APPENDIX A

SOIL VAPOR DATA VALIDATION REPORT
THIRTEENTH PERIODIC 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. Leo Williamson

April 2, 2003

SUBJECT: NASA JPL, DO #01, Data Validation

Dear Mr. Williamson,

Enclosed is the final validation report for the fraction listed below. This SDG was received on March 24, 2003. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 10020:

SDG #	Fraction
GF022403L6	Volatiles

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,

ETRauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment 1

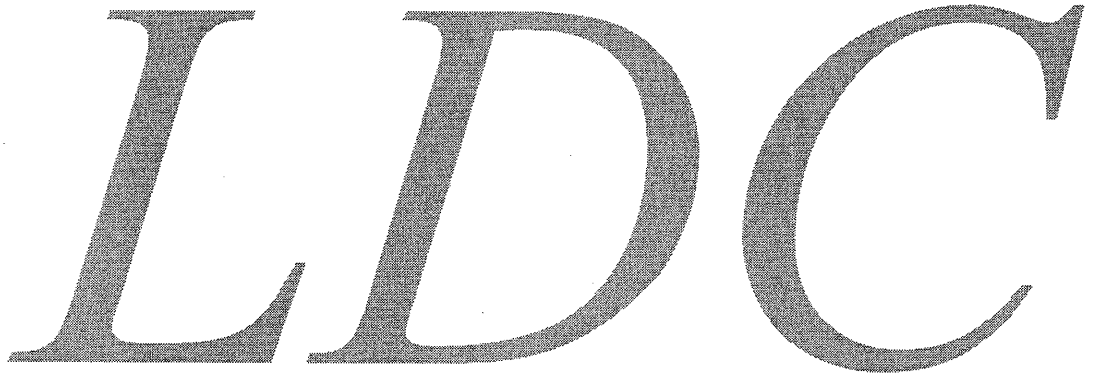
LDC #10020 (Geofon, Inc.-Diamond Bar / NASA Jet Propulsion Laboratory, DO#001)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)																															
Matrix: Air/Water/Soil				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	GF022403L6	3/24/03	4/14/03	37	0																														
Total	B			37	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).

NASA JPL
Data Validation Reports
LDC# 10020

Volatiles



Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: February 24 through February 27, 2003

LDC Report Date: March 31, 2003

Matrix: Air

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: HP Labs

Sample Delivery Group (SDG): GF022403L6

Sample Identification

SVW33-VPD-001	SVW38-VPJ-021
SVW33-VPE-002	SVW39-VPA-022
SVW33-VPF-003	SVW39-VPC-023
SVW4-VPB-004	SVW39-VPD-024
SVW4-VPD-005	SVW39-VPE-025
SVW17-VPC-006	SVW39-VPF-026
SVW32-VPH-007	SVW39-VPI-027
SVW32-VPH-008DUP	SVW39-VPI-028DUP
SVW37-VPJ-009	SVW35-VPI-029
SVW27-VPA-010	SVW35-VPI-030
SVW27-VPB-011	SVW36-VPB-031
SVW27-VPC-012	SVW36-VPC-032
SVW27-VPD-013	SVW26-VPF-033
SVW27-VPE-014	SVW26-VPG-034
SVW27-VPF-015	SVW26-VPH-035
SVW27-VPG-016	SVW26-VPH-036DUP
SVW27-VPI-017	SVW17-VPC-006DL
SVW27-VPI-018DUP	
SVW38-VPE-019	
SVW38-VPF-020	

Introduction

This data review covers 37 air samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

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 XVI.

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. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs) with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
2/25/03	Vinyl chloride	23.3	SVW37-VPJ-009 SVW27-VPA-010 SVW27-VPB-011 SVW27-VPC-012 SVW27-VPD-013 SVW27-VPE-014 SVW27-VPF-015 SVW27-VPG-016 SVW27-VPI-017 SVW27-VPI-018DUP 022503BLK	None	P

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
2/25/03	Chloroethane	29.6	SVW37-VPJ-009 SVW27-VPA-010 SVW27-VPB-011 SVW27-VPC-012 SVW27-VPD-013 SVW27-VPE-014 SVW27-VPF-015 SVW27-VPG-016 SVW27-VPI-017 SVW27-VPI-018DUP 022503BLK	J (all detects) UJ (all non-detects)	P
2/26/03	Vinyl chloride Chloroethane	26.4 28.6	SVW38-VPE-019 SVW38-VPF-020 SVW38-VPJ-021 SVW39-VPA-022 SVW39-VPC-023 SVW39-VPD-024 SVW39-VPE-025 SVW39-VPF-026 SVW39-VPI-027 SVW39-VPI-028DUP 022603BLK	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
2/27/03	Vinyl chloride Chloroethane	25.6 31.7	SVW35-VPI-029 SVW35-VPI-030 SVW36-VPB-031 SVW36-VPC-032 SVW26-VPF-033 SVW26-VPG-034 SVW26-VPH-035 SVW26-VPH-036DUP 022703BLK	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

All of the continuing calibration RRF values were within method and validation criteria.

V. Blanks

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

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

Internal standards data were not provided and therefore not reviewed.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples SVW32-VPH-007 and SVW32-VPH-008DUP, samples SVW27-VPI-017 and SVW27-VPI-018DUP, samples SVW39-VPI-027 and SVW39-VPI-028DUP and samples SVW26-VPH-035 and SVW26-VPH-036DUP were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L-vapor)		RPD
	SVW27-VPI-017	SVW27-VPI-018DUP	
Carbon tetrachloride	2.1	3.5	50
Chloroform	1.0	1.0U	200
Trichloroethene	1.8	1.3	32

Compound	Concentration (ug/L-vapor)		RPD
	SVW39-VPI-027	SVW39-VPI-028DUP	
Carbon tetrachloride	1.0	1.0	0
Trichloroethene	17	11	43
1,1,2-Trichlorotrifluoroethane	2.6	2.9	11

Compound	Concentration (ug/L-vapor)		RPD
	SVW26-VPH-035	SVW26-VPH-036DUP	
Carbon tetrachloride	1.0	1.0	0

XVII. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Volatiles - Data Qualification Summary - SDG GF022403L6

SDG	Sample	Compound	Flag	A or P	Reason
GF022403L6	SVW37-VPJ-009 SVW27-VPA-010 SVW27-VPB-011 SVW27-VPC-012 SVW27-VPD-013 SVW27-VPE-014 SVW27-VPF-015 SVW27-VPG-016 SVW27-VPI-017 SVW27-VPI-018DUP	Vinyl chloride	None	P	Continuing calibration (%D)
GF022403L6	SVW37-VPJ-009 SVW27-VPA-010 SVW27-VPB-011 SVW27-VPC-012 SVW27-VPD-013 SVW27-VPE-014 SVW27-VPF-015 SVW27-VPG-016 SVW27-VPI-017 SVW27-VPI-018DUP	Chloroethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
GF022403L6	SVW38-VPE-019 SVW38-VPF-020 SVW38-VPJ-021 SVW39-VPA-022 SVW39-VPC-023 SVW39-VPD-024 SVW39-VPE-025 SVW39-VPF-026 SVW39-VPI-027 SVW39-VPI-028DUP SVW35-VPI-029 SVW35-VPI-030 SVW36-VPB-031 SVW36-VPC-032 SVW26-VPF-033 SVW26-VPG-034 SVW26-VPH-035 SVW26-VPH-036DUP	Vinyl chloride Chloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG GF022403L6

No Sample Data Qualified in this SDG

GEOFON PROJECT # 04-4428.10
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF022403-L6
INSTRUMENT: AGILENT 6850 GC / 5973 MASS SPECTROMETER
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8260) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	AMBIENT BLANK	SVW33-VPD-001	SVW33-VPE-002	SVW33-VPF-003	SVW4-VPB-004	SVW4-VPD-005	SVW17-VPC-006	SVW17-VPC-006	SVW32-VPH-007	SVW32-VPH-008 DUP
DATE	02/24/03	02/24/03	02/24/03	02/24/03	02/24/03	02/24/03	02/24/03	02/24/03	02/24/03	02/24/03
ANALYSIS TIME	6:32	7:23	7:48	8:13	8:38	9:03	9:28	10:18	9:53	10:43
SAMPLING DEPTH (feet)	--	85	105	120	20	56	36	36	155	155
VOLUME WITHDRAWN (cc)	--	400	480	540	140	284	204	204	680	740
VOLUME INJECTED	20	20	20	20	20	20	20	5	20	20
DILUTION FACTOR	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.05
CARBON TETRACHLORIDE	nd	nd	17	19	nd	nd	nd	--	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	1.8	--	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	15	--	nd	nd
1,1-DICHLORO ETHENE	nd	nd	2.1	2.0	nd	nd	nd	--	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	4.5	--	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	4.5	nd	3.3	--	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	3.0	1.4	nd	nd	nd	--	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	XXXX	140	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	1.9	--	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	1.2	--	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	7.4	--	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	--	nd	nd
SURROGATES (75-125% RECOVERY)										
DIBROMODIFLUOROMETHANE	102%	103%	108%	110%	107%	108%	92%	101%	106%	106%
1,2-DICHLOROETHANE-d4	112%	109%	110%	118%	114%	113%	100%	109%	109%	115%
4 BROMOFLUORO BENZENE	99%	106%	101%	101%	100%	101%	92%	108%	105%	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 #1561)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

4/2/03

GEOFON PROJECT # 04-4428.10
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF022403-L6
INSTRUMENT: AGILENT 6850 GC / 5973 MASS SPECTROMETER
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	AMBIENT BLANK	SVW37-VPJ-009	SVW27-VPA-010	SVW27-VPB-011	SVW27-VPC-012	SVW27-VPD-013	SVW27-VPE-014	SVW27-VPF-015	SVW27-VPG-016	SVW27-VPI-017	SVW27-VPI-018 DUP
DATE	02/25/03	02/25/03	02/25/03	02/25/03	02/25/03	02/25/03	02/25/03	02/25/03	02/25/03	02/25/03	02/25/03
ANALYSIS TIME	7:55	8:27	8:53	9:18	9:43	10:07	10:32	11:48	11:23	12:14	12:39
SAMPLING DEPTH (feet)	--	185	20	35	60	85	100	120	140	180	180
VOLUME WITHDRAWN (cc)	--	800	140	200	300	400	460	540	620	780	840
VOLUME INJECTED	20	20	20	20	20	20	20	20	20	20	20
DILUTION FACTOR	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	18	2.1	3.5
CHLOROETHANE	nd	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	1.0	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	2.6	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	1.7	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	1.2	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	1.8	1.3
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd	3.1	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES (75-125% RECOVERY)											
DIBROMODIFLUOROMETHANE	110%	108%	105%	117%	98%	109%	112%	118%	119%	117%	117%
1,2-DICHLOROETHANE-d4	111%	112%	110%	119%	104%	116%	114%	123%	125%	118%	123%
4 BROMOFLUORO BENZENE	104%	105%	106%	105%	94%	106%	112%	108%	113%	111%	118%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
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	AMBIENT BLANK	SVW38-VPE-019	SVW38-VPF-020	SVW38-VPJ-021	SVW39-VPA-022	SVW39-VPC-023	SVW39-VPD-024	SVW39-VPE-025	SVW39-VPF-026	SVW39-VPI-027	SVW39-VPI-028 DUP
DATE	02/26/03	02/26/03	02/26/03	02/26/03	02/26/03	02/26/03	02/26/03	02/26/03	02/26/03	02/26/03	02/26/03
ANALYSIS TIME	6:45	7:25	7:51	8:16	8:42	9:08	9:35	10:01	10:27	10:53	11:20
SAMPLING DEPTH (feet)	--	95	110	170	20	50	70	85	100	130	130
VOLUME WITHDRAWN (cc)	--	440	500	740	140	260	340	400	460	580	640
VOLUME INJECTED	20	20	20	20	20	20	20	20	20	20	20
DILUTION FACTOR	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	1.3	2.2	1.0	1.0
CHLOROETHANE	nd	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	1.3	nd	nd	nd	1.4	4.9	17	11
TRICHLOROFLUOROMETHANE (FR11)	nd	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	1.1	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	1.1	1.2	nd	nd	nd	11	13	2.6	2.9
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES (75-125% RECOVERY)											
DIBROMODIFLUOROMETHANE	112%	89%	90%	93%	88%	96%	97%	95%	91%	96%	92%
1,2-DICHLOROETHANE-d4	120%	97%	98%	101%	96%	101%	102%	103%	96%	102%	98%
4 BROMOFLUORO BENZENE	106%	92%	89%	94%	85%	93%	97%	91%	88%	95%	93%

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 #1561)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

4/8/03

GEOFON PROJECT # 04-4428.10
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF022403-L6
INSTRUMENT: AGILENT 6850 GC / 5973 MASS SPECTROMETER
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8260) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	AMBIENT BLANK	SVW35-VPE-029	SVW35-VPI-030	SVW36-VPB-031	SVW36-VPC-032	SVW26-VPF-033	SVW26-VPG-034	SVW26-VPH-035	SVW26-VPH-036 DUP
DATE	02/27/03	02/27/03	02/27/03	02/27/03	02/27/03	02/27/03	02/27/03	02/27/03	02/27/03
ANALYSIS TIME	7:44	8:15	8:41	9:07	9:33	9:58	10:24	10:49	11:14
SAMPLING DEPTH (feet)	--	80	140	35	55	115	140	160	160
VOLUME WITHDRAWN (cc)	--	380	620	200	280	520	620	700	760
VOLUME INJECTED	20	20	20	20	20	20	20	20	20
DILUTION FACTOR	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
CARBON TETRACHLORIDE	nd	nd	nd	2.7	2.4	1.3	1.7	1.0	1.0
CHLOROETHANE	nd	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
CHLOROFORM	nd	nd	nd	1.2	1.2	nd	1.2	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	2.7	2.5	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	12	11	nd	1.2	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ	nd UJ
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	3.9	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES (75-125% RECOVERY)									
DIBROMODIFLUOROMETHANE	88%	92%	89%	95%	99%	93%	94%	96%	101%
1,2-DICHLOROETHANE-d4	94%	90%	92%	104%	106%	99%	101%	105%	102%
4 BROMOFLUORO BENZENE	89%	95%	93%	103%	103%	95%	94%	98%	92%

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 #1561)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

4/2/03

LDC #: 10020A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 3-24-03
SDG #: GF022403L6 Level III Page: 1 of 1
Laboratory: HP Labs Reviewer: DM
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

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: 2-24-03 to 2-27-03
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	Not provided. Not reviewed.
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 7+8* D=17+18 D=27+28 D=35+36
XVII.	Field blanks	N	

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 airs

1 1	SVW33-VPD-001	11 2	SVW27-VPB-011	21 3	SVW38-VPJ-021	31 4	SVW36-VPI-031
2 1	SVW33-VPE-002	12 2	SVW27-VPC-012	22 3	SVW39-VPA-022	32 4	SVW36-VPC-032
3 1	SVW33-VPF-003	13 2	SVW27-VPD-013	23 3	SVW39-VPC-023	33 4	SVW26-VPF-033
4 1	SVW4-VPB-004	14 2	SVW27-VPE-014	24 3	SVW39-VPD-024	34 4	SVW26-VPG-034
5 1	SVW4-VPD-005	15 2	SVW27-VPF-015	25 3	SVW39-VPE-025	35 4	SVW26-VPH-035
6 1	SVW17-VPC-006	16 2	SVW27-VPG-016	26 3	SVW39-VPF-026	36 4	SVW26-VPH-036DUP
7 1	SVW32-VPH-007	17 2	SVW27-VPI-017	27 3	SVW39-VPI-027	37 1	022403 BLK
8 1	SVW32-VPH-008DUP	18 2	SVW27-VPI-018DUP	28 3	SVW39-VPI-028DUP	38 2	022503 BLK
9 2	SVW37-VPJ-009	19 3	SVW38-VPE-019	29 4	SVW35-VPI-029	39 3	022603 BLK
10 2	SVW27-VPA-010	20 3	SVW38-VPF-020	30 4	SVW35-VPI-030	40 4	022703 BLK
						41 1	SVW17-VPC-006 DL

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	S. Trichloroethene ✓	KK. Trichlorofluoromethane	CCC. tert-Butylbenzene	UUU. Benzyl chloride
B. Bromomethane	T. Dibromochloromethane	LL. Methyl-tert-butyl ether	DDD. 1,2,4-Trimethylbenzene	VVV. 4-Ethyltoluene
C. Vinyl choride** ✓	U. 1,1,2-Trichloroethane	MM. 1,2-Dibromo-3-chloropropane	EEE. sec-Butylbenzene	WWW. Ethanol
D. Chloroethane	V. Benzene	NN. Diethyl ether	FFF. 1,3-Dichlorobenzene	XXX. Ethyl ether
E. Methylene chloride	W. trans-1,3-Dichloropropene	OO. 2,2-Dichloropropane	GGG. p-Isopropyltoluene	YYY. tert-Butanol
F. Acetone	X. Bromoform*	PP. Bromochloromethane	HHH. 1,4-Dichlorobenzene	ZZZ. tert-Butyl alcohol
G. Carbon disulfide	Y. 4-Methyl-2-pentanone	QQ. 1,1-Dichloropropene	III. n-Butylbenzene	AAAA. Ethyl tert-butyl ether
H. 1,1-Dichloroethene**	Z. 2-Hexanone	RR. Dibromomethane	JJJ. 1,2-Dichlorobenzene	BBBB. tert-Amyl methyl ether
I. 1,1-Dichloroethane*	AA. Tetrachloroethene	SS. 1,3-Dichloropropane	KKK. 1,2,4-Trichlorobenzene	CCCC.1-Chlorohexane
J. 1,2-Dichloroethene, total	BB. 1,1,2,2-Tetrachloroethane*	TT. 1,2-Dibromoethane	LLL. Hexachlorobutadiene	DDDD. Isopropyl alcohol
K. Chloroform** ✓	CC. Toluene**	UU. 1,1,1,2-Tetrachloroethane	MMM. Naphthalene	EEEE. Acetonitrile
L. 1,2-Dichloroethane	DD. Chlorobenzene*	VV. Isopropylbenzene	NNN. 1,2,3-Trichlorobenzene	FFFF. Acrolein
M. 2-Butanone	EE. Ethylbenzene**	WW. Bromobenzene	OOO. 1,3,5-Trichlorobenzene	GGGG. Acrylonitrile
N. 1,1,1-Trichloroethane	FF. Styrene	XX. 1,2,3-Trichloropropane	PPP. trans-1,2-Dichloroethene	HHHH. 1,4-Dioxane
O. Carbon tetrachloride ✓	GG. Xylenes, total	YY. n-Propylbenzene	QQQ. cis-1,2-Dichloroethene	IIII. Isobutyl alcohol
P. Bromodichloromethane	HH. Vinyl acetate	ZZ. 2-Chlorotoluene	RRR. m,p-Xylenes	JJJJ. Methacrylonitrile
Q. 1,2-Dichloropropane**	II. 2-Chloroethylvinyl ether	AAA. 1,3,5-Trimethylbenzene	SSS. o-Xylene	KKKK. Propionitrile
R. cis-1,3-Dichloropropene	JJ. Dichlorodifluoromethane	BBB. 4-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	LLLL. 1,1,2-Trichlorotrifluoroethane (FR113)

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

LDC #: 1002 1
SDG #: EF022403C6

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

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

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?
Y N N/A Were all %D and RRFs within the validation criteria of ≤25 %D and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	2/25/03	CCV1	D	29.6		9-18, 022503BK	J / UJ / ~~P~~
			C **	23.3 (≤20)			None / P
	2/26/03	CCV2	C **	26.4		19-28 022603BK	J / UJ / P
			D	28.6			↓
	2/27/03	CCV3	C **	25.6		29-36, 022703BK	J / UJ / P
			D	31.7			↓
		** CCC	CPd				

CONCAL1SB

LDC #: 10020A1
SDG #: GFO22403L6

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: DM
2nd reviewer: A

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

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 vapor)		RPD
	17	18	
O	2.1	3.5	50
K	1.0	1.0U	~~200~~
S	1.8	1.3	32

Compound	Concentration (ug/L vapor)		RPD
	27	28	
O	1.0	1.0	0
S	17	11	43
LLLL	2.6	2.9	11

Compound	Concentration (ug/L vapor)		RPD
	35	36	
O	1.0	1.0	0

Compound	Concentration ( )		RPD