APPENDIX A

SOIL VAPOR DATA VALIDATION REPORT
SIXTH LONG-TERM SAMPLING EVENT

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Geofon, Inc.
22632 Golden Springs Drive, Suite 270
Diamond Bar, CA 91765
ATTN: Mr. Tony Ford

March 22, 2002

SUBJECT: NASA JPL, DO #48, Data Validation

Dear Mr. Ford,

Enclosed is the final validation report for the fraction listed below. This SDG was received on March 15, 2002. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 8108:

SDG #	**Fraction**
GF021102T2	Volatile Halogenated/Aromatic Hydrocarbons

The data validation was performed under EPA Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996

Please feel free to contact us if you have any questions.

Sincerely,

Richard M. Amano
President/Principal Chemist

Attachment 1

LDC #8108 (Geofon, Inc. / NASA Jet Propulsion Laboratory, CTO#0048)

Project#04-4304-480 JPL 1

LDC	SDG#	DATE REC'D	DATE DUE	HVOC/ BTEX (8010/8021)																																	
Matrix: Air/Soil				A	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	GF021102T2	3-15-02	4-5-02	94	0																																
Total	TH			94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation).

8108ST.GEO

NASA JPL
Data Validation Reports
LDC# 8108

Volatile Halogenated/Aromatic Hydrocarbons

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: February 11 through February 20, 2002

LDC Report Date: March 20, 2002

Matrix: Air

Parameters: Volatile Halogenated/Aromatic Hydrocarbons

Validation Level: EPA Level III

Laboratory: HP Labs

Sample Delivery Group (SDG): GF021102T2

Sample Identification

SVW30-VPA-01	SVW3-VPC-21	SVW27-VPA-41
SVW30-VPB-02	SVW3-VPD-22	SVW27-VPA-42DUP
SVW-30-VPC-03	SVW4-VPB-23	SVW27-VPB-43
SVW30-VPD-04	SVW4-VPB-24DUP	SVW27-VPC-44
SVW30-VPE-05	SVW4-VPD-25	SVW27-VPD-45
SVW30-VPE-06DUP	SVW17-VPC-26	SVW27-VPE-46
SVW31-VPA-07	SVW9-VPA-27	SVW27-VPF-47
SVW31-VPB-08	SVW9-VPB-28	SVW27-VPF-48DUP
SVW31-VPD-09	SVW9-VPC-29	SVW27-VPG-49
SVW31-VPE-10	SVW9-VPC-30DUP	SVW27-VPI-50
SVW12-VPC-11	SVW9-VPD-31	SVW27-VPJ-51
SVW12-VPC-12DUP	SVW9-VPE-32	SVW26-VPF-52
SVW12-VPD-13	SVW10-VPB-33	SVW26-VPG-53
SVW5-VPB-14	SVW10-VPD-34	SVW26-VPG-54DUP
SVW7-VPA-15	SVW32-VPH-35	SVW26-VPH-55
SVW7-VPB-16	SVW32-VPH-36DUP	SVW37-VPA-56
SVW1-VPB-17	SVW11-VPA-37	SVW37-VPD-57
SVW1-VPB-18DUP	SVW11-VPE-38	SVW37-VPE-58
SVW1-VPC-19	SVW14-VPA-39	SVW37-VPH-59
SVW2-VPA-20	SVW14-VPB-40	SVW37-VPH-60DUP

SVW37-VPI-61
SVW37-VPJ-62
SVW36-VPB-63
SVW36-VPC-64
SVW36-VPE-65
SVW36-VPE-66DUP
SVW8-VPC-67
SVW8-VPD-68
SVW8-VPE-69
SVW39-VPA-70
SVW39-VPC-71
SVW39-VPC-72DUP
SVW39-VPD-73
SVW39-VPE-74
SVW39-VPF-75
SVW39-VPI-76
SVW38-VPE-77
SVW38-VPE-78DUP
SVW38-VPF-79
SVW38-VPJ-80
SVW35-VPE-81
SVW35-VPI-82
SVW15-VPB-83
SVW15-VPB-84DUP
SVW15-VPC-85
SVW15-VPD-86
SVW15-VPE-87
SVW6-VPB-88
SVW6-VPD-89
SVW6-VPD-90DUP
SVW6-VPE-91
SVW33-VPD-92
SVW33-VPE-93
SVW33-VPF-94

Introduction

This data review covers 94 air samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 8010 and 8021B modified for Volatile Halogenated/Aromatic Hydrocarbons.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed for the primary (quantitation) column and confirmation column as required by these methods with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG GF021102T2	All TCL compounds	A three point calibration was performed.	A five point calibration is specified by the method.	None	P

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

b. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For all samples continuing calibration was not performed for Chloroethane, Vinyl Chloride, Trichlorofluoromethane and Dichlorodifluoromethane. Since these compounds were not detected in the associated samples, no data were qualified.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
2/11/02	Chloroform	18.3	SVW30-VPA-01 SVW30-VPB-02 SVW-30-VPC-03 SVW30-VPD-04 SVW30-VPE-05 SVW30-VPE-06DUP SVW31-VPA-07 SVW31-VPB-08 SVW31-VPD-09 SVW31-VPE-10 SVW12-VPC-11 SVW12-VPC-12DUP SVW12-VPD-13 MB (2/11)	J (all detects) UJ (all non-detects)	A

Date	Compound	%D	Associated Samples	Flag	A or P
2/12/02	Dichloromethane 1,1,2,2-Tetrachloroethane	17.8 15.5	SVW5-VPB-14 SVW7-VPA-15 SVW7-VPB-16 SVW1-VPB-17 SVW1-VPB-18DUP SVW1-VPC-19 SVW2-VPA-20 SVW3-VPC-21 SVW3-VPD-22 SVW4-VPB-23 SVW4-VPB-24DUP SVW4-VPD-25 SVW17-VPC-26 MB (2/12)	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
2/13/02	1,1,2,2-Tetrachloroethane	15.4	SVW9-VPA-27 SVW9-VPB-28 SVW9-VPC-29 SVW9-VPC-30DUP SVW9-VPD-31 SVW9-VPE-32 SVW10-VPB-33 SVW10-VPD-34 SVW32-VPH-35 SVW32-VPH-36DUP SVW11-VPA-37 SVW11-VPE-38 SVW14-VPA-39 SVW14-VPB-40 MB (2/13)	J (all detects) UJ (all non-detects)	A
2/20/02	1,1,2,2-Tetrachloroethane	15.1	SVW15-VPB-83 SVW15-VPB-84DUP SVW15-VPC-85 SVW15-VPD-86 SVW15-VPE-87 SVW6-VPB-88 SVW6-VPD-89 SVW6-VPD-90DUP SVW6-VPE-91 SVW33-VPD-92 SVW33-VPE-93 SVW33-VPF-94 MB (2/20)	J (all detects) UJ (all non-detects)	A

III. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile halogenated/aromatic hydrocarbon contaminants were found in the method blanks.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

c. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent differences (%D) were within QC limits.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples SVW4-VPB-23 and SVW4-VPB-24DUP, samples SVW9-VPC-29 and SVW9-VPC-30DUP, samples SVW32-VPH-35 and SVW32-VPH-36DUP, samples SVW30-VPE-05 and SVW30-VPE-06DUP, samples SVW12-VPC-11 and SVW12-VPC-12DUP, samples SVW1-VPB-17 and SVW1-VPB-18DUP, samples SVW27-VPA-41 and SVW27-VPA-42DUP, samples SVW27-VPF-47 and SVW27-VPF-48DUP, samples SVW26-VPG-53 and SVW26-VPG-54DUP, samples SVW37-VPH-59 and SVW37-VPH-60DUP, samples SVW36-VPE-65 and SVW36-VPE-66DUP, samples SVW39-VPC-71 and SVW39-VPC-72DUP, samples SVW38-VPE-77 and SVW38-VPE-78DUP, samples SVW15-VPB-83 and SVW15-VPB-84DUP and samples SVW6-VPD-89 and SVW6-VPD-90DUP were identified as field duplicates. No volatile halogenated/aromatic hydrocarbons were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	SVW4-VPB-23	SVW4-VPB-24DUP	
Trichloroethene	8.9	6.9	25

Compound	Concentration (ug/L)		RPD
	SVW9-VPC-29	SVW9-VPC-30DUP	
1,1,2-Trichlorotrifluoroethane	1.1	1.3	17

Compound	Concentration (ug/L)		RPD
	SVW32-VPH-35	SVW32-VPH-36DUP	
Carbon tetrachloride	3.9	2.1	60
1,1,2-Trichlorotrifluoroethane	8.1	6.2	27

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Volatile Halogenated/Aromatic Hydrocarbons- Data Qualification Summary - SDG GF021102T2

SDG	Sample	Compound	Flag	A or P	Reason
GF021102T2	SVW30-VPA-01	All TCL compounds	None	P	Initial calibration
	SVW30-VPB-02				
	SVW-30-VPC-03				
	SVW30-VPD-04				
	SVW30-VPE-05				
	SVW30-VPE-06DUP				
	SVW31-VPA-07				
	SVW31-VPB-08				
	SVW31-VPD-09				
	SVW31-VPE-10				
	SVW12-VPC-11				
	SVW12-VPC-12DUP				
	SVW12-VPD-13				
	SVW5-VPB-14				
	SVW7-VPA-15				
	SVW7-VPB-16				
	SVW1-VPB-17				
	SVW1-VPB-18DUP				
	SVW1-VPC-19				
	SVW2-VPA-20				
	SVW3-VPC-21				
	SVW3-VPD-22				
	SVW4-VPB-23				
	SVW4-VPB-24DUP				
	SVW4-VPD-25				
	SVW17-VPC-26				
	SVW9-VPA-27				
	SVW9-VPB-28				
	SVW9-VPC-29				
	SVW9-VPC-30DUP				
	SVW9-VPD-31				
	SVW9-VPE-32				
	SVW10-VPB-33				
	SVW10-VPD-34				
	SVW32-VPH-35				
	SVW32-VPH-36DUP				
	SVW11-VPA-37				
	SVW11-VPE-38				
	SVW14-VPA-39				
	SVW14-VPB-40				
	SVW27-VPA-41				
	SVW27-VPA-42DUP				
	SVW27-VPB-43				
	SVW27-VPC-44				
	SVW27-VPD-45				
	SVW27-VPE-46				
	SVW27-VPF-47				
	SVW27-VPF-48DUP				
	SVW27-VPG-49				
	SVW27-VPI-50				
	SVW27-VPJ-51				
	SVW26-VPF-52				
	SVW26-VPG-53				
	SVW26-VPG-54DUP				
	SVW26-VPH-55				
	SVW37-VPA-56				

SDG	Sample	Compound	Flag	A or P	Reason
GF021102T2	SVW37-VPD-57 SVW37-VPE-58 SVW37-VPH-59 SVW37-VPH-60DUP SVW37-VPI-61 SVW37-VPJ-62 SVW36-VPB-63 SVW36-VPC-64 SVW36-VPE-65 SVW36-VPE-66DUP SVW8-VPC-67 SVW8-VPD-68 SVW8-VPE-69 SVW39-VPA-70 SVW39-VPC-71 SVW39-VPC-72DUP SVW39-VPD-73 SVW39-VPE-74 SVW39-VPF-75 SVW39-VPI-76 SVW38-VPE-77 SVW38-VPE-78DUP SVW38-VPF-79 SVW38-VPJ-80 SVW35-VPE-81 SVW35-VPI-82 SVW15-VPB-83 SVW15-VPB-84DUP SVW15-VPC-85 SVW15-VPD-86 SVW15-VPE-87 SVW6-VPB-88 SVW6-VPD-89 SVW6-VPD-90DUP SVW6-VPE-91 SVW33-VPD-92 SVW33-VPE-93 SVW33-VPF-94	All TCL compounds	None	P	Initial calibration
GF021102T2	SVW30-VPA-01 SVW30-VPB-02 SVW-30-VPC-03 SVW30-VPD-04 SVW30-VPE-05 SVW30-VPE-06DUP SVW31-VPA-07 SVW31-VPB-08 SVW31-VPD-09 SVW31-VPE-10 SVW12-VPC-11 SVW12-VPC-12DUP SVW12-VPD-13	Chloroform	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

SDG	Sample	Compound	Flag	A or P	Reason
GF021102T2	SVW5-VPB-14 SVW7-VPA-15 SVW7-VPB-16 SVW1-VPB-17 SVW1-VPB-18DUP SVW1-VPC-19 SVW2-VPA-20 SVW3-VPC-21 SVW3-VPD-22 SVW4-VPB-23 SVW4-VPB-24DUP SVW4-VPD-25 SVW17-VPC-26	Dichloromethane 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
GF021102T2	SVW9-VPA-27 SVW9-VPB-28 SVW9-VPC-29 SVW9-VPC-30DUP SVW9-VPD-31 SVW9-VPE-32 SVW10-VPB-33 SVW10-VPD-34 SVW32-VPH-35 SVW32-VPH-36DUP SVW11-VPA-37 SVW11-VPE-38 SVW14-VPA-39 SVW14-VPB-40 SVW15-VPB-83 SVW15-VPB-84DUP SVW15-VPC-85 SVW15-VPD-86 SVW15-VPE-87 SVW6-VPB-88 SVW6-VPD-89 SVW6-VPD-90DUP SVW6-VPE-91 SVW33-VPD-92 SVW33-VPE-93 SVW33-VPF-94	1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

NASA JPL
Volatile Halogenated/Aromatic Hydrocarbons- Laboratory Blank Data Qualification Summary - SDG GF021102T2

No Sample Data Qualified in this SDG

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	AMBIENT BLANK	SVW30-VPA-01	SVW30-VPB-02	SVW30-VPC-03	SVW30-VPD-04	SVW30-VPE-05	SVW30-VPE-06 DUP
DATE	02/11/02	02/11/02	02/11/02	02/11/02	02/11/02	02/11/02	02/11/02
ANALYSIS TIME	07:12	07:34	07:57	08:19	08:41	09:03	09:25
SAMPLING DEPTH (feet)	--	17	30	40	50	65	65
VOLUME WITHDRAWN (cc)	--	128	180	220	260	320	440
VOLUME INJECTED	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
SURROGATES							
1,4 DIFLUORO BENZENE	104%	105%	102%	105%	98%	105%	105%
4 BROMOFLUORO BENZENE	110%	112%	108%	112%	103%	112%	112%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	SVW31-VPA-07	SVW31-VPB-08	SVW31-VPD-09	SVW31-VPE-10	SVW12-VPC-11	SVW12-VPC-12 DUP	SVW12-VPD-13
DATE	02/11/02	02/11/02	02/11/02	02/11/02	02/11/02	02/11/02	02/11/02
ANALYSIS TIME	09:47	10:10	10:32	10:54	11:43	12:05	12:29
SAMPLING DEPTH (feet)	20	35	55	65	60	60	76
VOLUME WITHDRAWN (cc)	140	200	280	320	300	420	364
VOLUME INJECTED	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
SURROGATES							
1,4 DIFLUORO BENZENE	117%	97%	106%	103%	101%	98%	103%
4 BROMOFLUORO BENZENE	125%	103%	112%	109%	108%	105%	108%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	AMBIENT BLANK	SVW5-VPB-14	SVW7-VPA-15	SVW7-VPB-16	SVW1-VPB-17	SVW1-VPB-18 DUP	SVW1-VPC-19
DATE	02/12/02	02/12/02	02/12/02	02/12/02	02/12/02	02/12/02	02/12/02
ANALYSIS TIME	07:32	07:54	08:16	08:38	09:00	09:24	09:46
SAMPLING DEPTH (feet)	--	9	20	35	21	21	33
VOLUME WITHDRAWN (cc)	--	96	140	200	144	264	192
VOLUME INJECTED	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
SURROGATES							
1,4 DIFLUORO BENZENE	98%	99%	103%	99%	100%	103%	99%
4 BROMOFLUORO BENZENE	105%	105%	110%	106%	107%	108%	105%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	SVW2-VPA-20	SVW3-VPC-21	SVW3-VPD-22	SVW4-VPB-23	SVW4-VPB-24 DUP	SVW4-VPD-25	SVW17-VPC-26
DATE	02/12/02	02/12/02	02/12/02	02/12/02	02/12/02	02/12/02	02/12/02
ANALYSIS TIME	10:08	10:31	10:56	12:06	12:29	12:52	13:14
SAMPLING DEPTH (feet)	10	40	47	20	20	56	36
VOLUME WITHDRAWN (cc)	100	220	248	140	260	284	204
VOLUME INJECTED	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	1.0	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	2.0
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	1.6
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	8.9	6.9	1.2	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	51
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	2.3
m&p-XYLENES	nd	nd	nd	nd	nd	nd	2.5
o-XYLENE	nd	nd	nd	nd	nd	nd	1.2
SURROGATES							
1,4 DIFLUORO BENZENE	101%	103%	100%	100%	97%	100%	103%
4 BROMOFLUORO BENZENE	107%	110%	105%	109%	105%	109%	102%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT #04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	AMBIENT BLANK	SVW9-VPA-27	SVW9-VPB-28	SVW9-VPC-29	SVW9-VPC-30 DUP	SVW9-VPD-31	SVW9-VPE-32	SVW10-VPB-33
DATE	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02
ANALYSIS TIME	07:47	08:11	08:33	08:55	09:17	09:39	10:01	10:24
SAMPLING DEPTH (feet)	--	20	35	50	50	70	87	35
VOLUME WITHDRAWN (cc)	--	140	200	260	380	340	408	200
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	1.3	1.6	1.1	1.3	1.2	1.2	1.4
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	97%	101%	100%	100%	99%	99%	97%	101%
4 BROMOFLUORO BENZENE	105%	107%	108%	108%	107%	107%	106%	109%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT # 04-4304-480 JPL 1.
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	SVW10-VPD-34	SVW32-VPH-35	SVW32-VPH-36 DUP	SVW11-VPA-37	SVW11-VPE-38	SVW14-VPA-39	SVW14-VPB-40
DATE	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02
ANALYSIS TIME	10:47	11:13	11:35	12:47	13:10	13:32	13:55
SAMPLING DEPTH (feet)	69	155	155	20	96	5	10
VOLUME WITHDRAWN (cc)	336	680	800	140	444	80	100
VOLUME INJECTED	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	3.9	2.1	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	1.1	8.1	6.2	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
SURROGATES							
1,4 DIFLUORO BENZENE	101%	103%	99%	93%	101%	103%	98%
4 BROMOFLUORO BENZENE	110%	112%	107%	102%	111%	111%	107%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	AMBIENT BLANK	SVW27-VPA-41	SVW27-VPA-42 DUP	SVW27-VPB-43	SVW27-VPC-44	SVW27-VPD-45	SVW27-VPE-46	SVW27-VPF-47
DATE	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02
ANALYSIS TIME	07:17	07:39	08:01	08:23	08:47	09:09	09:31	09:52
SAMPLING DEPTH (feet)	--	20	20	35	60	85	100	120
VOLUME WITHDRAWN (cc)	--	140	260	200	300	400	460	540
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	96%	101%	97%	99%	99%	97%	100%	99%
4 BROMOFLUORO BENZENE	105%	110%	105%	107%	108%	106%	109%	107%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY #1667
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	SVW27-VPF-48 DUP	SVW27-VPG-49	SVW27-VPI-50	SVW27-VPJ-51	SVW26-VPF-52	SVW26-VPG-53	SVW26-VPG-54 DUP	SVW26-VPH-55
DATE	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02
ANALYSIS TIME	10:14	10:36	10:58	11:44	12:06	12:30	12:52	13:14
SAMPLING DEPTH (feet)	120	140	180	205	115	140	140	160
VOLUME WITHDRAWN (cc)	660	620	780	880	520	620	740	700
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	2.5	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	1.3	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	98%	98%	98%	95%	97%	98%	99%	98%
4 BROMOFLUORO BENZENE	107%	107%	107%	105%	106%	107%	109%	107%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY #1667
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	AMBIENT BLANK	SVW37-VPA-56	SVW37-VPD-57	SVW37-VPE-58	SVW37-VPH-59	SVW37-VPH-60 DUP	SVW37-VPI-61	SVW37-VPJ-62
DATE	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
ANALYSIS TIME	06:45	07:15	07:39	08:01	08:23	08:45	09:08	09:32
SAMPLING DEPTH (feet)	--	25	80	100	155	155	170	185
VOLUME WITHDRAWN (cc)	–	160	380	460	680	800	740	800
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	2.0
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	96%	97%	99%	97%	98%	97%	96%	97%
4 BROMOFLUORO BENZENE	105%	106%	107%	106%	107%	106%	106%	106%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	SVW36-VPB-63	SVW36-VPC-64	SVW36-VPE-65	SVW36-VPE-66 DUP	SVW8-VPC-67	SVW8-VPD-68	SVW8-VPE-69
DATE	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
ANALYSIS TIME	10:08	10:30	11:19	11:42	12:04	12:26	12:48
SAMPLING DEPTH (feet)	35	55	92	92	50	70	90
VOLUME WITHDRAWN (cc)	200	280	428	548	260	340	420
VOLUME INJECTED	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	1.4	7.3	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	1.4	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	4.3	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	2.5	7.6	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
SURROGATES							
1,4 DIFLUORO BENZENE	101%	96%	96%	103%	100%	99%	101%
4 BROMOFLUORO BENZENE	111%	106%	105%	112%	109%	107%	111%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	AMBIENT BLANK	SVW39-VPA-70	SVW39-VPC-71	SVW39-VPC-72 DUP	SVW39-VPD-73	SVW39-VPE-74	SVW39-VPF-75
DATE	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02
ANALYSIS TIME	06:49	07:10	07:32	07:54	08:15	08:37	09:08
SAMPLING DEPTH (feet)	--	20	50	50	70	85	100
VOLUME WITHDRAWN (cc)	--	140	260	380	340	400	460
VOLUME INJECTED	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	1.3
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	8.1	9.5
BENZENE	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
SURROGATES							
1,4 DIFLUORO BENZENE	98%	92%	97%	97%	97%	95%	93%
4 BROMOFLUORO BENZENE	108%	103%	107%	107%	109%	104%	102%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	SVW39-VPI-76	SVW38-VPE-77	SVW38-VPE-78 DUP	SVW38-VPF-79	SVW38-VPJ-80	SVW35-VPE-81	SVW35-VPI-82
DATE	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02
ANALYSIS TIME	09:35	09:57	10:19	10:42	11:26	11:51	12:13
SAMPLING DEPTH (feet)	130	95	95	100	170	80	140
VOLUME WITHDRAWN (cc)	580	440	560	460	740	380	620
VOLUME INJECTED	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	5.1	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	1.7
BENZENE	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
SURROGATES							
1,4 DIFLUORO BENZENE	97%	97%	98%	96%	95%	96%	97%
4 BROMOFLUORO BENZENE	107%	106%	108%	108%	106%	107%	107%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/01/02

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	AMBIENT BLANK	SVW15-VPB-83	SVW15-VPB-84 DUP	SVW15-VPC-85	SVW15-VPD-86	SVW15-VPE-87	SVW6-VPB-88
DATE	02/20/02	02/20/02	02/20/02	02/20/02	02/20/02	02/20/02	02/20/02
ANALYSIS TIME	06:36	06:58	07:20	07:41	08:03	08:25	08:46
SAMPLING DEPTH (feet)	--	40	40	60	75	90	40
VOLUME WITHDRAWN (cc)	--	220	340	300	360	420	220
VOLUME INJECTED	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
SURROGATES							
1,4 DIFLUORO BENZENE	91%	91%	93%	95%	93%	92%	94%
4 BROMOFLUORO BENZENE	103%	102%	105%	105%	104%	102%	104%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	SVW6-VPD-89	SVW6-VPD-90 DUP	SVW6-VPE-91	SVW33-VPD-92	SVW33-VPE-93	SVW33-VPF-94
DATE	02/20/02	02/20/02	02/20/02	02/20/02	02/20/02	02/20/02
ANALYSIS TIME	09:08	09:30	10:15	11:22	11:45	12:08
SAMPLING DEPTH (feet)	77	77	96	83	105	120
VOLUME WITHDRAWN (cc)	368	488	444	400	480	540
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	4.2	7.0	3.1
CHLOROETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	1.8	2.0	1.4
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	1.7	nd
BENZENE	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	93%	94%	95%	87%	95%	99%
4 BROMOFLUORO BENZENE	105%	105%	106%	96%	106%	111%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02

LDC #: 8108A23 **VALIDATION COMPLETENESS WORKSHEET** Date: 3-18-02

SDG #: GF021102T2 X EPA Level III NFESC Level III Page: 1 of 3

Laboratory: HP Labs Reviewer: Z. Pan

2nd Reviewer: [illegible]

METHOD: GC Volatile Halogenated/Aromatic Hydrocarbons (Modified) (EPA SW 846 Method 8010/8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-02 To 2-20-02
IIa.	Initial calibration	SW ~~A~~	%RSD ≤ 20%
IIb.	Calibration verification	SW	%D ≤ 15%
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N	Not required
IVc.	Laboratory control samples	A ~~S~~	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	D_4 = 23, 24 ; D_5 = 29, 30 ; D_6 = 35, 36
X.	Field blanks	N	(see page 2)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: All Air

1	SVW30-VPA-01	11 D_2	SVW12-VPC-11	21	SVW3-VPC-21	31	SVW9-VPD-31
2	SVW30-VP~~C~~B-02	12 D_2	SVW12-VPC-12 (dup)	22	SVW3-VPD-22	32	SVW9-VPE-32
3	SVW-30-VPC-03	13	SVW12-VPD-13	23 D_4	SVW4-VPB-23	33	SVW10-VPB-33
4	SVW30-VPD-04	14	SVW5-VPB-14	24 D_4	SVW4-VP~~D~~B-24 (dup)	34	SVW10-VPD-34
5 D_1	SVW30-VPE-05	15	SVW7-VPA-15	25	SVW4-VPD-25	35 D_6	SVW32-VPH-35
6 D_1	SVW30-VPE-06 (dup)	16	SVW7-VPB-16	26	SVW17-VPC-26	36 D_6	SVW32-VPH-36 (dup)
7	SVW31-VPA-07	17 D_3	SVW1-VPB-17	27	SVW9-VPA-27	37	SVW11-VPA-37
8	SVW31-VPB-08	18 D_3	SVW1-VPB-18 (dup)	28	SVW9-VPB-28	38	SVW11-VPE-38
9	SVW31-VPD-09	19	SVW1-VP~~B~~C-19 ~~dup~~	29 D_5	SVW9-VPC-29	39	SVW14-VPA-39
10	SVW31-VPE-10	20	SVW2-VPA-20	30 D_5	SVW9-VPC-30 (dup)	40	SVW14-VPB-40

Notes: #19 is SVW1-VPC-19

Except the following compounds within %RSD ≤ 30% and %D ≤ 25%

① Trichlorofluoromethane (Freon 11) ④ Chloroethane

② Dichlorodifluoromethane (Freon 12) ⑤ Vinyl chloride

③ Trichlorotrifluoromethane (Freon 113)

LDC #: 8108A23

SDG #: GF021102T2

Laboratory: HP Labs

VALIDATION COMPLETENESS WORKSHEET

X EPA Level III ___NFESC Level III

Date: 3-18-02

Page: 2 of 3

Reviewer: Z. Pan

2nd Reviewer: [illegible]

METHOD: GC Volatile Halogenated/Aromatic Hydrocarbons (EPA SW 846 Method 8010/8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times		Sampling dates:
IIa.	Initial calibration		
IIb.	Calibration verification		
III.	Blanks		
IVa.	Surrogate recovery		
IVb.	Matrix spike/Matrix spike duplicates		
IVc.	Laboratory control samples		
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	$D_1 = 5, 6$; $D_2 = 11, 12$; $D_3 = 17, 18$
VIII.	Overall assessment of data		$D_7 = 41, 42$; $D_8 = 47, 48$; $D_9 = 53, 54$
IX.	Field duplicates	ND	$D_{10} = 59, 60$; $D_{11} = 65, 66$; $D_{12} = 71, 72$
X.	Field blanks		$D_{13} = 77, 78$; $D_{14} = 83, 84$; $D_{15} = 89, 90$

See page 1.

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

41 D_7	SVW27-VPA-41	51	SVW27-VPJ-51	61	SVW37-VPI-61	71 D_{12}	SVW39-VPC-71
42 D_7	SVW27-VPA-42 (dup)	52	SVW26-VPF-52	62	SVW37-VPJ-62	72 D_{12}	SVW39-VPC-72 (dup)
43	SVW27-VPB-43	53 D_9	SVW26-VPG-53	63	SVW36-VPB-63	73	SVW39-VPD-73
44	SVW27-VPC-44	54 D_9	SVW26-VPG-54 (dup)	64	SVW36-VPC-64	74	SVW39-VPE-74
45	SVW27-VPD-45	55	SVW26-VPH-55	65 D_{11}	SVW36-VPE-65	75	SVW39-VPF-75
46	SVW27-VPE-46	56	SVW37-VPA-56	66 D_{11}	SVW36-VPE-66 (dup)	76	SVW39-VPI-76
47 D_8	SVW27-VPF-47	57	SVW37-VPD-57	67	SVW8-VPC-67	77 D_{13}	SVW38-VPE-77
48 D_8	SVW27-VPF-48 (dup)	58	SVW37-VPE-58	68	SVW8-VPD-68	78 D_{13}	SVW38-VPE-78 (dup)
49	SVW27-VPG-49	59 D_{10}	SVW37-VPH-59	69	SVW8-VPE-69	79	SVW38-VPF-79
50	SVW27-VPI-50	60 D_{10}	SVW37-VPH-60 (dup)	70	SVW39-VPA-70	80	SVW38-VPJ-80

Notes:

LDC #: 8108A23

SDG #: GF021102T2

Laboratory: HP Labs

VALIDATION COMPLETENESS WORKSHEET

X EPA Level III ___NFESC Level III

Date: 3-18-02

Page: 3 of 3

Reviewer: Z. Pan

2nd Reviewer: [illegible]

METHOD: GC Volatile Halogenated/Aromatic Hydrocarbons (EPA SW 846 Method 8010/8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times		Sampling dates:
IIa.	Initial calibration		
IIb.	Calibration verification		
III.	Blanks		
IVa.	Surrogate recovery		
IVb.	Matrix spike/Matrix spike duplicates		
IVc.	Laboratory control samples		
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data		
IX.	Field duplicates		
X.	Field blanks		

See page 1.

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

81	SVW35-VPE-81	91	SVW6-VPE-91		MB (2/20)		
82	SVW35-VPI-82	92	SVW33-VPD-92				
83 D_{14}	SVW15-VPB-83	93	SVW33-VPE-93				
84 D_{14}	SVW15-VPB-84(dup)	94	SVW33-VPF-94				
85	SVW15-VPC-85		MB (2/11)				
86	SVW15-VPD-86		MB (2/12)				
87	SVW15-VPE-87		MB (2/13)				
88	SVW6-VPB-88		MB (2/14)				
89 D_{15}	SVW6-VPD-89		MB (2/15)				
90 D_{15}	SVW6-VPD-90(dup)		MB (2/19)				

Notes:

TARGET COMPOUND WORKSHEET

Page:____of___
Reviewer:_____
2nd Reviewer:_____

METHOD: VOA (EPA SW 846 Method 8240/8260/8021))

A. Chloromethane*	P. Bromodichloromethane	EE. Ethylbenzene**	TT. 1,2-Dibromoethane	III. n-Butylbenzene
B. Bromomethane	Q. 1,2-Dichloropropane**	FF. Styrene	UU. 1,1,1,2-Tetrachloroethane	JJJ. 1,2-Dichlorobenzene
C. Vinyl choride**	R. cis-1,3-Dichloropropene	GG. Xylene, total	VV. Isopropylbenzene	KKK. 1,2,4-Trichlorobenzene
D. Chloroethane	S. Trichloroethene	HH. Vinyl acetate	WW. Bromobenzene	LLL. Hexachlorobutadiene
E. Methylene chloride	T. Dibromochloromethane	II. 2-Chloroethylvinyl ether	XX. 1,2,3-Trichloropropane	MMM. Naphthalene
F. Acetone	U. 1,1,2-Trichloroethane	JJ. Dichlorodifluoromethane	YY. n-Propylbenzene	NNN. 1,2,3-Trichlorobenzene
G. Carbon disulfide	V. Benzene	KK. Trichlorofluoromethane	ZZ. 2-Chlorotoluene	OOO. 1,3,5-Trichlorobenzene
H. 1,1-Dichloroethene**	W. trans-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	AAA. 1,3,5-Trimethylbenzene	PPP. trans-1,2-Dichloroethene
I. 1,1-Dichloroethane*	X. Bromoform*	MM. 1,2-Dibromo-3-chloropropane	BBB. 4-Chlorotoluene	QQQ. cis-1,2-Dichloroethene
J. 1,2-Dichloroethene	Y. 4-Methyl-2-pentanone	NN. Diethyl ether	CCC. tert-Butylbenzene	RRR. 1,1,2-Trichlorotrifluoroethane
K. Chloroform**	Z. 2-Hexanone	OO. 2,2-Dichloropropane	DDD. 1,2,4-Trimethylbenzene	SSS. Dichloromethane
L. 1,2-Dichloroethane	AA. Tetrachloroethene	PP. Bromochloromethane	EEE. sec-Butylbenzene	TTT.
M. 2-Butanone	BB. 1,1,2,2-Tetrachloroethane*	QQ. 1,1-Dichloropropene	FFF. 1,3-Dichlorobenzene	UUU.
N. 1,1,1-Trichloroethane	CC. Toluene**	RR. Dibromomethane	GGG. p-Isopropyltoluene	VVV.
O. Carbon tetrachloride	DD. Chlorobenzene*	SS. 1,3-Dichloropropane	HHH. 1,4-Dichlorobenzene	WWW.

* = System performance check compounds (SPCC) for RF ; ** = Calibration check compounds (CCC) for %RSD.

Notes:_____

COMPNDL.1SS

Reviewer: Z. Pan
2nd Reviewer: ______

LDC #: 8108A23
SDG #: GF021102T2

VALIDATION FINDINGS WORKSHEET
Initial Calibration

METHOD: GC Volatiles (EPA SW 846 Method 8010/8020)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y (N) N/A — Was a 5 point calibration curve performed?
- (Y) N N/A — Was a linear fit used for evaluation? If yes, the acceptance criteria used for each compound in %RSD less than or equal to 20.0%
- Y N (N/A) — Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation? ______
- Y (N) N/A — Did the initial calibration meet the acceptance criteria?

Level IV/D Only

- Y N (N/A) — Were the retention time window sizes properly established for all compounds?
- Y N (N/A) — Were compounds run at the required concentrations in the initial calibration?
- Y N (N/A) — Were the linearity or curve results recalculated? (Please see Initial Calibration calculation verification worksheet.)
- Y N (N/A) — Were the linearity or curve reported results within 10.0% of the recalculated results?

#	Date	Standard ID	Column	Compound	%RSD (Limit ≤ 20.0%)	Associated Samples	Qualifications
1		All ICals	Not Specific (GC14A)	All	3 points ICal performed (5 points required)	All Samples + BLKs	None/P

LDC #: 8108A23
SDG #: GF02110 2 T2

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: Z. Pan
2nd Reviewer: A

METHOD: GC Volatiles (EPA SW 846 Method 8010/8020)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
What type of continuing calibration calculation was performed? ✓ %D or ___ RPD

Y N N/A Was at least one continuing standard run daily to verify the working curve?
Y N N/A Were continuing standards analyzed at a frequency of every 10 samples to verify the working curve?
Y N N/A Did the continuing calibration standards meet the percent difference (%D) and relative percent differences (RPD) criteria of ≤15.0%?

Level IV/D Only

Y N N/A Were the percent difference (%D) results recalculated? (Please see Calibration Verification results verification worksheet.)
Y N N/A Were the (%D) reported results within 10.0% of the recalculated results?

#	Date	Standard ID	Column	Compound	%D / RPD (Limit ≤ 15.0)	Associated Samples	Qualifications
1	2-11-02	B1070297	Not specific (GC 14A)	K	18.3	#1-13 and MB(2/11)	J/UJ/A
2	2-12-02			SSS	17.8	#14-26 and MB (2/12)	
				BB	15.5		
3	2-13-02			BB	15.4	#27-40 and MB(2/13)	
4	2-20-02			BB	15.1	#83-94 and MB(2/20)	
5				D	No CCAL performed		Text
				C			
				KK	∵ These four compounds were		
				JJ			
					Not detected in All Samples.		

CONCAL 23

LDC #: 8108A23
SDG #: GF021102T2

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: Z. Pan
2nd reviewer: [illegible]

METHOD: GC Volatiles (EPA SW 846 Method 8010/8020)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD
	# 23	24	
S	8.9	6.9	25

Compound	Concentration (ug/L)		RPD
	# 29	30	
RRR	1.1	1.3	17

Compound	Concentration (ug/L)		RPD
	# 35	36	
O	3.9	2.1	60
RRR	8.1	6.2	27

Compound	Concentration ( )		RPD