

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



April 11, 2013

Reply to Attn of: RE-13-040

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

Subject: WSTF Monthly Environmental Activity Report for March 2013

Enclosed is the WSTF Monthly Environmental Activity Report for March 2013. 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 me at 575-524-5733.

  
Radel Bunker-Farrar  
Chief, Environmental Office

3 Enclosures

cc:

Mr. Dan Comeau  
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 March 2013:

- NASA completed shipments of hazardous and universal waste to Veolia on March 8 and March 28, 2013. NASA also shipped lithium and dry cell batteries to The Big Green Box Company on March 21, 2013. NASA completed a shipment of medical waste to Stericycle on March 22, 2013.
- NASA completed field work associated with the soil investigation and closure of the Evaporation Tank Unit (ETU) and the Hazardous Waste Drain Line (HWDL).
- NASA completed 24 of 38 groundwater sampling events and all required remediation system sampling scheduled for March 2013. NASA also performed sampling at nine groundwater monitoring wells that were rescheduled from February 2013.
- The Plume Front Treatment System operated on 29 of 31 days in March 2013 at an average flow rate of 895 gallons per minute. During March 2013, the PFTS extracted and treated approximately 102.2 acre-feet of groundwater.
- The Mid-plume Interception and Treatment System operated on 27 of 31 days in March 2013. The system extracted and treated approximately 1.52 acre-feet of contaminated groundwater, which was discharged to the infiltration basin. NASA and Envirogen Technologies completed the pilot scale test of a bioreactor designed to treat contaminated groundwater.
- NASA completed development of four of five additional groundwater monitoring wells (“data gap wells”) at WSTF. Development of the fifth well continued throughout March 2013. Initial groundwater sampling was performed at all five wells.
- NASA submitted a variety of documents in March 2013, including a request to postpone implementation of the Lagoon Investigation Work Plan, an abbreviated report addendum for SWMU 10, public notifications of a pending Class I permit modification, and a summary of wastes placed into permitted treatment units.
- During March 2013, NASA continued a project to upgrade the sanitary sewer at WSTF and connect to the City of Las Cruces sewer system.
- There were no reportable non-compliance issues in March 2013.



National Aeronautics and  
Space Administration

## Monthly Environmental Activity Report

March 2013

Submitted April 11, 2013

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

March 2013

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\_\_\_\_\_  
Radel Bunker-Farrah  
Chief, Environmental Office

4/11/13  
\_\_\_\_\_  
Date

### Executive Summary

The following summarizes important information associated with NASA White Sands Test Facility (WSTF) environmental program activities in March 2013:

- NASA completed shipments of hazardous and universal waste to Veolia on March 8 and March 28, 2013. NASA also shipped lithium and dry cell batteries to The Big Green Box Company on March 21, 2013. NASA completed a shipment of medical waste to Stericycle on March 22, 2013.
- NASA completed field work associated with the soil investigation and closure of the Evaporation Tank Unit (ETU) and the Hazardous Waste Drain Line (HWDL).
- NASA completed 24 of 38 groundwater sampling events and all required remediation system sampling scheduled for March 2013. NASA also performed sampling at nine groundwater monitoring wells that were rescheduled from February 2013.
- The Plume Front Treatment System operated on 29 of 31 days in March 2013 at an average flow rate of 895 gallons per minute. During March 2013, the PFTS extracted and treated approximately 102.2 acre-feet of groundwater.
- The Mid-plume Interception and Treatment System operated on 27 of 31 days in March 2013. The system extracted and treated approximately 1.52 acre-feet of contaminated groundwater, which was discharged to the infiltration basin. NASA and Envirogen Technologies completed the pilot scale test of a bioreactor designed to treat contaminated groundwater.
- NASA completed development of four of five additional groundwater monitoring wells (“data gap wells”) at WSTF. Development of the fifth well continued throughout March 2013. Initial groundwater sampling was performed at all five wells.
- NASA submitted a variety of documents in March 2013, including a request to postpone implementation of the Lagoon Investigation Work Plan, an abbreviated report addendum for SWMU 10, public notifications of a pending Class I permit modification, and a summary of wastes placed into permitted treatment units.
- During March 2013, NASA continued a project to upgrade the sanitary sewer at WSTF and connect to the City of Las Cruces sewer system.
- There were no reportable non-compliance issues in March 2013.

## 1.0 Waste Management

- 1.1 NASA completed a shipment of hazardous waste to Veolia in Henderson, Colorado on March 8, 2013. The shipment consisted of five containers with 1,747 lbs (794 kg) of hazardous waste.
- 1.2 NASA completed a shipment of lithium and non-DOT regulated dry cell batteries to the Big Green Box Company in Anaheim, California on March 21, 2013. The shipment consisted of two containers with 55 lbs (25 kg) of batteries.
- 1.3 NASA completed a shipment of 3.7 ft<sup>3</sup> (28 gallons) of regulated medical waste to Stericycle in Albuquerque, New Mexico on March 22, 2013.
- 1.4 NASA completed an additional shipment of hazardous and universal waste to Veolia in Henderson, Colorado on March 28, 2013. The shipment consisted of 11 containers with 561 lbs (255 kg) of hazardous waste and 34 containers with 3,868 lbs (1,758 kg) of universal waste.
- 1.5 During March 2013 NASA continued closure of the 200 Area Evaporation Tank Unit (ETU), a permitted hazardous waste management unit. NASA completed the field work portion of the subsurface investigation of the ETU and the 200/800 Area hazardous waste drain line (HWDL). NASA collected 87 soil samples at various locations and depths beneath the ETU tank and HWDL locations. NASA determined that soil samples collected within the vicinity of the 200 Area LabCon Highbay were associated with an existing SWMU. All waste generated during sampling activities at these locations is being managed as hazardous waste pending receipt of analytical results. Investigation derived waste from other sampling locations was managed as solid waste.

## 2.0 Environmental Monitoring

- 2.1 In March 2013 NASA performed sampling at 24 of 38 scheduled groundwater monitoring wells or groundwater remediation system extraction wells. NASA also completed sampling of the nine groundwater monitoring wells that were rescheduled from February 2013. 14 groundwater monitoring wells were rescheduled for April 2013 because of limitations on field personnel. Additional field technicians have been recruited and are being trained to support ongoing and future environmental projects at WSTF.
- 2.2 Sampling of groundwater remediation system influent and effluent was performed in accordance with approved plans.
- 2.3 NASA completed development of four of the five recently installed “data gap” monitoring wells. Groundwater monitoring wells BLM-40-517, BLM-40-595, BLM-41-420, and BLM-41-670 were developed and sampled in March 2013. The development of BLM-40-688 requires the removal of approximately 10,500 gallons of groundwater, a quantity that was not able to be removed from the well in March 2013 because of the low groundwater production rate of this well. However, groundwater indicator parameters in this monitoring well stabilized as required by the NMED-approved work plan, so initial groundwater sampling was performed in March 2013.

## 3.0 Corrective Actions

- 3.1 Plume Front Treatment System
  - PFTS Operation – The PFTS operated on 29 of 31 days in March 2013 at an average flow rate of 895 gallons per minute. The system extracted and treated approximately 102.2 acre-feet of groundwater, most of which was injected to the aquifer following treatment. Approximately 6,800 gallons of groundwater was discharged to the on-site Modu-tanks during PFTS startup operations. Approximately 0.67 acre-feet was discharged to grade at the PFI wells during backwashing and startup activities.
  - PFTS Shutdowns, Repairs, and Modifications – There were five shutdowns of the PFTS during March 2013. On March 4, 2013 the system shutdown automatically when the filter canister was

drained into the sump, causing a high sump level alarm that shut down the system. The sump was drained and the system was restarted later that day. On March 8, 2013 the system was shut down in order to perform software modifications. The system was restarted within two hours. On March 13, 2013 the system was shut down to allow for the replacement of several electrical service poles. The system was restarted following pole installation on March 14, 2013. On March 16, 2013 the system shutdown automatically because of a communications error. The source of the communications failure was investigated, but could not be determined. The system was restarted on March 18, 2013. On March 23, 2013 the system shut down automatically when a fluctuation in the electrical power supply caused the flow through an air stripper to drop suddenly. The system was restarted on March 25, 2013.

### 3.2 Mid-plume Interception and Treatment System

- MPITS Operation – The MPITS operated on 27 of 31 days in March 2013. The system extracted and treated approximately 1.52 acre-feet of contaminated groundwater, which was discharged to the infiltration basin following treatment.
- MPITS Shutdowns, Repairs, and Modifications – There were two unplanned shutdowns and one planned shutdown of the MPITS in March 2013. On March 9, 2013 the system shut down automatically because of a leak detection alarm resulting from high humidity in the leak detection annulus. The excess humidity in the pipeline annulus was removed and the system was restarted on March 11, 2013. On March 23, 2013 the system shut down automatically when both filter sets were depleted because of higher than normal influent turbidity. The filters were replaced and the system was restarted. On March 29, 2013 the system was shut down to clean the UV reactor after buildup on the tubes protecting the UV lamps reduced UV intensity. The system was left offline for the remainder of the month while NASA coordinated removal of the bioreactor and planned the replacement of the UV lamps.
- Bioreactor Pilot Test – NASA continues to work with Envirogen Technologies to operate a pilot scale bioreactor in the MPITS building to study the feasibility for bioremediation of NDMA-contaminated groundwater at WSTF. The pilot scale test was completed in March 2013 and Envirogen and NASA began dismantling the bioreactor for shipment off-site.

### 3.3 200 Area Investigation

- NASA performed the fourth and final soil vapor sampling event in the 200 and 600 Areas required by NMED's June 9, 2011 *Approval with Modifications 600 Area Closure Investigation Report and 200/600 Area Soil Vapor and Groundwater Evaluation Report*.
- NASA continued preparations for the 200 Area Phase II Investigation while awaiting NMED review of the Phase I Report and Phase II Investigation Work Plan.

### 3.4 300 Area Investigation

- NASA performed the third and final follow-up soil vapor sampling event required by NMED's October 13, 2011 *Approval with Modifications of the 300 Area Closure Investigation Report*.

### 3.5 600 Area Investigation

- NASA continued to await approval from the NM Office of the State Engineer to utilize groundwater monitoring well 600-G-138 as a pollution recovery well.

### 3.6 Wastewater Lagoon Investigation and Closure

- NASA and NMED negotiated an extension for the planned investigation start date because of delays in the completion of the WSTF sanitary sewer system. NMED subsequently approved NASA's request for an extension of time, indicating that NASA is to start the investigation by

August 31, 2013 or notify NMED by August 1, 2013 if additional time is required to complete installation of the WSTF sewer system.

### 3.7 Septic Tank Investigation and Closure

- NASA continued development of an Investigation Work Plan and Historical Information Summary for several septic tanks at WSTF. These documents are due to NMED by June 30, 2013 in accordance with Attachment 16 of the Hazardous Waste Permit.

### 3.8 Groundwater Tracer Testing

- NASA continues to plan a groundwater tracer test, which will be conducted in the WSTF 200/600 Areas and in the Mid-plume Constriction Area (MPCA). NASA's May 10, 2012 *Work Plan for Tracer Testing in the 200/600 Areas and Mid-plume Constriction Area*, approved by the NMED Hazardous Waste Bureau on July 20, 2012, provides specific information regarding the planned test. Though originally scheduled for as early as August 2012, the tracer test has been postponed until 2013 in order to allow sufficient time for the completion of work at the Mid-plume Interception and Treatment System. When steady-state operating conditions have been achieved in the MPCA, the groundwater tracer test can be performed as indicated in the May 10, 2012 work plan.

## 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 Miscellaneous

### 5.1 Sanitary Sewer Upgrade

During March 2013 NASA continued the project to upgrade the sanitary sewer system at WSTF and connect to the City of Las Cruces sewer system. The sewer upgrade includes a combination of both gravity and force main in addition to four lift stations and is scheduled for completion in May 2013. The delays with completing the sewer construction have not affected work on the ETU Closure project, though closure and investigation of the site wastewater lagoons will be impacted. NASA will continue to keep NMED informed about the status of the sewer project, and its potential impacts on other WSTF projects. Construction progress to date includes the following:

- Construction of Line A along Holman Road is substantially complete.
- Construction continues on the Holman Road lift station. NASA has completed reviewing and approved technical submittals from the contractor for the lift station pumps. The contractor has ordered the pumps.
- Approximately 10,300 feet of Line B (from Holman Road to the WSTF 100 Area) has been completed, leaving approximately 12,000 feet to complete. NASA has provided design drawings to the construction contractor, indicating a change in routing along NASA's Well Road. The sewer line is being moved from the center of the road, to the westbound lane of the road. This design change also includes raising the elevation of the road surface as well as various drainage improvements.

- Line C (the force main from the Second TDRSS Ground Terminal to the WSTF 400 Area) is substantially complete. The concrete base for lift station #1 has been installed, but installation of the pump station, backfilling, and installation of power to the lift station are pending.
- Line D (the force main from the 400 Area to the 200 Area) is substantially complete.
- Approximately 3,000 feet of Line E (from the 800 Area to the 300 Area) has been installed. The sewer line is substantially complete, but completion of several manholes is pending.
- During excavation for Line E in the 300 Area, a contractor employee noticed what he thought was a diesel odor coming from the soil. Excavation was halted and NASA Safety and Environmental personnel were notified. Based on the soil sampling and analysis performed to date, which include standard analytical methods, NASA believes that the excavated soil is not a listed hazardous waste per, does not exhibit the characteristic of a hazardous waste, and does not contain weathered petroleum-based compounds. Based on these results, NASA is letting this soil aerate in order to address the odor, then will thin-spread the soil in the area it was excavated from.
- Line E (from the 100 Area to the 200 Area) is substantially complete, but completion of several manholes is pending.
- Line F (400 Area) is substantially complete.
- Lines G and H (from several buildings in the 100 Area to Line B) are substantially complete, but completion of several manholes is pending.
- Line I (from Lift Station #3 to Line E) is substantially complete. Lift Station #3 has been installed, but backfilling and installation of power to the lift station are pending.
- Line J (from the Hypervelocity facility to Lift Station #3) is substantially complete.
- Line K (from Lift Station #3 to the 800 Area) is substantially complete.
- Line L (from various 400 Area buildings toward Lift Station #2) is substantially complete, with the exception of the line under Road L. Lift Station #2 has been installed, but backfilling and installation of power to the lift station are pending.

## **6.0 Documents Submitted**

### 6.1 Documents submitted in March 2013

- NASA submitted the *Request for Extension of Time for Implementation of Lagoon Investigation Work Plan* to the NMED HWB on March 8, 2013. NMED approved the extension request on March 22, 2013.
- NASA submitted the *Abbreviated Investigation Report Addendum for Solid Waste Management Unit 10 Soil Removal* to the NMED HWB on March 12, 2013. NMED approved the report on March 20, 2013.
- NASA distributed the *Public Notice of a Class 1 Permit Modification* (for revisions to the Contingency Plan) to individuals on the NMED HWB mailing list on March 25, 2013.
- NASA submitted the *2012 Annual Waste Summary Report for Waste Placed into the Permitted Treatment Units at the NASA White Sands Test Facility (WSTF)* to the NMED HWB on March 28, 2013.

6.2 Status of documents submitted in previous months

- NASA submitted the *Notification of Structural Assessment of Evaporation Treatment Unit* to the NMED HWB on January 7, 2013. NMED review is pending.
- NASA submitted the *NASA WSTF 200 Area Investigation - Phase I Status Report* and the *NASA WSTF 200 Area Investigation - Phase II Investigation Work Plan* to the NMED HWB on January 30, 2013. NASA received NMED's February 6, 2013 fee assessment for review of the documents. NASA submitted the review fee payments to NMED on February 22, 2013. NMED review is pending.
- NASA submitted the *NASA WSTF 600 Area Monitoring Network – NMED Modifications* to the NMED HWB on January 30, 2013. NMED review is pending.
- NASA submitted the *Request for Extension of Time for Implementation of Perched Groundwater Extraction Pilot Test at NASA WSTF 600 Area* to the NMED HWB on February 22, 2013. NMED approved the extension request on March 1, 2013.
- NASA submitted the *Request for Extension of Time for Conversion of Westbay Wells* to the NMED HWB on February 22, 2013. NMED approved the extension request on March 1, 2013.

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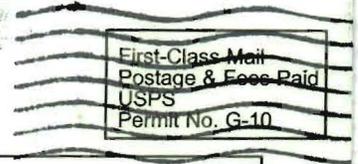
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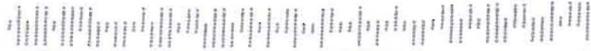


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