National Aeronautics and
Space Administration

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

November 19, 2015

Reply to Attn of: RE-15-124

Mr. John E. Kieling, 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) 2015 Waste Minimization Plan

Enclosed is the 2015 Waste Minimization Plan as required by the WSTF Hazardous Waste Permit No. NM8800019434. Enclosure 1 provides a paper copy of the document. Enclosure 2 provides an electronic copy of the document on CD-ROM. This report has been prepared for fiscal year 2015. NASA tracks recycling and related waste activities on a federal fiscal year basis (October 1 to September 30). This approach maintains consistency with previous submittals and ensures a complete and accurate report.

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, to the best of my knowledge and belief, is true, accurate, and complete. I am aware 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.

Timothy J. Davis
Chief, Environmental Office

2 Enclosures

cc: (with enclosures)
Ms. Kristen Van Horn
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

National Aeronautics and
Space Administration

Hazardous and Solid Waste Amendments (HSWA)
Waste Minimization Plan

October 1, 2014 to September 30, 2015

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

Hazardous and Solid Waste Amendments (HSWA) Waste Minimization Plan

October 1, 2014 to September 30, 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, NASA Environmental Office

Date 11/19/15

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List of Acronyms and Abbreviations

ADF-SW	Aerospace Data Facility - Southwest
EIMS	Environmental Information Management System
EMP	Environmental Management Program
EMS	ISO 14001 Environmental Management System
EO	Executive Order
EPA	United States Environmental Protection Agency
FY	Fiscal year
HSWA	Hazardous and Solid Waste Amendments
ISO	International Organization for Standardization
MDAL	Molecular Desorption Analysis Lab
NASA	National Aeronautics and Space Administration
NDMA	N-nitrosodimethylamine
NETS	NASA Environmental Tracking System
NMED	New Mexico Environment Department
NMRC	New Mexico Recycling Coalition
P2	Pollution prevention
PCE	Tetrachloroethene
RSA	Recycling and sustainable acquisition
SSPP	Strategic Sustainability Performance Plan
TCE	Trichloroethene
WSC	Goddard White Sands Complex
WSIT	WSTF Sustainability Initiative Team
WSTF	NASA Johnson Space Center White Sands Test Facility

1.0 Introduction

The New Mexico Environment Department (NMED) Hazardous Waste Permit (Permit), issued to the National Aeronautics and Space Administration (NASA) Johnson Space Center White Sands Test Facility (WSTF) became effective December 9, 2009. The Permit requires that WSTF institute a waste minimization program to reduce the volume and toxicity of hazardous wastes generated by the facility's operation, to the degree determined by NASA to be economically practicable.

2.0 Objectives and Scope

The Permit requires that WSTF submit a copy of the annual certified statement regarding the waste minimization program to NMED by December 1st for the previous 12-month period ending September 30. The reporting period included in this document is October 1, 2014 through September 30, 2015, or the 2015 NASA fiscal year (FY).

The WSTF source reduction, recycling, and planning activities for this reporting period are addressed below. The Permit requirements are listed below with a response following each requirement.

3.0 Waste Minimization Program Plan Components (Permit-specified)

3.1 Policies and Programs

The Permit specifies inclusion of the following in the Waste Minimization Program Plan: *Any written policy or statement that outlines goals, objectives, and methods for source reduction and recycling of hazardous waste at the Facility.* This section includes descriptions of existing policies and ongoing programs that support waste minimization at WSTF.

3.1.1 Environmental Management System

NASA incorporated the International Organization for Standardization (ISO) 14001:2004 Environmental Management System (EMS) into the WSTF Management Policy. This action emphasizes the NASA commitment to reducing the consumption of natural resources while exhibiting environmental stewardship related to all site activities and procedures.

WSTF uses EMS procedures to evaluate the environmental aspects of site activities, products, and services to determine their environmental impacts. Stakeholders rank the environmental impacts of each aspect and those with significant impacts are established as "significant aspects." An Environmental Management Program (EMP) is established for each significant aspect. Each EMP outlines objectives and targets developed to lessen the environmental impact and reduce the consumption of natural resources at WSTF. Actions taken to meet EMP objectives and targets are specified by tasks that may be directed toward regulatory compliance, pollution prevention, reduction in waste generation, increase in waste diversion, and resource conservation (materials, energy, water, and fuel).

The FY 2015 significant aspects and associated EMPs were:

- Water Quality – Water Storage Tanks
- Water Quality – Cross Connection Control
- Air Emissions – Refrigerant Management
- Water Conservation

- Risk Management Plan and Process Safety Management Integration

Objectives and accomplishments for each EMP are discussed below.

Water Quality – Water Storage Tanks

The objective of this EMP is to ensure that WSTF does not lose its water storage capacity. The site Water Manager reported the following accomplishments during FY 2015:

- Completed repair, disinfected, and returned Tank 2 (725K gallon) to service in October 2015.
- Identified scope of repair to Tank 3 (1M gallon) to prevent loss of water storage capacity. Statement of work, estimate and procurement package are in preparation.
- Identified that temporary Tank 3A (75K gallon) would be suitable as a temporary supply for the potable water system and propulsion testing.
- The Tank 3 and 3A repairs and upgrades are scheduled to be completed in FY 2016. To minimize impacts to customers, the repairs will be completed around Propulsion testing schedules, and both tanks would not be down for repairs at the same time.

Water Quality – Cross Connection Control

This objective is to maintain the quality of WSTF drinking water by preventing drinking water contamination from non-potable water sources. To accomplish this, the following steps were completed:

- Mapped approximately 70% of the water system.
- Performed a field review of the WSTF potable water system to determine the magnitude of needed modifications.
- A cross-connection control process and procedure will be developed with application to the potable water system.
- Working to identify locations where the potable water system can be separated from industrial uses that only require non-potable water piping systems and determine the feasibility of installing dedicated lines versus back-flow preventers.
- Ensure that Aerospace Data Facility - Southwest (ADF-SW) and White Sands Complex (WSC) comply with the WSTF potable water system requirements.

Air Emissions – Refrigerant Management

The EMP was developed to strengthen the refrigeration management program and develop one procedure for management on site. To accomplish this, the following steps were completed:

- Determined the refrigeration management regulatory requirements can be integrated into the Environmental Information Management System (EIMS).
- Determined that there is no requirement to obtain a Certified Refrigerant Compliance Manager designation.
- WSTF refrigerant inventory is 80% complete.
- Determination of yearly consumption rate for each type of refrigerant is 50% complete.
- Obsolete refrigerants have been properly dispositioned.

- Established an archival location for equipment service records and periodic maintenance documents.
- Developed project cost and schedule for equipment nearing retirement.
- Tracking HVAC personnel training/EPA certifications and EPA equipment certifications.
- Creating standard refrigerant management forms.
- Verified that the WSTF equipment used to recover and recycle refrigerant has been EPA certified.
- Created a map that identifies the locations of all refrigerant equipment containing more than 50 pounds of refrigerant.
- Developing a training class for using refrigerant software.
- Developing a leak detection program that matches each type of HVAC equipment with a specific type of leak detection and an equipment leak check schedule based on the type of equipment and its past leak history.
- Appendices in a new WSTF Site Instruction (WSI) document that address leak detection methods and equipment, refrigeration leak mitigation, and identification of equipment to reduce refrigerant release during maintenance and operation of refrigeration systems are being developed.

Water Conservation

- WSTF has set a goal to reduce water use by 2% per year to meet federal standards. In FY 2015, research was conducted to determine the appropriate water meters that will be installed in high consumption buildings and areas. In conjunction with these meters, backflow preventers will also be installed.
- Quarterly meetings will be established for personnel on site to educate other site personnel through WSTF Today notices, safety meetings, and other site communications.

Risk Management Plan and Process Safety Management Integration

The objective of this EMP is to ensure WSTF compliance with the EPA Risk Management Program Rules promulgated in Chemical Accident Prevention Provisions (40 CFR 68, 2013),.

3.1.2 WSTF Sustainability Program

The WSTF Sustainability Initiative Team (WSIT) was established in 2005 to evaluate and advise management regarding opportunities for improvement in the areas of environmental stewardship and sustainability. The WSIT represents the WSTF community's environmental conscience, gathers and disseminates information on the various aspects of sustainability, advocates for employees' ideas, documents site sustainable actions, and provides a mechanism for implementing change. From FY 2006 through FY 2013, Environmental Sustainability was listed as a WSTF significant aspect and the WSIT managed the EMP. Due to the growth and success of the site sustainability program, sustainability was removed from the list of EMS significant aspects in FY 2014. Management continues to support the WSIT via task order funding.

Many WSTF programs fall under the umbrella of sustainability. Ongoing programs including Pollution Prevention (P2), Waste Management, and Recycling are administered by the WSTF Environmental Department in accordance with federal laws, executive orders, and NASA procedural requirements. Measures to reduce hazardous waste, minimize the use of toxic substances, reduce resource use, and

improve environmental performance at WSTF have been successful, and WSTF continues to evolve toward environmental sustainability.

Per the 2009 Executive Order (EO) 13514 "Federal Leadership in Environmental, Energy, and Economic Performance," each federal agency was required to prepare and implement a Strategic Sustainability Performance Plan (SSPP). NASA adopted the sustainability goals set forth for federal agencies in the EO and submitted the initial plan to the Office of Management and Budget in the summer of 2010. Progress is reported in annual updates. NASA submitted the 2015 SSPP in July 2015. SSPP goals include greenhouse gas reduction, sustainable buildings, clean and renewable energy, water use efficiency and management, fleet management, sustainable acquisition, pollution prevention, (including recycling), electronics stewardship, and climate change resilience. WSIT provides support to WSTF stakeholders that are working to meet the Agency SSPP goals.

The Permit requires frequent review and characterization of waste streams. These activities have promoted a closer look at waste generation and minimization at WSTF; modification of the hazardous waste generation process, improvement of waste determinations, and generator attention to waste stream constituents and concentrations that continue to reduce waste.

The WSTF Environmental Department maintains records of sustainable actions in the areas of hazardous and solid waste minimization, recycling, sustainable acquisition, resource conservation, and environmental stewardship. Data from each FY are entered into the NASA Environmental Tracking System (NETS). NETS information is gathered for required NASA-wide reporting in the annual SSPP. NETS reporting information continues to be used on site for tracking waste and minimization projects.

3.2 Training and Incentive Programs

The Permit specifies that the following be included in the Waste Minimization Program Plan: *Any employee training or incentive programs designed to identify and implement source reduction and recycling opportunities.*

EMS awareness training is included in the environmental briefing section of the new hire orientation. The material emphasizes sustainability, pollution prevention, continuous improvement, and compliance with environmental laws. "Environmental Compliance Awareness" training serves as a refresher for waste minimization and other environmental programs.

WSIT continues a site-wide awareness campaign to strengthen the sustainability culture at the site. WSIT provides information through various forms of communication, such as WSTF-Today emails, the LED message board at the WSTF entrance, sustainability presentations, and posting articles in the two WSTF newsletters; the bi-weekly "Porcelain Press" and the monthly "What's Going On at WSTF." WSIT annually celebrates Earth Day (April 22nd), America Recycles Day (November 15th), and site-wide awareness events.

Sustainable acquisition training specific to the WSTF procurement systems has been developed and is mandatory for all employees that order goods and services for the site. Employees are also required to attend annual refresher trainings.

Topics such as environmental awareness, process reminders, site accomplishments, program visibility, and individual recognitions are shared using the site newsletter and posted bulletins.

3.3 Source Reduction and Recycling Measures

The Permit specifies inclusion of the following in the Waste Minimization Program Plan: *Any source reduction and/or recycling measures implemented in the last five years or planned for the near future.*

The procurement, logistics, and environmental departments partnered to develop an effective sustainable acquisition program. The replacement of conventional products (e.g., cleaning products, lubes, oils greases, etc.) with biobased alternatives reduces the toxicity of products used on site. Recycled content products conserves resources such as wood, petrochemicals, and metal. Every attempt is made to replace conventional aerosols with non-ozone depleting propellants and other ingredients that reduce WSTF's greenhouse gas footprint.

Federal requirements for environmentally responsible products (and services) are listed on the Green Products Compilation at http://www.sftool.gov/greenprocurement?CFID=93864&CFTOKEN=27375560. This site lists product categories (26 to date) and specifies biobased, energy saving, water conserving, recycled/recovered content, environmentally preferable, and non-ozone depleting requirements for hundreds of products. The website is continually updated. Services with green requirements have been added and guidance for contract language is now available. Wherever feasible, warehouse stock items and program-specific products and materials are being replaced with environmentally responsible alternatives.

Sustainable Acquisition facilitators work with end users to test and replace conventional products with "green" alternatives. Where the green products do not meet project specifications or fall within budget, waivers are generated to document the justification for continuing use of the conventional product. A Just in Time contract for office supplies was initiated during FY 2015. Prior to contract implementation, all vendors identified recycled or biobased products as required. Orders are now filled on an as needed basis, which saves resources and minimizes waste.

Single stream recycling is included in the refuse contract. Single stream materials include: office paper, shiny paper (catalogs and magazines), telephone books, newspaper, paper board, paper bags, books, junk mail, clean plastics #s 1-7, and tin and aluminum cans. One or more 8 cubic yard single stream recycling containers are now located outside buildings in each area. Site maintenance and operations employees empty recycling bins in the buildings weekly and transfer the materials to 8 cubic yard recycling containers in each area. These containers are emptied once a month by the solid waste contractor and hauled to the county's recycling facility.

The WSTF refuse contract also includes construction and demolition debris for recycling (e.g., wood, gypsum board, plastic sheeting and certain plastic materials, and asphalt shingles). WSTF maintenance and operations department transports green waste to the city's yard waste facility for composting. Concrete is hauled to the same facility where it is used for clean fill.

Every effort is made to divert materials from the landfill through reuse or recycling. In addition to traditional recyclables, the WSIT works to divert usable excessed material to other federal agencies, schools, and non-profit agencies. The average WSTF recycling/waste diversion rate since 2000 is 82%. WSTF tracks all recycling and solid waste diversion metrics for annual reporting purposes. Specific source reduction and recycling measures for the current reporting period and future plans are presented in Appendix A.

3.4 Operating Costs

The Permit specifies that the following information be included in the Waste Minimization Program Plan: *An itemized list of the dollar amounts of capital expenditures (plant and equipment) and operating costs devoted to source reduction and recycling of hazardous waste.*

Capital expenditures and operating costs associated with source reduction and recycling are not specifically tracked, however, activities initiated or continuing during the reporting period reflect significant investments and cost avoidances. Approximately $34,485 in service and labor was spent in FY 2015 recycling routine hazardous waste. As part of the WSTF property management process, over 16.6 tons (33,278 lb) of electronic equipment (E-waste) and 57 tons (114,260 lb) of scrap metal were recycled in FY 2015. NASA also continued to fund the WSIT program. For FY 2015, the WSIT allocated budget was approximately $64,800. The recycling of non-hazardous materials has evolved from a grassroots effort into a successful program, due to the voluntary participation of WSTF employees.

3.5 Limiting Factors

The Permit specifies inclusion of the following in the Waste Minimization Program Plan: *Factors that have prevented implementation of source reduction and/or recycling.*

NASA tests and evaluates spacecraft materials, components, and propulsion systems to enable the safe exploration and utilization of space. NASA test programs depend on federal funding, of which many projects are funded on a program-by-program basis. One-time, short-term, and inconsistent testing schedules generate dynamic and variable waste streams that are difficult to manage for source reduction and recycling. Customer/test requirements, military specifications, original equipment manufacturer specifications, and program timelines limit the use and feasibility of recycling test materials. Future NASA programs, National Defense System rocket engine testing, missile demilitarization, and decommissioning and decontamination of antiquated aerospace equipment will increase customer testing requirements and limit the feasibility of source reduction. However, the WSTF environmental department works closely with the testing and laboratory departments to identify any opportunities for source reduction and recycling.

3.6 Information Sources

The Permit specifies inclusion of the following in the Waste Minimization Program Plan: *Sources of information on source reduction and/or recycling received at the facility (e.g., local government, trade associations, suppliers, etc.).*

The NASA Principal Center for Regulatory Risk Analysis and Communication reviews the federal register and issues emails with specific information pertaining to changing regulations. The reviews often necessitate WSTF Environmental Department personnel develop white papers or perform regulatory reviews to evaluate impacts to WSTF operations.

WSIT personnel work with the South Central Solid Waste Authority (SCSWA), the local entity that handles waste and recycling for Las Cruces and Dona Ana County, to align the WSTF recycling program with that of the community. During this reporting period, WSIT members participated in a Glass Recycling Subcommittee sponsored by the SCSWA, which implemented a successful glass recycling program in the community. WSIT members also participated in the NASA Recycling and Sustainable Acquisition (RSA) video conferences, WebEx presentations, and workshops sponsored by the NASA RSA Principal Center. These venues facilitate the sharing of information about recycling, sustainability, and pollution prevention strategies between NASA centers.

One WSIT member completed training and has been certified as a Recycling Facility Operator by the New Mexico Recycling Coalition (NMRC) and the New Mexico Solid Waste Bureau. This individual is also a national Sustainable Resource Management Certified Professional through the NMRC in association with Penn State Altoona.

WSTF personnel use online resources, including Webinars, which continually offer information related to source reduction and recycling. Source agencies include the NMED, the NMRC, Keep America Beautiful (America Recycles Day Initiative), the United States Environmental Protection Agency (EPA), Office of the Federal Environmental Executive, the United States Department of Agriculture, the General Services Administration, other NASA centers, and other federal agencies.

3.7 Additional Waste Minimization Efforts

The Permit specifies inclusion of the following in the Waste Minimization Program Plan: *An investigation of additional waste minimization efforts which could be implemented at the facility. This investigation shall analyze the potential for reducing the quantity and toxicity of each waste stream through production reformulation, recycling, and all other appropriate means. The analysis shall include an assessment of the technical feasibility, cost, and potential waste reduction for each option.*

WSTF procedures require periodic review of all WSTF waste streams. This evaluation includes generation process changes, contaminant concentrations, quantity variations, waste determinations, and potential changes to minimize waste generation. Budget constraints paired with sustainable thinking have spurred creative and economic solutions for waste minimization.

The WSTF operational organizations continuously research equipment replacement, product replacement, and product conservation efforts. For example, Facilities Engineering has started replacing the current light fixtures on site with LED fixtures. This includes indoor, outdoor, and emergency lighting. Replacing the light fixtures will reduce the site's energy consumption and reduce waste since the LED bulbs have a longer life cycle compared to traditional lighting.

3.8 Hazardous Waste Matrix

The Permit specifies inclusion of the following in the Waste Minimization Program Plan: *The Permittee shall submit a flow chart or matrix detailing all hazardous wastes it produces by quantity, type, and building/area.*

The Hazardous Waste Matrix (Appendix B) identifies the WSTF hazardous waste streams by number, waste name, generation building, area, and the generator's annual estimated quantity.

3.9 Limitations to Waste Reduction

The Permit specifies inclusion of the following in the Waste Minimization Program Plan: *The Permittee shall demonstrate the need to use those processes which produce a particular hazardous waste due to a lack of alternative processes or available technology that would produce less hazardous waste.*

Testing at WSTF supports the federal aerospace industry. The wastes generated in association with this testing are derived from the following processes: engine firings; developmental research; equipment cleaning/repair; missile demilitarization; aerospace equipment decommissioning and decontamination; facility construction/maintenance; and computer and electrical support. These wastes are often dependent upon contractor test requirements, military specifications, program timelines, and additional conditions mandated by contracts.

Appendix A
Source Reduction and Recycling Tables

Table A-1 WSTF Hazardous Waste Source Reduction (Oct. 1, 2014 – Sept. 30, 2015)

YEAR	SOURCE REDUCTION EFFORT	NET REDUCTION
Since 2010	Contamination control continued empting cleaning tanks with corrosive solutions (Oakites) on a yearly schedule, rather than weekly (as previously done), with tank recharge as needed.	Approximately 360 gallons annually
Since 2010	Molecular Desorption Analysis Lab (MDAL) replaced organic solvents with HFE 7100 for the cleaning of collector plate used in Volatile Condensable Materials process.	3 to 5 gallons of hazardous waste organics (spent toluene, chloroform, and ethanol) annually. Also 80 to 90% of the HFE 7100 goes to Component Services for cleanup and reuse.
Since 2011	Working to meet federal requirements for sustainable acquisition. Requirements include replacing ozone depleting substances with approved substitutes listed in the significant new alternatives policy: http://www.epa.gov/ozone/snap/lists/index.html	NA
FY 2015	Electronics recycling (including toner cartridges) through UNICOR. Program initiated in 2009.	33,278 lb
FY 2015	Transferred 73 Utility Poles and 257 cement parking bumpers to the San Andres Wildlife Refuge for erosion control	249,417 lb
FY 2015	Recycled unused commercial chemical products to NMSU and Sapphire Energy, Inc. for intended product use at those facilities.	55 gallons

Table A-2 WSTF Hazardous Waste Recycling (Oct. 1, 2014 – Sept. 30, 2015)

FISCAL YEAR	HAZARDOUS WASTE RECYCLED	NET REDUCTION
2015	Nickel-cadmium batteries were collected and shipped off site for recycling as universal waste rather than hazardous waste.	27 kg
2015	Lithium batteries were collected and shipped off site for recycling as universal waste rather than hazardous waste.	20 kg
2015	Lead acid batteries were collected and shipped off site for recycle as universal waste rather than hazardous waste.	1,467 kg
2015	Spent dry cell batteries (alkaline) batteries are collected and shipped off site for recycling as solid waste rather than hazardous or universal waste	186 kg
2015	Silver oxide and zinc batteries were collected and shipped off site for recycle as universal waste rather than hazardous waste.	9 kg
2015	Spent fluorescent lamps (including odd shaped) were collected and shipped off site for recycle as universal waste rather than hazardous waste.	489 kg
2015	Spent UV mercury containing lamps which are recycled as universal waste.	40 kg
2015	Scrap metal from Non-PCB ballasts and capacitors was collected and shipped off site for recycle as scrap metal rather than hazardous waste.	283 kg

Table A-3 WSTF Hazardous Waste Source Reduction/Recycling Future Plans

TIME FRAME	PLANNED SOURCE REDUCTION/RECYCLING	NET REDUCTION
In progress	NASA personnel have chosen the technology and are cold flow testing a distillation system that has the capability of maintaining propellants within the parameters required by NASA customer-driven specifications. The system will avoid the high cost of new propellant and monies required for labor, dilution, and disposal of potential hazardous waste.	Installation completed in FY 2015, system will not be used until upgrades are complete at Fuel Storage Area.
Ongoing	NASA continues to be an integral support system for the space effort. WSTF support is critical in NASA's ability to test engines at simulated altitudes. The Propulsion Test Office will continue to test systems that use methanol, LOX, and other propellants instead of hydrazine(s) and nitrogen tetroxide in an effort to reduce the generation of highly toxic hazardous wastes.	TBD
Ongoing	The NASA Plume Front Treatment System continues to treat groundwater contaminated with trichloroethene (TCE), Tetrachloroethene (PCE), Freon-113, Freon-11, and N-nitrosodimethylamine (NDMA).	> 99.9 %
Ongoing	The NASA Mid-plume Groundwater Remediation System continues to treat groundwater contaminated with Freon-113, TCE, PCE, Freon-11, and N-nitrosodimethylamine.	> 99.9 %
In progress	NASA WSTF has initiated the installation of a 1.2 megawatt photovoltaic system by an off-site contractor.	TBD
In progress	Connected to the City of Las Cruces Publicly Owned Treatment Works in FY 2015. This will enable NASA to significantly reduce waste (such as P078 ADGAS). Started the closure process for the existing sewage lagoons.	TBD

Appendix B
Hazardous Waste Matrix

Waste Stream	Site ID	WIWPS	EPA Code(s)	Site Group	Weight (kg)
Spent VOC Indicator	1003	50-05-02, 5020145-99	D001	ENV	1
Discarded Commercial Chemical Product	2006	20201520-99	D001, D002	Calibration Lab	1
Urine Treatment Solution	2013	20-04-79, 20201466-99	D001, D002, D007	MT2	3.5
Aerosol Cans, Empty	1003	10-20-43, 10201512-99	D001, D003, D005, D018	ENV	20
Aerosol Cans, Empty	1003	10-20-43, 10201550-99	D001, D003, D005, D018, D035	ENV	29
Aerosol Cans, Empty	1003	10-20-43, 10201490-99	D001, D003, D018, D035, D005	ENV	24
Paint, Non Pourable	1023	10-03-06, 1020156-99	D001, D005, D007, D008, D018	M and O	103
Unused Paints	1023	10-03-06, 10201563-99, 60201522-99	D001, D005, D018, D035	M and O	50
Paint, Non Pourable	1023	10-03-06, 10201515-99	D001, D007, D008, D018, D035	M and O	81
Paint, Non Pourable	1023	10-03-06, 10201471-99	D001, D018	M and O	76
Unused Paints	1023	10-03-06, 10201544-99	D001, D018	M and O	79
Organic Liquids, Waste	2013	20-04-04, 20-04-100, 20-04-33, 20-04-53, 20-04-55, 20201459-99, 80-04-03	D001, D018, F003	MT2	8
Discarded Commercial Chemical Product	1003	20201498-99	D001, D021, D022, D039, D040	ENV	1
Off- Spec Analytical Standards	2007	20-04-12, 20-04-13, 20201521-99	D001, D022, D039, D040, F003, P082	MT2	2
Battery Acid	1018	10201494-99	D002	M and O	16
Metal Solutions, Waste	2007	20-04-99, 2020158-99	D002	MT2	6
Oakite 126 Solution, Spent	2029	20-01-11, 20201494-99	D002	MS2	343
Oakite 33 Rust Stripper Solution, Spent	2033	20-01-13, 20201523-99	D002	MS2	74
Unused Chemicals	1003	20201484-99	D002	ENV	10
Waste Water, Instrument Process Waste	2007	20-04-66, 20201525-99	D002	MT2	23
Unused Commercial Chemical Product	2007	20201513-99	D002, D004, D005, D010	MT2	1
Discarded Commercial Chemical Product	1003	2020154-99, 10-03-06	D002, D004, D006, D007, D008, D009, D010, D011	ENV	1
Oakite 31, Spent	2029	20-01-50, 20201493-99	D002, D006	MS2	369
Spent AKGA	2013	20201510-99	D002, D007	MT2	1
Spent Inorganic Etchants	2013	20201464-99	D002, D007	MT2	2
Analytical Process Waste	2008	20-04-102, 20201538-99	D002, F001, F002, P068, U098, U133	MT2	24
Dilute Fuel Contaminated Sample Vials	2007	20-04-108, 20201540-99	D002, P068, U098, U133	MT2	5
Contaminated Debris, HNS	2047	20201522-99	D003, D007, D011	MT3	4
Contaminated Debris	1018	10-01-18, 10201486-99, 20201489-99, 35-01-41	D004, D005, D006, D007, D008, D011, D018, D039, F002, F005	M and O	50
Contaminated Debris	2032	27-01-23, 20201472-99	D004, D005, D006, D007, D008, D018	All Sections	28
Contaminated Debris	2032	27-01-23, 20201477-99	D004, D005, D006, D007, D008, D018	All Sections	27.3
Contaminated Debris	2032	27-01-23, 2020156-99	D004, D005, D006, D007, D008, D018	All Sections	27
Contaminated Debris	2032	27-01-23, 20201519-99	D004, D005, D006, D007, D008, D018	All Sections	28

Waste Stream	Site ID	WIWPS	EPA Code(s)	Site Group	Weight (kg)
Contaminated Debris	2032	27-01-23, 20201528-99	D004, D005, D006, D007, D008, D018	All Sections	27
Contaminated Debris	2032	27-01-23, 20201542-99	D004, D005, D006, D007, D008, D018	All Sections	27
Contaminated Debris	1018	10-01-18, 10201554-99	D004, D005, D006, D007, D008, D018, D039, F002, F005	M and O	49
Contaminated Debris	1018	10-01-18, 10201521-99	D004, D005, D006, D007, D008, D018, D039, F002, F005	M and O	52
Contaminated Debris	2021	10-06-12, 20201475-99	D004, D006, D007, D008, D018	CTF	17
Contaminated Debris	2030	20-07-06, 20-01-60, 20201476-99	D004, D006, D007, D008, D018	MS2	16
Contaminated Debris	2030	20-07-06, 20-01-60, 20201541-99	D004, D006, D007, D008, D018	MS2	18
Contaminated Spill Dry	1017	10201532-99	D004, D006, D007, D008, D018	M and O	59
Oil Contaminated Debris And Soil	1003	60201527-99, 10201577-99, 10-01-13, 40-01-70, 40-02-26, 10-06-11	D004, D006, D007, D008, D018	ENV	133
Contaminated Debris	1011	10-04-14, 10201523-99	D004, D006, D007, D008, D018, D039, F002	M and O	56
Discarded Commercial Chemical Product	1003	20201499-99	D005	ENV	1
Contaminated Debris	1006	10-02-09, 10201481-99	D005, D007, D008, D018	MS4	37.4
Contaminated Debris	1006	10-02-09, 102014102-99	D005, D007, D008, D018	MS4	46
Contaminated Debris	1006	10-02-09, 10201513-99	D005, D007, D008, D018	MS4	57
Contaminated Debris	1006	10-02-09, 10201520-99	D005, D007, D008, D018	MS4	36
Contaminated Debris	1006	10-02-09, 10201540-99	D005, D007, D008, D018	MS4	38
Contaminated Debris	1006	10-02-09, 10201562-99	D005, D007, D008, D018	MS4	44
Contaminated Debris	8005	80-04-09, 80201510-99	D005, D007, D018, F005	Standard Test	10
Brulin 815, Spent	2029	20-01-18, 20201495-99	D006	MS2	320
Contaminated Debris	2027	20-02-22, 20-04-40, 20-06-09, 35-01-43, 20201537-99, 20201425-99, 20201426-99, 35-01-39	D006, D007, D008, D011, D018	MT2	40
Contaminated Debris	8004	80-02-74, 8020149-99	D007	HFTA	9.6
Metal Cutting Fluids, Spent	1007	10-02-18, 10-02-02, 10201514-99	D007, D008	100	624
Contaminated Debris	8005	80-04-09, 80201516-99	D007, D018, D035	Standard Test	8
Contaminated Debris, IDW	1003	60201520-99	D007, F001, F002	ENV	45
Broken UV Mercury Lamp	1033	100-007, 102014105-99	D009	ENV	1
Discarded Unused Chemcial Proudcts	8005	8020147-99, 8020146-99, 80201332-99, 80201338-99, 80201343-99, 20201474-99, 20201414-99, 10201410-99	D011	Standard Test	20
Fixer Solution, Spent	2043	20-02-14, 20201490-99, 20-04-124	D011	Chem Lab	13
Fixer Solution, Spent	2043	20-02-14, 2020155-99	D011	Chem Lab	20
Spent Silver Nitrate Solution And RCRA Regulated Metal Standards, Solutions, And Samples	2013	20-04-124, 20201536-99	D011	MT2	7
TS 328 Contaminated Debris	3001	3020145-99	D011	300 PTD	16
TS 328 Contaminated Debris, Battery	1003	3020147-99	D011	ENV	19

Waste Stream	Site ID	WIWPS	EPA Code(s)	Site Group	Weight (kg)
Contaminated Debris	1025	10-03-04, 10201493-99	D018	M and O	46
Contaminated Debris, Paint Booth Related	1026	10-03-08, 10201472-99	D018	100	50
Fuel Filters, Spent	1021	10-01-22, 10201543-99	D018	M and O	57
Waste Paint Related Materials	1026	10-03-08, 10201487-99	D018	100	42
Waste Paint Related Materials	1026	10-03-08, 10201522-99	D018	100	34
Waste Paint Related Materials	1026	10-03-08, 10201556-99	D018	100	40
Contaminated Debris, IDW	6001	60-01-02, 60201426-99	F001, F002	Restoration	33
Contaminated Debris, IDW	6001	60-01-02, 60201425-99	F001, F002	Restoration	37
Contaminated Debris, IDW	6001	60-01-02, 60201428-99	F001, F002	Restoration	48
Contaminated Debris, IDW	6024	60-01-02, 60201430-99	F001, F002	Restoration	60
Contaminated Debris, IDW	6001	60-01-02, 6020152-99	F001, F002	Restoration	21
Contaminated Debris, IDW	6001	60-01-02, 6020158-99	F001, F002	Restoration	20
Contaminated Debris, IDW	6001	60-01-02, 60201514-99	F001, F002	Restoration	22
Contaminated Debris, IDW	6001	60-01-02, 60201524-99	F001, F002	Restoration	22
Contaminated Debris, IDW	6001	60-01-02, 60201534-99	F001, F002	Restoration	14
IDW Contaminated Groundwater	6001	60-07-03, 6020151-99	F001, F002	Restoration	139
IDW Contaminated Groundwater	6001	60-07-03, 60201513-99	F001, F002	Restoration	33
IDW Contaminated Groundwater	6001	60-07-03, 60201532-99	F001, F002	Restoration	5
IDW Contaminated Groundwater	6001	60-07-03, 60201540-99	F001, F002	Restoration	5
IDW Contaminated Soil	1003	60201511-99	F001, F002	ENV	322
Remediation System Water Filters And Debris, IDW	6004	60-03-05, 60201515-99	F001, F002	MPITS	47
Contaminated Debris	8012	8020148-99	F002	Standard Test	1
Contaminated Debris	8005	80-04-09, 8020145-99	F005	Standard Test	12
Contaminated Debris, Fuel	1003	1020151-99, 20-04-18	P068, U098, U133	ENV	24
Contaminated Debris, Fuel	1003	10201473-99, 20-01-25, 20-04-18, 40-01-08, 50-20-01	P068, U098, U133	ENV	18
Contaminated Debris, Fuel	1003	10201488-99, 20-01-25, 20-04-18, 50-20-01	P068, U098, U133	ENV	10
Contaminated Debris, Fuel	1003	1020158-99, 20-01-25, 30-01-08, 50-20-01	P068, U098, U133	ENV	10
Contaminated Debris, Fuel	1003	10201527-99, 20-01-25, 30-01-08, 35-01-03, 50-20-01	P068, U098, U133	ENV	10
Contaminated Debris, Fuel	1003	10201528-99, 20-04-31	P068, U098, U133	ENV	22
Contaminated Debris, Fuel	1003	10201546-99, 20-01-25, 40-01-08, 50-20-01	P068, U098, U133	ENV	28
Contaminated Debris, Fuel	1003	10201547-99, 20-04-18	P068, U098, U133	ENV	38
Contaminated Debris, Fuel	1003	10201564-99, 20-01-25, 50-20-01	P068, U098, U133	ENV	9
Contaminated Debris, Fuel	1003	10201565-99, 20-04-18	P068, U098, U133	ENV	44
Dilute Fuel Contaminated Sample Vials	2007	20-04-108, 20201473-99, 20201458-99	P068, U098, U133	MT2	5
GAC With Hydrazines	5002	50-20-04, 5020144-99	P068, U098, U133	ENV	124
Contaminated Debris, Fuel	1003	1020151-99, 20-04-18	P068, U133	ENV	29
Contaminated Debris, OX	1003	10201474-99, 20-01-24, 20-04-16	P078	ENV	10

Waste Stream	Site ID	WIWPS	EPA Code(s)	Site Group	Weight (kg)
Contaminated Debris, OX	1003	10201489-99, 20-01-24	P078	ENV	1
Contaminated Debris, OX	2031	1020152-99, 20-04-16	P078	MS2	18
Contaminated Debris, OX	1003	10201510-99, 20-01-24, 40-01-28	P078	ENV	2
Contaminated Debris, OX	2031	10201511-99, 20-04-16	P078	MS2	9
Contaminated Debris, OX	1003	10201529-99, 20-01-24	P078	ENV	1
Contaminated Debris, OX	2031	10201530-99, 20-04-16	P078	MS2	9
Contaminated Debris, OX	1003	10201548-99, 20-01-24	P078	ENV	2
Contaminated Debris, OX	2031	10201549-99, 20-04-16	P078	MS2	15
Contaminated Debris, OX	1003	10201566-99, 20-01-24	P078	ENV	4
Contaminated Debris, OX	1003	10201567-99, 20-04-16	P078	ENV	24
P078 ADGAS Treatment Residual (Water)	1034	10201469-99, 30-01-02, 30-01-04	P078	ENV	1630
P078 ADGAS Treatment Residual (Water)	1034	10201477-99	P078	ENV	1180
P078 ADGAS Treatment Residual (Water)	1034	10201483-99, 30-01-02, 80-02-03	P078	ENV	2290
P078 ADGAS Treatment Residual (Water)	1034	10201492-99, 30-01-02, 20-04-74	P078	ENV	1140
P078 ADGAS Treatment Residual (Water)	1034	1020154-99, 30-01-02, 20-04-74	P078	ENV	1160
P078 ADGAS Treatment Residual (Water)	1034	10201518-99, 30-01-02, 20-04-74, 40-01-02, 40-01-04	P078	ENV	1439
P078 ADGAS Treatment Residual (Water)	1034	10201531-99, 30-01-02, 40-01-02, 20-04-74	P078	ENV	1358
P078 ADGAS Treatment Residual (Water)	1034	10201535-99, 30-01-02	P078	ENV	1160
P078 ADGAS Treatment Residual (Water)	1034	10201542-99, 30-01-02, 40-01-02	P078	ENV	1290
P078 ADGAS Treatment Residual (Water)	1034	10201561-99, 30-01-02, 40-01-02, 20-04-74	P078	ENV	2260
P078 ADGAS Treatment Residual (Water)	1034	10201571-99, 30-01-02, 40-01-02, 20-04-74	P078	ENV	2385
P078 ADGAS Treatment Residual (Water)	1034	10201552-99, 30-01-02	P078	ENV	1140

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Santa Fe , NM 87505

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