

University of California
 Environmental Science and Waste Technology (E)
 Environmental Restoration, MS M992
 Los Alamos, New Mexico 87545
 505-667-0808/FAX 505-665-4747



U.S. Department of Energy
 Los Alamos Area Office, MS A316
 Environmental Restoration Program
 Los Alamos, New Mexico 87544
 505-667-7203/FAX 505-665-4504

Date: July 22, 1999
 Refer to: E/ER:99-191



Mr. John Kieling
 NMED-HRMB
 P.O. Box 26110
 Santa Fe, NM 87502

SUBJECT: ADDITIONAL DATA ASSOCIATED WITH PRSs 53-006(b-e)

Dear Mr. Kieling:

Per your request, enclosed are copies of recently located analytical data associated with radioactive waste water samples collected from underground decay tanks Technical Area (TA) -53-68, -69, -144, and 144 (Potential Release Sites [PRSs] 53-006[b,c,d, and e], respectively), which discharged to the south impoundment (PRS 53-002[b]) at TA-53 at Los Alamos National Laboratory. The data package consists of the results from samples collected by the Laboratory's Solid and Hazardous Waste Group (ESH-19) on April 8, 1997, and are described below:

- Attachment A includes the analytical results from samples collected from decay tanks TA-53-68 and -69 (located at Area A). Sample numbers 97DS136, 97DS137, and 97DS138 were analyzed for volatile organic compounds (VOCs), semivolatle organic compounds (SVOCs), and total metals, respectively.
- Attachment B includes the analytical results from samples collected from decay tanks TA-53-68 and -69 (located at the Weapons Neutron Research [WNR] facility). Sample numbers 97DS139, 97DS140, and 97DS141 were analyzed for VOCs, SVOCs, and total metals, respectively.
- Attachment C contains the Quality Assurance/Quality Control results package.
- Attachment D contains the data validation report associated with the VOC analysis.



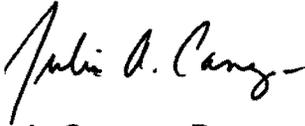
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HswA LANL 2/1100/53

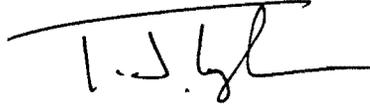
If you have any questions or concerns please feel free to call Dave McInroy at (505) 667-0819 or Joe Mose at (505) 667-5808.

Sincerely,



Julie A. Canepa, Program Manager
LANL/ER

Sincerely,



Theodore J. Taylor, Program Manager
DOE/LAAO

JC/TT/VR/ev

Attachments: Attachment A-D

Cy (w/att.):

M. Buksa, E/ET, MS M992
J. Mose, LAAO, MS A316
A. Puglisi, ESH-19, MS K490
T. Taylor, LAAO, MS A316
J. Bearzi, NMED-HRMB
S. Yanicak, NMED-AIP, MS J993
ER Catalog ER19990036
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Cy (w/o att.):

J. Canepa, E/ER, MS M992
J. Ellvinger, ESH-19, MS K490
M. Kirsch, E/ER, MS M992
D. McInroy, E/ER, MS M992
E/ER File, MS M992
Tracker RM 604, MS M992

ATTACHMENT A
RESULTS FROM AREA A TANKS

***** CST ANALYTICAL REPORT *****

EPA VOLATILES Prepared by: JA on 16-May-1997

REQUEST NUMBER: 24692 MATRIX: W ANALYST: LAURA ORTEGA PROGRAM CODE: X413 NOTEBOOK: F051320 PAGE:
 OWNER: Dustie L. Stephens GROUP: ESH-19 MAIL-STOP: K498 PHONE: 5-0792 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 97.03260 Date Collected: 4/08/97 Date Received: 4/10/97 Date Extracted: 5/12/97 Date Analyzed: 5/12/97

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS136	97.03260	67641	< 20.		UG/L	5/16/97		Acetone
97DS136	97.03260	71432	< 5.		UG/L	5/16/97		Benzene
97DS136	97.03260	108861	< 5.		UG/L	5/16/97		Bromobenzene
97DS136	97.03260	74975	< 5.		UG/L	5/16/97		Bromochloromethane
97DS136	97.03260	75274	< 5.		UG/L	5/16/97		Bromodichloromethane
97DS136	97.03260	75252	< 5.		UG/L	5/16/97		Bromoform
97DS136	97.03260	74839	< 10.		UG/L	5/16/97		Bromomethane
97DS136	97.03260	78933	< 20.		UG/L	5/16/97		2-Butanone
97DS136	97.03260	104518	< 5.		UG/L	5/16/97		n-Butylbenzene
97DS136	97.03260	135988	< 5.		UG/L	5/16/97		sec-Butylbenzene
97DS136	97.03260	98066	< 5.		UG/L	5/16/97		tert-Butylbenzene
97DS136	97.03260	75150	< 5.		UG/L	5/16/97		Carbon disulfide
97DS136	97.03260	56235	< 5.		UG/L	5/16/97		Carbon tetrachloride
97DS136	97.03260	108907	< 5.		UG/L	5/16/97		Chlorobenzene
97DS136	97.03260	124481	< 5.		UG/L	5/16/97		Chlorodibromomethane
97DS136	97.03260	75003	< 10.		UG/L	5/16/97		Chloroethane
97DS136	97.03260	67663	< 5.		UG/L	5/16/97		Chloroform
97DS136	97.03260	74873	< 10.		UG/L	5/16/97		Chloromethane
97DS136	97.03260	95498	< 5.		UG/L	5/16/97		o-Chlorotoluene
97DS136	97.03260	106434	< 5.		UG/L	5/16/97		p-Chlorotoluene
97DS136	97.03260	96128	< 10.		UG/L	5/16/97		1,2-Dibromo-3-chloropropane
97DS136	97.03260	74953	< 5.		UG/L	5/16/97		Dibromomethane
97DS136	97.03260	95501	< 5.		UG/L	5/16/97		o-Dichlorobenzene (1,2)
97DS136	97.03260	541731	< 5.		UG/L	5/16/97		m-Dichlorobenzene (1,3)
97DS136	97.03260	106467	< 5.		UG/L	5/16/97		p-Dichlorobenzene (1,4)
97DS136	97.03260	75718	< 10.		UG/L	5/16/97		Dichlorodifluoromethane

***** CST ANALYTICAL REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS136	97.03260	75343	< 5.		UG/L	5/16/97		1,1-Dichloroethane
97DS136	97.03260	107062	< 5.		UG/L	5/16/97		1,2-Dichloroethane
97DS136	97.03260	75354	< 5.		UG/L	5/16/97		1,1-Dichloroethene
97DS136	97.03260	156605	< 5.		UG/L	5/16/97		trans-1,2-Dichloroethene
97DS136	97.03260	156592	< 5.		UG/L	5/16/97		cis-1,2-Dichloroethylene
97DS136	97.03260	78875	< 5.		UG/L	5/16/97		1,2-Dichloropropane
97DS136	97.03260	142289	< 5.		UG/L	5/16/97		1,3-Dichloropropane
97DS136	97.03260	594207	< 5.		UG/L	5/16/97		2,2-Dichloropropane
97DS136	97.03260	563586	< 5.		UG/L	5/16/97		1,1-Dichloropropene
97DS136	97.03260	10061015	< 5.		UG/L	5/16/97		cis-1,3-Dichloropropene
97DS136	97.03260	10061026	< 5.		UG/L	5/16/97		trans-1,3-Dichloropropene
97DS136	97.03260	100414	< 5.		UG/L	5/16/97		Ethylbenzene
97DS136	97.03260	106934	< 5.		UG/L	5/16/97		Ethylene dibromide
97DS136	97.03260	591786	< 20.		UG/L	5/16/97		2-Hexanone
97DS136	97.03260	98828	< 5.		UG/L	5/16/97		Isopropylbenzene
97DS136	97.03260	99876	< 5.		UG/L	5/16/97		4-Isopropyltoluene
97DS136	97.03260	74884	< 5.		UG/L	5/16/97		Methyl iodide
97DS136	97.03260	108101	< 20.		UG/L	5/16/97		4-Methyl-2-pentanone
97DS136	97.03260	75092	340.	102.	UG/L	5/16/97		Methylene chloride
97DS136	97.03260	103651	< 5.		UG/L	5/16/97		Propylbenzene
97DS136	97.03260	100425	< 5.		UG/L	5/16/97		Styrene
97DS136	97.03260	630206	< 5.		UG/L	5/16/97		1,1,1,2-Tetrachloroethane
97DS136	97.03260	79345	< 5.		UG/L	5/16/97		1,1,2,2-Tetrachloroethane
97DS136	97.03260	127184	< 5.		UG/L	5/16/97		Tetrachloroethylene
97DS136	97.03260	108883	< 5.		UG/L	5/16/97		Toluene
97DS136	97.03260	76131	< 5.		UG/L	5/16/97		1,1,2-Trichloro-1,2,2-trifluoroethane
97DS136	97.03260	71556	< 5.		UG/L	5/16/97		1,1,1-Trichloroethane
97DS136	97.03260	79005	< 5.		UG/L	5/16/97		1,1,2-Trichloroethane
97DS136	97.03260	79016	< 5.		UG/L	5/16/97		Trichloroethene
97DS136	97.03260	75694	< 5.		UG/L	5/16/97		Trichlorofluoromethane
97DS136	97.03260	96184	< 5.		UG/L	5/16/97		1,2,3-Trichloropropane
97DS136	97.03260	95636	< 5.		UG/L	5/16/97		1,2,4-Trimethylbenzene
97DS136	97.03260	108678	< 5.		UG/L	5/16/97		1,3,5-Trimethylbenzene
97DS136	97.03260	75014	< 10.		UG/L	5/16/97		Vinyl chloride
97DS136	97.03260	1330207	< 5.		UG/L	5/16/97		Mixed-Xylenes (o ± m ± p)

Handwritten notes: "A" and "A" with a checkmark.

Tentatively Identified Compounds in Customer Sample # 97.03260

none

***** CST ANALYTICAL REPORT *****

EPA SEMIVOLATILES Prepared by: JA on 12-May-1997

REQUEST NUMBER: 24692 MATRIX: W ANALYST: ANTHONY LOMBARDO PROGRAM CODE: X413 NOTEBOOK: K052505 PAGE:
 OWNER: Dustie L. Stephens GROUP: ESH-19 MAIL-STOP: K498 PHONE: 5-0792 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 97.03261 Date Collected: 4/08/97 Date Received: 4/10/97 Date Extracted: 4/14/97 Date Analyzed: 5/02/97

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS137	97.03261	83329	< 40.		UG/L	5/12/97		Acenaphthene
97DS137	97.03261	208968	< 40.		UG/L	5/12/97		Acenaphthylene
97DS137	97.03261	62533	< 40.		UG/L	5/12/97		Aniline
97DS137	97.03261	120127	< 40.		UG/L	5/12/97		Anthracene
97DS137	97.03261	103333	< 40.		UG/L	5/12/97		Azobenzene
97DS137	97.03261	92875	< 200.		UG/L	5/12/97		m-Benzidine
97DS137	97.03261	56553	< 40.		UG/L	5/12/97		Benzo[a]anthracene
97DS137	97.03261	50328	< 40.		UG/L	5/12/97		Benzo[a]pyrene
97DS137	97.03261	205992	< 40.		UG/L	5/12/97		Benzo[b]fluoranthene
97DS137	97.03261	191242	< 40.		UG/L	5/12/97		Benzo[g,h,i]perylene
97DS137	97.03261	207089	< 40.		UG/L	5/12/97		Benzo[k]fluoranthene
97DS137	97.03261	65850	< 200.		UG/L	5/12/97		Benzoic acid
97DS137	97.03261	100516	< 40.		UG/L	5/12/97		Benzyl alcohol
97DS137	97.03261	111911	< 40.		UG/L	5/12/97		Bis(2-chloroethoxy)methane
97DS137	97.03261	111444	< 40.		UG/L	5/12/97		Bis(2-chloroethyl)ether
97DS137	97.03261	108601	< 40.		UG/L	5/12/97		Bis(2-chloroisopropyl)ether
97DS137	97.03261	117817	< 40.		UG/L	5/12/97		Bis(2-ethylhexyl)phthalate
97DS137	97.03261	101553	< 40.		UG/L	5/12/97		4-Bromophenylphenyl ether
97DS137	97.03261	85687	< 40.		UG/L	5/12/97		Butyl benzyl phthalate
97DS137	97.03261	59507	< 40.		UG/L	5/12/97		4-Chloro-3-methylphenol
97DS137	97.03261	106478	< 40.		UG/L	5/12/97		4-Chloroaniline
97DS137	97.03261	91587	< 40.		UG/L	5/12/97		2-Chloronaphthalene
97DS137	97.03261	95578	< 40.		UG/L	5/12/97		o-Chlorophenol
97DS137	97.03261	7005723	< 40.		UG/L	5/12/97		4-Chlorophenylphenyl ether
97DS137	97.03261	218019	< 40.		UG/L	5/12/97		Chrysene
97DS137	97.03261	84742	< 40.		UG/L	5/12/97		Di-n-butyl phthalate

***** CST ANALYTICAL REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97Ds137	97.03261	117840	< 40.		UG/L	5/12/97		Di-n-octyl phthalate
97Ds137	97.03261	53703	< 40.		UG/L	5/12/97		Dibenzo[a,h]anthracene
97Ds137	97.03261	132649	< 40.		UG/L	5/12/97		Dibenzofuran
97Ds137	97.03261	95501	< 40.		UG/L	5/12/97		o-Dichlorobenzene (1,2)
97Ds137	97.03261	541731	< 40.		UG/L	5/12/97		m-Dichlorobenzene (1,3)
97Ds137	97.03261	106467	< 40.		UG/L	5/12/97		p-Dichlorobenzene (1,4)
97Ds137	97.03261	91941	< 80.		UG/L	5/12/97		3,3'-Dichlorobenzidine
97Ds137	97.03261	120832	< 40.		UG/L	5/12/97		2,4-Dichlorophenol
97Ds137	97.03261	84662	< 40.		UG/L	5/12/97		Diethyl phthalate
97Ds137	97.03261	131113	< 40.		UG/L	5/12/97		Dimethyl phthalate
97Ds137	97.03261	105679	< 40.		UG/L	5/12/97		2,4-Dimethylphenol
97Ds137	97.03261	51285	< 200.		UG/L	5/12/97		2,4-Dinitrophenol
97Ds137	97.03261	121142	< 40.		UG/L	5/12/97		2,4-Dinitrotoluene
97Ds137	97.03261	606202	< 40.		UG/L	5/12/97		2,6-Dinitrotoluene
97Ds137	97.03261	206440	< 40.		UG/L	5/12/97		Fluoranthene
97Ds137	97.03261	86737	< 40.		UG/L	5/12/97		Fluorene
97Ds137	97.03261	118741	< 40.		UG/L	5/12/97		Hexachlorobenzene
97Ds137	97.03261	87683	< 200.		UG/L	5/12/97		Hexachlorobutadiene
97Ds137	97.03261	77474	< 40.		UG/L	5/12/97		Hexachlorocyclopentadiene
97Ds137	97.03261	67721	< 40.		UG/L	5/12/97		Hexachloroethane
97Ds137	97.03261	193395	< 40.		UG/L	5/12/97		Indeno[1,2,3-cd]pyrene
97Ds137	97.03261	78591	< 40.		UG/L	5/12/97		Isophorone
97Ds137	97.03261	534521	< 200.		UG/L	5/12/97		2-Methyl-4,6-dinitrophenol
97Ds137	97.03261	91576	< 40.		UG/L	5/12/97		2-Methylnaphthalene
97Ds137	97.03261	95487	< 40.		UG/L	5/12/97		2-Methylphenol
97Ds137	97.03261	106445	< 40.		UG/L	5/12/97		4-Methylphenol
97Ds137	97.03261	91203	< 40.		UG/L	5/12/97		Naphthalene
97Ds137	97.03261	88744	< 80.		UG/L	5/12/97		2-Nitroaniline
97Ds137	97.03261	99092	< 80.		UG/L	5/12/97		3-Nitroaniline
97Ds137	97.03261	100016	< 80.		UG/L	5/12/97		4-Nitroaniline
97Ds137	97.03261	98953	< 40.		UG/L	5/12/97		Nitrobenzene
97Ds137	97.03261	88755	< 40.		UG/L	5/12/97		2-Nitrophenol
97Ds137	97.03261	100027	< 200.		UG/L	5/12/97		4-Nitrophenol
97Ds137	97.03261	621647	< 40.		UG/L	5/12/97		N-Nitrosodi-n-propylamine
97Ds137	97.03261	62759	< 40.		UG/L	5/12/97		N-Nitrosodimethylamine
97Ds137	97.03261	86306	< 40.		UG/L	5/12/97		N-Nitrosodiphenylamine

***** CST ANALYTICAL REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS137	97.03261	87865	< 200.		UG/L	5/12/97		Pentachlorophenol
97DS137	97.03261	85018	< 40.		UG/L	5/12/97		Phenanthrene
97DS137	97.03261	108952	< 40.		UG/L	5/12/97		Phenol
97DS137	97.03261	109068	< 40.		UG/L	5/12/97		2-Picoline
97DS137	97.03261	129000	< 40.		UG/L	5/12/97		Pyrene
97DS137	97.03261	110861	< 40.		UG/L	5/12/97		Pyridine
97DS137	97.03261	120821	< 40.		UG/L	5/12/97		1,2,4-Trichlorobenzene
97DS137	97.03261	95954	< 40.		UG/L	5/12/97		2,4,5-Trichlorophenol
97DS137	97.03261	88062	< 40.		UG/L	5/12/97		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 97.03261

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS137	97.03261	105	TI 49.		UG/L	5/12/97		Unknown organic acid
97DS137	97.03261	100	TI 29.		UG/L	5/12/97		Unknown organic compound
97DS137	97.03261	100	TI 130.		UG/L	5/12/97		Unknown organic compound
97DS137	97.03261	100	TI 42.		UG/L	5/12/97		Unknown organic compound
97DS137	97.03261	100	TI 29.		UG/L	5/12/97		Unknown organic compound
97DS137	97.03261	100	TI 25.		UG/L	5/12/97		Unknown organic compound
97DS137	97.03261	100	TI 32.		UG/L	5/12/97		Unknown organic compound
97DS137	97.03261	100	TI 46.		UG/L	5/12/97		Unknown organic compound
97DS137	97.03261	100	TI 1300.		UG/L	5/12/97		Unknown organic compound
97DS137	97.03261	100	TI 25.		UG/L	5/12/97		Unknown organic compound

Analytical Chemistry Report

Sample ID: 200023856 Group: CST-13 QA: N Priority: 2
 Submission ID: 100018459 Acct: N Logged: 21-Apr-1997
 User sample ID: 97DS138
 Sample Type: AH CONTAMINATED SOLUTION
 Customer Cost Code: 8F40XF613C00
 Requester: D. STEPHENS MS: K498 Phone: 7-6904

Sample Description: TANK SOLN.
 Radioactive Elements: T3, ALPHA
 Radiation: Y
 Hazards: N
 Special Handling: N

WALK-IN CUSTOMER: N
 RECHARGE COST CODE: 8BAN00X41300000000

Methods Requested: PS-RCRA-L

Approved by: System Manager, SQL*LIMS 16-May-1997 21:10

Analytical Operation: PS-RCRA-L Task ID: 300083210
 Date Completed: 13-May-1997 00:00 Replicates: 1 Version: 1

WALK-IN QUOTED COST:
 WALK-IN CHARGE BALNC: 0
 DESCRIPTION: PS-RCRA METAL ANALYSIS IN LIQUIDS

Component	Result	Units
SILVER	<0.002	ug/ml
ARSENIC	<0.03	ug/ml
BARIUM	<0.008	ug/ml
BERYLLIUM	0.004	ug/ml
CADMIUM	0.014	ug/ml
CHROMIUM	0.021	ug/ml
MERCURY	<0.02	ug/ml
NICKEL	0.057	ug/ml
LEAD	0.14	ug/ml
ANTIMONY	<0.003	ug/ml
SELENIUM	<0.08	ug/ml
THALLIUM	<0.001	ug/ml

Notebook reference: STTP8 PG 43/PQSICPMS050997

Analyst: TMY/LAG

CST-9 Radiochemistry Screening Results
MRAL III TA-53 Dustie Stephens

Date : 04/09/1997

Analyst : B.L. 

Gross Gamma Screening Results, 5 minute count time

Sample #	Result	Uncertainty	MDA	Units
* { 97DS138	216.51	0.41	0.78	pCi/mL
97DS140	93540.96	7.50	0.78	pCi/mL

Gross Alpha, Beta Screening Results, 15 minute count time

Sample #	Alpha	Uncertainty	MDA	Beta	Uncertainty	MDA	Units
97DS138	234.71	4.32	2.02	28416.30	39.33	4.86	pCi/mL
97DS140	2.22	0.47	2.02	493.66	5.19	4.86	pCi/mL
97DS138	278.94	4.71	2.02	361.06	4.44	4.86	pCi/mL
97DS140	1.99	0.45	2.02	617.46	5.81	4.86	pCi/mL

Tritium Screening Results

Sample #	Tritium	Uncertainty	MDA	Units
97DS138	152398.97	79.25	1.52	pCi/mL
97DS140	615.71	5.08	1.52	pCi/mL

as per G-spec initial determination Gamma is attributed to the contribution of PB-210 & TH-235, other peaks have not yet been identified. This is the 2 major contributions

ATTACHMENT B

RESULTS FROM WNR FACILITY TANKS

***** CST ANALYTICAL REPORT *****

EPA VOLATILES Prepared by: JA on 16-May-1997

REQUEST NUMBER: 24692 MATRIX: W ANALYST: LAURA ORTEGA PROGRAM CODE: X413 NOTEBOOK: F051320 PAGE:
 OWNER: Dustie L. Stephens GROUP: ESH-19 MAIL-STOP: K498 PHONE: 5-0792 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 97.03263 Date Collected: 4/08/97 Date Received: 4/10/97 Date Extracted: 5/12/97 Date Analyzed: 5/12/97

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS139	97.03263	67641	< 100.		UG/L	5/16/97		Acetone
97DS139	97.03263	71432	< 25.		UG/L	5/16/97		Benzene
97DS139	97.03263	108861	< 25.		UG/L	5/16/97		Bromobenzene
97DS139	97.03263	74975	< 25.		UG/L	5/16/97		Bromochloromethane
97DS139	97.03263	75274	< 25.		UG/L	5/16/97		Bromodichloromethane
97DS139	97.03263	75252	< 25.		UG/L	5/16/97		Bromoform
97DS139	97.03263	74839	< 50.		UG/L	5/16/97		Bromomethane
97DS139	97.03263	78933	< 100.		UG/L	5/16/97		2-Butanone
97DS139	97.03263	104518	< 25.		UG/L	5/16/97		n-Butylbenzene
97DS139	97.03263	135988	< 25.		UG/L	5/16/97		sec-Butylbenzene
97DS139	97.03263	98066	< 25.		UG/L	5/16/97		tert-Butylbenzene
97DS139	97.03263	75150	< 25.		UG/L	5/16/97		Carbon disulfide
97DS139	97.03263	56235	< 25.		UG/L	5/16/97		Carbon tetrachloride
97DS139	97.03263	108907	< 25.		UG/L	5/16/97		Chlorobenzene
97DS139	97.03263	124481	< 25.		UG/L	5/16/97		Chlorodibromomethane
97DS139	97.03263	75003	< 50.		UG/L	5/16/97		Chloroethane
97DS139	97.03263	67663	< 25.		UG/L	5/16/97		Chloroform
97DS139	97.03263	74873	< 50.		UG/L	5/16/97		Chloromethane
97DS139	97.03263	95498	< 25.		UG/L	5/16/97		o-Chlorotoluene
97DS139	97.03263	106434	< 25.		UG/L	5/16/97		p-Chlorotoluene
97DS139	97.03263	96128	< 50.		UG/L	5/16/97		1,2-Dibromo-3-chloropropane
97DS139	97.03263	74953	< 25.		UG/L	5/16/97		Dibromomethane
97DS139	97.03263	95501	< 25.		UG/L	5/16/97		o-Dichlorobenzene (1,2)
97DS139	97.03263	541731	< 25.		UG/L	5/16/97		m-Dichlorobenzene (1,3)
97DS139	97.03263	106467	< 25.		UG/L	5/16/97		p-Dichlorobenzene (1,4)
97DS139	97.03263	75718	< 50.		UG/L	5/16/97		Dichlorodifluoromethane

***** CST ANALYTICAL REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS139	97.03263	75343	< 25.		UG/L	5/16/97		1,1-Dichloroethane
97DS139	97.03263	107062	< 25.		UG/L	5/16/97		1,2-Dichloroethane
97DS139	97.03263	75354	< 25.		UG/L	5/16/97		1,1-Dichloroethene
97DS139	97.03263	156605	< 25.		UG/L	5/16/97		trans-1,2-Dichloroethene
97DS139	97.03263	156592	< 25.		UG/L	5/16/97		cis-1,2-Dichloroethylene
97DS139	97.03263	78875	< 25.		UG/L	5/16/97		1,2-Dichloropropane
97DS139	97.03263	142289	< 25.		UG/L	5/16/97		1,3-Dichloropropane
97DS139	97.03263	594207	< 25.		UG/L	5/16/97		2,2-Dichloropropane
97DS139	97.03263	563586	< 25.		UG/L	5/16/97		1,1-Dichloropropene
97DS139	97.03263	10061015	< 25.		UG/L	5/16/97		cis-1,3-Dichloropropene
97DS139	97.03263	10061026	< 25.		UG/L	5/16/97		trans-1,3-Dichloropropene
97DS139	97.03263	100414	< 25.		UG/L	5/16/97		Ethylbenzene
97DS139	97.03263	106934	< 25.		UG/L	5/16/97		Ethylene dibromide
97DS139	97.03263	591786	< 100.		UG/L	5/16/97		2-Hexanone
97DS139	97.03263	98828	< 25.		UG/L	5/16/97		Isopropylbenzene
97DS139	97.03263	99876	< 25.		UG/L	5/16/97		4-Isopropyltoluene
97DS139	97.03263	74884	< 25.		UG/L	5/16/97		Methyl iodide
97DS139	97.03263	108101	< 100.		UG/L	5/16/97		4-Methyl-2-pentanone
97DS139	97.03263	75092	11000.	3300.	UG/L	5/16/97		Methylene chloride
97DS139	97.03263	103651	< 25.		UG/L	5/16/97		Propylbenzene
97DS139	97.03263	100425	< 25.		UG/L	5/16/97		Styrene
97DS139	97.03263	630206	< 25.		UG/L	5/16/97		1,1,1,2-Tetrachloroethane
97DS139	97.03263	79345	< 25.		UG/L	5/16/97		1,1,2,2-Tetrachloroethane
97DS139	97.03263	127184	< 25.		UG/L	5/16/97		Tetrachloroethylene
97DS139	97.03263	108883	< 25.		UG/L	5/16/97		Toluene
97DS139	97.03263	76131	< 25.		UG/L	5/16/97		1,1,2-Trichloro-1,2,2-trifluoroethane
97DS139	97.03263	71556	< 25.		UG/L	5/16/97		1,1,1-Trichloroethane
97DS139	97.03263	79005	< 25.		UG/L	5/16/97		1,1,2-Trichloroethane
97DS139	97.03263	79016	< 25.		UG/L	5/16/97		Trichloroethene
97DS139	97.03263	75694	< 25.		UG/L	5/16/97		Trichlorofluoromethane
97DS139	97.03263	96184	< 25.		UG/L	5/16/97		1,2,3-Trichloropropane
97DS139	97.03263	95636	< 25.		UG/L	5/16/97		1,2,4-Trimethylbenzene
97DS139	97.03263	108678	< 25.		UG/L	5/16/97		1,3,5-Trimethylbenzene
97DS139	97.03263	75014	< 50.		UG/L	5/16/97		Vinyl chloride
97DS139	97.03263	1330207	< 25.		UG/L	5/16/97		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 97.03263

none

***** CST ANALYTICAL REPORT *****

EPA SEMIVOLATILES Prepared by: JA on 12-May-1997

REQUEST NUMBER: 24692 MATRIX: W ANALYST: ANTHONY LOMBARDO PROGRAM CODE: X413 NOTEBOOK: K052505 PAGE:
 OWNER: Dustie L. Stephens GROUP: ESH-19 MAIL-STOP: K498 PHONE: 5-0792 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 97.03264 Date Collected: 4/08/97 Date Received: 4/10/97 Date Extracted: 4/14/97 Date Analyzed: 4/25/97

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS140	97.03264	83329	< 40.		UG/L	5/12/97		Acenaphthene
97DS140	97.03264	208968	< 40.		UG/L	5/12/97		Acenaphthylene
97DS140	97.03264	62533	< 40.		UG/L	5/12/97		Aniline
97DS140	97.03264	120127	< 40.		UG/L	5/12/97		Anthracene
97DS140	97.03264	103333	< 40.		UG/L	5/12/97		Azobenzene
97DS140	97.03264	92875	< 200.		UG/L	5/12/97		m-Benzidine
97DS140	97.03264	56553	< 40.		UG/L	5/12/97		Benzo[a]anthracene
97DS140	97.03264	50328	< 40.		UG/L	5/12/97		Benzo[a]pyrene
97DS140	97.03264	205992	< 40.		UG/L	5/12/97		Benzo[b]fluoranthene
97DS140	97.03264	191242	< 40.		UG/L	5/12/97		Benzo[g,h,i]perylene
97DS140	97.03264	207089	< 40.		UG/L	5/12/97		Benzo[k]fluoranthene
97DS140	97.03264	65850	< 200.		UG/L	5/12/97		Benzoic acid
97DS140	97.03264	100516	< 40.		UG/L	5/12/97		Benzyl alcohol
97DS140	97.03264	111911	< 40.		UG/L	5/12/97		Bis(2-chloroethoxy)methane
97DS140	97.03264	111444	< 40.		UG/L	5/12/97		Bis(2-chloroethyl)ether
97DS140	97.03264	108601	< 40.		UG/L	5/12/97		Bis(2-chloroisopropyl)ether
97DS140	97.03264	117817	< 40.		UG/L	5/12/97		Bis(2-ethylhexyl)phthalate
97DS140	97.03264	101553	< 40.		UG/L	5/12/97		4-Bromophenylphenyl ether
97DS140	97.03264	85687	< 40.		UG/L	5/12/97		Butyl benzyl phthalate
97DS140	97.03264	59507	< 40.		UG/L	5/12/97		4-Chloro-3-methylphenol
97DS140	97.03264	106478	< 40.		UG/L	5/12/97		4-Chloroaniline
97DS140	97.03264	91587	< 40.		UG/L	5/12/97		2-Chloronaphthalene
97DS140	97.03264	95578	< 40.		UG/L	5/12/97		o-Chlorophenol
97DS140	97.03264	7005723	< 40.		UG/L	5/12/97		4-Chlorophenylphenyl ether
97DS140	97.03264	218019	< 40.		UG/L	5/12/97		Chrysene
97DS140	97.03264	84742	< 40.		UG/L	5/12/97		Di-n-butyl phthalate

***** CST ANALYTICAL REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS140	97.03264	117840	< 40.		UG/L	5/12/97		Di-n-octyl phthalate
97DS140	97.03264	53703	< 40.		UG/L	5/12/97		Dibenzo[a,h]anthracene
97DS140	97.03264	132649	< 40.		UG/L	5/12/97		Dibenzofuran
97DS140	97.03264	95501	< 40.		UG/L	5/12/97		o-Dichlorobenzene (1,2)
97DS140	97.03264	541731	< 40.		UG/L	5/12/97		m-Dichlorobenzene (1,3)
97DS140	97.03264	106467	< 40.		UG/L	5/12/97		p-Dichlorobenzene (1,4)
97DS140	97.03264	91941	< 80.		UG/L	5/12/97		3,3'-Dichlorobenzidine
97DS140	97.03264	120832	< 40.		UG/L	5/12/97		2,4-Dichlorophenol
97DS140	97.03264	84662	< 40.		UG/L	5/12/97		Diethyl phthalate
97DS140	97.03264	131113	< 40.		UG/L	5/12/97		Dimethyl phthalate
97DS140	97.03264	105679	< 40.		UG/L	5/12/97		2,4-Dimethylphenol
97DS140	97.03264	51285	< 200.		UG/L	5/12/97		2,4-Dinitrophenol
97DS140	97.03264	121142	< 40.		UG/L	5/12/97		2,4-Dinitrotoluene
97DS140	97.03264	606202	< 40.		UG/L	5/12/97		2,6-Dinitrotoluene
97DS140	97.03264	206440	< 40.		UG/L	5/12/97		Fluoranthene
97DS140	97.03264	86737	< 40.		UG/L	5/12/97		Fluorene
97DS140	97.03264	118741	< 40.		UG/L	5/12/97		Hexachlorobenzene
97DS140	97.03264	87683	< 200.		UG/L	5/12/97		Hexachlorobutadiene
97DS140	97.03264	77474	< 40.		UG/L	5/12/97		Hexachlorocyclopentadiene
97DS140	97.03264	67721	< 40.		UG/L	5/12/97		Hexachloroethane
97DS140	97.03264	193395	< 40.		UG/L	5/12/97		Indeno[1,2,3-cd]pyrene
97DS140	97.03264	78591	< 40.		UG/L	5/12/97		Isophorone
97DS140	97.03264	534521	< 200.		UG/L	5/12/97		2-Methyl-4,6-dinitrophenol
97DS140	97.03264	91576	< 40.		UG/L	5/12/97		2-Methylnaphthalene
97DS140	97.03264	95487	< 40.		UG/L	5/12/97		2-Methylphenol
97DS140	97.03264	106445	< 40.		UG/L	5/12/97		4-Methylphenol
97DS140	97.03264	91203	< 40.		UG/L	5/12/97		Naphthalene
97DS140	97.03264	88744	< 80.		UG/L	5/12/97		2-Nitroaniline
97DS140	97.03264	99092	< 80.		UG/L	5/12/97		3-Nitroaniline
97DS140	97.03264	100016	< 80.		UG/L	5/12/97		4-Nitroaniline
97DS140	97.03264	98953	< 40.		UG/L	5/12/97		Nitrobenzene
97DS140	97.03264	88755	< 40.		UG/L	5/12/97		2-Nitrophenol
97DS140	97.03264	100027	< 200.		UG/L	5/12/97		4-Nitrophenol
97DS140	97.03264	621647	< 40.		UG/L	5/12/97		N-Nitrosodi-n-propylamine
97DS140	97.03264	62759	< 40.		UG/L	5/12/97		N-Nitrosodimethylamine
97DS140	97.03264	86306	< 40.		UG/L	5/12/97		N-Nitrosodiphenylamine

***** CST ANALYTICAL REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS140	97.03264	87865	< 200.		UG/L	5/12/97		Pentachlorophenol
97DS140	97.03264	85018	< 40.		UG/L	5/12/97		Phenanthrene
97DS140	97.03264	108952	< 40.		UG/L	5/12/97		Phenol
97DS140	97.03264	109068	< 40.		UG/L	5/12/97		2-Picoline
97DS140	97.03264	129000	< 40.		UG/L	5/12/97		Pyrene
97DS140	97.03264	110861	< 40.		UG/L	5/12/97		Pyridine
97DS140	97.03264	120821	< 40.		UG/L	5/12/97		1,2,4-Trichlorobenzene
97DS140	97.03264	95954	< 40.		UG/L	5/12/97		2,4,5-Trichlorophenol
97DS140	97.03264	88062	< 40.		UG/L	5/12/97		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 97.03264

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS140	97.03264	103231	TI 110.		UG/L	5/12/97		Bis(2-ethylhexyl)adipate

***** CST ANALYTICAL REPORT *****

Matrix Spike Results for Sample # 97.03264 Date Collected: 4/08/97 Date Received: 4/10/97 Date Extracted: 4/14/97 Date Analyzed: 4/25/97

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS140	97.03264	83329	200.	120.	UG/L	5/12/97		Acenaphthene
97DS140	97.03264	59507	400.	240.	UG/L	5/12/97		4-Chloro-3-methylphenol
97DS140	97.03264	95578	400.	210.	UG/L	5/12/97		o-Chlorophenol
97DS140	97.03264	106467	200.	99.	UG/L	5/12/97		p-Dichlorobenzene (1,4)
97DS140	97.03264	121142	200.	120.	UG/L	5/12/97		2,4-Dinitrotoluene
97DS140	97.03264	100027	400.	140.	UG/L	5/12/97		4-Nitrophenol
97DS140	97.03264	621647	200.	110.	UG/L	5/12/97		N-Nitrosodi-n-propylamine
97DS140	97.03264	87865	400.	280.	UG/L	5/12/97		Pentachlorophenol
97DS140	97.03264	108952	400.	120.	UG/L	5/12/97		Phenol
97DS140	97.03264	129000	200.	130.	UG/L	5/12/97		Pyrene
97DS140	97.03264	120821	200.	110.	UG/L	5/12/97		1,2,4-Trichlorobenzene

Matrix Spike Duplicate Results for Sample # 97.03264 Date Collected: 4/08/97 Date Received: 4/10/97 Date Extracted: 4/14/97 Date Analyzed: 4/25/97

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
97DS140	97.03264	83329	200.	130.	UG/L	5/12/97		Acenaphthene
97DS140	97.03264	59507	400.	250.	UG/L	5/12/97		4-Chloro-3-methylphenol
97DS140	97.03264	95578	400.	220.	UG/L	5/12/97		o-Chlorophenol
97DS140	97.03264	106467	200.	100.	UG/L	5/12/97		p-Dichlorobenzene (1,4)
97DS140	97.03264	121142	200.	130.	UG/L	5/12/97		2,4-Dinitrotoluene
97DS140	97.03264	100027	400.	130.	UG/L	5/12/97		4-Nitrophenol
97DS140	97.03264	621647	200.	120.	UG/L	5/12/97		N-Nitrosodi-n-propylamine
97DS140	97.03264	87865	400.	290.	UG/L	5/12/97		Pentachlorophenol
97DS140	97.03264	108952	400.	110.	UG/L	5/12/97		Phenol
97DS140	97.03264	129000	200.	140.	UG/L	5/12/97		Pyrene
97DS140	97.03264	120821	200.	110.	UG/L	5/12/97		1,2,4-Trichlorobenzene

***** EM-9 QUALITY ASSURANCE REPORT *****

EPA SEMIVOLATILES Prepared by: JA on 12-May-1997

REQUEST NUMBER: 24692 MATRIX: W ANALYST: ANTHONY LOMBARDO PROGRAM CODE: X413 NOTEBOOK: K052505 PAGE:
OWNER: Dustie L. Stephens GROUP: ESH-19 MAIL-STOP: K498 PHONE: 5-0792 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

- Only qualitative data requested
- Only Blind QC samples run with this batch.
- No QC samples run with this sample batch.
- No QC samples for this constituent and matrix type available within CST

Analytical Chemistry Report

Sample ID: 200023864 Group: ESH-19 QA: N Priority: 2
 Submission ID: 100018461 Acct: N Logged: 21-Apr-1997
 User sample ID: 97DS141
 Sample Type: AH CONTAMINATED SOLUTION
 Customer Cost Code: 8F40XF613C00
 Requester: D. STEPHENS MS: K498 Phone: 7-6904

Sample Description: TANK SOLN.
 Radioactive Elements: T3, ALPHA
 Radiation: Y
 Hazards: N
 Special Handling: N

WALK-IN CUSTOMER: N
 RECHARGE COST CODE: 8BAN00X41300000000

Methods Requested: PS-RCRA-L

Approved by: System Manager, SQL*LIMS 16-May-1997 21:10

Analytical Operation: PS-RCRA-L Task ID: 300083211
 Date Completed: 13-May-1997 00:00 Replicates: 1 Version: 1

WALK-IN QUOTED COST:
 WALK-IN CHARGE BALNC: 0
 DESCRIPTION: PS-RCRA METAL ANALYSIS IN LIQUIDS

Component	Result	Units
SILVER	<0.002	ug/ml
ARSENIC	<0.03	ug/ml
BARIUM	0.076	ug/ml
BERYLLIUM	<0.002	ug/ml
CADMIUM	<0.004	ug/ml
CHROMIUM	0.012	ug/ml
MERCURY	<0.02	ug/ml
NICKEL	<0.027	ug/ml
LEAD	<0.004	ug/ml
ANTIMONY	<0.003	ug/ml
SELENIUM	<0.08	ug/ml
THALLIUM	<0.001	ug/ml

Notebook reference: STTP8 PG 43/PQSICPMS050997

Analyst: TMY/LAG

CST-9 Radiochemistry Screening Results
MRAL III TA-53 Dustie Stephens

Date : 04/09/1997

Analyst : B.L. [Signature]**Gross Gamma Screening Results, 5 minute count time**

Sample #	Result	Uncertainty	MDA	Units
97DS138	216.51	0.41	0.78	pCi/mL
* { 97DS140	93540.96	7.50	0.78	pCi/mL

Gross Alpha, Beta Screening Results, 15 minute count time

Sample #	Alpha	Uncertainty	MDA	Beta	Uncertainty	MDA	Units
97DS138	234.71	4.32	2.02	28416.30	39.33	4.86	pCi/mL
97DS140	2.22	0.47	2.02	493.66	5.19	4.86	pCi/mL
97DS138	278.94	4.71	2.02	361.06	4.44	4.86	pCi/mL
97DS140	1.99	0.45	2.02	617.46	5.81	4.86	pCi/mL

Tritium Screening Results

Sample #	Tritium	Uncertainty	MDA	Units
97DS138	152398.97	79.25	1.52	pCi/mL
97DS140	615.71	5.08	1.52	pCi/mL

as per G-spec initial determination Gamma is attributed to the contribution of P13-210 & TH-235, other peaks have not yet been identified. This is the 2 mega contribution

ATTACHMENT C

QA/QC RESULTS

70987 'Rec'd
ESH-19

**CST-12 ORGANIC ANALYSIS GROUP
SUMMARY OF ANALYTICAL RESULTS FOR VOLATILES**

TO: Dustie Stephens
FROM: Laura C. Ortega, CST-12 Organic Analysis

DATE: May 14, 1997

MATRIX: WATER

REQUEST NUMBER: 24692

Results Summary

Attached is a tabulation of samples submitted for volatiles analysis and a summary of their analytical results (target compounds found and their concentrations; see Table 1). The samples, collected on April 8, 1997, were analyzed on May 12 and 13, 1997.

Method Summary

Samples were analyzed using EPA Method 8260. In summary, a measured volume of sample, usually 5 mL, was analyzed using the purge and trap method combined with capillary column GC/MS. A Delta Perspective PTA-30 Autosampler and a Tekmar 3000 Purge and Trap Concentrator were interfaced to a Hewlett-Packard 5890 Gas Chromatograph / 5971 Mass Selective Detector to perform the analyses. The analytical column used was a J&W Scientific 75 m by 0.53 mm ID, 3 micron film, DB624 capillary column.

Anomalies And Analysis Notes

Below is a summary of required QA/QC parameters as outlined in EPA SW-846 and LANL SOPs and a summary of any anomalies which occurred during the analyses.

Important note regarding these samples: The samples for this request were not maintained at 4°C as is required in the EPA SW-846 method. The samples were inadvertently placed in the freezer and thus they froze and broke. The client was notified immediately and instructed us to take cuts from the SVOA sample set. The SVOA samples were in their glovebox, at ambient temperature. Also, it is important to note that SVOA uses Methylene Chloride in their sample extraction process and these samples were stored in the same glovebox where the extraction process is done. This may have caused contamination of the samples.

Calibration QC were within criteria for all analyses.
Surrogate recoveries were within criteria for all analyses.
Internal standard responses were within criteria for all analyses.

Matrix spike and matrix spike duplicate were analyzed as part of the analytical batch which included the samples from this work request. All spike recoveries and relative percent differences were within criteria. A copy of the MS/MSD recovery form is included with this report.

MLD 5/14/97

Holding times were met *not* for all sample analyses. These samples were analyzed 28 and 29 days out of hold. A sample from another request set foamed and shut down the VOA instrument for two weeks and thus, all samples are being analyzed out of hold.

If you have any questions regarding this data, please call Laura Ortega at 665-7407.

WLD 5/14/97

**CST-12 ORGANIC ANALYSIS GROUP
SUMMARY OF ANALYTICAL RESULTS FOR VOLATILES**

Table 1. Summary of results of sample analyses for volatiles.

REQUEST NUMBER: 24692

<u>SAMPLE ID</u>	<u>TARGET COMPOUNDS</u> <u>FOUND</u>	<u>AMOUNT</u> <u>(ug/L)</u>	<u>LOQ</u> <u>(ug/L)</u>	<u>TICs</u>
B97.03266	Styrene	3 J	5	N
B97.03267	Acetone	43	20	Y
	n-Butylbenzene	4 J	5	
S97.03260 (97 DS136)	Methylene Chloride	340	25	N
	Styrene	3 JB	5	
S97.03263 (97 DS139)	Methylene Chloride	11000 B	250	N
	Bromochloromethane	25	25	
	Styrene	13 JB	25	

UNQ 5/14/97

Sample IDs beginning with the letter S are samples; those beginning with the letter B are blanks.

LOQ: Limit of quantitation. LOQs normally range between 5 and 20ug/L depending on the compound, unless otherwise noted.

TICs: Tentatively identified compounds. Y = TICs were found. N = TICs were not found.

J: This data qualifier indicates that the compound was detected, but the reported result is less than the LOQ and is an estimated value.

B: This data qualifier indicates that the reported compound was found in the associated method blank as well as in the sample.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

V L

Lab Name: LANL Contract: _____
 Project No.: RN24/97 Site: _____ Location: _____ Group: CST-12
 Matrix: (soil/water) WATER Lab Sample ID: B9703267
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: F051305.D
 Level: (low/med) _____ Date Received: 4/9/97
 % Moisture: not dec. _____ Date Analyzed: 5/13/97
 GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 87-68-3	1,3-Butadiene, 1,1,2,3,4,4-h	16.71	23	J
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
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30.				

UNCL 5/14/97

LOS ALAMOS NATIONAL LABORATORY
CST-12 ORGANIC ANALYSIS GROUP
VOLATILE ANALYSIS ANOMALY REPORTING FORM

Reported By: Laura C. Ortega
Request Number: 24692

Date Reported: May 14, 1997

Type of Anomaly(circle appropriate choices or describe):

Surrogate Recovery

Retention Time Shift

Missed Holding Time

Internal Standard Recovery

Calibration QC

Sample Matrix Effect

Other(describe): SAMPLE TEMPERATURES

Description: Include sample numbers, dates, etc., as appropriate.

The samples for this request, 24692, were not maintained at 4°C as is specified in EPA SW-846 method.

Corrective actions taken and disposition of affected data: Include dates action taken or a schedule. If problem is ongoing, address actions taken/to be taken to prevent recurrence. The samples were inadvertently placed in the freezer and thus they froze and broke. The client was notified immediately and instructed us to take cuts from the SVOA sample set. The SVOA samples were in their glovebox, at ambient temperature. Also, it is important to note that SVOA uses Methylene Chloride in their sample extraction process and these samples were stored in the same glovebox where the extraction process is done. This may have caused contamination of the samples.

Corrective actions taken by: 

Date: 5/14/97

LOS ALAMOS NATIONAL LABORATORY
CST-12 ORGANIC ANALYSIS GROUP
VOLATILE ANALYSIS ANOMALY REPORTING FORM

Reported By: Laura C. Ortega
Request Number: 24692

Date Reported: May 14, 1997

Type of Anomaly(circle appropriate choices or describe):

Surrogate Recovery

Retention Time Shift

Missed Holding Time

Internal Standard Recovery

Calibration QC

Sample Matrix Effect

Other(describe): _____

Description: Include sample numbers, dates, etc., as appropriate.

The samples for this request, 24692, were analyzed 28 and 29 days out of hold.

Corrective actions taken and disposition of affected data: Include dates action taken or a schedule. If problem is ongoing, address actions taken/to be taken to prevent recurrence. A sample from another request set foamed and shut down the VOA instrument for two weeks and thus all samples are being analyzed out of hold.

Corrective actions taken by: _____

Date: _____

5/14/97

LOS ALAMOS NATIONAL LABORATORY
CST-12 ORGANIC ANALYSIS GROUP

DATA REVIEW CERTIFICATION

Request Number: 24692

Analysis: VOLATILES BY EPA 8260

The data contained in the enclosed report has been reviewed and approved by the people listed below:

LAURA C. ORTEGA
Analyst Name (print)

Laura C. Ortega
Analyst Signature

5/14/97
Date

Doris M. Quintana
Data Reviewer Name (print)

Doris M. Quintana
Data Reviewer Signature

5/14/97
Date

***** EM-9 QUALITY ASSURANCE REPORT *****

EPA VOLATILES

Prepared by: JA

on 16-May-1997

REQUEST NUMBER: 24692 MATRIX: W ANALYST: LAURA ORTEGA PROGRAM CODE: X413 NOTEBOOK: F051320 PAGE:

OWNER: Dustie L. Stephens GROUP: ESH-19 MAIL-STOP: K498 PHONE: 5-0792 TECHNIQUE: GCMS ANALYTICAL PROCEDURE: EPA SW-846 3RD

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

- Only qualitative data requested
- Only Blind QC samples run with this batch.
- No QC samples run with this sample batch.
- No QC samples for this constituent and matrix type available within CST

***** EM-9 QUALITY ASSURANCE REPORT *****

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results, Sample # 97.03266 Date Collected: 4/08/97 Date Received: 4/10/97 Date Extracted: 5/12/97 Date Analyzed: 5/12/97

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	97.03266	67641	< 20.		UG/L	0.0		5/16/97	UNDER CONTROL	Acetone
00.20226	97.03266	71432	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Benzene
00.20226	97.03266	108861	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromobenzene
00.20226	97.03266	74975	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromochloromethane
00.20226	97.03266	75274	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromodichloromethane
00.20226	97.03266	75252	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromoform
00.20226	97.03266	74839	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromomethane
00.20226	97.03266	78933	< 20.		UG/L	0.0		5/16/97	UNDER CONTROL	2-Butanone
00.20226	97.03266	104518	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	n-Butylbenzene
00.20226	97.03266	135988	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	sec-Butylbenzene
00.20226	97.03266	98066	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	tert-Butylbenzene
00.20226	97.03266	75150	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Carbon disulfide
00.20226	97.03266	56235	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Carbon tetrachloride
00.20226	97.03266	108907	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Chlorobenzene
00.20226	97.03266	124481	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Chlorodibromomethane
00.20226	97.03266	75003	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Chloroethane
00.20226	97.03266	67663	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Chloroform
00.20226	97.03266	74873	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Chloromethane
00.20226	97.03266	95498	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	o-Chlorotoluene
00.20226	97.03266	106434	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	p-Chlorotoluene
00.20226	97.03266	96128	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2-Dibromo-3-chloropropane

***** EM-9 QUALITY ASSURANCE REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	97.03266	74953	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Dibromomethane
00.20226	97.03266	95501	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20226	97.03266	541731	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20226	97.03266	106467	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20226	97.03266	75718	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Dichlorodifluoromethane
00.20226	97.03266	75343	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1-Dichloroethane
00.20226	97.03266	107062	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2-Dichloroethane
00.20226	97.03266	75354	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1-Dichloroethene
00.20226	97.03266	156605	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	trans-1,2-Dichloroethene
00.20226	97.03266	156592	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	cis-1,2-Dichloroethylene
00.20226	97.03266	78875	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2-Dichloropropane
00.20226	97.03266	142289	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,3-Dichloropropane
00.20226	97.03266	594207	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	2,2-Dichloropropane
00.20226	97.03266	563586	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1-Dichloropropene
00.20226	97.03266	10061015	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	cis-1,3-Dichloropropene
00.20226	97.03266	10061026	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	trans-1,3-Dichloropropene
00.20226	97.03266	100414	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Ethylbenzene
00.20226	97.03266	106934	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Ethylene dibromide
00.20226	97.03266	591786	< 20.		UG/L	0.0		5/16/97	UNDER CONTROL	2-Hexanone
00.20226	97.03266	98828	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Isopropylbenzene
00.20226	97.03266	99876	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	4-Isopropyltoluene
00.20226	97.03266	74884	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Methyl iodide
00.20226	97.03266	108101	< 20.		UG/L	0.0		5/16/97	UNDER CONTROL	4-Methyl-2-pentanone
00.20226	97.03266	75092	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Methylene chloride
00.20226	97.03266	103651	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Propylbenzene
00.20226	97.03266	100425	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Styrene
00.20226	97.03266	630206	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1,1,2-Tetrachloroethane
00.20226	97.03266	79345	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1,2,2-Tetrachloroethane
00.20226	97.03266	127184	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Tetrachloroethylene
00.20226	97.03266	108883	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Toluene
00.20226	97.03266	76131	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroethane
00.20226	97.03266	71556	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1,1-Trichloroethane
00.20226	97.03266	79005	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1,2-Trichloroethane
00.20226	97.03266	79016	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Trichloroethene
00.20226	97.03266	75694	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Trichlorofluoromethane
00.20226	97.03266	96184	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2,3-Trichloropropane

***** EM-9 QUALITY ASSURANCE REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	97.03266	95636	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2,4-Trimethylbenzene
00.20226	97.03266	108678	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,3,5-Trimethylbenzene
00.20226	97.03266	75014	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Vinyl chloride
00.20226	97.03266	1330207	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)

Blank Results, Sample # 97.03267

Date Collected: 4/08/97 Date Received: 4/10/97 Date Extracted: 5/13/97 Date Analyzed: 5/13/97

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	97.03267	67641	43.	12.9	UG/L	0.0		5/16/97	OUT OF CONTROL	Acetone
00.20226	97.03267	71432	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Benzene
00.20226	97.03267	108861	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromobenzene
00.20226	97.03267	74975	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromochloromethane
00.20226	97.03267	75274	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromodichloromethane
00.20226	97.03267	75252	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromoform
00.20226	97.03267	74839	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromomethane
00.20226	97.03267	78933	< 20.		UG/L	0.0		5/16/97	UNDER CONTROL	2-Butanone
00.20226	97.03267	104518	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	n-Butylbenzene
00.20226	97.03267	135988	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	sec-Butylbenzene
00.20226	97.03267	98066	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	tert-Butylbenzene
00.20226	97.03267	75150	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Carbon disulfide
00.20226	97.03267	56235	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Carbon tetrachloride
00.20226	97.03267	108907	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Chlorobenzene
00.20226	97.03267	124481	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Chlorodibromomethane
00.20226	97.03267	75003	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Chloroethane
00.20226	97.03267	67663	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Chloroform

***** EM-9 QUALITY ASSURANCE REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	97.03267	74873	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Chloromethane
00.20226	97.03267	95498	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	o-Chlorotoluene
00.20226	97.03267	106434	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	p-Chlorotoluene
00.20226	97.03267	96128	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2-Dibromo-3-chloropropane
00.20226	97.03267	74953	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Dibromomethane
00.20226	97.03267	95501	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20226	97.03267	541731	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20226	97.03267	106467	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20226	97.03267	75718	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Dichlorodifluoromethane
00.20226	97.03267	75343	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1-Dichloroethane
00.20226	97.03267	107062	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2-Dichloroethane
00.20226	97.03267	75354	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1-Dichloroethene
00.20226	97.03267	156605	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	trans-1,2-Dichloroethene
00.20226	97.03267	156592	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	cis-1,2-Dichloroethylene
00.20226	97.03267	78875	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2-Dichloropropane
00.20226	97.03267	142289	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,3-Dichloropropane
00.20226	97.03267	594207	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	2,2-Dichloropropane
00.20226	97.03267	563586	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1-Dichloropropene
00.20226	97.03267	10061015	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	cis-1,3-Dichloropropene
00.20226	97.03267	10061026	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	trans-1,3-Dichloropropene
00.20226	97.03267	100414	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Ethylbenzene
00.20226	97.03267	106934	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Ethylene dibromide
00.20226	97.03267	591786	< 20.		UG/L	0.0		5/16/97	UNDER CONTROL	2-Hexanone
00.20226	97.03267	98828	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Isopropylbenzene
00.20226	97.03267	99876	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	4-Isopropyltoluene
00.20226	97.03267	74884	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Methyl iodide
00.20226	97.03267	108101	< 20.		UG/L	0.0		5/16/97	UNDER CONTROL	4-Methyl-2-pentanone
00.20226	97.03267	75092	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Methylene chloride
00.20226	97.03267	103651	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Propylbenzene
00.20226	97.03267	100425	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Styrene
00.20226	97.03267	630206	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1,1,2-Tetrachloroethane
00.20226	97.03267	79345	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1,2,2-Tetrachloroethane
00.20226	97.03267	127184	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Tetrachloroethylene
00.20226	97.03267	108883	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Toluene
00.20226	97.03267	76131	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroethane
00.20226	97.03267	71556	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1,1-Trichloroethane

***** EM-9 QUALITY ASSURANCE REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	97.03267	79005	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1,2-Trichloroethane
00.20226	97.03267	79016	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Trichloroethene
00.20226	97.03267	75694	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Trichlorofluoromethane
00.20226	97.03267	96184	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2,3-Trichloropropane
00.20226	97.03267	95636	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2,4-Trimethylbenzene
00.20226	97.03267	108678	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,3,5-Trimethylbenzene
00.20226	97.03267	75014	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Vinyl chloride
00.20226	97.03267	1330207	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)

Blank Spike Results: none

Blank Spike Duplicate Results: none

***** EM-9 QUALITY ASSURANCE REPORT *****

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 97.02600 Date Collected: 4/08/97 Date Received: 4/10/97 Date Extracted: 5/13/97 Date Analyzed: 5/13/97

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
97.02600	67641	230.	69.	UG/L	141.	7.5	5/16/97	UNDER CONTROL	Acetone
97.02600	71432	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Benzene
97.02600	108861	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromobenzene
97.02600	74975	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromochloromethane
97.02600	75274	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromodichloromethane
97.02600	75252	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromoform
97.02600	74839	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Bromomethane
97.02600	78933	< 20.		UG/L	0.0		5/16/97	UNDER CONTROL	2-Butanone
97.02600	104518	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	n-Butylbenzene
97.02600	135988	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	sec-Butylbenzene
97.02600	98066	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	tert-Butylbenzene
97.02600	75150	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Carbon disulfide
97.02600	56235	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Carbon tetrachloride
97.02600	108907	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Chlorobenzene
97.02600	124481	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Chlorodibromomethane
97.02600	75003	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Chloroethane
97.02600	67663	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Chloroform
97.02600	74873	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Chloromethane
97.02600	95498	95.	28.5	UG/L	0.0		5/16/97	OUT OF CONTROL	o-Chlorotoluene
97.02600	106434	93.	27.9	UG/L	137.	7.3	5/16/97	UNDER CONTROL	p-Chlorotoluene
97.02600	96128	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2-Dibromo-3-chloropropane
97.02600	74953	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Dibromomethane
97.02600	95501	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	o-Dichlorobenzene (1,2)
97.02600	541731	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	m-Dichlorobenzene (1,3)
97.02600	106467	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	p-Dichlorobenzene (1,4)
97.02600	75718	< 10.		UG/L	0.0		5/16/97	UNDER CONTROL	Dichlorodifluoromethane

97.02600	75343	130.	39.	UG/L	132.	7.	5/16/97	UNDER CONTROL	1,1-Dichloroethane
97.02600	107062	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2-Dichloroethane
97.02600	75354	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1-Dichloroethene
97.02600	156605	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	trans-1,2-Dichloroethene
97.02600	156592	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	cis-1,2-Dichloroethylene
97.02600	78875	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,2-Dichloropropane
97.02600	142289	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,3-Dichloropropane
97.02600	594207	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	2,2-Dichloropropane
97.02600	563586	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	1,1-Dichloropropene
97.02600	10061015	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	cis-1,3-Dichloropropene
97.02600	10061026	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	trans-1,3-Dichloropropene
97.02600	100414	120.	36.	UG/L	130.	6.9	5/16/97	UNDER CONTROL	Ethylbenzene
97.02600	106934	< 5.		UG/L	0.0		5/16/97	UNDER CONTROL	Ethylene dibromide
97.02600	591786	< 20.		UG/L	0.0		5/16/97	UNDER CONTROL	2-Hexanone
97.02600	98828	120.	36.	UG/L	139.	7.3	5/16/97	UNDER CONTROL	Isopropylbenzene

97.02600	99876	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	4-Isopropyltoluene
97.02600	74884	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	Methyl iodide
97.02600	108101	< 20.		UG/L	0.0	5/16/97	UNDER CONTROL	4-Methyl-2-pentanone
97.02600	75092	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	Methylene chloride
97.02600	103651	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	Propylbenzene
97.02600	100425	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	Styrene
97.02600	630206	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	1,1,1,2-Tetrachloroethane
97.02600	79345	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	1,1,2,2-Tetrachloroethane
97.02600	127184	57.	17.1	UG/L	0.0	5/16/97	OUT OF CONTROL	Tetrachloroethylene
97.02600	108883	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	Toluene
97.02600	76131	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroethane
97.02600	71556	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	1,1,1-Trichloroethane
97.02600	79005	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	1,1,2-Trichloroethane
97.02600	79016	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	Trichloroethene
97.02600	75694	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	Trichlorofluoromethane
97.02600	96184	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	1,2,3-Trichloropropane
97.02600	95636	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	1,2,4-Trimethylbenzene
97.02600	108678	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	1,3,5-Trimethylbenzene
97.02600	75014	< 10.		UG/L	0.0	5/16/97	UNDER CONTROL	Vinyl chloride
97.02600	1330207	< 5.		UG/L	0.0	5/16/97	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)

***** EM-9 QUALITY ASSURANCE REPORT *****

SURROGATE RESULTS FOR EPA VOLATILES

- Surrogate 1 = 1,2-Dichloroethane d4 (CAS # = 17060070)
- Surrogate 2 = Toluene d8 (CAS # = 2037265)
- Surrogate 3 = 4-Bromofluorobenzene (CAS # = 460004)
- Surrogate 4 = 2-Chlorostyrene (CAS # = 2039874)
- Surrogate 5 = Dibromofluoromethane (CAS # = 1868537)

SAMPLE NUMBER	UNITS	SURROGATE					COMPLETION DATE	SAMPLE TYPE
		Surrogate 1	Surrogate 2	Surrogate 3	Surrogate 4	Surrogate 5		
97.02600	%	0.0	102.	94.		102.	16-May-1997	
97.03260	%	0.0	103.	99.		101.	16-May-1997	
97.03263	%	0.0	101.	98.		100.	16-May-1997	
97.03266	%	0.0	100.	107.		100.	16-May-1997	B
97.03267	%	0.0	101.	96.		98.	16-May-1997	B

EPA Limits:

Water	%	76 - 114	88 - 110	86 - 115	86 - 115	86 - 118
Soil	%	70 - 121	81 - 117	74 - 121	74 - 121	

REPORT NUMBER: 43853


Analyst

5/16/97
Date


Reviewer

5/16/97
Date


Team Leader

5/16/97
Date


QA Officer

5/16/97
Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1992,' LA-12790-MS, Vol. 1, pp. 19-20

Los Alamos

NATIONAL LABORATORY

*Chemical Science and Technology
Responsible Chemistry for America*

CST-12 Organic Chemistry
Semivolatile Analysis Team, MS G740
Los Alamos, New Mexico 87545

To/MS: Dustie Stephens/K498

From/MS: Anthony Lombardo, CST-12/G740

Phone/FAX: 665-7410/665-9345

Date: May 9, 1997

Symbol: CST-12:97-268

CASE NARRATIVE. SEMIVOLATILE ORGANIC ANALYSIS.

Request Number: 24692

Sample Summary

Matrix: **Water**

Number of samples: 2

All hold times were met.

Date Sampled: April 8, 1997

Date Extracted: April 14, 1997

Date Analyzed: April 25 and May 2, 1997

Tentatively Identified Compounds were reported for this request.

Attached is a summary of results (Table 1). Laboratory sample numbers are listed. Cross references to client sample numbers are included as part of the final report.

Method Summary

EPA method references: SW-846 methods 3510B and 8270.

Laboratory analytical procedures: EO531, *Semivolatile Organics in Aqueous Matrixes: Solvent Extraction*.
EO550, *Analysis of Semivolatile Organics by GC/MS*.

Samples were extracted by Limited Volume Separatory Funnel Liquid-Liquid Extraction. 0.25 liter of sample is placed in a 2 liter separatory funnel. Sample is acidified and shaken with methylene chloride. The methylene chloride is separated from the sample, more methylene chloride is added, and the process is repeated for a total of three times. The sample is made basic and methylene chloride extraction is repeated. Sample extracts were combined, dried and concentrated to 1.0 ml final volume. Analysis was performed by capillary column GC/MS methods. Analytical column used was a J&W Scientific DB5.MS 30 M by 0.25 mm ID, 0.25 micron film or equivalent.

This process is used for radioactive samples and is performed in a glove box.

Quality Control

A method blank was prepared and analyzed with the samples.

Matrix spike and matrix spike duplicate were analyzed as part of the analytical batch which included the samples from this work request. A copy of the MS/MSD recovery form is included with this report.

A blind quality control sample was analyzed as part of the analytical batch which included the samples from this work request. Results were included in the final report.

Anomalies And Analysis Notes

Except where noted below, analyses were performed following the analytical procedures listed above. Except where noted below, all calibration and quality control criteria stated in the analytical procedures were met.

If you have any questions regarding this data, please call Anthony Lombardo at 665-7410.

**CST-12 SEMIVOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS**

Table 1. Summary of results of sample analyses for semivolatiles.

REQUEST NUMBER: 24692

<u>SAMPLE ID</u>	<u>TARGET COMPOUNDS FOUND</u>	<u>AMOUNT (ug/L)</u>	<u>LOQ (ug/L)</u>	<u>TICs</u>
B97.03268	Di-n-butylphthalate	44	40	Y
	Bis-2-ethylhexylphthalate	17 J	40	
	Di-n-octylphthalate	6 J	40	Y
S97.03264 (97DS140)	NONE		40	
S97.03261 (97DS137)	Di-n-butylphthalate	9 JB	40	Y
	Bis-2-ethylhexylphthalate	8 JB	40	
	Di-n-octylphthalate	36 JB	40	

LOQ: Limit of quantitation. LOQs normally range between 10 and 50ug/L depending on the compound, unless otherwise noted.

TICs: Tentatively identified compounds. Y = TICs were found. N = TICs were not found.

J: Compound is present in the sample, but at a concentration that is less than LOQ. This concentration should be considered an estimate.

B: This compound was seen in the method blank as well as the sample. Concentration is considered significant at ten times the blank amount for phthalate esters and five times blank amount for the remaining compounds.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

SBLK01

Lab Name: LANL-CST12 Contract: _____

Project No.: 24692 Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: B9703268

Sample wt/vol: 250.0 (g/mL) ML Lab File ID: K042509.D

Level: (low/med) _____ Date Received: 4/8/97

% Moisture: _____ decanted: (Y/N) N Date Extracted: 4/14/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 4/25/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 6 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	Unknown	18.52	75	J
2.	Unknown acid ester	18.81	93	J
3. 84-69-5	1,2-Benzenedicarboxylic acid	25.09	28	J
4. 103-23-1	Hexanedioic acid, bis(2-ethy	29.74	140	J
5.	Unknown Hydrocarbon	30.62	99	J
6.	Unknown	33.57	33	J
7.				
8.				
9.				
10.				
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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

S9703264

Lab Name: LANL-CST12 Contract: _____
 Project No.: 24692 Site: _____ Location: _____ Group: _____
 Matrix: (soil/water) WATER Lab Sample ID: S9703264
 Sample wt/vol: 250.0 (g/mL) ML Lab File ID: K042510.D
 Level: (low/med) _____ Date Received: 4/8/97
 % Moisture: _____ decanted: (Y/N) N Date Extracted: 4/14/97
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 4/25/97
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: 7.0
 Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 103-23-1	Hexanedioic acid, bis(2-ethy	29.73	110	JB
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

S9703261

Lab Name: LANL-CST12 Contract: _____
 Project No.: 24692 Site: _____ Location: _____ Group: _____
 Matrix: (soil/water) WATER Lab Sample ID: S9703261
 Sample wt/vol: 250.0 (g/mL) ML Lab File ID: K050207.D
 Level: (low/med) _____ Date Received: 4/8/97
 % Moisture: _____ decanted: (Y/N) N Date Extracted: 4/14/97
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5/2/97
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: 7.0
 Number TICs found: 10 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	Unknown	22.98	32	J
2.	Unknown	23.09	29	J
3.	Unknown	23.57	29	J
4.	Unknown	23.68	46	J
5.	Unknown	29.77	1300	J
6.	Unknown	30.95	25	J
7.	Unknown	31.48	42	J
8.	Unknown	31.90	25	J
9.	Unknown	32.09	130	J
10.	1330-96-7 1,2-Benzenedicarboxylic acid	35.44	49	J
11.				
12.				
13.				
14.				
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16.				
17.				
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WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: LANL-CST12

Contract: _____

Project No.: 24692

Site: _____

Location: _____

Group: _____

Matrix Spike - Sample No.: S9703264

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Phenol	400	0	120	30	(12-89)
2-Chlorophenol	400	0	210	53	(27-123)
1,4-Dichlorobenzene	200	0	99	50	(36-97)
N-Nitroso-di-n-propylamine	200	0	110	55	(41-116)
1,2,4-Trichlorobenzene	200	0	110	55	(39-98)
4-Chloro-3-methylphenol	400	0	240	60	(23-97)
Acenaphthene	200	0	120	60	(46-118)
4-Nitrophenol	400	0	140	35	(10-80)
2,4-Dinitrotoluene	200	0	120	60	(24-96)
Pentachlorophenol	400	0	280	70	(9-103)
Pyrene	200	0	130	65	(26-127)

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
Phenol	400	110	28	9	42	(12-89)
2-Chlorophenol	400	220	55	5	40	(27-123)
1,4-Dichlorobenzene	200	100	50	1	28	(36-97)
N-Nitroso-di-n-propylamine	200	120	60	9	38	(41-116)
1,2,4-Trichlorobenzene	200	110	55	0	28	(39-98)
4-Chloro-3-methylphenol	400	250	63	4	42	(23-97)
Acenaphthene	200	130	65	8	31	(46-118)
4-Nitrophenol	400	130	33	7	50	(10-80)
2,4-Dinitrotoluene	200	130	65	8	38	(24-96)
Pentachlorophenol	400	290	73	4	50	(9-103)
Pyrene	200	140	70	7	31	(26-127)

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 0 out of 22 outside limits

Comments: _____

LOS ALAMOS NATIONAL LABORATORY
CST-12 ORGANIC ANALYSIS GROUP

DATA REVIEW CERTIFICATION

Request Number: 24692

Analysis: Semivolatiles SW-846 8270

The data contained in the enclosed report has been reviewed and approved by the people listed below:

A. Lombardo
Analyst Name (print)

A. Lombardo
Analyst Signature

5/8/97
Date

MIKE Randa
Data Reviewer Name (print)

Mike Randa
Data Reviewer Signature

5/8/97
Date

***** EM-9 QUALITY ASSURANCE REPORT *****

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results, Sample # 97.03268 Date Collected: 4/08/97 Date Received: 4/10/97 Date Extracted: 4/14/97 Date Analyzed: 4/25/97

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	97.03268	83329	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Acenaphthene
00.20226	97.03268	208968	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Acenaphthylene
00.20226	97.03268	62533	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Aniline
00.20226	97.03268	120127	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Anthracene
00.20226	97.03268	103333	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Azobenzene
00.20226	97.03268	92875	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	m-Benzidine
00.20226	97.03268	56553	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzo[a]anthracene
00.20226	97.03268	50328	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzo[a]pyrene
00.20226	97.03268	205992	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzo[b]fluoranthene
00.20226	97.03268	191242	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzo[g,h,i]perylene
00.20226	97.03268	207089	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzo[k]fluoranthene
00.20226	97.03268	65850	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzoic acid
00.20226	97.03268	100516	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzyl alcohol
00.20226	97.03268	111911	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20226	97.03268	111444	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20226	97.03268	108601	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Bis(2-chloroisopropyl)ether
00.20226	97.03268	117817	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
00.20226	97.03268	101553	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Bromophenylphenyl ether
00.20226	97.03268	85687	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Butyl benzyl phthalate
00.20226	97.03268	59507	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Chloro-3-methylphenol
00.20226	97.03268	106478	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Chloroaniline

***** EM-9 QUALITY ASSURANCE REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	97.03268	91587	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Chloronaphthalene
00.20226	97.03268	95578	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	o-Chlorophenol
00.20226	97.03268	7005723	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20226	97.03268	218019	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Chrysene
00.20226	97.03268	84742	44.	13.2	UG/L	0.0		5/12/97	OUT OF CONTROL	Di-n-butyl phthalate
00.20226	97.03268	117840	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Di-n-octyl phthalate
00.20226	97.03268	53703	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20226	97.03268	132649	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Dibenzofuran
00.20226	97.03268	95501	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20226	97.03268	541731	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20226	97.03268	106467	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20226	97.03268	91941	< 80.		UG/L	0.0		5/12/97	UNDER CONTROL	3,3'-Dichlorobenzidine
00.20226	97.03268	120832	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2,4-Dichlorophenol
00.20226	97.03268	84662	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Diethyl phthalate
00.20226	97.03268	131113	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Dimethyl phthalate
00.20226	97.03268	105679	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2,4-Dimethylphenol
00.20226	97.03268	51285	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	2,4-Dinitrophenol
00.20226	97.03268	121142	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2,4-Dinitrotoluene
00.20226	97.03268	606202	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2,6-Dinitrotoluene
00.20226	97.03268	206440	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Fluoranthene
00.20226	97.03268	86737	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Fluorene
00.20226	97.03268	118741	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Hexachlorobenzene
00.20226	97.03268	87683	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	Hexachlorobutadiene
00.20226	97.03268	77474	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Hexachlorocyclopentadiene
00.20226	97.03268	67721	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Hexachloroethane
00.20226	97.03268	193395	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
00.20226	97.03268	78591	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Isophorone
00.20226	97.03268	534521	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20226	97.03268	91576	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Methylnaphthalene
00.20226	97.03268	95487	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Methylphenol
00.20226	97.03268	106445	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Methylphenol
00.20226	97.03268	91203	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Naphthalene
00.20226	97.03268	88744	< 80.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Nitroaniline
00.20226	97.03268	99092	< 80.		UG/L	0.0		5/12/97	UNDER CONTROL	3-Nitroaniline
00.20226	97.03268	100016	< 80.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Nitroaniline
00.20226	97.03268	98953	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Nitrobenzene

***** EM-9 QUALITY ASSURANCE REPORT *****

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	97.03268	88755	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Nitrophenol
00.20226	97.03268	100027	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Nitrophenol
00.20226	97.03268	621647	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20226	97.03268	62759	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	N-Nitrosodimethylamine
00.20226	97.03268	86306	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	N-Nitrosodiphenylamine
00.20226	97.03268	87865	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	Pentachlorophenol
00.20226	97.03268	85018	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Phenanthrene
00.20226	97.03268	108952	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Phenol
00.20226	97.03268	109068	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Picoline
00.20226	97.03268	109068	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Picoline
00.20226	97.03268	129000	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Pyrene
00.20226	97.03268	110861	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Pyridine
00.20226	97.03268	110861	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Pyridine
00.20226	97.03268	120821	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20226	97.03268	95954	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2,4,5-Trichlorophenol
00.20226	97.03268	88062	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2,4,6-Trichlorophenol

Blank Spike Results: none

Blank Spike Duplicate Results: none

***** EM-9 QUALITY ASSURANCE REPORT *****

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 97.01686 Date Collected: 4/08/97 Date Received: 4/10/97 Date Extracted: 4/14/97 Date Analyzed: 4/25/97

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
97.01686	83329	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Acenaphthene
97.01686	208968	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Acenaphthylene
97.01686	62533	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Aniline
97.01686	120127	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Anthracene
97.01686	103333	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Azobenzene
97.01686	92875	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	m-Benzidine
97.01686	56553	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzo[a]anthracene
97.01686	50328	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzo[a]pyrene
97.01686	205992	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzo[b]fluoranthene
97.01686	191242	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzo[g,h,i]perylene
97.01686	207089	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzo[k]fluoranthene
97.01686	65850	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzoic acid
97.01686	100516	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Benzyl alcohol
97.01686	111911	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Bis(2-chloroethoxy)methane
97.01686	111444	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Bis(2-chloroethyl)ether
97.01686	108601	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Bis(2-chloroisopropyl)ether
97.01686	117817	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
97.01686	101553	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Bromophenylphenyl ether
97.01686	85687	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Butyl benzyl phthalate
97.01686	59507	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Chloro-3-methylphenol
97.01686	106478	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Chloroaniline
97.01686	91587	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Chloronaphthalene
97.01686	95578	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	o-Chlorophenol
97.01686	7005723	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Chlorophenylphenyl ether
97.01686	218019	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Chrysene
97.01686	84742	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Di-n-butyl phthalate

97.01686	117840	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	Di-n-octyl phthalate
97.01686	53703	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	Dibenzo[a,h]anthracene
97.01686	132649	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	Dibenzofuran
97.01686	95501	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	o-Dichlorobenzene (1,2)
97.01686	541731	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	m-Dichlorobenzene (1,3)
97.01686	106467	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	p-Dichlorobenzene (1,4)
97.01686	91941	< 80.	UG/L	0.0	5/12/97	UNDER CONTROL	3,3'-Dichlorobenzidine
97.01686	120832	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	2,4-Dichlorophenol
97.01686	84662	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	Diethyl phthalate
97.01686	131113	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	Dimethyl phthalate
97.01686	105679	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	2,4-Dimethylphenol
97.01686	51285	< 200.	UG/L	0.0	5/12/97	UNDER CONTROL	2,4-Dinitrophenol
97.01686	121142	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	2,4-Dinitrotoluene
97.01686	606202	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	2,6-Dinitrotoluene
97.01686	206440	< 40.	UG/L	0.0	5/12/97	UNDER CONTROL	Fluoranthene

97.01686	86737	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Fluorene
97.01686	118741	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Hexachlorobenzene
97.01686	87683	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	Hexachlorobutadiene
97.01686	77474	170.	51.	UG/L	192.	10.	5/12/97	UNDER CONTROL	Hexachlorocyclopentadiene
97.01686	67721	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Hexachloroethane
97.01686	193395	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
97.01686	78591	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Isophorone
97.01686	534521	< 200.		UG/L	272.	14.1	5/12/97	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
97.01686	91576	160.	48.	UG/L	198.	10.3	5/12/97	UNDER CONTROL	2-Methylnaphthalene
97.01686	95487	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Methylphenol
97.01686	106445	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Methylphenol
97.01686	91203	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Naphthalene
97.01686	88744	< 80.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Nitroaniline
97.01686	99092	< 80.		UG/L	0.0		5/12/97	UNDER CONTROL	3-Nitroaniline
97.01686	100016	< 80.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Nitroaniline
97.01686	98953	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Nitrobenzene
97.01686	88755	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Nitrophenol
97.01686	100027	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	4-Nitrophenol
97.01686	621647	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	N-Nitrosodi-n-propylamine
97.01686	62759	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	N-Nitrosodimethylamine
97.01686	86306	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	N-Nitrosodiphenylamine
97.01686	87865	< 200.		UG/L	0.0		5/12/97	UNDER CONTROL	Pentachlorophenol
97.01686	85018	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Phenanthrene
97.01686	108952	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Phenol
97.01686	109068	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2-Picoline
97.01686	129000	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Pyrene
97.01686	110861	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	Pyridine
97.01686	120821	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	1,2,4-Trichlorobenzene
97.01686	95954	180.	54.	UG/L	206.	10.7	5/12/97	UNDER CONTROL	2,4,5-Trichlorophenol
97.01686	88062	< 40.		UG/L	0.0		5/12/97	UNDER CONTROL	2,4,6-Trichlorophenol

***** EM-9 QUALITY ASSURANCE REPORT *****

SURROGATE RESULTS FOR EPA SEMIVOLATILES

Surrogate 1 = 2-Fluorophenol (CAS # = 367124)
 Surrogate 2 = Phenol-d5 (CAS # = 4165622)
 Surrogate 3 = Nitrobenzene-d5 (CAS # = 4165600)
 Surrogate 4 = 2-Fluorobiphenyl (CAS # = 321608)
 Surrogate 5 = 2,4,6-Tribromophenol (CAS # = 118796)
 Surrogate 6 = p-Terphenyl-d14 (CAS # = 26140603)
 Surrogate 7 = 4-Chloroaniline (CAS # = 106478)

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	Surrogate 4	Surrogate 5	Surrogate 6	Surrogate 7	COMPLETION DATE
97.01686	%	44.	34.	82.	83.	88.	90.		12-May-1997
97.03261	%	27.	20.	66.	73.	84.	77.		12-May-1997
97.03264	%	73.	63.	33.	27.	70.	60.		12-May-1997
97.03264	%	73.	64.	30.	24.	74.	63.		12-May-1997
97.03264	%	29.	23.	66.	73.	81.	79.		12-May-1997
97.03268	%	32.	25.	70.	77.	91.	86.		12-May-1997

EPA Limits:

Water	%	21 - 100	10 - 94	35 - 114	43 - 116	10 - 123	33 - 141	34 - 120
Soil	%	25 - 121	24 - 113	23 - 120	30 - 115	19 - 122	18 - 137	

REPORT NUMBER: 43832

_____ Analyst	_____ Reviewer	 Team Leader	 QA Officer
_____ Date	_____ Date	5/13/97 Date	5/13/97 Date

No Sample Discrepancies Noted by Sample Management Section

ATTACHMENT D
DATA VALIDATION REPORT

Data Validation Report for 24692

The data validation report contains three sections. The first section consists of a table summarizing the samples associated with the request, the analyses performed, and a summary of qualification results. The second section list the quality control (QC) reviewed, and a yes (Y), no (N), or not applicable (NA) statement indicating whether or not the criteria was met. If applicable, an explanation of the failed criteria will follow the statement. The third section will be completed at the discretion of the validator. This section allows the validator to elaborate on any failed QC criteria by including additional narrative of the failed criteria. If sample data required qualification, a copy of the reported sample data with the appropriate qualifier will be included as an attachment to this report.

SAMPLE SUMMARY TABLE

SAMPLE ID	LAB ID	ANALYSIS	QC CRITRIA MET (Y/N)	SUMMARY OF QUALIFICATION
97.03260	97DS136	VOC	N	All data qualified as unusable (R) due to missed holding times and inappropriate storage of the sample prior to analysis.
97.03261	97DS137	SVOC	Y	Qualification of data not required
97.03263	97DS139	VOC	N	All data qualified as unusable (R) due to missed holding times and inappropriate storage of the sample prior to analysis.
97.03264	97DS140	SVOC	Y	Qualification of data not required

Section Two:

DATA VALIDATION REPORT

	Description of Criteria Reviewed	Criteria Met (Y/N/NA)	Comments	Data Qualified (Y/N)
1.	Holding Time			
A.	Volatile Organics analytical holding time met?	N	Samples were collected on 4/8/97 and analyzed on 5/12 and 5/13 missing the holding time for unpreserved samples by approximately 28 and 29 days.	Y
B.	Semivolatile Organics and/or Pesticides/PCB extraction holding time met?	Y		
C.	Semivolatile Organics and/or Pesticides/PCB analytical holding time met?	Y		
2.	Tune (VOC/SVOC only)			
A.	BFB or DFIPP	Y		
B.	Samples analyzed within 12-hour time?	Y		
3.	Initial Calibration (VOC/SVOC only)			
A.	SPCCs and CCCs and % RSD met method requirements?	Y		
B.	All target compounds RRF ≥ 0.05 ?	N	VOC: Average response factor for 1,2-dibromo-3-chloropropane was < 0.5 .	N
C.	All target compounds RRF $\leq 30\%$ RSD?	N	VOC: %RSD for 1,2-dibromo-3-chloropropane was 87% SVOC: %RSD for benzidine was 35%	N N
4.	Continuing Calibration (VOC/SVOC only)			
A.	SPCCs and CCCs and % D met method requirements?	Y		
B.	All target compounds RRF ≥ 0.05 ?	Y		
C.	All target compounds $\leq 25\%$ D?	N	SVOC: Several compounds with percent difference (%D) $> 25\%$. Refer to Section Three for additional information	N

DATA VALIDATION REPORT

	Description of Criteria Reviewed	Criteria Met (Y/N/NA)	Comments	Data Qualified (Y/N)
5.	Retention Time (PEST/PCB only)			
A.	Are retention time windows established according to method requirements?	NA		
6.	Initial Calibration (PEST/PCB)			
A.	A minimum of three concentrations. All calibration factors or response factors < 10% RSD for target compounds and surrogates?	NA		
7.	Continuing Calibration (PEST/PCB)			
A.	Calibration or response factors \leq 15% difference?	NA		
8	DDT, Endrin Breakdown (PEST/PCB)			
A.	Is the breakdown of 4,4-DDT < 20%?	NA		
B.	Is the breakdown of endrin < 20%?	NA		
9.	Blanks			
A.	Was a method blank prepared and reported for each matrix, concentration level and/or analytical batch?	Y		
B.	All blanks contain no common phthalate esters > 5x LOQ? Are concentrations for remaining target SVOC compounds < LOQ?	Y	Several of the common phthalates were detected in the method blank	N

DATA VALIDATION REPORT

	Description of Criteria Reviewed	Criteria Met (Y/N/NA)	Comments	Data Qualified (Y/N)
9.	Blanks			
C.	Are the target VOC concentrations (except for acetone, methylene chloride, 2-butanone, and toluene) in the method blank < LOQ?	N	Method blank (5/12) contained styrene at a level < LOQ. Similar level was present in both field samples.	Y
D.	Are target Pesticides/PCB compounds in the method blank < LOQ?	NA		
10.	Surrogates			
A.	Recovery of surrogate spiking compound(s) within control limits for samples and method blanks?	Y		
11.	Spike Sample			
A.	MS/MSD within control limits?	Unknown	VOC: Refer to section III for comments. SVOC: MS/MSD analyzed. Results were within control limits.	N
B.	LCS and/or BS/BSD within control limits?	NA	Neither LCS nor BS/BSD were analyzed with the field samples but a "blind" QC sample was.	
12.	Internal Standards (VOC and SVOC only)			
A.	All samples and blanks < (\pm 50%), a factor of 2, when compared to continuing calibration IS?	Y		
B.	All samples and blanks within 30 seconds (0.5 min) retention time when compared to continuing calibration IS?	Y		

DATA VALIDATION REPORT

	Description of Criteria Reviewed	Criteria Met (Y/N/NA)	Comments	Data Qualified (Y/N)
13	Sample Results			
A.	Discrete shifts in the RIC baseline not present?	Y		
B.	High background levels or RT shifts not present?	Y		
C.	Qualification and Quantitation correct?	Y		
D.	LOQs meet method requirements?	Y		
E.	All positive reported results confirmed on a second dissimilar column where retentions are set according to item 5? (PEST/PCB only)	NA		
F.	Retention times did not shift for samples and surrogates? (PEST/PCB)	NA		
14	Data Package			
A.	Was all sample and associated QC data present?	Y		
B.	Was data package complete?	N	VOC: MS/MSD information missing	

Data Validator Name and Signature	<i>Laura A. Kelso</i> 1/12/99
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Section Three: Narrative

Two samples were submitted to CST-12 for the analysis:

97.03260	97DS136*
97.03261	97DS137
97.03263	97DS139*
97.03264	97DS140

* *97DS137 and 97DS140 were analyzed in the place of 97DS136 and 97DS139, respectively.*

These samples were analyzed in the laboratories located at the CMR facility. All samples were collected on 4/8/97.

Samples 97.03260 and 97.03263 were submitted for the analysis of volatile organic compounds (VOC). Due to instrument problems, the samples could not be analyzed until 5/12 and 5/13/97 missing the 7-day holding period for unpreserved samples by approximately 28 and 29 days. Prior to the analysis, the samples were inadvertently placed in the freezer resulting in the samples to freeze and the sampling containers to break. The analyst notified the customer of this anomaly. The customer requested that aliquots from the samples (97.03261 and 97.03264) submitted for the analysis of semivolatile organic compounds (SVOC) be taken and used for the VOC analysis. Unfortunately, these samples had been stored in a glovebox used for the extraction of SVOC and at a temperature exceeding the storage requirements of 4° C. Since the extraction solvent used is methylene chloride, one of the volatile organic target compounds, contamination of the samples may have occurred while stored in the glovebox. This assumption appears to be validated by the detection of methylene chloride in the results for samples 97.03260 and 97.03263.

In summary, not only had the holding time for the field samples been missed but the samples had also been stored in an area that contained a significant source of methylene chloride. The lack of proper storage also impacts the quality of this data. The detection of methylene chloride is probably due to contamination occurring while the samples were stored in the glovebox. Furthermore, the high temperature in the glovebox as well as the extended storage period may have caused the loss of any volatile organic target compounds present in the samples. Therefore, with the exception of bromochloromethane in sample 97.03263, all data for field samples 97.03260 and 97.03263 should be qualified as unusable (R). Data for bromochloromethane in sample 97.03263 should be qualified as estimated (J).

Spreadsheets for samples 97.03260 and 97.03263 have been included as attachments to this validation report. These spreadsheets contain the qualifiers applied to each of the volatile organic target compounds.

The percent relative standard deviation (%RSD) was > 30% for 1,2-dibromo-3-chloropropane at 87%. The extremely high %RSD is due to a higher than average response observed in the low standard of the initial calibration curve. This response may be artificially high due to instrument contamination as evident by the "noisy" baseline. The response factors for the remaining four standards of the curve were similar but extremely low (< 0.05) indicating a possible problem in detecting 1,2-dibromo-3-chloropropane. Since the sample data had been previously qualified due to a combination of missed holding times and unacceptable storage, sample data will not be qualified due to the high % RSD and the low response factor of 1,2-dibromo-3-chloropropane.

The method blank analyzed on 5/12 contained styrene at 3 ug/L. The field samples contained styrene at 3 and 13 ug/L. Since the levels of styrene detected in the field samples were similar to that detected in method blank, the presence of styrene in the field samples can be attributed to laboratory contamination. Therefore, the styrene results for samples 97.03260 and 97.03263 should be reported as not present at the limit of quantitation (LOQ) or < 5 ug/L. However, it is still possible for styrene to have been present at the time of collection but lost during storage. Therefore, styrene data is considered unusable.

Since the reported method blank is prepared just before sample analysis, the results will only provide data concerning laboratory contamination that may occur during the time of preparation and analysis. It does not monitor contamination that may occur during sample storage. Only a storage blank or field blank would provide that type of information. This explains the absence of methylene chloride in the method blank results. It should be noted that the case narrative is incorrect with the application of the "B" qualifier to the methylene chloride result for sample 97.03263.

The case narrative provided by the laboratory indicated that a matrix spike (MS) and matrix spike duplicate (MSD) were analyzed as part of the analytical batch. The case narrative continued to state that samples from this work request were used as the spiking median. However, the data package did not contain any MS/MSD results or raw data. The validator did find evidence of a MS/MSD being analyzed in the instrument logbook. The MS/MSD were analyzed the following day but a sample from a different request was used as the spiking median. Since the sample data had been previously qualified due to a combination of missed holding times and unacceptable storage, sample data will not be qualified due to the lack of MS/MSD results.

It should be noted that a "blind" QC sample was analyzed with the field samples; however, the raw data was not present in the data package. Due to a lack of information, the validator was unable to determine the time of collection and analysis for this QC sample. According to the final report, the sample was collected on 4/8 and analyzed on 5/13 missing the holding time by the same number of days as field samples 97.03260 and 97.03263. The validator is certain that the proper storage requirements were met for this QC sample. Due to the lack of sufficient information, the QC sample results will not be used when validating the data for field samples 97.03260 and 97.03263.

SEMIVOLATILE ORGANIC COMPOUND ANALYSIS SUMMARY

As evident by the summary Data Validation Report, Section Two, the data for the semivolatile organic analysis were good. Even though several target compounds had high percent relative standard deviations and/or high percent differences, the validator believed that the ability to detect these target compounds, if present, was not in jeopardy.

The method blank analyzed with the field samples contained three target compounds: di-n-butylphthalate, bis-2-ethylhexylphthalate, and di-n-octylphthalate. With the exception of n-butylphthalate, these compounds were detected below the limit of quantitation (LOQ) of 40 ug/L. These target compounds were also detected in field sample 97.03261 at levels below the LOQ. Therefore, the detection of di-n-butylphthalate, bis-2-ethylhexylphthalate, and di-n-octylphthalate can be attributed to contamination occurring during the extraction and/or analysis of sample 97.03261.

It should be noted that a "blind" QC sample was extracted and analyzed with the field samples with the results being within the control limits.

Request 24692
 Sample Number: 97.03260
 Customer ID 97DS137

Matrix Liquid
 Units ug/L

Analyte	CAS #	Result	Qualifier
Dichlorodifluoromethane	75-71-8	10	R
Chloromethane	74-87-3	10	R
Bromomethane	74-83-9	10	R
Vinyl Chloride	75-01-4	10	R
Chloroethane	75-00-3	10	R
Trichlorofluoromethane	75-69-4	5	R
Trichlorotrifluoroethane	78-13-1	5	R
Iodomethane	74-88-4	5	R
Carbon disulfide	75-15-0	5	R
Methylene chloride	75-09-2	340	R
Acetone	67-64-1	20	R
Carbon disulfide	75-15-0	5	R
1,1-Dichloroethene	75-35-4	5	R
1,1-Dichloroethane	75-34-3	5	R
trans-1,2-Dichloroethene	156-60-5	5	R
2,2-Dichloropropane	594-20-7	5	R
cis-1,2-Dichloroethene	156-69-2	5	R
Chloroform	67-66-3	5	R
1,2-Dichloroethane	107-06-2	5	R
2-Butanone	78-93-3	20	R
Bromochloromethane	74-97-5	5	R
1,1,1-Trichloroethane	71-55-6	5	R
1,1-Dichloropropene	563-58-6	5	R
Carbon tetrachloride	56-23-5	5	R
Bromodichloromethane	75-27-4	5	R
1,2-Dichloropropane	78-87-5	5	R
trans-1,3-Dichloropropene	10061-02-6	5	R
Trichloroethene	79-01-6	5	R
Dibromochloromethane	124-48-1	5	R
1,1,2-Trichloroethane	79-00-5	5	R
Benzene	71-43-2	5	R
cis-1,3-Dichloropropene	10061-01-5	5	R
Dibromomethane	74-95-3	5	R
Bromoform	75-25-2	5	R
2-Hexanone	591-78-6	20	R
4-methyl-2-pentanone	108-10-1	20	R
Tetrachloroethene	127-18-4	5	R
Toluene	108-88-3	5	R
Chlorobenzene	108-90-7	5	R
Ethylbenzene	100-41-4	5	R

Styrene	100-42-5	5	R
Xylenes (mixed)	1330-20-7	5	R
1,3-Dichloropropane	142-28-9	5	R
1,2-Dibromoethane	106-93-4	5	R
1,1,1,2-Tetrachloroethene	630-20-6	5	R
Isopropylbenzene	98-82-8	5	R
Bromobenzene	108-86-1	5	R
1,2,3-Trichloropropane	96-18-4	5	R
1,1,2,2-Tetrachloroethane	79-34-6	5	R
n-Propylbenzene	103-65-1	5	R
2-Chlorotoluene	95-49-8	5	R
4-Chlorotoluene	106-43-4	5	R
1,3,5-Trimethylbenzene	108-87-8	5	R
tert-Butylbenzene	98-06-6	5	R
1,2,4-Trimethylbenzene	95-63-6	5	R
sec-Butylbenzene	135-98-8	5	R
1,3-Dichlorobenzene	541-73-1	5	R
4-Isopropyltoluene	99-87-6	5	R
1,4-Dichlorobenzene	106-46-7	5	R
n-Butylbenzene	104-51-8	5	R
1,2-Dichlorobenzene	95-50-1	5	R
1,2-Dibromo-3-Chloropropane	96-12-8	10	R

Request 24692
 Sample Number 97.03263
 Customer ID 97DS140

Matrix Liquid
 Units ug/L

Analyte	CAS #	Result	Qualifier
Dichlorodifluoromethane	75-71-8	10	R
Chloromethane	74-87-3	10	R
Bromomethane	74-83-9	10	R
Vinyl Chloride	75-01-4	10	R
Chloroethane	75-00-3	10	R
Trichlorofluoromethane	75-69-4	5	R
Trichlorotrifluoroethane	76-13-1	5	R
Iodomethane	74-88-4	5	R
Carbon disulfide	75-15-0	5	R
Methylene chloride	75-09-2	110000	R
Acetone	67-64-1	20	R
Carbon disulfide	75-15-0	5	R
1,1-Dichloroethene	75-35-4	5	R
1,1-Dichloroethane	75-34-3	5	R
trans-1,2-Dichloroethene	156-60-6	5	R
2,2-Dichloropropane	594-20-7	5	R
cis-1,2-Dichloroethene	156-59-2	5	R
Chloroform	67-66-3	5	R
1,2-Dichloroethane	107-06-2	5	R
2-Butanone	78-93-3	20	R
Bromochloromethane	74-97-6	5	J
1,1,1-Trichloroethane	71-55-6	5	R
1,1-Dichloropropene	563-58-8	5	R
Carbon tetrachloride	56-23-5	5	R
Bromodichloromethane	75-27-4	5	R
1,2-Dichloropropane	78-87-5	5	R
trans-1,3-Dichloropropene	10061-02-6	5	R
Trichloroethene	79-01-6	5	R
Dibromochloromethane	124-48-1	5	R
1,1,2-Trichloroethane	79-00-5	5	R
Benzene	71-43-2	5	R
cis-1,3-Dichloropropene	10061-01-6	5	R
Dibromomethane	74-95-3	5	R
Bromoform	75-25-2	5	R
2-Hexanone	591-78-6	20	R
4-methyl-2-pentanone	108-10-1	20	R
Tetrachloroethene	127-18-4	5	R
Toluene	108-88-3	5	R
Chlorobenzene	108-90-7	5	R
Ethylbenzene	100-41-4	5	R
Styrene	100-42-5	5	R

Xylenes (mixed)	1330-20-7	5	R
1,3-Dichloropropane	142-28-9	5	R
1,2-Dibromoethane	106-93-4	5	R
1,1,1,2-Tetrachloroethene	630-20-6	5	R
Isopropylbenzene	98-82-8	5	R
Bromobenzene	108-86-1	5	R
1,2,3-Trichloropropane	96-18-4	5	R
1,1,2,2-Tetrachloroethane	79-34-5	5	R
n-Propylbenzene	103-65-1	5	R
2-Chlorotoluene	95-49-8	5	R
4-Chlorotoluene	106-43-4	5	R
1,3,5-Trimethylbenzene	108-67-8	5	R
tert-Butylbenzene	98-06-6	5	R
1,2,4-Trimethylbenzene	95-63-6	5	R
sec-Butylbenzene	135-98-8	5	R
1,3-Dichlorobenzene	541-73-1	5	R
4-Isopropyltoluene	99-87-6	5	R
1,4-Dichlorobenzene	106-46-7	5	R
n-Butylbenzene	104-51-8	5	R
1,2-Dichlorobenzene	95-50-1	5	R
1,2-Dibromo-3-Chloroprop	96-12-8	10	R