

National Aeronautics and
Space Administration

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



Reply to Attn of:

RA-01-159

NOV 20 2001

New Mexico Environment Department
Attn: Mr. Phillip Solano, Project Leader
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Subject: NASA White Sands Test Facility (WSTF) 2001 Waste Minimization
Plan

Enclosed is the 2001 update for the certified Waste Minimization Plan as required by
the NASA Hazardous Waste Operating Permit No. NM8800019434-1.

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.

To the extent that information has been submitted electronically, I acknowledge that
NMED will rely solely on electronic information as accurate and complete information
and that it is this data that will be used for compliance and enforcement purposes
pursuant to the provisions set forth in the NASA WSTF Final Project Agreement.

If you have any questions or comments concerning this submittal, please call David
Amidei at 505-524-5517.

ORIGINAL SIGNED BY
JOSEPH FRIES
Joseph Fries
Manager

Enclosure

cc: (*w/o encl.)
NMED/J. P. Bearzi *
NMED/J. E. Kieling *
USEPA/C. Edlund

bcc:
HTSI Team/P. H. Pache
RA/DAmidei:lvg:11/19/01:5517

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NEW MEXICO ENVIRONMENT DEPARTMENT
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 HAZARDOUS WASTE BUREAU
 2909 RODEO PARK DRIVE EAST BUILDING 1
 SANTA FE NM 87505

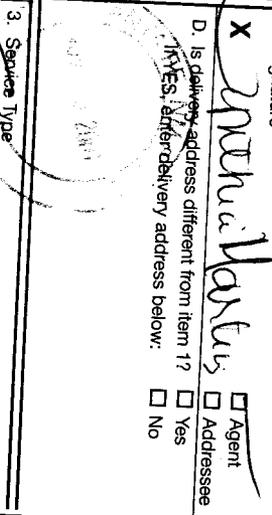
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*Neg Waste Report
Planet*

88004-0020



ENCLOSURE

2001 NASA

**HAZARDOUS AND SOLID WASTE
AMENDMENTS (HSWA)**

WASTE MINIMIZATION REQUIREMENTS

**2001 NASA
HAZARDOUS AND SOLID WASTE AMENDMENTS (HSWA)
WASTE MINIMIZATION REQUIREMENTS**

The New Mexico Environment Department (NMED) and United States Environmental Protection Agency (U. S. EPA) entered into a joint permitting agreement for the Part B Hazardous Waste Operating Permit issued to the NASA White Sands Test Facility (WSTF) in February 1993. The HSWA Permit to operate a hazardous waste facility was administered by the EPA, and the Part B Hazardous Waste Operating Permit requirements are directed by NMED. NMED was delegated lead authority to enforce the permit's HSWA requirements on April 7, 1999.

The following provides the HSWA permit waste minimization conditions and updates the plan NASA submitted in 1993 with source reduction, recycling, and planning activities that were accomplished during 2001.

[HSWA Permit conditions are cited in bold.]

III. STANDARD CONDITIONS

A. Waste Minimization

The Permittee shall submit a certified plan to the Administrative Authority, according to 40 CFR 270.11, in writing annually, by December 1, 1993 for the previous year ending September 30, 1993 specifying that:

1. The permittee has a program in place to reduce the volume and toxicity of all hazardous wastes which are generated by the facility's operation to the degree determined to be economically practicable; and that the proposed method of treatment, storage, or disposal is the practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment. This certified plan must address the items below:

a. Any written policy or statement that outlines goals, objectives, and/or methods for source reduction and recycling of hazardous waste at the facility;

During 2001, NASA retained ISO 14001 certification by successfully passing two periodical audits. NASA and contractor management continue to utilize a WSTF Policy Directive for the Environmental Management System (EMS) and the WSTF Environmental Policy Statement which commits WSTF to environmental excellence by using the EMS for pollution prevention (waste minimization), continuous improvement, and legal compliance. The EMS implemented procedures that identified environmental aspects, ranked their significant environmental impacts, and established environmental objectives and targets. This determined how the impacts are managed for regulatory compliance, pollution prevention, waste generation reduction, and resource conservation (materials, fuel, and energy). The ISO 14001 Standard is committed to recovery and recycling, as opposed to disposal. The Environmental Department Planning Schedule (a continuously updated Microsoft Access database) and required State and Federal regulatory reviews provide up-to-date, proactive, and expedient actions to pollution and waste minimization compliance.

The three positive categories that were added to the Safety Inspection Management System (SIMS) during FY00 were used for reporting pollution prevention, chemical substitution, and waste minimization efforts. Site managers and supervisors entered information into the database and the Environmental Department has transferred that data into this report and the NASA Environmental Tracking System (NETS). NETS information is gathered for required NASA-wide reporting on the Federal level. Additionally, the NETS reporting information continues to be used on-site for tracking waste minimization projects.

In addition, a site procedure for waste management continues to require an annual waste profile review by the waste generators and the contractor Environmental Department. The WSTF pollution prevention program includes waste minimization as part of any waste profile review.

b. Any employee training or incentive programs designed to identify and implement source reduction and recycling opportunities;

The 2000 training programs were continued during 2001. During 2001, all WSTF personnel received updates in their ISO 14001 EMS Awareness III Training, which emphasized pollution prevention, continuous improvement, and compliance with environmental laws. The EMS Awareness Training has been added to the Environmental Briefing for newly hired personnel. The NASA commitment to ISO 14001 has expanded WSTF pollution prevention and waste minimization awareness in monthly site newsletters, training sessions, and management skip level meetings. The Environmental Excellence Award Program that recognizes WSTF personnel that demonstrate initiative in meeting the EMS goals continued during 2001. Free lunch tickets are given to the recipients and their accomplishments are highlighted in the site newsletter.

In early December 2000, WSTF was approved as a Charter Member of the EPA's National Performance Track program. The Performance track is designed to recognize and encourage top environmental performers – those who go beyond compliance with regulatory requirements to attain levels of environmental performance and management that benefit people, communities, and the environment. In addition, on September 19, 2001, WSTF was awarded the NMED-sponsored Achievement Level Recognition of the Green Zia Environmental Excellence Program in a letter signed by Governor Gary Johnson.

c. Any source reduction and/or recycling measures implemented in the last five years or planned for the near future;

WSTF source reduction and recycling measures for the last year and future plans are presented in Appendix A, Tables 1-3.

d. 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 operation costs associated with WSTF source reduction and recycling are not specifically tracked; however, 2001 activities reflect significant cost savings. The return of lithium to an off-site facility for recycling, implementation of procedures to return propellant from sample bottles to storage tanks, and installation of a modern firing range continued to save NASA repurchase dollars and eliminates remediation, storage, off-site treatment, and disposal/recycling costs. Additional cost saving measures include low-flow sampling of groundwater well, improved handling of propellant sampling Hoke bottles, and a variety of GN₂ purges and deionized water flushes during decontamination of engines tested at WSTF.

e. Factors that have prevented implementation of source reduction and/or recycling;

The Standard Industrial Classification (SIC) Code for WSTF is 9661 (Space Research and Technology) with testing at WSTF supporting the space industry (i.e., Space Shuttle and Space Station). NASA test programs are dependent upon Federal funding and many projects are funded on a program-by-program basis. One-time, short-term, and inconsistent testing generates dynamic and variable waste streams that are difficult to manage for source reduction and recycling due to test requirements, military specifications, original equipment manufacturer specifications, and program timelines.

During FY 2001, WSTF support of Space Shuttle missions related to construction and maintenance at the International Space Station and National Defense System

testing has increased significantly. Increased customer testing requirements creates source reduction challenges for the site.

f. Sources of information on source reduction and/or recycling received at the facility (e.g., local government, trade associations, suppliers, etc.);

During FY 2001, NASA WSTF personnel have actively participated with NMED and DOD facilities at the Environmental Partnership and with the State of New Mexico Federal Facilities P2 Partnering Meetings. In addition, personnel continue to be active on committees that include, but are not limited to, the following: the EPA-sponsored United Nations Program (Solvents, Coatings, and Adhesives Technical Options) Committee to eliminate ozone depleting substances in cleaning applications in the Aerospace and Aircraft Industries; CERT Team, a NASA solvent replacement body; A10 Aerospace; ASTM G4 standards for cleaning procedures; and the Joint Group on Pollution Prevention. WSTF personnel participate in NASA-sponsored Pollution Prevention Workshops that involve the sharing of pollution prevention successes and strategies among NASA Centers throughout the United States.

Information available on the Internet (NMED, EPA, Office of the Federal Environmental Executive (ofee.gov), intra-agency NASA facility, and TOMES CPS Home Pages) continuously offer information related to source reduction and recycling which are utilized by WSTF personnel. The NETS and NASA Recycling Video Teleconferencing Systems are two extremely effective methods for providing WSTF with current information. Additionally, the EMS procedure, WSP 22-0021, "Legal and Other Requirements" provides a system that describes how to access, review, identify, and document legal and other requirements for applicable EPA, NMED, Executive Order, and NASA regulatory compliance.

WSTF signed a Project XL agreement between NASA, EPA, and NMED that implements an extensive Internet (web)-based information management and regulatory reporting system. Project XL will provide the EPA and multiple NMED Bureaus with real-time access to regulatory reports, historical site archives, graphical interpretations of site conditions, and cross-media environmental compliance information and reports. In addition to reducing the time required for the flow of information, the Project will significantly minimize white paper use and labor hours.

g. 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;

Current WSTF procedures continue to require an annual WSTF Individual Waste Profile Sheet (WIWPS) review for all WSTF waste streams. This analysis provides for continuing investigations into minimization efforts. The yearly evaluation includes generation process changes, contaminant concentrations, quantity variations, and minimization possibilities.

The Contamination Control Facility (Clean Room) continuously researches hazardous waste reduction, product replacement, and product conservation efforts. Currently, the use of HFE 7100 in lieu of Freon 113 is being used for final clean, cleanliness verification, and shuttle testing. The ISO 14001 EMS targeted Freon 113 for a usage reduction of twenty-five percent. This target was achieved by WSTF during FY00 and again during FY01. In addition, the customer has approved testing the use of hot GN2 as an alternative decon/flush process. Previously, decon water has entered the permitted Hazardous Waste Management Operating Unit.

h. The Permittee shall submit a flow chart or matrix detailing all hazardous wastes it produces by quantity, type, and building/area;

The updated 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. The WIWPS is a database system used to track facility waste. In addition, manifests and logbooks are used to track waste streams shipped off-site.

i. 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 space industry. The wastes generated in association with this testing are derived from the following processes: engine firings, developmental research, equipment cleanliness/repair, 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. In addition, WSTF's remoteness and the lack of access to a Publicly Owned Treatment Works (POTW) continues to require that WSTF manage several non-hazardous waste streams in permitted Hazardous Waste Operating Units to ensure non-contact with existing groundwater contamination.

APPENDIX A

SOURCE REDUCTION AND RECYCLING

TABLES

TABLE 1**WSTF HAZARDOUS WASTE SOURCE REDUCTION 2001**
September 30, 2001 - October 1, 2002

YEAR	SOURCE REDUCTION EFFORT	NET REDUCTION
2001	NASA has installed dedicated low-flow sampling equipment into twenty-five groundwater wells. The new technology allows continued use of current well structures, avoids drilling new wells, and minimizes purge water (hazardous waste identified as Investigative Derived Waste).	25,336 gal (95,897 L)
2001	The Machine Shop installed a cutting fluid recycling system that removes oils, reduces bacterial growth (contamination), and allows the reuse of the fluid. The system avoids off-site disposal of contaminated fluid as hazardous waste.	200 gal (757 L)
2001	The customer approved propulsion test changes to the Minuteman III engine post-test decontamination procedures that recommended elimination of isopropyl alcohol (IPA). A deionized water flush followed by a hot GN2 purge eliminates hazardous waste disposal costs for IPA.	200 gal (757 L)
2001	The Chemistry Laboratory started a chemical inventory system using barcodes. The system will improve stock control, avoid excessive accumulation, reduce off-specification chemicals, and minimize waste generation and disposal.	Anticipated 20%
2001	The MMH remaining in the one-liter Hoke bottles used for military specification analysis that fails is transferred to the Fuel Treatment Unit, a Hazardous Waste Treatment Operating Unit permitted for storage. To minimize required dilution waste and disposal quantities, the Hoke bottle are weighed to determine actual mass weight (ullage).	10 lb (4.5 kg)
2001	The Chamber Laboratory replaced two vacuum pumps with dry pumps. The pumps will reduce the lab's contaminated oil generation and avoid off-site disposal.	80% Anticipated

TABLE 2

WSTF HAZARDOUS WASTE RECYCLING 2001
September 30, 2000 - October 1, 2001

YEAR	HAZARDOUS WASTE RECYCLED	NET REDUCTION
2001	The Chemistry Laboratory shipped unneeded lithium to an off-site recycler avoiding safety concerns and off-site disposal costs.	665 grams
2001	The Security Section has installed a modern firing range with a bullet collection system. The accumulated lead will be recycled off-site.	Anticipated 80 lb
2001	The Metallurgy Laboratory sent out of date x-ray film to the property custodians at the 120 Warehouse for delivery to the DRMO Precious Metals Recovery Program. The silver will be recycled and avoid off-site disposal costs.	12 lb (5.5 kg)

TABLE 3**WSTF HAZARDOUS WASTE SOURCE REDUCTION/RECYCLING FUTURE PLANS****September 30, 2001 - October 1, 2002**

YEAR	PLANNED SOURCE REDUCTION/RECYCLING	NET REDUCTION
2002	The Components Test Facility successfully completed testing the use of a hot GN ₂ purge for decontamination of the Space Shuttle Orbital Maneuvering System Engines. Pending customer approval, there will be a significant reduction in decontamination fluids. A similar process is being planned for implementation to decontaminate Primary Reaction Control System engines.	1300 gal (4,921 L)
2004	The Propulsion Test Office, Test Stand 303, started testing the use of lithium batteries as an energy source for Electric Auxiliary Power Units (EPAU's). The change will eliminate the use of hydrazine and the associated waste streams. These waste streams will include decon water with fuel and vent tank water, exhaust products that enter the 302 pond, and steam generation (diesel, water usage, and generation of high TDS water from water softening activities).	25%
2002-2007	The Facilities Department implemented a program to eliminate mercury vapor lamps, through attrition, by replacing spent lamps with lamps purchased without mercury vapor.	Anticipated 98%
2002	Currently there is a Work Plan to investigate the lead concentrations in the soil at an abandoned firing range. If the sample analysis exceeds the regulatory action limits, WSTF will collect and recycle the lead from the remediated soils.	Currently Unknown
2002	The Laboratories Office will continue to investigate projects that utilize in-specification monomethylhydrazine (MMH) from propellant testing. The MMH remaining in the one-liter Hoke bottles used for military specification analysis can be used in various test programs instead of being disposed of as waste. In addition, a new fuel Hoke bottle disposal procedure is in-place for returning the in specifications Hokes from the Chemistry Laboratory to Propulsion Test fuel storage tanks for use in Space Shuttle engine testing.	10 gal (3.8 L)

APPENDIX B
HAZARDOUS WASTE MATRIX

2001 WSTF HAZARDOUS WASTE GENERATION MATRIX

OFF-SITE RECYCLING

SAFETY-KLEEN CARBURETOR CLEANER - (VENDOR SUPPLIES PRODUCT/SERVICE/MACHINE/MANIFESTS) (LAND BAN METALS)				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-01-08	Waste Carburetor Cleaner	156	Heavy Equipment	249 lb (113 kg)

OFF-SITE RECYCLING

SAFETY-KLEEN BRAKE CLEANER - (VENDOR SUPPLIES PRODUCT/SERVICE/MACHINES/MANIFESTS) (D039)				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-01-15	Waste Brake Cleaner (Aqueous)	156	Heavy Equipment	168 lb (77 kg)
10-10-06	Waste Brake Cleaner (Aqueous)	151	GSA	169 lb (78 kg)

OFF-SITE RECYCLING

*BATTERIES LEAD ACID (CORROSIVE WITH LEAD D008) RECYCLED AT ENSCO, EL DORADO, AR				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-01-06	Spent Batteries	113	Heavy Equipment	See WIWPS 10-20-02**
10-09-08	Spent Batteries	637	Environmental	See WIWPS 10-20-02
10-10-08	Spent Lead /Acid Batteries	150	GSA	See WIWPS 10-20-02
10-20-02	Spent Batteries (Lead Acid)	150	150 Warehouse/CSU	782 lb (335 kg)
20-04-60	Spent Batteries (Lead Acid)	200	Chem Lab	See WIWPS 10-20-02
20-18-01	Spent Batteries (Lead Acid)	200	200 UPS	See WIWPS 10-20-02
40-01-59	Spent Batteries (Lead Acid)	460	Propulsion Test Maintenance	See WIWPS 10-20-02
90-01-05	Spent Batteries	WSSH	Space Harbor	See WIWPS 10-20-02

* Additional recycling is accomplished by core exchanges with the battery vendors per requester/purchaser and weights were not tracked.

** Batteries collected for recycling were consolidated at the 150 Warehouse and shipped from the CSU.

OFF-SITE RECYCLING AND TREATMENT

*NICKEL CADMIUM (CADMIUM D006) RECYCLED BY R THERM AT ENSCO, EL DORADO, AR - STORED IN 150 DRUM STORAGE FACILITY				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-20-10	Spent Nicad Batteries	100	150 Warehouse	10 lb (4.5 kg)
20-01-46	Spent Nicad Batteries	200	Clean Room	20 lb (9 kg)
20-02-25	Spent Nicad Batteries	203	Metallurgy Lab	5 lb (2.3 kg)
20-04-11	Spent Nicad Batteries	200	Chem Lab	10 lb (4.5 kg)
20-13-07	Spent Nicad Batteries	200	Electrical Cal	5 lb (2.3 kg)
30-01-20	Spent Nicad Batteries	300	Propulsion Test (300 Area)	75 lb (34 kg)
40-01-20	Spent Nicad Batteries	400	Propulsion Test (400 Area)	50 lb (23 kg)

* Accumulated during 2001 but none were shipped off-site.

OFF-SITE TREATMENT

*LITHIUM BATTERIES (D003) DEACTIVATED AT ENSCO, EL DORADO, AR - STORED IN 150 DRUM STORAGE FACILITY				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-11-01	Waste Lithium Batteries	101	Computer Operations	<5 lb (2.3 kg)
10-20-09	Spent Lithium Batteries	100	150 Warehouse	<10 lb (4.9 kg)
20-09-02	Waste Lithium Batteries	203	Sample Prep	1 lb (0.5 kg)

* Accumulated during 2001 but none were shipped off-site.

OFF-SITE RECYCLING

MERCURY/MERCURY CONT. REFUSE (D009) RECYCLED BY R MERC AT ENSCO, EL DORADO, AR - STORED IN 150 DRUM STORAGE FACILITY				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-04-05	Waste Mercury Switches	120	Maintenance and Construction	0.25 lb (4.5 kg)
10-04-12	Mercury Containing Lamps	121/161	Facilities/Environmental	300 Each
10-20-14	Batteries Containing Mercury	150 Warehouse	Facilities/Environmental	100 Each
20-02-19	Cont. Mercury Materials	203	Metallurgy Lab	1 lb (0.45 kg)
20-02-33	Waste Mercury	203	Metallurgy Lab	0.2 lb (0.09 kg)
20-04-15	Cont. Mercury Materials	200	Chem Lab	15 lb (6.8 kg)
20-04-17	Mercury Liquid	200	Chem Lab	1 lb (0.45 kg)
20-10-01	Used Mercury/Cont. Materials	203	Calibration	1 lb (0.45 kg)
20-10-02	Flow Calibration Mercury Waste	203	Calibration	1 lb (0.45 kg)
80-01-05	Cont. Mercury Materials	800	Lab Tests	1 lb (0.45 kg)
80-04-14	Waste Mercury Batteries	800	Prep Lab	0.25 lb (0.11 kg)

* Accumulated during 2001 but none were shipped off-site.

OFF-SITE RECYCLING

PHOTO FIXING SOLUTION CANISTERS (SILVER D011) RECYCLED THROUGH DEFENSE REUTILIZATION AND MARKETING OFFICE				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-11-04	Silver Batteries	120	Warehouse	<1 lb (0.45 kg)
20-02-14	Spent X-ray Fixer	203	Metallurgy Lab	20 gal (75.7 L)
20-02-37	Expired X-Ray Film	200	Metallurgy Lab	5 lb (2.3 kg)
20-03-12	C-41 Fixer	200	Photo Lab	80 gal (303 L)
20-03-15	B & W Fixer	200	Photo Lab	30 gal (114 L)
20-03-25	Chrome Six Bleach Fix	200	Photo Lab	2.6 gal (10 L)
20-03-28	RA-4 Bleach Fix	200	Photo Lab	250 gal (946 L)
20-03-31	Waste P-4 Fixer	200	Photo Lab	2.6 gal (10 L)

* Accumulated during 2001 but none were shipped off-site.

OFF-SITE TREATMENT

WASTE PAINT AND ADHESIVE (D001, D006, D007, D008, D009, D035) INCINERATED OFF-SITE AT ENSCO, EL DORADO, AR STORED IN CONTAINER STORAGE UNIT

CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-03-01	Waste Paint	113	Facilities Construction/Maintenance/Site	2,000 lb (909 kg)
10-03-03	Paint Booth Filters	113	Facilities Construction/Maintenance	25 lb (11 kg)
10-20-03	Paint – Spray Cans	112	Fire Department	1 gal (3.8 L)
10-20-05	Spent Aerosol Containers	161	Environmental/Site	10 gal (37.8 L)
10-99005	Fibred Aluminum Liquid Roof Coating	600	Environmental	7 gal (26.6 L)
20-01-49	Waste Paints/Adhesives	200	Clean Room	4 gal (15 L)
20-08-03	Unused Test Samples	200	Materials Prep	None Generated 2001
20-99101	Photographic Lacquer	200	Photo Lab	1 gal (3.8 L)
30-01-13	Spray Paint Cans	300	Propulsion Test (300 Area)	1 gal (3.8 L)
35-01-20	Waste/Off-Spec Epoxies and Glues	200	Propulsion Test (Components Test)	2 lb (0.9 kg)
40-01-13	Off-spec Paint and Adhesive Cans	460	Propulsion Test (Warehouse)	5 gal (18.9 L)

OFF-SITE TREATMENT

CONTAMINATED OILS - VACUUM PUMP, REFRIGERATION, SLUDGE, AND MACHINE SHOP, (F001, F002, F003, F005, D002, D005, D007, D008, D009) INCINERATED OFF-SITE AT ENSCO EL DORADO, AR-STORED IN CONTAINER STORAGE UNIT				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-01-11	Oily Sludge	113	Heavy Equipment/Site	1,989 lb (904 kg)
10-02-02	Machine Shop Oil	113	Machine Shop	4,241 lb (1,928 kg)
10-06-09	Waste Refrigeration Oil	121	Facilities Maintenance	105 lb (48 kg)
20-04-38	Cont. Hydrocarbon Oil/Sludge	200	Chem Lab	1.3 gal (5 L)
20-06-07	Cont. Vacuum Pump Oil	200	Valve Shop	15 gal (56.8 L)
20-07-04	Cont. Vacuum Pump Oil	203	Chamber Lab	30 gal (114 L)
27-01-17	N ₂ H ₄ Cont. Oil	270	Laboratory Programs	1 gal (3.8 L)
30-02-06	Cont. Vacuum Pump Oil	322	Propulsion Test (Space Station)	10 gal (37.8 L)
40-02-15	Cont. Vacuum Pump Oil	437	Propulsion Test (Steam)	200 gal (757 L)
80-01-07	Waste Lox Pump Oil	800	Hazardous Fluids Test	0.13 gal (0.5 L)
80-02-36	N ₂ H ₄ Cont. Vacuum Pump Oil	839	Hazardous Fluids Test	1 gal (3.8 L)
80-02-62	Fuel Contaminated Oil	800	Hazardous Fluids Test	5 gal (18.9 L)
80-02-64	Oxidizer Contaminated Oil	800	Hazardous Fluids Test	2 gal (7.6 L)
80-03-09	N ₂ H ₄ Cont. Vacuum Pump Oil	800	Hazardous Fluids Test	1 gal (3.8 L)
80-04-13	Post-Test Oils and Greases	800	Prep Lab	1 gal (3.8 L)
80-99103	Contaminated Oil	800	Hazardous Fluids Test	0.25 gal (0.9 L)

OFF-SITE TREATMENT

CONTAMINATED (FUEL) SOFT GOODS (P068, U098, U099, U133) INCINERATED OFF-SITE AT ENSCO, EL DORADO, AR. - STORED IN CONTAINER STORAGE UNIT				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
20-01-25	Fuel Cont. Soft Goods	200	Clean Room	5 lb (2.3 kg)
20-04-18	Fuel Cont. Soft Goods	200	Chem Lab	100 lb (45.5 kg)
20-04-63	Hydrazine Autosample Refuse	200	Chem Lab	30 lb (13.6 kg)
20-04-76	UDMH Cont. Soft Goods	200	Chem Lab	0.5 lb (1 kg)
27-01-07	Fuel Cont. Soft Goods	270	Laboratory Programs	25 lb (11.4 kg)
30-01-08	Fuel Cont. Soft Goods	301	Propulsion Test (300 Area)	5 lb (2.3 kg)
35-01-03	Fuel Cont. Soft Goods	200	Propulsion Test (Component Test)	5 lb (2.3 kg)
40-01-08	Fuel Cont. Soft Goods	412	Propulsion Test (400 Area)	10 lb (4.5 kg)
50-20-01	Fuel Cont. Soft Goods	500	Fuel Treatment Unit	2 lb (0.9 kg)
80-02-09/66	Fuel Cont. Soft Goods	800	Hazardous Fluids Test	15 lb (6.8 kg)

OFF-SITE TREATMENT

SOLVENT CONTAMINATED SOFT GOODS AND REFUSE (F001, F002, F003, F005, D007, D008, D009, D011) INCINERATED OFF-SITE AT ENSCO, EL DORADO, AR STORED IN CONTAINER STORAGE UNIT				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-02-07	Dye Penetrant Refuse	113	Machine Shop	10 lb (4.5 kg)
10-03-04	Soiled Rags (Solvent Cont. Soft Goods)	Tiki 151	Paint Shop	10 lb (4.5 kg)
10-20-01	Cont. Refuse	163	Container Storage Unit	100 lb (45 kg)
20-01-33	Solvent Cont. Soft Goods	200	Clean Room	28 lb (12.7 kg)
20-02-22/34	Cont. Refuse	200	Metallurgy Lab	50 lb (23 kg)
20-04-40	Cont. Refuse	200	Chem Lab	75 lb (34 kg)
20-04-71/73	Cont. Soft Goods	200	Chem Lab	2.3 lb (5 kg)
20-05-08	Cont. Refuse	200	Etch Lab	10 lb (4.5 kg)
20-06-09	Cont. Refuse	203	Chamber Lab	10 lb (4.5 kg)
20-07-06	Solvent Cont. Soft Goods	200	Valve Shop	20 lb (9 kg)
20-15-02	Solvent/Oil Cont. Soft Goods	200	Materials Prep	2 lb (0.9 kg)
27-01-23	Cont. Refuse	272	Lab Programs (Horizontal Det Tube)	30 lb (13.6 kg)
30-01-06	Solvent Cont. Soft Goods	301	Propulsion Test (300 Area)	3 lb (2.3 kg)
30-99101	Plating Residue	320	Propulsion Test (Electrical)	0.25 lb (0.1 kg)
35-01-18	Solvent Cont. Soft Goods	200	Propulsion Test (Component Test)	5 lb (2.3 kg)
40-01-56	Epoxy Residues	416	Propulsion Test (Peacekeeper)	0.25 lb (0.1 kg)
80-02-39	Cont. Refuse	800	Hazardous Fluids Test	10 lb (4.5 kg)
80-04-09	Cont. Refuse	803	Prep Lab	0.25 lb (0.1 kg)

OFF-SITE TREATMENT

ORGANIC SOLVENTS, CLEANERS, THINNERS (F001, D001, D009) INCINERATED OFF SITE AT ENSCO, EL DORADO, AR - STORED IN CONTAINER STORAGE UNIT				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-02-08	Dye Penetrant	113	Machine Shop	1 gal (3.8 L)
10-03-02	Waste Thinner	112	Facilities Construction	10 gal (37.9 L)
10-04-08/11	Waste Lacquer Thinner	121	Facilities Maintenance	4 gal (15.1 L)
10-99102	Silicone Primer	120	Warehouse	0.25 gal (0.9 L)
20-01-05	Spent Isopropyl Alcohol	200	Clean Room	50 gal (194 L)
20-01-40	Pre-Clean Acetone	200	Clean Room	5 gal (18.9 L)
20-01-48	Dynasolu 225	200	Clean Room	1 gal (3.8 L)
20-02-05	Spent Organic Solvents	203	Metallurgy Lab	2 gal (7.7 L)
20-04-04	Spent Organic Solvents	200	Chem Lab	100 gal (378 L)
20-04-12	Waste Organics	200	Chem Lab	10 gal (37.9 L)
20-04-30	Waste Acetone	200	Chem Lab	1 gal (3.8 L)
20-04-32	VCM Organic Waste	200	Chem Lab	2.6 gal (10 L)
20-04-33	Spent Photovolt Solution	200	Chem Lab	1.3 gal (5 L)
20-04-42	Fluorinated Solvents	200	Chem Lab	5 gal (18.9 L)
20-04-48	Spent 1,1-Dichloro-1-Fluoroethane	200	Chem Lab	5 gal (18.9 L)
20-04-53	Toluene/IPA	200	Chem Lab	2.6 gal (10 L)
20-04-54	Freon Spec Waste	200	Chem Lab	0.5 gal (2 L)
20-04-55	VOC Cont. Aqueous Waste	200	Chem Lab	0.26 gal (1 L)
20-04-67	Fuel Cont. IPA	200	Chem Lab	0.26 gal (1 L)
20-04-69	Spent N-Methyl-2-Pyrrolidone	200	Chem Lab	2.6 gal (10 L)
20-04-72	Dimethyl-2-Azidoethylamine	200	Chem Lab	0.26 gal (1 L)
20-08-04	Methyl Isobutyl Ketone	200	Prep Lab	3.5 oz (100 ml)
20-14-04	Solar Brite	200	Clean room (PPE)	2 gal (7.6 L)
27-99001	Organic Solvents (Xylene Toluene)	270	Laboratory Programs	6 gal (22.7 L)

30-02-18	Waste Organic Solvents	300	Propulsion Test (Test Stand 303)	10 gal (37.9 L)
35-01-05	Waste IPA	200	Propulsion Test (Component Test)	0.53 gal (2 L)

CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
35-01-32	Spent & Off-spec Primer 2001	200	Propulsion Test (Component Test)	0.26 gal (1 L)
40-01-57	PK/MM Decon Fluids W/IPA	400	Propulsion Test (Peacekeeper)	400 gal (1515 L)
40-02-08	Waste IPA/Water	400	Propulsion Test (Steam)	20 gal (76 L) None Generated 2001
80-04-03	Waste Organic Solvents	800	Materials Test	6 gal (22.7 L)

OFF-SITE TREATMENT

WASTE FUEL (P068, U098, U099, U133) INCINERATED OFF-SITE AT SAFETY-KLEEN, DEER PARK, TX STORED IN FUEL TREATMENT UNIT AT <10%				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
20-04-61	Waste Fuel Hokes	200	Chem Lab	10 gal (37.8 L)
30-01-01	Fuel Cont. Decon Water	300	Propulsion Test (300 Area)	40 gal (151 L)
30-01-03	Fuel Cont. Aspirator Water	300	Propulsion Test (300 Area)	50 gal (189 L)
30-01-33	Vent Tank Residue With Fuel	300	Propulsion Test (Flume)	None Generated 2001
30-02-01	Hydrazine Cont. Decon Water	300	Propulsion Test (302/3 Test Area)	2 gal (7.6 L)
35-01-01	Fuel Cont. Decon Water	200	Propulsion Test (Component Test)	1 gal (3.8 L)
40-01-01	Fuel Cont. Decon Water	400	Propulsion Test (400 Area)	50 gal (189 L)
40-01-03	Fuel Cont. Aspirator Water	400	Propulsion Test (400 Area)	50 gal (189 L)
40-01-05	Off-Spec Fuel	400	Propulsion Test (400 Area)	None Generated 2001
40-01-47	Vent Tank Residue With Fuel	400	Propulsion Test (Flume)	61,980 lb (28173 kg)
80-02-04/26	Waste Fuel 2%	800	Hazardous Fluids Test Area	2,170 gal (8213 L)
80-02-28	N ₂ H ₄ Cont. Aspirator Water	844	Hazardous Fluids Test Area	100 gal (378 L)
80-02-46/61	Fuel Cont. Decon Water	800	Hazardous Fluids Test Area	56 gal (212 L)

ON-SITE TREATMENT

WASTE FUEL (P068, U133, U099) DILUTED AND TREATED IN EVAPORATION TANK				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
20-04-03/75	Waste Fuel	200	Chem Lab	100 gal (378 L)
20-04-49	Fuel Scrubber Waste Water	200	Chem Lab	1,000 gal (3,785 L)
80-02-19/60	Fuel Decon Water	800	Hazardous Fluids Tests	450 gal (1,703 L)

OFF TREATMENT

WASTE EXPLOSIVES A, B, AND C DETONATED AT OPEN DETONATION UNIT (USE DISCONTINUED IN 1999)				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
70-01-01	Waste Explosives A, B, and C	180	Explosives Storage	3 lb (1.4 kg)

ON-SITE TREATMENT

NEUTRALIZED (D003) TREATED IN EVAPORATION TANKS				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
20-04-02	Cyanide Bearing Waste	200	Chem Lab	0.26 gal (1 L)

ON-SITE TREATMENT

INVESTIGATIVE DERIVED WASTE (F001, F002) TREATED IN EVAPORATION TANKS				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-09-05	Purged Groundwater	All Areas	Environmental Department	150,000 gal (567,750 L)

ON-SITE TREATMENT

CORROSIVES DILUTED AND TREATED IN THE EVAPORATION TANKS				
CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
10-08-02	Ammonium Hydroxide	100	Drafting	10 gal (37.9 L)
20-01-11	Spent Oakite HD126 Solution	200	Clean Room	2,008 gal (7,600 L)
20-01-13	Spent Oakite Ruststripper	200	Clean Room	500 gal (1,892 L)
20-01-14	Spent Pickling Solution	200	Clean Room	50 gal (189 L)

20-01-22	Derust H SS-3	200	Clean Room	5 gal (18.9 L)
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CURRENT WIWPS	WASTE NAME	BUILDING	AREA	ANNUAL QUANTITY
20-01-38	Citric Acid 5%	200	Clean Room	1,000 gal (3,875 L)
20-01-41	Brass/Copper Brightener	200	Clean Room	5 gal (18.9 L)
20-01-44	Acid Deoxidizer	200	Clean Room	110 gal (416 L)
20-01-48	Dynasol	200	Clean Room	1 gal (3.8 L)
20-01-50	Waste Oakite 31	200	Clean Room	2,080 gal (7,873 L)
20-01-51	Waste Phosphoric Acid 3%	200	Clean Room	1,000 gal (3,876 L)
20-01-52	Spent Oakite 90	200	Clean Room	10 gal (37.9 L)
20-02-01	Spent Etchants	200	Metallurgy Lab	1 gal (3.8 L)
20-03-30	Waste P-4 Bleach/Neut.	200	Photo Lab	10 L
20-04-58	Calorimetry Nitrate Waste	200	Chem Lab	0.5 L
20-04-65	Aqueous Inorganic Lab Waste	200	Chem Lab	500 gal (1,892 L)
20-04-74	Hydrolized Oxidizer	200	Chem Lab	112 gal (424 L)
20-05-06	Spent Tinpost Solution LT-26	203	Etch Lab	5 gal (18.9 L)
30-01-02/37	Decon Water w/Oxidizer	301	Propulsion Test (Shuttle)	50 gal (189 L)
30-01-04	Oxidizer Aspirator Water	301	Propulsion Test (Shuttle)	50 gal (189 L)
40-01-02	Decon Water w/Oxidizer	412	Propulsion Test (Shuttle)	50 gal (189 L)
40-01-04	Oxidizer Aspirator Water	412	Propulsion Test (Shuttle)	100 gal (379 L)
40-02-20	Waste Boiler Water Test Chemicals	415	Propulsion Test (Steam)	5 gal (18.9 L)
70-99001/80-02-67	Hydrogen Peroxide <10%	800	Laboratory Programs	2,100 gal (7,948 L)
80-04-01	Igniter Waste	803	Materials Prep	25 gal (95 L)
80-04-17	Spent Oakite 31	803	Materials Prep	10 gal (37.9 L)
80-04-18	Spent Oakite 126	803	Materials Prep	10 gal (37.9 L)