

Multi-Media Sampling Report for the Brandeis-Bardin Institute and the Santa Monica Mountains Conservancy

Santa Monica Mountains Conservancy Analytical Data



March 10, 1993

Prepared by:

McLaren/Hart

ENVIRONMENTAL ENGINEERING CORPORATION

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VOLATILE ORGANIC COMPOUNDS

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5761-11

Page 1 of 2

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM01004SE
Sample Number: 88573

Matrix: Soil

Date Sampled: 3/23/92
Date Analyzed: 3/25/92

Date Received: 3/24/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....	9	5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5761- 11

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COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	99	70 - 121
Toluene-D8	121	81 - 117
4-Bromofluorobenzene	76	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
- {b} Additional compounds.
- {c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.
- {d} Sample was analyzed on 03/25/92 and exhibited low internal standard recoveries. The sample was reanalyzed on 03/26/92 and again exhibited low internal standard recoveries, indicating the presence of a matrix effect.
- {e} Sample surrogate compound Toluene-D8 was beyond quality control limits. The presence of a matrix interferent is suspected in the sample.

Approved By: Nancy McDonald Loren Date: 4/04/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5761-14

Page 1 of 2

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM01007SE
Sample Number: 88579

Matrix: Soil

Date Sampled: 3/23/92
Date Analyzed: 3/25/92

Date Received: 3/24/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....	7	5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5761- 14

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COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	102	70 - 121
Toluene-D8	101	81 - 117
4-Bromofluorobenzene	89	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald for cm Date: 4/04/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5761-2

Page 1 of 2

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM01008SE
Sample Number: 88555

Matrix: Soil

Date Sampled: 3/23/92
Date Analyzed: 3/25/92

Date Received: 3/24/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5761- 2

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COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	98	70 - 121
Toluene-D8	103	81 - 117
4-Bromofluorobenzene	88	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald for CM Date: 4/04/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5761-8

Page 1 of 2

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM01020SE
Sample Number: 88567

Matrix: Soil

Date Sampled: 3/23/92
Date Analyzed: 3/25/92

Date Received: 3/24/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5761- 8

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COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	99	70 - 121
Toluene-D8	91	81 - 117
4-Bromofluorobenzene	91	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald for CM Date: 4/04/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5761-5

Page 1 of 2

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM01021SE
Sample Number: 88561

Matrix: Soil

Date Sampled: 3/23/92
Date Analyzed: 3/25/92

Date Received: 3/24/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5761- 5

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COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	94	70 - 121
Toluene-D8	109	81 - 117
4-Bromofluorobenzene	86	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald for CM Date: 4/04/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



SEMI-VOLATILE ORGANIC COMPOUNDS

SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}

Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-10

Page 1 of 3

Project Name: Rocketdyne

Project Number: 03.0029403.012

Sample Description: SM01004SD

Sample Number: 88572

Matrix: Soil

Date Sampled: 3/23/92

Date Received: 3/24/92

Date Extracted: 3/24/92

Date Analyzed: 4/01/92

Batch Number: 920324-2001

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}

Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-10

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		330
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		1600
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		330
Pentachlorophenol.....		1600
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		330
3,3'-Dichlorobenzidine.....		660
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330

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SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-10

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SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	91	25 - 121
Phenol-d5.....	96	24 - 113
Nitrobenzene-d5.....	81	23 - 120
2-Fluorobiphenyl.....	84	30 - 115
2,4,6-Tribromophenol.....	102	19 - 122
Terphenyl-d14.....	96	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM Date: 4/07/92
Cheryl Matterson, Associate Chemist

The cover letter and attachments are integral parts of this report.



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-13

Page 1 of 3

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM01007SD
Sample Number: 88578

Matrix: Soil

Date Sampled: 3/23/92
Date Extracted: 3/24/92

Date Received: 3/24/92
Date Analyzed: 4/01/92

Batch Number: 920324-2001

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-13

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COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		1600
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		330
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		1600
Pentachlorophenol.....		330
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		660
3,3'-Dichlorobenzidine.....		330
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}

Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-13

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SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	43	25 - 121
Phenol-d5.....	45	24 - 113
Nitrobenzene-d5.....	41	23 - 120
2-Fluorobiphenyl.....	47	30 - 115
2,4,6-Tribromophenol.....	46	19 - 122
Terphenyl-d14.....	49	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM
Cheryl Matterson, Associate Chemist

Date: 4/07/92

The cover letter and attachments are integral parts of this report.



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-1

Page 1 of 3

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM01008SD
Sample Number: 88554

Matrix: Soil

Date Sampled: 3/23/92
Date Extracted: 3/24/92

Date Received: 3/24/92
Date Analyzed: 3/30/92

Batch Number: 920324-2001

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-1

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		1600
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		330
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		1600
Pentachlorophenol.....		330
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		330
3,3'-Dichlorobenzidine.....		660
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-1

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	85	25 - 121
Phenol-d5.....	88	24 - 113
Nitrobenzene-d5.....	77	23 - 120
2-Fluorobiphenyl.....	90	30 - 115
2,4,6-Tribromophenol.....	102	19 - 122
Terphenyl-d14.....	103	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM
Cheryl Matterson, Associate Chemist

Date: 4/07/92

The cover letter and attachments are integral parts of this report.



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-7

Page 1 of 3

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM01020SD
Sample Number: 88566

Matrix: Soil

Date Sampled: 3/23/92
Date Extracted: 3/24/92

Date Received: 3/24/92
Date Analyzed: 4/01/92

Batch Number: 920324-2001

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



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SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-7

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		330
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		1600
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		330
Pentachlorophenol.....		1600
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		330
3,3'-Dichlorobenzidine.....		660
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-7

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	84	25 - 121
Phenol-d5.....	87	24 - 113
Nitrobenzene-d5.....	76	23 - 120
2-Fluorobiphenyl.....	80	30 - 115
2,4,6-Tribromophenol.....	99	19 - 122
Terphenyl-d14.....	94	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald Loren
Cheryl Matterson, Associate Chemist

Date: 4/07/92

The cover letter and attachments are integral parts of this report.



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-4

Page 1 of 3

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM01021SD
Sample Number: 88560

Matrix: Soil

Date Sampled: 3/23/92
Date Extracted: 3/24/92

Date Received: 3/24/92
Date Analyzed: 4/01/92

Batch Number: 920324-2001

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Page 2 of 3

Lab Project-Sample ID: 5761-4

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		1600
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		330
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		1600
Pentachlorophenol.....		330
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		660
3,3'-Dichlorobenzidine.....		330
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



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SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5761-4

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	86	25 - 121
Phenol-d5.....	87	24 - 113
Nitrobenzene-d5.....	74	23 - 120
2-Fluorobiphenyl.....	81	30 - 115
2,4,6-Tribromophenol.....	99	19 - 122
Terphenyl-d14.....	91	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM
Cheryl Matterson, Associate Chemist

Date: 4/07/92

The cover letter and attachments are integral parts of this report.



METALS

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5761-12

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM01004SF
Sample Number: 88574

Matrix: Soil

Date Sampled: 3/23/92
Date Digested: 3/25/92 {b}

Date Received: 3/24/92
Batch Number: 920325-1102 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/26/92
Arsenic (As)/7060.....	6.4	4	2.0	3/27/92
Beryllium (Be)/6010.....	.92	1	.25	3/26/92
Cadmium (Cd)/6010.....		1	.50	3/26/92
Chromium (Cr)/6010.....	20.	1	1.0	3/26/92
Copper (Cu)/6010.....	21.	1	1.0	3/26/92
Lead (Pb)/6010.....	16.	1	2.5	3/26/92
Mercury (Hg)/7471.....		1	.25	3/26/92
Nickel (Ni)/6010.....	15.	1	1.0	3/26/92
Selenium (Se)/7740.....		1	.25	4/03/92
Silver (Ag)/6010.....		1	1.0	3/26/92
Thallium (Tl)/7841.....		1	.50	3/27/92
Zinc (Zn)/6010.....	62.	1	1.0	3/26/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/25/92, Batch # 920325-1101; and Hg was digested on 3/25/92, Batch # 920325-1103 .
- {c} No entry in the "Concentration" means the metal is not detected at all.
- {d} The sample for Arsenic was diluted 4 fold to bring target analyte within linear working range.

Approved by: Nancy McDonald for CM Date: 4/07/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5761-15

Project Name: Rocketdyne

Project Number: 03.0029403.012

Sample Description: SM01007SF

Sample Number: 88580

Matrix: Soil

Date Sampled: 3/23/92

Date Received: 3/24/92

Date Digested: 3/25/92 {b}

Batch Number: 920325-1102 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/26/92
Arsenic (As)/7060.....	5.2	1	.50	3/27/92
Beryllium (Be)/6010.....	1.0	1	.25	3/26/92
Cadmium (Cd)/6010.....		1	.50	3/26/92
Chromium (Cr)/6010.....	21.	1	1.0	3/26/92
Copper (Cu)/6010.....	23.	1	1.0	3/26/92
Lead (Pb)/6010.....	19.	1	2.5	3/26/92
Mercury (Hg)/7471.....		1	.25	3/26/92
Nickel (Ni)/6010.....	16.	1	1.0	3/26/92
Selenium (Se)/7740.....		1	.25	4/03/92
Silver (Ag)/6010.....		1	1.0	3/26/92
Thallium (Tl)/7841.....		1	.50	3/27/92
Zinc (Zn)/6010.....	64.	1	1.0	3/26/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/25/92, Batch # 920325-1101; and Hg was digested on 3/25/92, Batch # 920325-1103 .
- {c} No entry in the "Concentration" means the metal is not detected at all.

Approved by: Nancy McDonald for CM Date: 4/07/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5761-3

Project Name: Rocketdyne
Project Number: 03.0029403.012Sample Description: SM01008SF
Sample Number: 88556

Matrix: Soil

Date Sampled: 3/23/92
Date Digested: 3/25/92 {b}Date Received: 3/24/92
Batch Number: 920325-1102 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/26/92
Arsenic (As)/7060.....	6.2	4	2.0	3/27/92
Beryllium (Be)/6010.....	1.2	1	.25	3/26/92
Cadmium (Cd)/6010.....		1	.50	3/26/92
Chromium (Cr)/6010.....	24.	1	1.0	3/26/92
Copper (Cu)/6010.....	24.	1	1.0	3/26/92
Lead (Pb)/6010.....	26.	1	2.5	3/26/92
Mercury (Hg)/7471.....		1	.25	3/26/92
Nickel (Ni)/6010.....	20.	1	1.0	3/26/92
Selenium (Se)/7740.....		1	.25	4/03/92
Silver (Ag)/6010.....		1	1.0	3/26/92
Thallium (Tl)/7841.....		1	.50	3/31/92
Zinc (Zn)/6010.....	76.	1	1.0	3/26/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/25/92, Batch # 920325-1101; and Hg was digested on 3/25/92, Batch # 920325-1103.
- {c} No entry in the "Concentration" means the metal is not detected at all.
- {d} The sample for Arsenic was diluted 4 fold to bring target analyte within linear working range.

Approved by: Nancy McDonald for CM Date: 4/07/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5761-9

Project Name: Rocketdyne
Project Number: 03.0029403.012Sample Description: SM01020SF
Sample Number: 88568

Matrix: Soil

Date Sampled: 3/23/92
Date Digested: 3/25/92 {b}Date Received: 3/24/92
Batch Number: 920325-1102 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/26/92
Arsenic (As)/7060.....	8.2	4	2.0	3/27/92
Beryllium (Be)/6010.....	1.2	1	.25	3/26/92
Cadmium (Cd)/6010.....		1	.50	3/26/92
Chromium (Cr)/6010.....	24.	1	1.0	3/26/92
Copper (Cu)/6010.....	34.	1	1.0	3/26/92
Lead (Pb)/6010.....	17.	1	2.5	3/26/92
Mercury (Hg)/7471.....		1	.25	3/26/92
Nickel (Ni)/6010.....	18.	1	1.0	3/26/92
Selenium (Se)/7740.....		1	.25	4/03/92
Silver (Ag)/6010.....		1	1.0	3/26/92
Thallium (Tl)/7841.....		1	.50	3/27/92
Zinc (Zn)/6010.....	70.	1	1.0	3/26/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/25/92, Batch # 920325-1101; and Hg was digested on 3/25/92, Batch # 920325-1103.
- {c} No entry in the "Concentration" means the metal is not detected at all.
- {d} The sample for Arsenic was diluted 4 fold to bring target analyte within linear working range.

Approved by: Nancy McDonald for CM Date: 4/07/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5761-6

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM01021SF
Sample Number: 88562

Matrix: Soil

Date Sampled: 3/23/92
Date Digested: 3/25/92 {b}

Date Received: 3/24/92
Batch Number: 920325-1102 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/26/92
Arsenic (As)/7060.....	5.4	4	2.0	3/27/92
Beryllium (Be)/6010.....	.57	1	.25	3/26/92
Cadmium (Cd)/6010.....		1	.50	3/26/92
Chromium (Cr)/6010.....	12.	1	1.0	3/26/92
Copper (Cu)/6010.....	12.	1	1.0	3/26/92
Lead (Pb)/6010.....	11.	1	2.5	3/26/92
Mercury (Hg)/7471.....		1	.25	3/26/92
Nickel (Ni)/6010.....	8.3	1	1.0	3/26/92
Selenium (Se)/7740.....		1	.25	4/03/92
Silver (Ag)/6010.....		1	1.0	3/26/92
Thallium (Tl)/7841.....		1	.50	3/27/92
Zinc (Zn)/6010.....	34.	1	1.0	3/26/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/25/92, Batch # 920325-1101; and Hg was digested on 3/25/92, Batch # 920325-1103.
- {c} No entry in the "Concentration" means the metal is not detected at all.
- {d} The sample for Arsenic was diluted 4 fold to bring target analyte within linear working range.

Approved by: Nancy McDonald for CM Date: 4/07/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



RADIONUCLIDES

Table: Results of the analyses for iodine-129 and strontium-90 in fourteen (14) soil samples.

Sample ID Number	Sample Description	Collection Date	Lab Code	Conc. pci/gwet		Conc. pci/gdry	
				I-129	Date Analyzed	Sr-90	Date Analyzed
89601	BG06096SA	03/12/92	SPS-1991	<0.3	06/19	0.02±0.01	06/12
89607	BG06089SA	03/12/92	1992	<0.3	06/19	0.03±0.01	06/12
89613	BG06033SA	03/12/92	1993	<0.4	06/19	0.03±0.01	06/12
89620	BG00002SA	03/12/92	1994	<0.3	06/20	0.04±0.01	06/13
89622	M2SA	03/12/92	1995	<0.3	06/20	0.01±0.01	06/13
89628	BG03001SA	03/12/92	1996	<0.3	06/20	<0.01	06/13
89634	BG03019SA	03/12/92	1997	<0.3	06/20	0.02±0.01	06/13
89640	BG03059SA	03/12/92	1998	<0.3	06/20	0.01±0.01	06/13
88551	SM01008SA	03/23/92	2000	<0.3	06/20	0.04±0.01	06/13
88557	SM01021SA	03/23/92	2001	<0.3	06/22	0.02±0.01	06/13
88563	SM01020SA	03/23/92	2002	<0.3	06/22	0.01±0.01	06/13
88569	SM01004SA	03/23/92	2003	<0.3	06/22	0.02±0.01	07/11
88575	SM01007SA	03/23/92	2004	<0.3	06/22	0.02±0.01	07/11
90257	BB01040SA	03/18/92	2034	<0.3	06/22	0.02±0.01	07/11

The error given is the probable counting error at 95% confidence level. Less than (<) values are based on 3 sigma counting error for background sample.

APPROVED BY

L.G. Huebner
L.G. Huebner
General Manager

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 06/26/92

PAGE 1

WORK ORDER NUMBER

3-0706

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

03/30/92

DELIVERY DATE

05/02/92

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA 92714

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	STOP DATE	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M	MID-COUNT TIME DATE	VOLUME - UNITS ASH-WGHT-%	LAR.
71347	88552	SM010085B	03/23	1115	PU-238	L.T. 6. E-02		05/16		6
					PU-239	L.T. 4. E-02		05/16		6
71348	88553	SM010085C	03/23	1115	BE-7	L.T. 5. E-01		05/16		4
					K-40	2.59+-0.26E 01		05/16		4
					MN-54	L.T. 3. E-02		05/16		4
					CO-58	L.T. 4. E-02		05/16		4
					FE-59	L.T. 1. E-01		05/16		4
					CO-60	L.T. 3. E-02		05/16		4
					ZN-65	L.T. 8. E-02		05/16		4
					ZR-95	L.T. 6. E-02		05/16		4
					RU-103	L.T. 7. E-02		05/16		4
					RU-106	L.T. 3. E-01		05/16		4
					I-131	L.T. 3. E 00		05/16		4
					CS-134	L.T. 4. E-02		05/16		4
					CS-137	7.28+-2.39E-02		05/16		4
					BA-140	L.T. 5. E-01		05/16		4
					CE-141	L.T. 1. E-01		05/16		4
					CE-144	L.T. 2. E-01		05/16		4
					RA-226	2.52+-0.49E 00		05/16		4
					TH-228	1.52+-0.15E 00		05/16		4
					H-3	L.T. 2. E-02		06/24		5
71349	88558	SM010215B	03/23	1200	PU-238	L.T. 4. E-02		05/13		6
					PU-239	L.T. 3. E-02		05/13		6
71350	88559	SM010215C	03/23	1200	BE-7	L.T. 4. E-01		05/16		4
					K-40	2.36+-0.24E 01		05/16		4
					MN-54	L.T. 3. E-02		05/16		4
					CO-58	L.T. 3. E-02		05/16		4
					FE-59	L.T. 1. E-01		05/16		4
					CO-60	L.T. 2. E-02		05/16		4
					ZN-65	L.T. 7. E-02		05/16		4

RUN DATE 06/26/92

DELIVERY DATE

DATE RECEIVED _____

[illegible]

WORK ORDER NUMBER

ERIC SMITH
MCLAREN/HART
116755 VON KAF
IRVINE CA

92714

7105

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE			NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M %	MID-COUNT		VOLUME -- UNITS ASH-WGHT-%	LAB.
			START DATE	STOP DATE	TIME				DATE	TIME		
71350	88559	SM01021SC	03/23	1200		ZR-95	L.T. 5. E-02		05/16		4	
						RU-103	L.T. 5. E-02		05/16		4	
						RU-106	L.T. 2. E-01		05/16		4	
						I-131	L.T. 2. E 00		05/16		4	
						CS-134	L.T. 3. E-02		05/16		4	
						CS-137	1.18+-0.23E-01		05/16		4	
						BA-140	L.T. 4. E-01		05/16		4	
						CE-141	L.T. 1. E-01		05/16		4	
						CE-144	L.T. 2. E-01		05/16		4	
						RA-226	1.69+-0.35E 00		05/16		4	
						TH-228	1.02+-0.10E 00		05/16		4	
						H-3	L.T. 2. E-02		06/24		5	
71351	88564	SM01020SB	03/23	1230		PU-238	L.T. 2. E-02		05/13		6	
						PU-239	L.T. 8. E-03		05/13		6	
71352	88565	SM01020SC	03/23	1230		BE-7	L.T. 6. E-01		05/18		4	
						K-40	2.61+-0.26E 01		05/18		4	
						MN-54	L.T. 4. E-02		05/18		4	
						CO-58	L.T. 6. E-02		05/18		4	
						FE-59	L.T. 2. E-01		05/18		4	
						CO-60	L.T. 4. E-02		05/18		4	
						ZN-65	L.T. 1. E-01		05/18		4	
						ZR-95	L.T. 7. E-02		05/18		4	
						RU-103	L.T. 9. E-02		05/18		4	
						RU-106	L.T. 4. E-01		05/18		4	
						I-131	L.T. 4. E 00		05/18		4	
						CS-134	L.T. 5. E-02		05/18		4	
						CS-137	L.T. 4. E-02		05/18		4	
						BA-140	L.T. 8. E-01		05/18		4	
						CE-141	L.T. 2. E-01		05/18		4	
						CE-144	L.T. 2. E-01		05/18		4	
						RA-226	2.70+-0.55E 00		05/18		4	

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 06/26/92

PAGE 1

WORK ORDER NUMBER

3-0706

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

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05/02/92

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA 92714

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	STOP DATE	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	VOLUME - UNITS ASH-WGHT-% *	LAB.
71352	88565 SM01020SC		03/23	1230	TH-228 H-3	1.61+-0.16E 00 L.T. 2. E-02		05/18 06/24		4 5
71353	88570 SM01004SB		03/23	1300	PU-238 PU-239	8.2 +-3.6 E-02 L.T. 1. E-02		05/18 05/18		6 6
71354	88571 SM01004SC		03/23	1300	BE-7 K-40 MN-54 CO-58 FE-59 CO-60 ZN-65 ZR-95 RU-103 RU-106 I-131 CS-134 CS-137 BA-140 CE-141 CE-144 RA-226 TH-228 H-3	L.T. 6. E-01 2.32+-0.23E 01 L.T. 4. E-02 L.T. 5. E-02 L.T. 2. E-01 L.T. 3. E-02 L.T. 9. E-02 L.T. 6. E-02 L.T. 8. E-02 L.T. 3. E-01 L.T. 4. E 00 L.T. 5. E-02 3.79+-2.16E-02 L.T. 7. E-01 L.T. 2. E-01 L.T. 2. E-01 1.61+-0.52E 00 1.31+-0.13E 00 L.T. 1. E-02		05/18 05/18 05/18 05/18 05/18 05/18 05/18 05/18 05/18 05/18 05/18 05/18 05/18 05/18 05/18 05/18 05/18 06/24		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 5 6 6
71355	88576 SM01007SB		03/23	1330	PU-238 PU-239	L.T. 5. E-02 L.T. 2. E-02		05/13 05/13		6 6

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

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WORK ORDER NUMBER

3-0706

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

03/30/92

DELIVERY DATE

05/02/92

ERIC SMITH

MCLAREN/HART

16755 VON KARMAN AVE

IRVINE CA

92714

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	STOP DATE	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M	MID-COUNT TIME DATE	VOLUME - UNITS ASH-WGHT-%	LAB.
71356	88577	SM01007SC	03/23	1330	BE-7	L.T. 5. E-01		05/18		4
					K-40	2.22+-0.22E 01		05/18		4
					MN-54	L.T. 4. E-02		05/18		4
					CO-58	L.T. 5. E-02		05/18		4
					FE-59	L.T. 2. E-01		05/18		4
					CD-60	L.T. 3. E-02		05/18		4
					ZN-65	L.T. 9. E-02		05/18		4
					ZR-95	L.T. 7. E-02		05/18		4
					RU-103	L.T. 8. E-02		05/18		4
					RU-106	L.T. 3. E-01		05/18		4
					I-131	L.T. 4. E 00		05/18		4
					CS-134	L.T. 4. E-02		05/18		4
					CS-137	L.T. 4. E-02		05/18		4
					BA-140	L.T. 8. E-01		05/18		4
					CE-141	L.T. 2. E-01		05/18		4
					CE-144	L.T. 3. E-01		05/18		4
					RA-226	1.81+-0.54E 00		05/18		4
					TH-228	1.65+-0.16E 00		05/18		4
					H-3	L.T. 1. E-02		06/24		5



VOLATILE ORGANIC COMPOUNDS

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715-8

Page 1 of 2

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-004-SE
Sample Number: 88361

Matrix: Soil

Date Sampled: 3/11/92
Date Analyzed: 3/16/92

Date Received: 3/12/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715- 8

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	100	70 - 121
Toluene-D8	102	81 - 117
4-Bromofluorobenzene	99	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715-17

Page 1 of 2

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-019-SE
Sample Number: 88379

Matrix: Soil

Date Sampled: 3/11/92
Date Analyzed: 3/16/92

Date Received: 3/12/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715- 17

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5
SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	100	70 - 121
Toluene-D8	100	81 - 117
4-Bromofluorobenzene	100	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



McLaren
Hart

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715-14

Page 1 of 2

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-021-SE
Sample Number: 88373

Matrix: Soil

Date Sampled: 3/11/92
Date Analyzed: 3/16/92

Date Received: 3/12/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715- 14

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5
SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	101	70 - 121
Toluene-D8	100	81 - 117
4-Bromofluorobenzene	102	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715-11

Page 1 of 2

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-032-SE
Sample Number: 88367

Matrix: Soil

Date Sampled: 3/11/92
Date Analyzed: 3/16/92

Date Received: 3/12/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715- 11

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5
SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	102	70 - 121
Toluene-D8	101	81 - 117
4-Bromofluorobenzene	99	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846,
3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated
values. No entry in "Analyte Concentration" means the compound
is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715- 5

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	103	70 - 121
Toluene-D8	101	81 - 117
4-Bromofluorobenzene	101	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
- {b} Additional compounds.
- {c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



SEMI-VOLATILE ORGANIC COMPOUNDS

SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-7

Page 1 of 3

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-004-SD
Sample Number: 88360

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/16/92

Date Received: 3/12/92
Date Analyzed: 3/22/92

Batch Number: 920316-0301

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-7

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		1600
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		330
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		1600
Pentachlorophenol.....		330
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		330
3,3'-Dichlorobenzidine.....		660
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



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SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-7

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	103	25 - 121
Phenol-d5.....	102	24 - 113
Nitrobenzene-d5.....	99	23 - 120
2-Fluorobiphenyl.....	91	30 - 115
2,4,6-Tribromophenol.....	115	19 - 122
Terphenyl-d14.....	107	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM
Cheryl Matterson, Associate Chemist

Date: 3/27/92

The cover letter and attachments are integral parts of this report.



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-16

Page 1 of 3

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-019-SD
Sample Number: 88378

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/16/92

Date Received: 3/12/92
Date Analyzed: 3/23/92

Batch Number: 920316-0301

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-16

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		330
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		1600
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		1600
Pentachlorophenol.....		330
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		330
3,3'-Dichlorobenzidine.....		660
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



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SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Page 3 of 3

Lab Project-Sample ID: 5715-16

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	89	25 - 121
Phenol-d5.....	89	24 - 113
Nitrobenzene-d5.....	87	23 - 120
2-Fluorobiphenyl.....	86	30 - 115
2,4,6-Tribromophenol.....	117	19 - 122
Terphenyl-d14.....	99	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM
Cheryl Matterson, Associate Chemist

Date: 3/27/92

The cover letter and attachments are integral parts of this report.



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-13

Page 1 of 3

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-021-SD
Sample Number: 88372

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/16/92

Date Received: 3/12/92
Date Analyzed: 3/23/92

Batch Number: 920316-0301

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



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SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-13

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		1600
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		330
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		1600
Pentachlorophenol.....		330
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		660
3,3'-Dichlorobenzidine.....		330
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-13

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	93	25 - 121
Phenol-d5.....	94	24 - 113
Nitrobenzene-d5.....	95	23 - 120
2-Fluorobiphenyl.....	96	30 - 115
2,4,6-Tribromophenol.....	119	19 - 122
Terphenyl-d14.....	109	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald Loren Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and attachments are integral parts of this report.



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-10

Page 1 of 3

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-032-SD
Sample Number: 88366

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/16/92

Date Received: 3/12/92
Date Analyzed: 3/23/92

Batch Number: 920316-0301

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-10

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	113	25 - 121
Phenol-d5.....	103	24 - 113
Nitrobenzene-d5.....	105	23 - 120
2-Fluorobiphenyl.....	102	30 - 115
2,4,6-Tribromophenol.....	120	19 - 122
Terphenyl-d14.....	115	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Donney McDonald for CM
Cheryl Matterson, Associate Chemist

Date: 3/27/92

The cover letter and attachments are integral parts of this report.



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-4

Page 1 of 3

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-044-SD
Sample Number: 88354

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/16/92

Date Received: 3/12/92
Date Analyzed: 3/22/92

Batch Number: 920316-0301

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



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SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-4

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		1600
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		330
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		1600
Pentachlorophenol.....		330
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		660
3,3'-Dichlorobenzidine.....		330
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



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SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-4

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	101	25 - 121
Phenol-d5.....	101	24 - 113
Nitrobenzene-d5.....	102	23 - 120
2-Fluorobiphenyl.....	93	30 - 115
2,4,6-Tribromophenol.....	115	19 - 122
Terphenyl-d14.....	102	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and attachments are integral parts of this report.



METALS

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5715-9

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-004-SF
Sample Number: 88362

Matrix: Soil

Date Sampled: 3/11/92
Date Digested: 3/17/92 {b}

Date Received: 3/12/92
Batch Number: 920317-1103 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/18/92
Arsenic (As)/7060.....	2.	1	.50	3/21/92
Beryllium (Be)/6010.....	.58	1	.25	3/18/92
Cadmium (Cd)/6010.....		1	.50	3/18/92
Chromium (Cr)/6010.....	14.	1	1.0	3/18/92
Copper (Cu)/6010.....	9.7	1	1.0	3/18/92
Lead (Pb)/6010.....	13.	1	2.5	3/18/92
Mercury (Hg)/7471.....		1	.25	3/18/92
Nickel (Ni)/6010.....	10.	1	1.0	3/18/92
Selenium (Se)/7740.....		1	.25	3/21/92
Silver (Ag)/6010.....		1	1.0	3/18/92
Thallium (Tl)/7841.....		1	.50	3/21/92
Zinc (Zn)/6010.....	44.	1	1.0	3/18/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/17/92, Batch # 920317-1102; and Hg was digested on 3/17/92, Batch # 920317-1101.
- {c} No entry in the "Concentration" means the metal is not detected at all.

Approved by: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5715-18

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-019-SF
Sample Number: 88380

Matrix: Soil

Date Sampled: 3/11/92
Date Digested: 3/17/92 {b}

Date Received: 3/12/92
Batch Number: 920317-1103 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/18/92
Arsenic (As)/7060.....	1.9	1	.50	3/21/92
Beryllium (Be)/6010.....	.63	1	.25	3/18/92
Cadmium (Cd)/6010.....	.52	1	.50	3/18/92
Chromium (Cr)/6010.....	14.	1	1.0	3/18/92
Copper (Cu)/6010.....	11.	1	1.0	3/18/92
Lead (Pb)/6010.....	13.	1	2.5	3/18/92
Mercury (Hg)/7471.....		1	.25	3/18/92
Nickel (Ni)/6010.....	11.	1	1.0	3/18/92
Selenium (Se)/7740.....		1	.25	3/21/92
Silver (Ag)/6010.....		1	1.0	3/18/92
Thallium (Tl)/7841.....		1	.50	3/21/92
Zinc (Zn)/6010.....	47.	1	1.0	3/18/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/17/92, Batch # 920317-1102; and Hg was digested on 3/17/92, Batch # 920317-1101.
- {c} No entry in the "Concentration" means the metal is not detected at all.

Approved by: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5715-15

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-021-SF
Sample Number: 88374

Matrix: Soil

Date Sampled: 3/11/92
Date Digested: 3/17/92 {b}

Date Received: 3/12/92
Batch Number: 920317-1103 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/18/92
Arsenic (As)/7060.....	2.	1	.50	3/21/92
Beryllium (Be)/6010.....	.71	1	.25	3/18/92
Cadmium (Cd)/6010.....		1	.50	3/18/92
Chromium (Cr)/6010.....	16.	1	1.0	3/18/92
Copper (Cu)/6010.....	13.	1	1.0	3/18/92
Lead (Pb)/6010.....	11.	1	2.5	3/18/92
Mercury (Hg)/7471.....		1	.25	3/18/92
Nickel (Ni)/6010.....	12.	1	1.0	3/18/92
Selenium (Se)/7740.....		1	.25	3/21/92
Silver (Ag)/6010.....		1	1.0	3/18/92
Thallium (Tl)/7841.....		1	.50	3/21/92
Zinc (Zn)/6010.....	49.	1	1.0	3/18/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/17/92, Batch # 920317-1102; and Hg was digested on 3/17/92, Batch # 920317-1101.
- {c} No entry in the "Concentration" means the metal is not detected at all.

Approved by: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5715-6

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-02-044-SF
Sample Number: 88356

Matrix: Soil

Date Sampled: 3/11/92
Date Digested: 3/17/92 {b}

Date Received: 3/12/92
Batch Number: 920317-1103 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/18/92
Arsenic (As)/7060.....	2.1	1	.50	3/21/92
Beryllium (Be)/6010.....	.52	1	.25	3/18/92
Cadmium (Cd)/6010.....		1	.50	3/18/92
Chromium (Cr)/6010.....	13.	1	1.0	3/18/92
Copper (Cu)/6010.....	8.3	1	1.0	3/18/92
Lead (Pb)/6010.....	7.6	1	2.5	3/18/92
Mercury (Hg)/7471.....		1	.25	3/18/92
Nickel (Ni)/6010.....	9.2	1	1.0	3/18/92
Selenium (Se)/7740.....		1	.25	3/21/92
Silver (Ag)/6010.....		1	1.0	3/18/92
Thallium (Tl)/7841.....		1	.50	3/21/92
Zinc (Zn)/6010.....	38.	1	1.0	3/18/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/17/92, Batch # 920317-1102; and Hg was digested on 3/17/92, Batch # 920317-1101.
- {c} No entry in the "Concentration" means the metal is not detected at all.

Approved by: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



TELEPHONE ISOTOPES

REPORT OF ANALYSIS

WMPK ORDER NUMBER	REPORT OF ANALYSIS	DATE RECEIVED	DELIVERY DATE	PAGE
03/13/92	CUSTOMER P.O. NUMBER	04/15/92		

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA 92714

1105

[illegible]

TELEDYNE ISOTOPES

RUN DATE 04/14/92

REPORT OF ANALYSIS

PAGE 2

WORK ORDER NUMBER

3-0636

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

03/13/92

DELIVERY DATE

04/15/92

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA 92714

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	TIME	NUCLIDE	ACTIVITY (PCI/CM DRY)	NUCL-UNIT-% U/M	MID-COUNT TIME DATE	VOLUME - UNITS ASH-WGHT-%	LAR.
69566	88359 SM02-004-SC		03/11	0800	ZR-95	L.T. 6. E-02		03/26		4
					RU-103	L.T. 6. E-02		03/26		4
					RU-106	L.T. 4. E-01		03/26		4
					I-131	L.T. 2. E-01		03/26		4
					CS-134	L.T. 6. E-02		03/26		4
					CS-137	L.T. 6. E-02		03/26		4
					BA-140	L.T. 1. E-01		03/26		4
					CE-141	L.T. 1. E-01		03/26		4
					CE-144	L.T. 4. E-01		03/26		4
					RA-226	1.82+-0.83E 00		03/26		4
					TH-228	1.21+-0.12E 00		03/26		4
					H-3	L.T. 2. F-02		03/29		5
69567	88364 SM02-032-SB		03/11	1000	PU-238	L.T. 2. E-02		04/06		6
					PU-239	L.T. 5. E-03		04/06		6
69568	88365 SM02-032-SC		03/11	1000	RE-7	L.T. 3. F-01		03/26		4
					K-40	2.34+-0.23E 01		03/26		4
					MN-54	L.T. 3. E-02		03/26		4
					CO-58	L.T. 3. E-02		03/26		4
					FE-59	L.T. 9. E-02		03/26		4
					CO-60	L.T. 3. E-02		03/26		4
					ZN-65	L.T. R. E-02		03/26		4
					ZR-95	L.T. 4. F-02		03/26		4
					RU-103	L.T. 4. F-02		03/26		4
					RU-106	L.T. 3. E-01		03/26		4
					I-131	L.T. 1. E-01		03/26		4
					CS-134	L.T. 4. E-02		03/26		4
					CS-137	L.T. 4. E-02		03/26		4
					BA-140	L.T. 7. E-02		03/26		4
					CE-141	L.T. 6. E-02		03/26		4
					CE-144	L.T. 2. E-01		03/26		4
					PA-226	1.83+-0.44E 00		03/26		4

TFLEDYNE ISOTOPE

REPORT OF ANALYSIS

RUN DATE 04/14/02

PAGE 4

WORK ORDER NUMBER

3-0636

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

03/13/92

DELIVERY DATE

04/15/92

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA

92714

S O I L

TELFDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (PCT/GM DRY)	NUCL-UNIT-% U/M %	MID-COUNT		VOLUME - UNITS	
			START DATE	STOP DATE				TIME DATE	TIME	ASH-WGHT-%	LAR.
69572	88377 SM02-019-SC		03/11	1200	RE-7	L.T. 3. E-01		03/26			4
					K-40	2.46+-0.25E 01		03/26			4
					MN-54	L.T. 3. E-02		03/26			4
					CO-58	L.T. 4. E-02		03/26			4
					FE-59	L.T. 9. E-02		03/26			4
					CO-60	L.T. 4. E-02		03/26			4
					ZN-65	L.T. 9. E-02		03/26			4
					ZR-95	L.T. 5. E-02		03/26			4
					RU-103	L.T. 4. E-02		03/26			4
					RU-106	L.T. 3. E-01		03/26			4
					I-131	L.T. 1. E-01		03/26			4
					CS-134	L.T. 4. F-02		03/26			4
					CS-137	1.20+-0.34E-01		03/26			4
					RA-140	L.T. 8. F-02		03/26			4
					CE-141	L.T. 7. F-02		03/26			4
					CE-144	L.T. 2. E-01		03/26			4
					RA-226	1.58+-0.54E 00		03/26			4
					TH-228	1.15+-0.12E 00		03/26			4
					H-3	L.T. 2. E-02		03/30			5
69573	88381 SM02-001-SB		03/11	1000	PU-238	L.T. 1. E-02		04/06			6
					PU-239	L.T. 4. E-03		04/06			6
69574	88302 SM-03-012 SB		03/11	1300	PU-238	L.T. 2. E-02		04/08			6
					PU-239	L.T. 4. E-03		04/08			6
69575	88303 SM-03-012 SC		03/11	1300	BE-7	L.T. 3. F-01		03/26			4
					K-40	2.19+-0.22E 01		03/26			4
					MN-54	L.T. 3. F-02		03/26			4
					CO-58	L.T. 3. E-02		03/26			4
					FE-59	L.T. 9. E-02		03/26			4
					CO-60	L.T. 3. F-02		03/26			4
					ZN-65	L.T. 8. F-02		03/26			4

VOLATILE ORGANIC COMPOUNDS

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5727-13

Page 1 of 2

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM03001SP6
Sample Number: 88322

Matrix: Soil

Date Sampled: 3/11/92
Date Analyzed: 3/19/92

Date Received: 3/14/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



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VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5727- 13

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	102	70 - 121
Toluene-D8	117	81 - 117
4-Bromofluorobenzene	86	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
- {b} Additional compounds.
- {c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.
- {d} Sample was analyzed on 03/18/92 and exhibited low internal standard recoveries. The sample was reanalyzed on 03/19/92 and again exhibited low internal standard recoveries, indicating the presence of a matrix effect.

Approved By: Nancy McDonald Corcoran Date: 3/31/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5727-11

Page 1 of 2

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM03009SE
Sample Number: 88317

Matrix: Soil

Date Sampled: 3/11/92
Date Analyzed: 3/18/92

Date Received: 3/14/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



McClarenTM
Hart

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5727- 11

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	103	70 - 121
Toluene-D8	128	81 - 117
4-Bromofluorobenzene	75	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
- {b} Additional compounds.
- {c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.
- {d} Sample was analyzed on 03/18/92 and exhibited low internal standard recoveries. The sample was reanalyzed on 03/19/92 and again exhibited low internal standard recoveries, indicating the presence of a matrix effect.
- {e} Sample surrogate compound Toluene-d8 was beyond quality control limits. The presence of a matrix interferent is suspected in the sample.

Approved By: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715-20

Page 1 of 2

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-03-012-SE
Sample Number: 88305

Matrix: Soil

Date Sampled: 3/11/92
Date Analyzed: 3/16/92

Date Received: 3/12/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5727-16

Page 1 of 2

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM03014SP⁶
Sample Number: 88328

Matrix: Soil

Date Sampled: 3/11/92
Date Analyzed: 3/20/92

Date Received: 3/14/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



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VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5727- 16

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	102	70 - 121
Toluene-D8	113	81 - 117
4-Bromofluorobenzene	85	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
- {b} Additional compounds.
- {c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.
- {d} Sample was analyzed on 03/18/92 and exhibited low internal standard recoveries. The sample was reanalyzed on 03/20/92 and again exhibited low internal standard recoveries, indicating the presence of a matrix effect.

Approved By: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5727- 9

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	99	70 - 121
Toluene-D8	134	81 - 117
4-Bromofluorobenzene	75	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
- {b} Additional compounds.
- {c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.
- {d} Sample was analyzed on 03/18/92 and exhibited low internal standard recoveries. The sample was reanalyzed on 03/19/92 and again exhibited low internal standard recoveries, indicating the presence of a matrix effect.
- {e} Sample surrogate compound Toluene-d8 was beyond quality control limits. The presence of a matrix interferent is suspected in the sample.

Approved By: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



SEMI-VOLATILE ORGANIC COMPOUNDS

SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5727-14

Page 1 of 3

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM03001S~~EQ~~
Sample Number: 88323

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/17/92

Date Received: 3/14/92
Date Analyzed: 3/20/92

Batch Number: 920317-1901

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



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SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5727-14

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		1600
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		330
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		1600
Pentachlorophenol.....		330
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		660
3,3'-Dichlorobenzidine.....		330
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5727-14

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	95	25 - 121
Phenol-d5.....	100	24 - 113
Nitrobenzene-d5.....	97	23 - 120
2-Fluorobiphenyl.....	100	30 - 115
2,4,6-Tribromophenol.....	109	19 - 122
Terphenyl-d14.....	99	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM Date: 4/01/92
Cheryl Matterson, Associate Chemist

The cover letter and attachments are integral parts of this report.



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5727-10

Page 1 of 3

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM03009SD
Sample Number: 88316

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/17/92

Date Received: 3/14/92
Date Analyzed: 3/20/92

Batch Number: 920317-1901

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5727-10

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		330
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		1600
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		330
Pentachlorophenol.....		1600
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		330
3,3'-Dichlorobenzidine.....		660
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



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SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-19

Page 1 of 3

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-03-012-SD
Sample Number: 88304

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/16/92

Date Received: 3/12/92
Date Analyzed: 3/23/92

Batch Number: 920316-0301

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-19

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		330
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		1600
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		330
Pentachlorophenol.....		1600
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		330
3,3'-Dichlorobenzidine.....		660
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-19

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	93	25 - 121
Phenol-d5.....	92	24 - 113
Nitrobenzene-d5.....	97	23 - 120
2-Fluorobiphenyl.....	95	30 - 115
2,4,6-Tribromophenol.....	111	19 - 122
Terphenyl-d14.....	114	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
- {b} Additional compounds.
- {c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and attachments are integral parts of this report.



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5727-17

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		1600
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		330
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		1600
Pentachlorophenol.....		330
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		660
3,3'-Dichlorobenzidine.....		330
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Page 1 of 3

Lab Project-Sample ID: 5727-8

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM03015SD
Sample Number: 88310

Date Sampled: 3/11/92
Date Extracted: 3/17/92

Batch Number: 920317-1901

Matrix: Soil

Date Received: 3/14/92
Date Analyzed: 3/20/92

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	1600
Benzoic acid.....	330
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	1600
3-Nitroaniline.....	330
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	1600
2-Nitroaniline.....	



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METALS

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5727-15

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM03001SF
Sample Number: 88324

Matrix: Soil

Date Sampled: 3/11/92
Date Digested: 3/18/92 {b}

Date Received: 3/14/92
Batch Number: 920318-1101 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/18/92
Arsenic (As)/7060.....	4.8	1	.50	3/22/92
Beryllium (Be)/6010.....	.31	1	.25	3/18/92
Cadmium (Cd)/6010.....		1	.50	3/18/92
Chromium (Cr)/6010.....	9.4	1	1.0	3/18/92
Copper (Cu)/6010.....	7.4	1	1.0	3/18/92
Lead (Pb)/6010.....	170.	1	2.5	3/18/92
Mercury (Hg)/7471.....		1	.25	3/21/92
Nickel (Ni)/6010.....	5.7	1	1.0	3/18/92
Selenium (Se)/7740.....		1	.25	3/22/92
Silver (Ag)/6010.....		1	1.0	3/18/92
Thallium (Tl)/7841.....		1	.50	3/22/92
Zinc (Zn)/6010.....	34.	1	1.0	3/18/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/18/92, Batch # 920318-1102; and Hg was digested on 3/18/92, Batch # 920318-1103.
- {c} No entry in the "Concentration" means the metal is not detected at all.

Approved by: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5727-12

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM03009SF
Sample Number: 88318

Matrix: Soil

Date Sampled: 3/11/92
Date Digested: 3/18/92 {b}

Date Received: 3/14/92
Batch Number: 920318-1101 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....	7.1	1	2.5	3/18/92
Arsenic (As)/7060.....	.37	4	2.0	3/22/92
Beryllium (Be)/6010.....		1	.25	3/18/92
Cadmium (Cd)/6010.....		1	.50	3/18/92
Chromium (Cr)/6010.....	11.	1	1.0	3/18/92
Copper (Cu)/6010.....	8.3	1	1.0	3/18/92
Lead (Pb)/6010.....	59.	1	2.5	3/18/92
Mercury (Hg)/7471.....		1	.25	3/21/92
Nickel (Ni)/6010.....	7.2	1	1.0	3/18/92
Selenium (Se)/7740.....		1	.25	3/22/92
Silver (Ag)/6010.....		1	1.0	3/18/92
Thallium (Tl)/7841.....		1	.50	3/22/92
Zinc (Zn)/6010.....	37.	1	1.0	3/18/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/18/92, Batch # 920318-1102; and Hg was digested on 3/18/92, Batch # 920318-1103.
- {c} No entry in the "Concentration" means the metal is not detected at all.
- {d} The sample for Arsenic was diluted 4 fold to bring target analyte within linear working range.

Approved by: Nancy McDonald Loren Date: 3/31/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5715-21

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-03-012-SF
Sample Number: 88306

Matrix: Soil

Date Sampled: 3/11/92
Date Digested: 3/17/92 {b}

Date Received: 3/12/92
Batch Number: 920317-1103 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/18/92
Arsenic (As)/7060.....	3.	1	.50	3/21/92
Beryllium (Be)/6010.....	.61	1	.25	3/18/92
Cadmium (Cd)/6010.....		1	.50	3/18/92
Chromium (Cr)/6010.....	12.	1	1.0	3/18/92
Copper (Cu)/6010.....	12.	1	1.0	3/18/92
Lead (Pb)/6010.....	82.	1	2.5	3/18/92
Mercury (Hg)/7471.....		1	.25	3/18/92
Nickel (Ni)/6010.....	8.1	1	1.0	3/18/92
Selenium (Se)/7740.....		1	.25	3/21/92
Silver (Ag)/6010.....		1	1.0	3/18/92
Thallium (Tl)/7841.....		1	.50	3/21/92
Zinc (Zn)/6010.....	41.	1	1.0	3/18/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/17/92, Batch # 920317-1102; and Hg was digested on 3/17/92, Batch # 920317-1101.
- {c} No entry in the "Concentration" means the metal is not detected at all.

Approved by: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5784-2

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: ~~88312~~
Sample Number: 88312

Matrix: Soil

Date Sampled: 3/11/92
Date Digested: 4/03/92 {b}

Date Received: 3/30/92
Batch Number: 920403-1101 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	4/05/92
Arsenic (As)/7060.....	7.0	4	2.0	4/08/92
Beryllium (Be)/6010.....	.38	1	.25	4/05/92
Cadmium (Cd)/6010.....		1	.50	4/05/92
Chromium (Cr)/6010.....	11.	1	1.0	4/05/92
Copper (Cu)/6010.....	8.9	1	1.0	4/05/92
Lead (Pb)/6010.....	280.	1	2.5	4/05/92
Mercury (Hg)/7471.....		1	.25	4/03/92
Nickel (Ni)/6010.....	7.6	1	1.0	4/05/92
Selenium (Se)/7740.....		1	.25	4/08/92
Silver (Ag)/6010.....		1	1.0	4/05/92
Thallium (Tl)/7841.....		1	.50	4/08/92
Zinc (Zn)/6010.....	43.	1	1.0	4/05/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 4/03/92, Batch # 920403-1102; and Hg was digested on 4/03/92, Batch # 920403-1103 .
- {c} No entry in the "Concentration" means the metal is not detected at all.
- {d} The sample for Arsenic was diluted 4 fold to bring target analyte within linear working range.

Approved by: Nancy McDonald Loren Date: 4/13/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



Table: Results of the analyses for iodine-129 and strontium-90 in twenty-three (23) soil samples.

Sample ID Number	Sample Description	Collection Date	Lab Code	<u>Conc. pci/gwet</u>		<u>Conc. pci/gdry</u>	
				I-129	Date Analyzed	Sr-90	Date Analyzed
88451	BG02074SA	03/10/92	SPS-1821	<0.3	04/29	<0.01	04/25
88457	BG02007SA	03/10/92	1822	<0.1	04/29	0.02±0.01	04/25
88464	BG02078SA	03/10/92	1823	<0.1	04/30	0.03±0.01	04/25
88476	BG01100SA	03/10/92	1824	<0.1	04/30	0.05±0.01	04/25
88482	BG01008SA	03/10/92	1825	<0.2	04/30	0.01±0.01	04/25
88501	SM04095SA	03/11/92	1826	<0.3	05/01	0.14±0.02	04/24
88507	SM04003SA	03/11/92	1827	<0.1	05/01	0.04±0.01	04/24
88513	SM04028SA	03/11/92	1828	<0.2	05/01	0.03±0.01	04/24
88519	SM04026SA	03/11/92	1829	<0.3	04/14	0.03±0.01	04/24
88525	SM04024SA	03/11/92	1830	<0.2	04/13	0.10±0.01	04/24
88531	SM00001SA	03/11/92	1831	<0.1	04/13	0.15±0.02	04/24
88488	BG01005SA	03/11/92	1832	<0.2	04/13	0.03±0.01	04/25
88351	SM02044SA	03/11/92	1833	<0.1	05/29	0.02±0.01	04/25
88357	SM02004SA	03/11/92	1834	<0.1	04/14	0.03±0.01	04/25
88363	SM02032SA	03/11/92	1835	<0.2	04/23	0.02±0.01	04/25
88369	SM02021SA	03/11/92	1836	<0.2	05/04	0.03±0.01	04/25
88375	SM02019SA	03/11/92	1837	<0.2	04/24	0.05±0.01	04/30
88301	SM03012SA	03/11/92	1838	<0.1	05/29	0.02±0.01	04/30
88307	SM03015SA	03/11/92	1839	<0.1	04/27	0.05±0.01	04/30
88313	SM03009SA	03/11/92	1840	<0.2	04/28	0.03±0.01	04/30
88319	SM03001SA	03/11/92	1841	<0.2	05/04	0.07±0.01	05/02
88325	SM03014SA	03/11/92	1842	<0.1	05/05	0.02±0.01	05/02
88470	M1SA	03/10/92	1856	<0.1	05/05	0.08±0.02	05/13

The error given is the probable counting error at 95% confidence level. Less than (<) values are based on 3 sigma counting error for background sample.

TELEDYNE ISOTOPIES

RUN DATE 04/14/92

REPORT OF ANALYSIS

PAGE 4

WORK ORDER NUMBER

ERIC SMITH

MCLAREN/HART

16755 VON KARMAN AVE

IRVINE CA

CUSTOMER P.O. NUMBER

04-0020403-012

DATE RECEIVED

03/13/92

DELIVERY DATE

04/15/92

92714

S O I L

TELEDYNE
SAMPLE
NUMBERCUSTOMER'S
IDENTIFICATIONSTA
NUMCOLLECTION-DATE
START STOP
DATE TIME DATE TIME

NUCLIDE

ACTIVITY
(PCI/GM DRY)NUCL-UNIT-%
U/M %MID-COUNT
TIME
DATE TIMEVOLUME - UNITS
ASH-WGHT-%

LAB.

69572 88377 SM02-019-SC

03/11 1200

RE-7

L.T. 3. E-01

03/26

4

K-40

2.46+-0.25E 01

03/26

4

MN-54

L.T. 3. E-02

03/26

4

CO-58

L.T. 4. E-02

03/26

4

FE-59

L.T. 9. E-02

03/26

4

CO-60

L.T. 4. E-02

03/26

4

ZN-65

L.T. 9. E-02

03/26

4

ZR-95

L.T. 5. E-02

03/26

4

RU-103

L.T. 4. E-02

03/26

4

RU-106

L.T. 3. E-01

03/26

4

I-131

L.T. 1. E-01

03/26

4

CS-134

L.T. 4. E-02

03/26

4

CS-137

1.20+-0.34E-01

03/26

4

RA-140

L.T. 8. F-02

03/26

4

CE-141

L.T. 7. F-02

03/26

4

CE-144

L.T. 2. E-01

03/26

4

RA-226

1.58+-0.54E 00

03/26

4

TH-228

1.15+-0.12E 00

03/26

4

H-3

L.T. 2. E-02

03/30

5

69573 88381 SM02-001-SB

03/11 1000

PU-238

L.T. 1. E-02

04/06

6

PU-239

L.T. 4. E-03

04/06

6

69574 88302 SM-03-012 SB

03/11 1300

PU-238

L.T. 2. E-02

04/08

6

PU-239

L.T. 4. E-03

04/08

6

69575 88303 SM-03-012 SC

03/11 1300

RE-7

L.T. 3. E-01

03/26

4

K-40

2.19+-0.22E 01

03/26

4

MN-54

L.T. 3. F-02

03/26

4

CO-58

L.T. 3. E-02

03/26

4

FE-59

L.T. 9. E-02

03/26

4

CO-60

L.T. 3. F-02

03/26

4

ZN-65

L.T. 8. F-02

03/26

4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 04/14/92

PAGE 5

WORK ORDER NUMBER

3-0636

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

03/13/92

DELIVERY DATE

04/15/92

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA 92714

S O T L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (PCI/CM DRY)	NUCL-UNIT-% U/M %	MID-COUNT		VOLUME - UNITS ASH-WGHT-%	LAB.
			START DATE	STOP DATE				DATE	TIME		
69575	88303 SM-03-012 SC		03/11 1300		2R-95	L.T. 4. E-02		03/26			4
					RU-103	L.T. 4. F-02		03/26			4
					RU-106	L.T. 3. E-01		03/26			4
					I-131	L.T. 1. F-01		03/26			4
					CS-134	L.T. 4. E-02		03/26			4
					CS-137	1.25+-0.30E-01		03/26			4
					BA-140	L.T. 7. E-02		03/26			4
					CE-141	L.T. 6. E-02		03/26			4
					CE-144	L.T. 2. E-01		03/26			4
					RA-226	1.89+-0.50E 00		03/26			4
					TH-228	9.21+-0.92E-01		03/26			4
					H-3	L.T. 2. F-02		03/30			5
69576	88308 SM-03-015 SR		03/11 1400		PU-238	L.T. 4. F-02		04/08			6
					PU-239	L.T. 1. E-02		04/08			6
69577	88309 SM-03-015 SC		03/11 1400		BE-7	L.T. 3. F-01		03/27			4
					K-40	2.27+-0.23E 01		03/27			4
					MN-54	L.T. 4. E-02		03/27			4
					CO-58	L.T. 3. E-02		03/27			4
					FE-59	L.T. 9. E-02		03/27			4
					CO-60	L.T. 4. F-02		03/27			4
					ZN-65	L.T. 8. E-02		03/27			4
					ZR-95	L.T. 4. F-02		03/27			4
					RU-103	L.T. 4. F-02		03/27			4
					RU-106	L.T. 3. E-01		03/27			4
					I-131	L.T. 1. F-01		03/27			4
					CS-134	L.T. 4. F-02		03/27			4
					CS-137	2.72+-0.39E-01		03/27			4
					BA-140	L.T. 9. F-02		03/27			4
					CE-141	L.T. 7. F-02		03/27			4
					CE-144	L.T. 2. F-01		03/27			4
					RA-226	1.33+-0.53E 00		03/27			4



VOLATILE ORGANIC COMPOUNDS

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715- 28

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	102	70 - 121
Toluene-D8	99	81 - 117
4-Bromofluorobenzene	101	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846,
3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated
values. No entry in "Analyte Concentration" means the compound
is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715- 37

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5
SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	102	70 - 121
Toluene-D8	125	81 - 117
4-Bromofluorobenzene	81	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
- {b} Additional compounds.
- {c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.
- {d} Sample was analyzed on 03/17/92 and exhibited low internal standard recoveries. The sample was reanalyzed on 03/18/92 and again exhibited low internal standard recoveries, indicating the presence of a matrix effect.
- {e} Surrogate compound Toluene-D8 was beyond quality control limits. The presence of a matrix interferent is suspected in the sample.

Approved By: Nancy McDonald for CM Date: 3/30/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715- 34

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT
		ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5
SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	106	70 - 121
Toluene-D8	112	81 - 117
4-Bromofluorobenzene	85	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846,
3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated
values. No entry in "Analyte Concentration" means the compound
is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715-31

Page 1 of 2

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-04-028 SE
Sample Number: 88517

Matrix: Soil

Date Sampled: 3/11/92
Date Analyzed: 3/16/92

Date Received: 3/12/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715-25

Page 1 of 2

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-04-041-SE
Sample Number: 88505

Matrix: Soil

Date Sampled: 3/11/92
Date Analyzed: 3/17/92

Date Received: 3/12/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715- 25

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5
SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	101	70 - 121
Toluene-D8	108	81 - 117
4-Bromofluorobenzene	83	74 - 121

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



McClaren
Hart

SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-27

Page 1 of 3

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-04-003 SD
Sample Number: 88510

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/16/92

Date Received: 3/12/92
Date Analyzed: 3/23/92

Batch Number: 920316-0301

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	330
3-Nitroaniline.....	1600
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	330
2-Nitroaniline.....	1600



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-27

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	99	25 - 121
Phenol-d5.....	92	24 - 113
Nitrobenzene-d5.....	97	23 - 120
2-Fluorobiphenyl.....	88	30 - 115
2,4,6-Tribromophenol.....	108	19 - 122
Terphenyl-d14.....	112	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM
Cheryl Matterson, Associate Chemist

Date: 3/27/92

The cover letter and attachments are integral parts of this report.



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5751-1

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		330
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		1600
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		330
Pentachlorophenol.....		1600
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		330
3,3'-Dichlorobenzidine.....		660
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5751-1

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	93	25 - 121
Phenol-d5.....	96	24 - 113
Nitrobenzene-d5.....	85	23 - 120
2-Fluorobiphenyl.....	90	30 - 115
2,4,6-Tribromophenol.....	104	19 - 122
Terphenyl-d14.....	110	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
- {b} Additional compounds.
- {c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM Date: 4/01/92
Cheryl Matterson, Associate Chemist

The cover letter and attachments are integral parts of this report.



McLarenTM
Hart

SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-33

Page 1 of 3

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-04-026-SD
Sample Number: 88522

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/16/92

Date Received: 3/12/92
Date Analyzed: 3/23/92

Batch Number: 920316-0301

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	1600
Benzoic acid.....	330
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	1600
3-Nitroaniline.....	330
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	1600
2-Nitroaniline.....	



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-30

Page 1 of 3

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-04-028 SD
Sample Number: 88516

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/16/92

Date Received: 3/12/92
Date Analyzed: 3/23/92

Batch Number: 920316-0301

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	1600
Benzoic acid.....	330
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	1600
3-Nitroaniline.....	330
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	1600
2-Nitroaniline.....	



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-24

Page 1 of 3

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-04-041-SD
Sample Number: 88504

Matrix: Soil

Date Sampled: 3/11/92
Date Extracted: 3/16/92

Date Received: 3/12/92
Date Analyzed: 3/23/92

Batch Number: 920316-0301

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Phenol.....	330
Bis(2-chloroethyl)ether.....	330
2-Chlorophenol.....	330
1,3-Dichlorobenzene.....	330
1,4-Dichlorobenzene.....	330
Benzyl alcohol.....	330
2-Methylphenol.....	330
1,2-Dichlorobenzene.....	330
Bis(2-Chloroisopropyl)ether.....	330
4-Methylphenol.....	330
N-Nitroso-di-n-propylamine.....	330
Hexachloroethane.....	330
Nitrobenzene.....	330
Isophorone.....	330
2,4-Dimethylphenol.....	330
1,2,4-Trichlorobenzene.....	330
2-Nitrophenol.....	330
Benzoic acid.....	1600
Bis(2-Chloroethoxy)methane.....	330
2,4-Dichlorophenol.....	330
Naphthalene.....	330
4-Chloroaniline.....	330
Hexachlorobutadiene.....	330
4-Chloro-3-methylphenol.....	330
2-Methylnaphthalene.....	330
Hexachlorocyclopentadiene.....	330
2,4,6-Trichlorophenol.....	330
2,4,5-Trichlorophenol.....	330
2-Chloronaphthalene.....	1600
3-Nitroaniline.....	330
Dimethylphthalate.....	330
2,6-Dinitrotoluene.....	330
Acenaphthylene.....	1600
2-Nitroaniline.....	



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-24

Page 2 of 3

COMPOUND	ANALYTE CONCENTRATION {c} ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Acenaphthene.....		330
2,4-Dinitrophenol.....		1600
4-Nitrophenol.....		1600
2,4-Dinitrotoluene.....		330
Dibenzofuran.....		330
Diethylphthalate.....		330
alpha-BHC {b}.....		330
4-Chlorophenyl phenyl ether.....		330
Fluorene.....		330
4-Nitroaniline.....		1600
4,6-Dinitro-2-methylphenol.....		1600
N-Nitrosodiphenylamine.....		330
4-Bromophenyl phenyl ether.....		330
beta-BHC {b}.....		330
Lindane {b}.....		330
Hexachlorobenzene.....		330
Pentachlorophenol.....		1600
Phenanthrene.....		330
Anthracene.....		330
Delta-BHC {b}.....		330
Heptachlor {b}.....		330
Aldrin {b}.....		330
Endrin {b}.....		330
Butyl benzyl phthalate.....		330
Fluoranthene.....		330
Heptachlor Epoxide.....		330
Pyrene.....		330
Dieldrin {b}.....		330
4,4'-DDE {b}.....		330
Endosulfan sulfate.....		330
4,4'-DDT {b}.....		330
4,4'-DDD {b}.....		330
Di-n-butylphthalate.....		330
3,3'-Dichlorobenzidine.....		660
Benzo(a)anthracene.....		330
Bis(2-Ethylhexyl)phthalate.....		330
Chrysene.....		330
Di-n-octylphthalate.....		330
Benzo(b)fluoranthene.....		330
Benzo(k)fluoranthene.....		330
Benzo(a)pyrene.....		330
Indeno(1,2,3-c,d)pyrene.....		330
Dibenzo(a,h)anthracene.....		330
Benzo(g,h,i)perylene.....		330



SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3550

Lab Project-Sample ID: 5715-24

Page 3 of 3

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	90	25 - 121
Phenol-d5.....	93	24 - 113
Nitrobenzene-d5.....	92	23 - 120
2-Fluorobiphenyl.....	88	30 - 115
2,4,6-Tribromophenol.....	111	19 - 122
Terphenyl-d14.....	109	18 - 137

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
- {b} Additional compounds.
- {c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Associate Chemist

The cover letter and attachments are integral parts of this report.



METALS

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5715-35

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-04-026-SF
Sample Number: 88524

Matrix: Soil

Date Sampled: 3/11/92
Date Digested: 3/17/92 {b}

Date Received: 3/12/92
Batch Number: 920317-1103 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/18/92
Arsenic (As)/7060.....	2.1	1	.50	3/21/92
Beryllium (Be)/6010.....	.77	1	.25	3/18/92
Cadmium (Cd)/6010.....		1	.50	3/18/92
Chromium (Cr)/6010.....	16.	1	1.0	3/18/92
Copper (Cu)/6010.....	17.	1	1.0	3/18/92
Lead (Pb)/6010.....	13.	1	2.5	3/18/92
Mercury (Hg)/7471.....		1	.25	3/18/92
Nickel (Ni)/6010.....	12.	1	1.0	3/18/92
Selenium (Se)/7740.....		1	.25	3/21/92
Silver (Ag)/6010.....		1	1.0	3/18/92
Thallium (Tl)/7841.....		1	.50	3/21/92
Zinc (Zn)/6010.....	53.	1	1.0	3/18/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/17/92, Batch # 920317-1102; and Hg was digested on 3/17/92, Batch # 920317-1101.
- {c} No entry in the "Concentration" means the metal is not detected at all.

Approved by: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5715-32

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-04-028 SF
Sample Number: 88518

Matrix: Soil

Date Sampled: 3/11/92
Date Digested: 3/17/92 {b}

Date Received: 3/12/92
Batch Number: 920317-1103 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/18/92
Arsenic (As)/7060.....	1.9	1	.50	3/21/92
Beryllium (Be)/6010.....	.67	1	.25	3/18/92
Cadmium (Cd)/6010.....	.52	1	.50	3/18/92
Chromium (Cr)/6010.....	14.	1	1.0	3/18/92
Copper (Cu)/6010.....	16.	1	1.0	3/18/92
Lead (Pb)/6010.....	13.	1	2.5	3/18/92
Mercury (Hg)/7471.....		1	.25	3/18/92
Nickel (Ni)/6010.....	10.	1	1.0	3/18/92
Selenium (Se)/7740.....		1	.25	3/21/92
Silver (Ag)/6010.....		1	1.0	3/18/92
Thallium (Tl)/7841.....		1	.50	3/21/92
Zinc (Zn)/6010.....	55.	1	1.0	3/18/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/17/92, Batch # 920317-1102; and Hg was digested on 3/17/92, Batch # 920317-1101.
- {c} No entry in the "Concentration" means the metal is not detected at all.

Approved by: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



PRIORITY POLLUTANT METALS

Preparation Method: EPA 3050 {a}

Lab Project-Sample ID: 5715-26

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-04-041-SF
Sample Number: 88506

Matrix: Soil

Date Sampled: 3/11/92
Date Digested: 3/17/92 {b}

Date Received: 3/12/92
Batch Number: 920317-1103 {b}

METAL (SYMBOL)/EPA METHOD	ANALYTE CONCENTRATION {c} mg/Kg (ppm)	DILUTION FACTOR	REPORTING LIMIT mg/Kg (ppm)	DATE ANALYZED
Antimony (Sb)/6010.....		1	2.5	3/18/92
Arsenic (As)/7060.....	2.9	1	.50	3/21/92
Beryllium (Be)/6010.....	.66	1	.25	3/18/92
Cadmium (Cd)/6010.....		1	.50	3/18/92
Chromium (Cr)/6010.....	14.	1	1.0	3/18/92
Copper (Cu)/6010.....	13.	1	1.0	3/18/92
Lead (Pb)/6010.....	21.	1	2.5	3/18/92
Mercury (Hg)/7471.....		1	.25	3/18/92
Nickel (Ni)/6010.....	11.	1	1.0	3/18/92
Selenium (Se)/7740.....		1	.25	3/21/92
Silver (Ag)/6010.....		1	1.0	3/18/92
Thallium (Tl)/7841.....		1	.50	3/21/92
Zinc (Zn)/6010.....	48.	1	1.0	3/18/92

COMMENTS:

- {a} Applies to all metals except As, Se, Tl and Hg. EPA Method 3050 Nitric used for As, Se and Tl digestion. EPA Method 7471 used for Hg digestion.
- {b} Applies to all metals except As, Se, Tl and Hg. As, Se and Tl were digested on 3/17/92, Batch # 920317-1102; and Hg was digested on 3/17/92, Batch # 920317-1101.
- {c} No entry in the "Concentration" means the metal is not detected at all.

Approved by: Nancy McDonald for CM Date: 3/31/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



RADIONUCLIDES

TELEDYNE ISOTOPIES

REPORT OF ANALYSIS

RUN DATE 05/09/92

PAGE 4

WORK ORDER NUMBER

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

03/16/92

DELIVERY DATE

04/18/92

3-0602

92714

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	TIME	STOP DATE	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-S U/M	MID-COUNT TIME DATE	VOLUME - UNITS ASH-WGHT-%	LAB.
69740	88503	SM040033C	03/11	0800		BE-7	L.T. 5. E-01		03/30		4
						K-40	2.41+-0.24E 01		03/30		4
						MN-54	L.T. 5. E-02		03/30		4
						CO-58	L.T. 5. E-02		03/30		4
						FE-59	L.T. 1. E-01		03/30		4
						CO-60	L.T. 5. E-02		03/30		4
						ZN-65	L.T. 1. E-01		03/30		4
						ZN-95	L.T. 6. E-02		03/30		4
						RU-103	L.T. 6. E-02		03/30		4
						RU-106	L.T. 4. E-01		03/30		4
						I-131	L.T. 2. E-01		03/30		4
						CS-134	L.T. 6. E-02		03/30		4
						CS-137	2.87+-0.52E-01		03/30		4
						BA-140	L.T. 1. E-01		03/30		4
						CE-141	L.T. 1. E-01		03/30		4
						CE-144	L.T. 3. E-01		03/30		4
						RA-226	1.96+-0.79E 00		03/30		4
						TH-228	1.50+-0.15E 00		03/30		4
						H-3	3.3 +-1.4 E-02		05/02		5
69741	88508	SM040033B	03/11	0900		PU-238	L.T. 2. E-02		04/11		6
						PU-239	L.T. 1. E-02		04/11		6
69742	88509	SM040033C	03/11	0900		BE-7	L.T. 5. E-01		04/01		4
						K-40	2.43+-0.24E 01		04/01		4
						MN-54	L.T. 5. E-02		04/01		4
						CO-58	L.T. 6. E-02		04/01		4
						FE-59	L.T. 1. E-01		04/01		4
						CO-60	L.T. 4. E-02		04/01		4
						ZN-65	L.T. 1. E-01		04/01		4
						ZN-95	L.T. 7. E-02		04/01		4
						RU-103	L.T. 7. E-02		04/01		4
						RU-106	L.T. 4. E-01		04/01		4

ADDITIONAL DATA 10/14/92
RUN DATE 05/02/92

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

PAGE 7

DATE RECEIVED 03/16/92

DELIVERY DATE 04/18/92

CUSTOMER P.O. NUMBER

WORK ORDER NUMBER

3-0602

04-0029403-012

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA 92714

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M *	MID-COUNT		VOLUME - UNITS ASH-WGHT-%	LAB.					
			START DATE	STOP DATE				TIME	TIME							
69748 88527	SM04024SC		03/11	1200	ZR-95	L.T. 7. E-02		04/02		4						
					RU-103	L.T. 6. E-02		04/02	4							
					RU-106	L.T. 4. E-01		04/02	4							
					I-131	L.T. 3. E-01		04/02	4							
					CS-134	L.T. 6. E-02		04/02	4							
					CS-137	4.15+-0.56E-01		04/02	4							
					BA-140	L.T. 1. E-01		04/02	4							
					CE-141	L.T. 1. E-01		04/02	4							
					CE-144	L.T. 3. E-01		04/02	4							
					RA-226	1.83+-0.78E 00		04/02	4							
					TH-228	1.34+-0.13E 00		04/02	5							
					H-3	5.5 +-1.3 E-02		05/02	6							
					69749 88477	BG01100SB		03/10	1600	PU-238	L.T. 2. E-02		04/11		6	
										PU-239	L.T. 1. E-02		04/11	4		
69750 88478	BG01100SC		03/10	1600	BE-7	L.T. 4. E-01		04/01		4						
					K-40	2.02+-0.20E 01		04/01	4							
					MN-54	L.T. 4. E-02		04/01	4							
					CO-58	L.T. 4. E-02		04/01	4							
					FE-59	L.T. 9. E-02		04/01	4							
					CO-60	L.T. 4. E-02		04/01	4							
					ZN-65	L.T. 9. E-02		04/01	4							
					ZR-95	L.T. 5. E-02		04/01	4							
					RU-103	L.T. 5. E-02		04/01	4							
					RU-106	L.T. 3. E-01		04/01	4							
					I-131	L.T. 2. E-01		04/01	4							
					CS-134	L.T. 4. E-02		04/01	4							
					CS-137	1.81+-0.35E-01		04/01	4							
					BA-140	L.T. 1. E-01		04/01	4							
CE-141	L.T. 8. E-02		04/01	4												
CE-144	L.T. 3. E-01		04/01	4												
RA-226	2.25+-0.59E 00		04/01	4												

10-14-92
y m l e t i n

A second analysis of TI#69748 gave result of Cs-137 = $3.91 \pm 0.43E-01$.

TELETYPE ISOTOPE

REPORT OF ANALYSIS

RUN DATE 05/01/92

PAGE 1

WORK ORDER NUMBER

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA 92714

3-0634

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

03/13/92

DELIVERY DATE

04/15/92

FOOD/GARDEN CROPS-FRUIT

TELFOYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M	DATE	MID-COUNT TIME	VOLUME - UNITS		LAR.
			START DATE	STOP DATE						ASH-WGHT-%	AS	
69547	90224 SM-04-003-0A		03/11	1500	SR-90	L.T. 5. F-03		04/07		2.33	3	3
					I-129	L.T. 2. E-02		04/03			3	3
					BE-7	L.T. 5. E-02		03/20			4	4
					K-40	1.71+0.17E 00		03/20			4	4
					MN-54	L.T. 6. E-03		03/20			4	4
					CO-58	L.T. 6. E-03		03/20			4	4
					FE-59	L.T. 1. E-02		03/20			4	4
					CO-60	L.T. 6. E-03		03/20			4	4
					ZN-65	L.T. 1. E-02		03/20			4	4
					ZR-95	L.T. 6. E-03		03/20			4	4
					RU-103	L.T. 6. E-03		03/20			4	4
					RU-106	L.T. 5. E-02		03/20			4	4
					I-131	L.T. 1. E-02		03/20			4	4
					CS-134	L.T. 6. E-03		03/20			4	4
					CS-137	L.T. 6. E-03		03/20			4	4
					BA-140	L.T. 8. E-03		03/20			4	4
					CE-141	L.T. 9. E-03		03/20			4	4
					CE-144	L.T. 4. E-02		03/20			4	4
					RA-226	L.T. 1. E-01		03/20			4	4
					TH-228	L.T. 9. E-03		03/20			4	4
69548	90225 SM-04-003-0A		03/11	1500	H-3	L.T. 1. E-01		04/07			5	5
					PU-238	L.T. 4. E-04		04/06			6	6
					PU-239	L.T. 1. E-04		04/06			6	6
					SR-90	L.T. 3. E-03		04/07		2.06	3	3
					I-129	L.T. 3. E-02		04/03			3	3
					BE-7	L.T. 6. E-02		03/20			4	4
					K-40	1.62+0.16E 00		03/20			4	4
					MN-54	L.T. 6. E-03		03/20			4	4
					CO-58	L.T. 7. E-03		03/20			4	4
					FE-59	L.T. 2. E-02		03/20			4	4
69549	90226 SM-04-003-0A		03/11	1500	CO-60	L.T. 7. E-03		03/20			4	4
					ZN-65	L.T. 2. E-02		03/20			4	4

MCLAREN/HART

MAY - 8 1992

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/01/92

PAGE 4

WORK ORDER NUMBER

3-0634

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

03/13/92

DELIVERY DATE

04/15/92

ERIC SMITH

MCLAREN/HART

16755 VGN KARMAN AVE

IRVINE CA

92714

FOOD/GARDEN CROPS--FRUIT

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (PCI/CM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	VOLUME - UNITS		LAB.
			START DATE	STOP DATE					ASH-WGHT-%	ASHT-WGHT-%	
69551	90232 SM-04-026-0A		03/11	1515	SR-90	L.T. 5. E-03		04/08	1.73 *		3
					I-129	L.T. 2. E-02		04/03			3
					BE-7	L.T. 7. E-02		03/20			4
					K-40	2.01+-0.20E 00		03/20			4
					MN-54	L.T. 7. E-03		03/20			4
					CO-58	L.T. 8. E-03		03/20			4
					FE-59	L.T. 2. E-02		03/20			4
					CO-60	L.T. 8. E-03		03/20			4
					ZN-65	L.T. 2. E-02		03/20			4
					ZR-95	L.T. 8. E-02		03/20			4
					RU-103	L.T. 8. E-03		03/20			4
					RU-106	L.T. 7. E-02		03/20			4
					I-131	L.T. 2. E-02		03/20			4
					CS-134	L.T. 8. E-03		03/20			4
					CS-137	L.T. 8. E-03		03/20			4
					RA-140	L.T. 1. E-02		03/20			4
					CE-141	L.T. 1. E-02		03/20			4
					CE-144	L.T. 5. E-02		03/20			4
					RA-226	L.T. 1. E-01		03/20			4
					TH-228	L.T. 1. E-02		03/20			4
					H-3	L.T. 9. E-02		04/07			5
					PU-238	L.T. 2. E-04		04/07			6
					PU-239	L.T. 1. E-04		04/07			6
69552	90233 SM-04-026-0A		03/11	1515	SR-90	L.T. 8. E-03		04/08	4.51 *		3
					I-129	L.T. 3. E-02		04/03			3
					BF-7	L.T. 7. E-02		03/20			4
					K-40	2.36+-0.24E 00		03/20			4
					MN-54	L.T. 7. E-03		03/20			4
					CO-58	L.T. 7. E-03		03/20			4
					FE-59	L.T. 2. E-02		03/20			4
					CO-60	L.T. 7. E-03		03/20			4
					ZN-65	L.T. 2. E-02		03/20			4
											4

TELEDYNE ISOTOPIES

REPORT OF ANALYSIS

RUN DATE 05/01/92

PAGE 5

WORK ORDER NUMBER

3-0634

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

03/13/92

DELIVERY DATE

04/15/92

ERIC SMITH

MCLAREN/HART

16755 VON KARMAN AVE

IRVINE CA

92714

FOOD/GARDEN CROPS-FRUIT

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M %	MID-COUNT TIME DATE	VOLUME - UNITS ASH-WGHT-%	LAR.
69552	90233 SN-04-026-0A		03/11	1515	ZR-95	L.T. 8. E-03		03/20		4
					RU-103	L.T. 8. E-03		03/20		4
					RU-106	L.T. 7. E-02		03/20		4
					I-131	L.T. 2. E-02		03/20		4
					CS-134	L.T. 8. E-03		03/20		4
					CS-137	L.T. 8. E-03		03/20		4
					BA-140	L.T. 1. E-02		03/20		4
					CE-141	L.T. 1. E-02		03/20		4
					CE-144	L.T. 5. E-02		03/20		4
					RA-226	L.T. 1. E-01		03/20		4
					TH-228	L.T. 1. E-02		03/20		4
					H-3	L.T. 9. E-02		04/07		5
					PU-238	L.T. 9. E-04		04/06		6
					PU-239	L.T. 6. E-04		04/06		6
69553	90240	MS	03/11	1515	SR-90	5.3 +-0.4 E-01		04/08		3
					I-129	3.8 +-0.3 E-01		03/27		3
					RE-7	L.T. 3. E-01		04/08		4
					K-40	L.T. 6. E-02		04/08		4
					MN-54	L.T. 5. E-03		04/08		4
					CO-58	L.T. 2. E-02		04/08		4
					FE-59	L.T. 9. E-02		04/08		4
					CO-60	2.12+-0.43E-02		04/08		4
					ZN-65	L.T. 1. E-02		04/08		4
					ZR-95	L.T. 2. E-02		04/08		4
					RU-103	L.T. 8. E-02		04/08		4
					RU-106	L.T. 5. E-02		04/08		4
					CS-134	L.T. 6. E-03		04/08		4
					CS-137	1.27+-0.38E-02		04/08		4
					BA-140	L.T. 4. E 01		04/08		4
					CE-141	L.T. 2. E-01		04/08		4
					CE-144	L.T. 5. E-02		04/08		4
					RA-226	L.T. 9. E-02		04/08		4



VOLATILE ORGANIC COMPOUNDS

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Modified (a)
Preparation Method: EPA 5030

Lab Project-Sample ID: 5727-4

Page 1 of 2

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SM05001GH
Sample Number: 197602

Matrix: Water

Date Sampled: 3/11/92
Date Analyzed: 3/17/92

Date Received: 3/14/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION (c) ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		10
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene (b).....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Modified
Preparation Method: EPA 5030

Lab Project-Sample ID: 5879-8

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
----------	--	----------------------------------

1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	100	76 - 114
Toluene-D8	102	88 - 110
4-Bromofluorobenzene	104	86 - 115

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
- {b} Additional compounds.
- {c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald Loren Date: 5/11/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



SEMI-VOLATILE ORGANIC COMPOUNDS

SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3510

Lab Project-Sample ID: 5727-5

Page 1 of 3

Project Name: Rocketdyne
Project Number: 03.0029403.012

Sample Description: SMDS 001 GG
Sample Number: 197607

Matrix: Water

Date Sampled: 3/11/92
Date Extracted: 3/16/92

Date Received: 3/14/92
Date Analyzed: 3/23/92

Batch Number: 920316-2001

Dilution Factor: 1

ANALYTE CONCENTRATION {c} ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Phenol.....	10
Bis(2-chloroethyl)ether.....	10
2-Chlorophenol.....	10
1,3-Dichlorobenzene.....	10
1,4-Dichlorobenzene.....	10
Benzyl alcohol.....	10
2-Methylphenol.....	10
1,2-Dichlorobenzene.....	10
Bis(2-Chloroisopropyl)ether.....	10
4-Methylphenol.....	10
N-Nitroso-di-n-propylamine.....	10
Hexachloroethane.....	10
Nitrobenzene.....	10
Isophorone.....	10
2,4-Dimethylphenol.....	10
1,2,4-Trichlorobenzene.....	10
2-Nitrophenol.....	10
Benzoic acid.....	50
Bis(2-Chloroethoxy)methane.....	10
2,4-Dichlorophenol.....	10
Naphthalene.....	10
4-Chloroaniline.....	10
Hexachlorobutadiene.....	10
4-Chloro-3-methylphenol.....	10
2-Methylnaphthalene.....	10
Hexachlorocyclopentadiene.....	10
2,4,6-Trichlorophenol.....	10
2,4,5-Trichlorophenol.....	10
2-Chloronaphthalene.....	10
3-Nitroaniline.....	50
Dimethylphthalate.....	10



McLarenTM
Hart

SEMI-VOLATILE ORGANICS

Analytical Method: EPA 8270 - Modified {a}
Preparation Method: EPA 3510

Lab Project-Sample ID: 5727-5

Page 3 of 3

ANALYTE CONCENTRATION {c} ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzo(k)fluoranthene.....	10
Benzo(a)pyrene.....	10
Indeno(1,2,3-c,d)pyrene.....	10
Dibenzo(a,h)anthracene.....	10
Benzo(g,h,i)perylene.....	10

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorophenol.....	52	21 - 100
Phenol-d5.....	32	10 - 94
Nitrobenzene-d5.....	100	35 - 114
2-Fluorobiphenyl.....	93	43 - 116
2,4,6-Tribromophenol.....	104	10 - 123
Terphenyl-d14.....	112	33 - 141

COMMENTS:

- {a} Includes all analytes as listed in Table 2 of Method 8270, SW-846, 3rd Edition.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected at all.

Approved By: Nancy McDonald for CM
Cheryl Matterson, Associate Chemist

Date: 3/30/92

The cover letter and attachments are integral parts of this report.



POLYNUCLEAR AROMATICS
Analytical Method: EPA 610
Preparation Method: EPA 3510

Lab Project-Sample ID: 5752-5
Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-05-002-GG
Sample Number: 196677
Date Sampled: 3/18/92
Date Extracted: 3/20/92
Batch Number: 920320-2003

Matrix: Water
Date Received: 3/19/92
Date Analyzed: 3/25/92
Dilution Factor: 1

ANALYTE CONCENTRATION {a} ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Naphthalene.....	10
Acenaphthylene.....	10
Acenaphthene.....	10
Fluorene.....	10
Phenanthrene.....	10
Anthracene.....	10
Fluoranthene.....	10
Pyrene.....	20
Benzo(a)anthracene.....	20
Chrysene.....	20
Benzo(b)fluoranthene.....	20
Benzo(k)fluoranthene.....	20
Benzo(a)pyrene.....	50
Indeno(1,2,3-c,d)pyrene.....	50
Dibenz(a,h)anthracene.....	50
Benzo(g,h,i)perylene.....	50

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorobiphenyl	106	43 - 116

COMMENTS:

{a} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected.

Approved by: Nancy McDonald for CM Date: 4/01/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



Table: Results of the analyses for iodine-129 in seven (7) and strontium-90 in nine (9) water samples.

Sample ID Number	Sample Description	Collection Date	Lab Code	Concentration pCi/L			
				I-129	Date Analyzed	Sr-90	Date Analyzed
196881	BB13039RA	03/17/92	SPW-1973	ND		<0.3	04/30
196882	BB13039RA	03/17/92	1974	ND		<0.3	04/30
196884	BB13010RC	03/17/92	1975	<1.3	04/03	ND	
171861	SM08001WC	03/18/92	1976	<1.1	04/03	ND	
196863	SM05002GC	03/18/92	1977	<1.1	04/03	ND	
171161	SM07002GC	03/18/92	1978	<1.1	04/03	ND	
171860	SM08001WA	03/18/92	1979	ND		<0.4	04/30
196682	SM05002GA	03/18/92	1980	ND		<0.4	04/30
171160	SM07002GA	03/18/92	1981	ND		<0.3	04/22
196886	BB11057RA	03/18/92	1982	ND		<0.3	04/30
196887	BB11057RA	03/18/92	1983	ND		<0.3	04/22
196889	BB11006RC	03/18/92	1984	<1.1	04/03	ND	
208747	BB07038RC	03/19/92	1985	<1.2	04/03	ND	
208748	BB07038RC	03/19/92	1986	<1.2	04/03	ND	
208744	BB07058RA	03/19/92	1987	ND		<0.3	04/30
208745	BB07058RA	03/19/92	1988	ND		<0.3	04/30

Less than (<) values are based on 3 sigma counting error for background sample.

ND - no data, analysis not required.

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 06/09/92

PAGE 1

DELIVERY DATE 06/22/92

CUSTOMER P.O. NUMBER 04-0029403-012

WORK ORDER NUMBER 3-1681

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA 92714

WATER - GROUND

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (PCI/LITER)	NUCL-UNIT-% U/M #	MID-COUNT		VOLUME - UNITS ASH-WGHT-% #	LAB.
			START DATE	STOP DATE				TIME	DATE		
69559	197610	SM05001GF	03/11	1750	I-129	L.T. 6. E 00		06/02	06/02		3
69758	170666	SM07001GF	03/11	1100	I-129	L.T. 7. E 00		06/02	06/02		3

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/13/92

PAGE 1

DELIVERED MAY 13 1992

WORK ORDER NUMBER

3-0685

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

03/19/92

DELIVERY DATE

04/21/92

ERIC SMITH
MCLAREN/WART
16755 VON KARMAN AVE
IRVINE CA 92714

WATER - GROUND

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	STOP DATE	NUCLIDE	ACTIVITY (PCI/LITER)	NUCL-UNIT-2 U/M	MID-COUNT TIME DATE	VOLUME - UNITS ASH-VEHT-2	LAB.
70339	196470	SM0500260	03/18	1345	BE-7	L.T. 4. E 01		03/31		4
					R-40	L.T. 1. E 02		03/31		4
					MN-54	L.T. 4. E 00		03/31		4
					CO-58	L.T. 4. E 00		03/31		4
					FE-59	L.T. 9. E 00		03/31		4
					CO-60	L.T. 4. E 00		03/31		4
					ZN-65	L.T. 8. E 00		03/31		4
					ZR-95	L.T. 4. E 00		03/31		4
					RU-103	L.T. 5. E 00		03/31		4
					RU-106	L.T. 9. E 01		03/31		4
					I-131	L.T. 1. E 01		03/31		4
					CS-134	L.T. 4. E 00		03/31		4
					CS-137	L.T. 4. E 00		03/31		4
					BA-140	L.T. 8. E 00		03/31		4
					CE-141	L.T. 6. E 00		03/31		4
					CE-144	L.T. 2. E 01		03/31		4
					RA-226	L.T. 7. E 01		03/31		4
					TN-228	L.T. 7. E 00		03/31		4
70340	196479	SM0500261	03/18	1345	GR-A	2.9 +-2.7 E 00		04/01		3
					GR-B	8.3 +-3.4 E 00		04/01		3
70341	196480	SM050026F	03/18	1345	H-3	L.T. 2. E 02		05/12		5
70342	196481	SM050026B	03/18	1345	PU-238	L.T. 1. E-01		04/21		6
					PU-239	L.T. 9. E-02		04/21		6

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/15/92
PAGE 1

WORK ORDER NUMBER

3-0635

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

03/13/92

DELIVERY DATE

04/15/92

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA 92714

WATER - GROUND

TELEDYNE
SAMPLE
NUMBERCUSTOMER'S
IDENTIFICATIONSTA
NUM

COLLECTION-DATE

START
DATESTOP
DATE

TIME

NUCLIDE

ACTIVITY
(PC/LITER)NUCL-UNIT-%
U/M #MID-COUNT
DATE

TIME

VOLUME - UNITS
ASH-WGHT-%

LAB.

69558 197608 86-01-00260

03/11 1730

BE-7
K-40
MN-54
CO-58
FE-59
CO-60
ZN-65
ZR-95
RU-103
RU-106
I-131
CS-134
CS-137
BA-140
CE-141
CE-144
RA-226
TH-228L.T. 4. E 01
L.T. 9. E 01
L.T. 4. E 00
L.T. 4. E 00
L.T. 8. E 00
L.T. 4. E 00
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L.T. 9. E 00
L.T. 4. E 00
L.T. 5. E 00
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L.T. 7. E 00
L.T. 3. E 01
L.T. 8. E 01
L.T. 9. E 0003/20
03/20
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69559 197610 86-01-00260

03/11 1750

H-3

L.T. 1. E 02

05/02

5

69561 197609 86-01-00260

03/11 1755

GR-A
GR-BL.T. 7. E 00
7.9 +-3.2 E 0003/31
03/313
3

RUN DATE 09/01/92

REPORT OF ANALYSIS

PAGE 1

DATE RECEIVED DELIVERY DATE

CUSTOMER P.O. NUMBER

WORK ORDER NUMBER

08/28/91

04-002943-012

3-3360

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA

92714

WATER - GROUND

TELEDYNE
SAMPLE
NUMBER

CUSTOMER'S IDENTIFICATION

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COLLECTION-DATE	TART	STOP	TE	TIME DATE	T
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[illegible]

ACTIVITY
(PCI/LITER)

NUCL-UNIT-2
U/M *

MID-COUNT TIME	DATE	TIME
100	10/10/10	10:10
200	10/10/10	10:20
300	10/10/10	10:30
400	10/10/10	10:40
500	10/10/10	10:50
600	10/10/10	11:00
700	10/10/10	11:10
800	10/10/10	11:20
900	10/10/10	11:30
1000	10/10/10	11:40
1100	10/10/10	11:50
1200	10/10/10	12:00
1300	10/10/10	12:10
1400	10/10/10	12:20
1500	10/10/10	12:30
1600	10/10/10	12:40
1700	10/10/10	12:50
1800	10/10/10	13:00
1900	10/10/10	13:10
2000	10/10/10	13:20
2100	10/10/10	13:30
2200	10/10/10	13:40
2300	10/10/10	13:50
2400	10/10/10	14:00
2500	10/10/10	14:10
2600	10/10/10	14:20
2700	10/10/10	14:30
2800	10/10/10	14:40
2900	10/10/10	14:50
3000	10/10/10	15:00
3100	10/10/10	15:10
3200	10/10/10	15:20
3300	10/10/10	15:30
3400	10/10/10	15:40
3500	10/10/10	15:50
3600	10/10/10	16:00
3700	10/10/10	16:10
3800	10/10/10	16:20
3900	10/10/10	16:30
4000	10/10/10	16:40
4100	10/10/10	16:50
4200	10/10/10	17:00
4300	10/10/10	17:10
4400	10/10/10	17:20
4500	10/10/10	17:30
4600	10/10/10	17:40
4700	10/10/10	17:50
4800	10/10/10	18:00
4900	10/10/10	18:10
5000	10/10/10	18:20
5100	10/10/10	18:30
5200	10/10/10	18:40
5300	10/10/10	18:50
5400	10/10/10	19:00
5500	10/10/10	19:10
5600	10/10/10	19:20
5700	10/10/10	19:30
5800	10/10/10	19:40
5900	10/10/10	19:50
6000	10/10/10	20:00
6100	10/10/10	20:10
6200	10/10/10	20:20
6300	10/10/10	20:30
6400	10/10/10	20:40
6500	10/10/10	20:50
6600	10/10/10	21:00
6700	10/10/10	21:10
6800	10/10/10	21:20
6900	10/10/10	21:30
7000	10/10/10	21:40
7100	10/10/10	21:50
7200	10/10/10	22:00
7300	10/10/10	22:10
7400	10/10/10	22:20
7500	10/10/10	22:30
7600	10/10/10	22:40
7700	10/10/10	22:50
7800	10/10/10	23:00
7900	10/10/10	23:10
8000	10/10/10	23:20
8100	10/10/10	23:30
8200	10/10/10	23:40
8300	10/10/10	23:50
8400	10/10/10	00:00
8500	10/10/10	00:10
8600	10/10/10	00:20
8700	10/10/10	00:30
8800	10/10/10	00:40
8900	10/10/10	00:50
9000	10/10/10	01:00
9100	10/10/10	01:10
9200	10/10/10	01:20
9300	10/10/10	01:30
9400	10/10/10	01:40
9500	10/10/10	01:50
9600	10/10/10	02:00
9700	10/10/10</	

VOLUME - UNITS
ASH-WGHT-% ✱

LAB.

69560 197611 26-01-00268

03/11 1750

PU-238
PU-239

L.T. 2.0 E-01
L.T. 9.0 E-02

08/29 08/29

66



VOLATILE ORGANIC COMPOUNDS

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Modified
Preparation Method: EPA 5030

Lab Project-Sample ID: 5715- 1

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	108	76 - 114
Toluene-D8	99	88 - 110
4-Bromofluorobenzene	106	86 - 115

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald for CM Date: 3/28/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



VOLATILE ORGANICS

Analytical Method: EPA 8240 - Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5752-6

Page 1 of 2

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-07-002-GH
Sample Number: 171151

Matrix: Water

Date Sampled: 3/18/92
Date Analyzed: 3/20/92

Date Received: 3/19/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		10
Acetone.....		25
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		5
2-Butanone.....		25
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....	9	5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		5
2-Chloroethylvinlyether.....		10
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		5
4-Methyl-2-Pentanone.....		25
Toluene.....		5
2-Hexanone.....		25
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		5



POLYNUCLEAR AROMATICS
Analytical Method: EPA 610
Preparation Method: EPA 3510

Lab Project-Sample ID: 5715-2
Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM07001GG
Sample Number: 170655
Date Sampled: 3/11/92
Date Extracted: 3/17/92
Batch Number: 920317-0302

Matrix: Water
Date Received: 3/12/92
Date Analyzed: 3/19/92
Dilution Factor: 1

ANALYTE CONCENTRATION {a} ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Naphthalene.....	10
Acenaphthylene.....	10
Acenaphthene.....	10
Fluorene.....	10
Phenanthrene.....	10
Anthracene.....	10
Fluoranthene.....	10
Pyrene.....	10
Benzo(a)anthracene.....	20
Chrysene.....	20
Benzo(b)fluoranthene.....	20
Benzo(k)fluoranthene.....	20
Benzo(a)pyrene.....	20
Indeno(1,2,3-c,d)pyrene.....	50
Dibenz(a,h)anthracene.....	50
Benzo(g,h,i)perylene.....	50

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorobiphenyl	95	43 - 116

COMMENTS:

{a} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected.

Approved by: Nancy McDonald for CM Date: 3/27/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



RADIONUCLIDES

Table: Results of the analyses for iodine-129 in seven (7) and strontium-90 in seven (7) water samples.

Sample ID Number	Sample Description	Collection Date	Lab Code	Concentration pCi/L			
				I-129	Date Analyzed	Sr-90	Date Analyzed
196855	<i>BG 02074 RC</i> RINSATE	03/10/92	SPW-1844	<0.8	03/30	ND	
196854	<i>BG 02074 RC</i> RINSATE	03/10/92	1845	<0.7	03/30	ND	
196851	<i>BG 02074 RC</i> RINSATE	03/10/92	1846	ND		<0.3	04/03
196853	<i>BG 02074 RC</i> RINSATE	03/10/92	1847	ND		<0.3	04/03
196808	SM03014RA	03/11/92	1848	<0.7	05/28	<0.4	04/22
196809	SM03014RA	03/11/92	1849	<0.7	04/16	<0.4	04/22
170661	SM07001GC	03/11/92	1850	<0.9	03/30	ND	
170664	SM07001GA	03/11/92	1851	ND		<0.4	04/03
197161	BG01002WA	03/12/92	1852	ND		<0.4	04/03
197162	BG01002WC	03/11/92	1853	<0.7	03/30	ND	
197612	SM05001GA	03/11/92	1854	ND		<0.4	04/03
197613	SM05001GC	03/11/92	1855	<0.7	03/30	ND	

Less than (<) values are based on 3 sigma counting error for background sample.

ND - no data, analysis not required.



WATER

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Modified {a}
Preparation Method: EPA 5030

Lab Project-Sample ID: 5752-1

Page 1 of 2

Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-08-001-WH
Sample Number: 171851

Matrix: Water

Date Sampled: 3/18/92
Date Analyzed: 3/20/92

Date Received: 3/19/92
Dilution Factor: 1

COMPOUND	ANALYTE CONCENTRATION {c} ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Chloromethane.....		10
Vinyl Chloride.....		10
Bromomethane.....		10
Chloroethane.....		10
Trichlorofluoromethane.....		25
Acetone.....		5
1,1-Dichloroethene.....		5
Methylene Chloride.....		5
Carbon Disulfide.....		5
trans-1,2-Dichloroethene.....		5
1,1-Dichloroethane.....		5
cis-1,2-Dichloroethene {b}.....		5
Chloroform.....		5
1,2-Dichloroethane.....		25
2-Butanone.....		5
1,1,1-Trichloroethane.....		5
Carbon Tetrachloride.....		5
Benzene.....		5
Trichloroethene.....		5
1,2-Dichloropropane.....		5
Bromodichloromethane.....		10
2-Chloroethylvinlyether.....		5
trans-1,3-Dichloropropene.....		5
cis-1,3-Dichloropropene.....		5
1,1,2-Trichloroethane.....		5
Dibromochloromethane.....		5
Bromoform.....		25
4-Methyl-2-Pentanone.....		5
Toluene.....		25
2-Hexanone.....		5
Tetrachloroethene.....		5
Chlorobenzene.....		5
Ethylbenzene.....		5
m & p-Xylene.....		5
o-Xylene.....		5
Styrene.....		



McClarenTM
Hart

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Modified
Preparation Method: EPA 5030

Lab Project-Sample ID: 5752-1

Page 2 of 2

COMPOUND	ANALYTE CONCENTRATION {c} ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
1,1,2,2-Tetrachloroethane.....		5
1,3-Dichlorobenzene {b}.....		5
1,4-Dichlorobenzene {b}.....		5
1,2-Dichlorobenzene {b}.....		5

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
1,2-Dichloroethane-D4	106	76 - 114
Toluene-D8	101	88 - 110
4-Bromofluorobenzene	97	86 - 115

COMMENTS:

- {a} Includes all compounds as listed in Table 2 of SW-846, 3rd Edition for Method 8240.
{b} Additional compounds.
{c} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the compound is not detected at all.

Approved By: Nancy McDonald for CM Date: 4/01/92
Cheryl Matterson, Associate Chemist

The cover letter and the attachments are integral parts of this report.



POLYNUCLEAR AROMATICS
Analytical Method: EPA 610
Preparation Method: EPA 3510

Lab Project-Sample ID: 5752-2
Project Name: Rocketdyne SSFL
Project Number: 03.0029403.012

Sample Description: SM-08-001-WF
Sample Number: 171855
Date Sampled: 3/18/92
Date Extracted: 3/20/92
Batch Number: 920320-2003

Matrix: Water
Date Received: 3/19/92
Date Analyzed: 3/25/92
Dilution Factor: 1

ANALYTE CONCENTRATION {a} ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Naphthalene.....	10
Acenaphthylene.....	10
Acenaphthene.....	10
Fluorene.....	10
Phenanthrene.....	10
Anthracene.....	10
Fluoranthene.....	10
Pyrene.....	10
Benzo(a)anthracene.....	10
Chrysene.....	20
Benzo(b)fluoranthene.....	20
Benzo(k)fluoranthene.....	20
Benzo(a)pyrene.....	20
Indeno(1,2,3-c,d)pyrene.....	20
Dibenz(a,h)anthracene.....	50
Benzo(g,h,i)perylene.....	50

SURROGATE	PERCENT RECOVERY	ACCEPTANCE LIMITS
2-Fluorobiphenyl	106	43 - 116

COMMENTS:

{a} Concentrations lower than the Reporting Limits are estimated values. No entry in "Analyte Concentration" means the analyte is not detected.

Approved by: Nancy McDonald for CM Date: 4/01/92
Cheryl Matterson, Association Chemist

The cover letter and attachments are integral parts of this report.



Table: Results of the analyses for iodine-129 in seven (7) and strontium-90 in nine (9) water samples.

Sample ID Number	Sample Description	Collection Date	Lab Code	Concentration pCi/L			
				I-129	Date Analyzed	Sr-90	Date Analyzed
196881	BB13039RA	03/17/92	SPW-1973	ND		<0.3	04/30
196882	BB13039RA	03/17/92	1974	ND		<0.3	04/30
196884	BB13010RC	03/17/92	1975	<1.3	04/03	ND	
171861	SM08001WC	03/18/92	1976	<1.1	04/03	ND	
196863	SM05002GC	03/18/92	1977	<1.1	04/03	ND	
171161	SM07002GC	03/18/92	1978	<1.1	04/03	ND	
171860	SM08001WA	03/18/92	1979	ND		<0.4	04/30
196682	SM05002GA	03/18/92	1980	ND		<0.4	04/30
171160	SM07002GA	03/18/92	1981	ND		<0.3	04/22
196886	BB11057RA	03/18/92	1982	ND		<0.3	04/30
196887	BB11057RA	03/18/92	1983	ND		<0.3	04/22
196889	BB11006RC	03/18/92	1984	<1.1	04/03	ND	
208747	BB07038RC	03/19/92	1985	<1.2	04/03	ND	
208748	BB07038RC	03/19/92	1986	<1.2	04/03	ND	
208744	BB07058RA	03/19/92	1987	ND		<0.3	04/30
208745	BB07058RA	03/19/92	1988	ND		<0.3	04/30

Less than (<) values are based on 3 sigma counting error for background sample.

ND - no data, analysis not required.

1.1.1.

6 - ALPHA SFFC LAB.

TELEDYNE ISOTOPIES

REPORT OF ANALYSIS

RUN DATE 06/09/92

PAGE 3

WORK ORDER NUMBER

3-1681

CUSTOMER P.O. NUMBER

04-0029403-012

DATE RECEIVED

05/20/92

DELIVERY DATE

06/22/92

ERIC SMITH
MCLAREN/HART
16755 VON KARMAN AVE
IRVINE CA 92714

WATER - SURFACE

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	STOP DATE	NUCLIDE	ACTIVITY (PCI/LITER)	NUCL-UNIT-X U/M *	MID-COUNT TIME DATE	VOLUME - UNITS ASH-NGHT-X *	LAB.
69556	197158	BG01002WE	03/12	1530	I-129	L.T. 7. E 00		06/02		3
70345	171858	SH08001WE	11/25		I-129	L.T. 6. E 00		06/02		3
70447	170680	B804001WE	03/16	1405	I-129	L.T. 7. E 00		06/03		3
74347	197118	B818003WE	04/21	1320	I-129	L.T. 7. E 00		06/03		3
74348	197119	B800001WE	04/23	0830	I-129	L.T. 6. E 00		06/03		3
74403	197872	B819003WE	04/23	0830	I-129	L.T. 7. E 00		06/03		3
74407	197308	B816001WE	04/23	0950	I-129	L.T. 6. E 00		06/03		3

Pratt

LAST PAGE OF REPORT

APPROVED BY J. GUENTHER 06/09/92

SEND 1 COPIES TO MC480S ERIC SMITH

2 - GAS LAB.

3 - RADIO CHEMISTRY LAB.

4 - GE(LI) GAMMA SPEC LAB.

5 - TRITIUM GAS/L.S. LAB.

6 - ALPHA SPEC LAB.