

National Aeronautics and  
Space Administration

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



November 25, 2014

Reply to Attn of:

RE-14-131

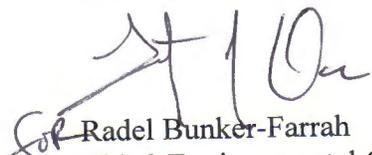
Mr. John E. Kieling, Chief  
New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, NM 87505

Subject: NASA White Sands Test Facility (WSTF) 2014 Waste Minimization Plan

Enclosed is the 2014 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 2014. 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 Tim Davis of my staff at 575-524-5024.

  
for Radel Bunker-Farrar  
Chief, Environmental Office

2 Enclosures

cc: (with enclosures)  
Mr. Dan Comeau  
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, 2013 to September 30, 2014

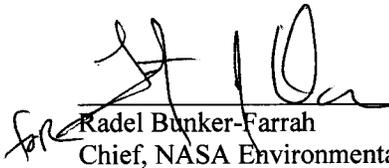
NM8800019434  
NASA Johnson Space Center White Sands Test Facility  
12600 NASA Road Las Cruces, New Mexico 88012

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NASA Johnson Space Center White Sands Test Facility  
Hazardous and Solid Waste Amendments (HSWA)  
Waste Minimization Plan

October 1, 2013 to September 30, 2014

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.

  
\_\_\_\_\_  
Radel Bunker-Farrar  
Chief, NASA Environmental Office

11/25/14  
\_\_\_\_\_  
Date

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## List of Acronyms and Abbreviations

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CSU	Container Storage Unit
EMP	Environmental Management Program
EMS	ISO 14001 Environmental Management System
EO	Executive Order
EPA	United States Environmental Protection Agency
FTU	Fuel Treatment Unit
FY	Fiscal year
HSWA	Hazardous and Solid Waste Amendments
ISO	International Organization for Standardization
MDAL	Molecular Desorption Analysis Lab
MPITS	Mid-plume Interception and Treatment System
MSDS	Material safety data sheet
MW	Megawatt
NASA	National Aeronautics and Space Administration
NETS	NASA Environmental Tracking System
NMED	New Mexico Environment Department
NMRC	New Mexico Recycling Coalition
NPR	NASA procedural requirement
P2	Pollution prevention
PFTS	Plume Front Treatment System
POTW	Publicly owned treatment works
RSA	Recycling and sustainable acquisition
SSPP	Strategic Sustainability Performance Plan
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 1<sup>st</sup> for the previous 12-month period ending September 30. The reporting period included in this document is October 1, 2013 through September 30, 2014, or NASA fiscal year (FY) 2014.

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. Environmental impacts of each aspect are ranked and those with significant impacts are established as "significant aspects." An Environmental Management Program (EMP) is established for each significant aspect. Each EMP will outline objectives and targets developed to lessen the environmental impact and reduce the consumption of natural resources at WSTF. Objectives and targets are to be met by completing 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 2014 significant aspects and associated EMPs were:

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

Objectives and accomplishments for each EMP are discussed below.

#### Water Quality

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 2014:

- A complete evaluation of drinking water Tank 2 and Tank 3 inspected the structural integrity of the tanks in order to maintain the drinking water quality at WSTF.
- The evaluation determined that Tank 2 needs minor repairs for leaks or replacement of modular tank sections.
- The evaluation determined that Tank 3 needs to be repaired and upgraded to minimize water supply impacts.
- The repairs and upgrades are scheduled to be completed in FY 2015. 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 drinking water at WSTF by preventing drinking water contamination from non-potable water sources. To accomplish this, the following steps were completed:

- All the current backflow preventers were identified and inspected. Those that were not in the database were added, and new areas and entry points were identified in the database.
- A cross-control written procedure will be developed to ensure that all potable water outlets are addressed in the same manner, every time.
- Any new construction plans or potable water system modifications are reviewed and approved by NASA Environmental to ensure that the correct type of backflow preventer is installed.

#### Air Emissions – Refrigerant Management

The EMP was developed to strengthen the refrigeration management program and develop one procedure for management on site.

- An inventory of yearly supply levels and consumption rates for each type of refrigerant was completed.
- Obsolete refrigerants will be recycled or properly dispositioned.
- One archival location for equipment service records and periodic maintenance documents will be established. Also, standard refrigerant management forms will be created, and a map that identifies the locations of all refrigerant equipment containing more than 50 pounds of refrigerant will be developed.
- A training class for using refrigerant software will be established.
- Appendices 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 will be developed.

### Water Conservation

WSTF has set a goal to reduce water use by 2% per year. In FY 2014, 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.

#### 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, therefore WSTF continues to evolve toward environmental sustainability. The procurement, logistics, and environmental departments have partnered in the development of an effective sustainable acquisition program.

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 2014 SSPP in June 2014. SSPP goals include greenhouse gas reduction, sustainable buildings, fleet management, sustainable acquisition, water use efficiency and management, pollution prevention and waste reduction (including recycling), electronics stewardship and data centers, renewable energy, 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, 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 22<sup>nd</sup>), America Recycles Day (November 15<sup>th</sup>), 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.*

WSTF continues to carry out a phased approach to sustainable acquisition; greening the warehouse one category at a time. NASA follows the federal green product requirements listed on the Green Products Compilation at <http://www.sftool.gov/greenprocurement?CFID=93864&CFTOKEN=27375560>. Continually evolving, this site lists product categories (26 to date) and specifies biobased, energy saving, water conserving, and recycled/recovered content, environmentally preferable, and non-ozone depleting requirements for hundreds of products.

Due to the impracticality and inefficiency of greening the thousands of warehouse stock items (items with green requirements) all at once, NASA elected to choose one or more product categories to focus on during the FY. The product categories WSTF is focusing on are cleaning products (initiated in FY 2012 and ongoing); paper office products (initiated in FY 2013 and ongoing) lube, oils, hydraulic fluid, and grease and personal care products (initiated in FY 2012 and ongoing). Where the green products do not meet project specifications or fall within budget, waivers are generated to document the justification for not replacing the conventional product.

Single stream recycling is included in the current refuse contract (initiated 7/1/2013). The materials included in the “single stream” are: office paper, shiny paper (catalogs and magazines), telephone books, newspaper, paper board, paper bags, books and 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 semi-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 recycling (e.g., concrete, wood, gypsum board, plastic sheeting and certain plastic materials, and asphalt shingles).

Yard waste is transported to the city's yard waste facility for composting. Concrete is also hauled to the same facility where it is used for clean fill. 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 \$39,000 in service and labor was spent in FY 2014 recycling routine hazardous waste. Recycling of obsolete transformers was a special project that requested an additional \$77,000 for a one-time recycling event. As part of the WSTF property management process, over 20 tons (40,320 lb.) of electronic equipment (E-waste) and 54.9 tons (109,777 lb.) of scrap metal were recycled in FY 2014. NASA also continued to fund the WSIT program. For FY 2014, the WSIT allocated budget was approximately \$67,000. The recycling of non-hazardous materials has evolved from a grassroots effort into a successful program, and is 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. During this period, WSTF provided support for space shuttle retirement efforts. 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.

### **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 that WSTF Environmental Department personnel develop white papers or perform regulatory reviews to evaluate impacts to WSTF operations.

WSIT personnel also participate in the NASA Recycling and Sustainable Acquisition (RSA) video conferences and WebEx presentations sponsored by the NASA RSA Principal Center. These venues facilitate the sharing of information about recycling, sustainability, and pollution prevention strategies between NASA centers. During this reporting period, WSIT members participated in a Glass Recycling Subcommittee sponsored by the South Central Solid Waste Authority.

One WSIT member participated in a Recycling Professionals Training provided by the New Mexico Recycling Coalition (NMRC). WSTF personnel also utilize 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, the Propulsion Test Department is cold flow testing a distillation unit that will reduce non-volatile residue in its fuel conditioning process and maintain product integrity for reuse. The Component Services Department is working with an off-site contractor for rinse water reclamation and routing of the reject water from the reverse osmosis generation units to cooling towers or other operations. Rinse water from the gross cleaning process will also be recycled back into the de-ionization loop.

### **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, 2013 – Sept. 30, 2014)**

YEAR	SOURCE REDUCTION EFFORT	NET REDUCTION
Since 2004	Sixty groundwater wells continue to utilize dedicated low-flow sampling equipment that was approved by NMED. The technology allows continued use of current well structures, avoids drilling new wells, and minimizes generation of purge water (hazardous waste identified as investigation-derived waste).	36,000 gallons per year
Since 2010	Contamination control continued emptying 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, 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: <a href="http://www.epa.gov/ozone/snap/lists/index.html">http://www.epa.gov/ozone/snap/lists/index.html</a>	NA
FY 2014	Electronics recycling (including toner cartridges) through UNICOR. Program initiated in 2009.	18,289 kg (40,320 lb.)
FY 2014	Shredded Media	68 kg (150 lb.)
FY 2014	Kevlar Vests	147 kg (325 lb.)
FY 2014	Used Cafeteria Oil recycled for biodiesel	188 kg (415 lb.)

**Table A-2 WSTF Hazardous Waste Recycling (Oct. 1, 2013 – Sept. 30, 2014)**

FISCAL YEAR	HAZARDOUS WASTE RECYCLED	NET REDUCTION
2014	Metal recycled from 31 transformers that were determined obsolete and removed from service or the 150 supply yard.	20,334 kg (44,829 lb.)
2014	Oil recycled from 31 transformers that were determined obsolete and removed from service or the 150 supply yard.	7,834 kg (17,271 lb.)
2014	Nickel-cadmium batteries were collected and shipped off site for recycling as universal waste rather than hazardous waste.	29 kg (64 lb.)
2014	Lithium batteries were collected and shipped off site for recycling as universal waste rather than hazardous waste.	13 kg (29 lb.)
2014	Lead acid batteries were collected and shipped off site for recycle as universal waste rather than hazardous waste.	1,489 kg (3,283 lb.)
2014	Spent dry cell batteries (Alkaline) batteries are collected and shipped off site for recycling as solid waste rather than hazardous or universal waste	214 kg (472 lb.)
2014	Silver oxide and zinc batteries were collected and shipped off site for recycle as universal waste rather than hazardous waste.	383 kg (844 lb.)
2014	Spent fluorescent lamps (including odd shaped) were collected and shipped off site for recycle as universal waste rather than hazardous waste.	324 kg (714 lb.)
2014	Spent UV mercury containing lamps which are recycled as universal waste.	41 kg (90 lb.)
2014	Scrap metal from Non-PCB ballasts and capacitors was collected and shipped off site for recycle as scrap metal rather than hazardous waste.	313 kg (690 lb.)
2014	Mercury containing equipment	15 kg (33 lb.)

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

<b>TIME FRAME</b>	<b>PLANNED SOURCE REDUCTION/RECYCLING</b>	<b>NET REDUCTION</b>
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.	Initiated installation of distillation system in FY 2014
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 TCE, PCE, Freon-113, Freon-11, and N-nitrosodimethylamine.	> 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	Studies and initiatives for alternatives for the supply of electricity to run the NASA WSTF Groundwater Remediation Systems continue to be evaluated. The alternatives include wind, solar, and fuel cells.	TBD
In progress	NASA continues to evaluate the potential for additional precious metal recovery that will recover gold, platinum and palladium from Space Shuttle fuel cells.	Over 1,742 kg (3,840 lb.) to date, approximately 136 kg (300 lb.) in upcoming final sale
In progress	Connecting with the City of Las Cruces Publicly Owned Treatment Works will enable NASA to significantly reduce waste (such as P078 ADGAS), and close the existing sewage lagoons.	TBD

Appendix B  
Hazardous Waste Matrix

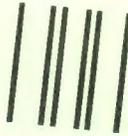
Waste Stream	WIWPS	EPA Code	Site ID	Site Group	Weight
Discarded Commercial Chemical Products	80201327-99	D001	1003	ENV	1 kg (2.2 lb.)
Lighters	80201325-99	D001	1003	ENV	1 kg (2.2 lb.)
Off-Spec Chemicals	20201445-99	D001	2015	100	5 kg (11.02 lb.)
Spent VOC Indicator	5020141-99, 50-20-04	D001	1003	ENV	0.5 kg (1.10 lb.)
Off-Spec Chemicals	20201444-99	D001, D002	2015	100	5 kg (11.02 lb.)
Off-Spec Chemicals	20201446-99	D001, D002	2015	100	5 kg (11.02 lb.)
Empty Aerosol Cans	10201447-99, 10-20-43	D001, D003, D005, D018, D035, U210	1003	ENV	35 kg (77.16 lb.)
Empty Aerosol Cans	10-20-43, 102013107-99	D001, D003, D018, U228, D002, D005, D040	1003	ENV	61 kg (134.48 lb.)
Discarded Commercial Chemical Products	80201319-99	D001, D005, D007, D008, D018, D035, U220	1003	ENV	43 kg (94.8 lb.)
Off Spec Products	20201416-99	D001, D018	2013	MT4	2 kg (4.41 lb.)
Unused Chemicals	80201336-99	D001, D018	1003	ENV	5 kg (11.02 lb.)
Paint, Non Pourable	10-03-06, 10201416-99	D001, D018, D035	1023	M and O	73 kg (160.94 lb.)
Waste Organic Liquids	20-04-04, 20-04-100, 20-04-33, 20-04-53, 20-04-55, 2020148-99, 80-04-03	D001, D018, F003	2013	MT4	7 kg (15.43 lb.)
Off- Spec Analytical Standards	20-04-12, 20-04-13, 20201428-99	D001, D039, D040, F003, P082	2007	MT4	4 kg (8.82 lb.)
Discarded Commercial Chemical Products	60201411-99	D002	6021	Restoration	43 kg (94.8 lb.)
Discarded Commercial Chemical Products	80201321-99	D002	1003	ENV	68 kg (149.91 lb.)
Discarded Commercial Chemical Products	80201329-99	D002	1003	ENV	1 kg (2.2 lb.)
Off Spec Products	10201395-99	D002	1010	Warehouse	220 kg (485.02 lb.)
Spent Oakite 126 Solution	20-01-11, 202013100-99	D002	2029	MS2	337 kg (742.95 lb.)
Spent Oakite 126 Solution	20-01-11, 20201392-99	D002	2029	MS2	112 kg (246.92 lb.)
Spent Oakite 31 Cleaning Solution	20-01-50, 20201393-99	D002	2029	MS2	102 kg (224.87 lb.)
Unused Chemicals	80201335-99	D002	1003	ENV	25 kg (55.12 lb.)
Unused Chemicals	80201337-99	D002	1003	ENV	4 kg (8.82 lb.)
Discarded Commercial Chemical Products	20201423-99	D002, D003, P098	2013	MT4	1 kg (2.2 lb.)
Spent Oakite 31	20201399-99, 20-01-50	D002, D006	2029	MS2	339 kg (747.36 lb.)
Spent Oakite 33 Rust Stripper Solution	20-01-13, 20201412-99	D002, D007	2033	250 Area	67 kg (147.71 lb.)
Spent Oakite Deoxidizer SS	20-01-44, 20201382-99	D002, D007	2033	250 Area	105 kg (231.49 lb.)
Spent Oakite 33 Rust Stripper Solution	20-01-13, 20201421-99	D002, D007, D008	2033	250 Area	77 kg (169.76 lb.)
Discarded Commercial Chemical Products	80201323-99	D002, D007, D008, D040	1003	ENV	1 kg (2.2 lb.)
Waste Metal Solutions	20-04-99, 20201375-99	D002, D007, D011	2028	MT4	17 kg (37.48 lb.)
Spent Oakite 33 Rust Stripper Solution	20-01-13, 20201432-99, 20201429-99	D002, D008	2033	250 Area	298 kg (656.98 lb.)
Off-Spec Chemicals	20201463-99	D003	1003	ENV	8 kg (17.64 lb.)
Contaminated Debris	20201377-99, 27-01-23	D004, D005, D006, D007, D008, D018	2032	Hypervelocity	27 kg (59.52 lb.)
Contaminated Debris	27-01-23, 20201377-99	D004, D005, D006, D007, D008, D018	2032	Hypervelocity	31 kg (74.96 lb.)
Contaminated Debris	27-01-23, 20201384-99	D004, D005, D006, D007, D008, D018	2032	Hypervelocity	34 kg (68.34 lb.)
Contaminated Debris	27-01-23, 20201427-99	D004, D005, D006, D007, D008, D018	2032	Hypervelocity	28 kg (61.73 lb.)
Contaminated Debris	27-01-23, 20201452-99	D004, D005, D006, D007, D008, D018	2032	Hypervelocity	29 kg (63.93 lb.)
Contaminated Debris	27-01-23, 2020149-99	D004, D005, D006, D007, D008, D018	2032	Hypervelocity	58 kg (127.87 lb.)
Contaminated Debris	10-01-18, 102013117-99	D004, D005, D006, D007, D008, D018, D039, F002, F005	1018	M and O	47 kg (103.62 lb.)
Contaminated Debris	10-01-18, 10201427-99	D004, D005, D006, D007, D008, D018, D039, F002, F005	1018	M and O	47 kg (103.62 lb.)
Contaminated Debris	10-01-18, 10201458-99	D004, D005, D006, D007, D008, D018, D039, F002, F005	1018	M and O	58 kg (127.87 lb.)

Waste Stream	WIWPS	EPA Code	Site ID	Site Group	Weight
Contaminated Debris	20-02-22, 20-02-42, 20-04-40, 20-04-101, 20-06-09, 20201435-99	D004, D006, D007, D008, D011, D018, U117	2027	MT4	33 kg (72.75 lb.)
Contaminated Debris	20-07-06, 20-01-60, 20201417-99	D004, D006, D007, D008, D018	2030	MS2	18 kg (39.68 lb.)
Contaminated Debris	20201456-99	D004, D006, D007, D008, D018	2045	ENV	14 kg (30.86 lb.)
Contaminated Debris	40-02-26, 4020137-99, 4020141-99, 102013112-99	D004, D006, D007, D008, D018	4007	400 PTD	143 kg (315.27 lb.)
Contaminated Spill Dry	102013100-99, 10201394-99, 102013108-99, 102013109-99, 102013110-99, 10-01-13, 10-14-03, 10-10-09	D004, D006, D007, D008, D018	2032	Hypervelocity	29 kg (63.93 lb.)
Contaminated Used Oil	40-02-15, 4020145-99	D004, D006, D007, D008, D018	4007	400 PTD	181 kg (399.04 lb.)
Petroleum Contaminated Soil	7020141-99, 10201411-99	D004, D006, D007, D008, D018	0	ENV	63 kg (138.89 lb.)
Contaminated Debris	10-06-12, 20201394-99	D004, D006, D007, D008, D018, D035	2021	CTF	18 kg (39.68 lb.)
Contaminated Debris	10-10-11, 102013123-99	D004, D006, D007, D008, D018, F005	1013	Warehouse	34 kg (74.96 lb.)
Contaminated Debris	10-10-11, 10201459-99	D004, D006, D007, D008, D018, F005	1013	Warehouse	55 kg (121.25 lb.)
Spent Barium	2020141-99	D005	2020	MT2	2 kg (4.41 lb.)
Contaminated Debris	10-03-04, 1020148-99	D005, D006, D007, D008, D018, D035	1025	M and O	51 kg (112.44 lb.)
Contaminated Debris	10-02-09, 102013106-99	D005, D007, D008, D018	1006	MS4	101 kg (222.67 lb.)
Contaminated Debris	10-02-09, 10201418-99	D005, D007, D008, D018	1006	MS4	119 kg (262.35 lb.)
Contaminated Debris	10-02-09, 1020143-99	D005, D007, D008, D018	1006	MS4	81 kg (178.57 lb.)
Contaminated Debris	10-02-09, 10201444-99	D005, D007, D008, D018	1006	MS4	85 kg (187.39 lb.)
Contaminated Debris	10-02-09, 10201452-99	D005, D007, D008, D018	1006	MS4	59 kg (130.07 lb.)
Contaminated Debris	10-02-09, 10201457-99	D005, D007, D008, D018	1006	MS4	38 kg (83.78 lb.)
Discarded Commercial Chemical Products	80201320-99	D005, D008, D011, D018	1003	ENV	32 kg (70.55 lb.)
Contaminated Debris, Paint Booth Related	10-03-08, 10201393-99	D005, D018	1026	100	44 kg (97 lb.)
Contaminated Debris, Paint Booth Related	10-03-08, 1020145-99	D005, D018	1026	100	51 kg (112.44 lb.)
Spent Blast Media	8020141-99, 80-04-26	D006	8005	Standard Test	42 kg (92.59 lb.)
Contaminated Debris	20-07-06, 20-01-60, 20201371-99	D006, D007, D008, D018	2030	MS2	20 kg (44.09 lb.)
Contaminated Debris	80-02-74, 80201341-99	D007	8004	HFTA	8 kg (17.64 lb.)
Metal Cutting Sludge	20201379-99, 20-02-27	D007	2006	Calibration Lab	2 kg (4.41 lb.)
Discarded Commercial Chemical Products	80201333-99	D007, D008, D040	8001	All Sections	1 kg (2.2 lb.)
Contaminated Debris	80-04-09, 8020142-99	D007, D011, D018, D021, F005	8005	Standard Test	9 kg (19.84 lb.)
Spent Machine Shop Coolant	10-02-02, 10-02-18, 10201426-99	D008	1007	100	1,835 kg (4,045.5 lb.)
Spent Machine Shop Coolant	10-02-18, 10-02-02, 10201421-99	D008	1007	100	637 kg (1,404.34 lb.)
Contaminated Debris	10-12-06, 10201420-99	D008, D018	1029	100	2 kg (4.41 lb.)
Mercury Contaminated Debris	20-10-02, 20201374-99, 80201312-99	D009	2014	MS3	5 kg (11.02 lb.)
Spent UV Mercury Lamps (Broken)	60201419-99	D009	1003	ENV	4 kg (8.82 lb.)
Discarded Commercial Chemical Products	60201410-99	D011	6021	Restoration	1 kg (2.2 lb.)
Spent Fixer Solution	20-02-14, 2020144-99	D011	2028	MT4	46 kg (101.41 lb.)
Spent Fixer Solution	20201387-99, 20-02-14	D011	2006	Calibration Lab	23 kg (50.71 lb.)
Spent Silver Nitrate Solution	20-04-124, 20201424-99	D011	2013	MT4	5 kg (11.02 lb.)
Contaminated Debris, Paint Booth Related	10-03-08, 10201449-99	D018	1026	100	35 kg (77.16 lb.)
Contaminated Soil With Hydraulic Oil	10201415-99	D018	1003	ENV	815 kg (1,796.77 lb.)
Petroleum Contaminated Soil	60201332-99	D018	1003	ENV	21 kg (46.3 lb.)
Spent Fuel Filters	10201399-99, 10-01-22	D018	1021	M and O	41 kg (90.39 lb.)
Aqueous Fuel Waste	20201440-99, 20-04-102	F001, F002	2008	MT4	23 kg (50.71 lb.)

Waste Stream	WIWPS	EPA Code	Site ID	Site Group	Weight
Contaminated Debris, IDW	60-01-02, 60201344-99	F001, F002	6001	600 Closure	20 kg (44.09 lb.)
Contaminated Debris, IDW	60-01-02, 60201420-99	F001, F002	6004	MPITS	26 kg (57.32 lb.)
Contaminated Debris, IDW	60-01-02, 60201420-99	F001, F002	6001	600 Closure	64 kg (141.09 lb.)
Contaminated Debris, IDW	60-01-02, 6020146-99	F001, F002	1003	ENV	9 kg (19.84 lb.)
Contaminated Debris, IDW	60201328-99	F001, F002	1003	ENV	67 kg (147.71 lb.)
Contaminated Debris, IDW	60201337-99, 60-01-02	F001, F002	1003	ENV	14 kg (30.86 lb.)
Contaminated Debris, IDW	60201412-99, 60-01-02	F001, F002	1003	ENV	8 kg (17.64 lb.)
Contaminated Debris, IDW	6020145-99, 60-01-02	F001, F002	6011	MPITS	39 kg (85.98 lb.)
Contaminated Slurry, IDW	20201457-99	F001, F002	2044	ENV	121 kg (266.76 lb.)
Contaminated Slurry, IDW	60-04-08, 6020143-99	F001, F002	2015	100	111 kg (244.71 lb.)
Contaminated Slurry, IDW	60201414-99, 60-04-08, 60-04-09	F001, F002	6002	ENV	58 kg (127.87 lb.)
Contaminated Slurry, IDW	6020143-99, 60-04-08	F001, F002	6011	MPITS	112 kg (246.92 lb.)
Contaminated Slurry, IDW	6020143-99, 60-04-08	F001, F002	2015	100	114 kg (251.33 lb.)
Filters, Remediation System Water	6020141-99, 60-04-07	F001, F002	6004	MPITS	67 kg (147.71 lb.)
IDW Contaminated Debris	60-01-02, 60201415-99	F001, F002	6001	600 Closure	33 kg (72.75 lb.)
IDW Contaminated Debris	60-01-02, 6020145-99	F001, F002	6011	MPITS	38 kg (83.78 lb.)
IDW Contaminated Groundwater	60-04-08, 60201338-99	F001, F002	6018	Restoration	251 kg (553.36 lb.)
IDW Contaminated Groundwater	60201413-99	F001, F002	6004	MPITS	29 kg (63.93 lb.)
IDW Decon Water W/Methonal	20201450-99	F001, F002	2044	ENV	59 kg (130.07 lb.)
Instrument Process Waste, IDW	20201461-99	F001, F002	2008	MT4	24 kg (52.91 lb.)
Remediation System Water Filters	60-04-07, 60201340-99	F001, F002	1003	ENV	342 kg (753.99 lb.)
Remediation System Water Filters	60-04-07, 6020149-99	F001, F002	6004	MPITS	72 kg (158.73 lb.)
Spent Carboxyl Terminated Polybutadiene Debris	20201395-99	F002	2013	MT4	2 kg (4.41 lb.)
Waste Organic Liquids	20201370-99, 20-04-04, 20-04-33, 20-04-53, 20-04-100, 80-04-03	F003, D001, D018	2013	MT4	6 kg (13.23 lb.)
Contaminated Debris, Fuel	102013102-99, 20-01-25, 20-04-18, 35-01-03, 50-20-01, 80-02-09	P068, U098, and U133	1003	ENV	27 kg (59.52 lb.)
Contaminated Debris, Fuel	102013121-99, 20-01-25, 20-04-18, 20-04-31, 30-01-08, 50-20-01	P068, U098, U133	1003	ENV	20 kg (44.09 lb.)
Contaminated Debris, Fuel	10201437-99, 20-01-25, 20-04-18, 20-04-31, 40-01-08, 50-20-01	P068, U098, U133	1003	ENV	20 kg (44.09 lb.)
Contaminated Debris, Fuel	1020146-99, 20-01-25, 20-04-18, 40-01-08, 35-01-03, 80-02-09	P068, U098, U133	1003	ENV	45 kg (99.21 lb.)
Dilute Fuel Contaminated Sample Vials	20-04-108, 20201385-99	P068, U098, U133	2007	MT4	3 kg (6.61 lb.)
Dilute Fuel Contaminated Sample Vials	20-04-108, 2020142-99	P068, U098, U133	2010	MT4	3 kg (6.61 lb.)
GAC With Hydrazines	5020133-99, 50-20-04	P068, U098, U133	5001	500	156 kg (343.92 lb.)
Waste Fuel	5020143-99	P068, U098, U133	5002	FTU	25,740 kg (56,760 lb.)
Contaminated Debris, Fuel	10201424-99, 35-01-03, 20-01-25, 20-04-18, 20-04-31, 40-01-08, 50-20-01	P068, U098, U133	1003	ENV	40 kg (88.18 lb.)
Contaminated Debris, Fuel	10201460-99, 20201461-99, 20-04-18, 20-01-25, 50-20-01, 80-02-09	P068, U098, U133, F001, F002	1003	ENV	19 kg (41.89 lb.)
Contaminated Debris, OX	102013103-99, 35-01-04, 20-01-24, 20-04-16	P078	1003	ENV	15 kg (33.07 lb.)
Contaminated Debris, OX	102013122-99, 20-01-24, 20-04-16	P078	1003	ENV	4 kg (8.82 lb.)

Waste Stream	WIWPS	EPA Code	Site ID	Site Group	Weight
Contaminated Debris, OX	10201425-99, 20-01-24, 20-04-16, 30-01-34	P078	1003	ENV	13 kg (28.66 lb.)
Contaminated Debris, OX	10201438-99, 20-01-24, 20-04-16, 40-01-28	P078	1003	ENV	3 kg (6.61 lb.)
Contaminated Debris, OX	10201461-99, 20-01-24, 20-04-16	P078	1003	ENV	5 kg (11.02 lb.)
Contaminated Debris, OX	1020147-99, 20-01-24, 20-04-16	P078	1003	ENV	4 kg (8.82 lb.)
P078 ADGAS Treatment Residual (Water)	102013105-99, 30-01-02, 20-04-123, 80-02-03, 40-01-04	P078	1034	ENV	1,279 kg (2,819.71 lb.)
P078 ADGAS Treatment Residual (Water)	102013105-99, 30-01-02, 40-01-04, 80-02-03, 20-04-123	P078	1034	ENV	1,252 kg (2,760.19 lb.)
P078 ADGAS Treatment Residual (Water)	102013113-99, 30-01-02, 40-01-02	P078	1034	ENV	2,582 kg (5,692.33 lb.)
P078 ADGAS Treatment Residual (Water)	10201390-99, 30-01-02, 20201373-99, 20-04-74	P078	1003	ENV	176 kg (388.01 lb.)
P078 ADGAS Treatment Residual (Water)	10201413-99, 30-01-02, 40-01-02	P078	1034	ENV	1,200 kg (2,645.55 lb.)
P078 ADGAS Treatment Residual (Water)	10201417-99, 30-01-02	P078	1034	ENV	1,140 kg (2,513.27 lb.)
P078 ADGAS Treatment Residual (Water)	10201423-99, 30-01-02, 40-01-02	P078	1034	ENV	1,250 kg (2,755.78 lb.)
P078 ADGAS Treatment Residual (Water)	10201434-99, 30-01-02, 40-01-02	P078	1034	ENV	1,208 kg (2,663.18 lb.)
P078 ADGAS Treatment Residual (Water)	10201436-99, 30-01-02, 30-01-04, 40-01-02	P078	1034	ENV	1,461 kg (3,220.95 lb.)
P078 ADGAS Treatment Residual (Water)	10201453-99, 30-01-02, 40-01-02	P078	1034	ENV	1,160 kg (2,557.36 lb.)
P078 ADGAS Treatment Residual (Water)	10201456-99, 30-01-02	P078	1034	ENV	2,277 kg (5,019.92 lb.)
P078 ADGAS Treatment Residual (Water)	10201451-99, 30-02-25	P078, D002	1034	ENV	800 kg (1,763.7 lb.)
Off-Spec Chemicals	20201443-99	P082	2015	100	2 kg (4.41 lb.)
Off-Spec NDMA, DMN, And Bromacil	20201396-99, 20-04-13	P082	2007	MT4	3 kg (6.61 lb.)
Off-Spec Analytical Standards	20-04-12, 20-04-13, 20201418-99	P082, D001, D039, D040, F003	2007	MT4	3 kg (6.61 lb.)
Analytical Process Waste Water	20-04-02, 20201386-99	P098	2013	MT4	1 kg (2.2 lb.)

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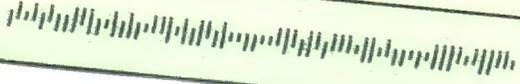
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