

National Aeronautics and
Space Administration

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



September 14, 2015

Reply to Attn of: RE-15-097

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 August 2015

Enclosed is the WSTF Monthly Environmental Activity Report for August 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 knowing 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:

Ms. Vicky Baca
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

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

- NASA completed three shipments of hazardous waste and one shipment of universal waste in August 2015.
- NASA performed sampling at 26 of 27 groundwater monitoring wells and completed all required groundwater remediation system sampling scheduled for August 2015.
- The Mid-plume Interception and Treatment System operated on 10 of 31 days in August 2015 and treated approximately 1.17 acre-feet of groundwater and investigation-derived waste.
- The Plume Front Treatment System operated on 26 of 31 days in August 2015 and treated approximately 74.05 acre-feet of contaminated groundwater.
- NASA initiated accelerated corrective measures at one of the three closed small arms firing ranges.
- Wastewater from the WSTF 200 Area and STGT was diverted to the City of Las Cruces sewer system. NASA initiated fieldwork associated with the investigation and closure of the WSTF wastewater lagoons.
- NASA continued reviewing and processing analytical data from investigation samples collected during fieldwork performed at SWMUs 1, 3, and 15.
- 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 continued planning for the investigation and removal of additional WSTF septic tanks.
- NASA extracted 210 gallons of perched contaminated groundwater from monitoring well 600-G-138 in August 2015.
- Several documents were submitted to NMED in August 2015, including requests for no longer “contained-in” determinations and a response to the soil background study NOD.
- During August 2015, 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 August 2015.



National Aeronautics and
Space Administration

Monthly Environmental Activity Report

August 2015

Submitted September 14, 2015

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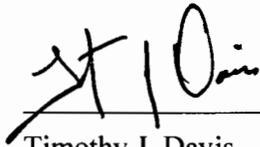
NASA Johnson Space Center White Sands Test Facility

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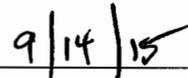
NASA Johnson Space Center White Sands Test Facility Monthly Environmental Activity Report

August 2015

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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 August 2015:

- NASA completed three shipments of hazardous waste and one shipment of universal waste in August 2015.
- NASA performed sampling at 26 of 27 groundwater monitoring wells and completed all required groundwater remediation system sampling scheduled for August 2015.
- The Mid-plume Interception and Treatment System operated on 10 of 31 days in August 2015 and treated approximately 1.17 acre-feet of groundwater and investigation-derived waste.
- The Plume Front Treatment System operated on 26 of 31 days in August 2015 and treated approximately 74.05 acre-feet of contaminated groundwater.
- NASA initiated accelerated corrective measures at one of the three closed small arms firing ranges.
- Wastewater from the WSTF 200 Area and STGT was diverted to the City of Las Cruces sewer system. NASA initiated fieldwork associated with the investigation and closure of the WSTF wastewater lagoons.
- NASA continued reviewing and processing analytical data from investigation samples collected during fieldwork performed at SWMUs 1, 3, and 15.
- 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 continued planning for the investigation and removal of additional WSTF septic tanks.
- NASA extracted 210 gallons of perched contaminated groundwater from monitoring well 600-G-138 in August 2015.
- Several documents were submitted to NMED in August 2015, including requests for no longer “contained-in” determinations and a response to the soil background study NOD.
- During August 2015, 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 August 2015.

1.0 Waste Management Activities

- 1.1 NASA completed a shipment of hazardous waste to Veolia in Henderson, Colorado on August 20, 2015. The shipment consisted of 10 containers with 402 kilograms of hazardous waste for disposal.
- 1.2 NASA completed a shipment of hazardous waste to Veolia in Sauget, Illinois on August 20, 2015. The shipment consisted of one container with 4 kilograms of hazardous waste for disposal.
- 1.3 NASA completed a shipment of universal waste to Veolia in Phoenix, Arizona on August 20, 2015. The shipment consisted of 10 containers with 656 kilograms of universal waste for disposal.
- 1.4 NASA completed a shipment of P078 ADGAS treatment residual (water) waste to Veolia in Henderson, Colorado on August 20, 2015. The shipment consisted of two 330-gallon intermediate bulk containers with 2,260 kilograms of hazardous waste for disposal.

2.0 Environmental Monitoring

- 2.1 NASA performed sampling at 26 of 27 groundwater monitoring wells or zones scheduled for sampling in August 2015. One monitoring well scheduled for August 2015 could not be sampled because the water level was insufficient for operation of the dedicated bladder pump. Seven groundwater monitoring wells previously rescheduled to August 2015 from preceding months were not sampled because of access issues (road damage), equipment failures or deficiencies, or interference from the ongoing groundwater dye tracer test. These issues are being addressed as necessary and will be reported on in future monthly reports.
- 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 10 of 31 days in August 2015 and treated approximately 1.17 acre-feet of groundwater and 2,116 gallons of IDW. All treated water was discharged to the infiltration basin.
- MPITS Shutdowns, Repairs, and Modifications – The MPITS operated sporadically in August 2015 with all five extraction wells. There were three unplanned shutdowns in August 2015. On August 1, 2015 the system shut down automatically when wildlife interaction with overhead power lines caused a disruption in the electrical power supply. The necessary repairs were performed and the system was restarted on August 3, 2015. On August 11, 2015, the system shut down automatically when the addition of IDW caused foaming in the surge tank that contacted the water level indicator. The system was cleaned and then restarted on August 13, 2015. On August 15, 2015, the system shut down automatically following a lightning strike that affected the leak detection system. Although the system was operated for several hours on August 26, 2015 and August 27, 2015 to facilitate the collection of compliance samples, it remains offline pending receipt of the parts necessary to repair the leak detection system.

3.2 Plume Front Treatment System

- PFTS Operation – The PFTS operated on 26 of 31 days in August 2015 at an average flow rate of 538 gallons per minute. The system extracted and treated approximately 74.05 acre-feet of groundwater, most of which was injected into the aquifer following treatment. Approximately 0.12 acre-feet of groundwater were discharged to the on-site Modu-tank system during system startup events. Approximately 1.34 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 were five unplanned shutdowns and one planned shutdown of the PFTS in August 2015. On August 1, 2015 the system shut down automatically as the result of a lightning strike that interrupted electrical power service to the system. The system was restarted on August 3, 2015 after multiple electronic components were replaced or repaired. On August 8, 2015 the system shut down automatically because of low air flow through an air stripper. Troubleshooting and repairs were performed and the system was restarted on August 12, 2015 after an attempted restart and subsequent shutdown on August 10, 2015. On August 16, 2015 the system shut down automatically as the result of a lightning strike that interrupted electrical power service to the system. The system was restarted on August 18, 2015, but shut down automatically again shortly after the startup because of leak detection issues. The issues were resolved and the system was restarted on August 19, 2015. On August 20, 2015 the system was shut down in order to replace UV lamps in the reactor. The system was restarted on August 21, 2015.

3.3 200 Area Investigation

- NMED continued review of the *200 Area Phase II Investigation Report* (June 29, 2015), which presents the results of an evaluation of subsurface soil, bedrock, groundwater, and soil vapor within the 200 Area vadose zone.

3.4 600 Area Perched Groundwater Extraction Pilot Test

- NASA continued extracting perched groundwater from monitoring well 600-G-138 in August 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 210 gallons of perched groundwater were removed from 600-G-138 in August 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 is evaluating this requirement.

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

- NASA continued processing and evaluating chemical analytical data from soil samples collected during investigation fieldwork at SWMUs 1, 3, and 15 and nearby areas of interest.
- NASA continued to manage investigation-derived waste in accordance with site procedures and applicable regulations. NASA submitted requests for no longer "contained-in" determination for the IDW on August 6, 2015 and August 20, 2015. NMED approved the requests on August 26, 2015 and NASA began planning for land application of the IDW soil and disposal of other IDW as necessary.

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

- NASA initiated investigation fieldwork at the WSTF wastewater lagoons in accordance with the NMED-approved *Wastewater Lagoon Areas Closure Investigation Work Plan*. Groundwater and 100 Area lagoon wastewater sampling was initiated in late August 2015.
- Discharge of wastewater to the City of Las Cruces sewer system continued in August 2015, with wastewater flows from the WSTF 200 Area and Second TDRSS Ground Terminal diverted to the sewer system on August 4, 2015 and August 14, 2015, respectively.
- NASA completed preparations necessary to perform pre-investigation wastewater, sludge, groundwater, and soil vapor sampling at all lagoons, which will be continued or initiated in September 2015.

- 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 received NMED approval (August 11, 2015) of the revised and resubmitted *600 Area BLM Off-Site Soil Pile (SWMU 16) Investigation Work Plan* (May 28, 2015) and initiated project planning activities.
- 3.9 SWMU 19 (800 Area Below Grade Storage Tank)
- NASA received NMED approval (August 11, 2015) of the *800 Area BGST (SWMU 19) Abbreviated Investigation Work Plan and Historical Information Summary* (June 25, 2015) and initiated project planning activities.
- 3.10 SWMUs 21-27 (Septic Tanks)
- NASA continues to plan for the removal of several more septic tanks and the investigation of the SWMU 22 tank location. NASA expects to complete septic tank removals and initiate SWMU 22 investigation activities by the end of the 2015 calendar year.
- 3.11 SWMUs 29-31 (Small Arms Firing Ranges)
- NASA initiated field screening at the WB-2 small arms firing range (SWMU 29) in accordance with the *Small Arms Firing Ranges (SWMUs 29 – 31) Accelerated Corrective Measures Work Plan* (February 26, 2015). Soil samples were collected from sampling grid locations within the range floor for analyses specified in the work plan. Field screen activities were performed in the range fallout areas using a metal detector to delineate the horizontal extent of the study area and to locate any ammunition scraps or fragments.
- 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*. 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 August 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 two monitoring wells in the Mid-plume area. To date, there have been no detections of tracer dyes released in the 200 Area.
- 3.13 JER Anomalous NDMA Detections
- NASA began preparation of the investigation report summarizing activities and results of groundwater sampling performed at Westbay monitoring wells JER-1 and JER-2 in accordance with the NMED-approved *NASA WSTF Investigation Work Plan for Evaluating Anomalous Detections of NDMA in Monitoring Wells JER-1 and JER-2* (November 7, 2013).
- 3.14 Westbay Monitoring Well Conversion
- NASA and representatives from Flexible Liner Underground Technologies, Inc. (FLUTE) installed the Water FLUTE groundwater sampling system in the borehole at monitoring well

BLM-32 on August 14, 2015. The sampling system was tested and validated, and was purged several times in August 2015 to monitor groundwater indicator parameters. Groundwater sampling of the well is planned for September 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 ordered. However, lead time for the new supplier is expected to be approximately six weeks, causing another delay in the installation of the system at BLM-28, which is now tentatively scheduled for late September or early October 2015.
- NASA continued project planning and preparation for the removal of Westbay sampling systems from monitoring wells WW-4 and WW-5, which is scheduled for late September 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 Miscellaneous

5.1 Sanitary Sewer Upgrade

On July 9, 2015, NASA initiated the flow of wastewater from the WSTF 100 Area to the WSTF sanitary sewer and the City of Las Cruces sewer system. On August 4, 2015 and August 14, 2015, wastewater flows were diverted from the WSTF 200 Area and Second TDRSS Ground Terminal. Flow continued throughout August uninterrupted.

6.0 Documents Submitted

6.1 Documents submitted in August 2015

- NASA submitted the *Request for “Contained-in” Determination for SWMUs 1, 3, and 15 Investigation Investigation-Derived Waste (IDW) Part I* on August 7, 2015. NMED approved the request on August 26, 2015.
- NASA submitted the *Request for “Contained-in” Determination for SWMUs 1, 3, and 15 Investigation Investigation-Derived Waste (IDW) Part II* on August 20, 2015. NMED approved the request on August 26, 2015.
- NASA submitted the *Response to Notice of Disapproval for the Soil Background Study Investigation Report* on August 26, 2015.

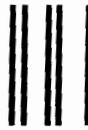
6.2 Status of documents submitted in previous months

- NASA submitted the *NASA WSTF 600 Area BLM Off-Site Soil Pile (SWMU 16) Investigation Work Plan and Historical Information Summary* on December 29, 2014. NASA received NMED’s March 2, 2015 fee assessment for review of the documents and submitted the \$10,000 review fee on March 17, 2015. NMED disapproved the Investigation Work Plan on March 10, 2015 and directed NASA to submit a revised IWP by May 31, 2015. NASA submitted a revised

IWP along with the response to the disapproval to NMED on May 28, 2015. NMED approved the IWP on August 11, 2015.

- NASA submitted the *800 Area HWTL (SWMU 19) Abbreviated Investigation Work Plan and Historical Information Summary* on June 25, 2015. This submittal provided the IWP and HIS for SWMU 19, the 800 Area Below Grade Storage Tank (BGST) rather than the HWTL as indicated in the letter subject line. NASA received NMED's August 4, 2015 Fee Assessment for review of the IWP and submitted the \$10,000 review fee on September 2, 2015. NMED approved the IWP with modifications on August 11, 2015.
- 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 is processing the required payment.
- 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 is processing the required payment.
- NASA submitted the *Remediation System Monitoring Plan Annual Update for 2015* on July 29, 2015.

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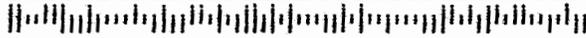
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 New Mexico Environmental Department
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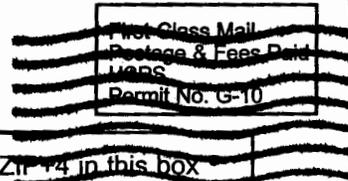
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Ground Water Quality Bureau
New Mexico Environmental Department
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Albuquerque, NM 87109

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