The Boeing Company
Santa Susana Field Laboratory
5800 Woolsey Canyon Road
Canoga Park, CA 91304-1148

VIA FEDEX

August 16, 2006

BOEING

Peter Bailey, P.G.
Engineering Geologist
Northern California Permitting and Corrective Action Branch
Department of California Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826-3200

Subject: Transmittal of Historical Documents
Area I Burn Pit – Solid Waste Management Unit (SWMU) 4.8
Santa Susana Field Laboratory (SSFL), Ventura County, California

Dear Mr. Bailey:

Enclosed is a notebook entitled "Historical Records: Area I Burn Pit" which contains old documents related to the Area I Burn Pit. Please call me at (818) 466-8795 if you have any questions.

Sincerely,

Art Lenox
Environmental Remediation

AJL:bjc
Enclosures

cc: Gerard Abrams, DTSC, Sacramento (w/enclosure)

SHEA-104173

Rocketdyne Division
6633 Canoga Avenue
Canoga Park, California 91304
Telex: 698478

Rockwell International

4 March 1981

In reply refer to B1RC02364

Regional Water Quality Control Board
107 S. Broadway, Suite 4027
Los Angeles, California 90012

Attention: Mr. Raymond M. Hertel, Executive Officer

Re: Inactive Burning and Disposal Site (File B1-18)

Gentlemen:

Rocketdyne is herewith submitting the historical data pertaining to the inactive disposal site known as the "Burn Pit" which is located at our Santa Susana Field Lab. This submittal is made in accordance with discussions with Mr. H. Yacoub and your letter dated February 19, 1981.

To assist in the assessment of the site, two information packages are being prepared; first, to provide historical background data for the site, and second, to provide a work plan delineating in detail how the site will be surveyed and analyzed. This package contains the historical background of the area.

"BURN PIT" 1958

General Site History

The "Burn Pit" site was established in approximately 1958 for the safe disposal of chemical fuels by combustion in order to minimize potential public exposure which could result from transport across public highways to dispose in a conventional landfill. This site was operated by qualified Rocketdyne Protective Services personnel until 1971. At that time, the site was closed because of air pollution considerations. Since its closure, the site has been essentially inactive with the exception of a few fire department demonstrations and training exercises to maintain their proficiency in dealing with chemical fires and emergency incidents.

Site Description

6 ACRES

Located in Rocketdyne's 2,400-acre Santa Susana Test Facility (SSFL) is a six-acre area which is referred to as the "Burn Pit." Within the bounds of the six-acre area are six pits which range in volume from approximately 200 gallons to 10,000 gallons. Of these six pits, three of them are lined with concrete and three unlined earthen pits. The enclosed maps give the geographic location, topography, draining outfalls and a rough plan of the "Burn Pit."

6 PITS WITH 200 → 10,000 GALLONS

SS1 07 1 1 2 9

Area Water Run Off

* A preliminary review by our chemists leads us to believe that in all probability no hazardous residues resulted from the combustion processes. Routine sampling at the adjacent perimeter pond has not shown any unusual concentrations of any of the substances required to be sampled by our current NPDES permit. We believe, therefore, that surface run off is not the problem.

Ground Water

The Rocketdyne SSFL is serviced by one well which is maintained by Rocketdyne. Two additional wells are planned to be brought on line in six (6) months. None of these wells are located near the burn pit area and are upgradient. * Rocketdyne believes that there has been no ground water contamination resulting from the past activities in the burn pit area.

This conclusion is based on an evaluation of the type of the disposal practices which were employed and a 1958 geologic and hydrologic survey of the underground water conditions. The study was performed by C. C. Killingsworth, a Consulting Geologist from Los Angeles, whose findings revealed that "the overall average effective porosity appears to be less than one percent (1%) over the 2,000 acres of property."

LESS THAN 1% POROSITY

Description of Materials and Disposal Methods

Table I was developed from the records which were kept by the Protective Service Organization of the disposals. As indicated, the majority of the hazardous wastes were destroyed by combustion, detonation or oxidation. Therefore, the residues would be salts and oxides which occur naturally in the soil. There was a small volume of acidic and basic process chemicals disposed of in the burn pit. However, these chemicals were diluted to near neutral concentration prior to disposal into the unlined pits.

Container Disposal

Containers which held the wastes were buried in the confines of the six (6) acres of the burn pit area after they had been penetrated and burned out or they were thoroughly flushed.

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If questions arise concerning the historical background, please contact Mr. Michael Francis, Telephone (213) 884-4000, Extention 5915.

Very truly yours,

ROCKWELL INTERNATIONAL CORPORATION
Rocketdyne Division

A. R. Bjorklund, Director
Facilities & Industrial Engineering

ARB:pb

Enclosures: (3)

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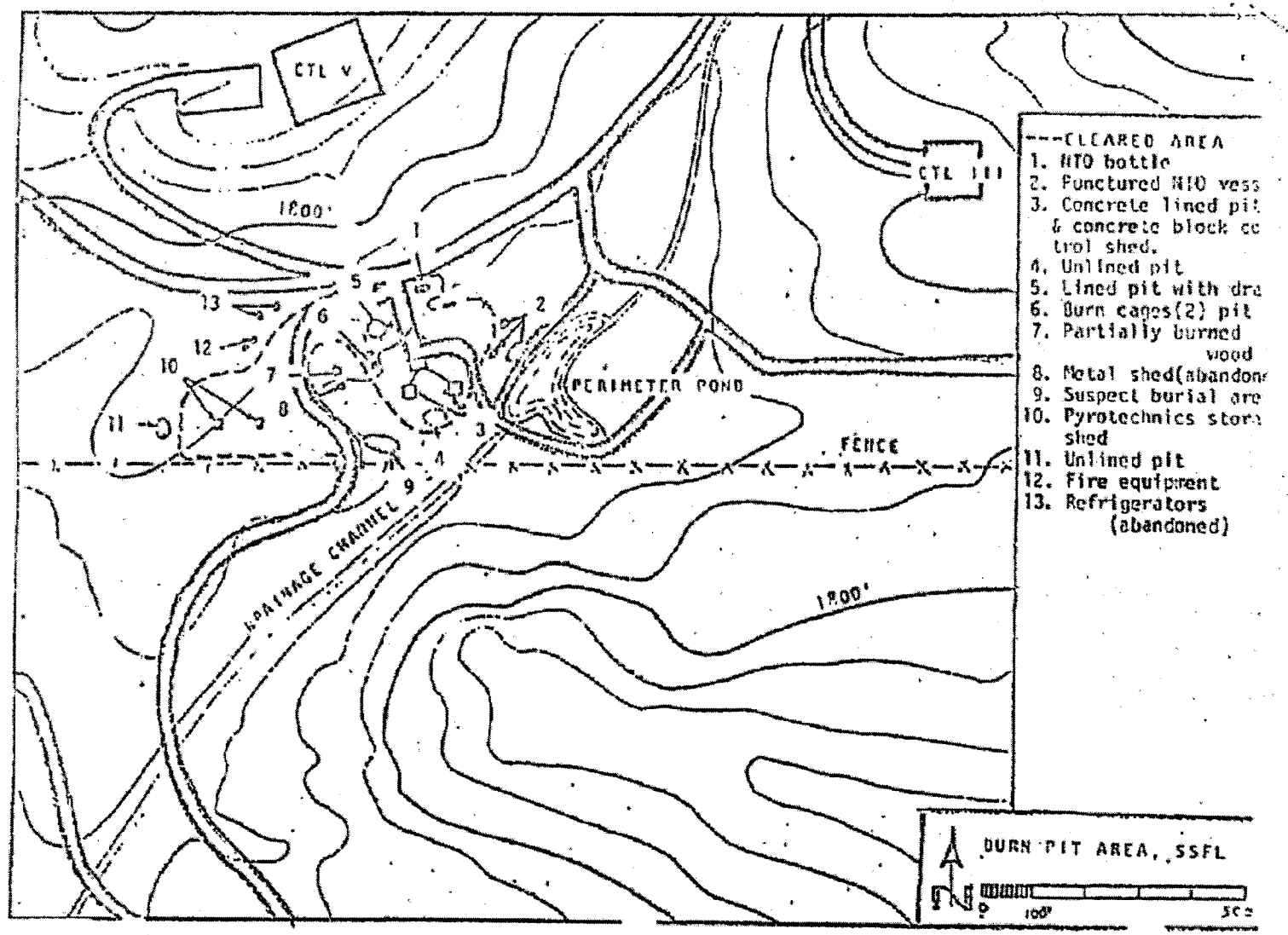

Table I - mmary of Materials and Disposa lethods

Type of Material	Volume or Mass	Disposal Method
A. Fuels	450,000 gallons	
1. Nitrogen Tetroxide		Combustion
2. Misc. Contaminated Fuels		Combustion
3. Pentaborane		Combustion
4. RP-1 (Kerosene Base)		Combustion
5. JP-4 (Kerosene Base)		Combustion
6. Hydrazines		Combustion
7. Triethyl Aluminum		Combustion
8. Triethyl Aluminum Borane		Combustion
B. Igniters	#6924	Detonation
C. Process Chemicals	21,300 gallons	Dilution and place in earthen pits
1. Acids		
2. Bases		
D. Reactive Metals	13,810 pounds	
1. Aluminum		Burning
2. Magnesium		Burning
3. Sodium		Burning
4. Potassium		Burning
E. Organic Solvents	31,717 gallons	
1. Tetraisobutylene		Combustion
2. Alcohols		Combustion
3. Heptane		Combustion
F. Explosives	5,121 pounds	
1. Nitrocellulose		Detonation
2. Mix Oxides		Detonation
3. Dynamite		Detonation
G. Toxic Gases	32,932 feet^3	
1. Oxygen Difluoride Gas		Combustion
2. Fluorine Gas		Combustion
3. Chlorine Gas		Combustion
H. Heavy Metal Toxics	191 gallons	
1. Leaded Paint (189 gallons)		Combustion
2. Potassium Cyanide		Combustion
3. Sodium Arsenite		Dilution
4. Mercury		Dilution

BURN PIT CHEMICAL PROFILE (PHASE I)

Reference:
Bjorklund letter to Regional Water Quality Control Board, 4 March 1981 (81RC02364), Re: Inactive Burning and Disposal Site ("Burn Pit")

SUMMARY

This work plan delineates in detail how the site will be examined on a "first pass" basis to appropriately estimate the level of effort that will be required for cleanup. In addition, this presentation includes the labor estimate for this assignment. A proposed work schedule is submitted with targeted completion dates to provide flexibility according to the chemical analysis results.

BACKGROUND

General Site History

The "Burn Pit" site was established in approximately 1958 for the safe disposal of chemical fuels by combustion in order to minimize potential public exposure which could result from transport across public highways to dispose in a conventional landfill. This site was operated by qualified Rocketdyne Protective Services personnel until 1971. At that time, the site was closed because of air pollution considerations. Since its closure, the site has been essentially inactive with the exception of a few fire department demonstrations and training exercises to maintain their proficiency in dealing with chemical fires and emergency incidents.

Site Description

Located in Rocketdyne's 2,400-acre Santa Susan Test Facility (SSFL) is a six-acre area which is referred to as the "Burn Pit". Within the bounds of the six-acre area are six pits which range in volume from approximately 200 gallons to 10,000 gallons. Of these six pits, three of them are lined with concrete and three unlined earthen pits. The enclosed maps give the geographic location, topography, draining outfalls and a rough plan of the "Burn Pit".

Area Water Run Off

A preliminary review of the water runoff has led the Rocketdyne Environmental Control Office to believe that no dischargeable hazardous residues resulted from the combustion processes. Routine sampling at the adjacent perimeter pond has not shown any unusual concentrations of any of the substances required to be sampled by the current NPDES permit. It is believed, therefore, that surface runoff is not the problem.

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Ground Water

The Rocketdyne SSFL is serviced by one well which is maintained by Rockedyne. Two additional wells are planned to be brought on line in six (6) months. None of these wells are located near the burn pit area and are upgradient. Rocketdyne believes that there has been no ground water contamination resulting from the past activities in the burn pit area. This conclusion is based on an evaluation of the type of the disposal practices which were employed and a 1958 geologic and hydrologic survey of the underground water conditions. The study was performed by C. C. Killingsworth, a consulting geologist from Los Angeles, whose findings revealed that "the overall average effective porosity appears to be less than one percent (1%) over the 2,000 acres of property". Furthermore, of the wells that have been driven or that are currently in operation, the distance from the surface to reach the aquifer is in the order of 415 feet.

WORK STATEMENT

The California Department of Health Services prepared a document on "Samplers and Sampling Procedures for Hazardous Waste Streams" that offers the approach consistent with the Burn Pit chemical profile. Thus, the attached procedures submit a plan of action to maximize safety of sampling personnel, minimize sampling time and cost, reduce errors in sampling, and protect the integrity of the samples after sampling.

1. The background information about the Burn Pit has been researched and is submitted as Table 1, ("SUMMARY OF MATERIALS AND DISPOSAL METHODS"). Records have been kept for years on the general pond/water system/runoff chemical constituency, so that Rocketdyne's pollution control program has voluminous documentation on constituents that required reporting under the NPDES permit currently held. These records substantiate that surface runoff has been monitored continually.

2. A list is attached that describes the constituents for which the analyses may be performed. See Table 2, ("SUMMARY OF CHEMICAL CONSTITUENT TESTS"), that has been compiled from the data assembled and tabulated as in Table 1.

3. The proper samplers will be selected in accordance with the State and EPA SW-846 manuals, as well as devices that are uniquely suited to the SSFL terrain.

4. The proper sample containers and closures will be obtained using the referenced regulatory documents as guides.

5. The sampling plan will include the choice of proper sampling points, and the number and volume of the samples to be taken, including the boring depth.

6. All proper sampling precautions will be observed.

7. The samples will be handles properly with the appropriate chain of custody paperwork.

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WORK STATEMENT (Continu)

8. All samples will be identified correctly and protected from tampering.

9. All sample information will be recorded and identified in a field notebook.

10. The chain of custody record will be completed.

11. The sample analysis request sheet will be filled out.

12. The samples will be submitted to the appropriate laboratory.

13. The results of the selected testing will be reviewed and decisions made where there are questions that need to be answered or issues resolved. If additional samples are required or further pretreatment or sample preparation necessitated, then actions will be taken to complete these tasks.

14. A report will be written summarizing the work performed, data generated, results found, and recommendations tendered. This report will be submitted to the Rocketdyne Environmental Control Office as the document covering PHASE I.

DISCUSSION

The sample collection would be performed by maintenance personnel specifically instructed in and assigned the task by Rocketdyne Facilities and Industrial Engineering management. A minimum of 50 samples would be obtained over the six-acre area. The specific sampling sites would be chosen by the Rocketdyne F & IE Burn Pit Project Engineer on the advice and counsel of those who have knowledge of the area and its history and drainage patterns so that representative sampling could be performed. The Rocketdyne Environmental Control Office would approve of the sampling grid prior to the execution of the undertaking so that the historical data on past events would provide guidance and direction for the sample handling. The choice of the chemical tests to accomplish the chemical profile of the Burn Pit area would be the responsibility of the Manager of the Rocketdyne M & P SSFL analytical Chemistry Unit. If, in her opinion, samples were to be sent out to other laboratories, these decisions would be made and subsequent actions taken to accommodate the best technical resolution of the problem in the most expeditious and economical way.

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
961	Acetone	110 gal	Canoga	Burn
		110 gal	B lab	
1961	Ammonia	205 gal	photo	Dilution
1961	Boron Fuel	110 gal	Canoga	Burn
1961	Bordu Trifluoride	240 ft^3	A I	Destruction
		5 lbs	A lab	
1961	Carbon Tetrachloride	110 gal	B lab	Burn
1961	Cesium	2 lbs	Canoga	Burn
1961	Decon. Soln.	110 gal	Canoga	Destruction
1961	Ditto Fluid	110 gal	Canoga	Burn
1961	Ethylene Diamine	55 gal	SPA	Burn
1961	Flushing Oil	385 gal	Canoga	Burn
1961	Gasoline	110 gal	CTL 3	Burn
1961	Gear Oil	165 gal	Drum Storage	Burn
1961	Heptane	500 gal	Quick Mix	Burn
1961	Hexanes	1045 gal	Canoga	Burn
		55 gal	Drum Storage	
		55 gal	B lab	
	Total	1155 gal		
1961	Hydraulic Oil	55 gal	CTL 4	Burn
1961	Hydrazine	6845 gal	Canoga	Burn
		55 gal	Delta	
		55 gal	CTL 3	
	Total	6955 gal		
1961	Isopropyl Alcohol	110 gal	Canoga	Burn
1961	Lacquer Dilute	55 gal	Drum Storage	Burn
1961	Lithium Chloride	825 gal	Canoga	Dissipation in H_2O
1961	Magnesium	820 gal	S PA	Burn
1961	Methyl Alcohol	110 gal	B lab	Burn
1961	Misc. Flamables	21865 gal	Canoga	Burn
1961	Misc. Lab Chemicals	200 gal	Canoga Chem	Burn
1961	Mixed Oxides	300 lbs	SPA	Burn
		300 lbs	Canoga	
	Total	600 lbs		
1	Mydyne	5200 gal	SPA	Burn
		420 gal	CTL 3	
	Total	5620 gal		

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BURN PIT DISPOSAL INVENTORY

YEAR	MATERIAL	QUANTITY	SOURCE	DISPOSAL METHOD
1961	Nitrogen tetroxide	6585 gal	CANOGA	DILUTION
		2150 gal	BRAVO II	
		1000 gal	ENG. + MAT Service	
	TOTAL	9735 gal		
1961	Polyethylene glycol	520 gal	"A" LAB	BURN
		865 gal	CANOGA	
	Total	1385 gal		
1961	Permanganate Mix	55 gal	INST- LAB	BURN
1961	POTASSIUM	7 lbs	CANOGA	BURN
1961	Red Fuming HNO3	15 gal	SPA	DILUTION
		1270 gal	CANOGA EGA	
	Total	1285 gal		
1961	RP-1	220 gal	CANOGA	BURN
		660 gal	HEAT TRANS. LAB	
	TOTAL	880 gal		
1961	SODIUM	830 lbs	CANOGA	BURN
		50 lbs	HOT FUEL LAB	
		25 lbs	SPTF	
	TOTAL	905 lbs		
1961	Solid Propellants	100 lbs	Quick Mix	BURN
1961	VM&P Naptha	330 gal	Drum Storage	BURN
1961	GRAND TOTAL gal.	54,535 gal		
	GRAND TOTAL lbs	3115 lbs		

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Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
62	Alcohol	55 gal	SPA	Burn
		220 gal	Canoga	
	Total	275 gal		
1962	Ammonia	233 gal	Photo	Dilution
1962	Ammonium Perchlorate	225 lbs	NAKA	Detonation
1962	Blasting Caps	3	Edwards	Detonation
1962	Calcium Hydride	400 lbs	Canoga	Dilution
1962	Caustic Soda	110 gal	SPA	Dilution
1962	Chromic Acid	25 gal	Bowl Area	Off Site
1962	Decon	220 gal	Canoga	Burn
1962	Diethylcyclohexane	165 gal	SPA	Burn
1962	Dinitrotoluene	1 lb	NAKA	Burn
1962	Electric Igniters	95	Warehouse	Burn
1962	Ethylene Diamine	375 gal	Canoga	Burn
1962	Fluorine	6 lbs	Canoga	Destruction
1962	Gasoline	55 gal	Neptune Project	Burn
1962	Hybrid Motor Grains	[illegible] lbs	NAKA	Burn
62	Hydrazine	1450 gal	SPA	Burn
		1 lb	A Lab	
		5 lb	NAKA	
		1315 gal	Canoga	
	Totals	2765 gal	6 lbs	
1962	Hydrocarbons	8030 gal	SPA	Burn
1962	JP-4	4000 gal	Engine Test	Burn
1962	Lithium Hydride	1 lb	SPA	Burn
	Lithium	5 lbs	Cano	
	Total	6 lbs.		
1962	Metriol-tri-nitrate	25 lbs	NAKA	Burn/Destruction
1962	Misc. Waste Chem	50 gal	Inst. Lab	
		3 gal	A Lab	
		850 gal	Naka	
		1975 gal	Canoga	
	Total	2878 gal		
1962	Hydyne	125 gal	Canoga	Burn
2	NTO	1800 gal	SPA	Dilution
		2 gal	B Lab	
	Total	1802 gal		
1962	Nitroglycerin	4 gal	B Lab	Destruction

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
62	Oxygen Difluoride	2-1 cyl. 2 lbs.	SPA PRA	Detonation
1962	Pentaborane	75 gal 1090 gal 70 gal Total 1235 gal	PRA A lab SPA	Burn
1962	Plastisol Nitrocellulose	5 lbs	NAKA	Detonation
1962	Potassium	4 lbs	Canoga	Burn
1962	Potassium Perchlorate	25 lbs	NAKA	Burn
1962	Pyrophoric Aluminum	6 lbs	SPA	Burn
1962	Red Fuma Nitric Acid	520 gal 1050 gal Total 1570 gal	SPA Canoga	Dilution
1962	RJ-1	3600 gal 300 gal Total 3900 gal	Delta-1 Warehouse	Burn
196	Stoddard Solvent	415 gal	ERC	Burn
19	TEA	50 gal	A lab	Burn
1962	Tureine Spinner Grains	1550 lbs	Warehouse	Burn
1962	Sodium Nitrate	55 gal	ERC	Detonation
1962	UDMH	1790 gal	Canoga	Burn
1962	Waste oil	250 gal 3025 gal Total 3275 gal	Equip lab	Burn
1962	Waste Polymers	175 gal	C lab	Burn
	Grand Totals	33,012 gal 2427 lbs		

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Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
1963	Ammonia	145 gal	Photo	Dilution
1963	Barium Chloride	50 lbs	Conservation	Dilution
1963	Bermite Cartridges	72	Warehouse	Burn
1963	Boron 90%	1 gal	Canoga	Destruction
1963	Caustic Soda	650 gal	SPA	Dilution
1963	Cesium	5 lbs	Canoga	Burn
1963	Chemicals, Unknown	21 gal	Canoga	Burn
		35 gal	C lab	
	Total	56 gal		
1963	Chlorine Trifluoride	10 gal	A lab	Destruction
1963	Chlorobutadiene	80 lbs	C lab	Destruction
1963	Cyclo-tetramethylene-Nitrosamine	5 lbs	Happy Valley	Destruction
1963	Diethylene Triamine	500 gal	SPA	Destruction
1963	Electric Igniter	555	Warehouse	Burn
		20	Small Arms	
	Total	575		
1963	Ethylene Diamine	150 gal	SPA	Burn
1963	Fluoride	105 lbs	SPA	Destruction
		6 lbs	Canoga	
	Total	111 lbs		
1963	Hydrazine	5200 gal	SPA	Burn
		140 gal	B lab	
		5 lbs	Canoga	
	Total	5340 gal ; 5 lbs		
1963	Hydrocarbons	14300 gal	SPA	Burn
1963	Isopropyl Butane	625 lbs	Neptune Project	Burn
1963	JP-4	500 gal	SPA	Burn
1963	Magnesium	200 lbs	Canoga	Burn
1963	Metals Alkali	5 lbs	Canoga	Burn
1963	Misc. Acids	155 gal	Canoga	Dilution
1963	Muriatic Acids	50 gal	Canoga	Dilution
1963	Nitrocellulose	25 lbs	Canoga	Destruction
1963	NTO	100 gal	B lab	Dilution
		177 gal	SPA	
		2010 gal	Bravo	
	Total	2287 gal		
1963	Oil Waste	10 gal	Warehouse	Burn
1963				

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
Pre 63	Polymer Waste	30 gal	C Lab	Burn
63	Penta Borane	175 gal	SPA	Burn
		5 gal	PRA	
		1 gal	Canoga	
	Total	181 gal		
1963	Potassium	33 lbs	Canoga	Burn
1963	Propellant, Solid	20 lbs	NAKA	Destruction/Burn
		600 lbs	L.A. Division	
		30 lbs	Happy Valley	
	Total	650 lbs		
1963	Pyrophoric Ignited	5	Bowl Area	Burn
		48	IDA	
	Total	53		
1963	Red Fume Nitric Acid	38 gal	B lab	Dilution
		165 gal	SPA	
		50 gal	Equip. Lab	
		200 gal	HCTL	
	Total	273 gal		
196~	RF-1	4000 gal	Bravo	Burn
		48850 gal	SPA	
	Total	52850 gal		
1963	Sodium Waste	30 lbs.	Canoga	Burn
1963	Sodium Thorite	5 lbs	CTL-1	Distruction
1963	Solids Unknown	10 lbs	C Lab	Burn
1963	Sulfuric Acid	55 gal	Canoga	Dilution
1963	TEA	15 gal	SPA	Burn
		5 gal	B lab	
		5 gal	IDA	
		22 lbs	?	
	Total	25 gal ; 22 lbs		
1963	Triethylborane	100 gal ; 765 lbs	SPA	Burn
1963	Triethylene-Glycol-Dinitrate	5 lbs	Happy Valley	Detonation
1963	TEAB	16 lbs	?	Burn
	Grand Total, gal	78323 gal		
		2622 lbs		

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Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
1964	Alcohol	250 gal	SFA	Burn
	Alkali Metals	10 lbs	Canoga	Burn
1964	Ammonia	175 gal	Photo	Dilution
1964	Ammonia Perchlorate	200 lbs	NAKA	Detonation
1964	Argon Gas	240 ft³	Weld Shop	Vent
1964	Black Powder	1 lb	Explosive Forming	Burn
1964	Chemicals, Unknown	310 gal	Canoga	Burn
		30 gal	C lab	
		10 gal	B lab	
		35 lbs	Canoga	
		12 lbs	C lab	
	Total	350 gal		
		47 lbs		
1964	Chlorine & O_2 gas	1680 ft³	CTL-1	Destruction
1964	Electric Igniter	200	Warehouse	Burn
		50	IDA	
1964	Fluorine	1220 ft³	PRA	Destruction
1964	Fuels, Const.	44800 gal	SFA	Burn
		12000 gal	Conservation	
	Total	56800 gal		
1964	Gases, Unknown	340 ft³	B 66	Destruction
1964	Hydrazine	264 gal	B lab	Burn
1964	Hydrogen Gas	720 ft³	CHTL	Destruction
		240 ft³	A Lab	
		960 ft³		
1964	Lithium	5 lbs	Canoga	Burn
1964	Magnesium	1400 lbs	Canoga	Burn
		450 lbs	Happy Valley	
	Total	1850 lbs		
1964	NTO	310 gal	B lab	Dilution
1964	Oxygen Difluoride	480 ft³	PRA	Destruction
1964	Oxygen Gas	480 ft³	CTL-I	Vent
1964	Pentaborane	20 gal	Canoga	Burn
1964	Potassium	15 lbs	K facility	Burn
1964	Propellant Solid	15 lbs	B lab	Destruction/Burn
		5 lbs	CHTL	
	Total	20 lbs		
1964	Red Fume Nitric Acid	30 gal	B lab	Dilution
1964	[illegible]	[illegible]	[illegible]	[illegible]

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
1 4	Sulfuric Acid	100 gal	Canada	Dilution
1.04	TEA	50 gal	SPA	Burn
		25 gal	IDA	
		10 gal	B Lab	
	Total	8 + 40		
	Group Totals	58,384 gal		
		2,432 lbs		
		5,000 ft^3		

Burn Pit Inventory

Year	Material	Quantity	Source	Disposal Method
1965	Acetone	[illegible] gal	Canoga	Burn
		110 gal	[illegible] Lab	
	Total	165 gal		
1965	Alcohol	7445 gal	SPA	Burn
		750 gal	Surplus Sales	
	Total	8195 gal		
1965	Ammonia	420 gal	[illegible]	Dilution
1965	Ammonia Perchlorate	5 lbs	NAKA	Detonation
1965	Chemicals Mixture	116 gal	Canoga	Burn
		1 lb	Canoga	
		15 gal	[illegible] Lab	
		5 lbs	[illegible] Lab	
	Total	131 gal; 6 lbs		
1965	Chromic Acid	5 gal	Canoga	Off Site
1965	Diesel Fuel Oil	1000 gal	CTL-3	Burn
1965	Electric Igniter	2350	Warehouse	Burn
1965	Fluorine Gas	800 ft3	FRA	Destruction
1965	Hydrazine	18365 gal	SPA	Burn
		143 gal	[illegible] Lab	
		175 gal	CTL-4	
	Total	18682 gal		
1965	Hypergolic Fuel	4955 gal	Surplus Sales	Burn
		12375 gal	Canoga	
		3500 gal	SPA	
		2200 gal	Water Valley	
	Total	64750 gal		
1965	Hydrofluoric Acid	70 gal	Canoga	Dilution
1965	IRFNA	165 gal	SPA	Dilution
1965	Magnesium	2675 lbs	Canoga	Burn
		250 lbs	IDA	
	Total	2925 lbs		
1965	Muriatic Acid	5 gal	Canoga	Dilution
		175 gal	Photo	
		400 gal	CTL-3	
	Total	580 gal		
19	MTO	145 gal	CTL-4	Dilution
		212 gal	B-Lab	
		150 gal	SPA	

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[redacted]

Year	Material	Quanity	Source	Disposal Method
1965	Oxygen Difluoride	240 ft³	PRA	Destruction
1965	Potassium	5 lbs	K Facility	Burn
		1 lb	Canoga	
	Total	6 lbs		
1965	Propellant, Solid	4 lbs	NAKA	Destruction/Burn
1965	Pyrophoric Igniter	200	IDA	
1965	RP-1	100 gal	Surplus Sale	Burn
		33555 gal	SPA	
	Total	33655 gal		
1965	Sodium	10 lbs	K loop	Burn
		1 lb	Canoga	
	Total	11 lbs		
1965	Sodium Nitrite	350 gal	Surplus Sales	Burn
1965	TEA	40 gal	IDA	Burn
	Grand Totals	131,835 gal		
		2,957 lbs		
		900 ft³		

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
1966	Acetone	200 gal	?	Burn
1,	Acetonitrile	5 gal	B Lab	Destruction
1966	Acids	20 gal	B lab	Dilution
		5 gal	Canoga	
		1850 gal	?	
	Total	1875 gal		
1966	Alcohol	355 gal	CTL-5	Burn
		410 gal	Surplus Sales	
		1800 gal	?	
	Total	2565 gal		
1966	Ammonia	5 gal	Bdyd	Dilution
1966	Ammonia Perchlorate	200 lbs	NAKA	Destruction/Burn
1966	Chromic Acid	1 gal	B-Lab	off Site
		50 gal	?	
1966	Chlorine trifluoride	5 gal	Canoga	Destruction
1966	Comp. A	4 lbs	Canoga	Destruction/Burn
1966	Dimazine	450 gal	?	Burn
19[illegible]	Electric Isolators	500	Warehouse	Burn
1966	Elec. Squibb Isolators	75	Warehouse	Burn
		425	IDA	
	Total	500		
1966	Freon	15 gal	?	Destruction
1966	Heptane	1500 gal	Surplus Sales	Burn
1966	Hydrazine	3095 gal	SPA	Burn
		50 gal	B lab	
		25 gal	CTL-4	
	Total	3160 gal		
1966	Hydrocarbon	600 gal	CHTL	Burn
		3875 gal	Canoga	
		600 gal	CTL-2	
		17500 gal	Surplus Sales	
	Total	22575 gal		
1966	Lithium Chloride	495 gal	Surplus Sales	Destruction/Burn
1966	Magnesium	985 lbs.	Canoga	Burn
96[illegible]	MMH	900 gal	?	Burn
196[illegible]	Muriatic Acid	400 gal	CTL-4	Dilution
		440 gal	CTL5	
	Total	840 gal		

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
1966	NTO	114 gal	B Lab	Dilution
		2765 gal	SPA	
		20 gal	CTL-4	
		2 gal	Canoga	
	Total	2901 gal		
1966	Oil	890 gal	AI	Burn
		600 gal	?	
		1625 gal	CTL-2	
		25 gal	PEI	
	Total	3130 gal		
1966	Paint Thinner	55 gal	?	Burn
1966	Potassium	5 lbs	CHTL	Burn
		10 lbs	Potassium Iodide	
	Total	15 lbs		
1966	Potassium Permanganate	18 lbs	Naka	Destruction/Burn
1966	Propellant, Solid	150 lbs	Naka	Burn
		5 lbs	CHTL	
	Total	155 lbs		
1966	Polymer Soft oil	300 gal	?	Burn
1966	Pyrophoric Igniter	180	IDA	Burn
1966	Red Fume Nitric Acid	5 gal	B lab	Dilution
		750 gal	?	
	Total	755 gal		
1966	RJ-1	4900 gal	[illegible]	Burn
		300 gal	CDA	
	Total	5100 gal		
1966	Smoke Grenade Mat.	150 lbs	Naka	Burn
1966	Sodium Nitrate	1870 gal	Surplus Sales	Destruction/Burn
1966	Sodium, Waste	11 lbs	Canoga	Burn
1966	Titanium	100 lbs	Canoga	Burn
1966	Trichlor	200 gal	?	Burn
1966	Trimethyl Boron	2 gal	Canoga	Burn
	Grand Totals	48953 gal.		
		1485 lbs.		

Burn Pit Material Inventory

Year	Material	Quantity	Source	Disposal Method
1967	Acetone	5 gal	Photo	[illegible]
		110 gal	[illegible]	
		[illegible] gal	[illegible]	
	Total	315 gal		
1967	Acetylene	50 ft³	Bldg. 400	Burn
1967	Alcohol	1525 gal	Surplus Sales	Burn
1967	Ammonia	255 gal	Photo	Dilution
1967	Borol	4 lbs	Canoga	Destruction / Burn
1967	Butadiene	100 ft³	Canoga	Destruction
1967	Benzene	10 gal	Bldg 400	Burn
		2 gal	Photo	
	Total	12 gal		
1967	Calcium [illegible]	50 lbs	Canoga	Dilution
1967	Carbon Tetrachloride	1 gal	PRA	Burn
		5 gal	Blah	
	Total	6 gal		
1967	Chemicals, ?	9 gal	Bldg	Burn
		93 gal	Canoga	
	Total	102 gal		
1967	Chlorine	10 ft³	Canoga	Destruction
1967	Caustic Soda	10 gal	Canoga	Dilution
1967	Chlorine Trifluoride	1 gal	CTL-3	Burn
1967	Chloropropane	5 gal	Photo	Burn
1967	Comp. A	1 lb	Canoga	Destruction / Burn
1967	Ditto Fluid	6 gal	Canoga	Burn
1967	Electrolyte	1 qt.	Canoga	Dilution
1967	Electric Squib	1	?	Burn
1967	Ether	75 gal	C Lab	Burn
1967	Ethyl Deka Borane	1 lb	V.O. Lab	Burn
1967	Fluorine Gas	3770 ft³	SFA	Destruction
		2160 ft³	TDA	
	Total	5880 ft³		
1967	Fuel	1 gal	Canoga	Burn
		5 gal	Test Lab	
	Total	6 gal		
1967	Heptane	550 gal	Happy Valley	Burn
1967	Hexane	330 gal	Happy Valley	Burn

Year	Material	Quantity	Source	Disposal Method
19-7	Hydrazine	40 gal	B-Lab	Burn
		1405 gal	SPA	
		350 gal	CTL-4	
		450 gal	?	
	Total	2645 gal		
1967	Hydrocarbon	705 gal	Canoga	Burn
		10 gal	Equip. Lab	
		100 gal	CTL-I	
		870 gal	Superior Color	
		300 gal	Coca	
		50 gal	Unknown	
		7530 gal	?	
	Total	9565 gal		
1967	Hydrochloric Acid	200 gal	Equip. Lab	Dilution
1967	Hydrogen Sulfide	10 gal	B lab	
		5 gal	Canoga	
	Total	15 gal		
96	Hypergol Igniters	20	?	Burn
1967	Igniters	10	IDA	Burn
1967	IRFNA	4 gal	B lab	Dilution
1967	JP-4	300 gal	Eng. Test	Burn
19-7	Ketones	15 gal	$2H_2$ 400	Burn
		2 gal	IDA	
		100 gal	Bowl	
		5 gal	Canoga	
	Total	422 gal		
1967	Lithium	60 lbs	PRA	Burn
1967	Magnesium	200 lbs	Canoga	Burn
1967	Methyl Alcohol	220 gal	IDA	Burn
1967	Nitric Acid	59 gal	Canoga	Dilution
		2 gal	B lab	
	Total	61 gal		
1967	NTO	86 gal	B lab	Dilution
		3165 gal	SPA	
		20 gal	CTL-4	
	Total	3271 gal		

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
1967	Oil	250 gal	Equip. Lab	Burn
		480 gal	CTL-1	
		270 gal	Warehouse	
		640 gal	CTL-5	
		150 gal	Research Mech. Engr.	
		150 gal	Supply Sales	
	Total	1890 gal		
1967	Paint	22 gal	Canoga	Burn
		50 gal	Coca	
	Total	72 gal		
1967	Polymide	660 gal	Hazel Valley	Burn
1967	Potassium	10 lbs	Rocketdyne Santa Susana	Burn
		5 lbs	Canoga	
	TOTAL	15 lbs		
1967	Red Fume Nitric Acid	1 gal	B lab	Dilution
1967	RP-1	10 gal	CTL-5	Burn
		220 gal	Canoga	
		350 gal	Test Tower	
		5 gal	IDA	
		2000 gal	Transportation	
	Total	2585 gal		
1967	SKL-4-DXE	9 gal	Bld. 400	Burn
1967	Smoke Powder	250 lbs	Hazel Valley	Destruction
1967	Sodium	10 lbs	Canoga	Burn
1967	Solvent	6 gal	B lab	Burn
1967	Sulfur Trioxide	1 gal	Canoga	Destruction
1967	Tetra Iso butylene	?	?	Burn
1967	Tributylamine	1 gal	Photo	Burn
1967	Tributylborane	5 gal	C lab	Burn
		5 gal	IDA	
	Total	10 gal		
1967	Trifluoroacetic Anahydride	1 gal	IDA	Destruction
1967	TEA	30 gal	IDA	Burn
1967	TEAB	30 gal	IDA	Burn
1967	TEB	3 gal	IDA	Burn
		10 gal	IDA	
		1 gal	B lab	
	Total			

(23)

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
'67	Toluene	275 gal	Happy Valley	Burn
167	Waste Acid	3340 gal	?	Dilution
	Grand Totals	2893 gal 590 lbs 6040 ft^3		

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
1968	Acetone	100 gal	Happy Valley	Burn
		5 gal	Canoga	
	Total	105 gal		
1968	Acetylene	285 SCF	Weld Shop	Burn
		50 SCF	C Lab	
	Total	335 SCF		
1968	Acids	313 gal	Canoga	Dilution
		230 gal	Conservation	
		250 gal	CTL-3	
		1 gal	Happy Valley	
	Total	794 gal		
1968	Aluminum Chloride	105 lbs	IDA	Burn
1968	Ammonia	201 gal	Photo	Dilution
1968	Amyl Nitrate	5 gal	CHTL	Destruction
1968	Benzene	23 gal	B lab	Burn
		1 gal	Maint	
	Total	24 gal		
19[illegible]	Boron Hydride	1 lb	Canoga	Destruction/Burn
19[illegible]	Butadiene Polymer	3 gal	V.O. Lab	Burn
1968	CCl_4	33 gal	B Lab	Burn
		7 gal	Canoga	
	Total	40 gal		
1968	Caustic Soda	6 gal	Conservation	Dilution
1968	Chemicals ?	43 gal	Canoga	Burn
		50 lbs.	Happy Valley	
		20 gal	B lab	
		100 lbs.	Maint	
	Totals	68 gal ; 150 lbs		
1968	CTF-Igniter	14	Tunnel	Burn
		1	CTL-3	
	Total	15		
1968	Dynamite	50 lbs	Plant Services	Destruction
1968	Electric Squib	325	Warehouse	Burn
		24	IDA	
	Total	349		
19[illegible]	Epoxy	30 gal	S+ID Warehouse	Burn
1968	Ether	5 gal	Canoga	Burn
		10 gal	B lab	

Year	Material	Quanity	Source	Disposal Method
8	Explosive B/H	5	Warehouse	Detonation
1968	Explosive Wastes	10 lbs	Happy Valley	Detonation
1968	Ferrocene	5 lbs	CHTL	Burn
1968	Flare Mix	1320 lbs	Happy Valley	Destruction
1968	Fluorine	1920 ft^3	PRA	Destruction
1968	Glycerine	1 gal	CTL-1	Burn
1968	Heptane	1760 gal	Happy Valley	Burn
1968	Hexane	10 gal	PDA	Burn
1968	Hydrazines	350 gal	CTL-4	Burn
		150 gal	CHTL	
		615 gal	SPA	
		[illegible] gal	B lab	
		50 gal	Happy Valley	
		150 gal	PRA	
	Total	1410 gal		
1968	Hydroaqueous	3 gal	V.O. lab	Burn
		20 gal	Explosive Forming	
	Total	23 gal		
1968	Hydrogen Gas	5040 ft^3	SPA	Burn/Destruct [illegible]
1968	Igniter Class C	600	Warehouse	Burn
1968	IRFNA	1 gal	PRA	Dilution
1968	Lithium	1 lb.	Canoga	Burn
1968	Magnesium	470 lbs	Canoga	Burn
		2160 lbs	Autonetics	
		5 lbs	Happy Valley	
	Total	8635 lbs		
1968	Mercury Salts	2 gal	B-lab	
1968	Methanol	8 gal	B-lab	Burn
		5 gal	ECL	
		4492 gal	PDA	
		150 gal	CTL-4	
		100 gal	Warehouse	
		600 gal	[illegible]	
		15 gal	[illegible]	
		100 gal	[illegible] lab	
	Total	5470 gal		
1968	Napalm	1 gal	NAKA	Destruction
1968	Napthalene	5 gal	Canoga	Burn
1968	[illegible]	[illegible]		

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
19 3	Nitric Oxide	240 ft³	CTL-4	Destruction
1968	Nitrocellulose	1 lbs	Canoga	Destruction/Burn
1968	NTO	65 gal	B-Lab	Dilution
		40 gal	PDA	
		140 gal	ECL	
		250 gal	CTL-3	
		30 gal	PEL	
		5 gal	Canoga	
		3 gal	Coca	
	Total	533 gal		
1968	Oil, waste	400 gal	Equip Lab	Burn
		3110 gal	Supply Co	
		[illegible] gal	Coca	
		5 gal	PDA	
		10 gal	CTL-4	
		5 gal	CHTL	
		100 gal	Pipe service	
		150 gal	[illegible]	
	Total	32720 gal		
1968	Oxygen/Hydrazine	732 ft³	PRA	Vent
1968	Oxygen/Nitrogen	1680 ft³	SPA	Vent
1968	Paint	7 gal	Warehouse	Burn
		100 gal	Coca	
	Total	107 gal		
1968	Paint Thinner	305 gal	Coca	Burn
1968	Perchlorethylene	30 gal	Warehouse STID	Burn
1968	Pipe insulation	1 gal	Canoga	
1968	Propane	50 ft³	C-Lab	Burn
1968	Propellant Solid	10 lbs	NAKA	Destruction/Burn
1968	Pyrophoric Igniter	15	IDA	Burn
1968	Pyrotechnic Igniter	65	IDA	Burn
		190	Warehouse	
		5	CTL-3	
		35	CHTL	
	Total	295		
1960	Red Fume Nitric Acid	181 gal	B Lab	Dilution
		50 gal	CTL-4	
		239 gal		
1968	[illegible]	[illegible]	[illegible]	[illegible]

Burn Pit Disposal Inventory

Year	Material	Quantity	Supplier	Disposal Method
1968	Paints	150 gal	Happy Valley	Burn
1968	Rifle Shells	100	Happy Valley	Destruction
1968	RP-1	30 gal	Inst. Lab	Burn
		10 gal	Meteorology Lab	
		5 gal	B Lab	
		100 gal	Instrumentation	
	Total	155 gal		
1968	Smoke Mix	305 lbs	Happy Valley	Burn
1968	Soda Ash	1 lb	Canoga	Dilution
1968	Sodium	5 lbs	Canoga	Burn
1968	Sodium fluoride	5 lbs	NAA	Burn
1968	Sodium Nitrate	10 lbs	NAA	Destruction
		5 gal	Canoga	
	Total	10 lbs ; 5 gal		
1968	Solvent	20 gal	B-Lab	Burn
1968	Tetra Isobutylene	1450 gal	SPA	Burn
1968	Trichloroethylene	50 gal	Warehouse	Burn
		10 gal	Canoga	
	Total	60 gal		
1968	TEA	6 gal	IDA	Burn
		1 lbs	B-Lab	
		845 lb	SPA	
	Totals	6 gal ; 845 lb		
1968	TEAB Ignitors	25	IDA	Burn
	TEAB	904 lbs	SPA	
1968	TEB	5 gal	IDA	Burn
1968	Tolulene	5 gal	NAA	Burn
		5 gal	Canoga	
		100 gal	PDA	
	Total	110 gal		
	Grand Totals	47,483 gal		
		5,382 lbs		
		9,997 ft^3		

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
1969	Acetone	105 lbs	V.O. Lab	Burn
1969	Alkaline Powder	150 lbs	Conservation Equip lab	Burn
	Total	300 lbs		
1969	Aluminum	50 lbs	Conservation	Burn
1969	Ammonia	250 gal	photo	Dilution
		150 gal	DeSoto	
	Total	400 gal		
1969	Benzene-HCL	265 gal	ECL	Burn
1969	Calcium Hydride	15 lbs	CHTL	Dilution
1969	Caustic Soda	275 lbs	Conservation	Dilution
1969	Cesium	30 grams	DeSoto	Burn
1969	Chemicals ?	22 lbs	V.O. Lab	Burn
		20 lbs	NAKA	
		1 gal	B lab	
		1 gal	Desoto	
		25 gal	Llano Valley	
		5 gal	Int. lab	
		5 gal	photo	
	Total	42 lbs ; 35 gal		
1969	Chlorine Trifluoride	10 gal	PPA	Burn/Destruction
		1 gal	Hanford	
	Total	11 gal		
1969	Coax Valves	3	Canoga	Detonation
1969	Cylinders	29	?	Shot w/ Rifle
1969	Elec. Ignitors	2000	Warehouse	Burn
1969	Flare Mix	500 lbs	Liquid Valley	Destruction
1969	Florox	1 cylinder	V.O. Lab	Destruction
1969	Fluorine	240 ft³	PPA	Destruction
1969	Heptane	150 gal	CHTL	Burn
1969	Hydrazine	155 gal	[illegible]	Burn
		68 gal	B-Lab	
		910 gal	SPL	
		5 gal	V.O. lab	
	Total	1138 gal		
1969	Hydrocarbons	5 lbs	Canoga	Burn
		60 gal	Conservation	
	Total	5 lbs ; 60 gal		

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
96	Hydrogen Sulfide	10 [illegible]	V.O. Lab	Destruction
969	Lachrymatory	70 gal	NAKA	Burn
1969	Lance Grains	345 lbs	Warehouse	Burn
1969	Lithium	2 lbs	Bldg 3 AI	Burn
		30 lbs	PDA	
	Total	32 lbs		
1969	Lithium Hydride	30 grams	Bldg-57	Burn
1969	Magnesium	375 lbs	Conservation	Burn
1969	Methanol - Benzene			
	Cupric Chloride - AlO_3	880 gal	ECL	Burn
1969	Methanol - HCl	225 gal	ECL	Burn
1969	NAK	91 gal	Bldg 23AI	Destruction/Burn
		5 gal	Bldg 65 AI	
	Total	96 gal		
1969	Napalm	50 gal	Happy Valley	Destruction/Burn
1969	Neutralized Acid	110 gal	Equip Lab.	Dilution
19[illegible]	NTO	27 gal	B-Lab	Dilution
		305 gal	STA	
		40 gal	ECL	
	Total	372 gal		
1969	Oil	14750 gal	Conservation	Burn
1969		55 gal	Equip Lab	
		4900 gal	Surplus Sales	
	Total	19705 gal		
1969	Plating Solu	25[illegible] gal	Conservation	Dilution
1969	Pyrotechnic Igniter	20 lbs	NAKA	Destruction/Burn
1969	Pyrotechnic Igniter	55	Warehouse	Burn
1969	Para Set Charges	300	Canoga	Detonation
1969	Red Fume Nitric Acid	50 gal	CTL-4	Dilution
1969	RJ-1 Fuel	4000 gal	MISA	Burn
1969	RP-1	20 gal	B-Lab	Burn
		10 gal	Bravo	
	Total	30 gal		
1969	Silicate of Soda	55 gal	Conservation	
169	Sodium	74 lbs	AI	Burn
		404 lbs	Depot	
	Total	478 lbs		
1969	Solvent Waste	7 gal	B-Lab	Burn
19[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
1969	Tetraflurane	2 gal	V.O. Lab	Burn
1969	TEA	10 gal	PEL	Burn
		60 gal	SPA	
	TOTAL	70 gal		
1969	TEAB	260 gal	SPA	Burn
1969	TEAB Igniters	23	CTL-3	Burn
1969	TEAB - RD-1	39 gal	CTL-3	Burn
	Grand Totals	44,651 gals.		
		2437 lbs		
		260 ft³		

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
1970	Acetone	10 ft³	V.O. lab	Burn
	Acids	55 gal	DeSoto	Dilution
		20 gal	Bldg. 65	
		150 gal	CTL-4	
		200 gal	SPA	
		8 gal	Bldg. 20	
		83 gal	?	
	Total	483 gal		
1970	Ammonia	150 gal	DeSoto	Dilution
		20 gal	SPA	
		20 gal	PHOTO	
		2 K bottles	?	
	Total	190 gal		
1970	Benzene	5 gal	Bldg 318	Burn
1970	Bromine Pentafluoride	10 ft³	SPA	Destruction
1970	Bromine Trifluride	3 small K bottles	?	Destruction
1970	CAL-3	2 K bottles	?	Destruction
19??	CO	240 ft³	B-Lab	Vent
19?0	Chemicals ?	20 gals	DeSoto	Burn
		20 gal	Science Center	
		25 gal	V.O. lab	
		10 gal	B Lab	
		5 gal	YAKA	
		80 gal	Bldg 20	
	Total	160 gal		
1970	Chlorine Gas	240 ft³	PRA	Destruction
1970	Chloroform	8 gal	Bldg 020	Burn
1970	Dawsons Sodium	60 gal	Bldg 026	Burn
1970	DELTA	110 gal	?	Burn
1970	Ethylene Diamine	55 gal	?	Burn
1970	Fluorine	240 ft³	PRA	Destruction
1970	Freons & Acid	50 gal	CTL-4	Dilution
1970	Hybaline	1 cylinder	?	Burn/Destruction
1970	Hydrazines	965 gal	?	Burn
19??	Hydrocarbons	30 gal	Calibrac	Burn
		40 gal	AI	
	Total	70 gal		
1970	Hydrogen Fluoride	10 ft³	SPA	Destruction
19??				

(3)

Year	Material	Quantity	Source	Disposal Method
[illegible]	Magnesium	15 lbs	[illegible]	Burn
		5 lbs	Bldg 009	
	Total	20 lbs		
1970	Methane	960 ft^3	SPA	Burn
1970	NAK	50 lbs	Bldg [illegible]	Destruction / Burn
		4 lbs	DeCoto	
		2 lbs	Bldg [illegible]	
	Total	56 lbs		
1970	NTO	1100 gal	SPA	Dilution
		4 gal	[illegible]	
		80 gal	[illegible]	
		600 gal	[illegible]	
	Total	1784 gal		
1970	Nitrosyl Chloride	5 K bottles	?	Destruction
1970	Oxygen Difluoride	960 ft^3	SPA	Destruction
1970	Oxygen-Nitrogen	720 ft^3	SPA	Vent
1970	Para Xylene	55 gal	?	Burn
[illegible]	Propellants	1 lb	NAKA	Destruction / Burn
1970	Sodium	200 lbs	Bldg [illegible]	Burn
		400 lbs	Bldg 386	
		26 lbs	DeCoto	
		550 lbs	AI	
		240 lbs	Bldg [illegible]	
		19 lbs	Bldg [illegible]	
		60 lbs	Bldg 009	
	Total	1494 lbs		
1970	Cesium Hydroxide	500 gal	Plant Services	Dilution
1970	TEA	100 gal	SPA	Burn
1970	TEAB + RP-1	3 gal	CTL-3	Burn
1970	TEB	40 gal	SPA	Burn
1970	Trimethyl-Borate-CH_3OH	40 gal	?	Burn
1970	Zero Gas	480 ft^3	SPA	Destruction
	Grand Totals	1628 gal 1581 lbs 3870 ft^3		

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
1971	[illegible]	26 / qal	?	Dilution
71	Aluminum Chloride	10 gal	589-199	Burn
1971	Ammonia	10 gal	596	Dilutions
1971	Blasting Caps	Cabinet	589-198	Detonation
1971	Boron Amorphous	55 gal	589-100	Burn
1971	Bromine	2 cans	589-198	Destruction
1971	CAL-3	1 cylinder	?	Destruction
1971	Chemicals ?	110 gal	598	Burn
1971	Cupric Chloride	2 cartons	589-199	Dilution
1971	Diethylene Triamine	150 gal	?	Burn
1971	Dioxin	3 gal	589-198	Burn
1971	Electrolyte Soln	200 gal	Comp. A	Dilutions
1971	Ethylene Diamine	1 qt.	589-198	Burn
1971	Ethylene Oxide	1 cylinder	?	Destruction
1971	Explosive A+B	Cabinets	589-108	Detonation
1971	Hexane	300 gal	589-198	Burn
1971	Hydrazines	24 bottles	?	Burn
		950 gal		
971	Hydrocarbon	1550 gal	Conservation	Burn
		3850 gal	USA	
	Total	5400 gal		
1971	Hybaline 5 RD-1	1 cylinder	?	Burn
1971	IRFNA	55 gal	SPA	Dilution
1971	Lithium	1 Cabinet	Canada	Burn
1971	Mercury	2 Cans	589-198	?
1971	MiPB	10 gal	Conservation	Burn
1971	MTO Cord. Hardware	12 pieces	589-100	Burn/Bury
1971	Paint	10 gal	D/581	Burn
1971	Phenols	?	589-199	Burn
1971	Phosphorous	1 unit	589-199	Burn
1971	Phosphorous Oxychloride	4 containers	589-198	Burn
1971	Potassium Cyanide	1 pt	589-198	?
1971	Pyridine	6 gal	Conservation	Burn
1971	Pyrotechnic Igniter	44	D/588	Burn
		1 cabinet	Warehouse	
971	Smoke Flares	50	Borden	Burn
1971	Sodium Arsenite	1 qt.	589-198	Burn
1971	Sodium Nitrate	11 bottles	589-199	Destruction
1971	[illegible]	[illegible]	[illegible]	[illegible]

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
71	Titanium tetrachloride	1 pt.	589-198	Burn
1971	Titanium Trichloride	1 qt.	589-198	Burn
1971	TEB+TEAB Igniters	94	589-198-588	Burn
1971	Xylene	10 gal	589-198	Burn
1971	Zirconium Hydride Powder	1 canister	Canoga	Burn
	Grand Totals	7240 gal		

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:

35

(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_2gas 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
$ØBCl_2$	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

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.

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.

10 lb

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

20 lb

(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:

44

(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).

(46)

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

(47)

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

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

50

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 · 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.

52

(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.

53

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
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) 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).

54

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/ms

cc: J. L. Jones
File

Attachments: Appendix A

(55)

Internal Letter

Rockwell International

Date: February 26, 1985

No: RDD-85-027

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: Total of Hazardous Materials Burned

Same as note from 3-13-85

AMOUNT	NAME
3 gal.	75% C_2H_5OH/25% AZDNE
16 liters	diethyl ether/benzene/magnesium borohydride diammoniate (MBDA) residues
1 gal.	N_2H_4
1 gal.	UDMH
6 gal.	ether/benzene/MBDA
100 grams	Miscellaneous samples of AB-1, QMB-3 and MBDA
5 lbs.	AB-1
3 lbs.	Hivelites
1 lb.	TNT
50 grams	Comp C-4
1 lb.	Misc. binders, ie. FEFO/R-18, NG/R-18, TMETN/R-18 and PGDNFE/EA-AA, etc.
8 lbs.	Misc. solid propellants
6 lbs.	Solid propellants plus misc. ampoules from Vanowen
1 gal. & 1 qt.	Hydrazine
50 grams	AZDNE/$MeCl_2$
1 gal.	Hypergol TEA/TEB/RP-1 residue
5 gal.	Benzene/MBDA recovery
13 gallons	TEA/TEB/RP-1
1 lb.	Energetic binders
5 lbs.	F_2 gas generator Pellets (NF_2BF_4/KF/Al
4 cans	ampoules (unknown) from Vanowen
2 ampoules	Pentaborane
2 gal.	Benzene

56

6-26-89 ≈5 lbs NAKA scraps/wipes

5-13-89 cylinders
- 2 oxygen (MT)
- 1 (green) unknown (MT)
- 1 (white unknown (MT)
- 3 small cylinders (MT)
- 1 unknown
- 2 small unknown cylinders (MT)
- 2 very small unknown cylinders (MT)
- 2 lab cylinders unknown
- 1 small unknown (MT)
- 1 silver lab cylinder

4-29-89 cylinders
- 2 blue/green cylinders (F_2)

4-22-89 cylinders
- 5 unknown
- 1 K-bottle unknown empty
- 1 K-bottle: unknown (liq-gas)
- 2 Compound A (1 empty)
- 2 F1 empty
- 2 unknown

~~total~~

4-24-89 5% TEA/TEB in (3) 1 gallon cans

4-20-89 5% TEA/TEB in 20 gallons RP-1

4-19-89 ≈ 4-5 lbs NAKA pyrophoric waste/wipes
Drum TEA/TEB with RP-1 ≈ 30 gallons — TEA/TEB 53

4-15-89 cylinders
- 5 unknown
- 1 F1 (empty)
- 2 unknown (empty
- 1 Compound A

57

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

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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

		10			
		245			
5/17/90					
6/15/90					
9/25/90					
1990 Total					

PREPARED BY:	**Rocketdyne Division** Rockwell International	PAGE NO.
CHECKED BY:		REPORT NO.
DATE:		

1995

	Explosives	TEA/TEB	Cyls	Unk	Flam
25 Jan	80 lb	1 gal	0	0	
26 Jan	149 lb	1 gal	0	0	
30 Jan	1 lb	1 gal	0	20 lb	30 g
5 Feb	2 lb	6 gal	0	6	9 ga
6 Feb	0	4 gal	0	0	10 ga
8 Feb	0	0	0	0	30 ga
15 Feb	0	0	0	0	20 ga
28 Feb	42.5 lb.	0	0	0	
1 Mar	115 lb	0	0	0	1 ga
9	389.5	13	0	26	99 gal

61

M. Francis

Internal Letter

Rockwell International

Date . 8 March 1985

No .

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

FROM . 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

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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

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^3 in THF	3 bottles of 100 gm.
CaH_2	25 lbs.
LiH	25 lbs.
HNF	4 lbs.

R D Day

R. D. Day
Lieutenant
Protective Services

(64)

RDD/vs

cc: File

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

(65)

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

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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.

RDDay

R. D. Day
Lieutenant
Protective Services

RDD:mjh

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

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STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY GEORGE DEUKMEJIAN, *Governor*

DEPARTMENT OF HEALTH SERVICES
SOUTH BROADWAY, ROOM 7011
LOS ANGELES, CA 90012
(213) 620-2380

April 11, 1986

Mr. R.W. Buckles, Manager
Facilities Engineering
Rockwell International
Rocketdyne Division
6633 Canoga Avenue
Canoga Park, CA 91304

Dear Mr. Buckles:

Reference is made to your letter dated January 29, 1986 requesting a variance from the labeling requirements of Section 66508 of Title 22, California Administrative Code (CAC). A review of your application and through subsequent telephone conversation between Susan Romero of my staff and Steve Lafflam of your staff , the following information were gathered:

1) Variance would apply only to the small five (5) gal. foot-operated pails in the work station areas.

2) Appropriate labeling requirements will still be maintained on these 5-gal. foot-operated pails except only for the date upon which each period of accumulation begins.

3) Rocketdyne will maintain a fifty five (55) gal. drum container situated in accumulation areas where these small containers will be dumped daily. These drums will be appropriately labeled in accordance with Section 66508 of Title 22, CAC.

Based on the above findings and pursuant to Section 25143, Health and Safety Code and Section 66310 of Title 22, CAC, your requested variance is hereby granted.

Although we have granted the requested variance, your company will still be a producer of hazardous wastes, and as such, has the responsibility of handling those wastes in accordance with applicable State and Federal requirements.

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Should you have any further questions concerning this matter, please call Susan Romero of my staff.

Sincerely,

John A. Hinton, P.E., Chief
Facility Permitting Unit
Southern California Section
Toxic Substances Control Division

JAH:SBR:mf

cc: Los Angeles County
Hazardous Waste Control Program
2615 S. Grand, 6th Floor
Los Angeles, CA 90007

General Material	Amount	Dispose [illegible]
Fuels Salient Materials NTO JP-4 Penta Borane Contaminated Misc Fuels RP-1 Hydrazines, TEA, TEAB, (RJ-1)	448,220 gal / 2531 lbs	Burning
Igniters Salient Materials Electric Squib Igniter	6724	Detonation
Process Chemicals Salient Materials Acids Caustics	21,299 gal	Dilution and concentration in the ground
Ignitable Metals Salient Materials Magnesium Sodium	13,810 lbs	Burning
Solvents Salient Materials [illegible] Iso [illegible] Alcohols Heptane	31,717 gal	Burning
Explosives Salient Materials Smoke Mix Nitrocellulose [illegible] [illegible]	5121 lbs	Detonation [illegible] / [illegible]
Toxic Gases Salient Material Oxygen Difluoride Gas Fluorine Gas Chlorine Gas Zero Gas	32,732 ft^3	Burning (Shot with 30-06 Rifle)
Heavy Metal Toxics Salient Material Leaded Paint ([illegible]) Potassium Cyanide Sodium Peroxide	191 gal	Unknown - Possible Burning

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

/5' 'B01
F

,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

(71)

Rocketdyne Division
Rockwell International Corporation
6633 Canoga Avenue
Canoga Park, California 91303

Telex: 698478
ROCKETDYN CNPK

Rockwell International

CERTIFIED - RETURN RECEIPT REQUESTED

In reply refer to 90RC13496

15 November 1990

State of California
Department of Health Services
Toxic Substances Control Division
1405 N. San Fernando Blvd.
Burbank, CA 91504

Attention: Ms Florence Pearson

Subject: Submittal of Amended Hazardous Waste Facility Part A Permit - EPA I.D. No. CAD093365435 and CA1800090010

Dear Ms. Pearson:

Rockwell International Corporation, Rocketdyne Division (Rocketdyne) respectfully submits two attached copies each of amended Hazardous Waste Facility Part A applications for the ground water remediation units and the thermal treatment facility located at the Santa Susana Field Laboratory in Simi Hills, California. In addition, Rocketdyne is announcing closure of the Area I Thermal Treatment Facility by submitting the existing closure plan for approval by the Department of Health Services (the Department).

The Part A applications for the ground water remediation units in Areas I & III (CAD093365435) and Area II (CA1800090010), submitted by Rockwell letter No. 90RC00071 dated 5 January 1990, are being amended and updated to incorporate an additional ground water treatment unit (well WS-5). Additionally, in reviewing the operation of the ground water remediation units, Rocketdyne is deleting several ground water holding tanks located throughout the area. The subject tanks, previously included on the Part A application, have been omitted on the basis that they are 90-day generator holding tanks only and are not associated with the treatment process unit(s).

The Area I Thermal Treatment Facility is included in the amended Part A application for completeness but has no changes. Rocketdyne is anticipating closure of the facility by June 1991 and is submitting a copy of the previously submitted closure plan for the Department's review. Rocketdyne is additionally requesting to recind the Part B permit application for the

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Thermal Treatment Facility (submitted by Rockwell letter No. 90RC06484 dated 25 May 1990) and to terminate the permit review process. Please note that, per telephone conversation with Ms. Florence Pearson on 15 November 1990, the permit activity fee is not required if further permitting review is terminated.

Please remove the existing entire Part A Permit section from the Part B Application for the EPA ID numbers noted above, as submitted (Rockwell letter No. 90RC06484 dated 25 May 1990).

Insert into the Part A Permit section the amended Part A Applications attached herewith.

In the Groundwater Remediation Operations Plan for EPA ID No. CAD093365435, remove Figures II-1, and II-4K. Replace with Figure II-1, Rev. 1 (dated 10/10/90), and Figure II-4K, Rev.1 (dated 10/10/90) which are attached herewith. Insert new Figures VI-29 through 36, attached herewith, which describe the groundwater remediation unit for well WS-5, SSFL.

If there are any questions, please contact Mr. Alan Nelson, of my staff, at (818) 773-5329. Thank-you for your assistance.

Very truly yours,

ROCKWELL INTERNATIONAL CORPORATION
Rocketdyne Division

SRLaff

S. R. Lafflam, Director
Environmental Control & Energy Conservation

Enclosures as noted

cc: EPA Region IX, Ms. Karen Schwinn

(73)

TITLE: EXPLOSIVE SAFETY REGULATIONS
DESTROYING WASTE EXPLOSIVES

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._____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

TITLE: EXPLOSIVE SAFETY REGULATIONS
DESTROYING WASTE EXPLOSIVES

Attachment A continued

CHECKLIST continued

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

_____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.

BURN FACILITY LOG

DATE: 4/20/89

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	10AM	Partially Cloudy Wind - NE 3 mph	5% TEAB (about 2 gallons) Rest RP-1 (about 50 gallons)	Gasoline used to light it Slow Burn - Black Smoke
				ATTENDEES:
				Jim Sherman Environmental Tech
				Lt Redman - Security
				Leslie Dinius - Environmental Engineer
				Scott Fromen - Fireman
				Steve Greenhill - Fireman

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BURN FACILITY LOG

DATE: 4/21/89

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	9 45 am	Partially Cloudy Wind South West 5 miles	5% TEAB IN (3) 1 GALLON CANS	Fireman in Flash Suits when opening cans Black smoke Instantaneous Combustion
				Attendees:
				Leslie Dinius Environmental Engineer
				~~Pat~~ Pollack Environmental Technician
				LT. Redman Protective Services
				Jim Swenson Emergency Medical Tech/Fireman
				Steve Greenhill - Fireman

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BURN FACILITY LOG

DATE: 4-22-89

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	8:22	clear wind from east 5mi	1 K bottle unk qty unk contents	none clear gas } probably compressed air
2	8:23	"	1 K bottle unk qty unk contents	" almost empty }
3	8:32	"	"	no rxn colorless vapor-pressure
4	8:33	"	"	no rxn colorless vapor-pressure
5	8:40	"	" "Army"	empty
6	8:41	"	" "Army"	no rxn very little colorless vapor-pressure ammonia
7	8:52	"	large K-bottle unknown [illegible]	white smoke-dense low to the ground -cold ice on exterior [illegible]
8	9:30	"	~~[illegible]~~ K-bottle compound A	yellow white smoke
9	9:31	"	K-bottle compound A	empty
10	10:22	"	K-bottle rt stand unk Fl.	empty
11	10:24	"	K-bottle unk	sparks-rxn hot almost empty
12	11:25	"	"	empty
13	11:26	"	"	pressure & white gas upon exit clear gas
~~14~~				
				Attendees:
				B Kephart-env engr
				Steve Greenhill-fireman
				Gary Redman-prot svcs.

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0720H-4/17/89

4/22

Steve Greenbaum - LETF
K-bottles not marked
dispose of

#7 — used SCBA's to move cylinder
extremely strong ammonia smell
possible component — anhydrous ammonia
extremely cold - weeds froze.

BURN FACILITY LOG

DATE: 4-29-89

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	8:40	5 wind from east	blue gun cylinder unknown	white gas - slow
2	8:40	"	"	"
				still off-gassing at
				12:30!
				probably F_2
				Attendees:
				Beakephart
				Lt Day
				S. Greenhill

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BURN FACILITY LOG

DATE: 5/13/89 GM

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	830	Cloudy	(2) green (GM)	NONE MT
		NE WIND 2 KNOTS	1 green K bottle	NONE
			1 white K bottle	NONE
2	930	SAME	(3) SMALL GM CYLINDERS	NONE
			1 K BOTTLE	GAS VENTED) WHITE
3	10:00	SAME	2 GM CYLINDERS SMALL	NONE ALL @ 4
			2 CYLINDER SMALLER	
			(2) GM LAB CYLINDERS	1 white gas, 1 small react.
4	10:15		1 SMALL GREEN (	NONE
			1 LAB SILVER	Green cloud
				Steve Redmond
				Gary Redmon
				Gene Matsushita

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BURN FACILITY LOG

DATE: 6-26-89 B.K. Kephart

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	1:10 pm.	clear wind from SW	propellant scraps - wipes	burned - black smoke small amount - no noise

(82)

BURN FACILITY LOG

DATE: 31 Jan 90

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	915	clear	nitrocellulose	electronic match
		wind to SW	RDX	
			AP	
			nitrate esters	clean burn
			paper	
			plastic containers	
2	10^{30}	"	gunpowder	"
			NC RDX etc	clean burn
3			liquid waste	
			nitrate esters	
				Personnel
				Bert May - UNKA
				G. Redmon
				B. Kephart
				P. Pollack
				S. Promen

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BURN FACILITY LOG

DATE: 8 Feb 90

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	915	clear wind to SW	1 gallon container	instantaneous
			RP-1 / TEATEB	burn on contact with air
2	~~915~~ 945	"	"	"
3	~~#~~			
			Personnel:	
			B. Kephart	
			G. Redmon	
			S. Promen	

(84)

BURN FACILITY LOG

DATE: 12 Feb 90

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	930	cloudy wind 5 mph SW	1.2 lbs TEB in canister	slow burn green flame like a candle
2	1000	"	"	turned upside down
3	1050	"	"	"
4	1100	"	large canister TEB TEB	did not burn
5	1130	"	4.0 lbs TEB in canister	slow burn grn flame
				Personnel:
				B. Kephart
				P. Pollack
				G. Redmon
				S. Premen
				R. Banoga

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BURN FACILITY LOG

DATE: 13 Feb 90

BURN No.	TIME	ENVIRONMENTAL CONDITIONS	DESCRIPTION OF MATERIAL BURNED	DESCRIPTION OF REACTION
1	0845	—	—	pressurized large bottle w/ 40 psig N_2
	0925		large bottle TEB	" again - burned thru skin
~~2~~	0930	wind mild/slow	large bottle TEB started burn	shut down bottle too
2	0940		1.2 lbs TEB canister	green low flame
~~3~~	0955	Restart large	canister	shut down @ 1005
3	1015		1 empty TEB canister	
4	1030		3.0 lbs TEB canister	
~~5~~	1110	—	large canister	burn complete thru ¼" line
5	1125		TEB canister - marked empty	
6	1130		TEB - empty	
7	1135		TEB - empty	
8	1145		TEB - 3.7 lbs	

Personnel:
Bea Kephart
Pat Pollock
G. Redmon
S. Promen
J. Lange

(86)

DOWNHOLE STEAM GENERATOR

TEB CANISTER LOG

ITEM #	DATE	CANISTER SERIAL #	CANISTER WEIGHT (LB.) PRIOR TO LOAD (TARE)	CANISTER WEIGHT (LB.) POST LOAD	DESIRED PERCENT (%) OF FULL LOAD	ACTUAL TEB TRANSFERRED LB.	DENSITY/ VOLUME
1	6-16-82	491	101.45	102.48	25	1.03	
2	9-20-82	480 **	99.3	102.6	75	3.3	
3	7-12-82	489	101.65	102.95	33	1.3	
4	7-12-82	490	101.70	102.90	33	1.2	
5	9-18-82	481 **	101.6	104.5	75	2.9	
6	9-18-82	482 **	101.85	104.8	75	2.9	
7		483 **			66		
8	9-20-82	484 **	101.7	104.75	75	3.0	
9	9-20-82	485 *	101.9	104.9	75	3.0	
	9-18-82	486 *	101.9	103.6			
		487 **					
		488 **					

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* Denotes Number of Refurbs. for Canister

Internal Letter

Rockwell International

DATE: 19 September 1989

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

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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

SHIPPED 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	Unit Price	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)		
	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 HARDWARE		
		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 at SPA 3-20-85

NAME	DEPT. & ZONE 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 descriptions must be verified. Discrepancies, if any, must be reported within 48 hours to Rockwell International Corporation.

ACCEPTED BY [signature] 19

(19) DOHZA 3-20-85

REV. 4-82

(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 69.5lb 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 J.F. Lang 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

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~~ 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
THETN, 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

(94)

10:30

WASTE DISPOSAL 4/5/90

OPEN BURNING BKMM

SLURRY WASTE SOURCE BLDG 372

KClO4, Al, ZrH_2 } 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.~~ 2 GAL

DATE 4/26/90

SOURCE BLDG 340, 359

ENGINEER BK MOY

INGREDIENTS

ACETONE, ETOH, ETAC

NC, CAB, DAMP, 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

PEG/NG 50%

RDX/AL_2O_3/Cr_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	approx 1 cup ~~of~~ TEAB burned 30 minutes
			≈ 30 gal. of RP-1	

105

TITLE: EXPLOSIVE SAFETY REGULATIONS
DESTROYING WASTE EXPLOSIVES

Attachment A

CHECKLIST
(Initials & date) 6/15/90

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

BJK 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.

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

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

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

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

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

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

BJK 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: _____

BJK 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 SAMONST

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

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, C-0202, 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, [illegible]

NC, CMP, DATH, DADNH

PAPER TOWELS, PLASTIC

TUBES AND BEAKERS

ATLASOL YELLOW DYE

MIXES

50-1, 51-1

54-1, 54-2, 55-1

TITLE: EXPLOSIVE SAFETY REGULATIONS
DESTROYING WASTE EXPLOSIVES

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

Attachment B

AREA INSPECTION CHECKLIST
(Initials & date) 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 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)

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

OS 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.

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

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

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

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

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

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

OS i. Protective Services Fireman remotely ignite the waste.

OS 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: _____

_____

_____

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

(14)

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 2 of 2

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.

115

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

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, NF

R-18, IDP, HDI, CAB, DOA, PBG, 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, 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** BKMOY

INGREDIENTS	**MIXES**
CMP N-100, DAMP3, CMP NC, NG	111-1, 112-1, 113-1, 114-1
PCO3, SYP, CAB, ATZC, GAPA B-4	127-1, 128-1, 129-1, 2
DDI, DUA, P3F, 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, DANPE

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-205

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

120

FLAMMMABLE WASTE DISPOSAL

SOLID ✓ | DATE 9/26/90

SLURRY ____ | SOURCE BLDG 340

QUANTITY, LBS. 1.75 | ENGINEER BK MOY

INGREDIENTS

R-45, DOZ, AP, CuO2O2, AL, Si, CMP

GAP, N-100, GAPA, KClO4, ATLASOL YELLOW DYE

$KClO_3$, $NaHCO_3$, S

PAPER, PLASTIC CONTAINERS

MIXES

58-1, 61-1, 62-1, 74-1

75-1, 76-1, 69-1

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, ZnO_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. 475

DATE 9/26/96

SOURCE BLDG 340

ENGINEER BKMV7

INGREDIENTS	MIXES
PS 555, GAP, N-100, AP, GAP, NH_4CO_3	79-1, 77-1, 78-1, 82-1
S, ECCO4, YELLOW DYE, RDX, CMP	83-1, 84-1, 81-1
Si, R-45, DDI, CLOW2, 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

127

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

(129)

Rec'd 3/1/90 R. Kephart

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

132

BC 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: _____ SIGNED: _____
Manager
Rocketdyne SSFL Analytical Chemistry
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 10:16:00
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

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: _____
Manager
Rocketdyne SSFL Analytical Chemistry

SIGNED: _____
Chemist
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
Hexanitrostilbene 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

Rockwell International

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

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

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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.

RDDay

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

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
$ØBCl_2$	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

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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/ms

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 ● Rockw● 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
R. D. Day
Lieutenant
Protective Services

(169)

RDD/vs

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 [illegible] Rev. [illegible]

ENGINEERING WORK REQUEST

TITLE OF JOB	DATE	No. R 362533
Disposal of Waste Nitro Compounds	[illegible]-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: HOURS REQUIRED	ESTIMATE: MATERIALS REQUIRED
M. Frankel	4803	ECL	1	M. Frankel			$

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 Gear

Acid Resistant Rubber Gloves
Coveralls
Face Shield

Drums For Disposal

[illegible] gallons 4 - 30 gal Fluorodinitroethanol (FDNE) 400 # solution
30 gallons 1 - 30 gal bis(Fluorodinitroethoxy)-2-propanol (SECOH) 200 # "
5 gallons 1 - 5 gal bis (Fluorodinitroethoxy) 2,2-bis (difluoroamino) propane (SYEP) 35# soln.
5 gallons 1 - 5 gal bis (2,2-Difluoroamino - 5,5,5- fluorodinitropentyl) formal (SYFO) 50 # soln
25 gallons 5 - 5 gal Glycidyl Fluorodinitroethoxide (GDNFE) 160# soln.
4 - 5 gal Nitroglycerine 180 # soln.

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

[illegible]

+ 10 cylinders of strong oxidizers such as CTF, NF3, F2

(171)

FORM R 94-1 REV. 4-82

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

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

M. D. Robertson

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

Approved:

N. S. Fujikawa

N. S. Fujikawa, Manager
SSFL Analytical Chemistry
Materials and Producibility

174 DJB/mjl

BEA # 805-275-7010

6/22/90

For BURN DAY
CONTACT GARRY BROMON 55D A/C

THINGS TO DO

1) RE-SAMPLE SOIL AROUND PAD (CAGE 1) (CIL 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

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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. KOMANOT Ext. 178- M/S

From: A.L. SANDLA Ext. 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: _____ Manager
Rocketdyne SSFL Analytical Chemistry

SIGNED: _____ 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 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

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
Rocketdyne SSFL Analytical Chemistry
Chemist
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]