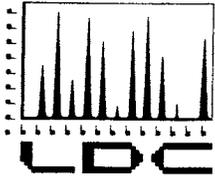


## **APPENDIX A**

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### **SOIL VAPOR DATA VALIDATION REPORT TWELFTH 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

December 30, 2002

SUBJECT: NASA JPL, DO #01, Data Validation

Dear Mr. Williamson,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on December 11, 2002. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 9520:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
GF112602-L6, 0211276	Volatiles (8260B), Volatiles (TO-14)

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
- USEPA Method TO-14A, January, 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,

Erlinda T. Rauto  
Operations Manager/Senior Chemist



**NASA JPL  
Data Validation Reports  
LDC# 9520**

**Volatiles**

*LDC*

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL  
**Collection Date:** November 26, 2002  
**LDC Report Date:** December 17, 2002  
**Matrix:** Air  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III  
**Laboratory:** HP Labs

**Sample Delivery Group (SDG):** GF112602-L6

### Sample Identification

SVW37-VPJ-01  
SVW33-VDP-02  
SVW33-VPE-03  
SVW33-VPF-04  
SVW36-VPB-05  
SVW36-VPC-06  
SVW4-VPB-07  
SVW4-VPD-08  
SVW32-VPH-09  
SVW32-VPH-10dup

## Introduction

This data review covers 10 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).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination ( $r^2$ ) were greater than or equal to 0.990 .

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).

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
11/26/02	Toluene	31.0	All samples in SDG GF112606-L6	J (all detects) UJ (all non-detects)	A

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-09 and SVW32-VPH-10dup were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L-vapor)		RPD
	SVW32-VPH-09	SVW32-VPH-10dup	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.1	1.0U	200

#### **XVII. Field Blanks**

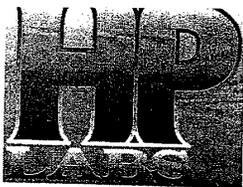
No field blanks were identified in this SDG.

**NASA JPL**  
**Volatiles - Data Qualification Summary - SDG GF112602-L6**

SDG	Sample	Compound	Flag	A or P	Reason
GF112602-L6	SVW37-VPJ-01 SVW33-VDP-02 SVW33-VPE-03 SVW33-VPF-04 SVW36-VPB-05 SVW36-VPC-06 SVW4-VPB-07 SVW4-VPD-08 SVW32-VPH-09 SVW32-VPH-10dup	Toluene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

**NASA JPL**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG GF112602-L6**

No Sample Data Qualified in this SDG



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

HP Labs Project #GF112602-L6

GC SHIMADZU 14A  
 VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8260) ANALYSES OF SOIL VAPOR  
 SOIL VAPOR DATA IN UG/L-VAPOR

9520

DATE	AMBIENT BLANK	SVW37-VPJ-01	SVW33-VPD-02	SVW33-VPE-03	SVW33-VPF-04	SVW36-VPB-05	SVW36-VPC-06	SVW4-VPB-07	SVW4-VPD-08	SVW32-VPH-09	SVW32-VPH-10 DUP
ANALYSIS TIME	11/26/02	11/26/02	11/26/02	11/26/02	11/26/02	11/26/02	11/26/02	11/26/02	11/26/02	11/26/02	11/26/02
SAMPLING DEPTH (feet)	6:37	7:53	8:18	8:43	9:08	9:34	9:59	10:25	10:49	11:14	11:39
VOLUME WITHDRAWN (cc)	--	185	85	105	120	35	55	20	56	155	155
VOLUME INJECTED	--	800	400	480	900	200	280	140	284	280	340
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	17	18	5.8	4.1	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	4.1	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	1.1	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	2.4	1.9	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	4.8	3.5	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	9.1	8.0	13	1.4	nd	nd
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	1.4	nd	3.5	2.2	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	1.1	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	1.1	1.2	1.1	1.4	1.3	1.0	nd	nd	1.1
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DIBROMODIFLUOROMETHANE	113%	114%	117%	116%	109%	106%	112%	107%	110%	116%	107%
1,2-DICHLOROETHANE-d4	101%	95%	106%	104%	100%	100%	104%	97%	102%	109%	98%
4-BROMOFLUORO BENZENE	88%	88%	95%	92%	88%	87%	88%	88%	90%	89%	83%

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

9.  
12/30/02

LDC #: 9520A1

## VALIDATION COMPLETENESS WORKSHEET

Date: 12-16-02

SDG #: GF112602-L6

Level III

Page: 1 of 1

Laboratory: HP Labs

Reviewer: SM

2nd Reviewer: SC

METHOD: GC/MS Volatiles <sup>ca</sup> Halogenated Hydrocarbons and Volatile Aromatic Hydrocarbons (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: 11-26-02
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	Client specified
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	Not provided by client - 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 = 9+10
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	SVW37-VPJ-01	11	Ambient Blank	21		31	
2	SVW33-VDP-02	12		22		32	
3	SVW33-VPE-03	13		23		33	
4	SVW33-VPF-04	14		24		34	
5	SVW36-VPB-05	15		25		35	
6	SVW36-VPC-06	16		26		36	
7	SVW4-VPB-07	17		27		37	
8	SVW4-VPD-08	18		28		38	
9	SVW32-VPH-09	19		29		39	
10	SVW32-VPH-10dup	20		30		40	

## 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 chloride**	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

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



LDC #: 9520A1  
 SDG #: GF112602-L6

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
 Reviewer: DM  
 2nd reviewer: R

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

N N/A  
 N N/A

Were field duplicate pairs identified in this SDG?  
 Were target compounds detected in the field duplicate pairs?

Compound	Concentration ( <u>ug/L-vapor</u> )		RPD
	9	10	
TTT	1.1	<del>1.04</del> 1.04	200

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD