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CHICAGO, ILLINOIS 60603-3441

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WRITER'S DIRECT DIAL NUMBER

(312) 701-7961

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PRC ENVIRONMENTAL
MANAGEMENT, INC.

April 10, 1992

Chris Stubbs
South Coast Groundwater Section (H-6-4)
Unites States Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Re: Past Operations at 11800 Sherman Way North Hollywood, CA 91609 (Currently occupied by Mercury Aerospace Fasteners

Dear Mr. Stubbs:

In responding to a request for information from the California Regional Water Quality Board regarding the above site, Microdot Inc. submitted certain documents, which are enclosed. This information is submitted as a supplemental response to U.S. EPA's Section 104(e) request for information in the above matter.

Please contact me or John C. Berghoff, Jr. if you have any questions.

Very truly yours,

James R. MacAyeal

JRM:mc

Enclosure

Document (D)

Enviropro inc.

Environmental and Hazardous Waste Technology

FINAL REPORT FOR THE PHASE I SUBSURFACE INVESTIGATION

Conducted at:

Mercury Aerospace Fasteners
11800 Sherman Way
North Hollywood, CA 91609-9759

Prepared for:

Mr. Jerome Flament
Marketing Manager
Mercury Aerospace Fasteners
11800 Sherman Way
North Hollywood, CA 91609-9759

91 OCT 21 PM

May 1, 1989

Enviropro, Inc., Project No. 35401

Enviropro Inc. • 9765 Eton Avenue, Chatsworth, CA 91311 • Tel. (818) 998-7197

envirepro inc.
Environmental and Hazardous Waste Technology

Mr. Jerome Flament
Marketing Manager
Mercury Aerospace Fasteners
11800 Sherman Way
North Hollywood, CA 91609-9759

May 1, 1989
Project No. 35401

Dear Mr. Flament:

Enclosed is our "Final Report for the Phase I Subsurface Investigation" conducted at Mercury Aerospace Fasteners, located at 11800 Sherman Way, North Hollywood, California.

This report documents and describes all the site investigation work completed to date, presents all data obtained, and includes our recommendations.

After your review, please forward a copy of this report to:

Mr. John Hostak
California Regional Water Quality Control Board
Los Angeles Region
107 S. Broadway, Suite 4027
Los Angeles, CA 90012-4596

If you have any questions, please call Mrs. Rita Kamat or Dr. Michael Uziel at (818) 998-7197.

Very truly yours,

ENVIROPRO, INC.

R.K. Kamat

Rita Kamat
Environmental Scientist

Charles Schwarz

Charles G. Schwarz, #4624
Senior Geologist

M. Uziel

Michael M. Uziel, Ph.D.
President

MMU/CGS/RK/elh

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1.0 EXECUTIVE SUMMARY

A subsurface investigation was performed by Enviropro, Inc. at Mercury Aerospace Fasteners, located at 11800 Sherman Way in North Hollywood, California. The investigation was requested by the California Regional Water Quality Control Board, Los Angeles Region, to comply with AB-1803 Follow-Up Program, Phase I.

The investigation was conducted on 2/17/89 and involved the drilling of three test borings. Results of the drilling, soil sampling, and chemical analyses indicate that soil in the area of Borings A2 and A3-A contains petroleum hydrocarbons at concentrations up to 144 ppm. Purgeable halocarbon levels are also detected at the three locations.

2.0 INTRODUCTION

The subject site is located at 11800 Sherman Way in North Hollywood, California.

On February 17, 1989, three test borings were drilled at locations shown on Drawing 1. The test borings were drilled to a depth of 10 feet and soil samples were collected at depths of 1', 6' and 10' in boring A1 and at 1',5' and 10' in borings A2 and A3A.

Results of the soil sampling and analyses conducted indicate the presence of petroleum hydrocarbons and purgeable halocarbons in the environment.

This report discusses the results of the subsurface investigation conducted by Enviropro, Inc. at the above-referenced site.

3.0 ENVIROPRO, INC. DRILLING AND SOIL SAMPLING PROCEDURES

All drilling was accomplished using an 8-inch hollow stem auger drilling rig. Soil samples were obtained using a split spoon sampler and a standard 140-pound hammer with a 30-inch drop. After each sample was obtained, the split spoon and sampling tubes were cleaned using steam at 350°F and rinsed with distilled, deionized water to eliminate the possibility of cross-contamination between sampling intervals. After each borehole was drilled, all augers, split spoons and sampling tubes were steam cleaned as described above to prevent cross-contamination between borings.

During the drilling operation, a Photovac TIP II photoionization detector was used to obtain readings of volatile hydrocarbons to be used for qualitative evaluation of the soil samples. These readings are included in the boring logs. All soil samples designated for chemical

analysis were retained inside the stainless steel sampling tubes during retrieval. The ends of each tube were tightly sealed with a sheet of teflon tape and a polyethylene cap. The tubes were then placed inside a ziplock plastic bag. A soil sampling label was placed on the outside of each bag and the bagged samples with labels were placed inside a second ziplock plastic bag.

All prepared soil samples were immediately placed on ice inside a styrofoam cooler, and stored under refrigeration for delivery to a state-certified laboratory for chemical analysis.

4.0 DRILLING AND SOIL SAMPLING RESULTS

On February 17, 1989, three test borings were drilled to a depth of 10 feet at the locations shown on Drawing 1. The boring logs are included in Appendix A.

Soil samples were collected at 1', 6' and 10' at boring A1 and at 1', 5' and 10' in borings A2 and A3A. The samples were transported as per EPA protocol to American Analytics, a state-certified laboratory for chemical analysis. All samples collected were analyzed for Halogenated Volatile Organics, Aromatic Volatile Organics, and Total Recoverable Petroleum Hydrocarbons (TPH) using EPA Methods 8010, 8020, and 418.1, respectively.

The chain-of-custody record and laboratory reports with QA/QC data for this investigation, are included in Appendix B.

Table 4.1 summarizes results for the chemical analyses conducted on soil samples collected at 11800 Sherman Way, North Hollywood, California.

5.0 CONCLUSIONS

Laboratory data indicate that TPH concentrations at the one-foot depth in borings A2 and A3A are 144 ppm and 108 ppm respectively. These concentrations appear to be restricted to the near surface at both locations because TPH levels decrease below 100 ppm at greater depth. TPH concentrations are not detected below six feet in boring A1. The TPH found in shallow depths near the surface may be attributable to asphalt fractions mobilized by other solvents and/or rain water.

TABLE 4.1

Summary of Results of Chemical Analysis
on Soil Samples Collected at
Mercury Aerospace Fasteners
11800 Sherman Way, North Hollywood, California

EPA Test Method	Boring Numbers and Sample Depths								
	A1			A2			A3A		
	1'	6'	10'	1'	5'	10'	1'	5'	10'
418.1(mg/kg)									
TPH	16.4	26.2	n.d.	144	16.4	16.4	108	16.4	13.1
8020(mcg/kg)									
Benzene	2.7	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Toluene	4.8	2.9	n.d.	n.d.	n.d.	n.d.	3.0	2.4	2.0
Ethyl Benzene	3.4	2.3	3.0	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Total Xylenes	13.1	8.2	6.2	n.d.	n.d.	n.d.	7.5	6.4	4.5
8010(mcg/kg)									
1,1,-Dichloro-ethylene	8.4	8.8	29.3	55.2	n.d.	n.d.	8.3	5.6	3.2
1,1,1-Trichloro-ethane	12.3	2.0	n.d.	61.2	n.d.	n.d.	1.1	n.d.	n.d.
Tetrachloro-ethylene	n.d.	n.d.	n.d.	24.3	n.d.	n.d.	n.d.	n.d.	n.d.
Trichloro-ethylene	n.d.	n.d.	n.d.	n.d.	4.3	n.d.	n.d.	n.d.	n.d.

n.d. = none detected
Only detected pollutants are shown in table.

APPENDIX A

Test Boring Logs

Aromatic volatile compounds are present in low concentrations at boring locations A1 and A3A. Benzene is detected at the one-foot depth in boring A1 at a concentration of 2.7 ppb.

Purgeable halocarbons are detected at all three locations. The highest concentration detected (55.2 ppb) is in boring A2 at the one-foot depth. Concentrations of 1-1-Dichloroethylene in boring A1 range from 8.4 ppb to 29.3 ppb at depths of one foot and ten feet, respectively. Other chlorinated volatile compounds detected at the site include 1,1,1-Trichloroethane, Tetrachloroethylene and Trichloroethylene.

VIROPRO, INC. (818) 998-7[illegible]7
9765 Eton Avenue, Chatsworth, California 91311

Field Drilling Record of Boring # A2

Project Name: Mercury Aerospace Project No. 35401
Location: 11800 Sherman Way, North Hollywood, California
Date: February 16, 1989
Field Geologist: Charles Schwarz
Drilling Co. Datum Exploration
Drilling Technique: Hollow Stem Auger Diameter: 7"
Sampler: 1.5 Standard Penetrometer
Checked by Geologist: H. Kues License No.: EG 264
Authorized Signature: [signature] #4624 RG

****

Depth of Sample (Ft.)	Sample C=Chem. G=Geo.	Blow Count per 6"	Description (Color, Moisture, Grain Size, Sorting, etc.)
1	C,G	4-5-5	Dark yellowish-brown silty sand, very ill-sorted, some pebble gravel, loose to slightly friable, damp. PID = 39
5	C,G	3-4-6	Moderate yellowish-brown fine sand, ill-sorted, loose, damp. PID = 42
10	C,G	12-9-10	Pale yellowish-brown coarse sand, ill-sorted, 15% coarser fragments to pebble size, 20% finer grained, no silt, loose, damp. PID = 39

END OF HOLE

Notes:

1. No ground water encountered.
2. Hole backfilled with spoils and tamped.

(/IROPRO, INC. (818) 998-7(
9765 Eton Avenue, Chatsworth, California 91311

Field Drilling Record of Boring # A1 Page 1 of 1

Project Name: Mercury Aerospace Project No. 35401
Location: 11800 Sherman Way, North Hollywood, California
Date: February 16, 1989
Field Geologist: Charles Schwarz
Drilling Co. Datum Exploration
Drilling Technique: Hollow Stem Auger Diameter: 7"
Sampler: 1.5 Standard Penetrometer
Checked by Geologist: H. Kues License No.: EG 264
Authorized Signature: Charles Schwarz #4624 RG

Depth of Sample (Ft.)	Sample C=Chem. G=Geo.	Blow Count per 6"	Description (Color, Moisture, Grain Size, Sorting, etc.)
1	C,G	12-6-9	Dark yellowish-brown very fine sand, well-sorted, but occasional small pebble, loose, damp. PID = 32
5	G	5-5-5	Moderate yellowish-brown, coarse sand, ill-sorted, 10% granules and pebble gravel, no silt, loose, damp. PID = 33
6	C,G	3-5-5	Moderate yellowish-brown fine to medium sand, ill-sorted, 15% coarser grains, some silt, loose to some friable clusters, damp. PID = 43
10	C,G	---	Same as previous, but no silt and an occasional pebble. PID = 39

END OF HOLE

Notes:

1. No ground water encountered.
2. Hole backfilled with spoils and tamped.

APPENDIX B

Copy of Original Chain-of-Custody Record and Laboratory Reports

NVIROPRO, INC. (818) 998-(7
9765 Etc.. Avenue, Chatsworth, California 91311

Field Drilling Record of Boring # A3A Page 1 of 1

Project Name: Mercury Aerospace **Project No.** 35401
Location: 11800 Sherman Way, North Hollywood, California
Date: February 16, 1989
Field Geologist: Charles Schwarz
Drilling Co. Datum Exploration
Drilling Technique: Hollow Stem Auger **Diameter:** 7"
Sampler: 1.5 Standard Penetrometer
Checked by Geologist: H. Kues **License No.:** EG 264
Authorized Signature: Charles Schwarz #4624 BC

****

Depth of Sample (Ft.)	Sample C=Chem. G=Geo.	Blow Count per 6"	Description (Color, Moisture, Grain Size, Sorting, etc.)
1	C,G	4-4-5	Dark yellowish-brown silty fine sand, well-sorted, loose to friable, damp. PID = 46
5	C,G	5-3-3	Moderate yellowish-brown fine to medium sand, ill-sorted, some silt, loose to some friability, damp. PID = 39
10	C,G	---	Moderate yellowish-brown medium to coarse sand, well-sorted, few pebbles, loose, damp. PID = 6.5

END OF HOLE

Notes:

1. No ground water encountered.
2. Hole backfilled with spoils and tamped.

ENVIROPRO, INC. CHAIN-OF-CUSTODY RECORD

Pg. 1 of 1

Project No: 35401

Client: Mercury Aerospace

Contact (Signature): Charles Schwary

ANALYSIS REQUIRED

	Sample Number	Date	Time	Depth Below Grade	Sample Type	Suspected Contaminant	EPA 8010	EPA 8020	418.1							Instructions/ Comments
196	A1-1	2/16/89	1047	1'	Soil		X	X	X							
197	A1-6	2/16/89	1117	6	Soil		X	X	X							
198	A1-10	2/16/89	1124	10	Soil		X	X	X							
199	A2-1	2/16/89	1135	1	Soil		X	X	X							
200	A2-5	2/16/89	1145	5	Soil		X	X	X							
201	A2-10	2/16/89	1155	10	Soil		X	X	X							
202	A3A-1	2/16/89	1230	1	Soil		X	X	X							
203	A3A-5	2/16/89	1250	5	Soil		X	X	X							
204	A3A-10	2/16/89	1300	10	Soil		X	X	X							

Analyses must meet EPA PQL's of 5 to 10 ppb for VOC's. CGS

SAMPLE INTEGRITY- TO BE FILLED BY RECEIVING LAB

Samples Intact: Yes _____ No _____

Samples Properly Cooled: Yes _____ No _____

Samples Accepted: Yes _____ No _____

If Not, Why _____

Samples Placed In Lab Refrigerator Prior To Analysis

Yes _____ No _____

Relinquished by:	Date / Time	Received by:
Charles Schwary	2/17/89	Rick Kovel
Relinquished by:	Date / Time	Received by:
Relinquished by:	Date / Time	Received by:
Relinquished by:	Date / Time	Received by:

ENVIROPRO, INC. P.O. # 1574-P35401

ENVIROPRO, INC. Project Personnel:

RECEIVED MAR 17 1989

AMERICAN ANALYTICS
9765 Eton Avenue
Chatsworth, CA 91311
(818) 998-7197
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 35401
Project Name: Mercury Aerospace
Sample Matrix: Soil
Method: EPA 418.1

DOHS Certified #: 265
Date Received: 2/17/89
Units: mg/Kg
Date Reported: 2/28/89

Compounds		Results	Detection Limits
Total Recoverable Petroleum Hydrocarbons			
AA ID#	Client ID#		
9-0196	A1-1	16.4	10
9-0197	A1-6	26.2	10
9-0198	A1-10	n.d.	10
9-0199	A2-1	144	10
9-0200	A2-5	16.4	10
9-0201	A2-10	16.4	10
9-0202	A3A-1	108	10
9-0203	A3A-5	16.4	10
9-0204	A3A-10	13.1	10

n.d. = none detected

Ek Han Kwee, Ph.D.
Technical Director

RECEIVED MAR 17 1989

AMERICAN ANALYTICS
9765 Eton Avenue
Chatsworth, CA 91311
(818) 998-7197
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 35401
Project Name: Mercury Aerospace
Sample Matrix: Soil
Method: EPA 8010

DOHS Certified #: 265
Date Received: 2/17/89
Units: mcg/Kg
Date Reported: 2/28/89

AA ID#	Client ID	Compounds	Results
9-0196	A1-1	1,1-Dichloroethylene	8.4
		1,1,1-Trichloroethane	12.3
9-0197	A1-6	1,1-Dichloroethylene	8.8
		1,1,1-Trichloroethane	2.0
9-0198	A1-10	1,1-Dichloroethylene	29.3
9-0199	A2-1	1,1-Dichloroethylene	55.2
		1,1,1-Trichloroethane	61.2
		Tetrachloroethylene	24.3
9-0200	A2-5	Trichloroethylene	4.3
9-0201	A2-10	n.d.	

n.d. = none detected

Ek Han Kwee, Ph.D.
Technical Director

RECEIVED MAR 17 1989

AMERICAN ANALYTICS
9765 Eton Avenue
Chatsworth, CA 91311
(818) 998-7197
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 35401
Project Name: Mercury Aerospace
Sample Matrix: Soil
Method: EPA 8010

DOHS Certified #: 265
Date Received: 2/17/89
Units: mcg/Kg
Date Reported: 2/28/89

AA ID#	Client ID	Compounds	Results
9-0202	A3A-1	1,1-Dichloroethylene	8.3
		1,1,1-Trichloroethane	1.1
9-0203	A3A-5	1,1-Dichloroethylene	5.6
9-0204	A3A-10	1,1-Dichloroethylene	3.2

n.d. = none detected

Ek Han Kwee, Ph.D.
Technical Director

AMERICAN ANALYTICS
9765 Eton Avenue
Chatsworth, CA 91311
(818) 998-7197
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 35401
Project Name: Mercury Aerospace
Sample Matrix: Soil
Method: EPA 8010, QC
Dilution Factor: 2.5

DOHS Certified #: 265
Date Analyzed: 2/24/89
Client ID#: N/A
Units: %
Date Reported: 2/28/89
AA ID#: N/A

Compounds	Spike Recovery	Acceptance Criteria
Chloromethane	----	D - 193
Vinyl chloride	97	28 - 163
Bromomethane	101	D - 144
Trichlorofluoromethane	62	21 - 156
1,1-Dichloroethylene	92	28 - 167
Methylene chloride	81	25 - 162
trans-1,2-Dichloroethylene	97	38 - 155
1,1-Dichloroethane	96	47 - 132
Chloroform	45	49 - 133
1,1,1-Trichloroethane	81	41 - 138
Carbon tetrachloride	92	43 - 143
1,2-Dichloroethane	92	51 - 147
Trichloroethylene	80	35 - 146
1,2-Dichloropropane	91	44 - 156
Bromodichloromethane	92	42 - 172
2-Chloroethyl vinyl ether	94	14 - 186
trans-1,3-Dichloropropylene	96	22 - 178
1,1,2-Trichloroethane	96	39 - 136
Tetrachloroethylene	88	26 - 162
Chlorobenzene	96	38 - 150
1,1,1,2-Tetrachloroethane	92	8 - 184
Bromoform	92	13 - 159
1,3-Dichlorobenzene	99	7 - 187
1,4-Dichlorobenzene	95	42 - 143
1,2-Dichlorobenzene	93	D - 208

Duplicate was run on sample #9-0209

"D" = Detected

Ek Han Kwee, Ph.D.
Technical Director

RECEIVED MAR 17 1989

AMERICAN ANALYTICS
9765 Eton Avenue
Chatsworth, CA 91311
(818) 998-7197
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 35401
Project Name: Mercury Aerospace
Sample Matrix: Soil
Method: EPA 8020

DOHS Certified #: 265
Date Received: 2/17/89
Units: mcg/Kg
Date Reported: 2/28/89

AA ID#	Client ID	Compounds	Results
9-0196	A1-1	Benzene	2.7
		Toluene	4.8
		Ethyl Benzene	3.4
		Total Xylenes	13.1
9-0197	A1-6	Toluene	2.9
		Ethyl Benzene	2.3
		Total Xylenes	8.2
9-0198	A1-10	Ethyl Benzene	3.0
		Total Xylenes	6.2

n.d. = none detected

Ek Han Kwee, Ph.D.
Technical Director

RECEIVED MAR 17 1989

AMERICAN ANALYTICS
9765 Eton Avenue
Chatsworth, CA 91311
(818) 998-7197
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 35401
Project Name: Mercury Aerospace
Sample Matrix: Soil
Method: EPA 8020

DOHS Certified #: 265
Date Received: 2/17/89
Units: mcg/Kg
Date Reported: 2/28/89

AA ID#	Client ID	Compounds	Results
9-0199	A2-1	n.d.	
9-0200	A2-5	n.d.	
9-0201	A2-10	n.d.	
9-0202	A3A-1	Toluene	3.0
		Total Xylenes	7.5
9-0203	A3A-5	Toluene	2.4
		Total Xylenes	6.4
9-0204	A3A-10	Toluene	2.0
		Total Xylenes	4.5

n.d. = none detected

Ek Han Kwee, Ph.D.
Technical Director

AMERICAN ANALYTICS
9765 Eton Avenue
Chatsworth, CA 91311
(818) 998-7197
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 35401
Project Name: Mercury Aerospace
Sample Matrix: Soil
Method: EPA 8020, QC
Dilution Factor: 2.5

DOHS Certified #: 265
Date Analyzed: 2/24/89
Client ID#: N/A
Units: %
Date Reported: 3/21/89
AA ID#: N/A

Compounds	Spike Recovery	Acceptance Criteria
Benzene	109	39 - 150
Chlorobenzene	94	55 - 135
1,2-Dichlorobenzene	70	37 - 154
1,3-Dichlorobenzene	42	50 - 141
1,4-Dichlorobenzene	35	42 - 143
Ethylbenzene	104	32 - 160
Toluene	88	46 - 148

Duplicate was run on sample #9-0209

Ek Han Kwee, Ph.D.
Technical Director

~~Attachment~~ E
DOCUMENT

REPORT

PHASE II SUBSURFACE INVESTIGATION (WELL INVESTIGATION REPORT)

AT

MERCURY AEROSPACE FASTENERS NORTH HOLLYWOOD, CALIFORNIA

Prepared for:

Mercury Aerospace Fasteners
11800 Sherman Way
North Hollywood, California 91609-9759

91 OCT 21 PM 12:44

Prepared by:

GeoSyntec Consultants
(formerly GSI Environmental)
16541 Gothard Street, Suite 211
Huntington Beach, California 92647
(714) 843-6866

5 February 1991

GeoSyntec Consultants Project Number P1590

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1. INTRODUCTION

1.1 Terms of Reference

This report documents the results of a Phase II Subsurface Investigation conducted at the Mercury Aerospace Fasteners facility located at 11800 Sherman Way, North Hollywood, Los Angeles County, California. This investigation was conducted on 24 and 25 October 1990 in general accordance with the requirements set by the State of California Regional Water Quality Control Board (CRWQCB) [1989, 1990]. This work was conducted and this report was prepared by GeoSyntec Consultants (formerly GSI Environmental) for Mercury Aerospace Fasteners (MAF) in response to a request by the CRWQCB dated March 20, 1990. This report was prepared by Bert S. Palmer, Ph.D., R.E.P., and Haydar Azzouz of GeoSyntec Consultants. It was reviewed by Allen E. Blodgett, P.E., also of GeoSyntec Consultants, in accordance with the internal review policy of the company.

1.2 Organization of the Report

This report is organized as follows:

- In Section 2, background information, including site location and previous site activities and investigations, is presented.

- In Section 3, the objectives and scope of work are presented. In addition, variances from the work plan approved by the CRWQCB [GeoSyntec Consultants, 1990] are outlined in Section 3.

- In Section 4, field activities performed or monitored by GeoSyntec Consultants personnel are presented, along with the results of the field investigation.

- In Section 5, laboratory chemical test methods and results are summarized.

- In Section 6, interpretations of the field and laboratory data collected thus far are presented along with conclusions.

2. BACKGROUND INFORMATION

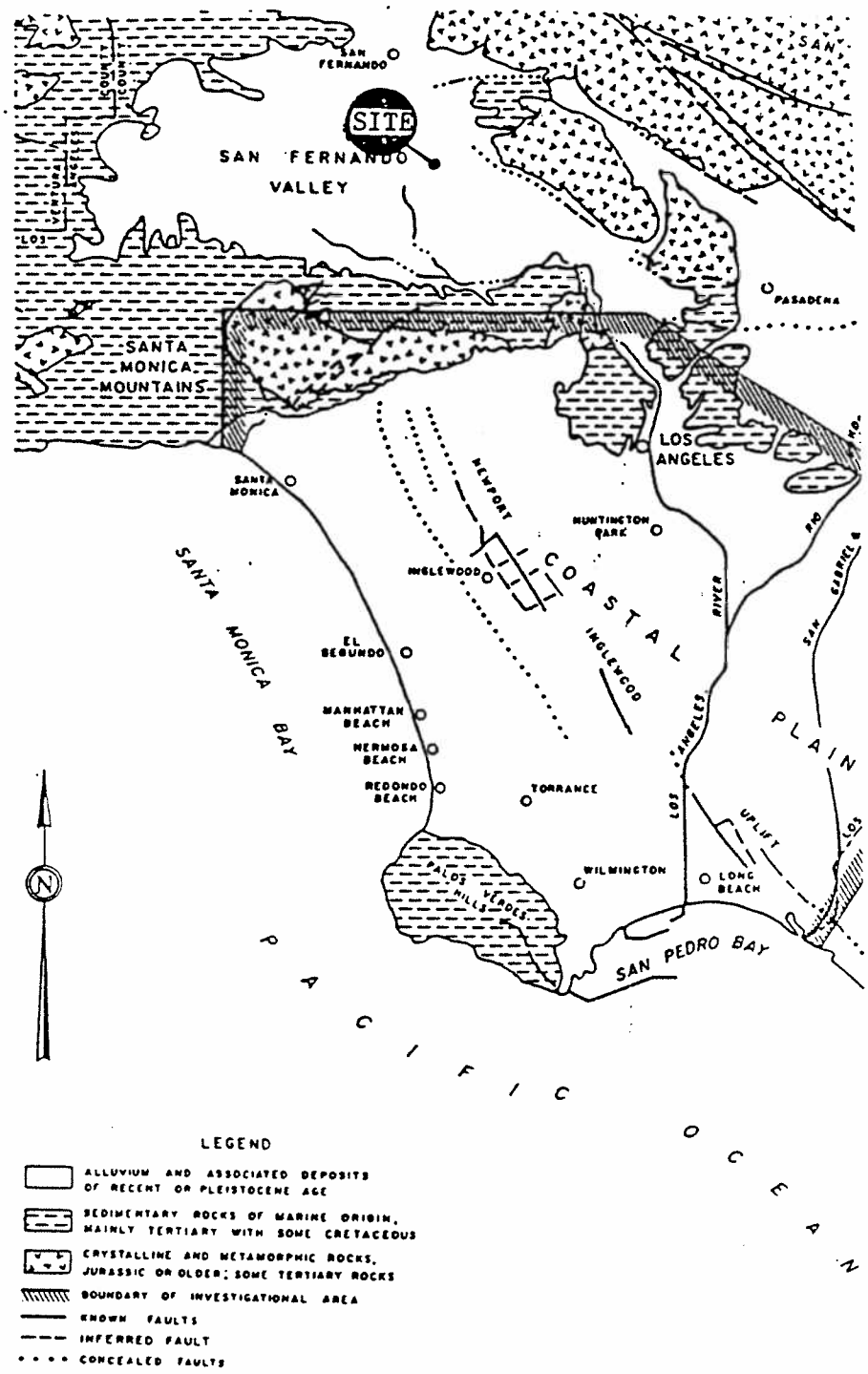
2.1 Site Location

The site is located at 11800 Sherman Way, North Hollywood, County of Los Angeles, California. The City of North Hollywood is located in the center to eastern portion of the San Fernando Valley. The general location of the MAF facility within the San Fernando Valley is shown in Figure 2-1.

2.2 Previous Site Activities and Investigations

Based on available information, the facility has been owned, since its construction in 1972, by Messrs. Woodhouse and Birken. The facility has been used to manufacture fasteners for the aerospace industry. The facility was originally operated by Woodhouse and Birken and later by Microdot Kaynard. In 1987, Mercury Aerospace Fasteners took over the lease and the manufacturing operations at the facility. The exact type of chemicals used at the site as well as waste handling procedures prior to 1987 are not available. However, it is likely that degreasers; cutting, tapping and machine oils; solvents; and thinners were used by Microdot Kaynard and Woodhouse and Birken during manufacturing operations prior to 1987.

The site is still used by MAF to manufacture fasteners for the aerospace industry. Based on a conversation with MAF personnel (MAF, 1990), naphetic solvents such as Chevron Thinner 350B; cutting, tapping, and/or machine oils; and 1,1,1-Trichloroethane (TCA) are used by MAF in the fasteners manufacturing process. Chemicals are stored in the south parking area in 55-gallon (210-liter) drums placed in two bermed containment areas. These two concrete containment areas were constructed in 1987 by MAF immediately after starting their operation at the site.



SITE LOCATION MAP
MERCURY AEROSPACE FASTENERS
NORTH HOLLYWOOD, CALIFORNIA
DECEMBER 1990

(after CDWR, 1961)

GEOSYNTEC CONSULTANTS

FIGURE NO.	2-1
PROJECT NO.	P1590
DOCUMENT NO.	C90052
PAGE NO.	4

Because of evidence of chemical compounds in drinking water wells located in the San Fernando Valley, the CRWQCB is implementing the AB1803 follow-up program and the Well Investigation Program (WIP). The intent of the WIP is to determine and evaluate the potential sources of groundwater contamination in the San Fernando Valley. One aspect of the WIP is to systematically inspect and investigate industrial facilities located in the San Fernando Valley.

On 31 August 1988, the MAF was inspected by CRWQCB staff members. As a result of the CRWQCB staff visit, a Phase I Subsurface Investigation was conducted at this site on 17 February 1989 by Enviropro (1989). The Phase I Investigation required by the CRWQCB consisted of drilling three test borings to maximum depths of 10 ft (3 m), and collecting soil samples at depths of 1, 5, and 10 ft (0.3, 1.5, and 3 m) in each test boring. Test borings were reportedly placed where the ground surface appeared to have been distressed and stained. Thus, concentrations of chemicals in the soil were considered by CRWQCB to most likely be the highest at the locations of the test borings.

The results of the laboratory chemical analyses reported by Enviropro (1989), are presented in Table 2-1. Low (144 mg/kg or less) concentrations of halogenated and aromatic volatile organic compounds and petroleum hydrocarbon were present in the soil samples. The concentrations of most of these chemicals decreased with depth except for 1,1-Dichloroethylene whose concentration increased with depth in Test Boring A1.

TABLE 2-1

Summary of Results of Chemical Analyses
on Soil Samples Collected at
Mercury Aerospace Fasteners
North Hollywood, California
December 1990
After Enviropro [1989]

	Boring Numbers and Sample Depths								
	A1			A2			A3A		
EPA Test Method	1'	6'	10'	1'	5'	10'	1'	5'	10'
418.1 (mg/kg)									
TPH	16.4	26.2	ND	144	16.4	16.4	108	16.4	13.1
8020 (mcg/kg)									
Benzene	2.7	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	4.8	2.9	ND	ND	ND	ND	3.0	2.4	2.0
Ethyl Benzene	3.4	2.3	3.0	ND	ND	ND	ND	ND	ND
Total Xylene	13.1	8.2	6.2	ND	ND	ND	7.5	6.4	4.5
8010 (mcg/kg)									
1,1,-Dichloroethylene	8.4	8.8	29.3	55.2	ND	ND	8.3	5.6	3.2
1,1,1-Trichloroethane	12.3	2.0	ND	61.2	ND	ND	1.1	ND	ND
Tetrachloroethylene	ND	ND	ND	24.3	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	4.3	ND	ND	ND	ND

ND = Not Detected.

3. OBJECTIVE AND SCOPE OF WORK

3.1 Objective

Following review of the Phase I Subsurface Investigation Report, the CRWQCB requested that a Phase II Subsurface Investigation be conducted at the MAF facility. Requirements for the Phase II Subsurface Investigation were described by the CRWQCB (1989, 1990) and are included in Appendix A. These requirements provided general guidelines to perform the proposed Phase II Subsurface Investigation activities in compliance with CRWQCB specifications [CRWQCB, 1989, 1990].

The objective of the investigation is to evaluate if potential leakage or historical spillage of material at the MAF facility surface may act as a source of groundwater contamination. Based on the CRWQCB (1990), an area containing low levels of chemicals is no longer considered a potential "source" and a threat to groundwater if it can be established that at least 30 to 40 ft (9.1 to 12.2 m) of soil with non-detected concentrations of chemicals exist between the potential "source" and the groundwater.

3.2 Scope of Work

In order to accomplish the objective listed above, it was planned to perform the following work tasks:

Task 1: Field Work Preparation

Task 1 included:

- the final selection of four test boring locations,
- the approval by CRWQCB staff of each test boring location, and
- the preparation of a health and safety plan.

Task 2: Field Exploration

Task 2 consisted of:

- drilling four test borings at the selected locations to depths of approximately 55 ft (17 m),
- collecting soil samples from each test boring at 5 ft (1.5 m) depth intervals or at changes in lithology,
- recording test boring logs,
- backfilling the test borings with bentonite grout, and
- placing soil cuttings in labelled 55-gallon (210-liter) drums.

Task 3: Laboratory Analytical Testing

Task 3 included:

- transporting the soil samples to an analytical laboratory, and
- performing the chemical analyses on the soil samples.

Task 4: Report

Task 4 consisted of preparing a report summarizing the data obtained during the field exploration and laboratory testing program and presenting discussions, interpretations, and conclusions.

A detailed description of each work task was provided in the work plan dated 11 May 1990 and submitted to MAF by GeoSyntec Consultants [GeoSyntec Consultants, 1990]. This work plan was approved by Mr. David Bacharowski of the CRWQCB in a letter dated 16 May 1990 (See CRWQCB letter dated 16 May 1990, included in Appendix A).

3.3 Variance From Scope of Work

The planned location of Test Boring B4 was inaccessible to the drill rig due to the lack of space between the eastern fence and the berm of the southernmost containment area. The issue was brought to the attention of Ms. Laurie Morgan of the CRWQCB who requested that Test Boring B4 be hand-augered to a depth of only 10 ft (3 m).

4. FIELD INVESTIGATION

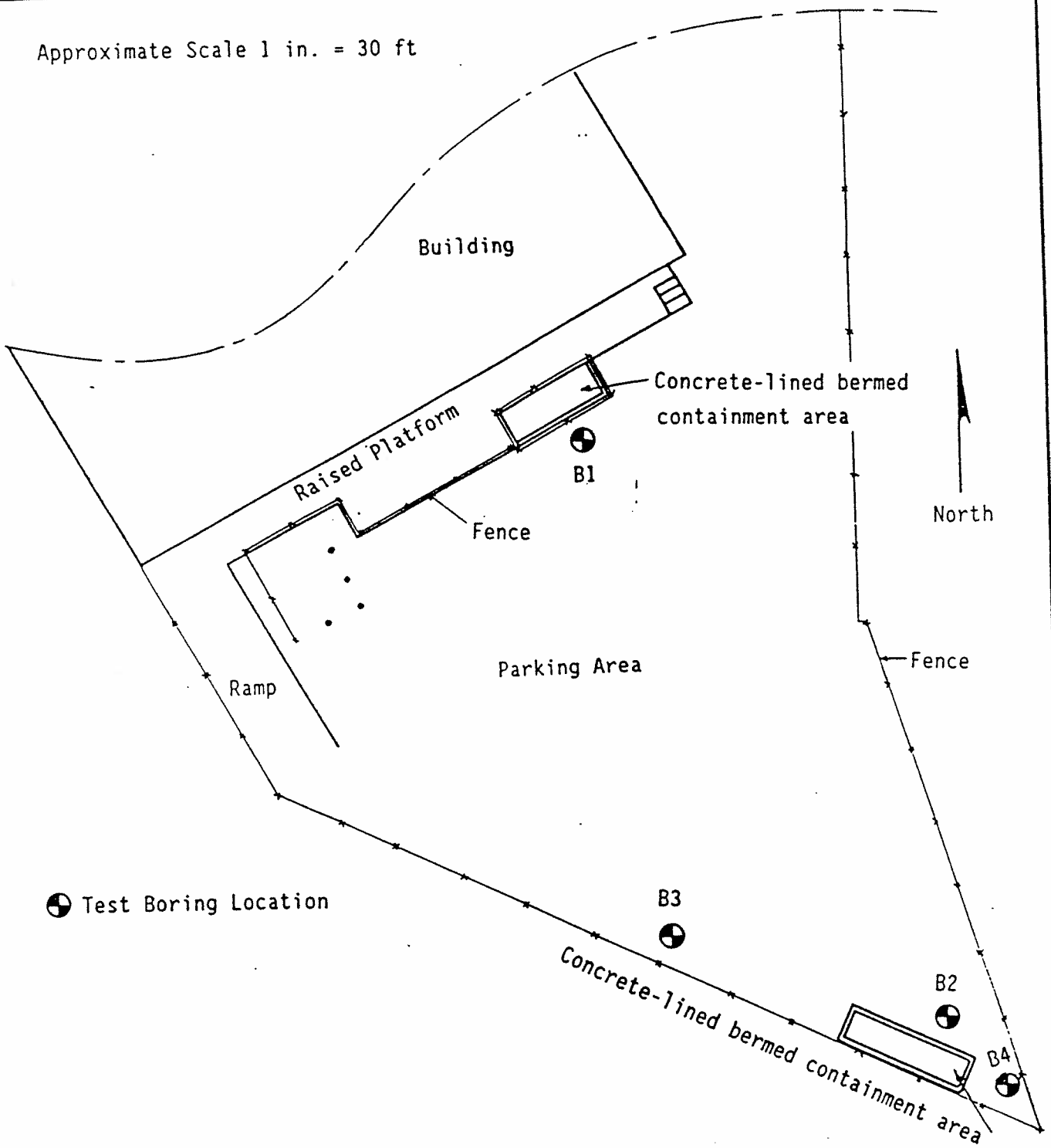
4.1 Site Health and Safety Plan

Prior to the start of field work, a site-specific health and safety plan was prepared by GeoSyntec Consultants. This plan was prepared in accordance with Occupational Safety and Health Administration (OSHA) regulations [Federal Register, December 19, 1986, Part 1910.120]. The plan covered: site characterization, site control, training, medical monitoring, personal protective equipment, field monitoring, material handling, emergency response, and subcontractors. Personnel participating in the field activities had received the required health and safety training. A health and safety meeting was held prior to the start of field activities.

4.2 Test Boring Procedures

4.2.1 Locations of Test Borings

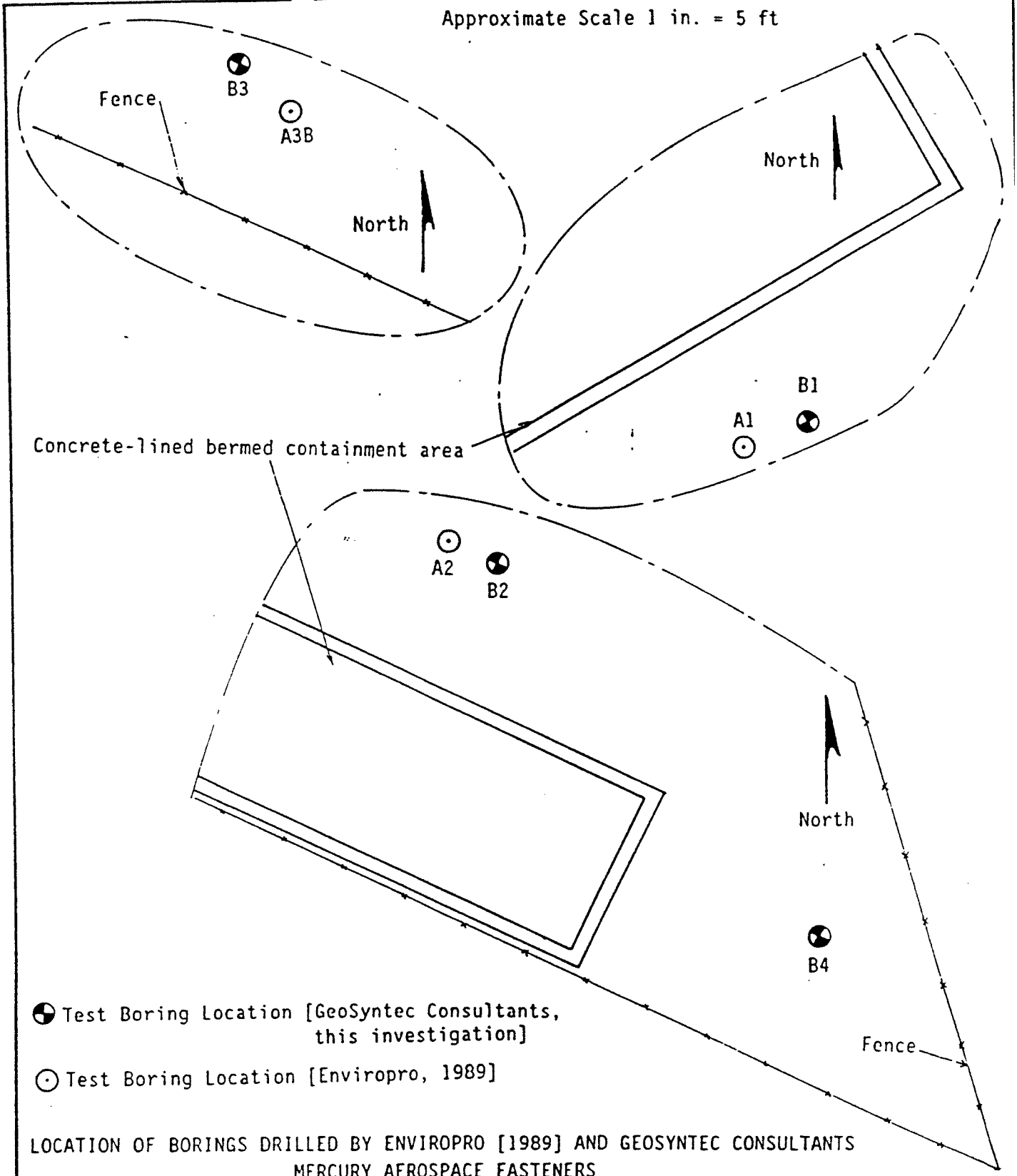
Three test borings (B1, B2, and B3) are located within 3 ft (1 m) of Test Borings A1, A2, and A3A, respectively, drilled in 1989 by Enviropro [1989]. Test Boring B4 was located east of the southernmost containment area, as requested by the CRWQCB. The locations of Test Borings B1, B2, B3, and B4, drilled by GeoSyntec Consultants, are shown in Figure 4-1. The locations of Test Borings A1, A2, and A3A, previously drilled by Enviropro [1989] and Test Borings B1, B2, B3, and B4 are shown in Figure 4-2. Locations of all test borings were approved on site by Ms. Laurie Morgan of the CRWQCB who partially monitored field activities (See CRWQCB letter dated 22 December 1989 included in Appendix A).



TEST BORING LOCATIONS
MERCURY AEROSPACE FASTENERS
NORTH HOLLYWOOD, CALIFORNIA

GEOSYNTEC CONSULTANTS

FIGURE NO.	4-1
PROJECT NO.	P1590
DOCUMENT NO.	C90052
PAGE NO.	



LOCATION OF BORINGS DRILLED BY ENVIROPRO [1989] AND GEOSYNTEC CONSULTANTS
MERCURY AEROSPACE FASTENERS
NORTH HOLLYWOOD, CALIFORNIA

GEOSYNTEC CONSULTANTS

FIGURE NO.	4-2
PROJECT NO.	P1590
DOCUMENT NO.	C90052
PAGE NO.	

4.2.2 Test Boring Drilling

Test Borings B1, B2, and B3 were drilled on 24 and 25 November 1990 to depths of 55 ft (17 m). Test Boring B4 was hand-augered to a depth of 10 ft (3 m). To reduce the risk of disrupting underground features, the first 5 ft (1.5 m) of Test Borings B1, B2, and B3 were advanced using a 3.25 in.- (8.3 cm-) diameter hand auger. Following hand augering, the test borings were drilled using a truck-mounted B61 drill rig with continuous flight hollow stem 6 in.- (15 cm-) diameter augers. The augers were steam-cleaned between each test boring to minimize the possibility of cross-contamination between test borings. Soil cuttings were contained in 55 gallon (210 liter) drums, and stored on-site for subsequent handling by MAF. Each drum was labelled with the test boring number, the depth range, and the content description. Test borings were backfilled with a 22%-by-weight bentonite grout mixture. A cement grout was used to fill up the top of Test Borings B1 and B2 which had subsided approximately 7 ft (2.1 m). A patch of asphalt was then placed to cover each test boring.

4.2.3 Soil Sampling

Soil samples were collected from each test boring every 5 ft (1.5 m). Sample collection started at a depth of 10 ft (3 m) in Test Borings B1, B2, and B3. Soil samples were collected by driving a split-barrel sampler into the soil. The split-barrel sampler had a 3 in.- (7.6 cm-) outside diameter and was equipped with 2.5 in.- (6.4 cm-) outside diameter, 6 in. (15 cm) long brass liners. Samples were collected at depths of 1, 5, and 10 ft (0.3, 1.5, and 3.0 m) in Test Boring B4. Samples were collected using a hand sampler containing one 2 in.-(5 cm-) diameter and 6 in.-(12 cm-) long brass liner. Before each sampling event, the sampler and liners were washed with an Alconox™ solution, rinsed twice with tap water, and then rinsed with deionized water to limit the potential for cross-contamination between sampling events. Three soil samples were collected at each sampling depth, provided that the sample recovery was sufficient. One sample was collected for

laboratory chemical analysis, one sample was archived, and the third sample was observed on-site for soil classification purposes. A sample of the deionized water used to wash the sampler and brass liners prior to sampling events was also sent to the laboratory for chemical analyses.

Brass liners were sealed with aluminum foil and plastic end caps and taped on the ends with duct tape to minimize volatilization of potentially present volatile organic compounds. Samples were labeled, sealed with custody tags, wrapped in a Ziplock™ plastic bag, and placed in an ice chest containing blue ice for transport to a laboratory certified by the California Department of Health and Safety , following proper chain-of-custody procedures. A custody tag was also placed on each ice chest.

4.2.4 Soil Logging

Test borings were continuously logged in the field by a GeoSyntec Consultants geotechnical engineer or geologist using the Unified Soil Classification System in general accordance with American Society for Testing and Materials (ASTM) Method D2488 [1990]. Sample number, sampling depth, sample recovery, blow count, sample description, and other pertinent information were recorded on boring logs.

4.3 Test Boring Results

Logs of the test borings drilled by GeoSyntec Consultants at the MAF facility are presented in Appendix B. The subsurface is predominantly composed of yellowish brown, slightly moist, fine to coarse sands with silt. The contacts between layers of coarse and fine sands seem to be gradational. Gravels and cobbles up to 5 in. (12.7 cm) in diameter were regularly encountered in the test borings and resulted in difficulties to recover samples. The mineralogic composition of the observed gravels and cobbles suggests igneous or metamorphic source rocks. Such rocks exist in the nearby Santa Monica and San Gabriel mountains. The logs of Test Borings B1 and B2 also indicate the presence of thin, discontinuous

sandy silt layers. The subsurface of the MAF site is typical of Quaternary alluvial flood plain deposits which predominately consist of cobbles, gravels, and sands with minor to moderate amounts of silts and clays.

Groundwater was not encountered in the test borings. Depth to groundwater in Wells No. 4929 and 4907-K, located within a one mile (1.6 km) radius from the MAF site, was 256.1 ft (78.1 m) in April 1989 and 249 ft (75.9 m) in June 1986 [LACDPW, 1990], respectively.

5. LABORATORY CHEMICAL ANALYSIS

5.1 Chain of Custody Procedures

To assure custody of the samples during collection, transport, and shipping, each sample was labelled and recorded in a chain of custody record. A custody tag was also placed on each sample. Sample number and depth, sample type, container type, sampling data, and required analysis was recorded on the chain of custody. The chain of custody forms were signed and dated by the GeoSyntec Consultants sampler. Samples were considered to be in custody when the samples were in actual possession, in view, or in a locked area.

5.2 Laboratory Selection and Testing Methods

Soil samples were transported within two days following collection to Curtis and Tompkins Ltd., a chemical laboratory certified by the California Department of Health Services. The laboratory QA/QC program included provisions for:

- laboratory organization;
- sample management;
- analytical methodology;
- analytical performance;
- instrument calibration;
- soil sample analysis;
- water sample trip blank supply;
- laboratory QA/QC definitions and calculations;
- corrective action procedures;
- laboratory data collection and storage requirements;
- sample requirements;
- sample handling; and
- documentation.

The laboratory was informed to sample aliquots from the center of the brass liners for chemical analysis and provide practical quantitation limits of 5 to 10 parts per billion, as requested by CRWQCB staff.

Soil samples collected in Test Borings B1, B3, and B4 were analyzed for purgeable halogenated volatile organics by USEPA Method 8010, aromatic volatile organics by USEPA Method 8020, and Total Recoverable Petroleum Hydrocarbon (TRPH) using USEPA Method 418.1. Soil samples collected in Test Boring B2 were not analyzed for aromatic volatile organics because a previous site investigation [Enviropro, 1989] had established that aromatic volatile organics were not detected in the area of Test Borings B2 and A2 [CRWQCB, 1990]. Soil samples from Test Boring B2 were thus only analyzed for TRPH and pureable halogenated volatile organics. In addition, the sample of deionized water collected in the field and a trip blank water sample supplied by the laboratory were analyzed by USEPA Method 624 for purgeable organics. The sample of deionized water collected in the field was also analyzed for TRPH by USEPA method 418.1.

5.3 Laboratory Testing Results

Results of the laboratory chemical analyses conducted on soil samples collected in Test Borings B1, B2, B3, and B4 are summarized in Tables 5-1, 5-2, 5-3, and 5-4, respectively. Complete laboratory results including quality assurance/quality control data are included in Appendix C.

Both water samples did not contain detectable concentrations of purgeable organics. The concentration of TRPH in the sample of deionized water collected in the field was below detection limit. These results of chemical analysis of the water samples indicate that the deionized water used to decontaminate the sampling equipment did not contain detectable concentrations of TRPH and purgeable organics. In addition, transport in the ice chest as well as the sampling environment did not introduce purgeable organics compounds in the blank sample.

TABLE 5-1

Summary of Results of Chemical Analyses Conducted
on Soil Samples Collected from Test Boring B1
Hercury Aerospace Fasteners
North Hollywood, California
December 1990

Depth (ft)	1	5	10	15	20	25	30	35	40	45	50	55
Compound (units)												
TRPH (ppm)	16*	26*	ND*/ND	ND	ND	ND	35	NS	ND	ND	17	450
Benzene (ppb)	3*	ND	ND*/ND	ND	ND	ND	ND	NS	ND	ND	ND	ND
Toluene (ppb)	5*	3*	ND*/ND	ND	ND	ND	ND	NS	ND	ND	ND	ND
Ethyl Benzene (ppb)	3*	2*	3*/ND	ND	ND	ND	ND	NS	ND	ND	ND	ND
Xylene (ppb)	13*	8*	6*/ND	ND	ND	ND	ND	NS	ND	ND	ND	ND
DCE (ppb)	8*	9*	29*/ND	ND	ND	ND	ND	NS	ND	ND	ND	ND
TCA (ppb)	12*	2*	ND*/ND	ND	ND	ND	ND	NS	ND	ND	ND	ND

ND = Not Detected; Compound-specific detection limits are shown in Appendix C and [Enviropro, 1989]
NS = No Sample recovered
* After Enviropro [1989]
TRPH = Total Recoverable Petroleum Hydrocarbon
DCE = 1,1-Dichloroethylene
TCA = 1,1,1-Trichloroethane

TABLE 5-2

Summary of Results of Chemical Analyses Conducted
on Soil Samples Collected from Test Boring B2
Mercury Aerospace Fasteners
North Hollywood, California
December 1990

Depth (ft)	1	5	10	15	20	25	30	35	40	45	50	55
Compound (units)												
TRPH (ppm)	144*	16*	16*/ND	ND	23	ND	ND	ND	26	17	21	880
DCE (ppb)	55*	ND*	ND*/ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TCA (ppb)	61*	ND*	ND*/ND	ND	ND	ND	ND	ND	ND	ND	ND	6
PCE (ppb)	24*	ND*	ND*/ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TCE (ppb)	ND*	4*	ND*/ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = Not Detected; Compound-specific detection limits are shown in Appendix C and [Enviropro, 1989]
* After Enviropro [1989]
TRPH = Total Recoverable Petroleum Hydrocarbon
DCE = 1,1-Dichloroethylene
TCA = 1,1,1-Trichloroethane
PCE = Tetrachloroethylene
TCE = Trichloroethylene

TABLE 5-3

Summary of Results of Chemical Analyses Conducted
on Soil Samples Collected from Test Boring B3
Mercury Aerospace Fasteners
North Hollywood, California
December 1990

Depth (ft)	1	5	10	15	20	25	30	35	40	45	50	55
Compound (units)												
TRPH (ppm)	108*	16*	13*/ND	ND	ND	ND	ND	13	ND	23	ND	ND
Benzene (ppb)	ND*	ND*	ND*/ND	ND	ND	ND	ND	ND	ND	21	ND	ND
Toluene (ppb)	3*	2*	2*/ND	ND	ND	ND	ND	ND	ND	14	ND	ND
Xylene (ppb)	8*	6*	5*/ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DCE (ppb)	8*	6*	3*/ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TCA (ppb)	1*	ND*	ND*/ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = Not Detected; Compound-specific detection limits are shown in Appendix C and [Enviropro, 1989]
* After Enviropro [1989]
TRPH = Total Recoverable Petroleum Hydrocarbon
DCE = 1,1-Dichloroethylene
TCA = 1,1,1-Trichloroethane

TABLE 5-4

Summary of Results of Chemical Analyses Conducted
on Soil Samples Collected from Test Boring B4
Mercury Aerospace Fasteners
North Hollywood, California
December 1990

Depth (ft)	1	5	10
Compound (units)			
TRPH (ppm)	300	ND	ND
Benzene (ppb)	8	ND	ND

ND = Not Detected; Compound-specific detection limits are shown in Appendix C
TRPH = Total Recoverable Petroleum Hydrocarbon

6. INTERPRETATION OF RESULTS AND CONCLUSIONS

The results of the chemical analyses presented in Section 5 can be summarized as follows:

- Concentrations of TRPH ranged from 300 ppm to less than 1 ppm at depths of 1 to 10 ft (0.3 to 3 m). Concentrations of TRPH were generally below the detection limit (1 ppm) at depths ranging from 15 to 50 ft (4.5 to 15 m). However, concentrations of TRPH increased to 450 ppm and 880 ppm at a depth of 55 ft (17 m) in Test Boring B1 and B2, respectively.

- Concentrations of aromatic volatile organic compounds were less than 13 ppb at depths ranging from 1 to 10 ft (0.3 to 3 m). Concentrations of aromatic volatile organic compounds were below detection limits at depths ranging from 15 to 55 ft (4.5 to 16.5 m) except at a depth of 45 ft (13.5 m) where benzene and toluene were detected in Test Boring B3 at concentrations equal to 21 ppb and 14 ppb, respectively.

- Concentrations of purgeable halogenated volatile organic compounds were less than 61 ppb at depths ranging from 1 to 10 ft (0.3 to 3 m). Concentrations of purgeable halogenated volatile organic compounds were below detection limits at depths ranging from 15 to 55 ft (4.5 to 16.5 m) except at a depth of 55 ft (16.5 m) where 1,1,1-trichloroethane (TCA) was detected at a concentration of 1 ppb above the detection limit in Test Boring B2.

Using the results of the chemical analyses presented in Section 5 and summarized herein, three areas were delineated within the subsurface including:

- Area No. 1, which extends from the surface to a depth of 15 ft (4.5 m),

- Area No. 2, which extends from a depth of 15 ft (4.5 m) to a depth of approximately 45 ft (13.5 m), and

- Area No. 3, which extends from a depth of 45 ft (13.5 m) to the maximum drilled depth of 55 ft (16.5 m).

In Area No. 1, concentrations of TRPH and volatile organic compounds are low and decrease as the depth increases. Concentrations of TRPH and volatile organic compounds are all below detection limits at the bottom of Area No. 1 (depth equal to 15 ft).

In Area No. 2, concentrations of TRPH are generally below detection limits. Concentrations of volatile organic compounds are all below the detection limit.

In Area No. 3, concentrations of TRPH increase as the depth increases to a maximum concentration of 880 ppm in Test Boring B2. Concentrations of volatile organic compounds are generally below detection limit except at two sampling locations.

The distribution of chemical concentrations in Area No. 1 is typical of concentration distributions due to the presence of a surface source. Surface sources could be small localized leaks originating from equipment or drums previously stored in unlined and unbermed containment areas, leaks from parked vehicles, or leaching of the asphaltic surface in the parking area. A comparison of the chemical results obtained by Enviropro [1989] with the data obtained in this study indicates that chemical concentrations in Area No. 1 have decreased with time. This decrease of chemical concentration with time is likely due to natural biodegradation processes. It also indicates that recharge of the surface chemical source has probably not occurred. Therefore, the source may have been due to previous spills which would have occurred many years ago. Waste containment practices implemented by MAF have probably minimized if not eliminated further recharge of the surface sources.

The distribution of chemicals in Areas No. 2 and 3 is not as conventional as the distribution of chemicals in Area No. 1. One or a combination of phenomenae may provide an explanation for the observed chemical distribution in Areas No. 2 and 3. The phenomenae which may explain this observed chemical distribution are presented hereafter.

- The migration of chemicals from a potential surface source or from Area No. 1 through the subsurface did not follow a straight vertical pathway, but rather, followed a complex network of channeled pathways. The vertical, straight test borings and discrete sampling locations may have intercepted the channelized flow pathway in a random fashion. This would explain the apparent observed distribution of chemicals within Areas No. 2 and 3. However, it does not explain the increase in chemical concentration in Area No. 3 of the subsurface.

- Although the subsurface is mainly composed of fine to coarse sand with gravel, thin silt lenses and localized increases in silt and clay content were noticed in some of the samples collected in the subsurface. The greater affinity of chemicals to fine grained material such as clay rather than to coarse grain material such as sand may have resulted in an heterogenous residual chemical concentration distribution after natural bioremediation took place. However, the potential occurrence of this phenomenon does not explain the increase in chemical concentration in Area No. 3 of the subsurface.

- Area No. 2, area of non-detected concentrations of chemicals, separates Area No. 3 and Area No. 1 which both exhibit the highest concentration of chemicals. Therefore, the chemicals which have been detected in Area No. 3 may not originate from Area No. 1 but rather from an off-site source. Some chemicals may have migrated laterally from neighboring sites on a perched water table or on the surface of a low-permeability layer. Presence of low concentrations of chemicals in the soil may be due to the upward

migration of soil gas ladden with vapors of volatile organic compounds from a source located below a depth of 55 ft (17 m).

Based on the present knowledge of the site and site area, it does not appear that random drilling of additional test borings will yield valuable information regarding the potential contribution of the MAF facility to groundwater contamination in the San Fernando Valley. It is recommended, before conducting further site exploration activities, to locate and evaluate potential sources of chemicals around the MAF facility and further evaluate the general stratigraphy below and around the MAF facility. Such an investigation could be initiated by obtaining and reviewing records of investigative work conducted near the MAF facility. Such records are typically available in the office of regulatory agencies such as the CRWQCB, the County of Los Angeles Department of Health Services, the State of California Department of Health Services, or the local fire department.

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APPENDIX A

CRWQCB REQUIREMENTS
PHASE II SUBSURFACE INVESTIGATION
MERCURY AEROSPACE FASTENERS
NORTH HOLLYWOOD, CALIFORNIA

STATE OF CALIFORNIA

GEORGE DEUKMEJIAN, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
LOS ANGELES REGION
101 Centre Plaza Drive
Monterey Park, California 91754-2156
(213) 266-7500

RECEIVED
DEC 23 1989
Mercury Aerospace

December 22, 1989

Mr. Jerome Flament
MERCURY AEROSPACE FASTENERS
11800 Sherman Way
Burbank, CA 91609-9759

SITE INVESTIGATION - WELL INVESTIGATION PROGRAM
(FILE NO. AB104.0728)

We have reviewed your Final Report for the Phase I Subsurface Investigation, from Enviropro, Inc., dated May 1, 1989. The reported analytical test results have identified the presence of petroleum hydrocarbons, aromatic volatile organic compounds, and halogenated volatile organic compounds in the soil at the site.

The aromatic volatile organic compounds identified include benzene, toluene, ethyl benzene, and xylene. The halogenated volatile organic compounds identified include 1,1-dichloroethylene, 1,1,1 trichloroethane, tetrachloroethylene, and trichloroethylene. These constituents are directly related to chemicals/waste materials stored or used on-site. The downward extent of contaminants within each area investigated has not been identified.

In order to further determine the vertical and lateral extent of these contaminants, as well as any potential impacts from the company's operations to the underlying groundwater, you are directed to submit to this Regional Board a work plan for conducting a Phase II Subsurface Investigation. This work plan must address all of the items contained on the enclosed Work Plan Requirements for Initial Subsurface Investigations, as well as the Supplementary Subsurface Investigation Workplan Requirements, with the following modifications:

1. A sufficient number of additional soil test borings must be drilled in all of the areas previously investigated. Soil test borings for the next phase of investigation must be completed to a minimum depth of 40 feet below land surface.

2. Since Boring 3A was drilled adjacent to and west of the propane tank, instead of adjacent to and east of Contaminant Area No. 2, as specified in the work plan for the phase I investigation, the phase II work plan must include an additional boring at this location.

3. Groundwater monitoring wells are not required during [illegible] phase of the investigation.

Your Phase II Subsurface Investigation Work Plan addressing [illegible] areas listed above is due to this Regional Board by January [illegible] 1990. If you have any questions concerning this matter, please contact me at (213) 266-7539, or Laurie Morgan at (213) 266-7[illegible].

David A. Bacharowski

DAVID A. BACHAROWSKI
Environmental Specialist IV

cc: Ms. Alisa Greene, U.S. EPA Region IX
Mr. Bill Jones, L.A. Co. Dept. of Health Services

Enclosures

STATE OF CALIFORNIA
California Regional Water Quality Control Board
Los Angeles Region

WORKPLAN REQUIREMENTS
for
INITIAL SUBSURFACE ENGINEERING/GEOLOGIC SOIL INVESTIGATION
(WELL INVESTIGATION PROGRAM)

The objective of this engineering/geological investigation is to evaluate potential waste discharges which may impact ground water. Your workplan should include, but not be limited to, the following:

SITE INFORMATION: Characterize past and present specific business activities. List any previous businesses at the site. Describe storage, handling, use, and disposal procedures for chemicals, primarily chlorinated organics or aromatic solvents. Give name, address, and phone number of any landlord/lessor.

FACILITY MAP: Identify on a scaled facility map all potential sources for contamination, past and present. Examples include: chemical and waste storage, transfer and use areas including tanks and piping, clarifiers, sumps, pits. Indicate dates of completion of buildings or pavings where possible.

SITE SOILS AND GEOLOGY: Determine if site discharges have entered the vadose zone, define sources, and provide background geological data for the area. Use EPA or State Department of Health Services guidelines.

1. Provide rationale for the number and location of borings. Plot on facility map.

2. Provide reasons for proposed depth of each boring if less than the generally required depth of 40 feet. Additional depths may be required if ground water is encountered or if there is obvious contamination in the boring.

3. Identify proposed construction methods for borings.

4. Log all borings to provide characteristics of unconsolidated material per Unified Soil Classification System as well as all other appropriate information.

5. Provide a sampling plan to include equipment and procedures for collection and handling of geologic materials. A sampling interval of 5 feet, each change in lithology or changes in observed contamination is required starting at just below surface or surface covering.

6. Comply with chain of custody procedures. Discrete, undisturbed samples will be taken, sealed, and transported to the laboratory for analyses. Samples submitted for laboratory analyses are not to be used for field screening.

7. The proposed laboratory must be State Department of Health Services registered for each analytical procedure specified. EPA Methods 8240 or 8010/8020 are required. Supplement with Methods necessary for any site chemicals, past and present.

8. At a minimum, EPA sample holding times and conditions must be observed. However, samples held over seven (7) days may be suspect and not considered representative of site conditions.

9. EPA practical quantitation limits (5 to 10 µg/kg for selected VOC) are required. Analytical results must indicate detection limits and whether a chemical potentially exists (trace).

10. Laboratory QA/QC requirements include: field, sample and reagent blanks, calibration check standards, spiked samples, total recoverables, laboratory control standard, and duplicates.

GROUNDWATER (HYDROGEOLOGY): Ground water must be sampled if any boring encounters a saturated zone. Site specific exceptions may be made in consultation with Board staff.

1. Provide a contingency plan for conversion of borings that encounter saturated zones to ground water sampling wells. This should include permitting and well design, construction, and development specifications.

2. Provide protocols for field analysis, water sampling, handling and transport.

3. EPA Methods 601/602 or appropriate 500 Series Methods must be used supplemented by appropriate Methods for nitrates and any chemicals used on site.

ADDITIONAL REQUIREMENTS:

1. Submit a copy of the results of any previous subsurface investigations conducted at the site.

2. Submit a time schedule. The proposed activities must be completed within 6 to 8 weeks of plan approval.

3. A CALIFORNIA REGISTERED GEOLOGIST OR ENGINEER OR CERTIFIED ENGINEERING GEOLOGIST WITH FIVE YEARS SOILS OR HYDROGEOLOGIC EXPERIENCE SHALL DIRECT OR CONDUCT THESE INVESTIGATIONS AND PROPERLY SIGN OFF THE FINAL REPORT FOR THE REPORT TO BE ACCEPTED AND APPROVED.

4. Work shall not be proceed without prior approval and staff notification at least one week prior to initiating field work.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

SUPPLEMENTARY SUBSURFACE INVESTIGATION
(WELL INVESTIGATION PROGRAM)

DATA REQUIREMENTS: All work plan requirements for the initial subsurface investigations must also be met in conducting this additional investigation.

UNSATURATED ZONE (SOILS)
1. Ascertain lateral and vertical extent of contamination.
2. Determine soil properties which affect contaminant mobility in the vadose zone. Relate the specific residual contaminants with their potential long term effect on ground water quality.

SATURATED ZONE (WATER)
1. Determine specific aquifer properties for correct siting of monitoring well(s). Use of piezometer clusters is encouraged to ascertain aquifer properties.
2. Determine lateral and vertical extent of contaminant plume.

PROCEDURES

SOIL BORING
1. Justify and plot proposed location(s) for soil sampling.
2. Explain proposed sampling depth and drilling method.
3. Specify that boring logs will be signed off by appropriately registered or certified personnel.

DRILLING/SOIL SAMPLING
1. Describe sampling procedures:
   o Method and equipment proposed to collect the samples with minimal loss of volatiles.
   o Sampling interval (5 feet or at significant changes in soil/lithology as noted on the boring logs).
   o Number and type of soil samples (only discrete, undisturbed samples are acceptable).
2. If possible, take water samples from any boring which penetrates the uppermost saturated zone after converting to a monitoring well or piezometer.

MONITORING WELL CONSTRUCTION/DEVELOPMENT
1. Include in the well design, specifications/construction details such as:
   o Casing and screen materials, sand pack, and construction method,
   o Proposed depth and type of annular seal,
   o Time for cement to set before commencing monitoring.
2. Provide for appropriate logging.
3. Characterize aquifer materials for proper selection of filter pack and screen. Only commercially slotted screens are acceptable. Less than 10-20% of the filter pack should enter

the well. This screen should extend a minimum of 20 feet below and 10 feet above the water table.

4. The boring should not penetrate a competent clay layer below the saturated zone.
5. Casing must be suspended and centralized such that it is not resting against the sides nor bottom of the hole prior to fixing in place.
6. Place grout of either cement or cement/bentonite in an appropriate manner to avoid bridging.
7. Establish benchmarks relative to mean sea level. Provide benchmark location and survey date. Measure water levels to 0.01 foot. Also provide well location using UTM Coordinates.
8. Describe methods to develop well such that the waters sampled are representative of the formation water. The water sampled must have less than 10 ppm settleable solids.

WATER SAMPLING

1. Describe details of sample collection:
   - o Water sampling devices to be used,
   - o Procedures to minimize loss of samples by adsorption and/or volatilization,
   - o Purge techniques, tests (temp., pH, conductivity) to assure the collection of a representative water sample.
2. Describe methods for handling the samples collected.

SAMPLE ANALYSES

GENERAL

1. The laboratory must be certified by the California Department of Health Services for the specific required procedures.
2. Laboratory procedures and QA\QC sheets must be submitted with the results in the technical report.
3. Limits of detection must approach EPA's practical quantitation limits.
4. Proper chain of custody procedures must be used.

SOILS: Specify EPA Methods to determine existing facility contaminants, also use the required EPA Methods 8240 or 8010/8020 to quantify volatile organics to EPA's practical quantitation limits. Specify detection limits.

WATER: Specify EPA Methods to quantify contaminants found in soil, also use EPA Methods 601/602 or 624. Specify detection limits. Submit samples to the laboratory in unfiltered form and report sample turbidity.

REPORTS

Four copies of final reports should be submitted with all information requested.

STATE OF CALIFORNIA

GEORGE DEUKMEJIAN, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
LOS ANGELES REGION

101 CENTRE PLAZA DRIVE
MONTEREY PARK, CALIFORNIA 91754-2156
(213) 266-7500

May 16, 1990

Mr. Jerome Flament
MERCURY AEROSPACE FASTENERS, INC.
11800 Sherman Way
Burbank, CA 91609-9759

WELL INVESTIGATION PROGRAM - SUBSURFACE SOILS INVESTIGATION WORK PLAN (FILE NO. 104.0728)

We are in receipt of the Subsurface Soil Investigation Work Plan, dated May 11, 1990, prepared for your facility by GSI Environmental. We have reviewed and evaluated your proposal, and have no objections to its implementation, provided that all work is completed as specified in your proposal, and complies with the requirements listed below, as discussed in a telephone conversation between Dr. Bertrand Palmer of GSI Environmental and Laurie Morgan of this Board's staff on May 15, 1990.

1. A surface sample at approximately one (1) foot below ground surface, is to be obtained at soil test boring B-4 for laboratory analysis.

2. All soil test borings must be backfilled using a bentonite grout type mixture.

3. Soil cuttings that are hazardous waste must be labeled according to state and federal regulations, and must be disposed of legally, accompanied by a manifest.

4. All test boring locations must be verified in the field with Regional Board staff, the day that drilling commences on-site.

5. Field investigation activities must be <u>directly</u> overseen by the Registered/Certified geotechnical personnel that will be signing the final report.

6. All wastewaters generated from steam cleaning and decontamination operations must be adequately contained on-site, and disposed of at a legal disposal site.

Your final report, containing the results of the Subsurface Soils Investigation, is due to this Regional Board by June 29, 1990.

APPENDIX B

LOGS OF TEST BORINGS

Please contact my staff at least seven days prior to commencement of work, so that we may schedule a representative to be present. If you have any questions concerning this matter, please contact me at (213) 266-7539, or Laurie Morgan at (213) 266-7541.

David A Bacharowski

DAVID A. BACHAROWSKI
Environmental Specialist IV

cc: Ms. Alisa Greene, U.S. EPA Region IX
Mr. Bill Jones, Los Angeles County Department of Health Services
Mr. Jorge Leon, State Water Resources Control Board Attorney, Office of the Chief Counsel
Mr. Peter Sacripanti, Esq., Shearman & Sterling
Messrs. Irving Berken and Ralph Woodhouse
Dr. Bert S. Palmer, Ph.D., R.E.P.

BORING RECORD

PROJECT: MERCURY PHASE II SUBSURFACE INVESTIGATION
LOCATION: 11800 SHERMAN WAY, NORTH HOLLYWOOD, CA 91609-9759
PROJECT NO.: P1590
TASK NO.: 02
DATE: 10-24-90
GEOLOGIST: B. PALMER/H. AZZOUZ
DRILLER: BEYLIK DRILLING, INC.
RIG TYPE: B61 HOLLOW STEM AUGER
BORING DIAMETER: 6 INCHES
BORING NO.: 3

DEPTH (FT)	SAMPLE NO.	BLOWS PER 6 INCHES	% RECOVERY	DESCRIPTION AND CLASSIFICATION	COMMENTS
				Top 2": asphalt	Hand-augered to 5'.
5				Brownish-yellow, fine-medium sand with silt, 10-20% gravel, typically 2"-3" in diameter; cobbles up to 5" in diameter, slightly moist, loose-medium dense [SW/SM].	Gravels and cobbles of igneous/metamorphic origin, probably derived from the Santa Monica and San Gabriel Mountains.
10					
11	B3-S1	25/35/43	80%		
15	B3-S2	7/17/28	80%		
20	B3-S3	8/11/24	80%		
25	B3-S4	22/32/45	80%		
30	B3-S5	25/36/43	80%		
35	B3-S6	17/26/37	80%	Sand component becomes very fine to fine with increasing amounts of silt (about 30%). [SM]	
40	B3-S7	20/26/35	70%		
45	B3-S8	17/24/40	20%		
50	B3-S9	24/31/40	85%		
55	B3-S10	26/34/47	80%		Termination depth: 55' No ground water encountered.

BORING RECORD

PROJECT: MERCURY PHASE II SUBSURFACE INVESTIGATION
LOCATION: 11800 SHERMAN WAY, NORTH HOLLYWOOD, CA 91609-9759
PROJECT NO.: P1590
TASK NO.: 02
DATE: 10-25-90
GEOLOGIST: B. PALMER/H. AZZOUZ

DRILLER: NOT APPLICABLE
RIG TYPE: HAND AUGERED
BORING DIAMETER: 4 INCHES
BORING NO.: 4

DEPTH (FT)	SAMPLE NO.	BLOWS PER 6 INCHES	% RECOVERY	DESCRIPTION AND CLASSIFICATION	COMMENTS
1	B4-S1	NA	100%	Brownish-yellow, fine-medium sand with silt. Intermittent gravels and cobbles up to 5" in diameter, slightly moist, loose-medium dense.	Hand-augered to 10' due to location which was not accessible to truck mounted B61 drill rig.
5	B4-S2	NA	100%		
10	B4-S3	NA	100%		Termination depth: 10' No ground water encountered.
15					
20					
25					
30					
35					
40					
45					
50					
55					

BORING RECORD

PROJECT: MERCURY PHASE II SUBSURFACE INVESTIGATION
LOCATION: 11800 SHERMAN WAY, NORTH HOLLYWOOD, CA 91609-9759
PROJECT NO.: P1590
TASK NO.: 02
DATE: 10-25-90
GEOLOGIST: B. PALMER/H. AZZOUZ
DRILLER: BEYLIK DRILLING, INC.
RIG TYPE: B61 HOLLOW STEM AUGER
BORING DIAMETER: 6 INCHES
BORING NO.: 1

DEPTH (FT)	SAMPLE NO.	BLOWS PER 6 INCHES	% RECOVERY	DESCRIPTION AND CLASSIFICATION	COMMENTS
				Asphalt: top 2 inches	Hand-augered top 5 feet
5				Brownish-yellow, fine-medium sand with about 10% silt. Intermittent gravel, typically 1"-2", but up to 5" in diameter, slightly moist, loose-medium dense. [SW-SM]	
10	B1-S1	7/16/22	80%	At 8': Same as above except sand is medium-coarse.	Gravels of igneous/metamorphic composition, probably derived from the Santa Monica and San Gabriel Mountains.
15	B1-S2	11/16/21	95%	Same as 5'	
20	B1-S3	11/21/27	95%	Same as 5' except sand is medium-coarse.	
25	B1-S4	7/11/16	95%	At 25': Sandy silt layer, about 2' thick [ML]	No gravels encountered
30	B1-S5	17/26/33	30%	Same as 5' except sand is medium-coarse.	Gravels observed. (see description above)
35	B1-S6	19/25/35	0%	Same as 5'	Gravel occurrence increases: harder to drill.
40	B1-S7	15/21/27	50%	Same as 5' except sand is medium-coarse.	
45	B1-S8	39/37/45	40%	Same as 5'	
50	B1-S9	26/31/29	80%	Same as 5'	Gravel occurrence increases: harder to drill.
55	B1-S10	27/36/42	80%	Same as 5' except sand is medium-coarse.	Termination depth: 55' No ground water encountered.

BORING RECORD

PROJECT: MERCURY PHASE II SUBSURFACE INVESTIGATION
LOCATION: 11800 SHERMAN WAY, NORTH HOLLYWOOD, CA 91609-9759
PROJECT NO.: P1590 DRILLER: BEYLIK DRILLING, INC.
TASK NO.: 02 RIG TYPE: B61 HOLLOW STEM AUGER
DATE: 10-25-90 BORING DIAMETER: 6 INCHES
GEOLOGIST: B. PALMER/H. AZZOUZ BORING NO.: 2

DEPTH (FT)	SAMPLE NO.	BLOWS PER 6 INCHES	% RECOVERY	DESCRIPTION AND CLASSIFICATION	COMMENTS
				Asphalt: top 2"	
5				Brownish-yellow, fine-medium sand with silt. Intermittent gravels encountered with typical diameters of 1"-2", but up to 5". Slightly moist, loose-medium dense. [SW-SM]	Very difficult to hand-auger top 5' due to gravels.
10					Gravels of igneous/metamorphic composition, probably derived from the Santa Monica and San Gabriel Mountains.
11.5	B2-S1	7/11/21	90%		
15	B2-S2	11/19/24	60%		
20	B2-S3	22/25/34	30%	Same as above except sand grain size is medium-coarse.	
25	B2-S4	11/14/24	70%		
30	B2-S5	12/17/24	60%		
35	B2-S6	9/20/32	100%	Sandy silt layer, 2' thick, moderately moist [ML]	
40	B2-S7	17/25/37	70%	Brownish-yellow, medium-coarse sand with silt. Intermittent gravels with typical diameters of 1"-2", but up to 5" cobbles. Slightly moist. Loose-medium dense.	
45	B2-S8	18/30/40	30%		
50	B2-S9	20/34/42	40%		
55	B2-S10	25/36/44	75%		Termination depth: 55' No ground water encountered.

APPENDIX C

LABORATORY RESULTS

Curtis & Tompkins, Ltd., Analytical Laboratories. Since 1878
1250 S. Boyle Ave., Los Angeles, CA 90023, Phone (213) 269-7421, Fax (213) 268-5328

DATE RECEIVED: 10/26/90
DATE REPORTED: 11/08/90

LAB NUMBER: 200911

CLIENT: GSI ENVIRONMENTAL

REPORT ON: THIRTY-TWO SOIL AND TWO WATER SAMPLES

PROJECT #: 1590

LOCATION: SUBMITTED BY CLIENT

RESULTS: SEE ATTACHED

NOTE: SAMPLES WERE RECEIVED IN A CHILLED STATE WITH SEALS OF CUSTODY INTACT ON ICE CHESTS AND SAMPLES. CHAIN OF CUSTODY WAS SIGNED UPON RECEIPT OF SAMPLES.

Reviewed By Paul Mead

Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 200911
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: MERCURY PHASE II

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/07/90
DATE REPORTED: 11/08/90

METHOD: EPA 418.1
TOTAL PETROLEUM HYDROCARBONS IN SOILS AND WASTES BY IR

LAB ID	SAMPLE ID	TPH (mg/Kg)
1	B1-S1 (b) @ 10'	ND (10)
2	B1-S2 (b) @ 15'	ND (10)
3	B1-S3 (b) @ 20'	ND (10)
4	B1-S4 (b) @ 25'	ND (10)
5	B1-S5 (b) @ 30'	35
6	B1-S7 (b) @ 40'	ND (10)
7	B1-S8 (b) @ 45'	ND (10)
8	B1-S9 (b) @ 50'	17
9	B1-S10 (b) @ 50'	450
10	B4-S1 (b) @ 1'	300
10D	B4-S1 (b) @ 1'	290
11	B4-S2 (b) @ 5'	ND (10)
12	B4-S3 (b) @ 10'	ND (10)
13	B2-S1 (b) @ 11.5'	ND (10)
14	B2-S2 (b) @ 15'	ND (10)
15	B2-S3 (b) @ 20'	23
16	B2-S4 (b) @ 25'	ND (10)
17	B2-S5 (b) @ 30'	ND (10)
18	B2-S6 (b) @ 35'	ND (10)
19	B2-S7 (b) @ 40'	26
20	B2-S8 (b) @ 45'	17
20D	B2-S8 (b) @ 45'	15
21	B2-S9 (b) @ 50'	21
22	B2-S10 (b) @ 55'	880

ND = NOT DETECTED; METHOD DETECTION LIMIT IN PARENTHESES.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	104

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: MERCURY PHASE II

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/07/90
DATE REPORTED: 11/08/90

METHOD: EPA 418.1
TOTAL PETROLEUM HYDROCARBONS IN SOILS AND WASTES BY IR

LAB ID	SAMPLE ID	TPH (mg/Kg)	
25	B3-S8 (b) @ 45'	23	
26	B3-S9 (b) @ 50'	ND (10)	
27	B3-S10 (b) @ 55'	ND (10)	
28	B3-S1 (b) @ 11'	ND (10)	
29	B3-S2 (b) @ 15'	ND (10)	
30	B3-S3 (b) @ 20'	ND (10)	
31	B3-S4 (b) @ 25'	ND (10)	
32	B3-S5 (b) @ 30'	ND (10)	
32D	B3-S5 (b) @ 30'	ND (10)	
33	B3-S6 (b) @ 35'	13	
34	B3-S7 (b) @ 40'	ND (10)	
LB	LAB BLANK	ND (10)	OK
MS	METHOD SPIKE (40)	41.8	OK
MSD	METHOD SPIKE DUPLICATE (40)	41.0	OK
QA	SD91009-1 (1,140)	1,120	OK
QA	SD91009-2 (1,530)	1,440	OK

ND = NOT DETECTED; METHOD DETECTION LIMIT IN PARENTHESES.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	104

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: MERCURY PHASE II

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/07/90
DATE REPORTED: 11/08/90

METHOD: EPA 418.1
TOTAL PETROLEUM HYDROCARBONS IN AQUEOUS SOLUTIONS BY IR
EXTRACTION: EPA 3510 SEPERATORY FUNNEL

LAB ID	SAMPLE ID	TPH (mg/L)	
24	FIELD EQUIP BLANK	ND (1.0)	
LB	LAB BLANK	ND (1.0)	OK
MS	METHOD SPIKE (40)	36.7	OK
MSD	METHOD SPIKE DUPLICATE (40)	36.9	OK

ND = NOT DETECTED; METHOD DETECTION LIMIT IN PARENTHESES.

QA/QC DATA SUMMARY:	
Precision (Relative % Difference):	1
Accuracy (Spike % Recovery):	92

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-1
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B1-S1(B)@10.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/02/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-1
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B1-S1(B)@10.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/02/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: MERCURY PHASE II

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/07/90
DATE REPORTED: 11/08/90

METHOD: EPA 418.1
TOTAL PETROLEUM HYDROCARBONS IN AQUEOUS SOLUTIONS BY IR
EXTRACTION: EPA 3510 SEPERATORY FUNNEL

LAB ID	SAMPLE ID	TPH (mg/L)	
24	FIELD EQUIP BLANK	ND (1.0)	
LB	LAB BLANK	ND (1.0)	OK
MS	METHOD SPIKE (40)	36.7	OK
MSD	METHOD SPIKE DUPLICATE (40)	36.9	OK

ND = NOT DETECTED; METHOD DETECTION LIMIT IN PARENTHESES.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	1
Accuracy (Spike % Recovery):	92

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-2
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B1-S2(B)@15.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/02/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 200911-3
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B1-S3(B)@20.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/02/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-4
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B1-S4(B)@25.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/02/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-5
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B1-S5(B)@30.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/02/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 200911-6
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B1-S7(B)@40.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/02/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-7
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B1-S8(B)@45.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/02/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-8
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B1-S9(B)@50.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/02/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-9
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B1-S10(B)@50.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/03/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-10
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B4-S1(B)@1.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/06/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 200911-11
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B4-S2(B)@5.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/03/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-12
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B4-S3(B)@10.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/03/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-13
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B2-S1(B)@11.5'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/03/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-14
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B2-S2(B)@15.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/05/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-15
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B2-S3(B)@20.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/05/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-16
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B2-S4(B)@25.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/05/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-17
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B2-S5(B)@30.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/05/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-18
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B2-S6(B)@35.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/05/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-19
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B2-S7(B)@40.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/06/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-20
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B2-S8(B)@45.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/06/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-21
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B2-S9(B)@50.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/06/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	3
Accuracy (Spike % Recovery):	78

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-22
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B2-S10(B)@55.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/06/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	6	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	3
Accuracy (Spike % Recovery):	78

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 200911-25
CLIENT: GSI ENVIRONMENTAL
PROJECT #: 1590
LOCATION: SUBMITTED BY CLIENT
SAMPLE ID: B3-S8(B)@45.0'

DATE RECEIVED: 10/26/90
DATE ANALYZED: 11/06/90
DATE REPORTED: 11/08/90

METHOD: EPA 8010
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	3
Accuracy (Spike % Recovery):	78

CHAIN OF CUSTODY RECORD - TEST REQUEST

GSI ENVIRONMENTAL

16541 Gothard Street, Suite 211
Huntington Beach, California 92647
Telephone: (714) 843-6866, Telefax: (714) 848-2407

Observation Well I.D. No.: —
Samplers (signatures): Bert Palmer & Haydar Azzouz

Project No.: 1590
Project Title: MERCURY PHASE II

Sample I.D. No.	Date	Time	Container Description	No. of Containers	Required* Analyses	Comments
B3 S1 (b) [11']	10-24-90	PM	Brass liner	1	EPA 418.1 EPA 8010 EPA 8020	PQL of 5-10 ppb Sample aliquot from center of sleeve
B3 S2 (b) [15']	"	"	"	"	"	"
B3 S3 (b) [20']	"	"	"	"	"	"
B3 S4 (b) [25']	"	"	"	"	"	"
B3 S5 (b) [30']	"	"	"	"	"	"
B3 S6 (b) [35']	"	"	"	"	"	"
B3 S7 (b) [40']	"	"	"	"	"	"

Relinquished by	Date	Time	Received by	Date	Time
[signature]	26/10/90	3:00	[signature]	10-26-90	3:00
Relinquished by	Date	Time	Received for Laboratory by	Date	Time

Method of Shipment: Courier

Airbill (or shipping invoice) Number :

CHAIN OF CUSTODY RECORD - TEST REQUEST

GSI ENVIRONMENTAL

16541 Gothard Street, Suite 211
Huntington Beach, California 92647
Telephone: (714) 843-6866, Telefax: (714) 848-2407

Observation Well I.D. No.: —

Samplers (signatures): Bert Palmer & Haydar Azzouz

Project No.: 1590

Project Title: Mercury Phase II

Sample I.D. No.	Date	Time	Container Description	No. of Containers	Required* Analyses	Comments
B3 S8(b) [45']	10-24-90	PM	Brass liner	1	EPA 418.1 EPA 8010 EPA 8020	• PQL of 5-10 ppb • sample aliquot from center of sleeve
B3 S9 (b) [50']	"	"	"	"	"	"
B3 S10(b) [55']	"	"	"	"	"	"

Relinquished by	Date	Time	Received by	Date	Time
[signature]	26/10/90	3:00	[signature]	10-26-90	3:00
Relinquished by	Date	Time	Received for Laboratory by	Date	Time

Method of Shipment: Courier

Airbill (or shipping invoice) Number :

Curtis & Tompkins, Ltd., Analytical Laboratories. Since 1878
1250 S. Boyle Ave. Los Angeles, CA 90023. Phone (213) 269-7421. Fax (213) 268-5328

EPA 624/8240 BS/BSD RESULTS WORKSHEET
SOIL SAMPLES: ACCEPTANCE CITERIA BASED ON CLP 2/88

SOIL MATRIX ONLY

EXTRACTION DATE: N/A
RUN DATE: 11/02/90
SMPL FILE ID:
MS/BS FILE ID: ^VK125
MSD/BSD FILE ID: ^VD125

EXTRCTR: N/A
OPERATER: D.BAREWALD
SMPL ID:
JJ FILE ID: 200894,ET AL.

SURROGATES	MS/BS	% REC	STATUS	MSD/BSD	% REC	STATUS
1,2-Dichloroethane-d4	49.40	99%	OK	52.95	106%	OK
Toluene-d8	48.92	98%	OK	48.42	97%	OK
Bromofluorobenzene	50.57	101%	OK	51.12	102%	OK

SPIKING COMPOUNDS	MS/BS	% REC	STATUS	MSD/BSD	% REC	STATUS
*1,1-Dichloroethene	42.82	86%	OK	42.57	85%	OK
*Trichloroethene	49.57	99%	OK	47.94	96%	OK
Benzene	52.39	105%	OK	51.55	103%	OK
Toluene	49.00	98%	OK	47.84	96%	OK
+*Chlorobenzene	50.07	100%	OK	49.08	98%	OK
Average Rec		97%				

DUPLICATE PRECISION DATA

	RPD	STATUS	MAX RPD
*1,1-Dichloroethene	1%	OK	22%
*Trichloroethene	3%	OK	24%
Benzene	2%	OK	21%
+Toluene	2%	OK	21%
*Chlorobenzene	2%	OK	21%
Average RPD	2%		

ACCEPTABLE RECOVERIES

	LOW	HIGH
1,2-Dichloroethane-d4	70%	121%
Toluene-d8	81%	117%
Bromofluorobenzene	74%	121%
1,1-Dichloroethene	59%	172%
Trichloroethene	62%	137%
Benzene	66%	142%
Toluene	59%	139%
Chlorobenzene	60%	133%

*QA/QC f.r 8010 Rec = 94% RPD = 2%
+QA/QC f.r 8020 Rec = 100% RPD = 2%

EPA 624/8240 BS/BSD RESULTS WORKSHEET
WATER SAMPLES: ACCEPTANCE CRITERIA BASED ON CLP 2/88

WATER MATRIX ONLY

EXTRACTION DATE: N/A
RUN DATE:11/02/90
SMPL FILE ID:
MS/BS FILE ID: >VK125
MSD/BSD FILE ID: >VD125

EXTRCTR: N/A
OPERATER: D.BAREWALD
SMPL ID:
JJ FILE ID: 200894,ET AL.

SURROGATES	MS/BS	% REC	STATUS	MSD/BSD	% REC	STATUS
1,2-Dichloroethane-d4	49.40	99%	OK	52.95	106%	OK
Toluene-d8	48.92	98%	OK	48.42	97%	OK
Bromofluorobenzene	50.57	101%	OK	51.12	102%	OK

SPIKING COMPOUNDS	MS/BS	% REC	STATUS	MSD/BSD	% REC	STATUS
1,1-Dichloroethene	42.82	86%	OK	42.57	85%	OK
Trichloroethene	49.57	99%	OK	47.94	96%	OK
Benzene	52.39	105%	OK	51.55	103%	OK
Toluene	49.00	98%	OK	47.84	96%	OK
Chlorobenzene	50.07	100%	OK	49.08	98%	OK
Average Rec		97%				

DUPLICATE PRECISION DATA

	RPD	STATUS	MAX RPD
1,1-Dichloroethene	1%	OK	14%
Trichloroethene	3%	OK	14%
Benzene	2%	OK	11%
Toluene	2%	OK	13%
Chlorobenzene	2%	OK	13%
Average RPD	2%		

ACCEPTABLE RECOVERIES

	LOW	HIGH
1,2-Dichloroethane-d4	76%	114%
Toluene-d8	88%	110%
Bromofluorobenzene	86%	115%
1,1-Dichloroethene	61%	145%
Trichloroethene	71%	120%
Benzene	76%	127%
Toluene	76%	125%
Chlorobenzene	75%	130%

QUANT REPORT

Operator ID: DAVE Quant Rev: 6 Quant Time: 901102 20:23
Output File: ^VB737::D6 Injected at: 901102 19:42
Data File: >VB737::D6 Dilution Factor: 1.00000
Name: BLANK
Misc: 11/02/90 DJB;IS(7A)

ID File: ID_624::D8
Title: Daily Calibration via Single Point at 50 ug/L Rev. E
Last Calibration: 901102 19:44

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	13.56	128.0	92443	50.00	ug/L	93
~~2)~~	~~Chloromethane~~ BQL	2.96	50.0	9085	3.34	ug/L	92
~~4)~~	~~Bromomethane~~ BQL	4.70	94.0	5104	3.15	ug/L	98
~~6)~~	~~Trichlorofluoromethane~~ BQL	6.34	101.0	1152	1.40	ug/L	78
~~8)~~	~~Freon 113~~ BQL	8.21	151.0	2176	.45	ug/L	95
~~11)~~	~~Methylene Chloride~~ BQL	9.72	84.0	11339	2.36	ug/L	95
~~14)~~	~~2-Butenone~~ BQL	12.76	43.0	19893	11.39	ug/L	89
~~15)~~	~~Chloroform~~ BQL	13.31	83.0	5856	.69	ug/L	95
16)	1,2-Dichloroethane-d4 ✓ 106%	14.75	65.0	247718	53.06	ug/L	98
18)	*1,4-Difluorobenzene	15.79	114.0	695731	50.00	ug/L	93
~~20)~~	~~1,1,1 Trichloroethane~~ BQL	14.23	97.0	1385	.18	ug/L	89
~~22)~~	~~Benzene~~ BQL	15.07	78.0	6896	.54	ug/L	96
32)	*Chlorobenzene-d5	22.15	117.0	572727	50.00	ug/L	97
34)	Toluene d-8 ✓ 97%	18.95	98.0	685966	49.67	ug/L	95
~~35)~~	~~Toluene~~ BQL	19.11	92.0	5872	.63	ug/L	97
~~39)~~	~~Ethylbenzene~~ BQL	22.48	106.0	7117	1.18	ug/L	95
~~40)~~	~~Xylene (total)~~ BQL	23.62	106.0	4927	.71	ug/L	97
~~41)~~	~~Styrene~~ BQL	23.69	104.0	4328	.35	ug/L	94
43)	Bromofluorobenzene ✓ 99%	24.94	95.0	339568	49.39	ug/L	92

* Compound is ISTD

QUANT REPORT

Operator ID: DAVE
Output File: ^VS836::D2
Data File: >VS836::D6
Name: 50 PPB 624 STD
Misc: 11/02/90 DJB;VHSL(22E);VA(1A);F(1F);IS(7A)

Quant Rev: 6
Quant Time: 901102 19:44
Injected at: 901102 18:56
Dilution Factor: 1.00000

ID File: ID_624::D8
Title: Daily Calibration via Single Point at 50 ug/L Rev. E
Last Calibration: 901102 19:44

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	13.55	128.0	86086	50.00	ug/L	92
2)	Chloromethane	2.97	50.0	126627	50.00	ug/L	92
3)	Vinyl Chloride	3.36	62.0	156154	50.00	ug/L	97
4)	Bromomethane	4.70	94.0	75406	50.00	ug/L	99
5)	Chloroethane	5.19	64.0	49647	50.00	ug/L	97
6)	Trichlorofluoromethane	6.34	101.0	38285	50.00	ug/L	96
7)	Acetone	8.41	43.0	31000	50.00	ug/L	98
8)	Freon 113	8.26	151.0	224918	50.00	ug/L	92
9)	1,1-Dichloroethene	8.30	96.0	120268	50.00	ug/L	86
10)	Carbon Disulfide	9.17	76.0	278171	50.00	ug/L	99
11)	Methylene Chloride	9.72	84.0	224155	50.00	ug/L	94
12)	1,2-Dichloroethene (total)	10.56	96.0	191774	50.00	ug/L	95
13)	1,1-Dichloroethane	11.58	63.0	295028	50.00	ug/L	93
14)	2-Butanone	12.73	43.0	81310	50.00	ug/L	89
15)	Chloroform	13.31	83.0	394650	50.00	ug/L	97
16)	1,2-Dichloroethane-d4	14.76	65.0	217394	50.00	ug/L	98
17)	1,2-Dichloroethane	14.95	62.0	286538	50.00	ug/L	95
18)	*1,4-Difluorobenzene	15.79	114.0	639189	50.00	ug/L	95
19)	Vinyl Acetate	11.95	43.0	3690	50.00	ug/L	100
20)	1,1,1-Trichloroethane	14.19	97.0	349479	50.00	ug/L	94
21)	Carbon Tetrachloride	14.76	117.0	311537	50.00	ug/L	98
22)	Benzene	15.05	78.0	585152	50.00	ug/L	99
23)	Trichloroethene	16.40	130.0	260021	50.00	ug/L	98
24)	1,2-Dichloropropane	16.67	63.0	191687	50.00	ug/L	94
25)	Bromodichloromethane	17.14	83.0	346202	50.00	ug/L	92
26)	2-Chloroethylvinylether	18.00	63.0	17626	50.00	ug/L	98
27)	cis-1,3-Dichloropropene	18.37	75.0	442219	50.00	ug/L	95
28)	trans-1,3-Dichloropropene	19.45	75.0	74114	50.00	ug/L	84
29)	1,1,2-Trichloroethane	19.72	97.0	181007	50.00	ug/L	95
30)	Dibromochloromethane	20.74	129.0	279630	50.00	ug/L	97
31)	Bromoform	24.17	173.0	227839	50.00	ug/L	95
32)	*Chlorobenzene-d5	22.14	117.0	523795	50.00	ug/L	94
33)	4-Methyl-2-Pentanone	18.12	43.0	144771	50.00	ug/L	92
34)	Toluene d-8	18.94	98.0	631511	50.00	ug/L	93
35)	Toluene	19.11	92.0	427067	50.00	ug/L	95
36)	2-Hexanone	19.99	43.0	88611	50.00	ug/L	97
37)	Tetrachloroethene	20.50	164.0	229351	50.00	ug/L	96
38)	Chlorobenzene	22.22	112.0	542169	50.00	ug/L	95
39)	Ethylbenzene	22.47	106.0	274730	50.00	ug/L	98
40)	Xylene (total)	23.59	106.0	315917	50.00	ug/L	98
41)	Styrene	23.67	104.0	567844	50.00	ug/L	95
42)	1,1,2,2-Tetrachloroethane	24.72	83.0	230458	50.00	ug/L	93
43)	Bromofluorobenzene	24.92	95.0	314366	50.00	ug/L	88

Continuing Calibration Check
HSL Compounds

Case No:

Calibration Date: 11/02/90

Contractor: Curtis & Tompkins

Time: 18:56

Contract No:

Laboratory ID: >VS836

Instrument ID: HP 5995

Initial Calibration Date: 11/01/90

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is . 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2-Hexanone	.18422	.16917	8.17		
Tetrachloroethene	.40501	.43786	8.11		
Chlorobenzene	.94558	1.03508	9.46		**
Ethylbenzene	.47858	.52450	9.59	*	
Xylene (total)	.53147	.60313	13.48		
Styrene	.97329	1.08410	11.38		
1,1,2,2-Tetrachloroethane	.39689	.43998	10.86		**
Bromofluorobenzene	.60489	.60017	.78		

RF - Response Factor from daily standard file at 50.00 ug/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 11/02/90

Contractor: Curtis & Tompkins Time: 18:56

Contract No: Laboratory ID: >VS836

Instrument ID: HP 5995 Initial Calibration Date: 11/01/90

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
Chloromethane	1.33595	1.47094	-10.10		**
Vinyl Chloride	1.66735	1.81393	8.79	*	
Bromomethane	.80718	.87594	8.52		
Chloroethane	.49830	.57671	15.74		
Trichlorofluoromethane	.34112	.44473	30.37		
Acetone	.35202	.36011	2.30		
Freon 113	2.37367	2.61271	10.07		
1,1-Dichloroethene	1.15717	1.39707	20.73	*	
Carbon Disulfide	3.05641	3.23132	5.72		
Methylene Chloride	2.14277	2.60385	21.52		
1,2-Dichloroethene (total)	2.01941	2.22770	10.31		
1,1-Dichloroethane	2.36376	3.42713	44.99		**
2-Butanone	1.03571	.94452	8.80		
Chloroform	4.18079	4.58437	9.65	*	
1,2-Dichloroethane-d4	2.44905	2.52531	3.11		
1,2-Dichloroethane	3.04702	3.32851	9.24		
Vinyl Acetate	.00979	.00577	41.03		
1,1,1-Trichloroethane	.51143	.54675	6.91		
Carbon Tetrachloride	.44428	.48739	9.70		
Benzene	.88447	.91546	3.50		
Trichloroethene	.40014	.40680	1.66		
1,2-Dichloropropane	.28677	.29989	4.58	*	
Bromodichloromethane	.50600	.54163	7.04		
2-Chloroethylvinylether	.03317	.02758	16.87		
cis-1,3-Dichloropropene	.67464	.69184	2.55		
trans-1,3-Dichloropropene	.12298	.11595	5.72		
1,1,2-Trichloroethane	.27129	.28318	4.38		
Dibromochloromethane	.41133	.43748	6.36		
Bromoform	.35240	.35645	1.15		**
4-Methyl-2-Pentanone	.30463	.27639	9.27		
Toluene d-8	1.17724	1.20565	2.41		
Toluene	.76099	.81533	7.14	*	

RF - Response Factor from daily standard file at 50.00 ug/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No:

Contractor: Curtis & Tompkins

Contract No:

Instrument ID: HP 5995

Calibration Date: 11/01/90

Raw Data in Job#200894 Ebasco

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % RSD for CCC is 30.0%

Laboratory ID:	>VSC75 RF 20.00	>VSC76 RF 50.00	>VSC77 RF 100.00	>VSC78 RF 150.00	>VSC79 RF 200.00	$\overline{RF}$	% RSD	CORR1	CCC	SPCC
Compound										
Chloromethane	1.42121	1.48326	1.28867	1.17960	1.30700	1.33595	8.895	.995101		** ✓
Vinyl Chloride	1.61782	1.85488	1.64539	1.60827	1.61038	1.66735	6.350	.999150	* ✓	
Bromomethane	.81541	.90043	.78984	.76064	.76956	.80718	6.966	.998968		
Chloroethane	.51233	.56319	.48396	.46006	.47197	.49830	8.255	.998409		
Trichlorofluoromethane	.33914	.38556	.32821	.28280	.36989	.34112	11.703	.977771		
Acetone	.57004	.28346	.39166	.28248	.23246	.35202	38.359	.934748		
Freon 113	2.56202	2.67510	2.28931	1.97485	2.36706	2.37367	11.393	.987319		
1,1-Dichloroethene	1.25124	1.26241	1.11980	.99382	1.15855	1.15717	9.467	.991172	* ✓	
Carbon Disulfide	3.03829	3.24381	3.03875	2.86475	3.09643	3.05641	4.453	.997686		
Methylene Chloride	1.42370	2.58280	2.28407	2.20250	2.22078	2.14277	20.077	.997087		
1,2-Dichloroethene (total)	2.06425	2.28986	2.00591	1.85275	1.88426	2.01941	8.626	.998075		
1,1-Dichloroethane	2.58019	2.83013	2.07177	1.75912	2.57757	2.36376	18.452	.954692		** ✓
2-Butanone	1.44574	1.16544	.97358	.88818	.70561	1.03571	27.290	.975918		
Chloroform	4.39163	4.76109	4.08077	3.81916	3.85132	4.18079	9.497	.998282	* ✓	
1,2-Dichloroethane-d4	2.83873	2.76197	2.43763	2.19367	2.01325	2.44905	14.509	.994200		
1,2-Dichloroethane	3.17203	3.48328	3.05819	2.84365	2.67793	3.04702	10.164	.996374		
Vinyl Acetate	-	.00271	.01354	.02164	.00127	.00979	98.180	.201377		
1,1,1-Trichloroethane	.50904	.54629	.50955	.50159	.49065	.51143	4.094	.999541		
Carbon Tetrachloride	.43689	.48762	.44414	.42716	.42560	.44428	5.711	.999229		
Benzene	.91154	.94147	.86894	.85264	.84777	.88447	4.586	.999735		
Trichloroethene	.40801	.43273	.37853	.36641	.41503	.40014	6.788	.994061		
1,2-Dichloropropane	.28559	.30571	.28269	.28311	.27675	.28677	3.861	.999610	* ✓	
Bromodichloromethane	.50179	.53654	.50073	.50669	.48427	.50600	3.764	.999174		
2-Chloroethylvinylether	.02477	.03337	.03701	.03779	.03292	.03317	15.568	.991762		
cis-1,3-Dichloropropene	.62023	.71694	.69447	.69524	.64631	.67464	5.915	.997684		
trans-1,3-Dichloropropene	.09103	.12411	.13209	.13929	.12836	.12298	15.212	.997223		
1,1,2-Trichloroethane	.28179	.28964	.27456	.27212	.23831	.27129	7.247	.993168		
Dibromochloromethane	.40747	.44353	.41262	.41062	.38243	.41133	5.283	.997876		
Bromoform	.35147	.37296	.37170	.36124	.30463	.35240	7.971	.987327		** ✓
4-Methyl-2-Pentanone	.29932	.31412	.32098	.32647	.26223	.30463	8.465	.981150		

RF - Response Factor (Subscript is amount in ug/L)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CORRn - Coefficient of Correlation (nth degree)

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No:

Instrument ID: HP 5995

Contractor: Curtis & Tompkins

Calibration Date: 11/01/90

Contract No:

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % RSD for CCC is 30.0%

Laboratory ID:	>VSC75	>VSC76	>VSC77	>VSC78	>VSC79					
Compound	RF 20.00	RF 50.00	RF 100.00	RF 150.00	RF 200.00	$\overline{RF}$	% RSD	CORR1	CCC	SPCC
Toluene d-8	1.29482	1.23526	1.14515	1.10072	1.11026	1.17724	7.178	.999731		
Toluene	.79570	.82889	.73719	.72738	.71579	.76099	6.422	.999472	* ✓	
2-Hexanone	.18586	.19061	.19357	.19623	.15485	.18422	9.156	.977802		
Tetrachloroethene	.42651	.44383	.38705	.38384	.38383	.40501	6.971	.999367		
Chlorobenzene	.97245	1.02646	.91837	.90852	.90210	.94558	5.613	.999542		** ✓
Ethylbenzene	.52245	.52873	.46388	.44775	.43011	.47858	9.318	.998812	* ✓	
Xylene (total)	.58574	.60056	.51702	.48987	.46416	.53147	11.206	.997702		
Styrene	1.05881	1.08658	.95038	.91797	.85272	.97329	10.050	.997274		
1,1,2,2-Tetrachloroethane	.42654	.42503	.42980	.43080	.27229	.39689	17.560	.909953		** ✓
Bromofluorobenzene	.69502	.64589	.58478	.54906	.54971	.60489	10.576	.999462		

RF - Response Factor (Subscript is amount in ug/L)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CORRn - Coefficient of Correlation (nth degree)

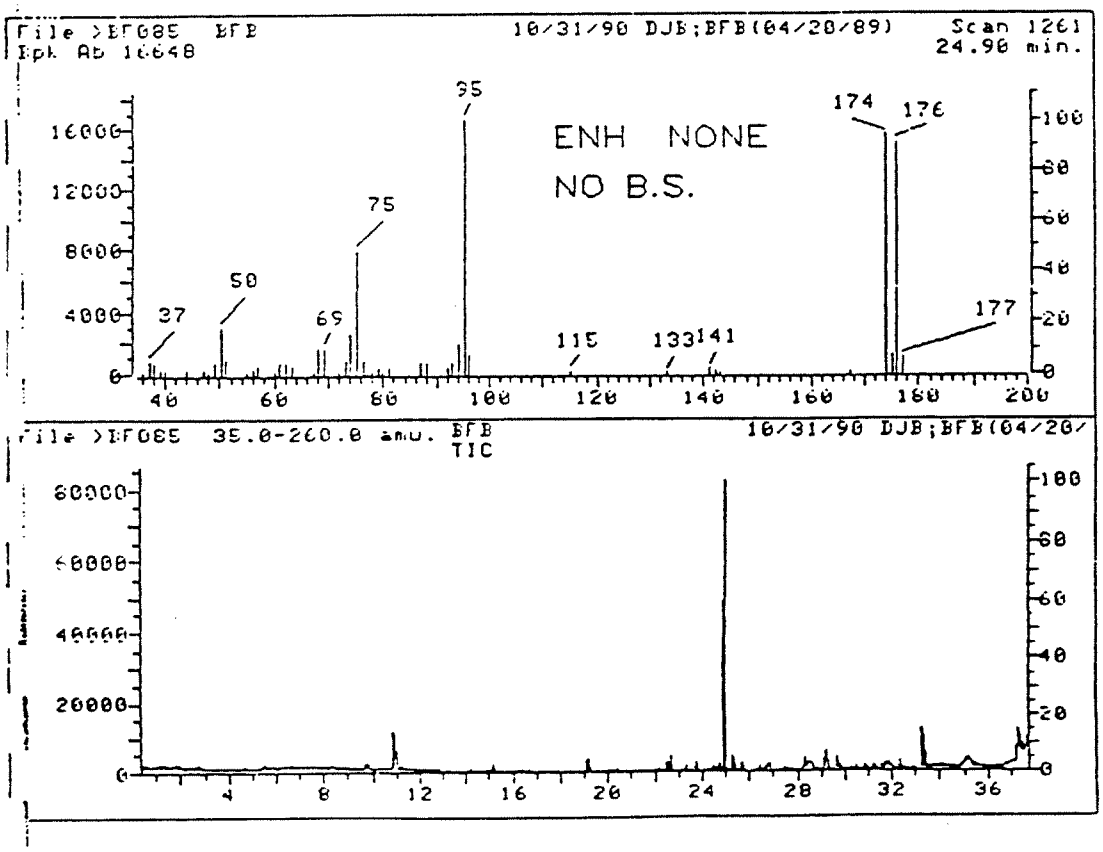
CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	18.11	18.11	Ok
75	30-60% of mass 95	47.79	47.79	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.06	7.06	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	93.69	93.69	Ok
175	5-9% of mass 174	6.82	7.28	Ok
176	95-101% of mass 174	90.64	96.75	Ok
177	5-9% of mass 176	5.95	6.56	Ok

Injection Date: 10/31/90
Injection Time: 20:56
Data File: >BF085
Scan: 1261

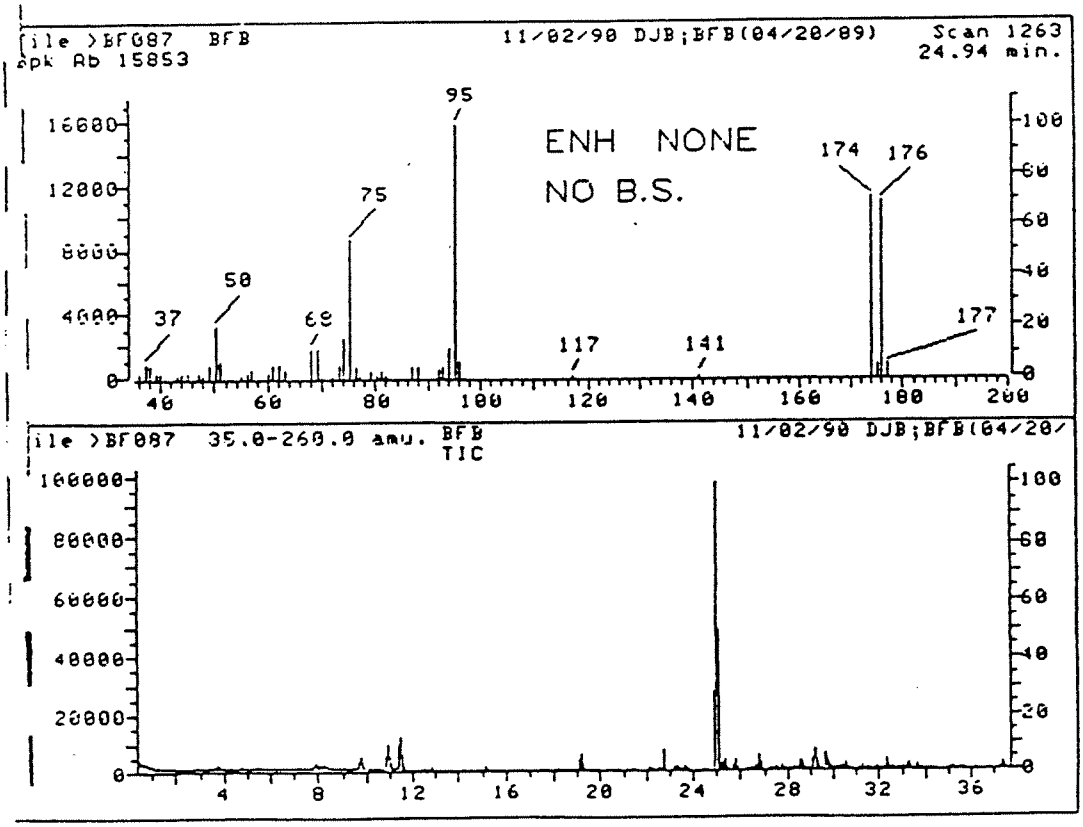


GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	20.67	20.67	Ok
75	30-60% of mass 95	53.98	53.98	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.52	6.52	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	70.34	70.34	Ok
175	5-9% of mass 174	4.80	6.82	Ok
176	95-101% of mass 174	68.71	97.68	Ok
177	5-9% of mass 176	4.31	6.27	Ok

Injection Date: 11/02/90
Injection Time: 18:06
Data File: >BF087
Scan: 1263

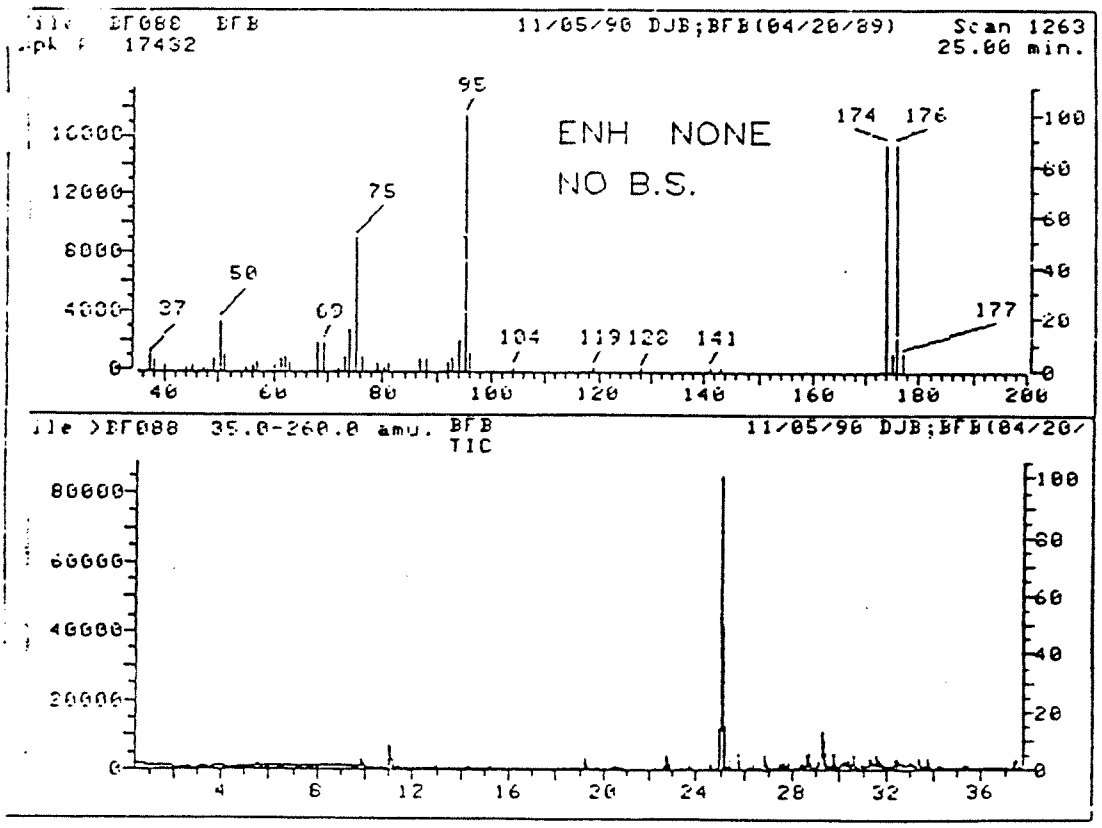


GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	18.75	18.75	Ok
75	30-60% of mass 95	51.73	51.73	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.56	6.56	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	88.17	88.17	Ok
175	5-9% of mass 174	6.06	6.87	Ok
176	95-101% of mass 174	88.13	99.95	Ok
177	5-9% of mass 176	5.95	6.75	Ok

Injection Date: 11/05/90
Injection Time: 16:29
Data File: >BF088
Scan: 1263



QUANT REPORT

Operator ID: DAVE.
Output File: ^VB738::D6
Data File: >VB738::D6
Name: BLANK
Misc: 11/05/90 DJB;IS(7A)

Quant Rev: 6 Quant Time: 901105 18:53
Injected at: 901105 18:12
Dilution Factor: 1.00000

ID File: ID_624::D8
Title: Daily Calibration via Single Point at 50 ug/L Rev. E
Last Calibration: 901105 18:10

Compound	R.T.	Q ion	Area	Conc	Units	q
1) *Bromochloromethane	13.62	128.0	67608	50.00	ug/L	88
~~2) Chloromethane~~ BQL	2.91	50.0	6288	3.06	ug/L	98
~~3) Bromomethane~~ BQL	4.74	94.0	3667	2.67	ug/L	99
11) ~~Methylene Chloride~~ BQL	9.74	84.0	9441	2.54	ug/L	88
14) ~~2-Butanone~~ BQL	12.90	43.0	13177	8.73	ug/L	89
15) ~~Chloroform~~ BQL	13.39	83.0	3617	.68	ug/L	98
16) 1,2-Dichloroethane-d4 ✓ 110%	14.83	65.0	217505	54.95	ug/L	97
18) *1,4-Difluorobenzene	15.87	114.0	576077	50.00	ug/L	95
20) ~~1,1,1-Trichloroethane~~ BQL	14.25	97.0	1802	.27	ug/L	87
22) ~~Benzene~~ BQL	15.13	78.0	8343	.29	ug/L	98
32) *Chlorobenzene-d5	22.21	117.0	480694	50.00	ug/L	98
34) Toluene d-8 ✓ 99%	19.01	98.0	560974	49.46	ug/L	89
35) ~~Toluene~~ BQL	19.17	92.0	6059	.77	ug/L	95
39) ~~Ethylbenzene~~ BQL	22.55	106.0	5503	1.10	ug/L	98
40) ~~Xylene (total)~~ BQL	23.66	106.0	3294	.56	ug/L	95
41) ~~Styrene~~ BQL	23.74	104.0	3003	.29	ug/L	90
43) Bromofluorobenzene ✓ 100%	24.97	95.0	293608	50.03	ug/L	99

* Compound is ISTD

QUANT REPORT

Operator ID: DAVE
Output File: ^VS837::D2
Data File: >VS837::D6
Name: 50 PPB 624 STD
Misc: 11/05/90 DJB;VHSL(22E);VA(1A);F(1F);IS(7A)

Quant Rev: 6
Quant Time: 901105 18:10
Injected at: 901105 17:26
Dilution Factor: 1.00000

ID File: ID_624::D8
Title: Daily Calibration via Single Point at 50 ug/L Rev. E
Last Calibration: 901105 18:10

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	13.63	128.0	67978	50.00	ug/L	90
2)	Chloromethane	2.97	50.0	103360	50.00	ug/L	93
3)	Vinyl Chloride	3.38	62.0	132996	50.00	ug/L	95
4)	Bromomethane	4.72	94.0	69094	50.00	ug/L	97
5)	Chloroethane	5.21	64.0	46151	50.00	ug/L	96
6)	Trichlorofluoromethane	6.38	101.0	24538	50.00	ug/L	94
7)	Acetone	8.43	43.0	26927	50.00	ug/L	98
8)	Freon 113	8.30	151.0	209854	50.00	ug/L	95
9)	1,1-Dichloroethene	8.32	96.0	85082	50.00	ug/L	87
10)	Carbon Disulfide	9.22	76.0	230841	50.00	ug/L	99
11)	Methylene Chloride	9.74	84.0	186775	50.00	ug/L	91
12)	1,2-Dichloroethene (total)	10.60	96.0	149509	50.00	ug/L	94
13)	1,1-Dichloroethane	11.64	63.0	106241	50.00	ug/L	92
14)	2-Butanone	12.85	43.0	75923	50.00	ug/L	82
15)	Chloroform	13.39	83.0	268599	50.00	ug/L	97
16)	1,2-Dichloroethane-d4	14.82	65.0	199006	50.00	ug/L	99
17)	1,2-Dichloroethane	15.01	62.0	264810	50.00	ug/L	96
18)	*1,4-Difluorobenzene	15.85	114.0	559882	50.00	ug/L	94
19)	Vinyl Acetate	11.99	43.0	3344	50.00	ug/L	100
20)	1,1,1-Trichloroethane	14.25	97.0	326931	50.00	ug/L	94
21)	Carbon Tetrachloride	14.82	117.0	284562	50.00	ug/L	97
22)	Benzene	15.11	78.0	515480	50.00	ug/L	99
23)	Trichloroethene	16.46	130.0	230214	50.00	ug/L	97
24)	1,2-Dichloropropane	16.73	63.0	162801	50.00	ug/L	92
25)	Bromodichloromethane	17.20	83.0	312664	50.00	ug/L	91
26)	2-Chloroethylvinylether	18.08	63.0	12801	50.00	ug/L	92
27)	cis-1,3-Dichloropropene	18.45	75.0	385834	50.00	ug/L	96
28)	trans-1,3-Dichloropropene	19.53	75.0	65073	50.00	ug/L	84
29)	1,1,2-Trichloroethane	19.80	97.0	164582	50.00	ug/L	96
30)	Dibromochloromethane	20.81	129.0	280636	50.00	ug/L	96
31)	Bromoform	24.23	173.0	220261	50.00	ug/L	97
32)	*Chlorobenzene-d5	22.20	117.0	462856	50.00	ug/L	97
33)	4-Methyl-2-Pentanone	18.22	43.0	135048	50.00	ug/L	93
34)	Toluene d-8	19.00	98.0	546096	50.00	ug/L	94
35)	Toluene	19.15	92.0	377205	50.00	ug/L	98
36)	2-Hexanone	20.05	43.0	86559	50.00	ug/L	94
37)	Tetrachloroethene	20.56	164.0	207499	50.00	ug/L	96
38)	Chlorobenzene	22.28	112.0	474635	50.00	ug/L	95
39)	Ethylbenzene	22.53	106.0	239972	50.00	ug/L	98
40)	Xylene (total)	23.67	106.0	280992	50.00	ug/L	98
41)	Styrene	23.72	104.0	499634	50.00	ug/L	95
42)	1,1,2,2-Tetrachloroethane	24.78	83.0	215637	50.00	ug/L	96
43)	Bromofluorobenzene	24.97	95.0	282545	50.00	ug/L	88

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 11/05/90

Contractor: Curtis & Tompkins Time: 17:26

Contract No: Laboratory ID: >VS837

Instrument ID: HP 5995 Initial Calibration Date: 11/01/90

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
Chloromethane	1.33595	1.52049	13.81		** ✓
Vinyl Chloride	1.66735	1.95646	17.34	* ✓	
Bromomethane	.80718	1.01642	25.92		
Chloroethane	.49830	.67891	36.24		
Trichlorofluoromethane	.34112	.36097	5.82		
Acetone	.35202	.39611	12.53		
Freon 113	2.37367	3.08709	30.06		
1,1-Dichloroethene	1.15717	1.25161	8.16	* ✓	
Carbon Disulfide	3.05641	3.39582	11.10		
Methylene Chloride	2.14277	2.74758	28.23		
1,2-Dichloroethene (total)	2.01941	2.19937	8.91		
1,1-Dichloroethane	2.36376	1.56287	33.88		** ✓
2-Butanone	1.03571	1.11688	7.84		
Chloroform	4.18079	3.95126	5.49	* ✓	
1,2-Dichloroethane-d4	2.44905	2.92751	19.54		
1,2-Dichloroethane	3.04702	3.89552	27.85		
Vinyl Acetate	.00979	.00597	38.99		
1,1,1-Trichloroethane	.51143	.58393	14.18		
Carbon Tetrachloride	.44428	.50825	14.40		
Benzene	.88447	.92069	4.10		
Trichloroethene	.40014	.41118	2.76		
1,2-Dichloropropane	.28677	.29078	1.40	* ✓	
Bromodichloromethane	.50600	.55845	10.36		
2-Chloroethylvinylether	.03317	.02286	31.08		
cis-1,3-Dichloropropene	.67464	.68913	2.15		
trans-1,3-Dichloropropene	.12298	.11623	5.49		
1,1,2-Trichloroethane	.27129	.29396	8.36		
Dibromochloromethane	.41133	.50124	21.86		
Bromoform	.35240	.39341	11.64		** ✓
4-Methyl-2-Pentanone	.30463	.29177	4.22		
Toluene d-8	1.17724	1.17984	.22		
Toluene	.76099	.81495	7.09	* ✓	

RF - Response Factor from daily standard file at 50.00 ug/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 11/05/90

Contractor: Curtis & Tompkins Time: 17:26

Contract No: Laboratory ID: >VS837

Instrument ID: HP 5995 Initial Calibration Date: 11/01/90

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2-Hexanone	.18422	.18701	1.51		
Tetrachloroethene	.40501	.44830	10.69		
Chlorobenzene	.94558	1.02545	8.45		** ✓
Ethylbenzene	.47658	.51846	8.33	* ✓	
Xylene (total)	.53147	.60708	14.23		
Styrene	.97329	1.07946	10.91		
1,1,2,2-Tetrachloroethane	.39689	.46588	17.38		** ✓
Bromofluorobenzene	.60489	.61044	.92		

RF - Response Factor from daily standard file at 50.00 ug/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: ----------

Instrument ID: HP 5995

Contractor: Curtis & Tompkins

Calibration Date: 11/01/90

Contract No: ----------

Raw Data in Job#200894 Ebasco

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % RSD for CCC is 30.0%

Laboratory ID:	>VSC75	>VSC76	>VSC77	>VSC78	>VSC79					
Compound	RF 20.00	RF 50.00	RF 100.00	RF 150.00	RF 200.00	$\overline{RF}$	% RSD	CORR1	CCC	SPCC
Chloromethane	1.42121	1.48326	1.28867	1.17960	1.30700	1.33595	8.895	.995101		** ✓
Vinyl Chloride	1.61782	1.85488	1.64539	1.60827	1.61038	1.66735	6.350	.999150	* ✓	
Bromomethane	.81541	.90043	.78984	.76064	.76956	.80718	6.966	.998968		
Chloroethane	.51233	.56319	.48396	.46006	.47197	.49830	8.255	.998409		
Trichlorofluoromethane	.33914	.38556	.32821	.28280	.36989	.34112	11.703	.977771		
Acetone	.57004	.28346	.39166	.28248	.23246	.35202	38.359	.934748		
Freon 113	2.56202	2.67510	2.28931	1.97485	2.36706	2.37367	11.393	.987319		
1,1-Dichloroethene	1.25124	1.26241	1.11980	.99382	1.15855	1.15717	9.467	.991172	* ✓	
Carbon Disulfide	3.03829	3.24381	3.03875	2.86475	3.09643	3.05641	4.453	.997686		
Methylene Chloride	1.42370	2.58280	2.28407	2.20250	2.22078	2.14277	20.077	.997087		
1,2-Dichloroethene (total)	2.06425	2.28986	2.00591	1.85275	1.88426	2.01941	8.626	.998075		
1,1-Dichloroethane	2.58019	2.83013	2.07177	1.75912	2.57757	2.36376	18.452	.954692		** ✓
2-Butanone	1.44574	1.16544	.97358	.88818	.70561	1.03571	27.290	.975918		
Chloroform	4.39163	4.76109	4.08077	3.81916	3.85132	4.18079	9.497	.998282	* ✓	
1,2-Dichloroethane-d4	2.83873	2.76197	2.43763	2.19367	2.01325	2.44905	14.509	.994200		
1,2-Dichloroethane	3.17203	3.48328	3.05819	2.84365	2.67793	3.04702	10.164	.996374		
Vinyl Acetate	-	.00271	.01354	.02164	.00127	.00979	98.180	.201377		
1,1,1-Trichloroethane	.50904	.54629	.50955	.50159	.49065	.51143	4.094	.999541		
Carbon Tetrachloride	.43689	.48762	.44414	.42716	.42560	.44428	5.711	.999229		
Benzene	.91154	.94147	.86894	.85264	.84777	.88447	4.586	.999735		
Trichloroethene	.40801	.43273	.37853	.36641	.41503	.40014	6.788	.994061		
1,2-Dichloropropane	.28559	.30571	.28269	.28311	.27675	.28677	3.861	.999610	* ✓	
Bromodichloromethane	.50179	.53654	.50073	.50669	.48427	.50600	3.764	.999174		
2-Chloroethylvinylether	.02477	.03337	.03701	.03779	.03292	.03317	15.568	.991762		
cis-1,3-Dichloropropene	.62023	.71694	.69447	.69524	.64631	.67464	5.915	.997684		
trans-1,3-Dichloropropene	.09103	.12411	.13209	.13929	.12836	.12298	15.212	.997223		
1,1,2-Trichloroethane	.28179	.28964	.27456	.27212	.23831	.27129	7.247	.993168		
Dibromochloromethane	.40747	.44353	.41262	.41062	.38243	.41133	5.283	.997876		
Bromoform	.35147	.37296	.37170	.36124	.30463	.35240	7.971	.987327		** ✓
4-Methyl-2-Pentanone	.29932	.31412	.32098	.32647	.26223	.30463	8.465	.981150		

RF - Response Factor (Subscript is amount in ug/L)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CORRn - Coefficient of Correlation (nth degree)

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: Instrument ID: HP 5995

Contractor: Curtis & Tompkins Calibration Date: 11/01/90

Contract No:

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % RSD for CCC is 30.0%

Laboratory ID:	>VSC75	>VSC76	>VSC77	>VSC78	>VSC79					
	RF	RF	RF	RF	RF					
Compound	20.00	50.00	100.00	150.00	200.00	$\overline{RF}$	% RSD	CORR1	CCC	SPCC
Toluene d-8	1.29482	1.23526	1.14515	1.10072	1.11026	1.17724	7.178	.999731		
Toluene	.79570	.82889	.73719	.72738	.71579	.76099	6.422	.999472	* ✓	
2-Hexanone	.18586	.19061	.19357	.19623	.15485	.18422	9.156	.977802		
Tetrachloroethene	.42651	.44383	.38705	.38384	.38383	.40501	6.971	.999367		
Chlorobenzene	.97245	1.02646	.91837	.90852	.90210	.94558	5.613	.999542		** ✓
Ethylbenzene	.52245	.52873	.46388	.44775	.43011	.47858	9.318	.998812	* ✓	
Xylene (total)	.58574	.60056	.51702	.48987	.46416	.53147	11.206	.997702		
Styrene	1.05881	1.08658	.95038	.91797	.85272	.97329	10.050	.997274		
1,1,2,2-Tetrachloroethane	.42654	.42503	.42980	.43080	.27229	.39689	17.560	.909953		** ✓
Bromofluorobenzene	.69502	.64589	.58478	.54906	.54971	.60489	10.576	.999462		

RF - Response Factor (Subscript is amount in ug/L)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CORRn - Coefficient of Correlation (nth degree)

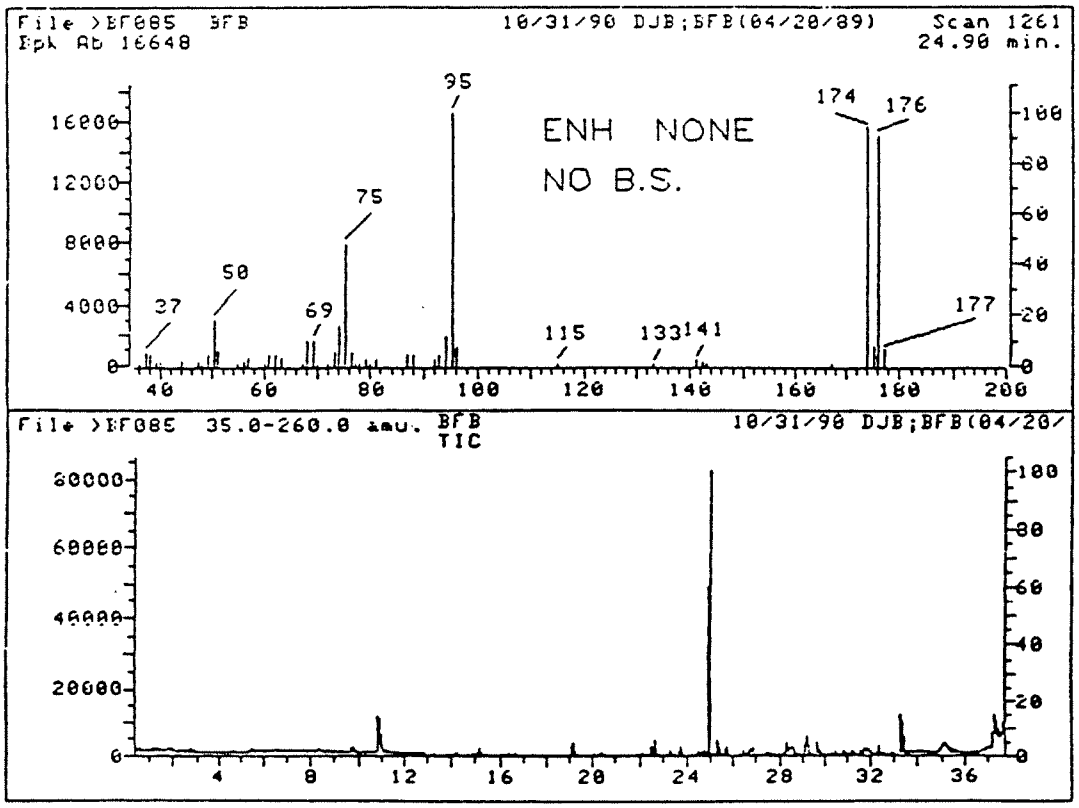
CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	18.11	18.11	Ok
75	30-60% of mass 95	47.79	47.79	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.06	7.06	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	93.69	93.69	Ok
175	5-9% of mass 174	6.82	7.28	Ok
176	95-101% of mass 174	90.64	96.75	Ok
177	5-9% of mass 176	5.95	6.56	Ok

Injection Date: 10/31/90
Injection Time: 20:56
Data File: >BF085
Scan: 1261

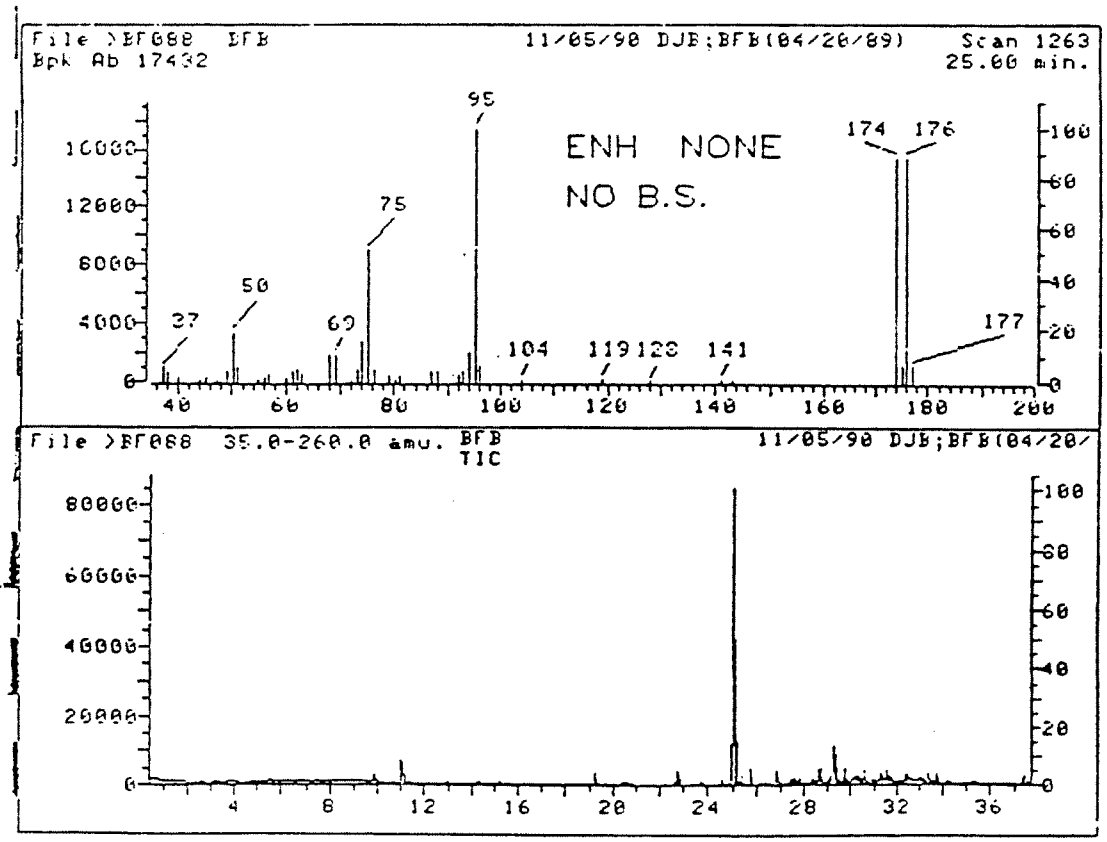


GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	18.75	18.75	Ok
75	30-80% of mass 95	51.73	51.73	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.56	6.56	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	88.17	88.17	Ok
175	5-9% of mass 174	6.06	6.87	Ok
176	95-101% of mass 174	88.13	99.95	Ok
177	5-9% of mass 176	5.95	6.75	Ok

Injection Date: 11/05/90
Injection Time: 16:29
Data File: >BF088
Scan: 1263



AROMATIC HYDROCARBON ANALYSIS QUALITY CONTROL

SPIKING COMPOUND	MS/BS	%REC	STATUS	MSD/BSD	%REC	STATUS
BENZENE	18.73	94%	OK	19.03	95%	OK
TOLUENE	19.12	96%	OK	19.47	97%	OK
CHLOROBENZENE	40.57	101%	OK	41.09	103%	OK

AVERAGE 602 SPIKING COMPOUND %REC: 96% OK
%RPD: 2% OK

METHOD: 601/602
UNITS: ug/Kg
ANALYZED BY: Louis Albanese
ANALYSIS DATE: 11/03/90
REVIEWED BY:

INSTRUMENT: H.P. 5890 SERIES II
(MAXIMA data systems w/PID #1)

HALOCARBON ANALYSIS QUALITY CONTROL

KING COMPOUND	MS/BS	%REC	STATUS	MSD/BSD	%REC	STATUS
1-DCE	16.63	83%	OK	16.82	84%	OK
	19.31	97%	OK	18.70	94%	OK
ROBENZENE	50.55	123%	OK	50.01	122%	OK

RAGE 8010 SPIKING COMPOUND	%REC:	100%	OK
	%RPD:	2%	OK

Job. No. 200911

HOD: 8010/8020
S: ug/Kg
YZED BY: Louis Albanese
LYSIS DATE: 11/02 + 11/03/90
EWED BY:

INSTRUMENT:H.P. 5890 SERIES II
(TURBOCHROME data systems w/ELCD #1)

Curtis & Tompkins, Ltd., Analytical Laboratories. Since 1878
1250 S. Boyle Ave., Los Angeles, CA 90023. Phone (213) 269-7421. Fax (213) 268-5328

ANALYSIS QUALITY CONTROL

SPI[illegible]OUND	MS/BS	%REC	STATUS	MSD/BSD	%REC	STATUS
ENZENE	21.01	105%	OK	19.17	96%	OK
TOLUENE	20.73	100%	OK	19.24	96%	OK
CHLOROBENZENE	50.01	100%	OK	49.81	100%	OK

VERAGE 602 SPIKING COMPOUND %REC: 100% OK
%RPD: 6% OK

THOD: 8020
NITS: ug/L
NALYZED BY: Louis Albanese
ALYSIS DATE: 11/05 - 11/06/90
VIEWED BY:

INSTRUMENT:H.P. 5890 SERIES II
(MAXIMA data systems w/PID #1)

HALOCARBON ANALYSIS QUALITY CONTROL

IKING COMPOUND	MS/BS	%REC	STATUS	MSD/BSD	%REC	STATUS
1-DCE	15.21	76%	OK	15.79	79%	OK
E	15.31	77%	OK	16.18	81%	OK
LOROBENZENE	30.92	77%	OK	31.02	78%	OK

ERAGE 8010 SPIKING COMPOUND	%REC:	78%	OK
	%RPD:	3%	OK

JOB No. 200911

FILE No. 200911B

THOD: 8010/8020
TS: ug/Kg
LYZED BY: Louis Albanese
ALYSIS DATE: 11/05 + 11/06/90
IEWED BY:

INSTRUMENT:H.P. 5890 SERIES II
(TURBOCHROME data systems w/ELCD #1)

PID#1

Sample Name : Method Blank
Sample Number : 5
Operator :

Time : 11/5/90 1:39 PM
Study :

Interface # : 1 Channel : A A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 3:41 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

1ST PAH BLANK

Raw Data File : C:\2700\DATA1\K2C_005.raw
Result File : C:\2700\DATA1\K2C_005.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\C601602.prc
Sample File : c:\2700\data\C601602.smp
Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
3	8.358	Vinyl Chloride	0.0000	65828.00	4060.44	BB
11	24.558	Benzene	0.0000	23442.25	4179.13	BB
14	27.375	Surrogate	0.0000	1421935.75	239084.11	BB
15	31.192	Toluene	0.0000	30510.25	5713.74	BB
16	35.575	ClBenzene	0.0000	9643.00	1755.25	BB
17	36.283	1-C-FBenzene	0.0000	2878722.50	554988.50	BB
18	36.900	m,p-Xylene	0.0000	39392.00	5829.03	BB
19	38.150	o-Xylene	0.0000	11716.76	2214.74	BB
20	39.358	BFB	0.0000	99509.50	19448.58	BB
21	40.017	BromobenzeneC	0.0000	4990873.50	964342.94	BB
26	43.575	1,3-DCB	0.0000	7342.00	1462.20	BB
27	43.783	1,4-DCB	0.0000	12725.50	2528.62	BB
29	44.900	1,2-DCB	0.0000	13937.25	2760.78	BB
			0.0000	9605579.00	1.80e6	

Missing Component Report

Component	Expected Retention (Sample File)
1,1-DCE	15.025
trans-1,2-DCE	17.833
cis-1,2-DCE	20.400
TCE	26.958
cis-1,3-DCP	28.750
trans-1,3-DCP	30.058
PCE	33.933
Ethylbenzene	36.475

PID#1

==========

Sample Name : Method Blank
Sample Number: 3
Operator :

Time : 11/5/90 7:33 PM
Study :

Interface # : 1 Channel : A A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

2ND DAY METHOD BLANK

Data Acquisition Time: 11/5/90 6:37 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K5C_003.raw
Result File : C:\2700\DATA1\K5C_003.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\C601602.prc
Sample File : c:\2700\data\C601602.smp
Sequence File : C:\2700\DATA\SEQCDK5.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

==========

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
2	8.342	Vinyl Chloride	0.0000	54897.50	3526.30	BB
6	24.575	Benzene	0.0000	13673.50	2430.50	BB
8	27.333	Surrogate	0.0000	1355130.25	227252.06	BB
9	31.208	Toluene	0.0000	14090.51	2679.66	BB
10	35.583	ClBenzene	0.0000	8550.50	1585.00	BB
11	36.292	1-C-FBenzene	0.0000	2615326.50	506629.50	BB
12	36.908	m,p-Xylene	0.0000	26669.75	3870.37	BB
13	38.158	o-Xylene	0.0000	7698.00	1452.59	BB
14	39.367	BFB	0.0000	3401598.00	668170.31	BB
15	40.025	BromobenzeneC	0.0000	4895144.50	950109.69	BB
21	43.783	1,4-DCB	0.0000	7661.00	1523.77	BB
23	44.908	1,2-DCB	0.0000	8564.75	1709.52	BB
			0.0000	12409005.00	2.37e6	

Missing Component Report

Component	Expected Retention (Sample File)
1,1-DCE	15.025
trans-1,2-DCE	17.833
cis-1,2-DCE	20.400
TCE	26.958
cis-1,3-DCP	28.750
trans-1,3-DCP	30.058
PCE	33.933
Ethylbenzene	36.475
1,3-DCB	43.617

Sample Name : Method Blank Time : 11/6/90 7:01 PM
Sample Number : 3 Study :
Operator : LRA

Interface # : 1 Channel : A A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

3RD DAY
METHOD BLANK

Data Acquisition Time: 11/6/90 6:05 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K6C_003.raw
Result File : C:\2700\DATA1\K6C_003.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\C601602.prc
Sample File : c:\2700\data\C601602.smp
Sequence File : C:\2700\DATA\SEQCDK6.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

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601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	PL
3	8.867	Vinyl Chloride	0.0000	51857.48	8574.21	BB
8	15.083	1,1-DCE	0.0000	9480.00	1564.25	BB
11	24.600	Benzene	0.0000	15901.50	2846.03	BB
13	27.417	Surrogate	0.0000	1358228.00	227184.33	BB
14	31.242	Toluene	0.0000	40110.50	7527.06	BB
15	35.600	ClBenzene	0.0000	10709.50	1949.38	BB
16	36.325	1-C-FBenzene	0.0000	2629841.50	507347.16	BB
17	36.842	m,p-Xylene	0.0000	46604.75	6766.78	BB
19	38.192	o-Xylene	0.0000	13766.00	2613.52	BB
20	39.400	BFB	0.0000	3678578.75	722456.63	BB
21	40.050	BromobenzeneC	0.0000	5414144.50	991693.38	BB
27	43.617	1,3-DCB	0.0000	8515.54	1758.22	BB
28	43.825	1,4-DCB	0.0000	13466.50	2661.14	BB
29	44.942	1,2-DCB	0.0000	15674.00	3008.07	BB
			0.0000	13295266.00	2.48e6	

Missing Component Report

Component	Expected Retention (Sample File)
trans-1,2-DCE	17.833
cis-1,2-DCE	20.400
TCE	26.958
cis-1,3-DCP	29.750
trans-1,3-DCP	30.058
PCE	33.933
Ethylbenzene	36.475

PID# 1

Sample Name : 601/602 5ppb Time : 11/5/90 1:37 PM
Sample Number: 4 Study :
Operator :

Interface # : 1 Channel : A A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

1ST DAY
5pt.

Data Acquisition Time: 11/2/90 2:33 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K2C_004.raw
Result File : C:\2700\DATA1\K2C_004.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\C601602.prc
Sample File : c:\2700\data\C601602.smp
Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
8	8.825	Vinyl Chloride	0.0000	100848.97	5468.70	BV
9	15.058	1,1-DCE	0.0000	89970.02	12253.66	BB
10	17.850	trans-1,2-DCE	0.0000	311988.97	53427.75	BB
12	20.408	cis-1,2-DCE	0.0000	6094.00	1252.00	BB
14	24.558	Benzene	0.0000	433582.00	76175.00	BB
17	26.942	TCE	0.0000	258221.75	46577.31	BB
18	27.375	Surrogate	0.0000	1466412.50	246402.80	BB
21	28.858	cis-1,3-DCP	0.0000	55477.00	10516.00	BB
23	30.033	trans-1,3-DCP	0.0000	45180.00	8952.09	BB
24	31.192	Toluene	0.0000	426570.50	80073.47	BB
25	33.900	PCE	0.0000	236778.50	41609.21	BB
27	35.567	ClBenzene	0.0000	880036.50	170044.00	BB
28	36.283	1-Cl-FBenzene	0.0000	2713565.00	518167.50	BV
29	36.475	Ethylbenzene	0.0000	392626.63	74075.30	VB
30	36.917	m,p-Xylene	0.0000	904091.75	119106.30	BB
32	38.150	o-Xylene	0.0000	372643.50	70159.34	BB
33	39.358	BFB	0.0000	145064.00	28108.33	BB
34	40.008	BromobenzeneC	0.0000	5428024.00	991921.56	BB
39	43.567	1,3-DCB	0.0000	781345.25	152792.64	BV
40	43.775	1,4-DCB	0.0000	761578.44	152654.33	VB
41	44.892	1,2-DCB	0.0000	616421.00	118601.09	BB
			0.0000	16427264.00	2.97e6	

Missing Component Report
Component Expected Retention (Sample File)

PID #1

Sample Name : 601/602 10ppb
Sample Number : 3
Operator :

Time : 11/5/90 1:33 PM
Study :

Interface # : 1 Channel : A A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 1:35 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

1ST DAY
10pt

Raw Data File : C:\2700\DATA1\K2C_003.raw
Result File : C:\2700\DATA1\K2C_003.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\C601602.prc
Sample File : c:\2700\data\C601602.smp
Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
4	8.767	Vinyl Chloride	0.0000	35300.02	4153.65	BB
8	15.003	1,1-DCE	0.0000	180292.48	24908.39	BB
9	17.825	trans-1,2-DCE	0.0000	638169.50	109968.56	BB
11	20.392	cis-1,2-DCE	0.0000	13963.00	2542.50	BB
13	24.558	Benzene	0.0000	918491.75	163057.50	BV
17	26.950	TCE	0.0000	519768.50	94482.83	BB
18	27.375	Surrogate	0.0000	1319593.50	222368.44	BB
21	28.867	cis-1,3-DCP	0.0000	173602.25	33244.32	BB
23	30.042	trans-1,3-DCP	0.0000	203496.23	40776.54	BB
24	31.200	Toluene	0.0000	798638.50	150794.25	BB
27	33.917	PCE	0.0000	397646.50	72368.00	BB
29	35.575	ClBenzene	0.0000	1667306.50	323339.69	BB
30	36.292	1-C-FBenzene	0.0000	2600790.50	499826.38	BV
31	36.483	Ethylbenzene	0.0000	713822.06	134059.08	VB
32	36.933	m,p-Xylene	0.0000	1643296.50	214979.33	BV
34	38.158	o-Xylene	0.0000	690916.00	130794.00	BB
35	39.367	BFB	0.0000	144162.50	27982.00	BB
36	40.025	BromobenzeneC	0.0000	5010254.50	972987.81	BB
41	43.575	1,3-DCB	0.0000	1433150.25	280984.59	BV
42	43.783	1,4-DCB	0.0000	1386549.25	279467.59	VB
43	44.900	1,2-DCB	0.0000	1129576.00	219081.86	BB
			0.0000	21618786.00	4.00e6	

Missing Component Report

Component	Expected Retention (Sample File)

PIP#1

Sample Name : 601/602 20ppb
Sample Number: 2
Operator :

Time : 11/5/90 1:31 PM
Study :

Interface # : 1 Channel : A A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 12:33 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

1ST PAY 20pt.

Raw Data File : C:\2700\DATA1\K2C_002.raw
Result File : C:\2700\DATA1\K2C_002.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\C601602.prc
Sample File : c:\2700\data\C601602.smp
Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
4	8.767	Vinyl Chloride	0.0000	40233.06	5371.48	BB
9	15.017	1,1-DCE	0.0000	293431.34	40304.60	BB
10	17.833	trans-1,2-DCE	0.0000	1129057.50	192523.59	BB
12	20.400	cis-1,2-DCE	0.0000	26317.00	4723.50	BB
16	24.567	Benzene	0.0000	1620877.00	286634.53	BB
19	26.950	TCE	0.0000	959252.00	174920.50	BB
20	27.383	Surrogate	0.0000	1299687.50	219017.27	BB
23	28.875	cis-1,3-DCP	0.0000	332433.00	63301.47	BB
25	30.050	trans-1,3-DCP	0.0000	392323.00	78706.52	BB
26	31.208	Toluene	0.0000	1473184.50	277447.03	BB
28	33.925	PCE	0.0000	733538.00	134580.02	BB
30	35.583	ClBenzene	0.0000	3158772.75	612222.13	BB
31	36.300	1-C-FBenzene	0.0000	2549255.50	489684.31	BV
32	36.492	Ethylbenzene	0.0000	1340596.63	253959.66	VB
33	36.942	m,p-Xylene	0.0000	3081582.00	404195.28	BV
35	38.167	o-Xylene	0.0000	1309793.00	247125.91	BB
36	39.375	BFB	0.0000	244917.50	47946.39	BB
37	40.033	BromobenzeneC	0.0000	5047980.00	973943.63	BB
43	43.583	1,3-DCB	0.0000	2795267.25	545104.25	VV
44	43.792	1,4-DCB	0.0000	2692486.00	539700.63	VB
45	44.908	1,2-DCB	0.0000	2212932.00	427213.06	BB
			0.0000	32733324.00	6.02e6	

Missing Component Report

Component	Expected Retention (Sample File)

PID#1

Sample Name : 601/602 50ppb
Sample Number : 1
Operator :

Time : 11/5/90 1:28 PM
Study :

Interface # : 1 Channel : A A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 11:31 AM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

1ST DAY 50pt.

Raw Data File : C:\2700\DATA1\K2C_001.raw
Result File : C:\2700\DATA1\K2C_001A.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\C601602.prc
Sample File : c:\2700\data\C601602.smp
Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
5	8.888	Vinyl Chloride	0.0000	287210.94	29107.49	VV
12	15.092	1,1-DCE	0.0000	958635.13	126086.56	BB
14	17.892	trans-1,2-DCE	0.0000	3503070.75	595080.44	BB
16	20.467	cis-1,2-DCE	0.0000	75752.48	13194.67	BB
24	24.688	Benzene	0.0000	4227732.00	741949.68	BV
30	27.025	TCE	0.0000	2641987.50	478528.56	BB
31	27.458	Surrogate	0.0000	1437687.25	240366.80	BB
34	28.950	cis-1,3-DCP	0.0000	824515.50	157382.48	BB
36	30.188	trans-1,3-DCP	0.0000	859080.00	171268.14	BB
38	31.292	Toluene	0.0000	3916798.25	728465.06	BB
40	34.000	PCE	0.0000	2208888.00	394948.31	BB
42	35.642	ClBenzene	0.0000	6790926.50	991425.38	BB
43	36.388	1-C-FBenzene	0.0000	2757900.50	527621.88	BV
44	36.575	Ethylbenzene	0.0000	3539908.50	668614.50	VB
45	37.000	m,p-Xylene	0.0000	7928996.50	991127.88	BV
48	38.250	o-Xylene	0.0000	3419078.50	642731.68	BB
49	39.458	BFB	0.0000	141186.25	27555.48	BB
51	40.108	BromobenzeneC	0.0000	5310358.00	991164.19	BB
57	43.688	1,3-DCB	0.0000	6467432.00	990707.69	BV
58	43.842	1,4-DCB	0.0000	6256184.00	990027.25	VB
60	44.975	1,2-DCB	0.0000	5673668.50	989716.31	BB
			0.0000	69226976.00	1.14e7	

Passing Component Report

Component	Expected Retention (Sample File)

PID#1

Sample Name : 601/602 05ppb
Sample Number: 2
Operator :

Time : 11/5/90 6:31 PM
Study :

Interface # : 1 Channel : A A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

Data Acquisition Time: 11/5/90 5:35 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

05ppb
2ND DAY STD.

Raw Data File : C:\2700\DATA1\K5C_002.raw
Result File : C:\2700\DATA1\K5C_002.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\C601602.prc
Sample File : c:\2700\data\C601602.smp
Sequence File : C:\2700\DATA\SEQCDK5.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
2	8.783	Vinyl Chloride	0.0000	30699.97	2607.85	BB
6	15.033	1,1-DCE	0.0000	85342.02	12216.39	BB
7	17.833	trans-1,2-DCE	0.0000	315245.03	56633.77	BB
9	20.400	cis-1,2-DCE	0.0000	7071.50	1299.00	BB
11	24.558	Benzene	0.0000	436513.50	76816.14	BV
15	26.550	TCE	0.0000	251013.00	45609.00	BB
16	27.383	Surrogate	0.0000	1297790.50	217836.94	BB
19	28.367	cis-1,3-DCP	0.0000	78274.00	14840.29	BB
21	30.050	trans-1,3-DCP	0.0000	88127.25	17520.74	BB
22	31.200	Toluene	0.0000	414427.75	77654.90	BB
23	33.917	PCE	0.0000	206823.25	37256.69	BB
25	35.575	ClBenzene	0.0000	864491.50	167526.70	BB
26	36.292	1-C-FBenzene	0.0000	2594958.00	501326.63	BV
27	36.433	Ethylbenzene	0.0000	390564.00	73018.75	VB
28	36.933	m,p-Xylene	0.0000	904840.00	119035.48	BB
30	38.158	o-Xylene	0.0000	374463.50	70155.67	BB
31	39.367	BFB	0.0000	3512028.75	692332.38	BB
32	40.025	BromobenzeneC	0.0000	5215956.50	991728.63	BB
37	43.575	1,3-DCB	0.0000	776870.75	151058.02	BV
38	43.783	1,4-DCB	0.0000	756230.75	151428.16	VB
40	44.900	1,2-DCB	0.0000	611332.50	118936.65	BB
			0.0000	19212606.00	3.59e6	

Missing Component Report
Component Expected Retention (Sample File)

PID#1

Sample Name : 601/602 50PPB
Sample Number: 1
Operator : LRA

Time : 11/6/90 4:58 PM
Study :

Interface # : 1 Channel : A A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

3RD PAY
STD.
50ppb

Data Acquisition Time: 11/6/90 4:01 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K6C_001.raw
Result File : C:\2700\DATA1\K6C_001.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\C601602.prc
Sample File : c:\2700\data\C601602.smp
Sequence File : C:\2700\DATA\SEQCDK6.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
5	8.742	Vinyl Chloride	0.0000	291077.81	24818.18	VB
11	15.017	1,1-DCE	0.0000	1073187.00	132770.69	BB
14	17.833	trans-1,2-DCE	0.0000	3311059.75	578545.56	BB
18	20.408	cis-1,2-DCE	0.0000	69279.48	12248.71	BB
25	24.583	Benzene	0.0000	4086653.50	705219.94	BV
31	26.983	TCE	0.0000	2451926.50	448359.28	BB
32	27.408	Surrogate	0.0000	1338352.00	224693.00	BB
35	28.908	cis-1,3-DCP	0.0000	815018.00	154963.14	BB
37	30.083	trans-1,3-DCP	0.0000	911065.50	183091.80	BB
39	31.242	Toluene	0.0000	3722688.00	694746.69	BB
43	33.967	PCE	0.0000	1968552.50	357107.63	BB
45	35.600	ClBenzene	0.0000	6596743.00	991913.31	BB
46	36.342	1-C-FBenzene	0.0000	2671631.00	512675.09	BV
47	36.542	Ethylbenzene	0.0000	3343551.50	628744.94	VB
48	36.983	m,p-Xylene	0.0000	7640410.00	991426.19	BV
52	38.217	o-Xylene	0.0000	3243166.00	611620.63	BB
53	39.425	BFB	0.0000	3680969.75	723191.75	BV
55	40.067	BromobenzeneC	0.0000	5555904.00	991610.94	BV
63	43.608	1,3-DCB	0.0000	6223545.50	991378.25	BV
64	43.817	1,4-DCB	0.0000	6005550.50	990839.56	VB
66	44.950	1,2-DCB	0.0000	5321919.50	990458.75	BB
			0.0000	70272856.00	1.1987	

Missing Component Report

Component	Expected Retention (Sample File)

ELUT 1

==========

Sample Name : Method Blank
Sample Number: 5
Operator :

Time : 11/5/90 1:40 PM
Study :

Interface # : 1 Channel : B A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

1ST DAY BLANK

Data Acquisition Time: 11/2/90 3:41 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K2D_005.raw
Result File : C:\2700\DATA1\K2D_005.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\D601602.prc
Sample File : c:\2700\data\D601602.smp
Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 µl Area Reject : 0.00
Sample Amount : 1.0000

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601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
2	8.833	ClMethane	0.0000	28561.51	2715.27	BB
3	10.292	BrMethane	0.0000	14388.29	2207.66	BB
5	15.050	1,1-DCE	0.0000	9308.00	1368.65	BB
6	15.383	DCM	0.0000	153294.42	14325.33	BB
7	16.125	Freon113	0.0000	57227.48	6541.15	BB
8	20.992	Chloroform	0.0000	7974.52	1438.10	BB
9	23.517	1,1,1-TCA	0.0000	106978.73	14301.20	BB
11	26.958	TCE	0.0000	21657.00	2139.91	BB
13	33.933	PCE	0.0000	25082.75	4027.00	BB
14	35.600	ClBenzene	0.0000	10181.98	1599.57	BB
15	36.292	1-C-2-FBenzeneD	0.0000	3231641.50	515622.81	BB
16	38.117	1,1,2,2-TCA	0.0000	7037.99	1134.00	BB
17	39.392	BFB	0.0000	93420.52	13434.91	BB
18	40.033	Bromobenzene	0.0000	4359739.00	580374.50	BB
19	43.600	1,3-DCB	0.0000	15629.06	2551.36	BV
20	43.800	1,4-DCB	0.0000	28142.45	4611.53	VB
21	44.925	1,2-DCB	0.0000	32738.98	5485.32	BB
			0.0000	8198004.50	1.17e6	

Missing Component Report

Component	Expected Retention (Sample File)
Freon12	7.600
Vinyl Chloride	8.800
peak5	9.150
ClEthane	10.808

ELW #1

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Sample Name : Method Blank Time : 11/5/90 7:34 PM
Sample Number : 3 Study :
Operator : .

Interface # : 1 Channel : B A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

2ND DAY BLANK

Data Acquisition Time: 11/5/90 6:37 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K5D_003.raw
Result File : C:\2700\DATA1\K5D_003.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\D601602.prc
Sample File : c:\2700\data\D601602.smp
Sequence File : C:\2700\DATA\SEQCDK5.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

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601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
2	8.242	ClMethane	0.0000	7347.76	1021.80	BP
3	10.325	BrMethane	0.0000	20017.06	2156.04	PB
5	15.067	1,1-DCE	0.0000	11446.50	1638.35	BB
6	15.400	DCM	0.0000	39278.52	4647.15	BB
7	16.142	Freon113	0.0000	16730.00	2004.75	BB
8	21.158	Chloroform	0.0000	8759.49	1425.81	BB
9	23.525	1,1,1-TCA	0.0000	91072.50	12365.67	BB
11	35.608	ClBenzene	0.0000	6611.48	1206.96	BB
12	36.300	1-C-2-FBenzeneD	0.0000	2943518.50	469752.44	BB
13	38.125	1,1,2,2-TCA	0.0000	4314.52	765.08	BP
14	39.333	BFB	0.0000	3331721.00	449042.22	PB
15	40.042	Bromobenzene	0.0000	3027616.00	521937.50	BB
18	43.608	1,3-DCB	0.0000	7130.33	1173.27	BV
19	43.808	1,4-DCB	0.0000	14284.70	2394.46	VB
20	44.925	1,2-DCB	0.0000	13489.01	3110.24	BB
			0.0000	9548337.00	1.47e6	

Missing Component Report

Component	Expected Retention (Sample File)
Freon12	7.600
Vinyl Chloride	8.300
peak5	9.150
ClEthane	10.808
Freon11	13.233
trans-1,1-DCE	17.042

Sample Name : Method Blank
Sample Number : 3
Operator : LRA

Time : 11/6/90 7:01 PM
Study :

Interface # : 1 Channel : B A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

3RD DAY
M.B.

Data Acquisition Time: 11/6/90 6:05 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K6D_003.raw
Result File : C:\2700\DATA1\K6D_003.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\D601602.prc
Sample File : c:\2700\data\D601602.smp
Sequence File : C:\2700\DATA\SEQCDK6.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	PL
1	8.267	ClMethane	0.0000	16194.24	1683.06	BB
2	10.375	BrMethane	0.0000	27399.53	2862.83	BB
4	13.342	Freon11	0.0000	26655.02	2991.90	BB
5	15.100	1,1-DCE	0.0000	61269.50	8981.20	BB
6	15.433	DCM	0.0000	93391.95	9714.75	BB
7	16.175	Freon113	0.0000	38956.77	4622.78	BB
8	21.175	Chloroform	0.0000	10756.99	1728.71	BB
9	23.558	1,1,1-TCA	0.0000	417565.75	55885.32	BB
10	26.483	1,2-DCP	0.0000	5736.75	951.19	BB
12	33.975	PCE	0.0000	15055.50	2520.19	BB
13	35.633	ClBenzene	0.0000	10735.00	1787.86	BB
14	36.383	1-C-2-FBenzeneD	0.0000	2826144.00	457267.56	BB
15	38.150	1,1,2,2-TCA	0.0000	7047.99	1172.89	BB
16	39.417	BFB	0.0000	3254408.75	450933.19	BV
17	40.075	Bromobenzene	0.0000	4497592.00	629075.75	VB
19	43.633	1,3-DCB	0.0000	20239.61	3366.62	BV
20	43.842	1,4-DCB	0.0000	30731.40	5058.33	VB
21	44.358	1,2-DCB	0.0000	38300.25	6360.00	BB
			0.0000	11399181.00	1.64e6	

Missing Component Report

Component	Expected Retention (Sample File)
Freon12	7.600
Vinyl Chloride	8.600
peak 5	9.150

Sample Name : 601/602 5ppb
Sample Number : 4
Operator :

Time : 11/5/90 1:38 PM
Study :

Interface # : 1 Channel : B A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 2:38 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

1ST DAY
5pt. Std.

Raw Data File : C:\2700\DATA1\K2D_004.raw
Result File : C:\2700\DATA1\K2D_004.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\D601602.prc
Sample File : c:\2700\data\D601602.smp
Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
2	7.675	Freon12	0.0000	29615.77	3480.70	BB
3	8.217	ClMethane	0.0000	379279.50	35384.73	BB
4	8.842	Vinyl Chloride	0.0000	214578.13	27050.65	BV
5	9.200	peak5	0.0000	67370.63	4963.37	VB
6	10.300	BrMethane	0.0000	379268.06	24020.45	BV
7	10.867	ClEthane	0.0000	492305.00	34062.09	VB
9	13.275	Freon11	0.0000	344,092.91	23328.87	BB
10	15.075	1,1-DCE	0.0000	572639.63	67098.70	BV
11	15.383	DCM	0.0000	1489883.63	107312.17	VV
12	16.108	Freon113	0.0000	1,181,621.25	104040.22	VB
13	17.858	trans-1,1-DCE	0.0000	343602.63	117232.52	BV
14	18.375	1,1-DCA	0.0000	903982.88	120974.83	VB
15	20.425	cis-1,1-DCE	0.0000	38981.48	6087.25	BB
16	21.125	Chloroform	0.0000	1285375.50	183198.47	BB
17	22.883	1,2-DCA	0.0000	838811.06	131427.59	BB
18	23.517	1,1,1-TCA	0.0000	1032400.50	135152.67	BB
19	24.925	Carbon Tetrachloride	0.0000	993302.50	136098.02	BB
21	26.433	1,2-DCP	0.0000	1043499.75	142372.11	VB
22	26.850	BDCM	0.0000	790537.31	142361.14	BV
23	26.958	TCE	0.0000	1272950.50	191821.66	VV
25	28.142	2-CEVE	0.0000	23263.70	3946.21	BV
27	28.875	cis-1,3-DCP	0.0000	471521.00	75274.34	BB
29	30.050	trans-1,3-DCP	0.0000	283676.25	46873.29	BV
30	30.508	1,1,2-TCA	0.0000	847239.69	134705.27	VB
32	32.208	DBCM	0.0000	723532.50	99822.44	BB
34	33.917	PCE	0.0000	1348104.50	206094.94	BB
36	35.575	ClBenzene	0.0000	905582.06	147781.72	BB
37	36.292	1-C-2-FBenzeneD	0.0000	3044720.50	486664.73	BB

ELCD# 1

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Sample Name : 601/602 10ppb
Sample Number: 3
Operator :

Time : 11/5/90 1:35 PM
Study :

Interface # : 1 Channel : B A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

1ST DAY
10pt. Std.

Data Acquisition Time: 11/2/90 1:35 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K2D_003.raw
Result File : C:\2700\DATA1\K2D_003.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\D601602.prc
Sample File : c:\2700\data\D601602.smp
Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

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601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
1	7.583	Freon12	0.0000	31476.26	3743.92	BB
2	8.142	ClMethane	0.0000	401604.00	36774.23	BB
3	8.783	Vinyl Chloride	0.0000	327001.81	39943.86	BV
4	9.175	peak5	0.0000	24410.72	2575.28	VB
5	10.217	BrMethane	0.0000	529437.44	34355.41	BV
6	10.783	ClEthane	0.0000	1017424.88	58905.02	VB
7	13.208	Freon11	0.0000	662189.38	39499.12	BB
8	15.025	1,1-DCE	0.0000	936179.19	119786.06	BV
9	15.333	DCM	0.0000	2377175.50	169284.44	VV
10	16.083	Freon113	0.0000	1906718.00	168229.02	VB
11	17.833	trans-1,1-DCE	0.0000	1554289.88	221211.39	BV
12	18.342	1,1-DCA	0.0000	1695985.50	229901.21	VB
13	20.408	cis-1,1-DCE	0.0000	75071.28	11499.78	BB
14	21.117	Chloroform	0.0000	2276438.50	330131.78	BB
15	22.875	1,2-DCA	0.0000	1541063.50	238778.70	BB
16	23.508	1,1,1-TCA	0.0000	1954458.00	254223.56	BB
18	24.925	Carbon Tetrachloride	0.0000	1988845.50	266029.44	BB
20	26.433	1,2-DCP	0.0000	1924596.25	261881.83	VB
21	26.850	BDCM	0.0000	1462219.50	263515.16	BV
22	26.958	TCE	0.0000	2271491.50	341143.13	VV
24	28.150	2-CEVE	0.0000	129564.94	21575.30	BV
26	28.883	cis-1,3-DCP	0.0000	1285114.13	204938.86	BV
28	30.058	trans-1,3-DCP	0.0000	1058098.50	178972.02	BB
29	30.508	1,1,2-TCA	0.0000	1536313.00	242121.05	BB
31	32.217	DBCM	0.0000	1381668.50	192795.30	BB
33	33.925	PCE	0.0000	2088277.00	326035.44	BB
37	35.583	ClBenzene	0.0000	1563683.63	257200.56	BB
38	36.300	1-C-2-FBenzeneD	0.0000	2831941.50	466082.22	BB

ELCD #1

Sample Name : 601/602 20ppb Time : 11/5/90 1:31 PM
Sample Number: 2 Study :
Operator :

Interface # : 1 Channel : B A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 12:33 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

1ST DAY
20pt. Std.

Raw Data File : C:\2700\DATA1\K2D_002.raw
Result File : C:\2700\DATA1\K2D_002.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\D601602.prc
Sample File : c:\2700\data\D601602.smp
Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
1	7.592	Freon12	0.0000	32057.75	3756.39	BB
2	8.142	ClMethane	0.0000	497251.75	44550.85	BB
3	8.783	Vinyl Chloride	0.0000	458449.78	55115.72	BV
4	9.183	peak5	0.0000	55877.25	4546.85	VB
5	10.217	BrMethane	0.0000	889393.25	53652.38	BV
6	10.792	ClEthane	0.0000	1678681.50	93709.86	VB
7	13.217	Freon11	0.0000	1132883.75	66219.48	BB
8	15.033	1,1-DCE	0.0000	1529183.75	182364.70	BV
9	15.342	DCM	0.0000	3794582.00	273953.38	VV
10	16.092	Freon113	0.0000	3420807.25	296329.28	VB
11	17.842	trans-1,1-DCE	0.0000	2534788.50	351634.16	BV
12	18.350	1,1-DCA	0.0000	2861803.00	385287.06	VB
13	20.417	cis-1,1-DCE	0.0000	149461.75	22400.00	BB
14	21.117	Chloroform	0.0000	3863590.25	550731.31	BB
15	22.875	1,2-DCA	0.0000	2628884.50	399849.31	BB
16	23.508	1,1,1-TCA	0.0000	3325667.75	429727.38	BB
18	24.925	Carbon Tetrachloride	0.0000	3532217.00	467094.78	BB
20	26.433	1,2-DCP	0.0000	3152212.25	423874.69	VB
21	26.858	BDCM	0.0000	2653318.50	466424.44	BV
22	26.958	TCE	0.0000	3716683.50	547845.38	VE
24	28.150	2-CEVE	0.0000	262888.66	43855.41	BV
26	28.833	cis-1,3-DCP	0.0000	2277189.50	359902.50	BV
28	30.067	trans-1,3-DCP	0.0000	1879653.75	314994.19	BB
29	30.517	1,1,2-TCA	0.0000	2646118.50	414921.16	BB
31	32.225	DBCM	0.0000	2451830.00	344860.34	BB
33	33.933	PCE	0.0000	3648847.25	551715.50	BE
36	35.592	ClBenzene	0.0000	2782968.00	450777.00	BB
37	36.308	1-C-2-FBenzeneD	0.0000	2897346.50	466605.50	BB

ELCD#1

Sample Name : 601/602 50ppb
Sample Number: 1
Operator :

Time : 11/5/90 1:29 PM
Study :

Interface # : 1 Channel : B A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 11:31 AM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K2D_001.raw
Result File : C:\2700\DATA1\K2D_001.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\D601602.prc
Sample File : c:\2700\data\D601602.smp
Sequence File : C:\2700\DATA\CD601602.seq

1ST DAY 50pt. std.

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
2	7.642	Freon12	0.0000	440441.63	36679.18	BV
3	8.233	ClMethane	0.0000	2586419.00	214532.69	VB
4	8.850	Vinyl Chloride	0.0000	2088827.25	219016.63	BV
5	9.300	peak5	0.0000	761059.63	36499.19	VB
6	10.300	BrMethane	0.0000	2851279.50	183728.61	BV
7	10.867	ClEthane	0.0000	5866765.00	259944.27	VE
9	13.292	Freon11	0.0000	4554894.00	183638.92	BV
10	15.108	1,1-DCE	0.0000	4254298.00	462460.97	VV
11	15.417	DCM	0.0000	9030124.00	596795.19	VV
12	16.158	Freon113	0.0000	7365371.00	625226.94	VB
13	17.908	trans-1,1-DCE	0.0000	5925328.00	809173.00	BV
14	18.417	1,1-DCA	0.0000	6259248.50	807315.94	VB
15	20.483	cis-1,1-DCE	0.0000	358517.13	52092.03	BV
16	21.192	Chloroform	0.0000	7565412.50	923744.19	VB
17	22.942	1,2-DCA	0.0000	5534761.50	827692.00	BB
18	23.575	1,1,1-TCA	0.0000	6885874.50	857839.75	BB
21	25.008	Carbon Tetrachloride	0.0000	7409907.50	914398.63	BB
23	26.508	1,2-DCP	0.0000	6132515.50	856804.31	VB
24	26.933	BDCM	0.0000	5481600.00	903783.44	BV
25	27.042	TCE	0.0000	7042849.50	922057.00	VE
28	28.225	2-CEVE	0.0000	346804.50	58014.47	VV
30	28.967	cis-1,3-DCP	0.0000	4410972.50	681990.31	BB
32	30.142	trans-1,3-DCP	0.0000	3380310.00	559278.88	BB
33	30.600	1,1,2-TCA	0.0000	5378247.00	832074.00	BB
35	32.300	DBCM	0.0000	5278208.50	787067.25	BV
37	34.025	PCE	0.0000	7328158.00	934339.75	BB
39	35.683	ClBenzene	0.0000	5867072.00	911420.50	BB
40	36.392	1-C-2-FBenzeneD	0.0000	2941536.00	473229.44	BV

Sample Name : 601 50ppb
Sample Number : 1
Operator :

Time : 11/5/90 5:30 PM
Study :

Interface # : 1 Channel : B A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

1ST DAY
2ND DAY
50pt.

Data Acquisition Time: 11/5/90 4:33 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K5D_001.raw
Result File : C:\2700\DATA1\K5D_001.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\D601602.prc
Sample File : c:\2700\data\D601602.smp
Sequence File : C:\2700\DATA\SEQDK5.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
1	7.625	Freon12	0.0000	21295.48	3167.36	BB
2	8.150	ClMethane	0.0000	281912.00	32236.03	BB
3	8.900	Vinyl Chloride	0.0000	260632.50	23976.51	BB
4	10.383	BrMethane	0.0000	216794.89	18253.75	BV
5	10.842	ClEthane	0.0000	316662.91	29705.78	VB
6	13.208	Freon11	0.0000	493934.50	60028.79	BB
7	15.025	1,1-DCE	0.0000	632343.38	87318.78	BV
8	15.333	DCM	0.0000	864489.63	86346.31	VV
9	16.092	Freon113	0.0000	622353.50	62732.06	VB
10	17.833	trans-1,1-DCE	0.0000	648166.56	88792.99	BV
11	18.342	1,1-DCA	0.0000	700103.63	92637.02	VB
12	20.408	cis-1,1-DCE	0.0000	23773.77	3638.42	BB
13	21.092	Chloroform	0.0000	923637.50	130533.03	BB
14	22.850	1,2-DCA	0.0000	639224.19	97815.26	BB
15	23.492	1,1,1-TCA	0.0000	704054.00	88538.35	BB
16	24.903	Carbon Tetrachloride	0.0000	733163.44	96890.93	BB
17	26.403	1,2-DCP	0.0000	674827.19	96676.16	BV
18	26.333	BDCM	0.0000	555812.50	104333.66	VV
19	26.933	TCE	0.0000	1067663.75	149003.06	VB
21	28.367	cis-1,3-DCP	0.0000	370427.94	54719.96	BV
23	30.050	trans-1,3-DCP	0.0000	225890.56	32769.74	BV
24	30.500	1,1,2-TCA	0.0000	676174.38	101874.00	VB
25	32.217	DBCM	0.0000	578192.19	75023.81	BB
26	32.425	PCE	0.0000	1003925.00	148335.94	BB
28	35.592	ClBenzene	0.0000	336012.94	60183.54	BB
29	36.300	1-C-2-FBenzeneD	0.0000	213193.50	43720.79	BB
30	37.208	Bromoform	0.0000	277340.44	38910.59	BB
31	38.108	1,1,2,2-TCA	0.0000	477512.00	71538.78	BB

ELCD #1

Sample Name : 601/602 05ppb Time : 11/5/90 6:30 PM
Sample Number: 2 Study :
Operator :

Interface # : 1 Channel : B A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

2ND 1ST DAY

Data Acquisition Time: 11/5/90 5:35 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

5pt

Raw Data File : C:\2700\DATA1\K5D_002.raw
Result File : C:\2700\DATA1\K5D_002.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\D601602.prc
Sample File : c:\2700\data\D601602.smp
Sequence File : C:\2700\DATA\SEQCDK5.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	PL
1	7.617	Freon12	0.0000	11076.98	1871.45	BB
2	8.175	ClMethane	0.0000	111539.00	16522.46	BB
3	8.808	Vinyl Chloride	0.0000	72343.31	15119.48	BB
4	9.125	peak5	0.0000	39775.80	-0.02	BB
6	10.250	BrMethane	0.0000	366327.06	23180.62	BV
7	10.825	ClEthane	0.0000	527996.38	32742.00	VB
9	13.233	Freon11	0.0000	385377.47	27768.70	BB
10	15.050	1,1-DCE	0.0000	566598.81	66800.58	BV
11	15.358	DCM	0.0000	1367655.88	98642.12	VV
12	16.100	Freon113	0.0000	1051546.25	98665.35	VB
13	17.850	trans-1,1-DCE	0.0000	868654.75	126395.70	BV
14	18.358	1,1-DCA	0.0000	951019.44	129069.56	VB
15	20.425	cis-1,1-DCE	0.0000	40264.00	6181.58	BB
16	21.125	Chloroform	0.0000	1347100.00	187885.80	BB
17	22.875	1,2-DCA	0.0000	888998.50	133481.92	BB
18	23.508	1,1,1-TCA	0.0000	1196035.00	154012.05	BB
20	24.933	Carbon Tetrachloride	0.0000	1125788.00	150086.94	BB
22	26.433	1,2-DCP	0.0000	906615.13	133662.86	VB
23	26.858	BDCM	0.0000	794807.50	139227.81	BV
24	26.958	TCE	0.0000	1247118.75	186316.14	VV
26	28.158	2-CEVE	0.0000	20892.11	3319.38	BV
28	28.883	cis-1,3-DCP	0.0000	672711.38	105541.60	BV
30	30.058	trans-1,3-DCP	0.0000	544462.31	88969.93	BV
31	30.517	1,1,2-TCA	0.0000	869244.63	134791.00	VB
32	32.217	DBCM	0.0000	636761.25	94853.99	BB
34	33.933	PCE	0.0000	1260450.00	190177.94	BB
36	35.592	ClBenzene	0.0000	954790.00	152671.47	BB
37	36.308	1-C-2-FBenzeneD	0.0000	3045142.00	475298.34	BB

Sample Name : 601/602 50PPB
Sample Number : 1
Operator : LRA

Time : 11/6/90 4:59 PM
Study :

Interface # : 1 Channel : B A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

3RD DAY
50pt. Std.

Data Acquisition Time: 11/6/90 4:01 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K6D_001.raw
Result File : C:\2700\DATA1\K6D_001.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\D601602.prc
Sample File : c:\2700\data\D601602.smp
Sequence File : C:\2700\DATA\SEQCDK6.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
2	7.567	Freon12	0.0000	465224.50	36501.98	BV
3	8.133	ClMethane	0.0000	2242375.50	195097.78	VB
4	8.767	Vinyl Chloride	0.0000	2038881.00	203400.21	BV
5	9.200	peak5	0.0000	851682.94	40009.34	VB
6	10.208	BrMethane	0.0000	3024757.75	174323.09	BV
7	10.775	ClEthane	0.0000	5750448.50	243812.00	VB
9	13.200	Freon11	0.0000	4620276.00	200786.03	BV
10	15.025	1,1-DCE	0.0000	4150827.25	464001.84	VV
11	15.342	DCM	0.0000	8405954.00	549213.56	VV
12	16.083	Freon113	0.0000	7396872.00	608530.88	VB
13	17.842	trans-1,1-DCE	0.0000	5680781.50	778737.13	BV
14	18.358	1,1-DCA	0.0000	6111388.00	785251.38	VB
15	20.425	cis-1,1-DCE	0.0000	387268.69	56413.94	BV
16	21.142	Chloroform	0.0000	7384324.00	920445.00	VB
17	22.900	1,2-DCA	0.0000	5260165.00	796840.63	BB
18	23.583	1,1,1-TCA	0.0000	7071014.50	861718.13	BV
21	24.958	Carbon Tetrachloride	0.0000	7056521.00	899609.50	BB
23	26.467	1,2-DCP	0.0000	5556486.50	798961.50	VB
24	26.883	BDCM	0.0000	5583704.00	891623.06	BV
25	26.992	TCE	0.0000	6650512.50	923701.25	VB
29	28.133	2-CEVE	0.0000	120170.09	20752.51	BV
31	28.917	cis-1,3-DCP	0.0000	4410157.50	691391.19	BV
33	30.100	trans-1,3-DCP	0.0000	3598994.50	582527.06	BB
34	30.550	1,1,2-TCA	0.0000	5044013.50	775465.31	BB
36	32.233	DBCM	0.0000	5249349.00	708655.38	BV
38	33.933	PCE	0.0000	6911021.50	928738.25	BB
41	35.042	ClBenzene	0.0000	5486706.00	878085.13	BB
42	36.350	1-Cl-2-FBenzene[illegible]	0.0000	2840395.25	455233.50	BB

Sample Name : 601/60 05ppb
Sample Number: 2
Operator : LRA

Time : 11/6/90 6:00 PM
Study :

Interface # : 1 Channel : B A/D mV Range : 1000
AutoSampler : None attached
Rack/Vial : 0/0

Data Acquisition Time: 11/6/90 5:03 PM
Delay Time : 5.00 min.
End Time : 55.00 min.
Sampling Rate : 2.0000 pts/sec

3RD DAY
5pt. Std.

Raw Data File : C:\2700\DATA1\K6D_002.raw
Result File : C:\2700\DATA1\K6D_002.rst
Instrument File: c:\2700\data\601602.ins
Process File : c:\2700\data\D601602.prc
Sample File : c:\2700\data\D601602.smp
Sequence File : C:\2700\DATA\SEQCDK6.seq

Inj. Volume : 1 ul Area Reject : 0.00
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
1	7.700	Freon12	0.0000	29396.73	3435.03	BB
2	8.250	ClMethane	0.0000	410645.50	38020.44	BB
3	8.875	Vinyl Chloride	0.0000	219920.88	28024.94	BV
4	9.217	peak5	0.0000	71322.63	5433.90	VB
5	10.342	BrMethane	0.0000	331452.00	23375.42	BV
6	10.900	ClEthane	0.0000	492240.22	33747.70	VB
8	13.317	Freon11	0.0000	416755.03	28192.11	BB
9	15.117	1,1-DCE	0.0000	585533.63	66277.37	BV
10	15.425	DCM	0.0000	1414685.75	99230.35	VV
11	16.167	Freon113	0.0000	1092306.13	103947.95	VB
12	17.908	trans-1,1-DCE	0.0000	847350.13	121603.04	BV
13	18.417	1,1-DCA	0.0000	912829.69	124580.57	VB
14	20.475	cis-1,1-DCE	0.0000	41328.75	6377.95	BB
15	21.175	Chloroform	0.0000	1221620.00	179401.78	BB
16	22.925	1,2-DCA	0.0000	820542.75	128753.27	BB
17	23.558	1,1,1-TCA	0.0000	1310365.00	171331.03	BB
19	24.975	Carbon Tetrachloride	0.0000	937940.69	128723.49	BB
21	26.475	1,2-DCP	0.0000	856732.13	127632.70	VB
22	26.992	BDCM	0.0000	714628.81	130725.52	BV
23	27.000	TCE	0.0000	1211571.00	179220.67	VV
25	28.192	2-CEVE	0.0000	11393.09	1966.75	BV
27	28.917	cis-1,3-DCP	0.0000	492109.44	80726.80	BB
29	30.092	trans-1,3-DCP	0.0000	275335.22	45476.11	BV
30	30.550	1,1,2-TCA	0.0000	832450.50	131056.22	VB
32	32.250	DBCM	0.0000	634269.13	98924.20	BB
34	33.958	PCE	0.0000	1208742.00	187036.31	BB
36	35.617	ClBenzene	0.0000	917780.25	150444.00	BB
37	36.333	1-C-2-FBenzeneD	0.0000	2865284.00	462135.44	BB

INVOICE-STATEMENT

SPECTRUM Chemical, Solvent & Oil
(HAZARDOUS WASTE)
P.O. Box 91011
Long Beach, California 90809
State EPA #CAD 980694681
(714) 737-7710 • (714) 775-2715

WE DISPOSE OF
HAZARDOUS
NON-HAZARDOUS
LIQUID WASTE
SOLID WASTE
DRUMS

NO. № 20250

Date: 6-18-86

BILL TO: MERCURY AERO SPACE
11800 SHERMAN WAY
NO. HOLLYWOOD, CA. 91605

PHONE 818-982-4800

JOB LOCATION
3 DRUMS SOLID HAZ. WASTE TO LANDFILL
TRI 111

TRUCK NO. 5	SEE DALE-RANDY	P.O. NO. ~~VERBAL~~ 71819	CONSULTANT DOROTHY
DATE 6-18-86	PERMIT NO. SPECTRUM 65069		DEPT OF HEALTH PERMIT NO. SPECTRUM 1597
WASTE CATEGORY: 491	RESTRICTED	EXTREMELY HAZARDOUS	HAZARDOUS X / NON-HAZARDOUS / UNKNOWN
MANIFEST NO. 84690089	UN OR NA NO. UN 1325		CUSTOMER EPA NO. CAX 000083618
PROPER U.S. DOT SHIPPING NAME WASTE FLAMMABLE SOLID			PH. N/A D.O.H.S

RECYCLABLE	NON-RECYCLABLE X	SOLID X	LIQUID	TANK TRUCK	FLAT BED X	SPECTRUM TRUCK X	AFFILIATE		
RECLAMATION FACILITY		METHOD		T.S.D. FACILITY CASMALIA RESOURCES		METHOD			
EMPTY CONTAINERS REUSABLE	FACILITY		UNREUSABLE	FACILITY SANTA BARBARA					
EMPTY 55 GAL STEEL	EMPTY 55 GAL STEEL-LINED	EMPTY 55 GAL PLASTIC	DOT X						
EMPTY 5 GAL METAL	EMPTY 5 GAL PLASTIC-PAILS ETC	EMPTY 1 GAL METAL OR PLASTIC	OTHER EMPTY CONTAINERS						
DELIVERD USED DRUMS	RECONDITIONED DRUMS	NEW DRUMS	OTHER DELIVERED CONTAINERS						
LABOR	FIELD ENGINEER	2ND MAN	3RD MAN	MORE THAN 3 MEN	PROJECT ENGINEER				
ABSORBENTS S.	P.	V.	CHEMICALS	NEUTRALIZING MATERIALS	OTHER				

BALANCE

TRUCK & DRIVER

P U 3 SOLID DRUMS HAZARDOUS WASTE (TRI 111)

TRANSPORT TO SANTA BARBARA FOR DISPOSAL.

PAID
JUL 9 1986

PICK UP ONLY

Dale L Barter 6-18-86

Last amount in balance column is amount owing. $

TERMS: COD
or maximum 7 days from receipt of this statement

ATTEN: ACCOUNTS PAYABLE:

NOTE: GENERATORS SIGNATURE GUARANTEES HIS RESPONSIBILITY AS TO CONTENTS OF THIS HAZARDOUS WASTE. GENERATOR ALSO AGREES TO PAY WITHIN 7 DAYS OF DATE ABOVE, ALL COSTS DIRECTLY OR INDIRECTLY RELATED TO THIS INVOICE-STATEMENT AND AFTER 7 DAYS FROM ABOVE DATE AGREES TO PAY ALL COSTS, INCLUDING ATTORNEYS FEES, TO COLLECT THE ABOVE INVOICE-STATEMENT AMOUNT.

DUE TO NEW FEDERAL AND STATE TAX LAWS AND PUBLIC UTILITY COMMISSION REQUIREMENTS **HAZARDOUS WASTE** STATEMENTS **MUST** BE PAID WITHIN 7 DAYS FROM DATE STATEMENT IS RECEIVED.

104003

State of California—Health and Welfare Agency

Department of Health Services
Toxic Substances Control Division
Sacramento, California

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CAX 000083618
Manifest Document No.: 18500
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
MERCURY AERO SPACE
11800 SHERMAN WAY
NORTH HOLLYWOOD, CA. 91605

4. Generator's Phone (81 8) 982-4800

State Manifest Document Number: 84690133
[illegible] ID: [illegible]
[illegible] ID: 701749
[illegible] Phone: 714-737-7710
[illegible] ID:
[illegible] Phone:
State Facility's ID: [illegible] 080011059
Facility's Phone: [illegible]

5. Transporter 1 Company Name: SPECTRUM CHEMICAL, SOLVENT & OIL
6. US EPA ID Number: CAD 980694681

7. Transporter 2 Company Name:
8. US EPA ID Number:

9. Designated Facility Name and Site Address
PETROLEUM RECYCLING INC.
1835 E. 29th ST.
SIGNAL HILL, CA. 90806
10. US EPA ID Number: CAT 080011059

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. WASTE OIL N.O.S. COMBUSTIBLE LIQUID NA 1270	01	TT	0700	G	223
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
WASTE OIL
STODDARD
WATER

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
GLOVES

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

Printed/Typed Name: [illegible]
Signature:
Date: Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: [illegible]
Signature:
Date: Month Day Year: 7 31 86

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name:
Signature:
Date: Month Day Year

GENERATOR

TRANSPORTER

FACILITY

84690133

DHS 8022 A (11/84)
(EPA 8700-22)

YELLOW GENERATOR RETAINS

84 89641

State of California—Health and Welfare Agency

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Department of Health Services
Toxic Substances Control Division
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. CA 0000818618 — Manifest Document No.

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

A. State Manifest Document Number: 86239232

B. State Generator's ID: CAC [illegible]618

C. State Transporter's ID: 701749

D. Transporter's Phone: 924-737-7710

E. State Transporter's ID:

F. Transporter's Phone:

G. State Facility's ID: CAD 980737076

H. Facility's Phone: 213-427-9811

3. Generator's Name and Mailing Address
MERCURY AERO SPACE
11800 Sherman Way
NORTH HOLLYWOOD, CA. 91605

4. Generator's Phone (818) 982-4800

5. Transporter 1 Company Name: SPECTRUM CHEMICAL, SOLVENT & OIL — 6. US EPA ID Number: CAD 980961418

7. Transporter 2 Company Name — 8. US EPA ID Number:

9. Designated Facility Name and Site Address
DICO
1845 E. WILLOW
LONG BEACH, CA. 90806

10. US EPA ID Number: CAD 980737076

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. WASTE OIL N.O.S. COMBUSTIBLE NA 1270	01	TT	1700	G	223
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
WASTE OIL FROM MACHINES 80/90%
STODDARD SOLVENT 10%
EP D000
SIC 34
DOT 01

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
SPECTRUM USED OIL HAULER LIC.# 86-129
GLOVES

86 239232

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name — Signature — Month Day Year

GENERATOR

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

TRANSPORTER

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name — Signature — Month Day Year

FACILITY

DHS 8022 A (11/85)
(EPA 8700—22)

YELLOW GENERATOR RETAINS

MICRODOT AEROSPACE FASTENING SYSTEMS
KAYNAR • KAYNAR (U.K.) LTD. • MICRODOT INSERTS • MERCURY AEROSPACE FASTENERS

Interoffice Correspondence

DATE: June 7, 1984

TO: E. M. Plambeck

FROM: W. E. Packard

SUBJECT: Mercury Aerospace Hazardous Waste Control

The purpose of this memorandum is to update events regarding hazardous waste cleanup at Mercury Aerospace. As you know, Art Mulloy sent me the information on their violation of hazardous waste control laws on June 4, 1984.

Acting on an inter-agency complaint, inspectors for the Department of Health Services, Los Angeles County, inspected Mercury Aerospace on May 21, 1984. The inspection uncovered various violations as noted in the report of May 24, 1984. These violations were discussed with Clay Glessner and Richard French and the No. 1 priority is the cleanup of the contaminated area and the correct disposal of onsite barrels of used oil, etc.

A hazardous waste site clean up plan needs to be presented to the Los Angeles County Department of Health Services by Tuesday, June 12, 1984. I will be working with Bill Burns who is the representative for Falcon Disposal Company to complete this form by the date noted. Bill might be able to obtain an extension if we need more time.

On Wednesday, June 6, 1984, soil samples were taken by me from the alleged contaminated area and these samples will be analyzed by Analytical Research Laboratories, Incorporated located in Monrovia, California. Cost - $930. Results of this testing will determine the extent of clean up operations needed to return the contaminated site to normal.

All these developments have been discussed with Jim Reeber and Art Mulloy. Once this contaminated area is cleaned up and the waste oil barrels disposed of, there will have to be a concentrated effort on their part to insure that this type of problem does not happen again.

On Thursday, June 7, 1984, Bill Burns surveyed the situation at Mercury Aerospace with Art Mulloy and we will be getting together to complete the site clean up form and also learn the dollar amount needed for this site clean up at the Mercury Aerospace facility.

Once everything is cleaned up, I will take Richard French to Mercury and we will sit down with Art Mulloy and Jim Reeber to develop a

program for disposal of waste oil, etc. to conform with all regulations.

Wm. E. Packard
Safety Manager

WEP:gj

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT - HAZARDOUS WASTE MANAGEMENT

REPORT OF INVESTIGATION

DATE: August 3, 1984 DATE OF INVESTIGATION(S): May 21, 1984

INVESTIGATING OFFICER(S): Sr. Environmental Health Officer William Jones and Industrial Hygienist Lawrence Bishop

NAME OF SUSPECT(S) / DEFENDANT(S): Microdot, Inc.; Microdot Aerospace Fastening Systems; Mercury Aerospace Fasteners; James Reeber, Vice President and General Manager; Art Mulloy, Plant Manager.

ADDRESS: 11800 Sherman Way, North Hollywood 91609 PHONE: (818) 982-4800

COMPANY NAME: Mercury Aerospace Fasteners PHONE: (818) 982-4800

LOCATION OF VIOLATION(S): 11800 Sherman Way, North Hollywood 91609

NO. OF EMPLOYEES: 111 OWNERS, PRINCIPLE STOCKHOLDERS, ETC.: Microdot, Inc., P.O. Box 3001, Fullerton, California 92634-3001

BUSINESS STRUCTURE: Mercury Aerospace Fasteners, a Profit Center under Microdot Aerospace Fastening Systems Group, in the Microdot Industries Division of Microdot, Inc.

COMPANY CONTACT PERSON: Art Mulloy, Plant Manager, (818) 982-4800; Bill Packard, Safety Security Manager, (714) 871-1550.

SEC. STATE HEALTH LAW: California Health & Safety Code, Division 20, Chapter 6.5, Section 25189.5(b).

BRIEF STATEMENT OF VIOLATION: Discharge of hazardous waste (i.e., nitric acid, copper, waste oils) to locations off-site (specifically, south of loading dock onto a dirt area outside the company's perimeter fence onto a SPRR right-of-way) which were unauthorized for the disposal of hazardous wastes pursuant to the California Hazardous Waste Control Law

CAM LIMITS (IF APPLICABLE): Copper and copper products TTLC 2500 mg/kg Corrosivity / irritation pH less than 2.

REFERRING AGENCY: D W P PHONE: (213) 481-3170

DEFENDANTS PREVIOUS RECORD: None

CHARGING SECTION

On May 21, 1984, the following violation of the California Health and Safety Code, Division 20, Chapter 6.5, Hazardous Waste Control Law, Article 8, Section 25189.5b was observed by the investigating officers:

> Section 25189.5b: Representatives of Mercury Aerospace Fasteners (a Profit Center under the Microdot Industries Division of Microdot, Inc.) did knowingly and negligently permit unknown quantities of hazardous wastes (to wit: oil and nitric acid-copper waste) to be discharged onto the ground just south of the subject location onto a railroad right-of-way, and also onto the ground just west of the loading dock area.

HISTORY / SUMMARY

On May 21, 1984, at approximately 1400 hours, an investigation was conducted by William Jones and Lawrence Bishop of this Department in response to a complaint from the Los Angeles Department of Water and Power. The above mentioned (officers) observed a green liquid draining directly from the subject plant facility southward over a parking lot area (See Photo #1 and 2), then off-site through a chain link fence where it collected in a pooled area approximately 10' x 30' (See Photo #3). Also observed was an oil stained soil area approximately 10' x 30', west of the loading dock area with oil stains on the loading dock and on the wall leading to the ground from the loading dock area (See Photo #4).

Mr. Art Mulloy, Plant Manager, was contacted and escorted Jones and Bishop through the plant and into the rear areas. When asked how the material near the railroad tracks got there, Mr. Mulloy stated, "I don't know, I guess they dump it".

A further extensive survey of the plant operations revealed the company to be engaged primarily in machining steel to manufacture aircraft fastene with subsequent degreasing and stripping operations. Ozzie Tarr, QC and Outside Processing Manager stated that the discharged green material resul ed from oversplash of the nitric acid stripping operation which would trav

off the loading dock southward to the ponded location. Etching of the concrete on the platform where work was conducted was observed as evidence of acid being discharged onto the ground (See Photo #5).

The oil discharge resulted from steel parts being drained onto the loading dock in open racks and being allowed to drain westward over the wall, onto the ground (See Photo #6). In addition, oil stains were observed on the chain link fence and supporting poles immediately west of the dock area which indicates oil was intentionally discharged over the wall onto the adjoining Department of Water and Power ground. This occurred after degreasing the material with stoddard solvent.

An Official Notice of Violation #267845 was issued to Mr. Jim Reeber, Vice President and General Manager of Mercury Aerospace Fasteners to immediately discontinue further discharge of hazardous wastes to unauthorized locations A further extensive Official Notice letter (dated May 24, 1984) was issued requiring a clean-up, to discontinue illegal transport of hazardous waste, and to properly store hazardous waste.

On July 3, 1984, clean-up was completed by Falcon Disposal Company and hazardous materials discharged to the ground were removed. Microdot Aerosp Fastening Systems Group assumed full responsibility for clean-up and expens

EVIDENCE

1) Photographs were taken on May 21, 1984, by Senior Environmental Health Officer William Jones, numbered 1 - 6;

2) Samples numbered TW 483-84 through TW 487-84 and TW 516-84 were taken by Senior Environmental Health Officer William Jones and Industrial Hygienist Lawrence Bishop.

3) Senior Environmental Health Officer William Jones and Industrial Hygienist Lawrence Bishop will testify to the conditions described above as observed on May 21, 1984.

000042

MICRODOT AEROSPACE FASTENING SYSTEMS

KAYNAR • KAYNAR (U.K.) LTD. • MICRODOT INSERTS • MERCURY AEROSPACE FASTENERS

Interoffice Correspondence

DATE: July 10, 1984

TO: Wm. D. Myers

FROM: Wm. E. Packard

SUBJECT: Hazardous Waste Clean Up
Mercury Aerospace

On July 3, 1984 at 0600 the soil contamination clean up was started at Mercury Aerospace. The clean up was coordinated by Bill Burns of Falcon Disposal. Gene Matsushita, Sr. Environmental Health Officer from the County of Los Angeles, was on hand to oversee the clean up operations.

Our clean up plan proposal had been approved by Anastacio G. Medina, Chief, Hazard Waste Control Program.

It consisted of removing all soil visibly contaminated with oil. In addition, the rear area adjacent to the railroad tracks was excavated to a depth of approximately 1-1/2 to 3 feet. See photos.

There was some controversy regarding compulsory sampling after excavation but I was able to talk them into taking one sample from the deepest part of the excavation with immediate filling in of the hole with clean soil. Otherwise we would have had to leave the excavations open for at least one week. Resulting analysis of the samples should be negative.

Altogether six double trailer loads of soil were removed and transported to the BKK Landfill site in West Covina. Also, on July 2, 1984, all the old waste oil was pumped into a tanker truck and transported to the BKK Landfill.

All the necessary manifests were made out to comply with State regulations covering transportation of hazardous waste and appropriate copies were sent to Sacramento. When BKK returns the dump copies, they will be sent to the Los Angeles County Department of Health Services as required.

Once the cost of this clean up project is known, Ralph Woodhouse will be contacted and a meeting will be set up to determine equitable payment.

Will keep you informed.

Wm. E. Packard
Safety Manager

WEP:gj

INVOICE

BKK CORPORATION CORPORATE OFFICES

- BKK LANDFILL
- FALCON REFUSE CENTER
- CHANCELLOR & OGDEN
- AP-TEC I & II
- BKK CO. OF NEVADA, INC.

BKK FALCON DISPOSAL SERVICE

25500 17TH STREET • P. O. BOX 3038 • TORRANCE, CA 90503 • (213) 539-7150

DISPATCHER & FACILITY LOCATION • 3031 EAST "F" STREET • WILMINGTON, CA 90744

SERVICE YARD • (213) 590-8531

24 HR. SERVICE • (213) 432-8461

INVOICE DATE 7-26-84

INVOICE NO. 26681

TO KAYNAR CORP
BILL PACKARD
800 S. STATE COLLEGE BLVD
FULLERTON, CA 92668

P.O. NUMBER

COMMODITY SOLID REFUSE

86.70 TONS of contaminated soil @ 90.00/ton $ 7,803.00

13.[illegible] TONS of crushed drums @ 120.00/ton [illegible]

80.00 TONS of backfill @ 2.50/ton 200.00

18.00 TONS of weeds @ 4.00/ton [illegible]

PUC REGULATIONS REQUIRE PAYMENT WITHIN 7 DAYS

TOTAL DUE $ 9,891.80

A SERVICE FEE OF 1½ PERCENT PER MONTH SHALL BE CHARGED ON ALL 30 DAYS PAST DUE ACCOUNTS. IN THE EVENT THIS ACCOUNT BECOMES DELINQUENT AND IT IS NECESSARY TO INSTITUTE LEGAL PROCEEDINGS, PURCHASER AGREES TO PAY REASONABLE ATTORNEY'S FEES AND COURT COSTS.

ALL TRUCK TIME RECORDED ON RECORDER TIME CLOCK INDICATING START, LOADING, TRAVEL AND STOP TIME. CHARTS FURNISHED UPON REQUEST.

ACKNOWLEDGEMENT OF RECEIPT OF ABOVE WASTE

000011

MICRODOT AEROSPACE FASTENING SYSTEMS
KAYNAR • KAYNAR UP TAP • MERCURY AEROSPACE FASTENERS • MICRODOT INSERTS
P.O. BOX 3001 • FULLERTON, CA 92634-3001 • (714) 871-1551 • TWX 910-592-1239 • TELEX 65586

June 11, 1984

Mr. William Jones
County of Los Angeles
Department of Health Services
313 N. Figueroa St.
Los Angeles, CA 90012

Subject: Hazardous Waste Control Program
Site Clean Up Plan

Dear Mr. Jones:

The following is an addenda to the Hazardous Waste Control Program Site Clean Up Plan for Mercury Aerospace facility.

(A) The following testing procedure was used to determine the extent of alleged contamination in the affected area.

(a) Alleged nitric acid contaminated area, three surface samples and three samples were taken at a depth of three feet. The accompanying photographs denote area of sampling.

(b) In the area of the oil contamination, four samples were taken. Two were surface samples and two were samples taken from a depth of three feet.

All three foot depth samples were obtained with a post hole auger. Samples were taken to the Analytical Research Laboratories, Inc. located in Monrovia for the required soil analysis. Results will be available about June 15, 1984.

(B) Upon completion of the excavation, grab samples will be collected from the areas of major contamination and analyzed to determine that the clean up area does not contain compounds in excess of that found for background samples for state standards.

(C) The excavation will be done with a 755 backhoe loading directly into a registered semi-end dump. By direct loading, we feel that there will be no spreading of the contaminated soil and that with a 20 foot reach on the backhoe our depth may be accomplished without hand labor. We will provide a watering device to control any dust particulates. The operator, laborer and foreman will be required to wear disposable

tie back suits, disposable rubber gloves and issued rubber boots. The boots will be brushed clean before leaving site. The field personnel will also be required to use a half-face Norton respirator No. 7500-30M with a 7500-3 filter.

The truck drivers will be required to stay in their trucks with the windows up or away from the loading operation until the truck is loaded.

We feel that by keeping the area damp there will be no need to set up any air monitoring stations.

The excavation will take one day. We will provide barricades around the area after excavation until it can be back filled with clean fill material. The contaminated soil will be manifested and sent to the designated Class 1 landfill. It appears at this time the areas in question are contaminated from approximately 6 inches to 3 feet. The total quantity at this time is not known, but appears to be about 60 tons.

We will send you a copy of our test results when the lab is fully done with them.

At the present time Falcon Disposal is working on a program for disposal of the containers and barrels noted in your violation notice.

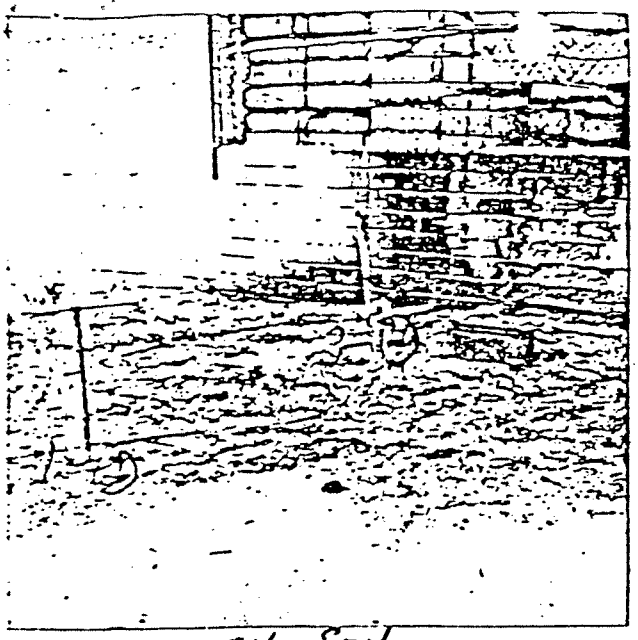
If there are any further questions, please contact me at (714) 871-1550, extension 361.

Sincerely,

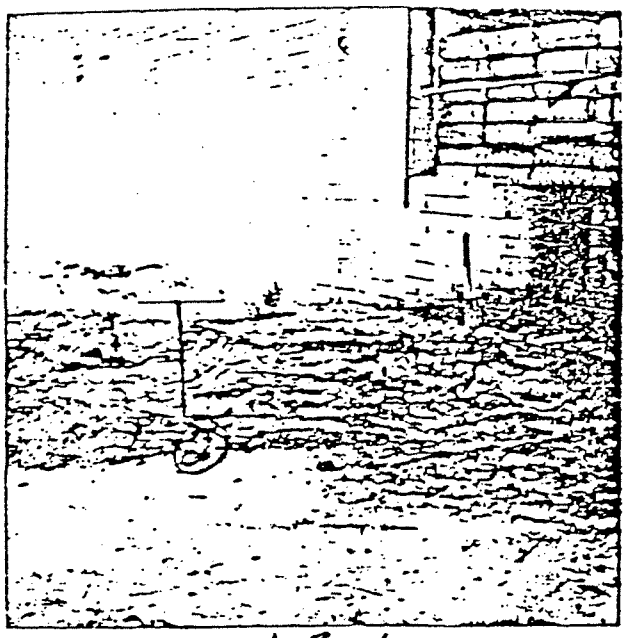
MICRODOT AEROSPACE FASTENING SYSTEMS

W. E. Packard
Safety Manager

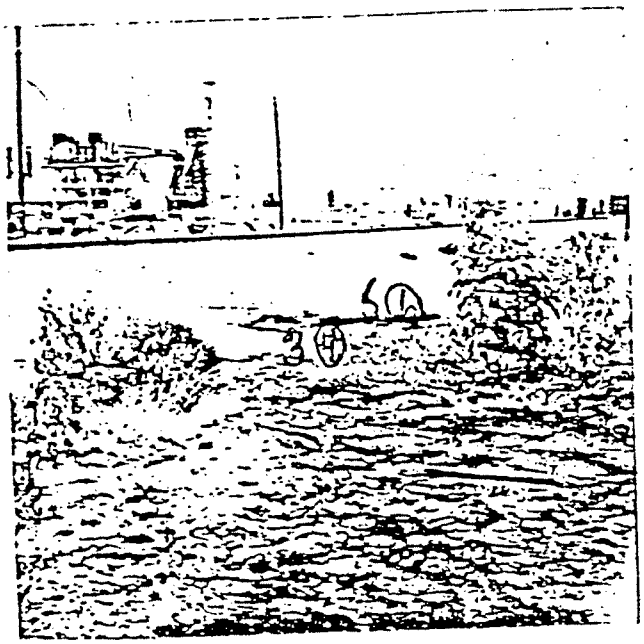
WEP:gj
Enclosures



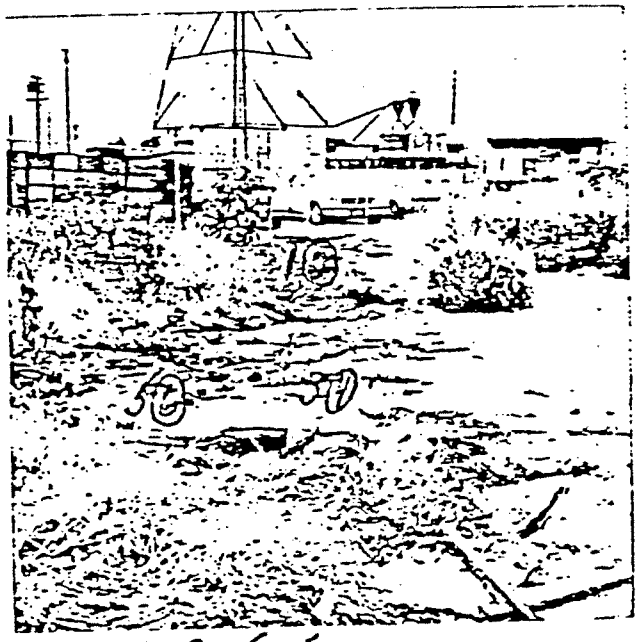
OIL SOIL
1- SURFACE
2- 3' DEPTH



OIL SOIL
3- SURFACE
4- 3' DEPTH



1, 3, 5 SURFACE
2, 4, 6 - 3' DEPTH



1, 3, 5 - SURFACE
2, 4, 6 - 3' DEPTH