Internal Letter

Rockwell International

Date: 19 September 1989

No.

TO:

J. F. Lang
D/598-346 - SS12

FROM:

J. R. Perez
D/532-191 - FA09

5856 DeSoto

Subject: Disposition of DHSG Materials

Please use this IL as the directive to dispose of items 4, 5, 6 and 7 described on the attached 7-V form (No. 5361728). Said material is extremely volatile and hazardous and should be disposed of accordingly.

J. R. Perez, Administration
Advanced Programs

JRP/pvm

Attachment

cc:

W. Hutchinson	D/631	FA40
W. Jones	D/532	FA09
S. Sitlington	D/060	NB22

88

NE

North American Aircraft Operations
P.O. Box 92098
Los Angeles, CA 90009

Rockwell International

PART NO.

SHIPPING ADDRESS
EL SEGUNDO, CALIF.

NOTICE OF SHIPMENT

DATE MARCH 20, 19

PED TO: STEVE SETTLINGTON (DHSC - EQUIPMENT)

INVOICE TO:

DATE SHIPPED 19

TO: TOP OF WOOLSEY CANYON ROAD

CHATSWORTH, CA. SANTA SUSANA FLEID LAB

PURCHASE ORDER NO.

REQUISITION NUMBER

VIA

No. S 361728

ITEM	QUANTITY	DESCRIPTION	COST Unit Price	COST AMOUNT
1	1 BOX	LOW PRESSURE DOWN HOLE STEAM GEN. EQUIPMENT		
2	1 EACH	LOW PRESSURE DHSG HEAT EXCHANGER		
3	1 BOX	HI PC DHSG TEST HARDWARE		
4	12 EACH	DHSG IGNITION, TEB CANISTERS (SERIAL NO. 480, 481, 84 482, 483, 484, 485, 486, 487, 488, 489, 490, 491) NOTE: BOX CONTAINING # S/N 481 INSTALLED ON SKIN. INFORMATION DRAWING, PROCEDURES, LOG SHEET ENCLOSED IN BOX 480		
	1 EACH	TRIETHYLBORON CYLINDER (TEB VOLUME 69.5 lb)		
6	1 EACH	TRIETHYBBORON (PIG) CYLINDER TEB VOLUME 14 lb) # K-4843 (NEAT; TEA/TEB 14 lb) RC # 02810		
7	1 EACH	TRIETHYLALUMINUM/RIETHYLBORAN CYC # K-4977 (NEAT; TEA/TEB 14 lb)		
8	1 EACH	HI PC DHSG STEAM TUBE (TEST HARD WARE NOTE: ITEM 4, 5, 6 and 7 are to be delivered to SSFL Area #1 BURN PIT (Between CTL #3 AND CTL-5)		
FLANMABLE LIQUID		ITEM 4, 5, 6, 7 PYROFORIE LIQUID NO'S. U.N. 1375 LABELS APPLIED, TEB LOADED IGNITERS		

Stored SPA 3-20-85

NAME	DEPT. & SERIAL NO.	EXT.
J. E. KELLY A. G. MASON	115-146 RB02	7-2065

CONDITIONS

I. The items described above will be used in accordance with the terms of the related purchase order or other specific instructions furnished by Rockwell International Corporation.

II. All patterns, tools, gauges, and other fixtures and, unless otherwise provided in the related purchase order, any other items listed above shall remain the property of Rockwell International Corporation and will be returned in good condition when directed by Rockwell International Corporation.

III. By signing this Notice of Shipment you are acknowledging receipt of the items listed above. Quantities and shortages must be verified. Discrepancies, if any, must be reported within 48 hours to Rockwell Internatio

ACCEPTED BY 19

V REV. 4-82

Dan N Stead
(19) DOTYLA
3-20-85

(89)

PACKING SHEET

HAZARDOUS WASTE
CONTAINER IDENTIFICATION

SECTION A (Completed by Generator)

Generator

Facility Location: ☐ Canoga ☐ DeSoto ☒ SSFL ☐ Area I ☒ Area II ☐ Area III ☐ Area IV ☐ ETEC ☐ Other

Department Number/Name 548-346 ADV. PROG Site SPA Bldg. No. _____ Area Contact/Phone 5160

Waste

Common Name TRIETHYL BORON Tank No. _____ Date of 1st Accum. _____ Process _____

Components TEB 100 %

_____ ____ %

_____ ____ %

_____ ____ %

_____ ____ %

Total 100%

Container: ☐ 55 gal. steel drum ☐ 5 gal. steel drum ☐ 55 gal. plastic drum ☐ Roll-off Bin ____ cu. yds. ☒ Tank 69.5 lb gal. ☐ Other ____

Quantity in Container: _____ ☐ gal. 69.5 ☐ lbs. ☐ cu. yds. _____

Properties: ☒ Ignitable ☐ Corrosive (pH ____) ☐ Toxic ☐ Reactive ☒ Other PYROPHORIC

Physical State: ☐ Solid ☒ Liquid ☐ Sludge ☐ Gas ☐ Other _____

Generator's Certification

The above named wastes are properly identified, classified and labeled according to environmental regulations and Environmental Control Procedure 04.10. Failure to comply with these requirements can result in the issuance of extensive fines or imprisonment.

Name J. F. LANG (print)

Signature _____ Date 2-7-90

Delivered to:

☐ DeSoto HWSA D/644, 055-KA02 Phone X4234

☐ Canoga HWSA D/546, 055-AD06 Phone X3409

☐ SSFL HWSA D/031, 055-SS12 Phone X2492, 4751

☒ Other BURN PIT

SECTION B (Completed by HWSA)

Date Rec'd _____ Container Inventory No. _____ Storage Pad ID _____ EPA Waste Code _____ CA Waste Code _____

Analyses Log No. _____ Density _____ Reportable Quantity _____ Manifest No. _____ Date Shipped _____

Comments _____

Rockwell International Corporation/Rocketdyne Division, 6633 Canoga Avenue, Canoga Park, CA 91303 818/710-5163

BURN FACILITY LOG

DATE: 14 Feb 90

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	0915		small white canister 30psi gN_2	22 min of burning
	0945		valve removed	
2	0950		small white canister	5 min of burning

91

0720H-4/17/89

BURN FACILITY LOG

DATE: 3-29-90

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	920	overcast light wind	5lb NAKA solid	short quiet burn
2	1030	"	"	"

(92)

BURN FACILITY LOG

DATE: 4-5-90

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	900	overcast wind to S	slurry waste NAKA 1.5 lbs solids	≈ 15 min burn
2	925	~~4.2 lb~~ "	4.2 lbs solid	burn ≈ 3 min
3	935	"	4.6 "	"
4	945	"	4.5 "	"
5	1000	"	NAKA B 359 slurry	0.6 lbs solids burn 15 min
6	1030	"	NAKA ~~B 359~~ B 372 slurry	burn 10-~~15~~ min

93

Burned 4/5/90

WASTE DISPOSAL 4/5/90

OPEN BURNING BK, MOY

SLURRY WASTE SOURCE BLDG 340

INGREDIENTS

CAB, NC, CMP, BONPA/F
TMETN, DEGDN, TEGDN, NG
EC, PVAC, TEGDA, PEG, R-45
GAP, GAPA, ATEC, NDPA
ROX, AP, KP, ZrH_2, TAGN
K_2SO_4, C, Cu_2O, AL
Mg, Cr, B
} 1.5 LBS SOLIDS

ACETONE, TOLUENE, ETOH, ETAC 152.5 LBS LIQUIDS

154 LBS TOTAL

SOLID WASTE SOURCE OVENS AT 340

INGREDIENTS

GAP 30%
AP } 70%
C

MIX	
3-21-1	4.2 LBS
3-21-2	4.6 LBS
3-21-1+2	4.5 LBS

10:30

WASTE DISPOSAL

OPEN BURNING

4/5/90

BKMM

SLURRY WASTE — SOURCE BLDG 372

- KClO4, Al, ZrH2 } 60%
- NC, NG } 40%

} 0.6 LBS SOLIDS

ACETONE, ETOH, ETAC — 61.4 LBS LIQUIDS

62 LBS TOTAL

LIQUID WASTE — 1000 — SOURCE BLDG 359

- ACETONE
- ETHANOL
- ISOPROPANOL
- NG
- TMETN
- DANPE

} 27 LBS LIQUIDS

Al, Mg, Cr, Si — TRACE AMOUNT

27 LBS TOTAL

BURN FACILITY LOG

DATE: 4-6-90

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	905	overcast wind to SW	solid waste - 4.96 lbs	slow burn ≈ 5 min
2	945	"	" 4.67 lbs	"
3	1015	"	" 4.84 lbs	"
4	1045	"	" 5.14 lbs	"

96

WASTE DISPOSAL
OPEN BURNING

4/6/90
BK MOY

SOURCE OVEN AT BLDG 340

SOLID WASTE

MIX 3-22-1 4.96 LBS

3-22-2 4.67 LBS

3-22-3 4.84 LBS

3-22-1, 2, 3 5.14 LBS

INGREDIENTS

TMETN, GAP 30%

AL, AP } 70%
C

(97)

BURN FACILITY LOG

DATE: 4-26-90

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	930	wind to SW	NAKA slurry 2gal	slow burn ≈ 10 min
2	1000	"	NAKA solid 5 lbs	burn ≈ ~~5~~ 2 min
3	1030	"	NAKA solid 1.25 lbs	burn ≈ 3 min

98

WORD TO S/SW

380

FLAMMMABLE WASTE DISPOSAL

SOLID _____

SLURRY ✓

QUANTITY, ~~LBS.~~ 2GAL

DATE 4/26/90

SOURCE BLDG 340, 359

ENGINEER BK MOY

INGREDIENTS

ACETONE, ETOH, ETAC

NC, CAB, DANPE, NG, ROX

AP, ROX, AL_2O_3, Cr_2O_3

Mg O, AL, Mg, Cr

PAPER TOWELS,

PLASTIC/GLASS CONTAINERS

MIXES

99

FLAMMMABLE WASTE DISPOSAL

SOLID ✓

SLURRY

QUANTITY, LBS. 1

DATE 4/26/90

SOURCE BLDG 340

ENGINEER BR MOY

INGREDIENTS

PE6/NG 50%

RDX/AL_2O_3/Ce_2O_3 50%

PAPER TOWELS,

PLASTIC CONTAINERS

MIXES

23-1

24-1

26-1

27-1

100

FLAMMMABLE WASTE DISPOSAL

SOLID ✓

SLURRY

QUANTITY, LBS. 15

DATE 4/26/90

SOURCE BLDG 340

ENGINEER BK MOY

INGREDIENTS

PEG 1N6 50 %

ROX 1M30 50 %

PAPER TOWELS,

PLASTICS CONTAINERS

MIXES

28-1

29-1

32-1

33-1

100

FLAMMMABLE WASTE DISPOSAL

SOLID ✓ DATE 4/26/90

SLURRY _____ SOURCE BLDG 340, 359

QUANTITY, LBS. 1-5 ENGINEER BKMOY

INGREDIENTS	MIXES
NC, CAB, DANPE, DINA, CMP 25%	23-1, 24-1
RDX 75%	26-1, 27-1
	296-1, 296-2
PEG/NG 50%	289-1, 294-1, 295-1
RDX/AL_2O_3/K_2O_3 50%	FUEL SAMPLES
GAP/TMETN/GAPA/TEGDN/DANPE 50%	
ATLASOL YELLOW DYE 5%	

(102)

FLAMMMABLE WASTE DISPOSAL

SOLID ✓

SLURRY _____

QUANTITY, LBS. 1.25

DATE 4/26/90

SOURCE BLDG 340

ENGINEER BKMIY

INGREDIENTS

GAP/DANPE 302

AP/AL/Mg/CR 702

PAPER TOWELS,

PLASTIC CONTAINERS

MIXES

36-1

37-1

41-1

42-1

43-1

44-1

HAZARDOUS WASTE CONTAINER IDENTIFICATION

SECTION A (Completed by Generator)

Generator

Facility Location: ☐ Canoga ☐ DeSoto ☑ SSFL ☑ Area I ☐ Area II ☐ Area III ☐ Area IV ☐ ETEC ☐ Other

Department Number/Name 598/346 Site CTL 3 Bldg. No. 409 Area Contact/Phone 4745

Waste

Common Name RP-1 + TEAB Tank No. _____ Date of 1st Accum. 3-28-80 Process Line Flush Ignitor loading

Components RP-1 95 %

TEAB 5 %

_____ ____ %

_____ ____ %

_____ ____ % Total 100%

Container: ☑ 55 gal. steel drum ☐ 5 gal. steel drum ☐ 55 gal. plastic drum

☐ Roll-off Bin ____ cu. yds. ____ ☐ Tank ____ gal. ____ ☐ Other ____

Quantity in Container: _____ ☑ gal. 40 ☐ lbs. ____ ☐ cu. yds. ____

Properties: ☒ Ignitable ☐ Corrosive (pH ____) ☐ Toxic ☒ Reactive ☐ Other ____

Physical State: ☐ Solid ☒ Liquid ☐ Sludge ☐ Gas ☐ Other _____

Generator's Certification

The above named wastes are properly identified, classified and labeled according to environmental regulations and Environmental Control Procedure 04.10. Failure to comply with these requirements can result in the issuance of extensive fines or imprisonment.

Name J. F. LANG (print)

Signature _____ Date 4-3-90

Delivered to:

☐ DeSoto HWSA D/644, 055-KA02 Phone X4234

☐ Canoga HWSA D/546, 055-AD06 Phone X3409

☒ SSFL HWSA D/031, 055-SS12 Phone X2492, 4751

☐ Other

SECTION B (Completed by HWSA)

Date Rec'd _____ Container Inventory No. _____ Storage Pad ID _____ EPA Waste Code _____ CA Waste Code _____

Analyses Log No. _____ Density _____ Reportable Quantity _____ Manifest No. _____ Date Shipped _____

Comments _____

Rockwell International Corporation/Rocketdyne Division, 6633 Canoga Avenue, Canoga Park, CA 91303 818/710-5163

FORM 642-J REV 10-87

BURN FACILITY LOG

DATE: 5/17/90

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	1015	clear W to SW	TEAB & RP-1 ≈ 30 gal. of RP-1	approx 1 cup ~~of~~ TEAB burned 30 minutes

105

TITLE: EXPLOSIVE SAFETY REGULATIONS
DESTROYING WASTE EXPLOSIVES

Attachment A

CHECKLIST
(Initials & date) 6/15/90

BK a. Determine from Ventura Air Pollution Control District if there is a designated burn day.

BK b. Inspect the Area I Thermal Treatment Facility according to Attachment B to this procedure. Include a completed copy of the checklist with the logbook.

BK c. Protective Services notify Ventura County of the burning operation.

BK d. Environmental Unit obtain list of materials to be burned.

BK e. Verify wind is blowing toward the South or West.

BK f. Technician or fireman spread waste out into a split 55-gallon drum inside the burn cage.

BK g. Protective Services or Firemen set up the remote ignition source.

BK h. Clear the area around the burn cage for 50 feet, 100 feet downwind.

BK i. Protective Services/Fireman remotely ignite the waste.

____ j. Environmental engineer update log book with date, time, wind conditions, and description of material disposed of.

Date: 6/15/90 Wind Conditions: S-SW

Time: 1030 Quantity: See attached

Material Description: _____

BK k. Do not approach the burn cage area for at least 15 minutes following the last visible sign of smoke.

TITLE: EXPLOSIVE SAFETY REGULATIONS
DESTROYING WASTE EXPLOSIVES

Attachment A continued

CHECKLIST continued

WA l. Following protective services determination that the area is safe, approach area to set up next burn, if any.

WA m. Return to step a for additional burns.

_____n. Environmental Technician will collect any ash residue and place in approved labelled container at least 24 hours following the burn.

_____o. Ash will be analyzed and disposed of according to the analyses disposition.

BK p. Environmental Unit update logbook with Checklist and Burn Information.

107

FLAMMMABLE WASTE DISPOSAL

SOLID SOLID

SLURRY

QUANTITY, LBS. 15

DATE 6/15/90

SOURCE BLDG 340

ENGINEER BK MOY

INGREDIENTS

R-45, DDI, AP, Cu0202, AL

Si, GAP, N-100, YELLOW DYE

GAPA, TMETN, CMP, DANPE

PAPER TOWELS, PLASTIC CONTAINERS

MIXES

57-1, 66-1, 58-1

67-1, 69-1, 70-1

59-1, 59-2

108

FLAMMMABLE WASTE DISPOSAL

SOLID _____

SLURRY ✓

QUANTITY, LBS. 2 GAL IN SAWDUST

DATE ~~5/31/90~~ 6/15

SOURCE BLDG 340

ENGINEER BK MOY

INGREDIENTS

GAP, N-10, DANPE, GAPA

AP, Mg, Cr, HMX

NC, CMP, DATH

TMETN, DADNH, HMDI

ACETONE, ETHYL ACETATE

ETHANOL

MIXES

42-1, 44-1, 43-1

50-1, 51-1

54-1, 54-2, 55-1

109

FLAMMMABLE WASTE DISPOSAL

SOLID ~~SEE~~

SLURRY ✓

QUANTITY, LBS. 1GAL + SAWDUST

DATE 6/15/90

SOURCE BLDG 340

ENGINEER BK MOY

INGREDIENTS

R-45, DDI, AP, CuO2O2, AL

Si, GAP, N-100, YELLOW DYE

GAPA, TMETN, CMP, DAMPE

ETHYL ALCOHOL, ACETONE,

TOLUENE

MIXES

57-1, 66-1, 58-1

67-1, 69-1, 70-1

59-1, 59-2

(110)

FLAMMMABLE WASTE DISPOSAL

SOLID ✓

SLURRY

QUANTITY, LBS. 2

DATE ~~5/31~~ 6/15/90

SOURCE BLDG 340, 359

ENGINEER BK MOY

INGREDIENTS

GAP, N-100, DANPE

HMX, GAPA, TMETN, *

NC, CMP, DATH, DADNH

PAPER TOWELS, PLASTIC

TUBES AND BEAKERS

ATLASOL YELLOW DYE

MIXES

50-1, 51-1

54-1, 54-2, 55-1

111

TITLE: EXPLOSIVE SAFETY REGULATIONS
DESTROYING WASTE EXPLOSIVES

Attachment B

AREA INSPECTION CHECKLIST
(Initials & date) BJK 6/15/90

BJK 1. Area is relatively weed free.

BJK 2. Burn cage is working condition without large holes.

BJK 3. Burn cage is clean and free of ash residue from prior burns.

N/A 4. Safety shower and eyewash is operational. ~~solids~~ solids burned

BJK 5. Wind socks are operational.

BJK 6. Vertically split drum is in good condition and free from corrosion which could cause leaks.

BJK 7. Concrete pads are in good condition.

BJK 8. If any problems are detected, state problem and corrective action required. If problems are detected, the thermal treatment operation must be postponed until the problem is corrected. NONE

BURN FACILITY LOG

DATE: 9-26-90

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	10:40A	Calm, high clouds sunny, wind 3 mph	flammable waste	10' high fireball, smoke - 1st minute 2nd minute - light smoke

113

CHEMICAL & MATERIAL TECHNOLOGY
SANTA SUSANA FIELD LABORATORIES
SAFETY AND PROCEDURES MANUAL

TITLE: EXPLOSIVE SAFETY REGULATIONS
DESTROYING WASTE EXPLOSIVES

No.: 11-203-A
Date: 5/1/90

Attachment A

CHECKLIST
(Initials & date)

JS a. Determine from Ventura Air Pollution Control District if there is a designated burn day.

JS b. Inspect the Area I Thermal Treatment Facility according to Attachment B to this procedure. Include a completed copy of the checklist with the logbook.

JS c. Protective Services notify Ventura County of the burning operation.

JS d. Environmental Unit obtain list of materials to be burned.

JS e. Verify wind is blowing toward the South or West.

JS f. Technician or fireman spread waste out into a split 55-gallon drum inside the burn cage.

JS g. Protective Services or Firemen set up the remote ignition source.

JS h. Clear the area around the burn cage for 50 feet, 100 feet downwind.

JS i. Protective Services Fireman remotely ignite the waste.

JS j. Environmental engineer update log book with date, time, wind conditions, and description of material disposed of.

Date: 9-26-90 Wind Conditions: 3 MPH TOWARD WEST (INTERMITANT)

Time: 10:40A Quantity: _____

Material Description: _____

_____

_____

JS k. Do not approach the burn cage area for at least 15 minutes following the last visible sign of smoke.

(14)

TITLE: EXPLOSIVE SAFETY REGULATIONS
DESTROYING WASTE EXPLOSIVES

Attachment A continued

CHECKLIST continued

N/A l. Following protective services determination that the area is safe, approach area to set up next burn, if any.

N/A m. Return to step a for additional burns.

n. Environmental Technician will collect any ash residue and place in approved labelled container at least 24 hours following the burn.

_____o. Ash will be analyzed and disposed of according to the analyses disposition.

_____p. Environmental Unit update logbook with Checklist and Burn Information.

CHEMICAL & MATERIAL TECHNOLOGY
SANTA SUSANA FIELD LABORATORIES
SAFETY AND PROCEDURES MANUAL

TITLE: EXPLOSIVE SAFETY REGULATIONS
DESTROYING WASTE EXPLOSIVES

No.: 11-203-A
Date: 5/1/90
Page 1 of 1

Attachment B

AREA INSPECTION CHECKLIST
(Initials & date)

1. Area is relatively weed free.
2. Burn cage is working condition without large holes.
3. Burn cage is clean and free of ash residue from prior burns.
4. Safety shower and eyewash is operational.
5. Wind socks are operational.
6. Vertically split drum is in good condition and free from corrosion which could cause leaks.
7. Concrete pads are in good condition.
8. If any problems are detected, state problem and corrective action required. If problems are detected, the thermal treatment operation must be postponed until the problem is corrected. NONE

(116)

FLAMMMABLE WASTE DISPOSAL

SOLID ✓

SLURRY _____

QUANTITY, LBS. ←

DATE 9/26/80

SOURCE BLDG 340

ENGINEER BKMOY

INGREDIENTS

GAP, N-100, TMETN, DBTDL, DAMPE

CMP, R-45, DOI, PSJJJ, GAPA, NC, NG

R-18, IDP, HDI, CAB, DOA, PEG, CMGA

AP, MWA, C, TPB, SiO_2, AL, CuO_2O_2, Si

NDPA, $KClO_3$, $NaHCO_3$, S, YELLOW DYE

$Ba(NO_3)_2$, HEXACHLOROETHANE, FE, Mg

Fe_2O_3, Mo, B, I_2O_5, RDX, ZeH_2

ATEC, EC, DATH, PCDE, SYEP, HMX

Ti, Am. IODATE, Bi, DECHLORANE

$K_2Cr_2O_7$, PAPERS, PLASTIC CONTAINERS

MIXES

63-1, 83-1, 84-1, 85-1, & 9-1

90-1, 91-1, 92-1, 96-1, 2

100-1, 2, 102-1, 105-1, 107-1

108-1, 109-1, 110-1, 2, 111-1, 112-1

113-1, 114-1, 115-1, 119-1, 120-1, 2

121-1, 2, 127-1, 128-1, 129-1, 2

130-1, 2, 131-1, 2, 134-1

135-1, 2, 137-1, 2, 138-1, 2

140-1, 2, 141-1, 2, 142-1, 2

(117)

FLAMMMABLE WASTE DISPOSAL

SOLID _____ **DATE** 9/26/80

SLURRY ✓ **SOURCE** BLDG 370

QUANTITY, LBS. 1/2, 2 GALLONS LIQUID **ENGINEER** BK MOY

INGREDIENTS	**MIXES**
CMP N-100, DAMP3, CMP, NC, NG	111-1, 112-1, 113-1, 114-1
PCO3, SYP, CAB, ATEC, GAPA B-4	127-1, 128-1, 129-1, 2
DDI, DDA, PBF, CMGA	130-1, 2, 132-1, 131-1
RDX, NDPA, Zeff3, Si, HMX, B, $KClO_3$	135-1, 138-1, 140-1, 2
$NaHCO_3$, DATH, S, YELLOW OY3, Al	141-1, 2, 142-1, 2
Am. IODATE, OECHLORANE, PbO_2	121-1, 2
$K_2Cr_2O_7$, HEXACHLOROETHANE	
ACETONE, TOLUENE, ETHANOL, ETHYL ACETATE	

FLAMMMABLE WASTE DISPOSAL

SOLID _____

SLURRY ✓

QUANTITY, LBS. 1/2, 2 GAL LIQUID

DATE 9/26/90

SOURCE BLDG 340

ENGINEER SK MOY

INGREDIENTS

R-45001, GAP, GAPA, N-100, R-18

HMX, NC, NG, PS 555, DAMP2

AP, $KClO_4$, $KClO_3$, ROX, $NaHCO_3$, S

Si, CMP, AL, Cu_2O

MIXES

69-1, 61-1, 62-1, 72-1

75-1, 76-1, 79-1, 77-1

78-1, 82-1, 83-1, 84-1

81-1, 89-2, 91-1, 91-2

96-1, 96-2, 100-1, 101-1

FLAMMMABLE WASTE DISPOSAL

SOLID _____ DATE 9/24/90

SLURRY ✓ SOURCE BLDG 340

QUANTITY, LBS. ½, 2 GALLONS LIQUID ENGINEER BK MOY

INGREDIENTS

R-45, DDI, IDP, S, $KClO_3$, ATMOC

YELLOW, NC, $Ba(NO_3)_2$, $NaHCO_3$

GAP, N-100, A-P, TMETN, MNA, C, TPB

R-18, HMDI, MO, B, DDZ, I_2O_5

DANPE, RDX, CMC, ATEC, DATH

MIXES

102-1, 103-1, 106-1, 107-1

108-1, 109-1, 110-1, 110-2

115-1, 115-2, 119-1, 119-2

120-1, 120-2, 121-1, 121-2

FLAMMMABLE WASTE DISPOSAL

SOLID ✓

DATE 9/26/90

SLURRY

SOURCE BLDG 340

QUANTITY, LBS. 1-75

ENGINEER BK MOY

INGREDIENTS	MIXES
R-45, DDI, AP, CuO2O2, AL, Si, CMP	58-1, 61-1, 62-1, 74-1
GAP, N-100, GAPA, KClO4, ATLAS OLYE LLOW DYE	75-1, 76-1, 69-1
KClO3, NaHCO3, S	
PAPER, PLASTIC CONTAINERS	

121

FLAMMMABLE WASTE DISPOSAL

SOLID ✓

SLURRY _____

QUANTITY, LBS. ~~[illegible]~~ 500

DATE 9/26/90

SOURCE BLDG 340

ENGINEER OKMDY

INGREDIENTS

NC, NG, R-18, MDPA, HDI, ZrO_2, Si AP

GAP, GAPA, N-100, $KClO_3$, $NaHCO_3$

S, YELLOW DYE, PAPER,

PLASTIC CONTAINERS

MIXES

96-1, 96-2

100-1, 100P-1

122

FLAMMMABLE WASTE DISPOSAL

SOLID ✓

SLURRY

QUANTITY, LBS. 4.75

DATE 9/26/90

SOURCE BLDG 340

ENGINEER BKMUY

INGREDIENTS	MIXES
PS 555, GAPA, N-100, AP, GAP, $NAHCO_3$	79-1, 77-1, 78-1, 82-1
S, $KClO_4$, YELLOW DYE, RDX, CMP	83-1, 84-1, 81-1
Si, R-45, DDI, CLO2, DANPE	85-2, 91-1, 91-2
PAPER, PLASTIC CONTAINERS	

123

BURN FACILITY LOG

DATE: 4-15-89

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	8:12	wind 2m/hr-east Foggy Damp	Unknown Type/Qty	white gas
2	8:36	wind 3m/hr-east foggy	"	white gas
3	8:37	"	"	white gas
4	9:01	"	"	white gas
5	9:36	wind- 1m/hr-South foggy	"	white vapor - yellow tinge rxn to metal
6	10:05	wind v= 1m/hr hazy	" Stenciled Fluorine	empty
7	10:20	wind v = 1m/hr	unknown type/Qty	empty
8	10:35	"	Compound A	corrosive white thick smoke-yellow tinge
9	11:35	wind v = 1m/hr clear	unknown type/Qty	empty
				Attendees:
				Bea Kephart
				Gary Colbert
				Steve Greenhill
				Lt Redmann
				Pat Pollack

BURN FACILITY LOG

DATE: 4-19-89

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	940	partly cloudy	NAKA waste - Pyro scrap Kim Wipes	black smoke elec. match used
2	1015	partly cloudy	1 drum - 30 gall TEA w/ RP-1	slow burning burned until ≈ 3AM
				Attendees:
				Lt. Redman
				Steve Greenhill
				Bla Kephart
				Jim Sherman
				Gary Colbert
				Leslie Dirius Pat Pella
				Capt Groonwell

FLAMMMABLE WASTE DISPOSAL

SOLID ✓

SLURRY _____

QUANTITY, LBS. 4.5

DATE 9/26/90

SOURCE BLDG 3 E0

ENGINEER BK MOY

INGREDIENTS

AP, GAP, TMETN, N-100,

C, NMA

MIXES

3-22

(126)

FLAMMMABLE WASTE DISPOSAL

SOLID ✓

SLURRY _____

QUANTITY, LBS. 415

DATE 9/26/90

SOURCE BLDG 340

ENGINEER BK MOY

INGREDIENTS

AP, GAP, TMETN, N-100

C, NMA

MIXES

3-21

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Analytical Report

LOG NO: G90-03-371

Received: 20 MAR 90
Reported: 10 APR 90

Ms. Nancy McMillan
Rocketdyne Division
6633 Canoga Ave., M/S SS-12
Canoga Park, CA 91304

Requisition: R94QEZ89-032382

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, CALIF WASTE EXTRACT, SOIL SAMPL	DATE SAMPLED
03-371-1	9002.098 Ash, Area I Burn Facility	01 FEB 90

PARAMETER	03-371-1
Antimony, mg/L	<1
Arsenic, mg/L	0.11
Barium, mg/L	1.1
Beryllium, mg/L	0.003
Cadmium, mg/L	<0.04
Chromium, mg/L	0.14
Cobalt, mg/L	0.2
Copper, mg/L	4.2
Lead, mg/L	16
Mercury, mg/L	<0.01
Molybdenum, mg/L	<0.4
Nickel, mg/L	0.6
Selenium, mg/L	<0.04
Silver, mg/L	<0.02
Thallium, mg/L	<1
Vanadium, mg/L	<0.1
Zinc, mg/L	15
CAM WET Extraction	03/28/90

Jeffrey A. Erion, Laboratory Manager

128

801 Western Avenue
Glendale, CA 91201

818/247-5737
Fax: 818/247-9797

BCA B C Analytical

Analytical Report

LOG NO: G90-02-237

Received: 13 FEB 90
Reported: 07 MAR 90

Ms. Nancy McMillan
Rocketdyne Division
6633 Canoga Ave., M/S SS-12
Canoga Park, CA 91304

Requisition: R94QEZ89-032382

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOLID SAMPLES	DATE SAMPLED
02-237-4	9002.098 Ash, Area I Burn Facility	01 FEB 90

PARAMETER	02-237-4
Antimony, mg/kg	<10
Arsenic, mg/kg	19
Barium, mg/kg	29
Beryllium, mg/kg	0.07
Cadmium, mg/kg	0.8
Chromium, mg/kg	20
Cobalt, mg/kg	17
Copper, mg/kg	130
Lead, mg/kg	91
Mercury, mg/kg	<0.2
Molybdenum, mg/kg	<4
Nickel, mg/kg	35
Selenium, mg/kg	<0.02
Silver, mg/kg	0.4
Thallium, mg/kg	<10
Vanadium, mg/kg	<15
Zinc, mg/kg	590
Nitric Acid Digestion, Date	02/17/90

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Rec'd 3/9/90 R. Kephart

B C Analytical

Analytical Report

LOG NO: G90-02-237

Received: 13 FEB 90
Reported: 07 MAR 90

Ms. Nancy McMillan
Rocketdyne Division
6633 Canoga Ave., M/S SS-12
Canoga Park, CA 91304

Requisition: R94QEZ89-032382

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOLID SAMPLES	DATE SAMPLED
02-237-4	9002.098	01 FEB 90

PARAMETER	02-237-4
Bis(2-chloroisopropyl)ether, mg/kg	<0.3
Bis(2-chloroethoxy)methane, mg/kg	<0.3
Benzo(a)anthracene, mg/kg	<0.3
Benzo(a)pyrene, mg/kg	<0.3
Benzo(b)fluoranthene, mg/kg	<0.3
Benzo(g,h,i)perylene, mg/kg	<0.3
Benzo(k)fluoranthene, mg/kg	<0.3
Butylbenzylphthalate, mg/kg	<0.3
Chrysene, mg/kg	<0.3
Di-n-octylphthalate, mg/kg	<0.3
Dibenzo(a,h)anthracene, mg/kg	<0.3
Dibutylphthalate, mg/kg	<2
Diethylphthalate, mg/kg	<0.3
Dimethylphthalate, mg/kg	<0.8
Dibenzofuran, mg/kg	<0.3
Fluorene, mg/kg	<0.3
Fluoranthene, mg/kg	<0.3
Hexachlorobenzene, mg/kg	<0.3
Hexachlorobutadiene, mg/kg	<0.3
Hexachlorocyclopentadiene, mg/kg	<0.3
Hexachloroethane, mg/kg	<0.3
Indeno(1,2,3-c,d)pyrene, mg/kg	<0.3
Isophorone, mg/kg	<0.3
N-Nitrosodi-n-propylamine, mg/kg	<1
N-Nitrosodimethylamine, mg/kg	<2
N-Nitrosodiphenylamine, mg/kg	<0.3
Naphthalene, mg/kg	<0.3

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801 Western Avenue
Glendale, CA 91201
818 247-5337
Fax 818 247-5707

Analytical Report

LOG NO: G90-02-237

Received: 13 FEB 90
Reported: 07 MAR 90

Ms. Nancy McMillan
Rocketdyne Division
6633 Canoga Ave., M/S SS-12
Canoga Park, CA 91304

Requisition: R94QEZ89-032382

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOLID SAMPLES	DATE SAMPLED
02-237-4	9002.098	01 FEB 90

PARAMETER	02-237-4
Base/Neutral Extractables	
Date Extracted	02/08/90
Date Analyzed	02/23/90
Dilution Factor, Times 1	1
1,2,4-Trichlorobenzene, mg/kg	<0.3
1,2-Dichlorobenzene, mg/kg	<0.3
1,2-Diphenylhydrazine, mg/kg	<0.3
1,3-Dichlorobenzene, mg/kg	<0.3
1,4-Dichlorobenzene, mg/kg	<0.3
2,4-Dinitrotoluene, mg/kg	<0.3
2,6-Dinitrotoluene, mg/kg	<0.3
2-Chloronaphthalene, mg/kg	<0.3
2-Methylnaphthalene, mg/kg	<0.3
2-Nitroaniline, mg/kg	<2
3,3'-Dichlorobenzidine, mg/kg	<0.3
3-Nitroaniline, mg/kg	<2
4-Bromophenylphenylether, mg/kg	<0.3
4-Chlorophenylphenylether, mg/kg	<0.3
4-Chloroaniline, mg/kg	<0.6
4-Nitroaniline, mg/kg	<2
Acenaphthene, mg/kg	<0.3
Acenaphthylene, mg/kg	<0.3
Aniline, mg/kg	<0.6
Anthracene, mg/kg	<0.3
Bis(2-ethylhexyl)phthalate, mg/kg	<0.3
Benzidine, mg/kg	<1
Bis(2-chloroethyl)ether, mg/kg	<0.3

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Analytical Report

LOG NO: G90-02-237

Received: 13 FEB 90
Reported: 07 MAR 90

Ms. Nancy McMillan
Rocketdyne Division
6633 Canoga Ave., M/S SS-12
Canoga Park, CA 91304

Requisition: R94QEZ89-032382

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOLID SAMPLES	DATE SAMPLED
02-237-4	9002.098	01 FEB 90

PARAMETER	02-237-4
Nitrobenzene, mg/kg	<0.3
Phenanthrene, mg/kg	<0.3
Pyrene, mg/kg	<0.3

Jeffrey A. Erion, Laboratory Manager

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801 Western Avenue
Glendale, CA 91201

818 247-5737
Fax: 818 247-9797

B-C Analytical

CHEMICAL ANALYSIS REPORT

Log Number 9004412

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 392-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/589-169, ext. 5827
REFERENCE: LB 90 p 97; NB 1251, pages 161 - 174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004412

Sample Description: Soil, Southside pad 1, distance = 1 foot
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:15:00
Sampler: M. Halverson Sampler ID#: 042390MH01 Sample Time: 9:25:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.18	mg/kg	DNA	7060, SW-846
Barium ***	55	mg/kg	DNA	7060, SW-846
Beryllium ***	0.064	mg/kg	DNA	6010, SW-846
Cadmium ***	0.89	mg/kg	DNA	6010, SW-846
Chromium ***	2.1	mg/kg	DNA	6010, SW-846
Cobalt ***	1.2	mg/kg	DNA	6010, SW-846
Copper ***	8.7	mg/kg	DNA	6010, SW-846
Lead ***	22	mg/kg	DNA	6010, SW-846
Mercury ***	ND<0.042	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	3.2	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.57	mg/kg	DNA	6010, SW-846
Silver ***	ND<0.04	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.04	mg/kg	DNA	6010, SW-846
Vanadium ***	0.91	mg/kg	DNA	6010, SW-846
Zinc ***	90	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For information only. Sample was extracted per the WET Etraction procedure (Title 22) prior to anlaysis.

* ABBREVIATIONS *

1) TR = Trace 2) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED: _____
Manager
Rocketdyne SSFL Analytical Chemistry

SIGNED: _____
Chemist
Rocketdyne SSFL Analytical Chemistry

133

CHEMICAL ANALYSIS REPORT

Log Number 9004413

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 392-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/539-169, ext. 5827
REFERENCE: LB 90 p 97, NB 1251, pages 161-174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004413

Sample Description: Soil, Westside pad 1, distance = 3 Feet
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:15:00
Sampler: M. Halverson Sampler ID#: 042390MH02 Sample Time: 9:27:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.22	mg/kg	DNA	7060, SW-846
Barium ***	38	mg/kg	DNA	7060, SW-846
Beryllium ***	0.11	mg/kg	DNA	6010, SW-846
Cadmium ***	0.37	mg/kg	DNA	6010, SW-846
Chromium ***	0.82	mg/kg	DNA	6010, SW-846
Cobalt ***	1.5	mg/kg	DNA	6010, SW-846
Copper ***	3.5	mg/kg	DNA	6010, SW-846
Lead ***	14	mg/kg	DNA	6010, SW-846
Mercury ***	ND<0.042	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	0.73	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.46	mg/kg	DNA	6010, SW-846
Silver ***	ND<0.04	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.04	mg/kg	DNA	6010, SW-846
Vanadium ***	0.47	mg/kg	DNA	6010, SW-846
Zinc ***	37	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For information only. Sample was extracted per the WET Extract Procedure (Title 22) prior to analysis.

* ABBREVIATIONS *

1) TR = Trace 2) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED: _____ Manager
Rocketdyne SSFL Analytical Chemistry

SIGNED _____ Chemist
Rocketdyne SSFL Analytical Chemistry

134

CHEMICAL ANALYSIS REPORT

Log Number 9004414

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 392-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/539-169, ext. 5827
REFERENCE: LB 90 p 97; NB 1251, pages 161-174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004414

Sample Description: Soil, Northside pad 1, distance = 1 Foot
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:15:00
Sampler: M. Halverson Sampler ID#: 042390MH03 Sample Time: 9:29:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.20	mg/kg	DNA	7060, SW-846
Barium ***	21	mg/kg	DNA	7060, SW-846
Beryllium ***	0.021	mg/kg	DNA	6010, SW-846
Cadmium ***	0.13	mg/kg	DNA	6010, SW-846
Chromium ***	0.15	mg/kg	DNA	6010, SW-846
Cobalt ***	1.2	mg/kg	DNA	6010, SW-846
Copper ***	0.62	mg/kg	DNA	6010, SW-846
Lead ***	3.7	mg/kg	DNA	6010, SW-846
Mercury ***	9.1	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	0.46	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.46	mg/kg	DNA	6010, SW-846
Silver ***	ND<0.04	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.04	mg/kg	DNA	6010, SW-846
Vanadium ***	0.69	mg/kg	DNA	6010, SW-846
Zinc ***	6.3	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For information only. Sample was extracted per WET Extraction Procedure (Title 22) prior to analysis.

* ABBREVIATIONS *

1) TR = Trace 2) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED: _____ Manager
Rocketdyne SSFL Analytical Chemistry

SIGNED: _____ Chemist
Rocketdyne SSFL Analytical Chemistry

135

CHEMICAL ANALYSIS REPORT

Log Number 9004415

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 392-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/539-169, ext. 5827
REFERENCE: LB 90 p 97; NB 1251, pages 161-174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004415

Sample Description: Soil, Northside pad 2, distance = 1 Foot
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:15:00
Sampler: M. Halverson Sampler ID#: 042390MH04 Sample Time: 9:32:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.46	mg/kg	DNA	7060, SW-846
Barium ***	30	mg/kg	DNA	7060, SW-846
Beryllium ***	0.042	mg/kg	DNA	6010, SW-846
Cadmium ***	0.40	mg/kg	DNA	6010, SW-846
Chromium ***	2.1	mg/kg	DNA	6010, SW-846
Cobalt ***	1.1	mg/kg	DNA	6010, SW-846
Copper ***	5.2	mg/kg	DNA	6010, SW-846
Lead ***	3.5	mg/kg	DNA	6010, SW-846
Mercury ***	45	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	3.5	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.46	mg/kg	DNA	6010, SW-846
Silver ***	ND<0.010	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.04	mg/kg	DNA	6010, SW-846
Vanadium ***	1.0	mg/kg	DNA	6010, SW-846
Zinc ***	42	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For Information Only. Sample was extracted per the WET Procedure (Title 22) prior to analysis.

* ABBREVIATIONS *

1) TR = Trace 2) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED: _____
Manager
Rocketdyne SSFL Analytical Chemistry

SIGNED: _____
Chemist
Rocketdyne SSFL Analytical Chemistry

136

CHEMICAL ANALYSIS REPORT

Log Number 9004416

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 392-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/539-169, ext. 5827
REFERENCE: LR 90 p 97; NB 1251, pages 161-174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004416

Sample Description: Soil, Eastside pad 2, distance = 1 Foot
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:15:00
Sampler: M. Halverson Sampler ID#: 042390MH05 Sample Time: 9:34:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.45	mg/kg	DNA	7060, SW-846
Barium ***	25	mg/kg	DNA	7060, SW-846
Beryllium ***	0.063	mg/kg	DNA	6010, SW-846
Cadmium ***	0.46	mg/kg	DNA	6010, SW-846
Chromium ***	1.1	mg/kg	DNA	6010, SW-846
Cobalt ***	1.4	mg/kg	DNA	6010, SW-846
Copper ***	3.0	mg/kg	DNA	6010, SW-846
Lead ***	3.1	mg/kg	DNA	6010, SW-846
Mercury ***	.79	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	2.4	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.46	mg/kg	DNA	6010, SW-846
Silver ***	0.46	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.044	mg/kg	DNA	6010, SW-846
Vanadium ***	1.1	mg/kg	DNA	6010, SW-846
Zinc ***	25	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For Information Only. Sample was extracted per the WET extraction procedure (Title 22) prior to analysis.

* ABBREVIATIONS *

1) TR = Trace 2) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED: _____ SIGNED: _____
Manager Chemist
Rocketdyne SSFL Analytical Chemistry Rocketdyne SSFL Analytical Chemistry

137

CHEMICAL ANALYSIS REPORT

Log Number 9004417

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 392-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/539-169, ext. 5827
REFERENCE: LB 90 p 97; NB 1251, pages 161-174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004417

Sample Description: Soil, Westside pad 2, distance = 1 Foot
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:15:00
Sampler: M. Halverson Sampler ID#: 042390MH06 Sample Time: 9:36:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.44	mg/kg	DNA	7060, SW-846
Barium ***	28	mg/kg	DNA	7060, SW-846
Beryllium ***	0.062	mg/kg	DNA	6010, SW-846
Cadmium ***	0.43	mg/kg	DNA	6010, SW-846
Chromium ***	0.68	mg/kg	DNA	6010, SW-846
Cobalt ***	1.6	mg/kg	DNA	6010, SW-846
Copper ***	2.7	mg/kg	DNA	6010, SW-846
Lead ***	2.7	mg/kg	DNA	6010, SW-846
Mercury ***	ND<0.04	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	1.9	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.55	mg/kg	DNA	6010, SW-846
Silver ***	ND<0.04	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.04	mg/kg	DNA	6010, SW-846
Vanadium ***	ND<0.51	mg/kg	DNA	6010, SW-846
Zinc ***	21	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For Information Only. Sample was extracted per the WET extraction procedure (Title 22) prior to analysis.

* ABBREVIATIONS *

1) TR = Trace 2) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED: _____
Manager
Rocketdyne SSFL Analytical Chemistry

SIGNED: _____
Chemist
Rocketdyne SSFL Analytical Chemistry

138

2 May 1989 Cylinder Inventory

13 light blue cylinders
2 destroyed
1 CC/DOT 3A480 - Chlorine

1 breathing air - brown
3 CO_2 - silver
1 compressed air - brown
2 nitrogen trifluoride
2 Hydrazine fluoride (N_2F_4) (~~ICC 3A480~~ ICC 3AA2265)
1 Hydrogen Bromide
1 Empty
3 Unknown (AA-2015 propane/air)
1 Unknown - brown
9 Sulfur Dioxide
2 oxygen - gray
1 liquefied petroleum gas
1 argon
3 freon
1 anhydrous ammonia - silver
1 large yellow unknown
1 water purifier - Polymetrics 7145631520
28 smallones - misc

75

(139)

Burns from 1985-1990

6 Mar 1987

TAGN in IPA 338 lb
Mixed TAGN/HMX (dry) 16 lb
75 gr RDX Pellets (SSME) 49 ea

19 Jan 1986

Nitrocellulose 10 lbs
Scrap Gun Propellant 8 lbs
Hexamitrostilbene ½ lb
Magnesium/teflon flare mix ¼ lb
4 bottles unknown liquid 2 quarts

Cylinders
2 small unknown ~~oxidizers~~
9 CTF
2 unknown cylinders

11 Jan 86

Cylinders
5 CTF cylinders
1 unknown cylender

4 Jan 86

4 CTF cylinders

21 Dec 85

8 small unknown cylinders
5 CTF cylinders

1 Dec 85

7 TEA cylinders

(140)

3 Mar 85 5 Feb 85 25 Jan 85
28 Feb 85 6 Feb 85
19 Feb 85 8 Feb 85

} see I.L.'s

M. Francis

Internal Letter

Rockwe nternational

Date . 15 February 1985 No .

TO: (Name, Organization, Internal Address)
. J. E. Flanagan
. Rocketdyne-Canoga
. 531, 055-BA05

Received 11-25-91

FROM: (Name, Organization, Internal Address, Phone)
. G. D. Artz
. Rocketdyne-SSFL
. 522, 055-SS11
. 4648

Subject: . Disposal of Hazardous Materials

Reference: IL, Artz to Flanagan, Dated 24 January 1985

As of 14 February 1985, the following hazardous materials have been disposed of by burning at the SSFL burn area. The procedures used for these disposals are delineated in the referenced IL.

Disposal operations began on 25 January 1985. Personnel present at the disposal area on that day were: K. Hardman, P. Herrera, J. Sherman, R. Day, N. Robles, L. Rogers and G. Artz. Eight separate burns were made as follows:

(1) ~1-gallon of 75% C_2H_5OH/25% AZDNE in each of 2 containers poured onto sawdust and remotely ignited with a piece of solid propellant ignited by a nichrome resistance wire. Combustion was smooth and clean, similar to an alcohol flame.

NOTE: All of the remaining burns were similar unless otherwise noted so only the materials disposed of are listed.

(2) 2 gallons 75% C_2H_5OH/25% AZDNE

(3) 4 ~1-liter bottles of diethyl ether/benzene/magnesium boro hydride diammoniate (MBDA) residues. A blasting cap was used to break the bottles remotely since MBDA is potentially pyroforic.

(4) Same as (3).

(5) Same as (3).

(6) Same as (3).

(7) 1-gallon N_2H_4 + cap.
1-gallon UDMH + cap.

(8) 3-gallons ether/benzene/MBDA
~100 grams miscellaneous samples of AB-1, QMB-3 and MBDA.

Disposal operations continued on 26 January 1985. Personnel present were: R. Day, J. Swenson, J. Lang, L. Rogers, G. Artz. Ten separate burns were made as follows:

(141)

(1) ~5 lbs AB-1
~3 lbs Hivelites
Burned vigorously with 1-boom in mid-burn

(2) 1 lb TNT, 50 grams Comp C-4, and ~1 lb of miscellaneous binders, i.e., FEFO/R-18, NG/R-18, TMETN/R-18, PGDNFE/EA-AA, etc.

(3) 3 lbs of miscellaneous solid propellant scraps.

(4) Same as (3).

(5) ~3 lbs solid propellant scraps plus miscellaneous ampolues from Vanowen. (See list of ampoules samples attached as Appendix A.)

(6) Same as (5).

(7) 1-gallon hydrazine
2-gallon ether/benzene/MBDA
50 gm AZDNE/$MeCl_2$
Miscellaneous ampoules from V.O. (See Appendix A).
Miscellaneous solid propellant waste.

(8) 1-gallon hypergol TEA/TEB/RP-1 residue.

(9) 5-gallon benzene/MBDA recovery
2-gallon TEA/TEB/RP-1
1-gallon ether/benzene/MBDA
~2 lbs solid propellant scrap
~1 lb energetic binders in 300 ml round-bottom flasks
Detonated! See Appendix B.

(10) ~5 lbs of F_2 gas generator pellets
(NF_4BF_4/KF/Al)

30 January 1985
Personnel: R. Day, N. Robles, J. Lang, L. Rogers, G. Artz

(1) 3 cans of ampoules of unknowns from Vanowen
2 ampoules of pentaborane
Additional ampoules from Vanowen (Appendix A)
2-gallons benzene on sawdust

(2) 3-1 pt. cans of iron carbonyls + caps
1-unknown ampoule
Gasoline soaked sawdusts (~2 gal)

(3) 3 flasks of MBDA residues
1 quart hydrazine + cap
1-gallon TEA/TEB/RP-1 + cap
Gasoline soaked sawdust.

(4) 4-1 gallon cans TEA/TEB/RP-1 + caps.

5 February 1985
Personnel: R. Day, J. Sherman, L. Rogers, G. Artz

(1) 6-samples of FTM 1 quart total
1-unknown vial
1-desiccator with unknown contents + cap
2-gallons TEA/TEB/RP-1 + caps
Gasoline soaked sawdust.

(2) 2-500 gram bottles nitromethane poured onto sawdust
1-500 gram bottle propylnitrate poured onto sawdust
Miscellaneous small vials of TNM
Gasoline soaked sawdust.

(3) 1-gallon TEA/TEB/RP-1 + cap

(4), (5), (6) Same as (3)

6 February 1985
Personnel: R. Day, R. Huard, M. Francis, L. Rogers, G. Artz

(1) 1-gallon TEA/TEB/RP-1 + cap

(2), (3), (4) Same as (1)

(5) 5-gallon 50% propyl nitrate/50% isopropyl alcohol

(7) 5-gallon ethyl nitrate

8 February 1985
Personnel: C. Greenwald, R. Day, R. Mariscal, L. Rogers, G. Artz

(1) 5 gallons FDNE/$MeCl_2$/C_2H_5OH.

(2) Same as (1).

(3) 5 gallons GDNFE/$MeCl_2$/alcohol.

(4), (5), (6) Same as (3).

11 February 1985
Personnel: R. Day, J. Sherman, E. Lamson, G. Artz

(1) 5 gallons FDNE/alcohol.

(2) 5 gallons GDNFE/alcohol.

(3) 5 gallons GDNFE/alcohol.

(4) 5 gallons FDNE/alcohol.

Disposal operations will continue as materials are accumulated and personnel are available. The materials remaining to be disposed of are primarily excess or degraded materials now stored in magazines and magazettes. This IL will be updated as the materials are destroyed.

G. D. Artz
Project Engineer
Combustion Technology
Advanced Programs

GDA:lh

Attachments: Appendix A
Appendix B

cc w/attachments:

R. Day	052, 055-SS12
M. A. Francis	541, 055-LB07
M. B. Frankel	522, 055-SS11
L. R. Grant	531, 055-BA05
J. C. Gray	531, 055-SS11
C. J. Rozas	551, 055-CB01

APPENDIX A

NAME	NO. OF AMPOULES
$(CH_3)_2BrB_2$	1
B-methyl Borazine	1
$(C_2H_5)_2PH$	1
BBr_3	1
$PrBCl_2$	1
Me_4P_2	1
$(CH_3)_2PN(CH_3)_2$	1
Pentaborane	1
$EtBCl_2$	1
Me_2NBCl_2 Et_2O	1
BH Polymer	1
Phenyl methyl phosphine	1
$(Me_2N)_2BCl$	1
B_5H_9	1
Me_2NH	1
$\emptyset BCl_2$	1
B_5H_9	1
EtB_5H_8	1
Me_2PH	1
C_2H_5SH	1
N-Trimethyl borazine	1
CF_3SF_5	1
$(NCH_3C_6H_4)_2PN(CH_3)_2$	1
Me isopropyl phosphine	1
$MePH_2$	1
MeEtPH	1
B_5H_8I	1
$EtNH_2$	1
BBr_3	2
$ZnEt_2$	1
Me_2PH	1
$(CH_3)_2PH$	1

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APPENDIX A

NAME	NO. OF AMPOULES
$(Me_2NBCl_2)_2$	1
Me-D_3 Iodide	1
$(PF_2N)_n$	1
CF_3SF_5	1
Methyl-B-Trimethly Borazine	1
Crude CH_3SF_5	1
N-Trimethyl-B-Methyl Borazine	2
N-Dimethyl-B-Trimethyl Borazine	1
CH_3PCl_2	1
Me_2PH	1
1,3,-Diphenphinophosphine	1
Me N-Propylphosphine	1
$ØBCl_2$	1
ØMePH	1
$PH_2(CH_2)_3PH_2$	1
Me_2PH	1
B_5H_9	1
Tetramethylene phosphine	2
1,3-diphosphino propane	1
Decaborane	1
$CH_3HP(CH_2)_3PHCH_3$	1
Me_2ETp	1
Me Isopropyl phosphine	1
1,4-diphosphino butane	1
B_5H_8Et	1
$ØPH_2$	1
$Hg(CH_3)_2$	1
Dimethyl mercury	1
$(CH_3)_2PH/CH_3PH_2$	1
Thiophosgene Cl_2CS	1
Trimethyl borane	1
CF_2Cl_2	1

APPENDIX A

NAME	NO. OF AMPOULES
CF_3I	1
$(C_2H_5)_3B$	1
$(PF_2)_3N$	1
$EtBBr_2$	1
CF_3SF_5	1
$EtBCl_2$	1
$t\text{-}BuBCl_2$	1
Me Allyl PH	1
Et_2PH	1
Me_4P_2	1
Et_2PH	1
Et_2PH	1
$(CH_3NBH)_3$	2
N-trimethyl borazale	1
Et_2BCl	1
CH_3SiCl_3	1
$(CH_3)_2NP(CH_3)_2$	1
CF_3SF_5	1
$MeEtPBH_2$	1
$C_2H_5PH_2$	1
Phenyl phosphine	1
CF_3SF_5	2
N-Trimethyl borazole	1
$PH_2(CH_2)_4PH_2$	1
$EtPH_2$	1
Tetramethylene phosphine	1
$EtNH_2$	1
B_5H_9	1
$(C_2H_4)_4B_2H_2$	1

APPENDIX A

NAME	NO. OF AMPOULES
$(CH_3)_2PH$	3
Tetramethylene phosphine	1
$(CH_3)_3P$	1
EtPH	2
1,4-diphosphino butane	2
▷PH	1
$C_2H_5BCl_2$	1
B_5H_9	2
B_5H_8I	1

Internal Letter

Rockwell International

Date: . 6 March 1987

No: .

TO: (Name, Organization, Internal Address)
. J. E. Flanagan
. D/531, 055-BA05
.

FROM: (Name, Organization, Internal Address, Phone)
. E. E. Lockwood
. D/522, 055-SS11
. 5318

Subject: . MAGAZINE DISPOSAL

D/552,SS11
Frankel

/531,SS11
Gray

/586,T030
Free

/551.CB01
P

,SS11
Oliver
Bliss

Explosive storage magazines numbers 617, 618 and 619 have been emptied except for one drum of GAP polymer (GAP #3 - 96 lb) remaining in 618. This drum will be taken to ECL and held for future use. When this is accomplished these three magazines (below STL-IV) can be considered inactive.

The materials in these three magazines were either destroyed by burning or transferred to other magazines as follows:

1. Materials destroyed (from 617)

TAGN in IPA	338 lb
Mixed TAGN/HMX (Dry)	16 lb
75 gr RDX Pellets (SSME)	49 ea

2. Materials transferred to 385, Cell 5 (from 617)

Primacord	200 gr/ft	250 ft
Primacord	100 gr/ft	1100 ft
Primacord	50 gr/ft	250 ft

3. Materials transferred to 385, Cell 4 (from 617)

Tetranitromethane	60 lb

4. Materials transferred to 394 (from 619)

TNT	18.4 lb
C-4	178.7 lb
Comp B	30.0 lb

The transfer of the high explosive materials to other magazines was done as a temporary expedient. These materials will be given to local government agencies when arrangements can be made.

E. E. Lockwood
Project Engineer
Combustion Technology
Advanced Programs

EEL:rh

149

APPENDIX B

Notes on Explosion on 1-26-85

While disposing of hazardous waste at the burn pit, a detonation occurred bursting a metals salvage gondola. Two major sections of gondola were thrown 120 ft in opposite directions from the center of the explosion. One piece of gondola hit Rocketdyne vehicle #RC8-410 near right rear causing a dent in pick-up bed rail and broke through wooded enclosure over bed. In the gondola during this disposal operation were:

1-5 gal can of benzene recovered from MBDA synthesis

*2-1 gal cans of TEA/TEB (1 with blasting cap)

*1-1gal bottle of benzene/ether MBDA mixture

~2# of waste solid propellants

~1# of energetic binders in 300 ml round-bottom blasks

Blasting caps were taped to two containers identified with * above and a ~1" cube of solid propellant wrapped with nichrome wire attached to lead wires for ignition. Detonation occurred almost immediately after blasting caps initiated. Estimated weight of gondola sections which were thrown ~120 ft was 60# and 100#.

Present during these disposal operations were:

Lt. Ron Day - Industrial Security, D/052

John Swenson, Fireman, D/052

Les Rogers, Technician, D/598-346

Glen Artz, EIC, D/522

No personnel injured, and only minor damage to vehicle. All personnel were positioned behind block wall barricade at time of explosion.

This explosion occurred in the container previously used for burn number (1) on 1-26-85. Residue in the container was doused with water prior to burn (9) since the residue was still hot.

It is surmised that incomplete combustion of the AB-1 and Hivelites disposed of in burn (1) occurred since they do not burn well at low temperature and low pressure. Both materials react slowly with water to release H_2 gas. It is most likely that a H_2/air explosion was initiated by the blasting caps used in burn (9) and the excessive amount of solvents present contributed to the force of the explosion.

150

Internal Letter

Rockwell International

Date . January 22, 1986 No .

TO (Name, Organization, Internal Address)
. W. I. Greenwell
. 052-055-SS12
.

FROM: (Name, Organization, Internal Address, Phone)
. R. D. Day
. 052-055-AA89
.
. 4081

Subject: . DISPOSAL OF HAZARDOUS MATERIALS

As of January 19, 1986, the following list of hazardous materials and hazardous cylinders have been punctured, contents discharged and the containers are ready for disposal.

Hazardous Materials Burned
Present: R. Day, E. Lockwood, N. Robles

10 lbs	Nitro cellulose
8 lbs	Scrap gun propellant
1/2 lb	Hexamitro stilbene
1/4 lb	Magnesium/telfon flare mix
4 btls	Total 2 quarts unknown liquid from Canoga

Cylinders Punctured

12-1-85 Present: R. Day, S. Salazar

7	TEA (pyrophoric) cylinders

12-21-85 Present: R. Day, S. Salazar

8	Small unknown cylinders
5	CTF cylinders

1-4-86 Present: R. Day, S. Romas

4	CTF cylinders

1-11-86 Present: R. Day, G. Redmon, S. Salazar

5	CTF cylinders
1	Unknown cylinder

1-19-86 Present: R. Day, T. Eggar, G. Redmon

2	Small unknown cylinders
9	CTF cylinders
2	Unknown cylinders

(151)

Total time for Protective Services to date:

Supervision	54 hours
Fire Protection Officers	41 hours

180 rounds were used for this disposal.

See report dated February 26, 1985, Disposal of Hazardous Materials.

R. D. Day
Lieutenant
Protective Services

RDD:mjh

cc: M. A. Francis 541, LB07
J. L. Jones

(152)

M. Francis

Internal Letter

Rockwell International

Date . 8 March 1985 No .

TO. Name, Organization, Internal Address

. J. E. Flanagan
. Rocketdyne-Canoga
. 531, 055-BA05

FROM. Name, Organization, Internal Address, Phone

. G. D. Artz
. Rocketdyne-SSFL
. 522, 055-SS11
. 4648

Subject . Addendum to IL, Artz to Flanagan, Dated 15 February 1985 - Subject: "Disposal of Hazardous Materials"

Additional hazardous materials disposal included:

28 February 1985
Personnel: R. Day, N. Robles, J. Dodge, G. Artz

(1) 1 lb DATB
2 lb Hydrazine Nitrate
0.5 lb Nitroguandine
50 gm TTTT
50 gm TAGN
50 gm DATB
10 gm REX-17
200 gms - Composite solid propellant grain
10 gms - HNAH
0.2 lbs TATB
0.5 lbs PGDN-FEFO

(2) 100 gm HNS
100 gm HNB
100 gm NONA
100 gm TAGN
100 gm DATB
200 gm TNN
300 gm PGDNE
300 gm AFN25
1 lb HAP
200 gm TATB
100 gm TAE
100 gm Bis Ethyl 2 Chloroformal
~5 lb - Solid gun propellant scrap

(3) 0.5 lb HMX
0.5 lb DATB
0.5 lb PNC

(4) 4 lb DEGDN
1 lb - Scrap solid propellant

(5) 10 lb DCFO/CH_3CN
20 lb HMX scrap

153

5 March 1985
Personnel: R. Day, N. Robles, J. Dodge, G. Artz

(1) 13 lbs DATB
200 gm TVOPA

(2) 20 lbs N_2 gas generator pellets (NaN_3 based)
2 lbs Hydrazine Nitrate

(3) 4 lbs HNF
1 lb TAGN
~5 lbs - Solid gun propellant scrap

(4) 20 lbs Hydrazine Nitrate

(5) 3~100 gm bottles of CH_3MgBr in THF

(6) 25 lbs CaH_2
25 lbs LiH

Disposal operations continuing.

G. D. Artz
Project Engineer
Combustion Technology
Advanced Programs

GDA:lh

cc: R. Day 052, 055-SS12
M. A. Francis 541, 055-LB07
M. B. Frankel 522, 055-SS11
L. R. Grant 531, 055-BA05
J. C. Gray 531, 055-SS11
C. J. Rozas 551, 055-CB01

M. Francis

Internal Letter

Rockwell International

Date . 15 February 1985

No .

TO: (Name, Organization, Internal Address)
. J. E. Flanagan
. Rocketdyne-Canoga
. 531, 055-BA05

FROM: (Name, Organization, Internal Address, Phone)
. G. D. Artz
. Rocketdyne-SSFL
. 522, 055-SS11
. 4648

Subject . Disposal of Hazardous Materials

Reference: IL, Artz to Flanagan, Dated 24 January 1985

As of 14 February 1985, the following hazardous materials have been disposed of by burning at the SSFL burn area. The procedures used for these disposals are delineated in the referenced IL.

Disposal operations began on 25 January 1985. Personnel present at the disposal area on that day were: K. Hardman, P. Herrera, J. Sherman, R. Day, N. Robles, L. Rogers and G. Artz. Eight separate burns were made as follows:

(1) ~1-gallon of 75% C_2H_5OH/25% AZDNE in each of 2 containers poured onto sawdust and remotely ignited with a piece of solid propellant ignited by a nichrome resistance wire. Combustion was smooth and clean, similar to an alcohol flame.

NOTE: All of the remaining burns were similar unless otherwise noted so only the materials disposed of are listed.

(2) 2 gallons 75% C_2H_5OH/25% AZDNE

(3) 4 ~1-liter bottles of diethyl ether/benzene/magnesium boro hydride diammoniate (MBDA) residues. A blasting cap was used to break the bottles remotely since MBDA is potentially pyroforic.

(4) Same as (3).

(5) Same as (3).

(6) Same as (3).

(7) 1-gallon N_2H_4 + cap.
1-gallon UDMH + cap.

(8) 3-gallons ether/benzene/MBDA
~100 grams miscellaneous samples of AB-1, QMB-3 and MBDA.

Disposal operations continued on 26 January 1985. Personnel present were: R. Day, J. Swenson, J. Lang, L. Rogers, G. Artz. Ten separate burns were made as follows:

(155)

(1) ~5 lbs AB-1
~3 lbs Hivelites
Burned vigorously with 1-boom in mid-burn

(2) 1 lb TNT, 50 grams Comp C-4, and ~1 lb of miscellaneous binders, i.e., FEFO/R-18, NG/R-18, TMETN/R-18, PGDNFE/EA-AA, etc.

(3) 3 lbs of miscellaneous solid propellant scraps.

(4) Same as (3).

(5) ~3 lbs solid propellant scraps plus miscellaneous ampolues from Vanowen. (See list of ampoules samples attached as Appendix A.)

(6) Same as (5).

(7) 1-gallon hydrazine
2-gallon ether/benzene/MBDA
50 gm AZDNE/$MeCl_2$
Miscellaneous ampoules from V.O. (See Appendix A).
Miscellaneous solid propellant waste.

(8) 1-gallon hypergol TEA/TEB/RP-1 residue.

(9) 5-gallon benzene/MBDA recovery
2-gallon TEA/TEB/RP-1
1-gallon ether/benzene/MBDA
~2 lbs solid propellant scrap
~1 lb energetic binders in 300 ml round-bottom flasks
Detonated! See Appendix B.

(10) ~5 lbs of F_2 gas generator pellets
(NF_4BF_4/KF/Al)

30 January 1985
Personnel: R. Day, N. Robles, J. Lang, L. Rogers, G. Artz

(1) 3 cans of ampoules of unknowns from Vanowen
2 ampoules of pentaborane
Additional ampoules from Vanowen (Appendix A)
2-gallons benzene on sawdust

(2) 3-1 pt. cans of iron carbonyls + caps
1-unknown ampoule
Gasoline soaked sawdusts (~2 gal)

156

(3) 3 flasks of MBDA residues
1 quart hydrazine + cap
1-gallon TEA/TEB/RP-1 + cap
Gasoline soaked sawdust.

(4) 4-1 gallon cans TEA/TEB/RP-1 + caps.

5 February 1985
Personnel: R. Day, J. Sherman, L. Rogers, G. Artz

(1) 6-samples of FTM 1 quart total
1-unknown vial
1-desiccator with unknown contents + cap
2-gallons TEA/TEB/RP-1 + caps
Gasoline soaked sawdust.

(2) 2-500 gram bottles nitromethane poured onto sawdust
1-500 gram bottle propylnitrate poured onto sawdust
Miscellaneous small vials of TNM
Gasoline soaked sawdust.

(3) 1-gallon TEA/TEB/RP-1 + cap

(4), (5), (6) Same as (3)

6 February 1985
Personnel: R. Day, R. Huard, M. Francis, L. Rogers, G. Artz

(1) 1-gallon TEA/TEB/RP-1 + cap

(2), (3), (4) Same as (1)

(5) 5-gallon 50% propyl nitrate/50% isopropyl alcohol

(7) 5-gallon ethyl nitrate

8 February 1985
Personnel: C. Greenwald, R. Day, R. Mariscal, L. Rogers, G. Artz

(1) 5 gallons FDNE/$MeCl_2$/C_2H_5OH.

(2) Same as (1).

(3) 5 gallons GDNFE/$MeCl_2$/alcohol.

(4), (5), (6) Same as (3).

11 February 1985
Personnel: R. Day, J. Sherman, E. Lamson, G. Artz

(1) 5 gallons FDNE/alcohol.

(2) 5 gallons GDNFE/alcohol.

(3) 5 gallons GDNFE/alcohol.

(4) 5 gallons FDNE/alcohol.

Disposal operations will continue as materials are accumulated and personnel are available. The materials remaining to be disposed of are primarily excess or degraded materials now stored in magazines and magazettes. This IL will be updated as the materials are destroyed.

G. D. Artz
Project Engineer
Combustion Technology
Advanced Programs

GDA:lh

Attachments: Appendix A
Appendix B

cc w/attachments:

R. Day	052, 055-SS12
M. A. Francis	541, 055-LB07
M. B. Frankel	522, 055-SS11
L. R. Grant	531, 055-BA05
J. C. Gray	531, 055-SS11
C. J. Rozas	551, 055-CB01

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APPENDIX A

NAME	NO. OF AMPOULES
$(CH_3)_2BrB_2$	1
B-methyl Borazine	1
$(C_2H_5)_2PH$	1
BBr_3	1
$PrBCl_2$	1
Me_4P_2	1
$(CH_3)_2PN(CH_3)_2$	1
Pentaborane	1
$EtBCl_2$	1
Me_2NBCl_2 Et_2O	1
BH Polymer	1
Phenyl methyl phosphine	1
$(Me_2N)_2BCl$	1
B_5H_9	1
Me_2NH	1
$\emptyset BCl_2$	1
B_5H_9	1
EtB_5H_8	1
Me_2PH	1
C_2H_5SH	1
N-Trimethyl borazine	1
CF_3SF_5	1
$(NCH_3C_6H_4)_2PN(CH_3)_2$	1
Me isopropyl phosphine	1
$MePH_2$	1
MeEtPH	1
B_5H_8I	1
$EtNH_2$	1
BBr_3	2
$ZnEt_2$	1
Me_2PH	1
$(CH_3)_2PH$	1

APPENDIX A

NAME	NO. OF AMPOULES
$(Me_2NBCl_2)_2$	1
Me-D_3 Iodide	1
$(PF_2N)_n$	1
CF_3SF_5	1
Methyl-B-Trimethly Borazine	1
Crude CH_3SF_5	1
N-Trimethyl-B-Methyl Borazine	2
N-Dimethyl-B-Trimethyl Borazine	1
CH_3PCl_2	1
Me_2PH	1
1,3,-Diphenphinophosphine	1
Me N-Propylphosphine	1
$\emptyset BCl_2$	1
$\emptyset MePH$	1
$PH_2(CH_2)_3PH_2$	1
Me_2PH	1
B_5H_9	1
Tetramethylene phosphine	2
1,3-diphosphino propane	1
Decaborane	1
$CH_3HP(CH_2)_3PHCH_3$	1
Me_2ETp	1
Me Isopropyl phosphine	1
1,4-diphosphino butane	1
B_5H_8Et	1
$\emptyset PH_2$	1
$Hg(CH_3)_2$	1
Dimethyl mercury	1
$(CH_3)_2PH/CH_3PH_2$	1
Thiophosgene Cl_2CS	1
Trimethyl borane	1
CF_2Cl_2	1

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APPENDIX A

NAME	NO. OF AMPOULES
CF_3I	1
$(C_2H_5)_3B$	1
$(PF_2)_3N$	1
$EtBBr_2$	1
CF_3SF_5	1
$EtBCl_2$	1
$t\text{-}BuBCl_2$	1
Me Allyl PH	1
Et_2PH	1
Me_4P_2	1
Et_2PH	1
Et_2PH	1
$(CH_3NBH)_3$	2
N-trimethyl borazale	1
Et_2BCl	1
CH_3SiCl_3	1
$(CH_3)_2NP(CH_3)_2$	1
CF_3SF_5	1
$MeEtPBH_2$	1
$C_2H_5PH_2$	1
Phenyl phosphine	1
CF_3SF_5	2
N-Trimethyl borazole	1
$PH_2(CH_2)_4PH_2$	1
$EtPH_2$	1
Tetramethylene phosphine	1
$EtNH_2$	1
B_5H_9	1
$(C_2H_4)_4B_2H_2$	1

APPENDIX A

NAME	NO. OF AMPOULES
$(CH_3)_2PH$	3
Tetramethylene phosphine	1
$(CH_3)_3P$	1
EtPH	2
1,4-diphosphino butane	2
▷PH	1
$C_2H_5BCl_2$	1
B_5H_9	2
B_5H_8I	1

APPENDIX B

Notes on Explosion on 1-26-85

While disposing of hazardous waste at the burn pit, a detonation occurred bursting a metals salvage gondola. Two major sections of gondola were thrown 120 ft in opposite directions from the center of the explosion. One piece of gondola hit Rocketdyne vehicle #RC8-410 near right rear causing a dent in pick-up bed rail and broke through wooded enclosure over bed. In the gondola during this disposal operation were:

1-5 gal can of benzene recovered from MBDA synthesis

*2-1 gal cans of TEA/TEB (1 with blasting cap)

*1-1gal bottle of benzene/ether MBDA mixture

~2# of waste solid propellants

~1# of energetic binders in 300 ml round-bottom blasks

Blasting caps were taped to two containers identified with * above and a ~1" cube of solid propellant wrapped with nichrome wire attached to lead wires for ignition. Detonation occurred almost immediately after blasting caps initiated. Estimated weight of gondola sections which were thrown ~120 ft was 60# and 100#.

Present during these disposal operations were:

Lt. Ron Day - Industrial Security, D/052

John Swenson, Fireman, D/052

Les Rogers, Technician, D/598-346

Glen Artz, EIC, D/522

No personnel injured, and only minor damage to vehicle. All personnel were positioned behind block wall barricade at time of explosion.

This explosion occurred in the container previously used for burn number (1) on 1-26-85. Residue in the container was doused with water prior to burn (9) since the residue was still hot.

It is surmised that incomplete combustion of the AB-1 and Hivelites disposed of in burn (1) occurred since they do not burn well at low temperature and low pressure. Both materials react slowly with water to release H_2 gas. It is most likely that a H_2/air explosion was initiated by the blasting caps used in burn (9) and the excessive amount of solvents present contributed to the force of the explosion.

Internal Letter

Rockwell International

Date · February 26, 1985

No: · RDD-85-025

TO: (Name, Organization, Internal Address)
· W. I. Greenwell
· Rocketdyne - SSFL
· 052, 055-SS12

FROM: (Name, Organization, Internal Address, Phone)
· R. D. Day
· Rocketdyne - SSFL
· 052, 055-SS12

Subject · Disposal of Hazardous Materials

As of 14 February 1985, the following listed hazardous materials have been disposed of by burning at the SSFL burn area.

Disposal operations began 25 January 1985 and will continue as materials are accumulated.

Total time for Protective Services Personnel to date: Supervision 33 hours and Fire Protection Officer 29 hours.

Hazardous Materials Burned

Jan. 25, 1985

(1) 1 gallon of 75% C_2H_5OH/25% AZDNE in each of 2 containers poured onto sawdust and remotely ignited with a piece of solid propellant ignited by a nichrome resistance wire. Combustion was smooth and clean, similar to an alcohol flame.

NOTE: All of the remaining burns were similar unless otherwise noted so only the materials disposed of are listed.

(2) 2 gallons 75% C_2H_5OH/25% AZDNE

(3) 4 - 1 liter bottles of diethyl ether/benzene/magnesium boro hydride diammoniate (MBDA) residues. A blasting cap was used to break the bottles remotely since MBDA is potentially pyroforic.

(4) Same as (3).

(5) Same as (3).

(6) Same as (3).

(7) 1 gallon N_2H_4 + cap.
1 gallon UDMH + cap.

(8) 3 gallons ether/benzene/MBDA
100 grams miscellaneous samples of AB-1, QMB-3 and MBDA.

Jan. 26, 1985

(1) 5 lbs. AB-1
3 lbs. Hivelites
Burned vigorously with 1-boom in mid-burn.

164

(2) 1 lb. TNT, 50 grams Comp C-4, and 1 lb. of miscellaneous binders, i.e., FEFO/R-18, NG/R-18, TMETN/R-18, PGDNFE/EA-AA, etc.

(3) 3 lbs. of miscellaneous solid propellant scraps.

(4) Same as (3).

(5) 3 lbs. solid propellant scraps plus miscellaneous ampolues from Vanowen. (See list of ampoules samples attached as Appendix A).

(6) Same as (5).

(7) 1 gallon hydrazine

2 gallons ether/benzene/MBDA

50 Gm AZDNE/$MeCl_2$

Miscellaneous ampoules from V.O. (See Appendix A)
Miscellaneous solid propellant waste.

(8) 1 gallon hypergol TEA/TEB/RP-1 residue.

(9) 5 gallon benzene/MBDA recovery

2 gallon TEA/TEB/RP-1

1 gallon ether/benzene/MBDA

2 lbs. solid propellant scrap

1 lb. energetic binders in 300 ml round-bottom flasks
Detonated!

(10) 5 lbs. of F_2gas generator pellets

(NF_4BF_4/KF/Al)

Jan. 30, 1985

(1) 3 cans of ampoules of unknowns from Vanowen

2 ampoules of pentaborane

Additional ampoules from Vanowen (See Appendix A)

2 gallons benzene on sawdust

(2) 3 - 1 pt. cans of iron carbonyls + caps

1 - unknown ampoule

Gasoline soaked sawdusts (2 gal.)

(3) 3 flasks of MBDA residues

1 quart hydrazine + cap

1 gallon TEA/TEB/RP-1 + cap
Gasoline soaked sawdust.

165

February 05, 1985

(1) 6 samples of FTM 1 quart total
1 unknown vial
1 desiccator with unknown contents + cap
2 gallons TEA/TEB/RP-1 + caps
6 gasoline soaked sawdust.

(2) 2 - 500 gram bottles nitromethane poured onto sawdust.
1 - 500 gram bottle propylnitrate poured onto sawdust.
Miscellaneous small vials of TNM
6 gasoline soaked sawdust.

(3) 1 gallon TEA/TEB/RP-1 + cap

(4) Same as (3).

(5) Same as (3).

(6) Same as (3).

February 06, 1985

(1) 1 gallon TEA/TEB/RP-1 + cap

(2) Same as (1).

(3) Same as (1).

(4) Same as (1).

(5) 5 gallon 50% propyl nitrate/50% isopropyl alcohol

(6) 5 gallon ethyl nitrate

February 08, 1985

(1) 5 gallons FDNE/$MeCl_2$/C_2H_5OH.

(2) Same as (1).

(3) 5 gallons GDNFE/$MeCl_2$/alcohol.

(4) Same as (3).

(5) Same as (3).

(6) Same as (3).

166

February 11, 1985

(1) 5 gallons FDNE/alcohol

(2) 5 gallons GDNFE/alcohol.

(3) 5 gallons GDNFE/alcohol.

(4) 5 gallons FDNE/alcohol.

Disposal operations will continue as materials are accumulated and personnel are available. The materials remaining to be disposed of are primarily excess or degraded materials now stored in magazines and magazettes. This IL will be updated as the materials are destroyed.

R. D. Day
Lieutenant
Protective Services

RDD/vs

cc: J. L. Jones
File

Attachments: Appendix A

(107)

05 March 1985 (Continued)

(2) 2 lbs. Hydrazine Nitrate

(3) 4 lbs. HNF
1 lb. TAGN
5 lbs. Solid gun propellant scrap

(4) 20 lbs. Hydrazine Nitrate

(5) 3 100 gm bottles of CH_3MgBr in THF

(6) 25 lbs. CaH_2
25 lbs. LiH

Total time for Protective Services Personnel to date: Supervision 4 hours and Fire Protection Officer 4 hours.

Since disposal operations began on 25 January 1985, the total accumulated time for Protective Services Personnel is: Supervision 37 hours and Fire Protection Officer 33 hours.

Disposal operations will continue as materials are accumulated and personnel are available. This IL will be updated as the materials are destroyed.

R. D. Day
Lieutenant
Protective Services

RDD/vs

cc: J. L. Jones
File

168

Internal Letter

Rockwell International

Date: March 13, 1985

No: RDD-85-032

TO: (Name, Organization, Internal Address)
- W. I. Greenwell
- Rocketdyne - SSFL
- 052, 055-SS12

FROM: (Name, Organization, Internal Address, Phone)
- R. D. Day
- Rocketdyne - SSFL
- 052, 055-SS12
- 5520

Subject: Hazardous Materials Burned

this was unwanted materials from storage magazines. this material was generated on various R/D contracts

The following hazardous materials burned February 28 and March 05, 1985 amounted to the following.

NAME	AMOUNT
DATB	14.5 lbs. and 150 gm.
REX-17	10 gm.
Hydrazine Nitrate	24 lbs.
Composite solid propellant grain	200 gm.
Nitroguandine	0.5 lb.
HNAH	10 gm.
TTTT	50 gm.
TAGN	1 lb. and 150 gm.
TATB	0.2 lb. and 200 gm
PGDN-FEFO	0.5 lb.
HNS	100 gm.
HNB	100 gm.
NONA	100 gm.
TNN	20 gm.
PGDNE	300 gm.
AFN25	300 gm.
HAP	1 lb.
TAE	100 gm.
BisEthyl 2 Chloroformal	100 gm.
Solid gun propellant scrap	10 lbs.
HMX	0.5 lb.
HMX scrap	20 lbs.
PNC	0.5 lb.
DEGDN	4 lbs.
Scrap solid propellant	1 lb.
TVOPA	200 gm.
N_2 gas generator pellets (Na_3N based)	20 lbs.
$DCFO/CH_3CN$	10 lbs.
CH_3MgBr in THF	3 bottles of 100 gm.
CaH_2	25 lbs.
LiH	25 lbs.
HNF	4 lbs.

R. D. Day
Lieutenant
Protective Services

RDD/vs

(169)

cc: File

Internal Letter

Rockwell International

Date: 6 April 1983

No:

TO: (Name, Organization, Internal Address)
M. Francis
D/541, 055-FB12

FROM: (Name, Organization, Internal Address, Phone)
E. R. Shanks
D/598-346, 055-SS11
Rocketdyne
5130

Subject: EXPLOSIVE WASTE DISPOSAL - 12 FEBRUARY 1983

The following chemicals, listed on EWR 368169 from the Engineering Chemistry Lab (ECL), were disposed of in the methods listed below. There was a total of approximately 355 pounds = 30% methylene chloride solution.

1. See attached procedure and EWR.
2. Open face 55-gal drums, split in half.
3. Sawdust mixed with material listed on EWR, approximately 3 gal. methylene chloride solution with 8 pounds of mixed materials listed.
4. Ignition source - electric match squib and gun propellant pellets.
5. Explosive materials were burned in the open at the Burn Pit area under the supervision of the Fire Department (Lt. R. Day) and the area supervisor, E. R. Shanks.
6. A second burn was conducted one week later on the same explosive material to determine that all materials were burned.
7. An explosive detector was used to determine that there were no traces of nitro compounds of residue left from the burning operations.
8. An infrared spectrum analysis was run at ECL to determine if there were any nitro compounds left from the residue after burning operations: there were no traces.

E. R. Shanks
Supervisor
Chemical & Advanced
Component Test

ERS:rh

170

Form 151-R Rev. 3-76

ENGINEERING WORK REQUEST

TITLE OF JOB	DATE	No. R 362533
Disposal of Waste Nitro Compounds	-28-82	

INSPECTION REQUIRED	APPLICABLE DRAWINGS (ATTACH IF REQUIRED)	REQUESTED COMPLETION DATE
YES / NO X	SEE Below	OPEN

DOING DEPT.	LEDGER ACCOUNT	GENERAL ORDER	G.O. ITEM & MCR	INIT. GROUP	HDW. OR TASK	DOING GROUP	ACTUAL COMPLETION DATE

REQUESTED BY	EXT.	FACILITY	SHIFT	REQ. SUPERVISION	ESTIMATOR	ESTIMATE	
M. Frankel	4803	ECL	1	M. Frankel		HOURS REQUIRED	MATERIALS REQUIRED
LAB SUPERVISION	ASSIGNED TO: SHOP / LAB			LEADMAN	MECHANIC		$

INSTRUCTIONS (BE SPECIFIC)

NOTE: THIS FORM WILL BE USED FOR NON-DELIVERABLE ARTICLES ONLY.

Dispose of waste nitro compounds by burning. The nitro compounds are in methylene chloride solution at a concentration of about 30%. The nitro compounds should be handled with care so that none of the solution comes in contact with the skin through handling. In addition, the materials should be considered as high explosives after the solvent has evaporated.

Required Safety Item

Acid Resistant Rubber Gloves
Coveralls
Face Shield

Drums For Disposal

4 - 30 gal Fluorodinitroethanol (FDNE) 400 # solution
1 - 30 gal bis(Fluorodinitroethoxy)-2-propanol (SECOH) 200 # "
1 - 5 gal bis (Fluorodinitroethoxy) 2,2-bis (difluoramino) propane (SYEP) 35# soln.
1 - 5 gal bis (2,2-Difluoramino - 5,5,5 - fluorodinitropentyl) formal (SYFO) 50 # soln
5 - 5 gal Glycidyl Fluorodinitroethoxide (GONFE) 160 # soln.
4 - 5 gal Nitroglycerine 180 # soln.

Empty drums should be rinsed with isopropyl alcohol prior to disposal.

+ 10 cylinders of strong oxidizer such as ClF_3, NF_3, F_2

(17)

FORM R 94-1 REV. 6-82

LIST OF MATERIALS

Internal Letter

Rockwell International

Date: · 13 December 1982

No: .

TO: (Name, Organization, Internal Address)
· M. Francis
· D/541, 055-FB12
·

FROM: (Name, Organization, Internal Address, Phone)
· E. R. Shanks
· D/598-346, 055-SS11
· Rocketdyne-SSFL
· 5130

Subject: · EXPLOSIVE WASTE DISPOSAL - 30 OCTOBER 1982

This IL is in regard to EWR 362533 for disposal of nitroglycerine from Magazine 619. A total of approximately 180 pounds = 20% nitroglycerine and 80% methylene chloride in solution. The method for disposal is listed below:

1. See attached procedure and EWR.

2. Open-face 55-gal drums split in half, 5 each

3. Sawdust with nitroglycerine and methylene chloride, approximately 10-gal solution = approximately 5 pounds of nitroglycerine.

4. Ignition source - electric match squib and boron nitrate pellets.

5. Explosives were burned in the open at the burn pit.

6. The Fire Department was standby for disposal.

7. A second burn was conducted 48 hours later on the same explosives to determine that all material was burned.

8. An explosive detector was used to determine that there was no nitroglycerine residue left from the burning operations.

E. R. Shanks
Supervisor
Chemical & Advanced
Component Test

ERS:rh

172

Internal Letter

Rockwell International

Date: 31 August 1982

No: IL 82-40

TO: (Name, Organization, Internal Address)
- M. Francis
- D/541
- FB12

FROM: (Name, Organization, Internal Address, Phone)
- D. Burbach
- SSFL Analytical Chemistry
- D/539-169, SS11
- Extension 3293

Subject: Results of Analysis of Burn Pit Soil Samples RTR-3 Through RTR-5

Summarized below are the results of the analyses performed on the Burn Pit soil samples received on 18 August 1982.

Ten grams of each sample was digested with fifty milliliters of concentrated nitric acid until brown fumes ceased to evolve. Table I lists concentrations of those metals determined, calculated as milligrams analyte per kilogram of sample.

TABLE I

Total Metals (mg/kg)

Sample Log #	Chromium	Lead	Zinc	Cadmium	Copper	Nickel
8-173-82 (RTR-3)	18	5	33	ND < 0.5	7	14
8-174-82 (RTR-4)	20	6	34	ND < 0.5	7	10
8-175-82 (RTR-5)	10	3	23	ND < 0.5	3	6

Approximately five grams of each sample was dried at 105° C to remove the water present, then extracted with methylene chloride utilizing ultrasonic agitation. After filtering, the solvent was evaporated and the residue dried at 105° C. The residues, which ranged from 0.04% to 0.1% of the original sample weight, were examined by infrared spectroscopy and found to be hydrocarbons.

To determine soluble fluoride, portions of each sample were extracted with deionized water for 48 hours using a rotary extractor. The extracts were filtered, distilled and analyzed for fluoride. In addition, two-gram portions of the samples were digested in sulfuric acid and distilled to provide an estimate of the total fluoride in the soil. Results are given in Table II below.

TABLE II

Fluoride

Sample Log #	Soluble Fluoride (mg/kg)	Total Fluoride (mg/kg)
8-173-82	2	160
8-174-82	13	180
8-175-82	1.5	110

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Form 121-3 Rev. 3-76

Volatile organic compounds (VOC's) were determined by extraction into methanol followed by purge and trap concentration and gas chromatography / mass spectroscopy. The results are listed in Table III below.

TABLE III

Volatile Organics (mg/kg)

Sample Log #	1,1,1-trichloroethane	trichloroethylene	toluene
8-173-82	0.6	0.4	1.6
8-174-82	1.4	4	1.4
8-175-82	1.0	ND	ND

ND = NONE DETECTED

< = LESS THAN

These three samples are now undergoing the regular Burn Pit sample analysis procedure.

D. J. Burbach, MTS
SSFL Analytical Chemistry
Materials and Producibility

M. D. Robertson, Lead Engineer
SSFL Analytical Chemistry
Materials and Producibility

Approved:

SSFL Analytical Chemistry
Materials and Producibility

174 DJB/mjl

BEA # 805-275-7010 6/22/90

THINGS TO DO

For BURNDAY
CONTACT GARRY REDMON 550 O/C

1) RESAMPLE SOIL AROUND PAD (CAGE 1) (CYL 2) AT BURN PIT - ① SEND TO BROWN & CALDWELL
② USE TECH - MARK HALVERSON -
③ GO THROUGH GARRY COLBERT

2) HAVE EYE WASH & SAFTY SHOWER HOOKED UP -

3) MT DRUM TO WASTE YD.

4) CLEAR ASH AFTER BURN GARRY -

5) CHARGE # 40982

175

Rockwell International
Rocketdyne Division

Facsimile Transmission

SSFL Facility - Building 436

Rapicom Number - 394-3518 (Comnet)
(818) 710-3518

Date: 5/25/90 To Fax Number: 176-5480

To: B. KENNETT Ext. _____ M/S _____

From: A.L. SANDLA Ext. 178-5343 M/S 552

Number of Pages: 6+COVER

Remarks: THIS IS REVISED REPORTS
SORRY FOR THE DELAY
Jay

176-

[redacted]

CHEMICAL ANALYSIS REPORT

Log Number 9004417

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 392-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/539-169, ext. 5827
REFERENCE: LB 90 p 97; NB 1251, pages 161-174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004417

Sample Description: Soil, Westside pad 2, distance = 1 Foot
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:15:00
Sampler: M. Halverson Sampler ID#: 042390MH06 Sample Time: 9:36:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.44	mg/kg	DNA	7060, SW-846
Barium ***	28	mg/kg	DNA	7060, SW-846
Beryllium ***	0.062	mg/kg	DNA	6010, SW-846
Cadmium ***	0.43	mg/kg	DNA	6010, SW-846
Chromium ***	0.68	mg/kg	DNA	6010, SW-846
Cobalt ***	1.6	mg/kg	DNA	6010, SW-846
Copper ***	2.7	mg/kg	DNA	6010, SW-846
Lead ***	2.7	mg/kg	DNA	6010, SW-846
Mercury ***	ND<0.04	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	1.9	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.55	mg/kg	DNA	6010, SW-846
Silver ***	ND<0.04	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.04	mg/kg	DNA	6010, SW-846
Vanadium ***	ND<0.51	mg/kg	DNA	6010, SW-846
Zinc ***	21	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For Information Only. Sample was extracted per the WET extraction procedure (Title 22) prior to analysis.

* ABBREVIATIONS *

1) TR = Trace 2) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED:____ SIGNED:__

Manager
Rocketdyne SSFL Analytical Chemistry

Chemist
Rocketdyne SSFL Analytical Chemistry

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[redacted]

CHEMICAL ANALYSIS REPORT

Log Number 9004416

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 392-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/539-169, ext. 5827
REFERENCE: LR 90 p 97; NB 1251, pages 161-174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004416

Sample Description: Soil, Eastside pad 2, distance = 1 Foot
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:15:00
Sampler: M. Halverson Sampler ID#: 042390MH05 Sample Time: 9:34:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.45	mg/kg	DNA	7060, SW-846
Barium ***	25	mg/kg	DNA	7060, SW-846
Beryllium ***	0.063	mg/kg	DNA	6010, SW-846
Cadmium ***	0.46	mg/kg	DNA	6010, SW-846
Chromium ***	1.1	mg/kg	DNA	6010, SW-846
Cobalt ***	1.4	mg/kg	DNA	6010, SW-846
Copper ***	3.0	mg/kg	DNA	6010, SW-846
Lead ***	3.1	mg/kg	DNA	6010, SW-846
Mercury ***	79	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	2.4	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.46	mg/kg	DNA	6010, SW-846
Silver ***	0.46	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.044	mg/kg	DNA	6010, SW-846
Vanadium ***	1.1	mg/kg	DNA	6010, SW-846
Zinc ***	25	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For Information Only. Sample was extracted per the WET extraction procedure (Title 22) prior to analysis.

* ABBREVIATIONS *

1) TR = Trace 3) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED: _____ SIGNED: _____
Manager Chemist
Rocketdyne SSFL Analytical Chemistry Rocketdyne SSFL Analytical Chemistry

178

[redacted]

CHEMICAL ANALYSIS REPORT

Log Number 9004415

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 392-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/539-169, ext. 5827
REFERENCE: LB 90 p 97; NB 1251, pages 161-174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004415

Sample Description: Soil, Northside pad 2, distance = 1 Foot
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:15:00
Sampler: M. Halverson Sampler ID#: 042390MH04 Sample Time: 9:32:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.46	mg/kg	DNA	7060, SW-846
Barium ***	30	mg/kg	DNA	7060, SW-846
Beryllium ***	0.042	mg/kg	DNA	6010, SW-846
Cadmium ***	0.40	mg/kg	DNA	6010, SW-846
Chromium ***	2.1	mg/kg	DNA	6010, SW-846
Cobalt ***	1.1	mg/kg	DNA	6010, SW-846
Copper ***	5.2	mg/kg	DNA	6010, SW-846
Lead ***	3.5	mg/kg	DNA	6010, SW-846
Mercury ***	45	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	3.5	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.46	mg/kg	DNA	6010, SW-846
Silver ***	ND<0.010	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.04	mg/kg	DNA	6010, SW-846
Vanadium ***	1.0	mg/kg	DNA	6010, SW-846
Zinc ***	42	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For Information Only. Sample was extracted per the WET Procedure (Title 22) prior to analysis.

* ABBREVIATIONS *

1) TR = Trace 2) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED: _____
Manager
Rocketdyne SSFL Analytical Chemistry

SIGNED: _____
Chemist
Rocketdyne SSFL Analytical Chemistry

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CHEMICAL ANALYSIS REPORT

Log Number 9004412

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 392-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/589-169, ext. 5827
REFERENCE: LB 90 p 97; NB 1251, pages 161 - 174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004412

Sample Description: Soil, Southside pad 1, distance = 1 foot
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:15:00
Sampler: M. Halverson Sampler ID#: 042390MH01 Sample Time: 9:25:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.18	mg/kg	DNA	7060, SW-846
Barium ***	55	mg/kg	DNA	7060, SW-846
Beryllium ***	0.064	mg/kg	DNA	6010, SW-846
Cadmium ***	0.89	mg/kg	DNA	6010, SW-846
Chromium ***	2.1	mg/kg	DNA	6010, SW-846
Cobalt ***	1.2	mg/kg	DNA	6010, SW-846
Copper ***	8.7	mg/kg	DNA	6010, SW-846
Lead ***	22	mg/kg	DNA	6010, SW-846
Mercury ***	ND<0.042	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	3.2	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.57	mg/kg	DNA	6010, SW-846
Silver ***	ND<0.04	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.04	mg/kg	DNA	6010, SW-846
Vanadium ***	0.91	mg/kg	DNA	6010, SW-846
Zinc ***	90	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For information only. Sample was extracted per the WET Etraction procedure (Title 22) prior to anlaysis.

* ABBREVIATIONS *

1) TR = Trace 2) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED: _____ SIGNED: _____
Manager Chemist
Rocketdyne SSFL Analytical Chemistry Rocketdyne SSFL Analytical Chemistry

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[redacted]

CHEMICAL ANALYSIS REPORT

Log Number 9004413

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 892-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/539-169, ext. 5827
REFERENCE: LB 90 p 97, NB 1251, pages 161-174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004413

Sample Description: Soil, Westside pad 1, distance = 3 Feet
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:16:00
Sampler: M. Halverson Sampler ID#: 042390MH02 Sample Time: 9:27:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.22	mg/kg	DNA	7060, SW-846
Barium ***	38	mg/kg	DNA	7060, SW-846
Beryllium ***	0.11	mg/kg	DNA	6010, SW-846
Cadmium ***	0.37	mg/kg	DNA	6010, SW-846
Chromium ***	0.82	mg/kg	DNA	6010, SW-846
Cobalt ***	1.5	mg/kg	DNA	6010, SW-846
Copper ***	3.5	mg/kg	DNA	6010, SW-846
Lead ***	14	mg/kg	DNA	6010, SW-846
Mercury ***	ND<0.042	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	0.73	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.46	mg/kg	DNA	6010, SW-846
Silver ***	ND<0.04	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.04	mg/kg	DNA	6010, SW-846
Vanadium ***	0.47	mg/kg	DNA	6010, SW-846
Zinc ***	37	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For information only. Sample was extracted per the WET Extract Procedure (Title 22) prior to analysis.

* ABBREVIATIONS *

1) TR = Trace 2) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED: _____ Manager
Rocketdyne SSFL Analytical Chemistry

SIGNED _____ Chemist
Rocketdyne SSFL Analytical Chemistry

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CHEMICAL ANALYSIS REPORT

Log Number 9004414

TO: Environmental Unit DEPT/GROUP: 543-000 PHONE: 392-5314
FROM: SSFL Analytical Chemistry, Rocketdyne Div. Rockwell International, D/539-169, ext. 5827
REFERENCE: LB 90 p 97; NB 1251, pages 161-174 REPORT DATE: 05/25/90

SAMPLE INFORMATION FOR 9004414

Sample Description: Soil, Northside pad 1, distance = 1 Foot
Requester: Beatrice Kephart
Requested Analysis: Metals
Received: 04/23/90 at 10:15:00
Sampler: M. Halverson Sampler ID#: 042390MH03 Sample Time: 9:29:00
Sampled: 04/23/90

ANALYTE	RESULT	UNIT	MAX. LEVEL CONTAMINATE	METHOD/SOURCE
Antimony ***	ND<0.01	mg/kg	DNA	6010, SW-846
Arsenic ***	0.20	mg/kg	DNA	7060, SW-846
Barium ***	21	mg/kg	DNA	7060, SW-846
Beryllium ***	0.021	mg/kg	DNA	6010, SW-846
Cadmium ***	0.13	mg/kg	DNA	6010, SW-846
Chromium ***	0.15	mg/kg	DNA	6010, SW-846
Cobalt ***	1.2	mg/kg	DNA	6010, SW-846
Copper ***	0.62	mg/kg	DNA	6010, SW-846
Lead ***	3.7	mg/kg	DNA	6010, SW-846
Mercury ***	9.1	mg/kg	DNA	7470, SW-846
Molybdenum ***	ND<0.53	mg/kg	DNA	6010, SW-846
Nickel ***	0.46	mg/kg	DNA	6010, SW-846
Selenium ***	ND<0.46	mg/kg	DNA	6010, SW-846
Silver ***	ND<0.04	mg/kg	DNA	6010, SW-846
Thallium ***	ND<0.04	mg/kg	DNA	6010, SW-846
Vanadium ***	0.69	mg/kg	DNA	6010, SW-846
Zinc ***	6.3	mg/kg	DNA	6010, SW-846

SPECIFICATION: DNA (Area I Burn Pad for RCRA Part B Permit)
SPECIAL NOTES: B. Kephart Env. Eng. in charge of project. Deter. rain runoff contam. No stated limits. WET extract prior to analysis.
COMMENTS: *** For information only. Sample was extracted per WET Extraction Procedure (Title 22) prior to analysis.

* ABBREVIATIONS *

1) TR = Trace 2) ND = None detected 3) < = Less than
4) > = Greater than 5) DNA = Does not apply 6) N.S. = Not Stated
7) *** = Non-certified result for indication purposes only

APPROVED: _____
Manager
Rocketdyne SSFL Analytical Chemistry

SIGNED: _____
Chemist
Rocketdyne SSFL Analytical Chemistry

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[redacted]