

**NASA - John F. Kennedy Space Center**

**Pollution Prevention Plan**

**Prepared by**

**KSC Environmental Program Branch**

**May 2005**

In response to the new Executive Order 13148, *Greening the Government through Leadership in Environmental Management* dated April 21, 2000, the *NASA Guidance to Implement Executive Order 13148\**, and the NASA Procedures and Guidelines, *NPG 8820.3 Pollution Prevention*, the KSC Environmental Program Branch has revised and updated this KSC Pollution Prevention Implementation Plan.

## **I. KENNEDY SPACE CENTER POLLUTION PREVENTION GOALS**

1. Develop and implement Environmental Management Systems by the December 31, 2005.
2. Establish and implement Environmental Compliance Audit programs.
3. Revise and update KSC Pollution Prevention Implementation Plan annually.
4. Report the Center activities under EPCRA annually.
5. Reduce the reportable KSC Toxic Release Inventory (TRI) releases and off-site transfers of toxic chemicals for treatment and disposal by 10% annually, or by 40% overall by December 31, 2006.
6. Reduce the use or waste of priority or selected chemicals by 50% by December 31, 2006.
7. Develop a plan to phase out the procurement of Class I Ozone Depleting Substances by December 31, 2010.
8. Implement environmentally sound landscape practices.
9. Comply with EO 13148 requirements and note EO 13148 recommendations.

## **II. KENNEDY SPACE CENTER POLLUTION PREVENTION IMPLEMENTATION PLAN**

### ***a. Goal 1 – Develop and implement Environmental Management System***

KSC must implement an Environmental Management System (EMS) by December 31, 2005 per EO 13148. The Chief of the KSC Environmental Program Branch (EPB) and EMS group should lead the development and the implementation of EMS at KSC.

EMS is in placed at KSC in February 2005. KSC employees can access information about KSC EMS at KSC Business World, <http://businessworld.ksc.nasa.gov>.

### ***b. Goal 2 - Establish and implement Environmental Compliance Audit programs***

KSC must conduct Center environmental compliance audits every three years. Each compliance finding should accompany by a solution to remedy the finding and the compliance audits results should address systematically through formal documentation and review procedures.

The Chief of the KSC EPB, the lead of the Environmental Permitting and Compliance group and the lead of the Environmental Management Systems group should determine the compliance audit protocol.

The Chief of the KSC EPB should present the results of compliance audits to senior management and identify actions required of senior management to address non-compliance. Corrective actions will be provided to the responsible parties for resolution.

***c. Goal 3 - Revise and update Pollution Prevention Implementation Plan annually***

KSC will revise and update the KSC Pollution Prevention Implementation Plan annually. The plan shall integrate any findings and results from any EMR's or any compliance audits. The plan also shall consider any new rules, regulations or Executive Orders.

***d. Goal 4 - Report Center activities under EPCRA annually***

KSC must report releases and transfers of toxic chemicals using the Emergency Planning and Community Right-to-Know Act (EPCRA) Section 313 Toxic Release Inventory (TRI) Form R on every July 1<sup>st</sup> of each year to the US EPA and the State of Florida State Emergency Response Commission (SERC).

KSC must comply with Sections 301 through 312 of EPCRA. KSC must have and make the material safety data sheets (MSDSs) available to all KSC employees and to local emergency planning committees (LEPC).

KSC must prepare and report the estimate amount of toxic chemicals stored at KSC through the EPCRA Tier II reporting. KSC must report the EPCRA Tier II data to the EPA, the SERC, the LEPC and the KSC Fire Department on every March 1<sup>st</sup> of each year.

KSC must prepare and report Pollution Prevention activities to the NASA HQ EMD on every October of each year. The report shall include any waste minimization activities in accordance with section 6607 of the Pollution Prevention Act.

The KSC EMS group is responsible for submitting the EPCRA Tier II report, the EPCRA TRI report and the Pollution Prevention report to the US EPA, the SERC, the LEPC, the KSC Fire Department and the NASA HQ EMD.

***e. Goal 5 - Reduce KSC Toxic Release Inventory (TRI) releases and off-site transfers of toxic chemicals for treatment and disposal by 10% annually, or by 40% percent overall by December 31, 2006***

KSC must establish the baseline of TRI releases and off-site transfers of toxic chemicals for treatment and disposal by the end of calendar year 2001.

KSC must reduce the TRI releases and off-site transfers of toxic chemicals for treatment and disposal by 10% annually or by 40% percent overall by December 31, 2006.

The KSC EMS group will coordinate source reduction and waste minimization efforts with all KSC contractors to reduce the TRI releases and off-site transfers of toxic chemicals for treatment and disposal.

***f. Goal 6 - Reduce selected hazardous waste streams by 10% annually from previous year***

KSC has identified the hazardous waste streams that are consistently generated at KSC from CY 2000 to CY 2003 for 10% reduction annually from previous year. The KSC EMS group will coordinate effort with all KSC contractors to reduce these selected hazardous waste streams.

**g. Goal 7 - Develop a plan to phase out the procurement of Class I Ozone Depleting Substances by December 31, 2010**

The KSC EMS Group, with support from the KSC Environmental Permitting and Compliance group, will coordinate effort with all KSC contractors to develop a plan to phase out the procurement of Class I Ozone Depleting Substances (ODS) by December 31, 2010.

Class I ODS Chemical Name	CAS Number	Current Applications	Procurement	Purchased Amount
CFC-11 (CCl <sub>3</sub> F) Trichlorofluoromethane	75-69-4	- Refrigerant	---	---
CFC-12 (CCl <sub>2</sub> F <sub>2</sub> ) Dichlorodifluoromethane	75-71-8	- Refrigerant - Leak Detection Calibration	Yes	180 lbs/yr
CFC-113 (C <sub>2</sub> F <sub>3</sub> Cl <sub>3</sub> ) 1,1,2- Trichlorotrifluoroethane	76-13-1	- Precision Cleaning - Leak Detection Calibration - Cryogenics Research	---	---
CFC-114 (C <sub>2</sub> F <sub>4</sub> Cl <sub>2</sub> ) Dichlorotetrafluoroethane	76-14-2	- Refrigerant - Leak Detection Calibration - Orbiter Processing	---	---
CFC-115 (C <sub>2</sub> F <sub>5</sub> Cl) Monochloropentafluoroethane	76-15-3	- Refrigerant	---	---
Halon 1211 (CF <sub>2</sub> ClBr) Bromochlorodifluoromethane	353-59-3	- Fire Protection	---	---
Halon 1301 (CF <sub>3</sub> Br) Bromotrifluoromethane	75-63-8	- Fire Protection	Yes	66 lbs/12 yrs
CFC-13 (CF <sub>3</sub> Cl) Chlorotrifluoromethane	75-72-9	- Leak Detection Calibration	Yes	1 lb/yr
Methyl Chloroform (C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub> ) 1,1,1- trichloroethane	71-55-6	- Orbiter Processing	---	---

**h. Goal 8 - Implement environmentally sound landscape practices**

According to KSC Center Services Division, KSC is currently using an environmentally sound landscape practice by: a) Planting plants that are drought resistance or required minimum watering, b) Using mulches to minimize water evaporation, c) Efficient irrigation, and d) Appropriate maintenance.

**i. Goal 9 - Comply with EO 13148 requirements and note EO 13148 recommendations**

KSC shall incorporate the goals of EO 13148 into proper KSC Handbooks (KHB) and KSC Management Instructions (KMI) as required.

**III. KSC EPCRA IMPLEMENTATION PLAN**

EPCRA intends to improve local community access to information about chemical hazards and to improve the state and local emergency response capabilities. EPCRA has three main objectives:

- To bolster local emergency planning efforts
- To improve emergency notification in the event of a release of hazardous chemicals
- To develop a baseline on routine chemical releases into the environment

To meet these objectives, EPCRA created four types of reporting obligations for facilities that store or manage specified listed chemicals. All information submitted pursuant to EPCRA regulations is publicly accessible, unless protected by a trade secret claim.

#### **A. Notification Of Extremely Hazardous Substances**

EPCRA §302 requires facilities to notify the State Emergency Response Commission (SERC) and the Local Emergency Planning Committee (LEPC) of the presence of any "extremely hazardous substance" if it has the substance in excess of the specified "threshold planning quantity". The list of such substances is in 40 CFR Part 355, Appendices A and B. It also directs the facility to appoint an emergency response coordinator.

*KSC Implementation Plan:* The KSC EPB will notify the SERC and the LEPC on all extremely hazardous substances at KSC.

#### **B. Notification During Releases**

EPCRA §304 requires facilities to notify the SERC and the LEPC in the event of a release exceeding the "reportable quantity" of a CERCLA hazardous substance or an EPCRA extremely hazardous substance. EPCRA extremely hazardous substances and reportable quantities are listed in 40 CFR 355.

*KSC Implementation Plan:* KSC EPB keeps track of all "reportable quantity" releases and any other "non-reportable quantity" releases annually by using the Pollution Incident Report (PIR). Appendices A1, A2, A3 and A4 provide the KSC PIR System, the CY 2003 and the latest CY 2004 KSC PIR data, respectively.

#### **C. Emergency Planning (EPCRA Tier II)**

EPCRA §311 and §312 require facilities to notify SERC, LEPC, and the local fire department of all hazardous chemicals for which the Occupational Health and Safety Administration requires material safety data sheets (MSDSs). The facility must submit either the MSDSs or a list of the substances for which MSDSs are maintained. If a list is submitted, hazardous chemical inventory forms (also known as Tier I and II forms) must also be submitted. A "Tier I" form provides information about hazardous chemicals grouped by hazard category. A "Tier II" form provides information about each specific hazardous chemical. This information helps the local government respond in the event of a spill or release of the chemical. These requirements are found at 40 CFR 370, Hazardous Chemical Reporting: Community Right-to-Know.

*KSC Implementation Plan:* On March 1<sup>st</sup> of each year, the KSC EPB will submit the EPCRA Tier II Report to the EPA, the SERC, the LEPC and the KSC Fire Department. The below tables are list of Extremely Hazardous Substances (EHS) reportable chemicals and Non-EHS reportable chemicals, respectively. Appendix B identifies the KSC EPCRA Tier II reporting process.

EHS		RY 2002		RY 2003		RY 2004	
CHEMICAL DESCRIPTION	CAS NUMBER	Max. Daily Amt (lbs.)	Avg Daily Amt (lbs.)	Max. Daily Amt (lbs.)	Avg Daily Amt (lbs.)	Max. Daily Amt (lbs.)	Avg Daily Amt (lbs.)
1,1-dimethyl Hydrazine	57-14-7	18,765	18,765	18,765	18,765	18,765	18,765
Methyl Hydrazine	60-34-4	151,015	104,893	147,968	103,292	147,968	103,293
Epichlorohydrin (SRM)	106-89-8	263,980	198,889	188,557	146,300	113,134	77,696
Hydrazine	302-01-2	40,935	38,185	41,599	38,347	40,715	38,029
Diglycidyl Ether(dge)	2238-07-5	N/R	N/R	N/R	N/R	N/R	N/R
Ammonia	7664-41-7	5,759	3,609	5,693	3,544	5,692	3,546
Sulfuric acid	7664-93-9	3,295	1,798	3,119	1,814	1,537	1,262
Nitric Acid	7697-37-2	7,679	5,791	7,688	5,803	7,272	5,770
Chlorine	7782-50-5	608	607	607	607	606	606
Nitrogen Dioxide (Nitrogen Tetroxide)	10102-44-0	328,971	252,563	324,031	249,963	324,031	249,963

		RY 2002		RY 2003		RY 2004	
CHEMICAL DESCRIPTION	CAS NUMBER	Max. Daily Amount (lbs.)	Avg Daily Amount (lbs.)	Max. Daily Amount (lbs.)	Avg Daily Amount (lbs.)	Max. Daily Amount (lbs.)	Avg Daily Amount (lbs.)
Isopropyl Alcohol (Isopropanol)	67-63-0	34,600	9,676	46,073	21,689	35,326	14,181
Acetylene	74-86-2	26,104	25,958	26,477	26,133	175,840	175,556
Propane	74-98-6	39,012	29,147	38,858	29,144	40,700	30,924
Dichlorofluoromethane (Freon-21)	75-43-4	24,000	24,000	24,001	24,000	24,001	24,001
Chlorodifluoromethane (Freon 22)	75-45-6	17,776	10,802	17,812	10,905	13,013	8,281
Bromotrifluoromethane (Halon 1301)	75-63-8	24,722	24,530	24,200	24,200	24,200	24,200
Dichlorodifluoromethane (Freon 12)	75-71-8	N/R	N/R	N/R	N/R	N/R	N/R
Trichlorotrifluoroethane (Freon 113)	76-13-1	67,958	34,829	33,141	17,539	23,213	19,541
Dichlorotetrafluoroethane (CFC-114)	76-14-2	N/R	N/R	N/R	N/R	N/R	N/R
Citric Acid	77-92-9	58,928	52,521	59,377	52,969	59,178	52,636
Methylenebis(phenylisocyanate)							
MDI	101-68-8	N/R	N/R	N/R	N/R	N/R	N/R
2-Butoxyethanol	111-76-2	N/R	N/R	13,154	13,113	13,468	11,960
Malathion	121-75-5	N/R	N/R	N/R	N/R	N/R	N/R
Tetrachloroethylene (Perchloroethylene)	127-18-4	12,257	6,262	N/R	N/R	N/R	N/R
Bromacil	314-40-9	N/R	N/R	N/R	N/R	N/R	N/R
Diuron	330-54-1	N/R	N/R	N/R	N/R	N/R	N/R
Carbon Monoxide	630-08-0			N/R	N/R	N/R	N/R
Iron oxide (SRM)	1309-37-1	46,585	35,098	33,275	25,818	19,965	13,711
Potassium Hydroxide	1310-58-3	N/R	N/R	N/R	N/R	N/R	N/R
Sodium Hydroxide	1310-73-2	167,912	156,222	173,936	161,092	170,954	157,764
Xylene	1330-20-7	N/R	N/R	N/R	N/R		
Hydrogen	1333-74-0	1,206,257	704,581	1,206,106	704,492	983,537	778,734
Dimethylamine Salt of 2,4-Dichlorophenoxy Acetic Acid	2008-39-1	N/R	N/R	N/R	N/R	N/R	N/R
2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)	2837-89-0	14,000	14,000	12,000	12,000	14,140	13,375
Potassium Chlorate	3811-04-9	207,360	207,360	207,360	207,360	207,360	207,360

2,4-D, isopropylamine salt	5742-17-6	N/R	N/R	N/R	N/R	N/R	N/R
Aluminum Powder (SRM)	7429-90-5	2,173,952	1,637,909	1,552,823	1,204,820	931,694	639,848
Argon	7440-37-1	N/R	N/R	N/R	N/R	10,850	9,697
Helium	7440-59-7	539,740	425,531	539,139	425,722	543,518	429,773
Zinc	7440-66-6	N/R	N/R	N/R	N/R	19,344	13,976
Sodium Chloride	7647-14-5	102,400	102,400	102,400	102,400	102,410	102,410
Sulfur	7704-34-9	17,738	17,738	17,738	17,738	17,738	17,738
Hydrogen Peroxide	7722-84-1	N/R	N/R	N/R	N/R	N/R	N/R
Nitrogen	7727-37-9	4,977,992	3,941,517	4,978,174	3,941,539	4,977,456	3,939,759
Oxygen	7782-44-7	21,391,575	12,748,920	21,391,553	12,748,909	17,006,710	10,118,142
Ammonium perchlorate (SRM)	7790-98-9	9,627,500	7,253,596	6,876,786	5,335,632	4,126,071	2,833,613
Petroleum oil (Lubricating oils)	8002-05-9	68,448	35,890	73,234	49,731	22,912	17,205
Gasoline	8006-61-9	N/R	N/R	N/R	N/R	N/R	N/R
Kerosene	8008-20-6	660,089	659,717	659,709	659,706	659,723	659,715
Glyphosate, isopropylamine salt	38641-94-0	N/R	N/R	N/R	N/R	N/R	N/R
Petroleum light distillates	64742-47-8	308,435	297,593	N/R	N/R	294,796	294,587
Petroleum mid distillates (Diesel Fuel)	68476-34-5	917,790	866,700	1,193,489	1,146,414	2,568,900	2,502,477
Petroleum Distillates	68476-34-6	555,909	446,898	556,138	447,315	555,504	446,639
Petroleum Distillates	68476-86-8	N/R	N/R	N/R	N/R	36,150	31,310
Diesel(fuel oil #2)	77650-28-3	N/R	N/R	N/R	N/R	N/R	N/R
Imazapyr	81334-34-1	N/R	N/R	N/R	N/R	N/R	N/R

#### D. Toxic Release Inventory (Form R)

EPCRA §313 of Title III requires manufacturing facilities included in SIC codes 20 through 39, which have ten or more employees, and which manufacture, process, or use specified chemicals in amounts greater than threshold quantities, to submit an annual toxic chemical release report to EPA. This program is called the Toxic Release Inventory (TRI). The report, commonly known as the Form R, 1) covers releases and transfers of toxic chemicals to various facilities and environmental media, 2) allows EPA to compile the national Toxic Release Inventory (TRI) database, and 3) assists in research and development of regulations, guidelines, and standards. The TRI data are used nationally to track pollution prevention progress by industry. These requirements can be found at 40 CFR 372, Toxic Chemical Release Reporting: Community Right-to-Know.

KSC Implementation Plan: On July 1<sup>st</sup> of each year, the KSC EPB will submit the TRI Report to the EPA and the SERC. Appendix C identifies the KSC TRI reporting process.

CAS Number	Chemical Name	2003 TRI Activities Data			Reportable Code
		Manufacture Threshold (25,000 lbs) <i>unless it is PBT Chemical</i>	Process Threshold (25,000 lbs) <i>unless it is PBT Chemical</i>	OtherWise Use Threshold (10,000 lbs) <i>unless it is PBT Chemical</i>	
106898	Epichlorohydrin			37,771.0	REPORT (Form A)
76131	Freon 113			16,772.0	REPORT
60344	Methyl hydrazine			10,950.0	REPORT
7439921	Lead			3,535.2	REPORT
7429905	Aluminum			310,633.8	EXEMPT (310,564 lbs); BELOW O/U Threshold (69.8)

74862	Acetylene			279,769.0	lbs) EXEMPT - Facility Maintenance
75456	Chlorodifluoromethane (HCFC-22)			243,492.4	EXEMPT - Facility Maintenance (242,623 lbs); BELOW O/U Threshold (869.4 lbs)
7440666	Zinc			49,324.0	EXEMPT - Facility Maintenance (48,790 lbs); BELOW O/U Threshold (534 lbs)
75718	Dichlorodifluoromethane (CFC-12)			11,218.0	EXEMPT - Personal Use (7,495 lbs); BELOW O/U Threshold (3,723 lbs)

2002 TRI Activities Data					
CAS Number	Chemical Name	Manufacture Threshold (25,000 lbs) <i>unless it is PBT Chemical</i>	Process Threshold (25,000 lbs) <i>unless it is PBT Chemical</i>	OtherWise Use Threshold (10,000 lbs) <i>unless it is PBT Chemical</i>	Reportable Code
106898	Epichlorohydrin			188,557.00	REPORT (Form A)
60344	Methyl hydrazine			38,517	REPORT
76131	Freon 113			38,317.50	REPORT
127184	Tetrachloroethylene (Perchloroethylene)			10,721	REPORT
7439921	Lead			6,141.4	REPORT
74862	Acetylene			279,769	N/R - Facility Maintenance Exemption
7429905	Aluminum			1,552,864.9	1,552,822 - Exemp; 42.9 lbs - Below Threshold
75456	Chlorodifluoromethane (HCFC-22)			245,258.6	242,623 - Exemption; 2,635.6 lbs - Below Threshold
7440666	Zinc			20,364.8	18,254 - Exempt; 2,110.8 lbs
511	Nitrates	17,982			Below Mfg Threshold

KSC Top Waste Streams For CY 2000 to CY 2003								
Process Code	Waste Stream Description	EPA Waste Code	Contaminant	CAS Number	Regulatory Level (mg/L)	(\$)	(KG)	
1	HB0013 HX0005	Oxidizer Scrubber Liquor	D002	Corrosive Waste	---	---	\$78,621.55	174,006
2	HC0004	Chromate Solutions	D007	Chromium	7440-47-3	5	\$107,461.15	115,852
3	HD0008	Blasting Waste & Paint Removal Waste with metals	D005 D006 D007 D008	Barium Cadmium Chromium Lead	7440-39-3 7440-43-9 7440-47-3 7439-92-1	100 1 5 5	\$88,056.85	89,682
4	HJ0004	Isopropanol	D001	Ignitable Waste	67-63-0	---	\$11,617.55	10,828
5	HJ0055 HJ0056	Spent Paint Solvents	F003 F005 D001 D005 D006 D007 D008	Ignitable Waste Ignitable & Toxic Wastes Ignitable Waste Barium Cadmium Chromium Lead	--- --- --- 7440-39-3 7440-43-9 7440-47-3 7439-92-1	--- --- --- 100.0 1.0 5.0 5.0	\$17,845.68	26,114
6	HK0004	TC Organic Solids/Debris	D039	Tetrachloroethylene	127-18-4	0.7	\$221,269.85	47,091
7	HK0012 HK0017 HK0027	Debris with Toxic Paint Residues	D004 D005 D006 D007 D008 D010 D028 D029 D035 D039 D040 F002 F005	Arsenic Barium Cadmium Chromium Lead Selenium 1,2-Dichloroethane 1,1-Dichloroethylene Methyl Ethyl Ketone Tetrachloroethylene Trichloroethylene Spent halogenerated solvents Spent non-halogenerated solvents	7440-38-2 7440-39-3 7440-43-9 7440-47-3 7439-92-1 7782-49-2 107-06-2 75-35-4 78-93-3 127-18-4 79-01-6	5.0 100.0 1.0 5.0 5.0 1.0 0.5 0.7 200.0 0.7 0.5	\$127,111.55	22,850
8	Other/Misc	Other/Misc					\$531,448.73	106,799
9	Various	Waste Chemical Products					\$153,445.30	33,040
10	HC0005	Neutralized Chromic Acid Debris	D007	Chromium	7440-47-3	5	\$11,516.80	7,164

11	HD0004	Filter Media with Metals	D006 D007 D008	Cadmium Chromium Lead	7440-43-9 7440-47-3 7439-92-1	1.0 5.0 5.0	\$12,008.52	5,266
12	HF0006	Wastewater w/MMH and/or N2H4 & Acetic or Citric	P068 U133	Methyl Hydrazine Hydrazine	60-34-4 302-01-2	--- ---	\$0.00	17,113
13	HF0014 HF0016	MMH Triple Rinse	P068	Methyl Hydrazine	60-34-4	---	\$10,153.02	24,015
14	HX0006	Neutralized Oxidizer Rinsewaters	P078	Nitrogen dioxide (N2O4)	10102-44-0	---	\$0.00	13,994
15	HFSH20	Makeup Water for Fuel Soup	U133 P068	Hydrazine Methyl Hydrazine	302-01-2 60-34-4	--- ---	\$0.00	57,869

### III. KSC AFFIRMATIVE PROCUREMENT and RECYCLING

Section 6002 of the Resources Conservation and Recovery Act (RCRA) and Executive Order 13101: *Greening the Government through Waste Prevention, Recycling, and Federal Acquisition* direct federal agencies to purchase recycled content products whenever possible. In response to the RCRA and the Executive Order, U.S. Environmental Protection Agency developed the Comprehensive Procurement Guideline (CPG). The CPG designates recycled products in seven product categories for which federal procuring agencies need to develop their affirmative procurement programs. The eight product categories are: 1) Paper and paper products, 2) Vehicular products, 3) Construction products, 4) Landscaping products, 5) Transportation products, 6) Park and recreation products, 7) Non-paper products, and 8) Miscellaneous.

The Chief of KSC EPB is responsible for establishing Affirmative Procurement and Recycling Program and the appointment of an Affirmative Procurement and Recycling Program Manager to initiate and coordinate the Affirmative Procurement and Recycling Program across all KSC organizations.

#### KSC AP - CPG Items For CY 2004

	Total Quantity Purchased	Quantity Purchased with Recovered Material Content	Units	Total Amount Purchased	Amount Purchased Containing Recovered Materials
<b>Kennedy Space Center</b>	<b>47,015,260</b>	<b>47,015,260</b>		<b>\$252,447</b>	<b>\$252,447</b>
Paper and Paper Products	47,015,260	47,015,260	n/a	\$252,447	\$252,447
<b>KSC Base Operations</b>	<b>428,385</b>	<b>380,655</b>		<b>\$8,951,183</b>	<b>\$8,193,269</b>
Binders (chipboard and plastic covered, not cloth)	8,125	2,229	n/a	\$37,817	\$6,398
Building Insulation Products	22	22	n/a	\$531	\$531
Cement	2,575	1,650	cubic yds	\$12,312	\$5,672
Concrete	8,933	8,933	cubic yds	\$161,768	\$161,768
Engine Coolants	210	55	gals	\$3,108	\$220
Latex Paints	23	0	n/a	\$1,827	\$0

Motor Vehicle Tires	4	0	units	\$240	\$0
Office R/ W Containers (plastic, paper or steel)	308	25	n/a	\$2,262	\$1,499
Paper and Paper Products	400,338	362,989	n/a	\$8,495,989	\$7,878,694
Plastic Clipboards	92	71	each	\$604	\$526
Plastic Desktop Accessories	1,099	114	n/a	\$12,678	\$834
Plastic File Folders	10	0	each	\$44	\$0
Plastic Trash Bags	1,140	968	n/a	\$20,335	\$17,455
Re-Refined Oil	3,113	1,745	gals	\$19,061	\$5,540
Sorbents (Adsorbents and Absorbents)	436	396	n/a	\$4,249	\$2,269
Toner Cartridges	1,942	1,443	each	\$177,717	\$111,223
Traffic Cone	15	15	each	\$641	\$641
<b>KSC Life Science</b>	<b>1,200</b>	<b>0</b>		<b>\$675</b>	<b>\$250</b>
Commercial Sanitary Tissue Products	100	0	each	\$100	\$100
Paper and Paper Products	100	0	n/a	\$250	\$50
Plastic Trash Bags	1,000	0	n/a	\$100	\$100
<b>KSC Payloads/Station Program</b>	<b>10</b>	<b>0</b>		<b>\$187,509</b>	<b>\$180,115</b>
Industrial Drums	0	0	n/a	\$3,583	\$2,033
Mats	0	0	n/a	\$248	\$248
Motor Vehicle Tires	10	0	units	\$1,109	\$0
Office R/ W Containers (plastic, paper or steel)	0	0	n/a	\$406	\$406
Paper and Paper Products	0	0	n/a	\$42,567	\$41,383
Plastic File Folders	0	0	each	\$5,892	\$5,892
Plastic Trash Bags	0	0	n/a	\$2,139	\$1,477
Re-Refined Oil	0	0	gals	\$1,355	\$426
Shower & restroom dividers/partitions	0	0	each	\$104,000	\$104,000
Signage	0	0	each	\$769	\$0
Sorbents (Adsorbents and Absorbents)	0	0	n/a	\$205	\$205
Toner Cartridges	0	0	each	\$25,237	\$24,043
<b>KSC Shuttle Program</b>	<b>12,265</b>	<b>5,869</b>		<b>\$807,911</b>	<b>\$587,448</b>
Binders (chipboard and plastic covered, not cloth)	0	0	n/a	\$40,185	\$4,951
Commercial Sanitary Tissue Products	0	0	each	\$2,717	\$2,717
Concrete	84	84	cubic yds	\$353	\$353
Engine Coolants	485	485	gals	\$4,083	\$4,083
Industrial Drums	1,863	1,863	n/a	\$85,763	\$85,763
Latex Paints	128	128	n/a	\$2,349	\$2,349
Motor Vehicle Tires	16	0	units	\$4,343	\$0
Pallet	3,600	0	each	\$55,620	\$0
Paper and Paper Products	0	0	n/a	\$372,558	\$304,742
Plastic Desktop Accessories	0	0	n/a	\$15,504	\$902
Plastic Trash Bags	0	0	n/a	\$1,223	\$1,223
Re-Refined Oil	2,509	0	gals	\$14,273	\$0
Sorbents (Adsorbents and Absorbents)	0	0	n/a	\$9,452	\$9,452
Strapping	756	756	n/a	\$1,883	\$1,883
Toner Cartridges	2,824	2,553	each	\$197,606	\$169,030
<b>KSC Visitor Center</b>	<b>14,817</b>	<b>13,140</b>		<b>\$162,586</b>	<b>\$103,483</b>

Commercial Sanitary Tissue Products	2,715	2,715	each	\$75,150	\$75,150
Engine Coolants	171	0	gals	\$21,725	\$0
Motor Vehicle Tires	360	177	units	\$34,001	\$24,140
Paper and Paper Products	9,530	9,530	n/a	\$0	\$0
Plastic Trash Bags	769	25	n/a	\$13,750	\$803
Signage	710	693	each	\$5,190	\$3,390
Sorbents (Adsorbents and Absorbents)	200	0	n/a	\$744	\$0
Toner Cartridges	362	0	each	\$12,026	\$0

### KSC AP - Recycled Items For CY 2004

Site/Material	Quantity	Units	Revenue
<b>Kennedy Space Center</b>	<b>28,050,995</b>	<b>lbs</b>	<b>\$323,949</b>
Aluminum	69,000	lbs	\$6,711
Batteries, All Types	37,240	lbs	\$0
Blast Media	6,536,100	lbs	\$0
C&D projects	3,848,200	lbs	\$0
Cardboard	7,880	lbs	\$0
Cement and Concrete	8,830,340	lbs	\$0
Copper	217,500	lbs	\$119,653
Electronics (scrap property material content only)	94,005	lbs	\$18,801
Lumber	1,249,480	lbs	\$0
Mixed Paper	617,820	lbs	\$13,283
Printer	60,170	lbs	\$5,470
Scrap Metal	2,488,940	lbs	\$154,966
Stainless Steel	13,500	lbs	\$5,065
White Paper	27,640	lbs	\$0
Yardwaste	10,268	cubic yds	\$0
<b>KSC Base Operations</b>	<b>209,479</b>	<b>lbs</b>	<b>\$0</b>
Antifreeze	55	gals	\$0
Batteries, All Types	2,600	lbs	\$0
Carpet	12,620	lbs	\$0
Fluorescent Lamps (1.25 lbs. per)	6,360	units	\$0
Oil Filters	8,075	lbs	\$0
Photo Fixer	1,307	gals	\$0
Solvents	1,416	lbs	\$0
Used Oil	20,570	gals	\$0
<b>KSC Life Science</b>	<b>3,475</b>	<b>lbs</b>	<b>\$0</b>
Batteries, All Types	50	lbs	\$0
Cardboard	2,500	lbs	\$0
Fluorescent Lamps (1.25 lbs. per)	600	units	\$0
Plastic	100	lbs	\$0
Toner Cartridges (1.5 lbs per)	50	units	\$0
<b>KSC Visitor Center</b>	<b>167,451</b>	<b>lbs</b>	<b>\$0</b>
Antifreeze	15	gals	\$0
Batteries, All Types	23	lbs	\$0
Cardboard	142,066	lbs	\$0
Fluorescent Lamps (1.25 lbs. per)	976	units	\$0
Mixed Paper	7,507	lbs	\$0

Oil Filters	3,968	lbs	\$0
Oily Rags	750	lbs	\$0
Passenger Car Tires	201	lbs	\$0
Refrigerant	100	lbs	\$0
Solvents	174	lbs	\$0
Toner Cartridges (1.5 lbs per)	151	units	\$0
Used Oil	1,385	gals	\$0

#### **IV. KSC ALTERNATIVE FUELED VEHICLES**

Executive Order 13149: *Greening the Government through Federal Fleet and Transportation Efficiency* requires Federal agencies to reduce its entire vehicle fleet's annual petroleum consumption by at least 20% by the end of FY 2005, compared with FY 1999 petroleum consumption levels. The EO also requires Federal agencies to use the alternative fuels to meet a majority of the fuel requirements of those motor vehicles by the end of FY 2005.

The KSC Supply, Equipment, Transportation and Center Support Branch are responsible to implement the EO 13149 at KSC. The KSC EMS Group will assist the KSC Transportation Group in promoting the use of Alternative Fueled Vehicles (AFV) at KSC.

#### **V. KSC OZONE-DEPLETING SUBSTANCES**

Executive Order 12843: *Procurement Requirements and Policies for Federal Agencies for Ozone-Depleting Substances* directs Federal agencies to minimize the procurement of products containing ODS's. The E.O. also requires Federal agencies to implement policies that will reduce emissions of ODS's, promote recycling of ODS's, and cease the procurement of nonessential products containing or manufactured with ODS's.

The KSC Environmental Permitting and Compliance group and the KSC EMS group are currently monitoring the usage of ODS at KSC. The KSC Procurement Office is responsible for the procurement requirements for the purchase of ODS.

#### **VI. KSC PROCUREMENT OF ENERGY EFFICIENT COMPUTERS**

Executive Order 12845 directs NASA to ensure that all computer equipment purchased meets EPA "Energy Star" requirements for energy efficiency. Case-by-case exemptions are allowed, taking into account commercial availability, significant cost differentials, NASA's mission, and NASA's performance requirements. NASA is also directed to educate its computer users concerning the economic and environmental benefits derived from using this energy efficient, low-power standby feature. The KSC Information Technology group and the KSC Procurement Office are currently purchase the EPA "Energy Star" computer equipment.

#### **VII. GUIDANCE for KSC POLLUTION PREVENTION - WASTE MINIMIZATION**

KSC must reduce the volume and toxicity of hazardous wastes to the extent economically practicable. All personnel will adopt this practice in day-to-day operations and are encouraged to

introduce new ideas concerning waste minimization opportunities to management. This section provides guidance for waste minimization as required by section 3002(b) of the Resource Conservation and Recovery Act (RCRA) as amended by the Hazardous and Solid Waste Amendments of 1984 and section 6602(b) of the Pollution Prevention Act.

**A. Waste Minimization Elements:**

1. **Top Management Support:** Top management for each waste generating organization can show support of waste minimization efforts by using these techniques:
  - Incorporate waste minimization as an integral part of organizational strategies to increase productivity and quality.
  - Set Center-wide goals for the reduction of both volume and toxicity of waste streams consistent with those established by the KSC Environmental Program Branch.
  - Commit to implementing recommendations identified through assessments, evaluations, and waste minimization teams.
  - Designate a waste minimization coordinator who is responsible for facilitating effective implementation, monitoring, and evaluation of the program.
  - Publicize waste minimization success stories and recognize individual and group waste minimization accomplishments.
  - Raise employee awareness of the waste generating impact that results from daily operations and work procedures.
2. **Characterization of Waste Generation and Waste Management Costs:** The Waste Management Authority (WMA) tracks types and amounts of waste generated at KSC and the direct costs associated with waste disposal. True costs of waste management include additional costs of regulatory compliance oversight, reporting requirements, cost of labor and materials, employee exposure and health care, liability insurance, and possible corrective action costs. These costs also affect the economic practicability of waste minimization activities.
3. **Periodic Waste Minimization Assessments:** Each waste generating organization should perform process or facility assessments to identify opportunities at all points in a process where materials can be prevented from becoming a waste. These waste minimization opportunities should be analyzed based on true costs associated with management of the waste.
4. **Encourage Technology Transfer:** Many useful and valid waste minimization techniques can be shared within waste generating organizations and among other waste generating organizations. Functions at KSC, such as the KSC Environmental Working Group and KSC Pollution Prevention Working Group provide a forum for sharing these technologies and techniques.
5. **Program Implementation and Evaluation:** Recommendations developed through process assessments, evaluations, and waste minimization teams should be scheduled and tracked through implementation. All KSC waste generating organizations should monitor the overall effectiveness of waste minimization activities in relation to waste minimization goals. The WMA will help these efforts through distribution of periodic reports on the amount of hazardous waste generated and the associated direct disposal costs.

**B. Management Options (in order of preference):**

1. **Prevention Through Source Reduction:** Source reduction is the practice of reducing the amount of hazardous substances, pollutants, or contaminants entering any waste stream or otherwise released into the environment before recycling, treatment, or disposal. Source reduction reduces or eliminates the hazards to employees, the public, and the environment

along with the liability of regulatory compliance. Several source reduction techniques are listed below.

- **Initial Environmental Design:** Incorporation of environmental considerations into the initial process or facility design to limit or prevent pollution or waste generation from occurring.
  - **Process Efficiency Improvement:** Changes to a process or facility to reduce requirements for hazardous substances, pollutants, or contaminants.
  - **Material Substitution:** Substitution of non-hazardous or less hazardous materials into a process to reduce the toxicity of the resulting waste stream.
  - **Inventory Control:** Control of hazardous materials in inventories to promote efficient use and to avoid shelf-life expiration and waste generation. Emphasize issuing only the quantity of a material needed for the job.
  - **Preventive Maintenance:** Designing equipment for maintainability can result in detection and avoidance of equipment problems before failures and associated spills and leaks of hazardous materials occur.
  - **Improved Housekeeping:** A clean, well-organized facility and awareness by personnel regarding the proper management and use of toxic and hazardous materials can greatly reduce the amount of accidental spills, releases, and subsequent waste generation.
2. **Recycling:** Recycling is the most preferred method of waste minimization for those hazardous substances, pollutants, or contaminants that cannot be reduced at the source. Recycling is the practice of using, reusing, or reclaiming a waste material. A waste material is used or reused if it is employed as an ingredient in an industrial process to make a product or employed in a particular function or application as an effective substitute for a commercial product. A waste material is reclaimed if it is processed to recover a usable product or regenerated.
  3. **Treatment:** Treatment options should only be employed when wastes cannot be prevented or recycled. Treatment is any method that physically, chemically, or biologically changes the character or composition of the waste; recovers energy or material resources from the waste; renders the waste non-hazardous or less hazardous; reduces the volume of the waste; renders the waste safer for transport, storage, or disposal; or makes the waste amenable for recovery or storage. Treatment opportunities for hazardous wastes at KSC may be referenced in Technical Response Package instructions (example: neutralization of corrosive wastes).
  4. **Disposal:** Disposal is the discharge, deposit, injection, dumping, spilling, leaking, or placing of a waste into or on land or water or into the air so that hazardous constituents may enter the environment. No hazardous wastes may be disposed at KSC, except certain treated wastes that are amenable for disposal in the sewage treatment works and are approved by the Sewage Treatment Plant operator. Disposal must only be used when the waste could not be prevented or recycled.

### VIII. KSC POLLUTION PREVENTION PROJECTS and ACTIVITIES

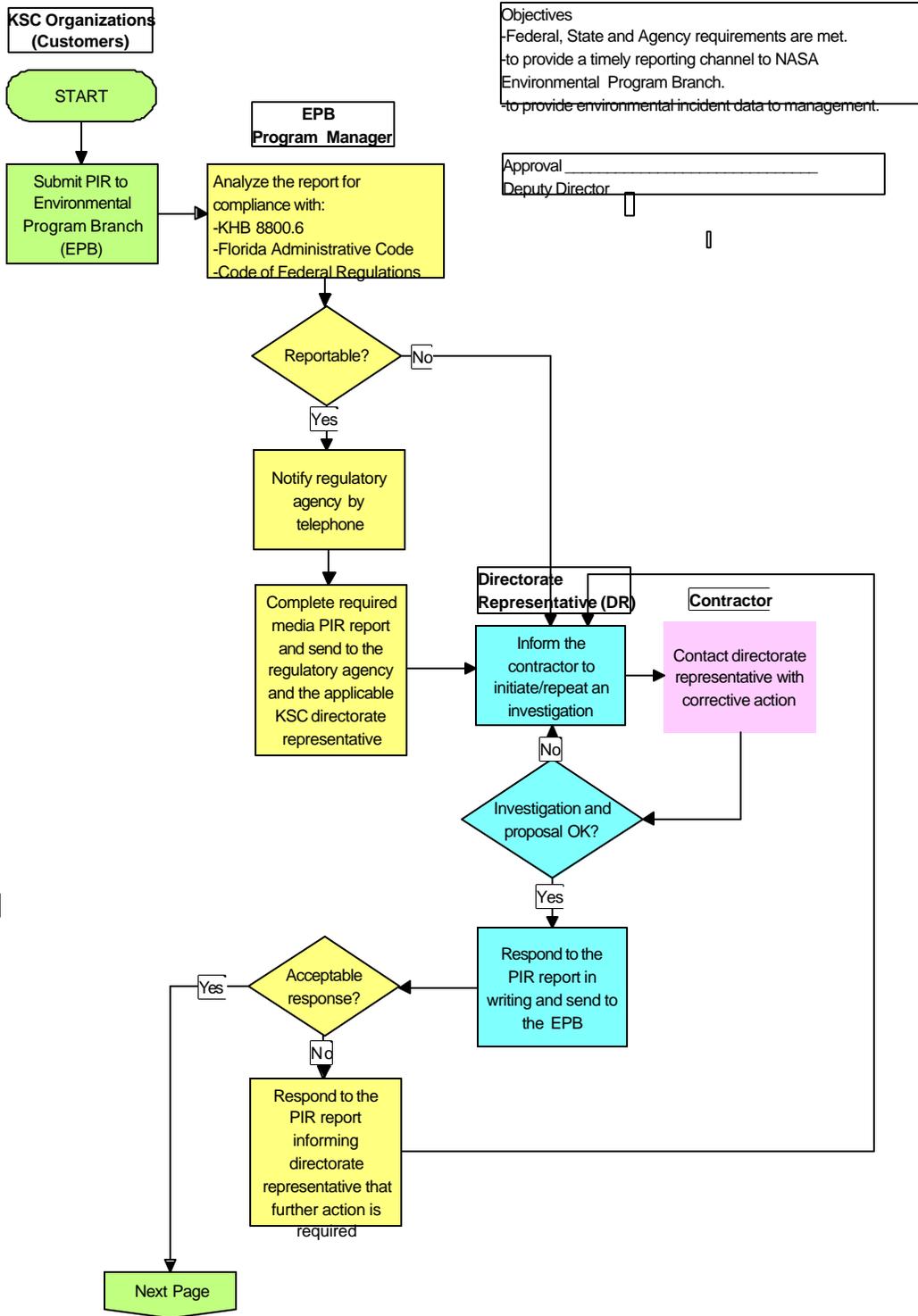
Site Name	Project Name	Project Desc	Project Location	Cause for Project
KSC	KSC Landfill Diversion Project	Recycled the following from landfill: 1. Sandblast Media - 3,277,340 lbs 2. Cement/Concrete - 7,681,440 lbs 3. Yardwaste - 3,382,560 lbs 4. Lumber - 895,040 lbs 5. Asphalt - 3,610,900 lbs 6. Soil - 21,747,200 lbs	KSC Class III Landfill	To meet the 35% Agency Solid Wastes Diversion goal
KSC	LUT-1 Decontamination and Disposal	LUT-1 Decontamination and Disposal	LUT Site at KSC	Recycled 3,708,920 lbs of steel, 70,610 lbs of cooper and 43,060 lbs of tin
LSSC	Chemical inventroy system	Chemical inventory system	SLS Lab M6-1025	To reduce chemical waste
CAPPS	Excess Chemical reuse	Try to reuse these materials within CAPPS contract for non-flight/non-critical uses.	CAPPS - various facilities	By reducing lab pack wastes we reduce NASA KSC disposal costs
CAPPS	Reduced Ammonia Venting	System mods allow anhydrous ammonia to be captured and reused. ventings now consist of less than 5 lbs.	M7-360 Space Station Processing Facility	By reducing volumes of anhydrous ammonia vented, CAPPS reduces complaints and potential risks.
CAPPS	Shop rag laundering	Joined KSC JBOSC shop rag laundering program	CAPPS various facilities	Reduced waste, reduced costs
CAPPS	Strubber Liquor reuse	Transferred 660 gallons of sodium hydroxide to SGS for reuse in other scrubbers at KSC. This also eliminated	M7-1210 SAEF-2 scrubbers	CAPPS tries to reduce waste wherever possible.
Visitor Center	Secondary containment	Secondary containment was added for all oils stored on-site except for waste cooking oils (vendor problem). Also need to redesign fueling area at aboveground tanks.	Throughout property	Comply with SPCC Plan.

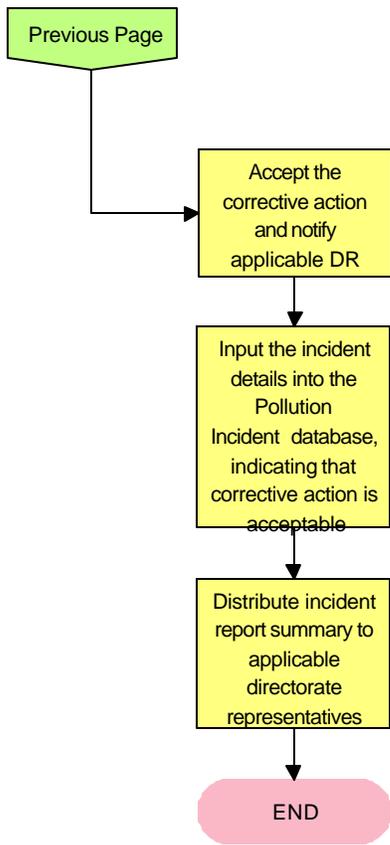
## **APPENDIX**

- A. KSC Pollution Incident Report
  - 1. KSC PIR System
  - 2. CY 2004 to May 2005
- B. KSC EPCRA Tier II Reporting Process
- C. KSC Toxic Releasing Inventory (TRI) Reporting Process

# APPENDIX A1 – KSC Pollution Incident Report System

KDP-KSC-P-1728  
Rev. B





## Appendix A2 – CY 2004 to May 2005 KSC Pollution Incident Report

Incident Date	Material	Amount	Location	Incident Report	Incident Cause	Cleanup Action
21-Jan-2004	Hydraulic Oil	4 gallons	M6-587 SGS Heavy Equipment Test Area. Immediately West of Bldg. on pavement.	While under load test procedure a hydraulic line on a forklift failed and spewed approximately 4 gallons of oil over a footprint of 20'x60', on pavement.	Equipment failure	Initial response was by HE Mechanics who absorbed the spill with clay absorbent material. Further cleanup was provided by the JBOSC Post Emergency Spill Cleanup Team.
27-Jan-2004	Photo Fixer	3 gallons	NASA HQs @ KSC HQ Room 2382 (floor)	SGS facility workers were renovating (by removal) of lab type rooms. When the workers disconnected a photo processing machine they inadvertently released approximately three gallons of photo fixer onto the floor.	Operator error	The JBOSC PESCT responded and facilitated complete cleanup and neutralization of the spilled photo fixer.
27-Jan-2004	Waste Alodine	2 gallons	Surface Prep Facility (66310), west side, hazardous waste tank system	A small diameter plastic tube leaked to the secondary containment.	Probably UV degradation	Containerized the leaked material and poured it back into the tank system after repairs were completed.
3-Feb-2004	Hydraulic Fluid	< 1 gallon	Asphalt Drive on the west side of the ARF E&A Building	Hydraulic fluid leaked from a crane onto asphalt surface during lift operation.	Loose fitting on hydraulic system	USA SRBE Facilities applied absorbent materials to the spilled material. Waste was disposed properly.
3-Feb-2004	Hydraulic Fluid	1/2 gallon	Outside SSPF M7-360 west roll up door on concrete ramp	Brand new 25K forklift apparently had a defective manufacturer hose connection fitting which leaked under load.	Defective manufacturer hose connection fitting which leaked under load	Cleaned up spilled material with oil dry and properly disposed of. Absorbent pads placed under forklift until repaired. Forklift tagged out of service.
6-Feb-2004	Hydraulic oil	1 gallon	K7-114 Non regulated waste storage facility...Spill on floor inside bldg and pavement outside.	A hydraulic drum tipper blew out a line and spewed oil on floor and pavement.	Equipment failure	Since the workers operating the equipment are the same folks that respond to spills for cleanup, they cleaned it up themselves. Waste was bulked with like material for proper disposal.
10-Feb-2004	Transmission fluid	2-3 gallons	Outside M7-453 Maintenance building - north parking lot and roadway pavement to Boeing Heavy Equipment Yard M7-698	Forklift for excess being lifted by a single driver on another forklift. In the process, the transmission drain plug on the lifted forklift was broken off developing a small leak which was unnoticed by driver. Driver proceeded to transport damaged forklift ~1/4 mile to Boeing Heavy Equipment Yard, leaving fluid trail on pavement until transmission was drained (~2-3 gallons).	Transmission drain plug on excess forklift broken off while being lifted, developing a small leak. Leak continued during transport until transmission was drained (~2-3 gallons)	Estimated 1/2 gallon Pooled spilled material in the vicinity of M7-453 cleaned up with oil dry and placed in M7-453 SAA for proper disposal. Procedure and excess equipment checklist being developed.
19-Feb-2004	Hydraulic Fluid	15 gallons	Saturn Causeway South side OSB II Project	While attempting to move the Beyel Bros. crane from the soft sand to the street surface a	Mechanical Failure	A call was made to emergency services to report the spill and receive assistance with the cleanup

				hydraulic line failed causing fluid loss to the ground. This resulted in blockage of two lanes of the causeway until the crane was secured and able to move.		and traffic control. All fluid was absorbed and contained in 55-gallon drums, then removed by the spill team crew for disposal.
24-Feb-2004	Hydraulic oil	10 gallons	M6-399 NASA HQs Bldg East yard 2 acres.	An SGS operated lawn tractor developed a hydraulic oil leak which sprayed oil over a large area of grass before the operator was alerted by an audible alarm on the low level sensor on the hydraulic reservoir.	Equipment Failure	Initial response was provided by the mower operator in the form of absorbent materials on hand. The JBOSC PESCT responded and applied absorbent clay to the sidewalks and access roads. Two acres of slightly contaminated grass will not be practical to remove and will be left to degrade through the process of natural attenuation.
19-Mar-2004	Diesel Fuel	>25	Facility 49635 (Cape Dispensary) rear of bldg. below fuel storage tank.	As reported by SGS Duty Office a stain has been discovered on the grass below an above ground storage tank.	Unknown at this time. JBOSC Generator Shop and Environmental Compliance Group are investigating the origin and cause of this spill.	JBOSC Generator shop has performed exploratory excavation to the underground piping, and the Post Emergency Spill Cleanup Team is excavating the stained grass and soil. A total of eleven 55 gal drums were taken out of the excavation. Last sample for hydrocarbons indicated 160 ppm. Two suspect fuel storage tanks have been emptied by the cleanup team. Excavation has been back filled.
29-Mar-2004	Oil - Chevron Delo 15W-40 Motor Oil	1 quart	ARF/GSE Shop	Motor oil spilled to asphalt while performing oil change on GSE Equipment	Inadvertent spill	Oil cleaned-up by applying oil-dry and properly disposed.
30-Mar-2004	Hydraulic Fluid (AW-46)	3-4ozs	West side of CCAFS Bldg 66242 (West Wash)	Hydraulic fluid leaked to asphalt.	Faulty flex hose	Applied clay absorbent, containerized, and properly disposed.
30-Mar-2004	Diesel Fuel	22.3 gallons	West side of Building J7-384B	Fuel line failed releasing diesel fuel to grade.	Failure of fuel line	Requested clean-up by JBOSC Hazmat Team.
2-Apr-2004	Hydraulic Oil	1 gallon	M6-687 SE Corner of back parking lot in the grass.	A JBOSC Operated crane parted a hydraulic line and spilled a small amount of hydraulic oil on the ground.	Equipment failure	Initially absorbent pads were applied to the spill which absorbed most of the oil. JBOSC PESCT responded and shoveled up a small amount of sand under the pads. All contamination was easily removed to a visual level. No post cleanup testing will be necessary as all contamination was removed.
3-Apr-2004	Hydraulic Fluid	1 gallon	East of K6-1997, Heavy Equipment yard on Contractor's Road	Hydraulic fluid leak from rear wheel hydraulic lines on JLG aerial lift	Leaking line	Contained spill with containment kit, then called 911 for non-emergency clean up support
4-Apr-2004	Anhydrous Ammonia	less than 5 pounds total	Vapor Containment Facility (M7-361)	3 separate minor leaks occurred during Ammonia operations	Mechanical failure of system fittings. Total	Ammonia System is being drained per Appendix Y.

				over a 7 hour period from 8:30 PM until system secured at 3:30 AM. Leaks occurred in the VCF (M7-361) at relief valve 113 on chiller cart 2, FCIC ammonia pump outlet and IEA sum pump valve 403.	loss estimated at less than 5 pounds total	
7-Apr-2004	Hydraulic Fluid	2 gallons (determined by fluid remaining in tank)	East of K6-1997, Heavy Equipment yard on Contractor's Road	Hydraulic fluid leak from connection on 300 ton crane. Crane was in operation under load when leak occurred. The operation was stopped when leak was observed.	Loose connection	Stopped operation, contained spill with absorbent pads and absorbent clay, then called 911 for non-emergency clean up support
7-Apr-2004	Diesel Fuel	1 gallon	East of Butler Building at Pad B	Leak was discovered during routine check of light bank generator	Fuel Pump	Contained spill with containment kit.
7-Apr-2004	Diesel Fuel	1 gallon	East of Butler Building at Pad B	Leak was discovered during routine check of light bank generator	Fuel Pump	Contained spill with containment kit.
8-Apr-2004	Hydraulic Fluid	1 gallon	K6-743, Asphalt road south of CT maintenance building	Hydraulic fluid spilled	Hydraulic hose on multi-wheeled Orbiter TransporSystem (OTS) ruptured at the fitting	Transporter was immediately secured and fluid flow ceased.
17-Apr-2004	Anhydrous Ammonia	44.5 pounds	M7-361A VCF/M7-360 SSPF	During Anhydrous Ammonia sampling operations a small leak developed in the sampling loop. System was supposedly put into an isolation configuration for venting; however valves were inadvertently left open allowing additional ammonia to be vented before valve mistake was discovered.	Small leak caused need for initial vent. Incorrect valve configuration increased amount vented	Valve patterns were corrected, and sample loop leak isolated. No additional clean up was necessary.
22-Apr-2004	Hydraulic oil	1/2 gallon	M6-794 South Parking lot, pavement.	The hydraulic lifting mechanism on a trailer experienced a failure and leaked a small amount of oil on the pavement.	Equipment failure	Initial response provided by the transportation workers in the form of absorbent pads. Further cleanup was requested from the JBOSC PESCT who finished up and containerized the waste for proper disposal.
23-Apr-2004	Diesel Fuel	1/2 gallon	N6-2294 Grassy area South of building.	On December 30, 2003 a small spill occurred when a JBOSC operated portable diesel fuel tank was overfilled. Approximately 1/2 gallon diesel fuel leaked on the grass.	Operator Error	Initial response on 12/30/03 was provided by the refueled workers in the form of absorbent pads. A small area of contamination was inadvertently overlooked and allowed to go unnoticed until 4/23/04. On 4/23/04 the JBOSC Post Emergency Spill Cleanup Team responded and excavated the affected area which amounted to two 55 gallon drums of contaminated soil.
7-May-2004	Diesel fuel in water	5 gallons	OSB II Construction site.	When a secondary containment under the power generator was	Small leak in the containment	The Contractor "Theyas" scooped up the contaminated soil (and than

				removed it was found to have leaked on the sand. (stain)		some), with a tractor.
12-May-2004	Diesel Fuel	1/2 gallon	Parking lot outside Shuttle Pad B.	A JBOSC Operated tractor experienced an equipment failure which caused a small amount of diesel fuel to leak on the pavement.	Equipment failure!	The JBOSC PESCT responded and facilitated complete cleanup of the spilled fuel.
17-May-2004	Hydraulic oil	1/2 gallon	Grass in front of SSPF facility ( M7-360)	A JBOSC Operated lawn mower experienced a leak which sprayed oil over a large area of grass.	Equipment failure	On 5/20/04 the JBOSC Spill Cleanup Team was notified and responded to the site immediately. A small area (approx 3 gal solid waste) was excavated where the oil had puddle. Due to the spraying nature of the major spill footprint excavation of the contaminated grass/soil was not practical. A biological remediation agent (Clear- Flow by Alken Murry Corp.) was applied to the spill.
7-Jun-2004	Hydraulic oil	Less than one quart.	M6-1025 , Cement	An SGS operated lawn mower experienced a hydraulic leak causing a small amount of oil to spill on cement.	Equipment failure	Containment and cleanup was facilitated by the mower operators in the form of absorbent pads carried on the machine.
7-Jun-2004	XCEL Super Premium Antifreeze / All Seasons Coolant CAS 107-21-1	Less than one gallon	Immediately east of J7-384A Pad B Sewage Lift Station	Antifreeze leaked from generator, went past secondary containment, onto the asphalt and to the dirt	Generator fan blade cracked off, went through the radiator, resulted in a hole in the radiator, and the antifreeze leaked out	Spill mitigation and clean up was performed by USA personnel.
10-Jun-2004	Hydraulic oil	1 gallon	M6-688	A JBOSC Operated recharger leaked hydraulic oil from a seal mechanism.	Equipment failure	Propellant mechanics cleaned this small spill up themselves. Waste bulked with like material.
16-Jun-2004	Hydraulic fluid	Approximately 5 gallons	60 yards east of K6-1996H front door, USA Heavy Equipment Yard	Hydraulic fluid line ruptured on forklift, causing fluid to spray and spill on dirt. Driver of the forklift drove the forklift to the asphalt area to minimize impact to the environment.	Line ruptured while forklift was not under load	USA immediately secured the leak, responded with absorbent material and then called a non-emergency 911 for cleanup assistance.
30-Jun-2004	Diesel fuel	0.5 gal	KSC Industrial Area, at the corner of "C" and "5th" Avenue's on "5th" east of "C".	GSA Vehicle fuel line apparently developed a leak while in transit.	Suspected fuel line failure	911 called, SGS spill team responded and cleaned up material.
2-Jul-2004	Hydraulic fluid	Less than one quart	100 yards south of K6-1996, USA Heavy Equipment Yard	Leak was discovered during a walk down of the yard with NASA guests	A piece of road debris apparently damaged a hydraulic fitting on the new Dozier Trailer, causing a small leak at the fitting. The leak stops when the	USA immediately secured the leak, responded with absorbent material and then called a non-emergency 911 for cleanup assistance. A work order was generated to perform repairs to the broken fitting.

					engine is shut off.	
13-Jul-2004	Transmission Fluid (Oil) from a car.	1 quart	K6-794 (TPS Bldg.) on paved walkway.	The transmission of a JBOSC operated car (G 42-03734) leaked onto the parking lot.	Equipment failure	Initial response was provided by JBOSC utilities workers in the form of sand spread on the oil. Additional response by the JBOSC PESCT in the form of absorbent clay. Waste taken to be bulked with like material for proper disposal.
13-Jul-2004	Diluted (with water) floor stripper.	5 gallons	M7-453 outside storm drain NE corner parking lot.	JBOSC Workers (Yang) disposed of the wash water from a floor stripping operation directly into a storm water drain.	Operator error	Response was provided by JBOSC PESCT in the form of product recovery to tanker LT 94... Waste has been bulked with like material for proper disposal.
16-Jul-2004	Asphalt Emulsion (Asphalt tack for repair)	.25 gallons	South East corner of VAB inside fence parameter. Spill has gone to storm drain with rain event.	Workers from PASCO Services (An SGS monitored Sub Contract) left a 5 gallon bucket which was mostly empty out on the tarmac at their jobsite. A severe weather warning was issued and in their haste they evacuated the area and the wind blew the bucket over allowing a small amount of product (less than one gallon), to spill and drain into the storm water system.	Severe weather	Initial response was provided by JBOSC Fire Services. in the form of absorbent clay. The JBOSC PESCT responded and further absorbed the standing tar like material. Additionally a very slight oily sheen was removed from the storm drain with floating pads. Waste being evaluated for hazards and disposed of properly by JBOSC Hazard Waste Ops. Nearby storm ditches were inspected and appeared not to be affected by the spill.
21-Jul-2004	Hydraulic Oil	4 gallons	Space Station Processing Facility NE Yard near NASA Causeway	A JBOSC operated lawn tractor leaked oil from a damaged clutch on the ground.	Equipment Failure.	The JBOSC PESCT responded and excavated one 55 gallon drum of soil. All contamination was completely removed. Waste bulked with like material for proper disposal.
28-Jul-2004	Motor oil	< 1 quart	M6-698 CAPPs warehouse, east end of parking lot	GSA box truck which is used daily developed a small oil leak while parked overnight. Leak was discovered during visual inspection prior to the start of daily operations. There was no indication of leakage yesterday.	Small oil leak is of undetermined origin. Truck will be serviced to find source and repair	Area personnel contained small quantity of oil with vermiculite and applied absorbent pads to stop leak. Boeing Environmental Technician cleaned up residual oil with oil dry and properly disposed.
2-Aug-2004	Sodium Hydroxide Residual and Rain Water	Less than a pint	Parking Lot at 73020 and Guard Shack Asphalt	Empty Oxidizer Rinsate Drum was turned upside down in the bed of the truck allowing sodium hydroxide residual to run out and mix with rain water in the trucks bed containment. Upon moving the vehicle the material spilled out onto the asphalt parking area causing a stain. Nothing to clean up.	Drums not being unloaded in a timely manner	No clean up. Asphalt stained. The truck bed was cleaned to remove any residual Sodium Hydroxide.
6-Aug-2004	Glycol	05 Gal	NASA Causeway and VIC Entrance.	A vehicle accident (POV's) caused a small spill of antifreeze/ coolant to be spilled on	Vehicle accident	The JBOSC Post Emergency Spill Cleanup Team responded and applied absorbent material

				the road.		to the spill. Waste taken to K7-114 and bulked with like material.
9-Aug-2004	Hydraulic oil and water.	2 gal	M6-687	Oily water was washed over the containment on a JBOSC operated piece of mobile equipment (Recharger #C-6).	Old equipment (roof leaking)	A leaky roof on the tractor trailer allowed a large amount of rain to enter the mechanical compartment, which proceed to overflow the contingency tank...And finally, onto the ground. The JBOSC Post Emergency Spill Cleanup Team responded, collected absorbents and excavated the contaminated soil.
10-Aug-2004	Oily waste water (compressor Condensate)	10 gallons	Robotic High Pressure Wash Facility (66320). West Side of building at the oil-water separator.	Failure of PVC pipe fitting located between the condensate collection tank and the filter drum. Approximately 30 gallons discharged to the concrete secondary containment. Approximately 10 gallons was atomized or sprayed onto the paved surface.	Failure of PVC fitting	The wastewater was pumped from the secondary containment to a 55-gallon drum for appropriate disposal. The remainder on the pavement evaporated prior to spill response.
10-Aug-2004	acid mixed with solvent	< 1 gallon	O&C, room 2214.	There was a reaction when an acid was inadvertently mixed with a solvent. Everyone left the lab put a note on the door that no one should enter. Returned in the afternoon to clean it up after making sure it was safe to do so. Lab personnel were able to clean it up on their own.	The solvent bottle and the acid bottle looked the same. The label must not have been double checked prior to pouring	Spread baking soda onto the liquid on the floor and let it soak up and neutralize the acidic waste. Swept it up and placed in a barrel.
11-Aug-2004	Domestic sewage	Undetermined	Lift Station near West entrance to MPSF (L6-297).	Overflow of lift station.	A lightning strike on 8/6/04 blew the pump's fuses causing an overflow to the grassy ditch area. The wastewater percolated to ground	The fuses were replaced and the pumps returned to service within 1 hour of discovery. A 5% solution of hypochlorite bleach was applied to the spill area. USA SRBE Facilities personnel responded.
11-Aug-2004	Hydraulic Fluid	< 16oz	Driveway in front of ARF Waste Building (L6-295)	Hydraulic line on forklift ruptured during operation on asphalt driveway.	Hydraulic Line failure.	Kitty litter absorbent was applied. Absorbed hydraulic fluid/kitty litter was containerized for proper disposal.
17-Aug-2004	Vegetable oil based Hydraulic Oil	3 gal	OSB II	Leak in seal allowed hydraulic fluid to spill on the sand at the construction site.	Equipment Failure	Workers with Clancy Theyas responded by shoveling up the contaminated sand and containerizing it for disposal.
17-Aug-2004	Hydraulic Oil	10 gal.	K6-2196 Footprint of the spill is located in the middle of Roads and Grounds bulk material storage yard.	A hydraulic line parted on a JBOSC operated tractor, spilling approximately 10 gallons of hydraulic oil on the dirt parking lot.	Equipment failure	The JBOSC Post Emergency Spill Cleanup Team responded and excavated the contaminated soil. Waste bulked with like material for proper disposal.

26-Aug-2004	Battery Water	Less than one quart	ARF L6-0297 Warehouse	Narrow aisle forklift had been charged over night and the battery overflowed onto the floor.	Maintenance had just been done on forklift; apparently too much water was poured into battery during regular maintenance.	USA workers cleaned up the leak with absorbent material.
26-Aug-2004	Diesel Fuel	4 oz	VAB Transfer Isle, South End, Front of Cell 7	Diesel Fuel leaked from Tug.	Possible overflow of fuel tank	Cleaned up with Kitty Litter absorbent and cloth.
13-Sep-2004	AW-32 Hydraulic Fluid (MSDS #39316)	10 gallons	OPF2 High Bay Elevator	Failure of a shaft seal resulted in release of hydraulic fluid into the elevator pit. The hydraulic fluid migrated through a drain into the hypergol trench.	Failure of shaft seal	JBOSC Hazmat responded and pumped the oil-contaminated water into a vac-truck for proper disposal.
13-Sep-2004	Diesel Fuel	< 50 ml	J7-1388, 5000-gallon fuel tank.	A ball valve located on the fuel supply line failed. The valve is located between the tank and transfer pump above the concrete revetment.	Failure of ball valve	USA GSS Water Systems responded and cleaned the residue from the floor of the concrete revetment. The revetment's storm water drain was closed and will be managed as "normally closed" until valve replacement is complete. The valve was tightened. New valves will be acquired and installed.
16-Sep-2004	Oily liquid - appears to be hydraulic fluid	1 quart	ARF - Asphalt of West Parking Lot - west of guard shack near central storm water swale.	A pool of oily liquid was found by an employee (Mike Katrick) in the parking lot and reported to Environmental Management.	Unknown. Probably a leak from a vehicle	Soaked up with absorbents and properly disposed.
28-Sep-2004	Hydraulic Oil.	2 gallons.	Facility 77800-FSA-1 Cement Parking area.	A JBOSC Operated Man lift experienced a hydraulic oil line leak spilling two gallons of oil on the parking lot.	Equipment failure	FS-1 Technicians applied absorbent material to the spill containing it on the pavement.
30-Sep-2004	10 Weight Hydraulic Fluid	less Than 1 Quart	Hangar N 1728 west end of pavement	Failure of hydraulic hose/line on right steering arm of JLG resulted in spill of less than 1 quart of hydraulic fluid on asphalt surface.	Failure of hydraulic line	Fluid was immediately cleaned up with oil dry by USA personnel.
13-Oct-2004	Chemtreat CL-1352, MSDS #26957	1 Pint	K6-1547B, Logistic Drum Shed	The poly drum developed a slow leak to the secondary containment.	Unknown	The leaking poly drum was placed in a containment tub. The leaked material was absorbed with kitty litter and properly disposed.
22-Oct-2004	Hydraulic Oil	.75	M6-744 West loading dock	A JBOSC operated forklift experienced a leak spraying oil in circles on the pavement.	Equipment failure	Initial response provided in the form of absorbent clay by warehouse workers...JBOSC PESCT containerized the waste for proper disposal.
25-Oct-2004	Hydraulic Oil	.25	OSB II New Construction Site	A mobile crane experienced a hydraulic line leak and spilled the small amount of oil on the sand lot.	Equipment failure	Workers from Clancy Theyas Construction cleaned the spill up at the direction of CHS Nick Aleman. Waste will be disposed of through the proper channels.
26-Oct-2004	Seepage	8 gallons	L6-147 (behind ARF E&A, south	A backup was experienced at the	Clog in domestic	The effluent was contained within the excavated hole

			side)	upstairs restroom. When opening the clean-out behind the E&A Building, the head pressure caused seepage to drain from the line.	sewage line	around the clean-out. Chlorine bleach was applied and the hole was filled by USA SRBE Facilities.
27-Oct-2004	Diesel fuel	3 gallons	Fire Training Facility Field. Grass!	A JBOSC operated fuel truck experienced a leak in a hard line spilling approximately 3 gallons fuel on the ground.	Equipment failure	...JBOSC PESCT excavated and containerized the waste for proper disposal. (5 tons sand!)
29-Oct-2004	Oil Non PCB	1 gallon	West side of K6-1200C electrical transformer on side of building.	A JBOSC maintained electrical transformer experienced a leak which ran on to the ground around a transformer.	Equipment failure	...JBOSC PESCT excavated and containerized the waste for proper disposal. (Three 55 gallon drums dirt)
29-Oct-2004	Diesel fuel	.25	West side of Kennedy Parkway 1/4 mile North of Swartz rd. In grass on shoulder of road.	A JBOSC operated ton and 1/2 truck experienced a leak spraying fuel oil on the grass.	Equipment failure	Initial response provided in the form of absorbent pads by the logistics driver. ...JBOSC PESCT excavated and containerized the waste for proper disposal. (Two 55 gallon drums dirt)
5-Nov-2004	Hydraulic Fluid	< 1 Pint	South West corner of M7-355 (O&C) parking lot, outside door 1298	Driver noticed hydraulic leak while operating GSA box truck lift gate	leak in GSA box truck hydraulic system	Area cleaned up with oil dry, lift gate tagged out of service
9-Nov-2004	Battery Acid	1 Pint	Outside of K7-1557 (NW), Lead-Acid Battery located inside a portable generator.	It is thought that a power surge to the portable generator caused the battery to explode causing a leak through the drain hole of the generator trailer.	Unknown	JBOSC responded and cleaned-up the release on 11/10/04.
22-Nov-2004	Hydraulic oil	5 gal	K6-0015 cement floor of covered (but open air) facility.	A JBOSC operated man lift experienced a hydraulic oil leak from a line spilling 5 gallons beneath the machine.	Equipment Failure	Spill stayed on the cement and was absorbed without further migration to the grass. Spill absorbed with clay absorbent and removed for proper disposal.
6-Dec-2004	hydraulic oil	.25 gal	K6-1347	JBOSC Operated LT-94 experienced a leak in a hydraulic line spilling approximately one quart of oil on the sand lot parking.	Equipment Failure	The JBOSC PESCT responded and facilitated complete cleanup of the spilled oil. Waste sand excavated and bulked with like material for proper disposal.
7-Dec-2004	Hydraulic fluid	Less than one cup	K7-569	Approximately one half cup of hydraulic fluid was spilled onto ground due to leaking line on a crane. The equipment was wiped down with rags to prevent further discharge to ground. Absorbent material was placed onto soil and, together with some surface sand, was containerized for proper disposal.	A pinhole leak in a hydraulic line caused hydraulic fluid to spray onto the ground	The equipment was shut down as soon as the leak was discovered. Absorbent material, rags, and some sand was containerized and taken to Mod Management for proper disposal.
9-Dec-2004	PCB Oil	.001	NASA HEADQUARTERS BLDG M6-	Electrical Transformer S/N 11120-64... Leaked a few drops of oil	Equipment failure	JBOSC PESCT responded and facilitated cleanup per the EPA protocol 40 CFR

			399... West Cul-D-Sac, behind the Cafeteria.	beneath drain valve.		761, Subpart G ...Double rinse with qualified solvent.
10-Dec-2004	Water and Cooking Oil	2 Gallons	dumpster area behind complex K6-1145 (MFF)	Excessive amount of oil around area.	Due to the wind and rain from the hurricanes the lid was blown off causing an excessive amount of water to overflow out to the ground.	Have lid fastened to container and emptied prior to big storms.
14-Dec-2004	Hydraulic Fluid	5 Gal	Schwartz Road Landfill, KSC	After a GH Griffin dump semi truck had dumped its load in the Landfill a seal on the hydraulic cylinder blew out causing the release of fluid on the lime rock road.	blowout of a hydraulic seal on a dump bed cylinder	The fluid laid puddle in one location on the road.
5-Jan-2005	Sulfuric Acid	.25 gal.	K6-1696 South West Parking Area.	A small plastic bottle of acid was run over in the parking lot causing a small amount (one quart) to spill on the paved road.	Human Error	The JBOSC PESCT responded and neutralized the small spill. Waste was left on site with Wiltech Operator Mark Laport.
5-Jan-2005	Hydraulic Fluid (Chevron AW-32 FSN 9150-00-397-2855)	<50 gallons	OPF1 High Bay Elevator Pit	Main seal failed releasing hydraulic fluid to pit.	Main seal failure	Absorbent material (kitty litter) applied and removed to proper disposal.
5-Jan-2005	"Hercules Clobber" drain cleaner, 97% sulfuric acid solution, MSDS 30183	1/2 gallon	(see map) Asphalt by SW corner of K6-1696	A container of drain cleaner was left at a work site and run over by another truck.	Bottle of drain cleaner was left behind by a work crew and run over by a second truck	Fire department was called, spill was neutralized with baking soda and absorbent pigs were placed around the wet area. Spill team responded to clean up/dispose of materials.
20-Jan-2005	Hydraulic oil	4 gal.	K6-2359 On dirt road at entrance to gun range.	A JBOSC operated lawn mower experienced a hydraulic line leak which spilled approximately 4 gallons of oil on the dirt road.	Equipment failure	Initial response provided by the mower operator in the form of absorbent pads. Further cleanup provided by the JBOSC PESCT. The area of contamination was excavated and the contaminated sand has been disposed of properly.
27-Jan-2005	Automotive engine oil (POV)	2-3 quarts	SSPF NE parking lot	Upon starting, a POV leaked 2-3 quarts of automotive engine oil to the parking lot. Boeing SHEA notified 911 and NASA EPB. Fire Services responded, applied oil dry and notified SGS Waste Management to remove the material. The POV was subsequently towed off-site for repair.	Mechanical failure, cause unknown	911 was called, SGS Fire Services responded and applied oil dry to the affected area. SGS Spill Response/Cleanup will clean up material for disposal.
27-Jan-2005	Hydraulic Fluid	15 to 20 Gallons	Nine Meter Antenna #1 Building MS-1543	The hydraulic line for the antenna braking system developed a leak and caused approximately 15 to 20 gallons of hydraulic fluid to be lost in an almost	The hydraulic fluid line appears to have come in contact with moving parts on the brake disc due	The spill was contained by site personnel with absorbent booms, absorbent litter and wipes were used to clean up the spill. The waste has been placed into drums for pick-

				instantaneous manner.	to broken tie wraps that were previously securing the line in a safe position.	up/shipment.
31-Jan-2005	Hydraulic Oil	approximately 4 ounces	South side of VAB, VLD platform	A small amount of hydraulic oil sprayed from a pressurized cap when it was mistakenly opened by a fuel contractor.	A fuel truck operator mistakenly opened the hydraulic oil reservoir, which is pressurized. Approximately 4 ounces of hydraulic oil sprayed out onto asphalt. Corrective action taken - fuel truck operators will now check with a Metcon equipment operator before fueling the cranes.	Oil dry was spread on the area and collected by Metcon employees.
31-Jan-2005	Hydraulic Oil	1 quart	VAB south parking lot, due south of transfer aisle gate.	Approximately 1 qt. of hydraulic oil spilled onto asphalt parking lot when a seal failed on a glass sight cup.	Seal failure	Oil dry was spread over the spill area and paper work has been filed to replace the seal.
31-Jan-2005	Diesel, Motor Oil, Hydraulic Oil, Battery Acid	diesel-12gals, oil1.5gal, hydraulic 6gals, <4oz acid	Pad surface, SLC 39B next to flame trench.	Subcontractor crane fell over while being positioned on Pad B surface between hinge column and flame trench. The crane came to rest on its side and spilled diesel fuel, motor oil, hydraulic fluid and some battery acid.	The crane is believed to have been pushed over on its side by winds	Spill containment equipment has been deployed, tarps have been placed over the crane and SGS will be on-site when the crane is righted.
1-Feb-2005	Hydraulic Oil	3 gallons	M7-1212 paved lot.	Equipment failure involving a hydraulic line on a JBOSC operated Haskel type compressor.	Equipment failure	Initial response provided by Fire Services, and the Wyle operator in the form of absorbent clay and booms. Follow up by JBOSC PESCT who containerized waste for proper disposal.
10-Feb-2005	Elemental Mercury @ room temperature.	5cc	Building M6-0342, Room 307, bench top centered against north wall.	Glass/Mercury thermometer was broken resulting in a release of Mercury on bench top in room 307 in M6-0342, CIF building.	Thermometer was dropped on bench	Room cleared, 911 called. CHS performed Mercury vapor monitoring and "sniffed" the technician's clothing. All test results were at an acceptable level. Wiltech technicians cleaned up the spill and it was disposed of in the proper waster stream.
15-Feb-2005	Refrigerant oil and R-22 Freon	<5 gallons oil, ~50 lbs of R-22 Freon	M7-777 Canister Rotation Facility (CRF) - chiller on NW corner of building	Two Jacobs-Sverdrup Technicians went to the facility to do routine preventative maintenance on the chiller system. On arrival they noted that the system had leaked oil onto the pad and notified their supervisor who	System over pressurized releasing oil and Freon - faulty sensor suspected and is being investigated. Facility anomaly is being	Non-emergency 911 was called, SGS Fire Services and SGS Spill Response/Cleanup responded. Fire Services applied oil dry to affected areas. Spill response personnel cleaned up oil dry. Soil areas affected were also removed,

				contacted Boeing SHEA and Security. Exact time release occurred and total length of release is unknown although stains appear relatively fresh. Total oil capacity for each circuit is 8 gallons, only 1 circuit involved.	investigated for corrective action and prevention of re-occurrence.	drummed, and turned over to Boeing for disposal...
17-Feb-2005	Diesel Fuel	<1 quart	South side of VAB perimeter fence by F Gate.	Small amount of diesel spilled in grassed area, probably from fill spout.	Unknown	Soil will be removed and disposed of by SGS.
22-Feb-2005	Oakite Rust Stripper, NaOH	Approx. 5 gallons	K6-1547 USA Receiving Dock	55 gallon poly drum of NaOH rust stripper leaking in lower rim from small hole. The leak was discovered during unloading at the logistics dock by USA Receiving.	Unknown	911 were called as a non-emergency. SGS responded, called for fire backup as a precaution. Spill was cleaned up with neutralizing absorbent and disposed of.
24-Feb-2005	Cooking Oil	2 Gallons	Dumpster area behind Complex K6-1145 (MFF)	Excessive amount of oil around area.	Employee was emptying oil into a vat already too full and it overflowed on to pavement	We recalled Waste Management to come and empty, then called non-emergency 911 and they applied absorbent.
25-Feb-2005	90 weight gear oil	< 1/2 pint	SLF Midfield	Differential of Grove mobile crane leaked onto asphalt.	Gasket leak	Oil-dry placed on spots.
25-Feb-2005	Diesel fuel.	Approximately 1 pint.	Midfield SLF	Small spill of diesel fuel when a fill hose slipped out of tank during fueling.	Operator error	Cleanup with absorbent materials.
3-Mar-2005	Hydraulic oil	.25	Paved Parking lot at K7-0114	A Permafex driver experienced a leak from a roll off type container carrier and sprayed a small amount of oil on the parking lot.	Equipment failure	JBOSC PESCT was on site and immediately absorbed the spill with absorbent clay media. Waste bulked with like material for proper disposal.
17-Mar-2005	hydraulic oil (GSA vehicle)	<1/2 oz	M7-355 O&C south parking lot outside D-16	A newly installed hydraulic lift gate on a GSA box truck was dripping oil from a valve creating sheen on the collected rainwater behind D-16.	Mechanical failure, new valve not tightened	Valve was tightened and visible sheen was removed with adsorbent pads by SHEA.
17-Mar-2005	NaOH	< 1 pint	LC 39B Oxidizer Farm Scrubber sump	A line with NaOH salt was rinsed off in a sump full of about 50gal of rainwater and the water was drained to grade.	Water drained to grade	Procedures to be written to preclude cleaning lines off in water to be dumped.
22-Mar-2005	Diesel Fuel	1 gal	K6-0015 maintenance hanger at SLF cements deck.	JBOSC Fuelers experienced an overflow while fueling USA ground support mobile equipment.	Operator error	JBOSC PESCT responded and facilitated complete cleanup of the small amount of oil on the deck.
22-Mar-2005	Hydraulic Oil	1 to 2 gal.	SLF runway between markers 8 & 9 west of centerline.	Hydraulic line in CTV leaked spilling between 1 and 2 gallons of hydraulic fluid on the runway during a landing simulation.	Leak in hydraulic line	Spill kit was used to contain/clean the spill. Absorbent material collected for proper disposal.
28-Apr-2005	Domestic Sewage	<10 gallons	The sewer gravity main from Headquarters building to the 1C Lift Station, KSC	Line developed a blockage due to debris buildup (sewage, kitchen grease, etc.). Sewage seeped out of a manhole (< 10 gallons) to grade.	See Above	The 6" gravity main was cleared. Vacuum truck was used to keep manhole from continuing to overflow while the line was cleared. Liquid chlorine solution was applied to the spill area.

2-May-2005	Diesel Fuel	.125 gal	Facility E3-1139 North SR 3 Tracking Station sand lot.	A small amount of diesel fuel (one pint) was overfilled onto the ground beneath a mobile power generator.	Fueling Overfill	Initial response by operator of the refueler in the form of absorbent clay. Follow on cleanup by JBOSC Spill Cleanup Team. Contaminated sand removed and bulked with like material for proper disposal.
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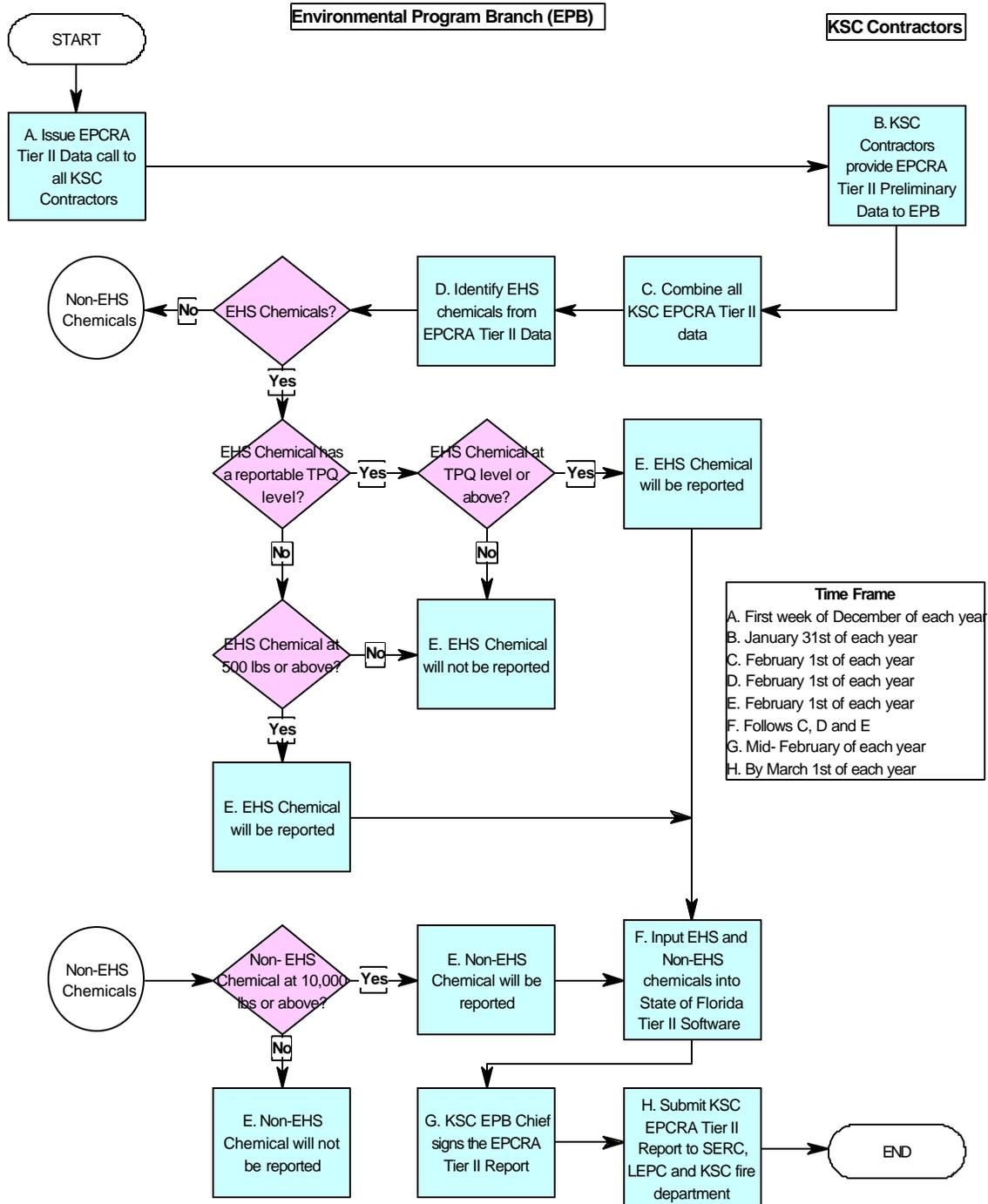
## Appendix B - KSC EPCRA Tier II Reporting Process

**Environmental Program Branch - KSC EPCRA Tier II Reporting Process to the State Emergency Response Commission (SERC), the Local Emergency Planning Committee (LEPC), and the Local Fire Department**

Objective:

- To submit the KSC annual EPCRA Tier II data to the SERC, the LEPC, and fire department by March 1st of each year.

Approval: \_\_\_\_\_  
Chief, Safety, Health and Environmental Division



## Appendix C - KSC EPCRA Toxic Releasing Inventory (TRI) Process

**Environmental Program Branch - KSC EPCRA Toxic Release Inventory Reporting (TRI) Process to the US Environmental Protection Agency (EPA) and the State Emergency Response Commission (SERC)**

Objective:

- To submit the KSC annual EPCRA TRI data to the US EPA and the SERC by July 1st of each year.

Approval: \_\_\_\_\_

Chief, Safety, Health and Environmental Division

