100 Area Container Storage Area, and 600 Area Burn Pit) Investigation Report* to NMED on November 23, 2015.
- NASA initiated investigation fieldwork at SWMU 16 and continued project planning for the investigation of SWMU 19.
- NASA continued fieldwork associated with the investigation and closure of the WSTF wastewater lagoons.
- NASA completed the initial data review and continued processing analytical and field data for the investigation of three closed small arms firing ranges.
- 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 completed the conversion of Westbay wells WW-4 and WW-5 to purgeable sampling systems in accordance with the approved work plan.
- NASA continued planning and preparation for the investigation and removal of additional WSTF septic tanks.
- NASA extracted 155 gallons of perched contaminated groundwater from monitoring well 600-G-138 in November 2015.
- There were no reportable non-compliance issues in November 2015.



National Aeronautics and  
Space Administration

## Monthly Environmental Activity Report

November 2015

Submitted December 14, 2015

NM8800019434

NASA Johnson Space Center White Sands Test Facility

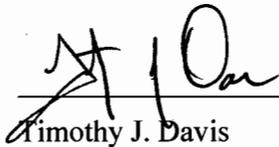
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12600 NASA Road Las Cruces, New Mexico 88012

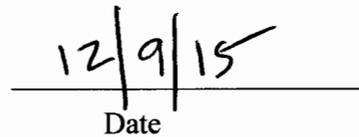
# NASA Johnson Space Center White Sands Test Facility Monthly Environmental Activity Report

November 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



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Date

## Executive Summary

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

- NASA completed five waste shipments in November 2015.
- NASA performed sampling at 29 of 42 groundwater monitoring wells and completed all required groundwater remediation system sampling scheduled for November 2015.
- The Mid-plume Interception and Treatment System operated on 25 of 30 days in November 2015 and treated approximately 1.74 acre-feet of groundwater and investigation-derived waste.
- The Plume Front Treatment System operated on 16 of 30 days in November 2015 and treated approximately 62.14 acre-feet of contaminated groundwater. Scheduled maintenance was performed on the system's two air strippers.
- NASA submitted the *NASA WSTF SWMUs 1, 3, and 15 (100 Area Burn Pit, 100 Area Container Storage Area, and 600 Area Burn Pit) Investigation Report* to NMED on November 23, 2015.
- NASA initiated investigation fieldwork at SWMU 16 and continued project planning for the investigation of SWMU 19.
- NASA continued fieldwork associated with the investigation and closure of the WSTF wastewater lagoons.
- NASA completed the initial data review and continued processing analytical and field data for the investigation of three closed small arms firing ranges.
- 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 completed the conversion of Westbay wells WW-4 and WW-5 to purgeable sampling systems in accordance with the approved work plan.
- NASA continued planning and preparation for the investigation and removal of additional WSTF septic tanks.
- NASA extracted 155 gallons of perched contaminated groundwater from monitoring well 600-G-138 in November 2015.
- There were no reportable non-compliance issues in November 2015.

## 1.0 Waste Management Activities

- 1.1 NASA completed a shipment of universal waste to Veolia in Phoenix, Arizona on November 13, 2015. The shipment consisted of seven containers with 101 kilograms of waste for disposal.
- 1.2 NASA completed a shipment of TSCA waste (PCB ballasts) to Veolia in Phoenix, Arizona on November 13, 2015. The shipment consisted of one container with 74 kilograms of waste for disposal.
- 1.3 NASA completed a shipment of P078 ADGAS treatment residual (water) waste to Veolia in Henderson, Colorado on November 19, 2015. The shipment consisted of one 330-gallon intermediate bulk container with 1,143 kilograms of hazardous waste for disposal.
- 1.4 NASA completed a shipment of hazardous waste to Veolia in Henderson, Colorado on November 19, 2015. The shipment consisted of 17 containers with 465 kilograms of hazardous waste for disposal.
- 1.5 NASA completed a shipment of New Mexico special waste (sheetrock and transite pipe) to the Otero/Greentree Regional Landfill near Alamogordo, New Mexico on November 19, 2015. The shipment consisted of two containers (1-cubic yard Supersacks) with 314 kilograms of waste for disposal.

## 2.0 Environmental Monitoring

- 2.1 NASA performed sampling at 29 of 42 groundwater monitoring wells or zones scheduled for sampling in November 2015. Seven wells/zones were postponed to coincide with planned Discharge Plan DP-392 groundwater sampling scheduled for December 2015. Three wells/zones scheduled for November 2015 could not be sampled because of sampling equipment failure. Inspection and repair of these wells will be scheduled as soon as possible and the wells will be sampled. Three wells scheduled for sampling in November 2015 were rescheduled to December 2015 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 25 of 30 days in November 2015 and treated approximately 1.74 acre-feet of groundwater and 715 gallons of IDW. All treated water was discharged to the infiltration basin.
- MPITS Shutdowns, Repairs, and Modifications – There were three unplanned shutdowns of the MPITS. On November 14, 2015 the system shut down automatically because of a leak detection notification. The issue was resolved and the system was restarted on November 16, 2015. On November 23, 2015 the system shut down automatically because of a phase imbalance in the electrical power supply. The system was restarted later that day. On November 26, 2015 the system shut down automatically because of a leak detection notification. NASA performed troubleshooting of the leak detection system, resolved the problem, and restarted the system on December 1, 2015.

### 3.2 Plume Front Treatment System

- PFTS Operation – The PFTS operated on 16 of 30 days in November 2015 at an average flow rate of 958 gallons per minute. The system extracted and treated approximately 62.14 acre-feet of groundwater, most of which was injected into the aquifer following treatment. Approximately 0.13 acre-feet of groundwater were discharged to the on-site Modu-tank system

during system startup events. Approximately 0.43 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 – There was one planned shutdown of the PFTS in November 2015. On November 16, 2015 the system was 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 is scheduled to be restarted in 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.

### 3.4 600 Area Perched Groundwater Extraction Pilot Test

- NASA continued extracting perched groundwater from monitoring well 600-G-138 in October 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 155 gallons of perched groundwater were removed from 600-G-138 in November 2015.
- On July 15, 2015, NMED approved NASA's April 16, 2015, *600 Area Perched Groundwater Extraction Pilot Test Interim Status Report – Project Year 2* with modifications. The approval included a requirement to develop and submit a Work Plan to evaluate the potential source of volatiles in the soil vapor beneath the 600 Area Closure. NASA believes that previous investigations at the 600 Area Closure have clearly identified the source of volatiles in soil vapor. NASA submitted a narrative description of past work and plans for future work to NMED on November 25, 2015.

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

- NASA submitted the *NASA WSTF SWMUs 1, 3, and 15 (100 Area Burn Pit, 100 Area Container Storage Area, and 600 Area Burn Pit) Investigation Report* to NMED on November 23, 2015.

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

- NASA collected sludge samples from the 100 Area wastewater lagoon and shipped the samples to the contracted off-site laboratory for analysis. However, the overlying water in the lagoon, and the apparent interbedded sludge and soil layers within the lagoon, complicated the activity and prevented the collection of sludge samples that are representative of the entire vertical profile of the sludge.
- NASA performed a survey of the 200 Area wastewater lagoon to determine if the existing sludge is conducive to the collection of representative samples. Infilling of the sludge in this lagoon appears to be minor and restricted to the portion of the lagoon near the banks. NASA expects to attempt the collection of sludge samples from the 200 Area wastewater lagoon in December 2015.
- NASA removed and decontaminated the floating aerators and suspension and electrical cables from the 100 and 200 Area wastewater lagoons. These items are expected to be recycled.

### 3.7 SWMU 10 (200 Area Hazardous Waste Transmission Line)

- The recently submitted *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 initiated investigation fieldwork at the soil pile in accordance with the NMED-approved work plan (May 28, 2015, revised). Several shallow soil borings were installed within the soil pile. Soil samples were collected and managed as required.

3.9 SWMU 19 (800 Area Below Grade Storage Tank)

- NASA finalized project planning and expects to initiate investigation fieldwork in early December 2015.

3.10 SWMUs 21-27 (Septic Tanks)

- In November 2015, septic tanks that are not currently in use were rinsed and pumped by an off-site contractor. NASA discharged 23,600 gallons of septage from this activity to the STGT wastewater lagoon in accordance with NMED approval (October 13, 2015) of NASA's October 1, 2015 request to discharge.
- NASA continues to plan for the removal of several more septic tanks and the investigation of the SWMU 22 tank location. NASA expects to initiate septic tank removals by the end of the 2015 calendar year and perform the SWMU 22 investigation following these removals.

3.11 SWMUs 29-31 (Small Arms Firing Ranges)

- NASA completed the initial data review and continued 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 throughout November 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 monitoring wells. To date, there have been no 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 and two off-site contractors removed the Westbay sampling systems from monitoring wells WW-4 and WW-5 in accordance with the NMED-approved *Westbay Well Conversion Work Plan* (November 1, 2012). NASA completed redevelopment of the four screened intervals

in each of the monitoring well conventional casings. Water FLUTE multilevel groundwater sampling systems were installed in both wells in November 2015 and are scheduled for sampling in December 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 December 2015.
- 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).

#### 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 Documents submitted in November 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 White Sands Test Facility (WSTF) 2015 Waste Minimization Plan* on November 19, 2015.
- NASA submitted the *NASA WSTF SWMUs 1, 3, and 15 (100 Area Burn Pit, 100 Area Container Storage Area, and 600 Area Burn Pit) Investigation Report* on November 23, 2015.

##### 5.2 Status of documents submitted in previous months

- NASA submitted the *200 Area Phase II Investigation Report* on June 29, 2015. NASA received NMED's August 21, 2015 Fee Assessment for review of the IWP and submitted the \$18,500 review fee on October 16, 2015. NMED approved the investigation report with modifications on November 30, 2015.
- 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 *Remediation System Monitoring Plan Annual Update for 2015* on July 29, 2015. NMED approved the Plan on September 16, 2015. NASA received NMED's September 11, 2015 Fee Assessment for review of the Plan and submitted the \$2,500 review fee on October 29, 2015.

## NASA White Sands Test Facility

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- 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.

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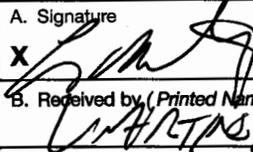
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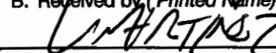
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