

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

**Date:** 04-Dec-09

David Conner Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Suite C-205

**CASE NARRATIVE** 

Job:

G005862/JPL Groundwater Monitoring

Work Order:

(818) 393-2808

BMI09112406

Cooler Temp:

4°C

Alpha's Sample ID	Client's Sample ID	Matrix
09112406-01A	QCEB-19NOV	Aqueous
09112406-02A	MW-10	Aqueous
09112406-03A	QCEB-20NOV	Aqueous
09112406-04A	MW-14-5	Aqueous
09112406-05A	MW-14-4	Aqueous
09112406-06A	MW-14-3	Aqueous
09112406-07A	MW-14-2	Aqueous
09112406-08A	MW-14-1	Aqueous
09112406-09A	EB-06-11/23/09	Aqueous
09112406-10A	TB-06-11/23/09	Aqueous

### **Manually Integrated Analytes**

Alpha's Sample ID Test Reference Analyte

NONE

Enclosed please find the analytical results of the samples received by Alpha Analytical, Inc. under the above mentioned Work Order/Chain-of-Custody.

Alpha Analytical, Inc. has a formal Quality Assurance/Quality Control program, which is designed to meet or exceed the EPA requirements. All relevant QC met quality assurance objectives for this project unless otherwise stated in the footnotes.

If you have any questions with regards to this report, please contact Randy Gardner, Project Manager, at (800) 283-1183.

Roger Scholl

Kandg Saulur

Walter Hinkows



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### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110 Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Date Received: 11/24/09

Job: G005862/JPL Groundwater Monitoring

### Perchlorate by Ion Chromatography EPA Method 314.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-10  Lab ID: BMI09112406-02A  Date Sampled 11/20/09 08:50	Perchlorate	3.15	1.00 μg/L	11/25/09 12:32	11/25/09 15:21
Client ID: MW-14-5 Lab ID: BMI09112406-04A Date Sampled 11/23/09 08:09	Perchlorate	ND	1.00 µg/L	11/25/09 12:32	11/25/09 15:39
Client ID: MW-14-4 Lab ID: BMI09112406-05A Date Sampled 11/23/09 08:47	Perchlorate	3.38	1.00 μg/L	11/25/09 12:32	11/25/09 15:58
Client ID: MW-14-3 Lab ID: BMI09112406-06A Date Sampled 11/23/09 09:16	Perchlorate	5.33	1.00 μg/L	11/25/09 12:32	11/25/09 16:53
Client ID: <b>MW-14-2</b> Lab ID: BMI09112406-07A Date Sampled 11/23/09 09:46	Perchlorate	3.31	1.00 μg/L	11/25/09 12:32	11/25/09 17:11
Client ID: <b>MW-14-1</b> Lab ID: BMI09112406-08A Date Sampled 11/23/09 10:13	Perchlorate	2.84	1.00 µg/L	11/25/09 12:32	11/25/09 17:30
Client ID: <b>EB-06-11/23/09</b> Lab ID: BMI09112406-09A Date Sampled 11/23/09 10:00	Perchlorate	ND	1.00 μg/L	11/25/09 12:32	11/25/09 17:58

ND = Not Detected

Roger J. Scholl Ph D. Laboratory Director . Randy Gardner Laboratory Manager . Walter Hinchman. Quality Assurance Offi

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/8/09

Report Date



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### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Attn:

**David Conner** 

Phone: (818) 393-2808

Fax:

(614) 458-6641

Date Received: 11/24/09

Job:

G005862/JPL Groundwater Monitoring

Metals by ICPMS

EPA Method 200.8

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: <b>MW-10</b> Lab ID: BMI09112406-02A Date Sampled 11/20/09 08:50	Chromium (Cr)	ND	0.0050 mg/L	11/25/09 11:11	11/25/09 14:20
Client ID: MW-14-5 Lab ID: BMI09112406-04A Date Sampled 11/23/09 08:09	Chromium (Cr)	ND	0.0050 mg/L	11/25/09 11:11	11/25/09 14:26
Client ID: <b>MW-14-4</b> Lab ID: BMI09112406-05A Date Sampled 11/23/09 08:47	Chromium (Cr)	ND	0.0050 mg/L	11/25/09 11:11	11/25/09 14:32
Client ID: <b>MW-14-3</b> Lab ID: BMI09112406-06A Date Sampled 11/23/09 09:16	Chromium (Cr)	ND	0.0050 mg/L	11/25/09 11:11	11/25/09 14:37
Client ID: <b>MW-14-2</b> Lab ID: BMI09112406-07A Date Sampled 11/23/09 09:46	Chromium (Cr)	ND	0.0050 mg/L	11/25/09 11:11	11/25/09 14:43
Client ID: MW-14-1 Lab ID: BMI09112406-08A Date Sampled 11/23/09 10:13	Chromium (Cr)	ND	0.0050 mg/L	11/25/09 11:11	11/25/09 14:48
Client ID: <b>EB-06-11/23/09</b> Lab ID: BMI09112406-09A Date Sampled 11/23/09 10:00	Chromium (Cr)	ND	0.0050 mg/L	11/25/09 11:11	11/25/09 14:54

ND = Not Detected

Roger Scholl

KandySaulm

Walter Strikm

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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### **ANALYTICAL REPORT**

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Attn: David Conner Phone: (818) 393-2808

Fax: (614) 458-6641

G005862/JPL Groundwater Monitoring Job:

### Tentatively Identified Compounds - Volatile Organics by GC/MS

			Estimated		
	Parameter	Estimated Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID : QCEB-19NOV  Lab ID : BMI09112406-01A  Date Received : 11/24/09  Date Sampled : 11/19/09 15:30	* * * None Found * * *	ND	2.0 μg/L	12/01/09 14:27	12/01/09 14:27
Client ID: MW-10  Lab ID: BMI09112406-02A  Date Received: 11/24/09  Date Sampled: 11/20/09 08:50	* * * None Found * * *	ND	2.0 μg/L	12/01/09 15:12	12/01/09 15:12
Client ID: QCEB-20NOV  Lab ID: BMI09112406-03A  Date Received: 11/24/09  Date Sampled: 11/20/09 11:00	* * * None Found * * *	ND	2.0 μg/L	12/01/09 14:49	12/01/09 14:49
Client ID: MW-14-5  Lab ID: BMI09112406-04A  Date Received: 11/24/09  Date Sampled: 11/23/09 08:09	Sulfur dioxide	6.4	2.0 μg/L	12/01/09 15:35	12/01/09 15:35
Client ID: MW-14-4  Lab ID: BMI09112406-05A  Date Received: 11/24/09  Date Sampled: 11/23/09 08:47	* * * None Found * * *	ND	2.0 μg/L	12/01/09 15:56	12/01/09 15:56
Client ID: MW-14-3 Lab ID: BMI09112406-06A Date Received: 11/24/09 Date Sampled: 11/23/09 09:16	*** None Found ***	ND	2.0 μg/L	12/01/09 16:18	12/01/09 16:18
Client ID : MW-14-2 Lab ID : BMI09112406-07A Date Received : 11/24/09 Date Sampled : 11/23/09 09:46	*** None Found ***	ND	2.0 μg/L	12/01/09 16:40	12/01/09 16:40
Client ID: MW-14-1 Lab ID: BMI09112406-08A Date Received: 11/24/09 Date Sampled: 11/23/09 10:13	*** None Found ***	ND	2.0 μg/L	12/01/09 17:03	12/01/09 17:03
Client ID: EB-06-11/23/09 Lab ID: BMI09112406-09A Date Received: 11/24/09 Date Sampled: 11/23/09 10:00	Tertiary Butyl Alcohol (TBA) 2-Methyl-1-propene	13 Q 9.9	10 μg/L 2.0 μg/L	12/01/09 14:05 12/01/09 14:05	12/01/09 14:05 12/01/09 14:05



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Client ID:

TB-06-11/23/09

Lab ID:

BMI09112406-10A

\* \* \* None Found \* \* \*

ND

2.0 µg/L

12/01/09 13:43 12/01/09 13:43

Date Received: 11/24/09 Date Sampled: 11/23/09 00:00

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

Roger Scholl

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### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112406-01A

Client I.D. Number: QCEB-19NOV

David Conner Attn:

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 11/19/09 15:30

Received: 11/24/09

Extracted: 12/01/09 14:27 Analyzed: 12/01/09 14:27

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reportin	ng Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.5	i0 μg/l	_ 36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1			Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.6			Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.5	i0 µg/l	_ 39	m,p-Xylene	1.3	0.50	μg/L
5	Bromomethane	ND	1	0 μg/l	_ 40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.8	i0 μg/l	_ 41	Styrene	1.9	0.50	μg/L
7	1,1-Dichloroethene	ND	0.5	i0 μg/l	_ 42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1	0 μg/l	_ 43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L.
9	Freon-113	ND	0.5	i0 μg/l	_ 44	1,2,3-Trichloropropane	ND .	1.0	μg/L.
10	trans-1,2-Dichloroethene	ND	0.5	i0 µg/l	_ 45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.5	i0 μg/l	_ 46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND	0.5	i0 μg/l	_ 47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q ·	0 μg/l	_ 48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.5	i0 μg/l	_ 49	2-Chiorotoluene	ND	0.50	µg/L
15	Bromochloromethane	ND	0.5	i0 µg/l	_ 50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	· ND	0.8	i0 μg/l	_ 51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.8	i0 μg/l	_ 52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.8			sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.5	i0 μg/l	_ 54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.5	i0 µg/l	_ 55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.5	i0 μg/l	_ 56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.5	i0 μg/l	_ 57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.5	60 µg/l	_ 58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.5			1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.5	i0 μg/l	_ 60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.5	i0 μg/l	_ 61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2	.5 μg/l	_ 62	Hexachlorobutadiene	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND	0.5	i0 μg/l	_ 63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.5			Surr: 1,2-Dichloroethane-d4	101	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.5			Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.8	i0 μg/l	_ 66	Surr: 4-Bromofluorobenzene	90	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.5	i0 μg/l	L				

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane 34 1,2-Dibromoethane (EDB)

Tetrachloroethene

35

1.0

0.50

μg/L

μg/L

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12/8/09

Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110 Attn:

David Conner

Phone: Fax:

(818) 393-2808 (614) 458-6641

Job:

G005862/JPL Groundwater Monitoring

Sampled: 11/20/09 08:50

Alpha Analytical Number: BMI09112406-02A Client I.D. Number: MW-10

Received: 11/24/09 Extracted: 12/01/09 15:12 Analyzed: 12/01/09 15:12

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reportin	g Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.5	0 μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.		37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.5		38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.5	0 µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.	0 μg/L	40	Bromoform	ND	0,50	μg/L
6	Trichlorofluoromethane	ND	0.5	0 μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.5	0 µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.	0 μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.5	0 μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.5	0 μg/L	45	Isopropylbenzene	ND	0,50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.5	0 μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.5	0 μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q 1	0 μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.5	0 μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.5		50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	0.58	0.5		51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.5	0 μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.5	0 μg/L	53	sec-Butylbenzene	ND	0.50	μg/Ľ
19	1,1,1-Trichloroethane	ND	0.5	0 μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.5	0 μg/L	55	1,4-Dichlorobenzene	ND	0.50	µg/L
21	Carbon tetrachloride	ND	0.5	0 μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.5	0 μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.5	0 μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.5	0 μg/L	59	1,2-Dibromo-3-chloropropane (DBCF		2.5	μg/L
25	Trichloroethene	4.3	0.5	0 µg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.5	0 μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.		62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.5	0 μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.5	0 μg/L	64	Surr: 1,2-Dichloroethane-d4	101	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.5	0 μg/L	65	Surr: Toluene-d8	104	(70-130)	%REC
31	Toluene	ND	0.5	0 μg/L	66	Surr: 4-Bromofluorobenzene	90	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.5	0 µg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

34

Roger Scholl

µg/L μg/L

μg/L

1.0

0.50

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12/8/09

Report Date



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### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

-G005862/IDL G

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112406-03A

Client I.D. Number: QCEB-20NOV

Attn: Dav

David Conner

Phone: Fax:

(818) 393-2808 (614) 458-6641

Sampled: 11/20/09 11:00

Received: 11/24/09

Extracted: 12/01/09 14:49 Analyzed: 12/01/09 14:49

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0		37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50		38	Ethylbenzene	0.74	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	2.2	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	20	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	0.78	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q 10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	µg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC		2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50		61	Naphthalene	2.0	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5		62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	µg/L	64	Surr: 1,2-Dichloroethane-d4	99	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	99	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	90	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50						

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulur

Walter Sterikow

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

0.50

1.0

0.50

μg/L

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples

12/8/09

Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112406-04A

Client I.D. Number: MW-14-5

David Conner Attn:

Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 11/23/09 08:09

Received: 11/24/09

Extracted: 12/01/09 15:35 Analyzed: 12/01/09 15:35

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q 10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	98	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	104	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	90	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

35

34 1,2-Dibromoethane (EDB)

Roger Scholl

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μg/L

1.0

12/8/09

Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112406-05A

Client I.D. Number: MW-14-4

David Conner Attn:

Phone: (818) 393-2808 Fax: (614) 458-6641

Sampled: 11/23/09 08:47

Received: 11/24/09

Extracted: 12/01/09 15:56 Analyzed: 12/01/09 15:56

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Repor	ting L	_imit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	C	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND		1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	C	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	c	).50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND		1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	C	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	c	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND	c	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND	c	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	C	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	C	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	C	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	C	).50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	C	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	C	).50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	C	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	C	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	C	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	C	).50	μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND	C	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	C	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	€	).50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCF	P) ND	2.5	µg/L
25	Trichloroethene	ND	C	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	C	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND	C	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	C	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	99	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	C	0.50	μg/L	65	Surr: Toluene-d8	105	(70-130)	%REC
31	Toluene	ND	C	).50	μg/L	66	Surr: 4-Bromofluorobenzene	89	(70-130)	%REC
32	1,3-Dichloropropane	ND	C	).50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

35 Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

μg/L

1.0

0.50

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Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/8/09

Report Date



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### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112406-06A

Client I.D. Number: MW-14-3

David Conner Attn:

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 11/23/09 09:16

Received: 11/24/09

Extracted: 12/01/09 16:18 Analyzed: 12/01/09 16:18

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Repo	orting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND		0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND		1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND		1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	µg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND .	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	0.56		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	1.9		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	µg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	101	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	104	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	90	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					
33	Dibromochloromethane	ND		0.50	μg/L					
~ 4	4 6 6 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1									

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

0.85

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

35 Tetrachloroethene

Roger Scholl

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1.0

0.50

μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/8/09

Report Date



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### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112406-07A

Client I.D. Number: MW-14-2

Attn: **David Conner** 

Phone: (818) 393-2808 Fax: (614) 458-6641

Sampled: 11/23/09 09:46

Received: 11/24/09

Extracted: 12/01/09 16:40 Analyzed: 12/01/09 16:40

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporti	ng Lim	nit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.5	i0 μ	g/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1	.0 μ	g/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.9	iο μ	g/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.9	50 þ	g/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1	.0 µ	g/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.9	i0 μ	g/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.9	50 μ	g/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	· ND	1	.0 ju	g/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.9	iο μ	g/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.5	i0 μ	g/L	45	Isopropylbenzene	ND	0.50	μg/L
.11	Methyl tert-butyl ether (MTBE)	ND	0.9	i0 μ	g/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND	0.5	i0 μ	g/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q ·	0 μ	g/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	0.56	0.9	i0 μ	g/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.9	50 μ	g/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	0.66	0.9			51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.8	50 μ	g/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.8	i0 μ	g/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.8	50 μ	g/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.9	50 μ	g/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.9	50 μ	g/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.9	50 µ	g/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.9	50 μ	g/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.8	50 µ	g/L	59	1,2-Dibromo-3-chloropropane (DBC		2.5	μg/L
25	Trichloroethene	13	0.9	50 µ	g/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.9			61	Naphthalene	ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2	.5 µ	g/L	62	Hexachlorobutadiene	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND	0.9	50 µ	g/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.9			64	Surr: 1,2-Dichloroethane-d4	100	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.9	50 μ	g/L	65	Surr: Toluene-d8	103	(70-130)	%REC
31	Toluene	ND	0.9			66	Surr: 4-Bromofluorobenzene	91	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.9	50 µ	g/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

0.50

μg/L

µg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples

12/8/09

Report Date Page 1 of 1



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### **ANALYTICAL REPORT**

Battelle Memorial Institute

Client I.D. Number: MW-14-1

3990 Old Town Ave San Diego, CA 92110 Attn:

David Conner

Phone: Fax:

(818) 393-2808 (614) 458-6641

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112406-08A

Sampled: 11/23/09 10:13

Received: 11/24/09

Extracted: 12/01/09 17:03 Analyzed: 12/01/09 17:03

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reportin	g Limit		Compound	Concentration	Reporting L	mit
1	Dichlorodifluoromethane	ND	0.5	) µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.	ρ μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.5	ρ μg/L	38	Ethylbenzene	ND	0.50	·μg/L
4	Chloroethane	ND	0.5	) µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.	) μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.5	) μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.5	) µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.	) µg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.5	) μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.5	) μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.5	) μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.5	) μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q 1	) μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.5	) μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.5	) μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.5	) μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.5	) μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.5	) μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.5	) μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.5	) μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.5	) μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.5	) μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.5	) µg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.5	) µg/L	59	1,2-Dibromo-3-chloropropane (DBC	•	2.5	μg/L
25	Trichloroethene	4.1	0.5	) μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.5	) μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.	5 µg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.5	) μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.5	) μg/L	64	Surr: 1,2-Dichloroethane-d4	98	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.5	) μg/L	65	Surr: Toluene-d8	105	(70-130)	%REC
31	Toluene	ND	0.5	) μg/L	66	Surr: 4-Bromofluorobenzene	91	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.5	) µg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

μg/L

μg/L

µg/L

12/8/09

Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112406-09A

Client I.D. Number: EB-06-11/23/09

**David Conner** Attn:

Phone: (818) 393-2808 (614) 458-6641 Fax:

Sampled: 11/23/09 10:00

Received: 11/24/09

Extracted: 12/01/09 14:05 Analyzed: 12/01/09 14:05

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	ND		Compound	Concentration	Reporting Li	mit			
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chioromethane	ND		1.0		37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND		1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	µg/L
8	Dichloromethane	ND		1.0		43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L.
10	trans-1,2-Dichloroethene	ND		0.50		45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	µg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	µg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	µg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	µg/L	59	1,2-Dibromo-3-chloropropane (DBC)		2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	µg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	100	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	92	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

34 1,2-Dibromoethane (EDB)

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μg/L

μg/L

1.0

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/8/09 **Report Date** 



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### ANALYTICAL REPORT

**Battelle Memorial Institute** 

Client I.D. Number: TB-06-11/23/09

3990 Old Town Ave

Attn: Phone:

David Conner (818) 393-2808

Fax:

(614) 458-6641

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112406-10A

Sampled: 11/23/09 00:00

Received: 11/24/09

Extracted: 12/01/09 13:43 Analyzed: 12/01/09 13:43

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	µg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	DN	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q 10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	µg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	µg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	101	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	92	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane 1,2-Dibromoethane (EDB)

35 Tetrachloroethene

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

µg/L

μg/L

12/8/09

Report Date



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### **VOC Sample Preservation Report**

Work Order: BMI09112406 Job: G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	рН	
09112406-01A	QCEB-19NOV	Aqueous	2	
09112406-02A	MW-10	Aqueous	2	
09112406-03A	QCEB-20NOV	Aqueous	2	
09112406-04A	MW-14-5	Aqueous	2	
09112406-05A	MW-14-4	Aqueous	2	
0911 <b>24</b> 06-06A	MW-14-3	Aqueous	2	
09112406-07A	MW-14-2	Aqueous	2	
09112406-08A	MW-14-1	Aqueous	2	
0911 <b>2</b> 406-09A	EB-06-11/23/09	Aqueous	2	
09112406-10A	TB-06-11/23/09	Aqueous	2	

12/8/09



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<b>Date:</b> 04-Dec-09		(	QC S	umma	ry Repor	t			<b>Work Orde</b> 09112406	
Method Blan	nk		Туре І		Test Code: E Batch ID: 231		thod 314.0		11/25/2009 13:31	
Sample ID:	MB-23156	Units : µg/L		Run ID: I	C_3_091125	A		Prep Date:	11/25/2009 12:32	
Analyte		Result	PQL	SpkVa	l SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		ND		1						
Laboratory	Fortified Blank		Туре І	LFB	Test Code: E	PA Met	thod 314.0			
File ID: <b>15</b>					Batch ID: <b>231</b>	56		Analysis Date:	11/25/2009 13:49	
Sample ID:	LFB-23156	Units : µg/L		Run ID: I	C_3_091125	A		Prep Date:	11/25/2009 12:32	
Analyte		Result	PQL	SpkVa	l SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		24.9		2 2	5	99.6	85	115		_
Perchlorate Sample Matrix Spike			Туре І	LFM	Test Code: E	PA Met	hod 314.0			
File ID: 23					Batch ID: <b>231</b>	56		Analysis Date:	11/25/2009 16:16	
Sample ID:	09112406-05ALFM	Units : µg/L		Run ID: I	C_3_091125	A		Prep Date:	11/25/2009 12:32	
Analyte		Result	PQL	SpkVa	l SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		26.2	,	2 2	5 3.383	91	80	120		
Sample Matrix Spike Duplicate			Туре І	LFMD						
File ID: <b>24</b>					Batch ID: <b>231</b>	56		Analysis Date:	11/25/2009 16:35	
Sample ID:	09112406-05ALFMD	Units : µg/L		Run ID: I	C_3_091125	A		Prep Date:	11/25/2009 12:32	
Analyte		Result	PQL				LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate				2 2	5 3.383	103	80	120 26.1	6 11.2(15)	

### **Comments:**

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



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<b>Date:</b> 04-Dec-09	III Summary Panort	<b>Work Order:</b> 09112406		
Method Blank File ID: 112309.B\MB.D\	Type MBLK Test Code: EPA Method 200.8  Batch ID: 23155K Analysis Date: 11/25/2009 13:3	<del></del> 5		
Sample ID: MB-23155	Units: mg/L Run ID: ICP/MS_091125A Prep Date: 11/25/2009 11:1	1		
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit)	Qual		
Chromium (Cr)	ND 0.005			
Laboratory Control Spike File ID: 112309.B\L1.D\	Type LCS Test Code: EPA Method 200.8  Batch ID: 23155K Analysis Date: 11/25/2009 13:4	1		
Sample iD: LCS-23155 Analyte	Units: mg/L Run ID: ICP/MS_091125A Prep Date: 11/25/2009 11:1  Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit)	1 Qual		
Chromium (Cr)	0.0482 0.005 0.05 96 80 120			
Sample Matrix Spike File ID: 112309.B\MS.D\	Type MS Test Code: EPA Method 200.8  Batch ID: 23155K Analysis Date: 11/25/2009 14:03	3		
Sample ID: 09112502-10AMS	Units: mg/L Run ID: ICP/MS_091125A Prep Date: 11/25/2009 11:1	1		
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit)	Qual		
Chromium (Cr)	0.0548 0.005 0.05 0 110 80 120			
Sample Matrix Spike Duplicate File ID: 112309.B\MSD.D\	Type MSD Test Code: EPA Method 200.8  Batch ID: 23155K Analysis Date: 11/25/2009 14:09	9		
Sample ID: 09112502-10AMSD	Units: mg/L Run ID: ICP/MS_091125A Prep Date: 11/25/2009 11:1	1		
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit)	Qual		
Chromium (Cr)	0.0568 0.005 0.05 0 114 80 120 0.05483 3.5(20)			

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



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Date: 04-Dec-09			QC Sı	ımm	ary Report			<b>Work Ord</b> 0911240	
Method Bla			Туре М	BLK	Test Code: EPA Me			42/04/2000 44:30	
File ID: 09120					Batch ID: MS15W12	201 M	•	12/01/2009 11:30	
Sample ID:	MBLK MS15W1201M	Units : µg/L			: MSD_15_091201A		Prep Date:	12/01/2009 11:30	
Analyte		Result	PQL	Spk\	/al SpkRefVal %RE	C LCL(ME) l	JCL(ME) RPDRef\	/al %RPD(Limit)	Qua
Dichlorodifluor	romethane	ND	0.5	-					
Chloromethan	ne	ND	1						
Vinyl chloride		ND	0.5						
Chloroethane		ND	0.5						
Bromomethan		ND	1						
Trichlorofluoro		ND	0.5						
1,1-Dichloroet		ND	0.5						
Dichlorometha	ane	ND	1						
Freon-113	Jana akha a a	ND	0.5						
trans-1,2-Dich		ND ND	0.5 0.5						
1,1-Dichloroet	tyl ether (MTBE)	ND ND	0.5						
2-Butanone (N		ND	10						
cis-1,2-Dichlo	•	ND	0.5						
Bromochloron		ND	0.5						
Chloroform		ND	0.5						
2,2-Dichloropr	ropane	ND	0.5						
1,2-Dichloroet		ND	0.5						
1,1,1-Trichlord	oethane	ND	0.5						
1,1-Dichloropr	ropene	ND	0.5						
Carbon tetrac	hloride	ND	0.5						
Benzene		ND	0.5						
Dibromometh		ND	0.5						
1,2-Dichloropr	-	ND	0.5						
Trichloroether		ND	0.5						
Bromodichlord		ND	0.5						
d-Metnyl-2-pe	ntanone (MIBK)	ND ND	2.5 0.5						
trans-1,3-Dichio		ND ND	0.5						
1,1,2-Trichlor		ND ND	0.5						
Toluene	Jeulalie	ND	0.5						
1,3-Dichloropi	ropane	ND	0.5						
Dibromochlor		ND	0.5						
1,2-Dibromoe		ND	1						
Tetrachloroeth		ND	0.5						
1,1,1,2-Tetrac	chloroethane	ND	0.5						
Chlorobenzen		ND	0.5						
Ethylbenzene		ND	0.5						
m,p-Xylene		ND	0.5						
Bromoform		ND	0.5						
Styrene		ND	0.5						
o-Xylene	1-1	ND	0.5						
1,1,2,2-Tetrac		ND ND	0.5						
1,2,3-Trichlord		ND ND	1 0.5						
Bromobenzen		ND	0.5						
n-Propylbenze		ND	0.5						
4-Chlorotolue		ND	0.5						
2-Chlorotolue		ND	0.5						
1,3,5-Trimeth		ND	0.5						
tert-Butylbenz	=	ND	0.5						
1,2,4-Trimeth		ND	0.5						
sec-Butylbenz	zene	ND	0.5						
1,3-Dichlorobe		ND	0.5						
1,4-Dichlorob		ND	0.5						
4-isopropyitol		ND	0.5						
1,2-Dichlorob		ND	0.5						
n-Butylbenzer		ND	0.5						
	3-chloropropane (DBCP)	ND	2.5						
1,2,4-Trichlore	upenzene	ND	1						
Naphthalene Hexachlorobu	tadiono	ND ND	1						
1,2,3-Trichlore		ND ND	1						
	oberizerie iloroethane-d4	9.81			10 98	70	130		
	-d8	10.2			10 102		130		



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Date: 04-Dec-09	QC	Summary Re	port			<b>Work Order:</b> 09112406
Surr: 4-Bromofluorobenzene	9.32	10	93	70	130	



Surr: Toluene-d8

Surr: 4-Bromofluorobenzene

### Alpha Analytical, Inc.

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Work Order: Date: QC Summary Report 04-Dec-09 Type LCS Test Code: EPA Method SW8260B Laboratory Control Spike Analysis Date: 12/01/2009 10:35 File ID: 09120105.D Batch ID: MS15W1201M Prep Date: 12/01/2009 10:35 Run ID: MSD\_15\_091201A Sample ID: LCS MS15W1201M Units: µg/L SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Analyte Result **PQL** Dichlorodifluoromethane 11.4 Chloromethane 8.1 Vinyl chloride 9.73 Chloroethane Bromomethane 9.72 Trichlorofluoromethane 1,1-Dichloroethene 11.2 Dichloromethane 9.74 Freon-113 12.1 trans-1,2-Dichloroethene Methyl tert-butyl ether (MTBE) 10.4 0.5 1,1-Dichloroethane 10.2 L50 70(70) 2-Butanone (MEK) cis-1,2-Dichloroethene 10.7 Bromochloromethane 10.3 Chloroform 10.4 2,2-Dichloropropane 12.1 1,2-Dichloroethane 1,1,1-Trichloroethane 11.3 1,1-Dichloropropene 11.1 Carbon tetrachloride 11.5 Benzene 10.3 0.5 Dibromomethane 9.69 1,2-Dichloropropane 10.2 Trichloroethene 10.7 Bromodichloromethane 10.5 cis-1,3-Dichloropropene 10.3 trans-1,3-Dichloropropene 9.13 1,1,2-Trichloroethane 9.36 Toluene 0.5 9.84 1,3-Dichloropropane Dibromochloromethane 9.83 1,2-Dibromoethane (EDB) 20.1 Tetrachloroethene 11.3 1,1,1,2-Tetrachloroethane 10.7 Chlorobenzene Ethylbenzene 10.2 0.5 m,p-Xylene 10.3 0.5 9.35 Bromoform Styrene 11.2 o-Xvlene 10.5 0.5 1,1,2,2-Tetrachloroethane 9.49 1,2,3-Trichloropropane 19.2 Isopropylbenzene 9 89 Bromobenzene 9.55 99.9 9.99 n-Propylbenzene 4-Chlorotoluene 10.2 2-Chlorotoluene 9.9 1.3.5-Trimethylbenzene 9.82 tert-Butylbenzene 1.2.4-Trimethylbenzene 10.1 sec-Butvlbenzene 10.2 1,3-Dichlorobenzene 10.2 1,4-Dichlorobenzene 9.49 4-isopropyltoluene 10.3 1,2-Dichlorobenzene 9.48 n-Butylbenzene 10.7 1,2-Dibromo-3-chloropropane (DBCP) 44.9 1.2.4-Trichlorobenzene 10.6 Naphthalene 9.44 20.6 Hexachlorobutadiene 1,2,3-Trichlorobenzene 9.93 Surr: 1.2-Dichloroethane-d4 9.64 

9.91

9.53



Surr: Toluene-d8

Surr: 4-Bromofluorobenzene

### Alpha Analytical, Inc.

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Work Order: Date: QC Summary Report 04-Dec-09 Test Code: EPA Method SW8260B Type MS Sample Matrix Spike Analysis Date: 12/01/2009 11:52 Batch ID: MS15W1201M File ID: 09120108.D Prep Date: 12/01/2009 11:52 Sample ID: 09112406-05AMS Units: µg/L Run ID: MSD\_15\_091201A SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) **PQL** Qual Analyte Result Dichlorodifluoromethane 42.6 2.5 Chloromethane Vinvl chloride 44.9 2.5 O 50.5 2.5 Chloroethane Bromomethane 43.1 Trichlorofluoromethane 53.2 2.5 1.1-Dichloroethene 53.9 2.5 Dichloromethane 46.4 Freon-113 57.4 2.5 trans-1.2-Dichloroethene 52.4 2.5 Methyl tert-butyl ether (MTBE) 1.3 1,1-Dichloroethane 2.5 2-Butanone (MEK) cis-1,2-Dichloroethene 52.1 2.5 O 49.8 2.5 99.6 Bromochloromethane 50.5 2.5 Chloroform 56.5 2.5 2,2-Dichloropropane 1.2-Dichloroethane 47.4 2.5 1.1.1-Trichloroethane 53.7 2.5 2.5 52.5 1.1-Dichloropropene Carbon tetrachloride 2.5 49.8 Benzene 1.3 99.6 Dibromomethane 45.7 2.5 1,2-Dichloropropane 49.5 2.5 51.1 2.5 Trichloroethene Bromodichloromethane 50.4 2.5 cis-1,3-Dichloropropene 46.8 2.5 trans-1,3-Dichloropropene 42.4 2.5 45.1 2.5 1,1,2-Trichloroethane Toluene 48.4 1.3 1,3-Dichloropropane 2.5 47.4 Dibromochloromethane 2.5 1,2-Dibromoethane (EDB) 97.4 Tetrachloroethene 54.3 2.5 Ó 1,1,1,2-Tetrachloroethane 51.2 2.5 Chlorobenzene 48.2 2.5 Ethylbenzene 49.2 1.3 99.7 49.9 1.3 m,p-Xylene Bromoform 44.2 2.5 Styrene 52.9 2.5 50.2 1.3 o-Xvlene 1,1,2,2-Tetrachloroethane 44.9 2.5 92.7 1,2,3-Trichloropropane Isopropylbenzene 48.4 2.5 Bromobenzene 47.5 2.5 2.5 n-Propylbenzene 48.7 4-Chlorotoluene 2.5 2-Chlorotoluene 49.1 2.5 1.3.5-Trimethylbenzene 49.1 2.5 tert-Butylbenzene 47.9 2.5 2.5 1,2,4-Trimethylbenzene 48 8 sec-Butylbenzene 48.8 2.5 2.5 1.3-Dichlorobenzene 49.7 1,4-Dichlorobenzene 46.5 2.5 4-Isopropyltoluene 50.3 2.5 2.5 1.2-Dichlorobenzene 45.9 2.5 n-Butylbenzene 52.3 1,2-Dibromo-3-chloropropane (DBCP) 1,2,4-Trichlorobenzene 50.2 Naphthalene 43.9 Hexachlorobutadiene 98.8 1,2,3-Trichlorobenzene 46.8 Surr: 1.2-Dichloroethane-d4 47.3 

49.6

48.2



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Date: QC Summary Report Work Order: 09112406

Sample Matrix Spike Duplicate		Type MS	D Te	st Code: E	PA Met	hod SW8	260B	-	· · · · · · · · · · · · · · · · · · ·	
File ID: 09120109.D		. 7		tch ID: MS				sis Date:	12/01/2009 12:14	
Sample ID: 09112406-05AMSD	Units : µg/L	R		D_15_091			Prep	Date: '	12/01/2009 12:14	
Analyte	Result	PQL				LCL(ME)	UCL(ME)	RPDRefVa	al %RPD(Limit)	Qu
Dichlorodifluoromethane	44.5	2.5	50	0		13	167	42.6	4.3(20)	
Chloromethane	36.9	10	50	Ö		28	145	35.97	2.5(20)	
Vinyl chloride	47.3	2.5	50	0	95	43	134	44.89	5.3(20)	
Chloroethane	51.2	2.5	50	0	102	39	154	50.46	1.5(20)	
Bromomethane	47.7	10	50	0	95	19	176	43.12	10.0(20)	
Trichlorofluoromethane	55.6	2.5	50	0	111	34	160	53.17	4.4(20)	
1,1-Dichloroethene	54.4	2.5	50	0	109	60	130	53.87	0.9(20)	
Dichloromethane	48.4	10	50	0	97	68	130	46.39	4.3(20)	
Freon-113	59.4	2.5	50	0	119	49	141	57.39	3.4(20)	
trans-1,2-Dichloroethene	55 54.3	2.5	50	0	110 102	63 56	130 141	52.39 48.97	4.8(20) 4.4(20)	
Methyl tert-butyl ether (MTBE)	51.2 51.2	1.3	50 50	0	102	61	130	48.95	4.5(20)	
1,1-Dichloroethane 2-Butanone (MEK)	51.2 515	2.5 50	1000	0	52	20	182	494	4.2(20)	
cis-1,2-Dichloroethene	54.6	2.5	50	0	109	70	130	52.14	4.7(20)	
Bromochloromethane	51.5	2.5	50 50	0	103	70	130	49.79	3.5(20)	
Chloroform	52.3	2.5	50	Ö	105	67	130	50.45	3.7(20)	
2,2-Dichloropropane	58.7	2.5	50	Ö	117	30	152	56.45	4.0(20)	
1,2-Dichloroethane	48.7	2.5	50	ő	97	60	135	47.44	2.7(20)	
1,1,1-Trichloroethane	54.6	2.5	50	Ŏ	109	59	137	53.73	1.6(20)	
1,1-Dichloropropene	54.2	2.5	50	Ō	108	63	130	52.49	3.2(20)	
Carbon tetrachloride	57.5	2.5	50	0	115	50	147	54.95	4.6(20)	
Benzene	51.2	1.3	50	0	102	67	130	49.79	2.8(20)	
Dibromomethane	48.5	2.5	50	0	97	69	133	45.7	6.0(20)	
1,2-Dichloropropane	50.9	2.5	50	0	102	69	130	49.46	2.8(20)	
Trichloroethene	53.3	2.5	50	0	107	69	130	51.12	4.1(20)	
Bromodichloromethane	52.1	2.5	50	0	104	66	134	50.44	3.3(20)	
cis-1,3-Dichloropropene	49.5	2.5	50	0	99	63	130	46.77	5.6(20)	
trans-1,3-Dichloropropene	44.1	2.5	50	0	88	66	131	42.37	4.1(20)	
1,1,2-Trichloroethane	46.8	2.5	50 50	0	94 99	68 66	130 130	45.13 48.36	3.6(20) 2.4(20)	
Toluene	49.5	1.3	50	0	99	66 70	130	48	3.3(20)	
1,3-Dichloropropane Dibromochloromethane	49.6 48.7	2.5 2.5	50 50	0	99 97	70 70	130	47.41	2.8(20)	
1,2-Dibromoethane (EDB)	101	2.5 5	100	0	101	70	130	97.44	3.7(20)	
Tetrachloroethene	56	2.5	50	. 0	112	61	134	54.26	3.2(20)	
1,1,1,2-Tetrachloroethane	53.2	2.5	50	Ö	106	70	130	51.15	3.9(20)	
Chlorobenzene	49.2	2.5	50	Ŏ	98	70	130	48.16	2.2(20)	
Ethylbenzene	50.1	1.3	50	0	100	68	130	49.23	1.8(20)	
m,p-Xylene	50.7	1.3	50	0	101	64	130	49.86	1.8(20)	
Bromoform	44.9	2.5	50	0	90	64	138	44.16	1.7(20)	
Styrene	54.3	2.5	50	0	109	69	130	52.87	2.7(20)	
o-Xylene	51.6	1.3	50	0		70	130	50.16	2.8(20)	
1,1,2,2-Tetrachloroethane	46.3	2.5	50	0	93	65	131	44.91	3.0(20)	
1,2,3-Trichloropropane	94	10	100	0	94	70	130	92.71	1.4(20)	
Isopropylbenzene	49.3	2.5	50	0	99	64	138	48.39	1.8(20)	
Bromobenzene	48	2.5	50	0	96	70 66	130	47.51	0.9(20)	
n-Propylbenzene	49.1	2.5	50	0	98	66 70	132	48.74 50.04	0.8(20) 1.9(20)	
4-Chlorotoluene	51	2.5	50 50	0	102	70 70	130			
2-Chlorotoluene 1,3,5-Trimethylbenzene	48.4 50	2.5 2.5	50 50	0	97 100	70 66	130 136	49.07 49.09	1.5(20) 1.8(20)	
1,3,5-1 rimetnylbenzene tert-Butylbenzene	50 49	2.5 2.5	50 50	0	98	65	136	49.09	2.4(20)	
1,2,4-Trimethylbenzene	49 49.8	2.5 2.5	50 50	0	99.5	65	137	48.75	2.1(20)	
sec-Butylbenzene	49.6 50	2.5	50 50	0	100	66	134	48.78	2.5(20)	
1.3-Dichlorobenzene	50.1	2.5	50	0	100	70	130	49.7	0.9(20)	
1,4-Dichlorobenzene	48.1	2.5	50	ő	96	70	130	46.54	3.2(20)	
4-Isopropyltoluene	51.6	2.5	50	ō	103	66	137	50.27	2.5(20)	
1,2-Dichlorobenzene	47.3	2.5	50	Ō	95	70	130	45.93	2.9(20)	
n-Butylbenzene	53.6	2.5	50	0	107	60	142	52.31	2.5(20)	
1,2-Dibromo-3-chloropropane (DBCP)	222	15	250	0	89	67	130	215.7	2.7(20)	
1,2,4-Trichlorobenzene	53.2	10	50	0	106	61	137	50.18	5.9(20)	
Naphthalene	47.7	10	50	0	95	40	167	43.91	8.2(20)	
Hexachlorobutadiene	103	10	100	0	103	61	130	98.84	4.5(20)	
1,2,3-Trichlorobenzene	49.7	10	50	0		51	144	46.76	6.0(20)	
Surr: 1,2-Dichloroethane-d4	48		50		96	70 70	130			
Surr: Toluene-d8	50.1		50		100	70 70	130			
Surr: 4-Bromofluorobenzene	46.8		50		94	70	130			



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Date: 04-Dec-09

### QC Summary Report

Work Order: 09112406

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag. L50 = Analyte recovery was below acceptance limits for the LCS, but was acceptable in the MS/MSD.

## Billing Information:

# CHAIN-OF-CUSTODY RECORD

# Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 TEL: (775) 355-1044 FAX: (775) 355-0406

Report Attention

Phone Number

connerd@battelle.org

EMail Address

David Conner

Shane Walton Betsy Cutie

(614) 424-4899 x (614) 424-4117 x (818) 393-2808 x

cutiee@batelle.org waltons@battelle.org

**Battelle Memorial Institute** Suite C-205 3990 Old Town Ave

San Diego, CA 92110

Page: 1 of 1

WorkOrder: BMIS09112406

Report Due By: 5:00 PM On: 09-Dec-2009

EDD Required: Yes

Sampled by: GH/DBL Cooler Temp

Samples Received 24-Nov-2009 24-Nov-2009 Date Printed

Client's COC #: 023593, 24120 QC Level: DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates Job : G005862/JPL Groundwater Monitoring

BMI09112406-10A Sample ID BMI09112406-09A EB-06-11/23/09 BMI09112406-08A MW-14-1 BMI09112406-07A MW-14-2 BMI09112406-06A MW-14-3 BMI09112406-05A BMI09112406-04A MW-14-5 BMI09112406-03A QCEB-20NOV BMI09112406-02A MW-10 BMI09112406-01A QCEB-19NOV MW-14-4 TB-06-11/23/09 Client Sample ID å g å ð Š Ś å Š g AQ 11/19/09 15:30 Matrix Date 11/20/09 08:50 11/23/09 10:00 11/23/09 10:13 11/23/09 09:46 11/23/09 09:16 11/20/09 11:00 Collection 11/23/09 00:00 11/23/09 08:47 11/23/09 08:09 No. of Bottles Alpha Sub G 5 G ယ G S G S ယ 0 0 0 0 0 0 0 0 0 0 Ζ 6 5 5 5 6 6 5 6 6 <del></del> Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate 314\_W METALS\_D VOC\_TIC\_ Ü Ç Ω Ç Ç Ç VOC by 524 VOC by 524 Criteria Criteria VOC\_W Requested Tests Reno Trip Blank 6/22/09 Sample Remarks Level IV QC MS/MSD

Comments:

No security seals. Frozen ice. Temp Blank #7730 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).:

Logged in by:	
Chapteth (	Signature
dcox Elizabeth F	Print Name
COX Alpha Analytical, Inc.	Company
11:24:09 1211	Date/Time

The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other)

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

### Name Gerald Tompkins Billing Information:

Address 505 KING AVE 121 HOS. OH 427

8	

Alpha Analytical, Inc. 255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 Phone (775) 355-1044

Samples Collected From Which State? 023

D A OTHER

Phone Number 614 424 4849 Fax 64 424 3667	367 Fax (775) 355-0406		Analyses Required	
Client Name BATTELLE	PO.# 218013 Job# 51	3PL-6W-4Q09 / 2/	10/20/21/21/21/21/21/21/21/21/21/21/21/21/21/	Required QC Level
Address 505 KING AVE	EMail Address Connerd @battelle.		14.0	/ / " " (11) 1V
City, State, Zip Columbus, OH 43201	Phone # 818-393-2808 64   Fax # 614 458-	(499	x (3)	EDD / EDF? YES NO
Time Date See Key Sampled by AH/DBL	Report Attention DAVID CONNER	and type of	04	Global ID #
Sampled Sampled Below Lab ID Number (Use Only)	Sample Description TAT	Filtered ** See below	C  	REMARKS
1530 1910 AQ BMT091124060	GCEB-19NOV	3 V X		
0850 20NOV AQ	MW-10	s ×	*	
1/00 20NOV AR -03	Q	3 V X		
			Alpha Analytical Sar	Sample Receipt
			Security Seals? YE	ES (NO)
			Frozen ice? (YE	NO
			Temperature	°C
ADDITIONAL INSTRUCTIONS: D.	CONNER THONE # 619-726-7311	311		
Signature	Print Name	Company		Date Time
Relinquished by Dung January	GREG HEADENOTON	BATTELLE	26	20 NOV 09 1200
N.	MANCO MENDON	1NSIGHT	11	11/23/25 1101
Relinquished by	MARCO MEN DER	1181CAK	11	123/09 1200
Received by Carbath (1)	Elizabeth Edcox	(Upha		124.09 1211
Received by				

of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report. NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis \*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air \*\*: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Received by	Relinqu	Received by	Received by Relinquished	Relingu			ADDI				+		æ		1013	9416	<b>1</b> /6	418	0809	Sampled	Time	Sty, St	15 ST	Client Name	City, State, Zip - Phone Number	Billing Name Address	
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			dCax	TON									B	•											Phone (775) 355-1044 Fax (775) 355-0406	Alpha Analytical, Inc. 255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778	
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				1/2			$\downarrow \downarrow$	150												_	_	<u> </u>	<u> </u>	\	quired	Samples Collected From Which State?  AZ CA	
			1-24	1/23/	Date	6	YES	) 6	ample		77		r O		7			Ms			/Glob	E	<u> </u>	/		A	2
			-09	90					Receipt		2 druk		SOUTONET BLANK		Lever 1			US/MSD		REV	Global ID #	EDD/EDF? YES	-	Requi		Page #	•
			115	W	  ⊒	١	ON		) pt		STA TO		18.5		N N			\ <u>\</u>		REMARKS		YES	" (jii	Required QC		$\parallel$ $\sim$	)
				a	Time								mr./<		ac							NO_	N	Level?		4 1 2 or	<b>,</b>

of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.

\*Key: AQ - Aqueous

SO - Soil

WA - Waste

OT - Other

AR - Air

\*\*: L-Liter

V-Voa

S-Soil Jar

O-Orbo

T-Tedlar

B-Brass

P-Plastic

OT-Other

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 06-Dec-09

David Conner

Battelle Memorial Institute

3990 Old Town Ave

San Diego, CA 92110 (818) 393-2808

Suite C-205

**CASE NARRATIVE** 

010) 393-2000				
ob: Vork Order:	G005862/JPL Gr BMI09112508	oundwater Monitoring	Cooler Temp: 4 °C	
Alpha's	Sample ID	Client's Sample ID	Matrix	
09112	2508-01A	MW-22-5	Aqueous	
09112	2508-02A	MW-22-4	Aqueous	
09112	2508-03A	MW-22-3	Aqueous	
09112	2508-04A	MW-22-2	Aqueous	
09112	2508-05A	MW-22-1	Aqueous	
09112	2508-06A	DUPE-04-4Q09	Aqueous	
09112	2508-07A	EB-07-11/24/09	Aqueous	
09112508-08A		TB-07-11/24/09	Aqueous	
		Manually Integrated	l Analytes	
Alpha's Sample ID		Test Reference	<u>Analyte</u>	
09112508-01A		EPA Method 314.0	Perchlorate	

Enclosed please find the analytical results of the samples received by Alpha Analytical, Inc. under the above mentioned Work Order/Chain-of-Custody.

Alpha Analytical, Inc. has a formal Quality Assurance/Quality Control program, which is designed to meet or exceed the EPA requirements. All relevant QC met quality assurance objectives for this project unless otherwise stated in the footnotes.

If you have any questions with regards to this report, please contact Randy Gardner, Project Manager, at (800) 283-1183.

Roger Scholl

Kandy Saulmer

Walter Hirihum



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### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Attn:

**David Conner** 

Fax:

Phone: (818) 393-2808 (614) 458-6641

Date Received: 11/25/09

Job:

G005862/JPL Groundwater Monitoring

### Perchlorate by Ion Chromatography

EPA Method 314.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-22-5 Lab ID: BMI09112508-01A Date Sampled 11/24/09 08:10	Perchlorate	1.29	1.00 μg/L	11/25/09 12:32	11/25/09 19:02
Client ID: <b>MW-22-4</b> Lab ID: BMI09112508-02A Date Sampled 11/24/09 08:38	Perchlorate	ND	1.00 µg/L	11/25/09 12:32	11/25/09 19:20
Client ID: MW-22-3 Lab ID: BMI09112508-03A Date Sampled 11/24/09 09:00	Perchlorate	2.80	1.00 µg/L	11/25/09 12:32	11/25/09 19:39
Client ID: MW-22-2 Lab ID: BMI09112508-04A Date Sampled 11/24/09 09:22	Perchlorate	2.40	1.00 µg/L	11/25/09 12:32	11/25/09 19:57
Client ID: MW-22-1 Lab ID: BMI09112508-05A Date Sampled 11/24/09 09:47	Perchlorate	2.77	1.00 μg/L	11/25/09 12:32	11/25/09 20:15
Client ID: <b>DUPE-04-4Q09</b> Lab ID: BMI09112508-06A Date Sampled 11/24/09 00:00	Perchlorate	ND	1.00 µg/L	11/25/09 12:32	11/25/09 20:34
Client ID: <b>EB-07-11/24/09</b> Lab ID: BMI09112508-07A Date Sampled 11/24/09 09:37	Perchlorate	ND	1.00 µg/L	11/25/09 12:32	11/25/09 20:52

ND = Not Detected

Roger Scholl

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

Report Date



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### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Attn:

**David Conner** 

Phone: (818) 393-2808

Fax:

(614) 458-6641

Date Received: 11/25/09

Job:

G005862/JPL Groundwater Monitoring

Metals by ICPMS

EPA Method 200.8

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-22-5 Lab ID: BMI09112508-01A Date Sampled 11/24/09 08:10	Chromium (Cr)	ND	0.0050 mg/L	11/30/09 11:05	11/30/09 18:51
Client ID: <b>MW-22-4</b> Lab ID: BMI09112508-02A Date Sampled 11/24/09 08:38	Chromium (Cr)	ND	0.0050 mg/L	11/30/09 11:05	11/30/09 18:56
Client ID: <b>MW-22-3</b> Lab ID: BMI09112508-03A Date Sampled 11/24/09 09:00	Chromium (Cr)	ND	0.0050 mg/L	11/30/09 11:05	11/30/09 19:02
Client ID: MW-22-2 Lab ID: BMI09112508-04A Date Sampled 11/24/09 09:22	Chromium (Cr)	ND	0.0050 mg/L	11/30/09 11:05	11/30/09 19:08
Client ID: MW-22-1 Lab ID: BMI09112508-05A Date Sampled 11/24/09 09:47	Chromium (Cr)	ND	0.0050 mg/L	11/30/09 11:05	11/30/09 19:13
Client ID: <b>DUPE-04-4Q09</b> Lab ID: BMI09112508-06A Date Sampled 11/24/09 00:00	Chromium (Cr)	ND	0.0050 mg/L	11/30/09 11:05	11/30/09 19:19
Client ID: EB-07-11/24/09 Lab ID: BMI09112508-07A Date Sampled 11/24/09 09:37	Chromium (Cr)	ND	0.0050 mg/L	11/30/09 11:05	11/30/09 19:24

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

### Tentatively Identified Compounds - Volatile Organics by GC/MS

			Estimated		
	Parameter	Estimated	Reporting	Date	Date
		Concentration	Limit	Extracted	Analyzed
Client ID: MW-22-5 Lab ID: BMI09112508-01A Date Received: 11/25/09 Date Sampled: 11/24/09 08:10	Sulfur dioxide	21	2.0 μg/L	12/01/09 17:25	12/01/09 17:25
Client ID: MW-22-4 Lab ID: BMI09112508-02A Date Received: 11/25/09 Date Sampled: 11/24/09 08:38	Sulfur dioxide	7.3	2.0 μg/L	12/01/09 17:47	12/01/09 17:47
Client ID: MW-22-3  Lab ID: BMI09112508-03A  Date Received: 11/25/09  Date Sampled: 11/24/09 09:00	* * * None Found * * *	ND	2.0 μg/L	12/01/09 18:09	12/01/09 18:09
Client ID: MW-22-2  Lab ID: BMI09112508-04A  Date Received: 11/25/09  Date Sampled: 11/24/09 09:22	* * * None Found * * *	ND	2.0 μg/L	12/01/09 18:31	12/01/09 18:31
Client ID: MW-22-1  Lab ID: BMI09112508-05A  Date Received: 11/25/09  Date Sampled: 11/24/09 09:47	* * * None Found * * *	ND	2.0 μg/L	12/01/09 18:53	12/01/09 18:53
Client ID: DUPE-04-4Q09  Lab ID: BMI09112508-06A  Date Received: 11/25/09  Date Sampled: 11/24/09 00:00	Sulfur dioxide	5.7	2.0 μg/L	12/01/09 19:15	12/01/09 19:15
Client ID: EB-07-11/24/09  Lab ID: BMI09112508-07A  Date Received: 11/25/09  Date Sampled: 11/24/09 09:37	*** None Found ***	ND	2.0 μg/L	12/01/09 13:21	12/01/09 13:21
Client ID: TB-07-11/24/09  Lab ID: BMI09112508-08A  Date Received: 11/25/09  Date Sampled: 11/24/09 00:00	*** None Found ***	ND	2.0 μg/L	12/01/09 12:58	12/01/09 12:58



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Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger L. Scholl, Ph. D., Laboratory Director · Randy Gardner, Laboratory Manager · · Walter Hinchman, Quality Assurance Officer

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Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112508-01A

Client I.D. Number: MW-22-5

Attn: David Conner

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 11/24/09 08:10

Received: 11/25/09

Extracted: 12/01/09 17:25 Analyzed: 12/01/09 17:25

### Volatile Organics by GC/MS EPA Method SW8260B

Compound		Concentration	Re	eporting Limit		Compound		Concentration		Reporting Limit	
1	Dichlorodifluoromethane	ND		0.50	µg/L	36	1,1,1,2-Tetrachloroethane		ND	0.50	μg/L
2	Chloromethane	ND		1.0	μg/L	37	Chlorobenzene	.	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	µg/L	38	Ethylbenzene		ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene		ND	0.50	μg/L
5	Bromomethane	ND		1.0	μg/L	40	Bromoform		ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene		ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene		ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane		ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane		ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene		ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene		ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ļ	ND	0.50	μg/L
13	2-Butanone (MEK)	ND ·	Q	10	μg/L	48	4-Chlorotoluene		ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	-	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene		ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene		ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene		ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene		ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene		ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene		ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	.	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene		ND	0.50	µg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene		ND	0.50	µg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P)	ND	2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene		ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene		ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ļ	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	-	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4		98	(70-130)	%RE
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8		103	(70-130)	%RE
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene		90	(70-130)	%RE
32	1,3-Dichloropropane	ND		0.50	μg/L						

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

1.0

μg/L

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Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute

Client I.D. Number: MW-22-4

3990 Old Town Ave San Diego, CA 92110 Attn: Phone:

David Conner

Fax:

(818) 393-2808 (614) 458-6641

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112508-02A

Sampled: 11/24/09 08:38

Received: 11/25/09

Extracted: 12/01/09 17:47

Analyzed: 12/01/09 17:47

Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0		37	Chlorobenzene	ND	0,50	μg/L
3	Vinyl chloride	ND	0.50		38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	· ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50		41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichioropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q 10	μg/L	48	4-Chlorotoluene	ND	0.50	µg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50		59	1,2-Dibromo-3-chloropropane (DBC		2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	99	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50		65	Surr: Toluene-d8	104	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	. 91	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					
		1							

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

35

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

0.50

μg/L

μg/L

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### ANALYTICAL REPORT

**Battelle Memorial Institute** 

3990 Old Town Ave San Diego, CA 92110 Attn:

David Conner

Fax:

Phone: (818) 393-2808 (614) 458-6641

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112508-03A

Sampled: 11/24/09 09:00

Received: 11/25/09

Client I.D. Number: MW-22-3

Extracted: 12/01/09 18:09 Analyzed: 12/01/09 18:09

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	µg/L
8	Dichloromethane	ND ·	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q 10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	µg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC		2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	100	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	91	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • •

μg/L

μg/L

µg/L

1.0

0.50

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Alpha Analytical, Inc. currently, holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/9/09

Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112508-04A

Client I.D. Number: MW-22-2

Attn: **David Conner** 

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 11/24/09 09:22

Received: 11/25/09

Extracted: 12/01/09 18:31 Analyzed: 12/01/09 18:31

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q 10	μg/L	48	4-Chiorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC		2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	100	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	90	(70-130)	%REC
32	1.3-Dichloropropane	ND	0.50	µg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

12/9/09 Report Date

Alpha Analyticai, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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#### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112508-05A

Client I.D. Number: MW-22-1

David Conner Attn:

Phone: (818) 393-2808 (614) 458-6641 Fax:

Sampled: 11/24/09 09:47

Received: 11/25/09

Extracted: 12/01/09 18:53 Analyzed: 12/01/09 18:53

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Re	porting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND		1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/ <b>L</b>
5	Bromomethane	ND		1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	. ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	µg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC		2.5	μg/L
25	Trichloroethene	0.71		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	103	(70-130)	%REC
31	Toluene	ND		0.50	µg/L	66	Surr: 4-Bromofluorobenzene	89	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

34 1.2-Dibromoethane (EDB)

μg/L

μg/L

1.0

0.50

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

Report Date

12/9/09



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#### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave

Job:

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112508-06A

Client I.D. Number: DUPE-04-4Q09

Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Sampled: 11/24/09 00:00

Received: 11/25/09

Extracted: 12/01/09 19:15 Analyzed: 12/01/09 19:15

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reportin	g Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.5	) µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.:	ρ μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.5	) µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.5	ρ μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.	ρμg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.5	ρ μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.5	0 μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.		43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.5		44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.5	) μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.5	ρμg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.5	ρμg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q 1	0 μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.5		49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.5	0 μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	µg/L
16	Chloroform	ND	0.5	) μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.5	0 μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.5	0 μg/L	53	sec-Butylbenzene	ND .	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.5	0 μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.5	0 μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.5	0 μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND	0.5	0 μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.5		58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.5		59	1,2-Dibromo-3-chloropropane (DBC		2.5	μg/L
25	Trichloroethene	ND	0.5		60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.5	0 μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.	5 μg/L	62	Hexachlorobutadiene	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND	0.5	0 μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.5	0 μg/L	64	Surr: 1,2-Dichloroethane-d4	99	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.5	0 μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.5	0 µg/L	66	Surr: 4-Bromofluorobenzene	91	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.5	0 μg/L					
33	Dibromochloromethane	ND	0.5	0 μg/L					

μg/L

μg/L

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

1,2-Dibromoethane (EDB)

ND = Not Detected

35 Tetrachloroethene

Roger Scholl Kandy Saulur

Walter Findows

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/9/09 Report Date



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#### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110
Job: G005862/JPL

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112508-07A

Client I.D. Number: EB-07-11/24/09

Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Sampled: 11/24/09 09:37

Received: 11/25/09

Extracted: 12/01/09 13:21 Analyzed: 12/01/09 13:21

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Report	ting L	_imit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	C	.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND		1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	O	.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	C	.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND		1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	O	.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	C	.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	C	.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND	C	.50	μg/L	45	isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	C	.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	C	.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chiorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	C	.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	C	.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	C	.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	C	.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	, ND	C	.50	μg/L	53	sec-Butylbenzene	ND	0.50	μ <b>g</b> /L
19	1,1,1-Trichloroethane	ND	C	.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	C	.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	C	.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	C	.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	C	.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	C	.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	C	.50	μg/L	60	1,2,4-Trichlorobenzene	. ND	1.0	μg/L
26	Bromodichloromethane	ND	C	.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	C	.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	C	.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	99	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	c	).50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	C	.50	μg/L	66	Surr: 4-Bromofluorobenzene	94	(70-130)	%REC
32	1,3-Dichloropropane	ND	C	.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulmer

Walter Acrehous

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

1.0

0.50

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/9/09

Report Date



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#### ANALYTICAL REPORT

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112508-08A

Client I.D. Number: TB-07-11/24/09

David Conner Attn:

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 11/24/09 00:00

Received: 11/25/09

Extracted: 12/01/09 12:58 Analyzed: 12/01/09 12:58

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Rep	orting I	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND		1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND		1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	. ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	- ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	µg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCF		2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	99	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	103	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl

µg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

Report Date



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# **VOC Sample Preservation Report**

Work Order: BMI09112508 Job: G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	рН	
09112508-01A	MW-22-5	Aqueous	2	
09112508-02A	MW-22-4	Aqueous	2	
09112508-03A	MW-22-3	Aqueous	2	
09112508-04A	MW-22-2	Aqueous	2	
09112508-05A	MW-22-1	Aqueous	2	
09112508-06A	DUPE-04-4Q09	Aqueous	2	
09112508-07A	EB-07-11/24/09	Aqueous	2	
09112508-08A	TB-07-11/24/09	Aqueous	2	

12/9/09



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<b>Date:</b> 06-Dec-09		(	QC S	ummai	y Repor	t				<b>Work Orde</b> 09112508	
Method Blar File ID: 14			Туре	Е	Test Code: El Batch ID: 231	56	hod 314.0	-		11/25/2009 13:31	-
Sample ID: Analyte	MB-23156	Units : µg/L Result	PQL		C_3_091125/ I SpkRefVal		LCL(ME)	Prep Date UCL(ME) RP		11/25/2009 12:32 /al %RPD(Limit)	Qual
Perchlorate		ND		1							
Laboratory File ID: 15	Fortified Blank		Туре		Test Code: <b>E</b> l Batch ID: <b>231</b>		thod 314.0	Analysis l	Date:	11/25/2009 13:49	
Sample ID: Analyte	LFB-23156	Units : <b>µg/L</b> Result	PQL		C_3_091125 <i>i</i> I SpkRefVal		LCL(ME)	Prep Date UCL(ME) RP		11/25/2009 12:32 /al %RPD(Limit)	Qual
Perchlorate		24.9		2 25	<u> </u>	99.6	85	115		·	
Sample Mat File ID: 23	rix Spike		Туре		Fest Code: El Batch ID: <b>231</b>		hod 314.0	•		11/25/2009 16:16	
Sample ID: Analyte	09112406-05ALFM	Units : µg/L Result	PQL		C_3_091125 <i>i</i> I SpkRefVal		LCL(ME)	Prep Date UCL(ME) RP		11/25/2009 12:32 /al %RPD(Limit)	Qual
Perchlorate		26.2		2 25	3.383	91	80	120			
Sample Mat	rix Spike Duplicate		Туре		Test Code: E		thod 314.0	Analysis I	Date:	11/25/2009 16:35	
Sample ID: Analyte	09112406-05ALFMD	Units : <b>µg/L</b> Result	PQL		C_3_091125 <i>i</i> I SpkRefVal		LCL(ME)	Prep Date UCL(ME) RP		11/25/2009 12:32 /al %RPD(Limit)	Qual
Perchlorate		29.2		2 25	3.383	103	80	120	26.16	11.2(15)	

#### **Comments:**

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



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<b>Date:</b> 06-Dec-09	QC Summary Report	Work Order: 09112508
Method Blank File ID: 113009.B\019SMPL.D\ Sample ID: MB-23168	Cities : Highe	1/30/2009 11:05
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal	%RPD(Limit) Qual
Chromium (Cr)	ND 0.005	
Laboratory Control Spike File ID: 113009.B\020_LCS.D\ Sample ID: LCS-23168	Type LCS Test Code: EPA Method 200.8  Batch ID: 23168K Analysis Date: 11  Units: mg/L Run ID: ICP/MS_091130B Prep Date: 11	1/30/2009 18:06 1/30/2009 11:05
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal	%RPD(Limit) Qual
Chromium (Cr)	0.0568 0.005 0.05 114 80 120	
Sample Matrix Spike File ID: 113009.B\025SMPL.D\ Sample ID: 09113040-01AMS Analyte	Type MS Test Code: EPA Method 200.8  Batch ID: 23168K Analysis Date: 11  Units: mg/L Run ID: ICP/MS_091130B Prep Date: 11  Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal	1/30/2009 11:05
Chromium (Cr)	0.0474	
Sample Matrix Spike Duplicate File ID: 113009.B\026SMPL.D\ Sample ID: 09113040-01AMSD	Cities : HighE	1/30/2009 11:05
Analyte Chromium (Cr)	Result         PQL         SpkVal         SpkRefVal         %REC         LCL(ME)         UCL(ME)         RPDRefVal           0.0493         0.005         0.05         0         99         80         120         0.04744	3.9(20)
Cinomium (Ci)	0.0433 0.003 0.00 0 00 120 0.04144	

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



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Work Order:

Date: QC Summary Report 09112508 06-Dec-09 Type MBLK Test Code: EPA Method SW8260B Method Blank Analysis Date: 12/01/2009 11:30 Batch ID: MS15W1201M File ID: 09120107.D Prep Date: 12/01/2009 11:30 Run ID: MSD\_15\_091201A Sample ID: **MBLK MS15W1201M** Units: µg/L SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Analyte Result PQL Dichlorodifluoromethane ND 0.5 Chloromethane ND Vinyl chloride ND 0.5 Chloroethane ND 0.5 ND Bromomethane 1 Trichlorofluoromethane ND 0.5 1,1-Dichloroethene ND 0.5 Dichloromethane ND 1 Freon-113 ND 0.5 trans-1,2-Dichloroethene ND 0.5 Methyl tert-butyl ether (MTBE) ND 0.5 1.1-Dichloroethane ND 0.5 2-Butanone (MEK) ND 10 cis-1,2-Dichloroethene ND 0.5 Bromochloromethane ND 0.5 ND 0.5 Chloroform 2.2-Dichloropropane ND 0.5 1,2-Dichloroethane ND 0.5 ND 0.5 1,1,1-Trichloroethane 1,1-Dichloropropene ND 0.5 Carbon tetrachloride ND 0.5 Benzene ND 0.5 Dibromomethane ND 0.5 ND 0.5 1,2-Dichloropropane Trichloroethene ND 0.5 Bromodichloromethane ND 0.5 4-Methyl-2-pentanone (MIBK) ND 2.5 cis-1,3-Dichloropropene ND 0.5 trans-1,3-Dichloropropene ND 0.5 1,1,2-Trichloroethane ND 0.5 Toluene ND 0.5 1.3-Dichloropropane ND 0.5 Dibromochloromethane ND 0.5 1,2-Dibromoethane (EDB) ND Tetrachloroethene ND 0.5 1,1,1,2-Tetrachloroethane ND 0.5 Chlorobenzene ND 0.5 Ethylbenzene ND 0.5 m,p-Xylene ND 0.5 Bromoform NΩ 0.5 0.5 Styrene ND o-Xylene ND 0.5 1,1,2,2-Tetrachloroethane ND 0.5 1,2,3-Trichloropropane ND ND isopropylbenzene 0.5 Bromobenzene ND 0.5 n-Propylbenzene ND 0.5 4-Chlorotoluene ND 0.5 2-Chlorotoluene ND 0.5 ND 0.5 1,3,5-Trimethylbenzene tert-Butylbenzene ND 0.5 1,2,4-Trimethylbenzene ND 0.5 sec-Butylbenzene ND 0.5 1,3-Dichlorobenzene ND 0.5 1.4-Dichlorobenzene ND 0.5 4-isopropyltoluene ND 0.5 1,2-Dichlorobenzene ND 0.5 n-Butylbenzene ND 0.5 1,2-Dibromo-3-chloropropane (DBCP) ND 2.5 1,2,4-Trichlorobenzene ND 1 Naphthalene ND Hexachlorobutadiene ND 1 1.2.3-Trichlorobenzene ND 70 130 Surr: 1,2-Dichloroethane-d4 98 9.81 10 Surr: Toluene-d8 10 102 70 130 10.2



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Date: 06-Dec-09	QC	Summary R	Leport				 <b>Work Order:</b> 09112508
Surr: 4-Bromofluorobenzene	9.32	10	93	,	70	130	



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Work Order: Date: QC Summary Report 06-Dec-09 Test Code: EPA Method SW8260B Type LCS **Laboratory Control Spike** Analysis Date: 12/01/2009 10:35 Batch ID: MS15W1201M File ID: 09120105.D Prep Date: 12/01/2009 10:35 Run ID: MSD\_15\_091201A Sample ID: LCS MS15W1201M Units: µg/L SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual **PQL** Analyte Result Dichlorodifluoromethane 11.4 Chloromethane 8.1 Vinvl chloride 9.73 Chloroethane 9.72 Bromomethane Trichlorofluoromethane 11.6 1,1-Dichloroethene 11.2 9.74 Dichloromethane Freon-113 12.1 trans-1,2-Dichloroethene Methyl tert-butyl ether (MTBE) 10.4 0.5 1,1-Dichloroethane 10.2 L50 70(70) 2-Butanone (MEK) cis-1,2-Dichloroethene 10.7 Bromochloromethane 10.3 Chloroform 10.4 12.1 2.2-Dichloropropane 1,2-Dichloroethane 9.71 1,1,1-Trichloroethane 11.3 1,1-Dichloropropene 11.1 Carbon tetrachloride 11.5 Benzene 10.3 0.5 9.69 Dibromomethane 1,2-Dichloropropane 10.2 Trichloroethene 10.7 Bromodichloromethane 10.5 cis-1,3-Dichloropropene 10.3 trans-1,3-Dichloropropene 9.13 1,1,2-Trichloroethane 9.36 0.5 Toluene 1.3-Dichloropropane 9.84 Dibromochloromethane 9.83 1,2-Dibromoethane (EDB) 20.1 Tetrachloroethene 11.3 1,1,1,2-Tetrachloroethane 10.7 Chlorobenzene Ethylbenzene 10.2 0.5 10.3 0.5 m,p-Xylene **Bromoform** 9.35 Styrene 11.2 10.5 0.5 o-Xviene 1,1,2,2-Tetrachloroethane 9.49 19.2 1,2,3-Trichloropropane Isopropylbenzene 9.89 Bromobenzene 9.55 n-Propylbenzene 9.99 99.9 10.2 4-Chlorotoluene 9.9 2-Chlorotoluene 1.3.5-Trimethylbenzene tert-Butylbenzene 9.82 10.1 1,2,4-Trimethylbenzene sec-Butylbenzene 10.2 1,3-Dichlorobenzene 10.2 1.4-Dichlorobenzene 9.49 4-isopropyltoluene 10.3 9.48 1.2-Dichlorobenzene n-Butylbenzene 10.7 1,2-Dibromo-3-chloropropane (DBCP) 44.9 1,2,4-Trichlorobenzene 10.6 Naphthalene 9 44 Hexachlorobutadiene 20.6 1,2,3-Trichlorobenzene 9.93 Surr: 1.2-Dichloroethane-d4 9.64 Surr: Toluene-d8 9.91 Surr: 4-Bromofluorobenzene 9.53 



Surr: 4-Bromofluorobenzene

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Work Order: Date: QC Summary Report 06-Dec-09 Test Code: EPA Method SW8260B Type MS Sample Matrix Spike Analysis Date: 12/01/2009 11:52 Batch ID: MS15W1201M File ID: 09120108.D Prep Date: 12/01/2009 11:52 Units: µg/L Run ID: MSD\_15\_091201A Sample ID: 09112406-05AMS SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Quai Result **PQL** Analyte Dichlorodifluoromethane 42.6 2.5 O Chloromethane Vinyl chloride 44.9 2.5 50.5 2.5 Chloroethane 43.1 Bromomethane n 53.2 2.5 Trichlorofluoromethane 2.5 1,1-Dichloroethene 53.9 Dichloromethane 46.4 Freon-113 57.4 2.5 2.5 trans-1,2-Dichloroethene 52.4 1.3 Methyl tert-butyl ether (MTBE) 2.5 1,1-Dichloroethane 2-Butanone (MEK) cis-1,2-Dichloroethene 52.1 2.5 49.8 2.5 99.6 Bromochloromethane 50.5 2.5 Chloroform 2.5 56.5 2,2-Dichloropropane 1,2-Dichloroethane 47.4 2.5 1,1,1-Trichloroethane 53.7 2.5 2.5 52.5 1,1-Dichloropropene 2.5 Carbon tetrachloride 99.6 Benzene 49.8 1.3 Dibromomethane 45.7 2.5 49.5 2.5 1,2-Dichloropropane 51.1 2.5 Trichloroethene Bromodichloromethane 50.4 2.5 2.5 cis-1,3-Dichloropropene 46.8 42.4 2.5 trans-1,3-Dichloropropene 45.1 2.5 1,1,2-Trichloroethane 1.3 Toluene 48.4 2.5 1.3-Dichloropropane 47.4 Dibromochloromethane 2.5 1,2-Dibromoethane (EDB) Tetrachloroethene 54.3 2.5 2.5 1,1,1,2-Tetrachloroethane 51.2 48.2 2.5 Chlorobenzene Ethylbenzene 49.2 1.3 49 9 1.3 99.7 m,p-Xylene 44.2 Bromoform Styrene 2.5 52.9 50.2 1.3 o-Xvlene 44.9 2.5 1,1,2,2-Tetrachioroethane 92.7 1,2,3-Trichloropropane Isopropylbenzene 48.4 2.5 2.5 Bromobenzene 47.5 2.5 48.7 n-Propylbenzene 4-Chlorotoluene 2.5 49.1 2.5 2-Chlorotoluene 49.1 2.5 1.3.5-Trimethylbenzene tert-Butylbenzene 47.9 2.5 48.8 2.5 1,2,4-Trimethylbenzene 2.5 sec-Butylbenzene 48.8 2.5 49.7 1.3-Dichlorobenzene 1.4-Dichlorobenzene 46.5 2.5 4-Isopropyltoluene 50.3 45.9 2.5 1.2-Dichlorobenzene 52.3 2.5 n-Butylbenzene 1,2-Dibromo-3-chloropropane (DBCP) 1.2.4-Trichlorobenzene 50.2 Naphthalene 43.9 98.8 Hexachlorobutadiene 1,2,3-Trichlorobenzene 46.8 47.3 Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 49.6 

48.2



Surr: 4-Bromofluorobenzene

# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Work Order: Date: QC Summary Report 09112508 06-Dec-09 Type MSD Test Code: EPA Method SW8260B Sample Matrix Spike Duplicate Analysis Date: 12/01/2009 12:14 Batch ID: MS15W1201M File ID: 09120109.D 12/01/2009 12:14 Prep Date: 09112406-05AMSD Units: µg/L Run ID: MSD\_15\_091201A Sample ID: SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual **PQL** Result Analyte 167 4.3(20)89 13 2.5 50 O Dichlorodifluoromethane 44.5 145 35.97 2.5(20)36.9 10 50 74 28 Chloromethane 134 44.89 5.3(20) 95 43 Vinvl chloride 47.3 2.5 50 0 50.46 1.5(20) 102 39 154 2.5 50 0 Chloroethane 51.2 43 12 10.0(20) 176 47.7 10 50 0 95 19 Bromomethane 4.4(20)34 160 53.17 n 111 55.6 2.5 50 Trichlorofluoromethane 0.9(20)2.5 50 0 109 60 130 53.87 1,1-Dichloroethene 54.4 46.39 4.3(20)130 68 50 0 97 Dichloromethane 48.4 10 0 119 49 141 57.39 3.4(20)2.5 50 Freon-113 59.4 4.8(20)52.39 55 2.5 50 110 63 130 trans-1,2-Dichloroethene 4.4(20) 56 141 48.97 0 102 Methyl tert-butyl ether (MTBE) 51.2 1.3 50 4.5(20)130 48.95 2.5 50 0 102 61 51.2 1,1-Dichloroethane 20 182 494 4.2(20)50 1000 0 52 2-Butanone (MEK) 515 52.14 4.7(20)109 70 130 cis-1,2-Dichloroethene 54.6 2.5 50 0 49.79 3.5(20) 103 70 130 51.5 2.5 50 Bromochloromethane 130 50.45 3.7(20)67 52.3 2.5 50 0 105 Chloroform 0 117 30 152 56.45 4.0(20)58.7 2.5 50 2,2-Dichloropropane 2.7(20) 47.44 0 97 60 135 48.7 2.5 50 1.2-Dichloroethane 1.6(20) 137 53.73 109 59 0 1,1,1-Trichloroethane 54.6 2.5 50 54.2 2.5 50 0 108 63 130 52.49 3.2(20)1,1-Dichloropropene 54.95 4.6(20)2.5 50 0 115 50 147 Carbon tetrachloride 57.5 67 130 49.79 2.8(20)0 102 51.2 1.3 50 Benzene 6.0(20)45.7 97 69 133 48.5 2.5 50 0 Dibromomethane 102 130 49.46 2.8(20) 69 50.9 2.5 50 0 1,2-Dichloropropane 130 51.12 4.1(20)53.3 2.5 50 0 107 69 Trichloroethene 50.44 3.3(20)66 134 2.5 50 0 104 Bromodichloromethane 52.1 46.77 5.6(20) 0 99 63 130 2.5 50 cis-1,3-Dichloropropene 49.5 4.1(20) 0 88 66 131 42.37 44.1 2.5 50 trans-1,3-Dichloropropene 130 45.13 3.6(20)46.8 2.5 50 0 94 68 1,1,2-Trichloroethane 130 48.36 2.4(20)0 99 66 1.3 50 Toluene 49.5 3.3(20) 48 0 99 70 130 49.6 2.5 50 1,3-Dichloropropane 47.41 2.8(20)0 97 70 130 Dibromochloromethane 48.7 2.5 50 70 130 97.44 3.7(20)100 0 101 1,2-Dibromoethane (EDB) 101 5 54.26 3.2(20)134 61 Tetrachloroethene 56 2.5 50 0 112 0 106 70 130 51.15 3.9(20)53.2 2.5 50 1,1,1,2-Tetrachloroethane 2.2(20) 0 98 70 130 48.16 49.2 2.5 50 Chlorobenzene 130 49.23 1.8(20) 0 100 68 Ethylbenzene 50.1 1.3 50 64 130 49.86 1.8(20) 50.7 1.3 50 0 101 m,p-Xylene 44.16 1.7(20)64 138 50 0 90 44.9 2.5 Bromoform 52.87 2.7(20)54.3 2.5 50 0 109 69 130 Styrene 50.16 2.8(20)0 103 70 130 51.6 1.3 50 o-Xvlene 3.0(20) 65 131 44.91 0 93 46.3 2.5 50 1,1,2,2-Tetrachloroethane 0 94 70 130 92.71 1.4(20)100 10 1,2,3-Trichloropropane 94 138 48.39 1.8(20)0 99 49.3 2.5 50 64 Isopropylbenzene 47.51 0.9(20)0 96 70 130 48 2.5 50 Bromobenzene 0 98 66 132 48.74 0.8(20) 49.1 2.5 50 n-Propylbenzene 70 50.04 1.9(20)0 102 130 4-Chiorotoluene 51 2.5 50 70 49.07 1.5(20)0 97 130 48.4 2.5 50 2-Chlorotoluene 49.09 1.8(20)50 2.5 50 0 100 66 136 1.3.5-Trimethylbenzene 65 137 47.86 2.4(20) 0 98 49 2.5 50 tert-Butylbenzene 2.1(20) 498 2.5 50 0 99.5 65 137 48.75 1,2,4-Trimethylbenzene 48.78 2.5(20)0 66 134 2.5 50 100 sec-Butylbenzene 130 49.7 0.9(20)50.1 50 0 100 70 2.5 1,3-Dichlorobenzene 3.2(20)130 46.54 0 96 70 48.1 2.5 50 1.4-Dichlorobenzene 50.27 2.5(20)0 103 66 137 4-Isopropyltoluene 51.6 2.5 50 2.9(20) 45.93 0 95 70 130 2.5 50 1.2-Dichlorobenzene 47.3 142 52.31 2.5(20)0 107 60 2.5 50 n-Butylbenzene 53.6 250 0 89 67 130 215.7 2.7(20)1,2-Dibromo-3-chloropropane (DBCP) 222 15 5.9(20) 50.18 1.2.4-Trichlorobenzene 0 106 61 137 53.2 10 50 8.2(20) 40 167 43.91 95 Naphthalene 47.7 10 50 0 103 61 130 98.84 4.5(20)10 100 103 Hexachlorobutadiene 144 46.76 6.0(20)99 51 1,2,3-Trichlorobenzene 49.7 50 O 130 96 70 50 Surr: 1,2-Dichloroethane-d4 48 70 Surr: Toluene-d8 50.1 50 100 130

70

94

50

46.8

130



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Date:
06-Dec-09

QC Summary Report

Work Order: 09112508

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag. L50 = Analyte recovery was below acceptance limits for the LCS, but was acceptable in the MS/MSD.

# Billing information:

# CHAIN-OF-CUSTODY RECORD

# Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 TEL: (775) 355-1044 FAX: (775) 355-0406

Report Due By: 5:00 PM On: 10-Dec-2009

WorkOrder: BMIS09112508

S

Report Attention David Conner Phone Number (818) 393-2808 x (614) 424-4117 x connerd@battelle.org waltons@battelle.org EMail Address

Shane Walton Betsy Cutie

(614) 424-4899

cutiee@batelle.org

Battelle Memorial Institute

EDD Required: Yes

Sampled by: Client Cooler Temp

25-Nov-2009

Samples Received 25-Nov-2009 Date Printed

QC Level: DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates

Job: G005862/JPL Groundwater Monitoring

Client's COC #: 28889

218013

San Diego, CA 92110

Suite C-205 3990 Old Town Ave

Sample ID BMI09112508-01A MW-22-5 BMI09112508-07A EB-07-11/24/09 BMI09112508-06A BMI09112508-05A MW-22-1 BMI09112508-04A BMI09112508-03A MW-22-3 BMI09112508-02A MW-22-4 BMI09112508-08A TB-07-11/24/09 DUPE-04-4Q09 MW-22-2 Client Sample ID AQ 11/24/09 08:38 ð Matrix Date å å å ğ Š å 11/24/09 09:00 11/24/09 09:47 11/24/09 08:10 11/24/09 00:00 11/24/09 09:37 11/24/09 00:00 11/24/09 09:22 Collection No. of Bottles Alpha Sub S Ç S S Ç S 0 0 0 0 a 0 0 0 ΤAΤ 6 5 7 6 6 6 5 5 Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate 314\_W METALS\_D VOC\_TIC\_ Ç Ç Ç Ç Ç Ç Ç VOC by 524 VOC by 524 Criteria Criteria VOC\_W Requested Tests Reno Trip Blank 6/22/09 Sample Remarks

Logged in by: anabuth ( Secret Elizabeth Hdcox Alpha Analytical, Inc. Company

> 11:25:07 /520 Date/Time

No security seals. Frozen ice. Temp Blank #2587 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).:

Comments:

The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other)

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing Information:			Samples Collected From Which State?	hich State? 28889
Name (35TLALD) TOMPKINS / BOTTELLE	3	Alpna Analytical, Inc. 255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778	AZ CA X NV ID OR OTHER	age
le, Zip (ALMMBUS C	Phone Fax (77	Phone (775) 355-1044 Fax (775) 355-0406	Analyses Required	red
Client Name BATTELLE / DOVID CONNER	PO.# 218013	1985000 # qor	25)	Required QC Level?
9	EMail Address		14.2 14.0 14.0	1 11 CM IV
92410	Pho/e 6/9) 726-7311	Fax#	(3)	EDD / EDF? YES NO NO
atrix* Sampled	Report Attention	Total and type of	Tel less	Global ID #
d Sampled	Sample Description	TAT Filtered ** See below	N N CON	REMARKS
10 1/2508-01	MW-22-5	2 0/2	×	
CO	MW-22-4		XXX	
.03	Mw-22-3		×	
to.	.04 MW-22-2		×	
50.	Mw-22-1	4	XXX	
*		i		
- 1/h//n	DUPE-04-4209	7 9/1	XXX	DUPHLANE
CO.	4B-07-11/24/09	29/	X X X	CONDUCT BLAN
11/24/69	-11/24/	V 1	X	2
				,
ADDITIONAL INSTRUCTIONS:				
Signaturs	Print Name		Company	Date Time
Relinguished by	- CHASE BUREDY	Total Take	IN CECTAR	11/24/09 1300
Received by Congression Lacon	Elizabeth Fldcox	×	pha	11:25:09 1520
Received by				
Relinquished by				
Received by				
*Key: AQ - Aqueous SO - Soil WA - Waste	e OT - Other AR - Air **:	: L-Liter V-Voa S-Soil Jar	O-Orbo T-Tedlar B-Brass	ss P-Plastic OT-Other

of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 09-Dec-09

David Conner

Battelle Memorial Institute

3990 Old Town Ave

San Diego, CA 92110 (818) 393-2808 Suite C-205

**CASE NARRATIVE** 

Job:

G005862/JPL Groundwater Monitoring

Work Order:

BMI09120150

**Cooler Temp:** 

4 °C

Alpha's Sample ID	Client's Sample ID	Matrix
09120150-01A	MW-4-5	Aqueous
09120150-02A	MW-4-4	Aqueous
09120150-03A	MW-4-3	Aqueous
09120150-04A	MW-4-2	Aqueous
09120150-05A	MW-4-1	Aqueous
09120150-06A	DUPE-05-4209	Aqueous
09120150-07A	EB-08-11/30/09	Aqueous
09120150-08A	TB-08-11/30/09	Aqueous

#### **Manually Integrated Analytes**

Alpha's Sample ID	Test Reference	<u>Analyte</u>	
09120150-05A	EPA Method 314.0	Perchlorate	

Enclosed please find the analytical results of the samples received by Alpha Analytical, Inc. under the above mentioned Work Order/Chain-of-Custody.

Alpha Analytical, Inc. has a formal Quality Assurance/Quality Control program, which is designed to meet or exceed the EPA requirements. All relevant QC met quality assurance objectives for this project unless otherwise stated in the footnotes.

If you have any questions with regards to this report, please contact Randy Gardner, Project Manager, at (800) 283-1183.

Koger Scholl

Kandy Saulner

Walter Hirihan



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Attn:

**David Conner** 

Phone: (818) 393-2808

Fax:

(614) 458-6641

Date Received: 12/01/09

Job:

G005862/JPL Groundwater Monitoring

#### Perchlorate by Ion Chromatography EPA Method 314.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-4-5 Lab ID: BMI09120150-01A Date Sampled 11/30/09 08:31	Perchlorate	ND	1.00 μg/L	12/02/09 12:28	12/02/09 15:28
Client ID: MW-4-4 Lab ID: BMI09120150-02A Date Sampled 11/30/09 08:56	Perchlorate	ND	1.00 μg/L	12/02/09 12:28	12/02/09 15:46
Client ID: MW-4-3 Lab ID: BMI09120150-03A Date Sampled 11/30/09 09:28	Perchlorate	ND	1.00 μg/L	12/02/09 12:28	12/02/09 16:05
Client ID: MW-4-2 Lab ID: BMI09120150-04A Date Sampled 11/30/09 09:57	Perchlorate	2.24	1.00 μg/L	12/02/09 12:28	12/02/09 16:23
Client ID: MW-4-1 Lab ID: BMI09120150-05A Date Sampled 11/30/09 10:38	Perchlorate	96.0	1.00 μg/L	12/02/09 12:28	12/02/09 16:42
Client ID: <b>DUPE-05-4209</b> Lab ID: BMI09120150-06A Date Sampled 11/30/09 00:00	Perchlorate	ND	1.00 μg/L	12/02/09 12:28	12/02/09 18:14
Client ID: <b>EB-08-11/30/09</b> Lab ID: BMI09120150-07A Date Sampled 11/30/09 10:18	Perchlorate	ND ,	1.00 μg/L	12/02/09 12:28	12/02/09 18:32

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

**Report Date** 



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110 Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Date Received: 12/01/09

Job: G005862/JPL Groundwater Monitoring

Metals by ICPMS EPA Method 200.8

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-4-5 Lab ID: BMI09120150-01A Date Sampled 11/30/09 08:31	Chromium (Cr)	0.0052	0.0050 mg/L	12/02/09 11:07	12/02/09
Client ID: MW-4-4 Lab ID: BMI09120150-02A Date Sampled 11/30/09 08:56	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/02/09
Client ID: MW-4-3 Lab ID: BMI09120150-03A Date Sampled 11/30/09 09:28	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/02/09
Client ID: MW-4-2 Lab ID: BMI09120150-04A Date Sampled 11/30/09 09:57	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/02/09
Client ID: MW-4-1 Lab ID: BMI09120150-05A Date Sampled 11/30/09 10:38	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/02/09
Client ID: <b>DUPE-05-4209</b> Lab ID: BMI09120150-06A Date Sampled 11/30/09 00:00	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/02/09
Client ID: <b>EB-08-11/30/09</b> Lab ID: BMI09120150-07A Date Sampled 11/30/09 10:18	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/02/09

ND = Not Detected

Roger Scholl Kandy Saulur Walter Horich

 $Roger\ L.\ Scholl,\ Ph.D.,\ Laboratory\ Director \bullet \bullet Randy\ Gardner,\ Laboratory\ Manager \bullet \bullet Walter\ Hinchman,\ Quality\ Assurance\ Officer$ 

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Report Date



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

Attn: David Conner Phone: (818) 393-2808

San Diego, CA 92110

Fax: (614) 458-6641

G005862/JPL Groundwater Monitoring Job:

#### Tentatively Identified Compounds - Volatile Organics by GC/MS

			Estimated		
	Parameter	Estimated	Reporting	Date	Date
		Concentration	Limit	Extracted	Analyzed
Client ID: MW-4-5 Lab ID: BMI09120150-01A Date Received: 12/01/09 Date Sampled: 11/30/09 08:31	*** None Found ***	ND	2.0 μg/L	12/04/09 14:37	12/04/09 14:37
Client ID: MW-4-4 Lab ID: BMI09120150-02A Date Received: 12/01/09 Date Sampled: 11/30/09 08:56	*** None Found ***	ND	2.0 μg/L	12/04/09 14:59	12/04/09 14:59
Client ID: MW-4-3 Lab ID: BMI09120150-03 A Date Received: 12/01/09 Date Sampled: 11/30/09 09:28	*** None Found ***	ND	2.0 μg/L	12/04/09 15:22	12/04/09 15:22
Client ID: MW-4-2 Lab ID: BMI09120150-04A Date Received: 12/01/09 Date Sampled: 11/30/09 09:57	*** None Found ***	ND	2.0 μg/L	12/04/09 15:44	12/04/09 15:44
Client ID: MW-4-1 Lab ID: BMI09120150-05A Date Received: 12/01/09 Date Sampled: 11/30/09 10:38	*** None Found ***	ND	2.0 μg/L	12/04/09 16:06	12/04/09 16:06
Client ID: <b>DUPE-05-4209</b> Lab ID: BMI09120150-06A  Date Received: 12/01/09  Date Sampled: 11/30/09 00:00	Sulfur dioxide	2.2	2.0 μg/L	12/04/09 16:28	12/04/09 16:28
Client ID : EB-08-11/30/09 Lab ID : BMI09120150-07A  Date Received : 12/01/09  Date Sampled : 11/30/09 10:18	*** None Found ***	ND	2.0 μg/L	12/04/09 13:31	12/04/09 13:31
Client ID: TB-08-11/30/09 Lab ID: BMI09120150-08A  Date Received: 12/01/09 Date Sampled: 11/30/09 00:00	*** None Found ***	ND	2.0 μg/L	12/04/09 13:09	12/04/09 13:09



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Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl Kandy Saulur Walter Firehour

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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12/14/09

Report Date



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#### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 3990 Old Town Ave San Diego, CA 92110

Attn: Phone: Fax:

David Conner (818) 393-2808 (614) 458-6641

Client I.D. Number: MW-4-5

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120150-01A

Sampled: 11/30/09 08:31

Received: 12/01/09 Extracted: 12/04/09 14:37

Analyzed: 12/04/09 14:37

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xvlene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	µg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	µg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyitoluene	ND	0.50	µg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	µg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	µg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	µg/L	65	Surr: Toluene-d8	97	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	94	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

µg/L

µg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/14/09

Report Date Page 1 of 1



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#### ANALYTICAL REPORT

**Battelle Memorial Institute** 3990 Old Town Ave San Diego, CA 92110

Attn: Fax:

**David Conner** Phone: (818) 393-2808

(614) 458-6641

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120150-02A Client I.D. Number: MW-4-4

Sampled: 11/30/09 08:56 Received: 12/01/09

Extracted: 12/04/09 14:59 Analyzed: 12/04/09 14:59

Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	 μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND .	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	104	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	99	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

μg/L

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Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

**Report Date** 



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#### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 3990 Old Town Ave San Diego, CA 92110

Attn: **David Conner** 

Phone: (818) 393-2808

Fax:

(614) 458-6641

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120150-03A Client I.D. Number: MW-4-3

Sampled: 11/30/09 09:28

Received: 12/01/09

Extracted: 12/04/09 15:22

Analyzed: 12/04/09 15:22

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	0.95	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	0.52	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	µg/L	64	Surr: 1,2-Dichloroethane-d4	105	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	98	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L				, ,	
33	Dibromochloromethane	ND	0.50	μg/L					
		!		. •					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

µg/L

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Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/14/09

Report Date Page 1 of 1



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#### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 3990 Old Town Ave San Diego, CA 92110

Client I.D. Number: MW-4-2

Attn: Fax:

**David Conner** Phone: (818) 393-2808 (614) 458-6641

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120150-04A

Sampled: 11/30/09 09:57

Received: 12/01/09

Extracted: 12/04/09 15:44 Analyzed: 12/04/09 15:44

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	µg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	µg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	µg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	µg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	µg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	0.74	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	104	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	91	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L			•		

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

34

Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

µg/L

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12/14/09

**Report Date** 



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Attn:

David Conner Phone: (818) 393-2808

Fax:

(614) 458-6641

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120150-05A Client I.D. Number: MW-4-1

Sampled: 11/30/09 10:38

Received: 12/01/09

Extracted: 12/04/09 16:06 Analyzed: 12/04/09 16:06

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	µg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	µg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	µg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	, ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	µg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	µg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	µg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%RE
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%RE
31	Toluene	ND ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%RE
32	1,3-Dichloropropane	ND	0.50	μg/L			*	, ,	
33	Dibromochloromethane	ND	0.50	ua/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

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**Report Date** Page 1 of 1



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#### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Attn:

**David Conner** 

Phone: (818) 393-2808

Fax:

(614) 458-6641

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120150-06A Client I.D. Number: DUPE-05-4209

Sampled: 11/30/09 00:00

Received: 12/01/09

Extracted: 12/04/09 16:28 Analyzed: 12/04/09 16:28

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	µg/L
3	Vinyl chloride	ND	0.50	µg/L	38	Ethylbenzene	1,1	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	0.55	0.50	µg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xvlene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	µg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	µg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	µg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	µg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	104	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	98	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	96	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1.2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/14/09 **Report Date** 



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Attn:

**David Conner** Phone: (818) 393-2808

Fax:

(614) 458-6641

Alpha Analytical Number: BMI09120150-07A Client I.D. Number: EB-08-11/30/09

Sampled: 11/30/09 10:18 Received: 12/01/09

Extracted: 12/04/09 13:31 Analyzed: 12/04/09 13:31

Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND ND	1.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	µg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	µg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L.
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC)	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	94	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L			•	•	
33	Dibromochloromethane	ND	0.50	μg/L					
34	1,2-Dibromoethane (EDB)	ND	1.0	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

Roger Scholl

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

0.50

µg/L

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**Report Date** Page 1 of 1



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120150-08A

Client I.D. Number: TB-08-11/30/09

Attn: David Conner Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 11/30/09 00:00

Received: 12/01/09

Extracted: 12/04/09 13:09 Analyzed: 12/04/09 13:09

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	ug/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	ug/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	µg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xvlene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	µg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	µg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	µg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	100	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	97	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L				•	
33	Dibromochloromethane	ND	0.50	µg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl Kandy Soulun

ND

ND

Walter Findens

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/14/09

**Report Date** 



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# **VOC Sample Preservation Report**

Work Order: BMI09120150

Job:

G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	рН
09120150-01A	MW-4-5	Aqueous	2
09120150-02A	MW-4-4	Aqueous	2
09120150-03A	MW-4-3	Aqueous	2
09120150-04A	MW-4-2	Aqueous	2
09120150-05A	MW-4-1	Aqueous	2
09120150-06A	DUPE-05-4209	Aqueous	2
09120150-07A	EB-08-11/30/09	Aqueous	2
09120150-08A	TB-08-11/30/09	Aqueous	2

12/14/09

Report Date



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<b>Date:</b> 09-Dec-09			Work Order: 09120150							
Method Bla	nk		Type N		est Code: El atch ID: 231		thod 314.0	Analysis Date:	12/02/2009 13:38	
Sample ID:	MB-23184	Units : µg/L		Run ID: IC	_3_091202	A		Prep Date:	12/02/2009 12:28	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		ND <sup>1</sup>	1							
Laboratory	Fortified Blank		Type L	.FB T	est Code: El	PA Met	thod 314.0			
File ID: <b>15</b>				В	atch ID: 231	84		Analysis Date:	12/02/2009 13:56	
Sample ID:	LFB-23184	Units : µg/L		Run ID: IC	_3_091202	4		Prep Date:	12/02/2009 12:28	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		24.6	2	25		98	85	115		
Sample Mat	rix Spike		Type L	.FM T	est Code: El	PA Met	thod 314.0			
File ID: 27				В	atch ID: 231	84		Analysis Date:	12/02/2009 17:37	
Sample ID:	09120150-05ALFM	Units : µg/L		Run ID: IC	_3_091202	Α .		Prep Date:	12/02/2009 12:28	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		343	20	250	96.03	99	80	120		
Sample Mat	rix Spike Duplicate		Type L	FMD T	est Code: El	PA Met	thod 314.0			
File ID: 28	• •			В	atch ID: 231	84		Analysis Date:	12/02/2009 17:55	
Sample ID:	09120150-05ALFMD	Units : µg/L		Run ID: IC	_3_091202	Α .		Prep Date:	12/02/2009 12:28	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		349	20	250	96.03	101	80	120 343	1.7(15)	_
Sample Mat File ID: 27 Sample ID: Analyte Perchlorate Sample Mat File ID: 28 Sample ID: Analyte	09120150-05ALFM	Units: µg/L Result 343 Units: µg/L Result	PQL 20 Type L	FM T B Run ID: IC SpkVal 250 FMD T B Run ID: IC SpkVal	est Code: El atch ID: 231 3_091202A SpkRefVal 96.03 est Code: El atch ID: 231 5_3_091202A SpkRefVal	PA Mer 84 %REC 99 PA Mer 84 A	thod 314.0 C LCL(ME) 80 thod 314.0	Analysis Date: Prep Date: UCL(ME) RPDRef 120  Analysis Date: Prep Date: UCL(ME) RPDRef	12/02/2009 12:28 Val %RPD(Limit) 12/02/2009 17:55 12/02/2009 12:28 Val %RPD(Limit)	

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



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Date: 09-Dec-09	QC Summary Report					Work Order: 09120150			
Method Blank File ID: 120309.B\79MB.D\		Type N		est Code: El		thod 200.8	Analysis Date:	12/02/2009 22:39	
Sample ID: MB-23179	Units : mg/L		Run ID: IC	P/MS_0912	02C		Prep Date:	12/02/2009 11:07	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Chromium (Cr)	ND	0.005	5						
Laboratory Control Spike		Type L	.cs T	est Code: El	PA Met	hod 200.8			
File ID: 120309.B\79L1.D\			В	atch ID: 231	79K		Analysis Date:	12/02/2009 22:45	
Sample ID: LCS-23179	Units : mg/L		Run ID: IC	P/MS_0912	02C		Prep Date:	12/02/2009 11:07	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Chromium (Cr)	0.057	0.005	0.05		114	80	120		
Sample Matrix Spike		Type N	IS T	est Code: El	PA Met	hod 200.8			
File ID: 120309.B\79MS.D\			В	atch ID: 231	79K		Analysis Date:	12/02/2009 23:13	
Sample ID: 09120150-05AMS	Units : mg/L		Run ID: IC	P/MS_0912	02C		Prep Date:	12/02/2009 11:07	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Chromium (Cr)	0.0605	0.005	0.05	0	121	80	120		M1
Sample Matrix Spike Duplicate Type MSD Test Code: EPA Method 200.8									
File ID: 120309.B\79MSD.D\			В	atch ID: 231	79K		Analysis Date:	12/02/2009 23:19	
Sample ID: 09120150-05AMSD	Units: mg/L		Run ID: IC	P/MS_0912	02C		Prep Date:	12/02/2009 11:07	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Chromium (Cr)	0.0596	0.005	0.05	0	119	80	120 0.060	47 1.4(20)	

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag.

M1 = Matrix spike recovery was high, the method control sample recovery was acceptable.



# Alpha Analytical, Inc.

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Date: 09-Dec-09	(		<b>Work Order:</b> 09120150					
Method Blank File ID: 09120408.D	Type MBLK		Test Code: EPA Method SW8260B Batch ID: MS15W1204M				e: <b>12/04/2009 11:4</b> 0	
Sample ID: MBLK MS15W1204M	Units : µg/L	Run II	D: MSD_15_09	1204B		Prep Date:	12/04/2009 11:40	
Analyte	Result	PQL Spl	kVal SpkRefVa	I %REC I	_CL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qua
Dichlorodifluoromethane	ND	0.5		· · · · · · · · · · · · · · · · · · ·	-			
Chloromethane	ND	1						
Vinyl chloride	ND	0.5						
Chloroethane Bromomethane	ND ND	0.5						
Trichlorofluoromethane	ND ND	1 0.5						
1,1-Dichloroethene	ND	0.5						
Dichloromethane	ND	1						
Freon-113	ND	0.5						
trans-1,2-Dichloroethene	ND ND	0.5 0.5						
Methyl tert-butyl ether (MTBE) 1,1-Dichloroethane	ND ND	0.5 0.5						
2-Butanone (MEK)	ND	10						
cis-1,2-Dichloroethene	ND	0.5						
Bromochloromethane	ND	0.5		•				
Chloroform	ND ND	0.5						
2,2-Dichloropropane 1,2-Dichloroethane	ND ND	0.5 0.5						
1,1,1-Trichloroethane	ND	0.5						
1,1-Dichloropropene	ND	0.5						
Carbon tetrachloride	ND	0.5						
Benzene	ND	0.5						
Dibromomethane 1,2-Dichloropropane	ND ND	0.5 0.5						
Trichloroethene	ND	0.5						
Bromodichloromethane	ND	0.5						
4-Methyl-2-pentanone (MIBK)	ND	2.5						
cis-1,3-Dichloropropene	ND	0.5						
trans-1,3-Dichloropropene 1,1,2-Trichloroethane	ND ND	0.5 0.5						
Toluene	ND	0.5						
1,3-Dichloropropane	ND	0.5						
Dibromochloromethane	ND	0.5						
1,2-Dibromoethane (EDB)	ND	1						
Tetrachloroethene 1,1,1,2-Tetrachloroethane	ND ND	0.5 0.5						
Chlorobenzene	ND	0.5						
Ethylbenzene	ND	0.5						
m,p-Xylene	ND	0.5						
Bromoform	ND	0.5						
Styrene o-Xylene	ND ND	0.5 0.5						
1,1,2,2-Tetrachloroethane	ND	0.5						
1,2,3-Trichloropropane	ND	1						
Isopropylbenzene	ND	0.5						
Bromobenzene	ND	0.5						
n-Propylbenzene 4-Chlorotoluene	ND ND	0.5 0.5						
2-Chlorotoluene	ND	0.5						
1,3,5-Trimethylbenzene	ND	0.5						
tert-Butylbenzene	ND	0.5						
1,2,4-Trimethylbenzene	ND ND	0.5 0.5						
sec-Butylbenzene 1,3-Dichlorobenzene	ND ND	0.5 0.5						
1,4-Dichlorobenzene	ND	0.5						
4-Isopropyltoluene	ND	0.5						
1,2-Dichlorobenzene	ND	0.5						
n-Butylbenzene 1,2-Dibromo-3-chloropropane (DBCP)	ND ND	0.5 2.5						
1,2-Dibromo-3-chloropropane (DBCP) 1,2,4-Trichlorobenzene	ND ND	2.5						
Naphthalene	ND	i						
Hexachlorobutadiene	ND	1						
1,2,3-Trichlorobenzene	ND	1	40	404	70	420		
Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8	10.1		10	101 101	70 70	130 130		
ourr: Toluene-08	10.1		10	101	70	130		



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

<b>Date:</b> 09-Dec-09	QC :	QC Summary Report							
Surr: 4-Bromofluorobenzene	9.52	10	95	70	130				



Date:

# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Work Order:



Surr: 4-Bromofluorobenzene

# Alpha Analytical, Inc.

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Work Order: Date: QC Summary Report 09-Dec-09 Test Code: EPA Method SW8260B Type MS Sample Matrix Spike Analysis Date: 12/04/2009 12:02 File ID: 09120409.D Batch ID: MS15W1204M Prep Date: 12/04/2009 12:02 Sample ID: 09120150-05AMS Units: µg/L Run ID: MSD 15 091204B SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) PQL Qual Analyte Result Dichlorodifluoromethane 34.6 2.5 Chloromethane 36.3 Vinvl chloride 40.1 2.5 Chloroethane 2.5 n 42.9 Bromomethane 46.1 Trichlorofluoromethane 41.7 2.5 1.1-Dichloroethene 2.5 Dichloromethane 47.3 Freon-113 54.2 2.5 trans-1,2-Dichloroethene 2.5 O Methyl tert-butyl ether (MTBE) 50.5 1.3 1,1-Dichloroethane 2.5 O 49.2 2-Butanone (MEK) cis-1,2-Dichloroethene 52.4 2.5 n Bromochloromethane 50.7 2.5 Chloroform 50.8 2.5 2,2-Dichloropropane 2.5 1.2-Dichloroethane 48.6 2.5 1.1.1-Trichloroethane 52.1 2.5 1,1-Dichloropropene 51.6 2.5 n Carbon tetrachloride 52.7 2.5 Benzene 49.7 O Dibromomethane 48.5 2.5 1,2-Dichloropropane 50.1 2.5 Trichloroethene 99.9 2.5 Bromodichloromethane 49.7 2.5 cis-1,3-Dichloropropene 47.6 2.5 trans-1,3-Dichloropropene 2.5 O 43.7 1,1,2-Trichloroethane 47.1 2.5 Toluene 47.1 1.3 2.5 1,3-Dichloropropane Dibromochloromethane 2.5 1,2-Dibromoethane (EDB) 96.5 Tetrachloroethene 51.6 2.5 1,1,1,2-Tetrachloroethane 49.1 2.5 2.5 n Chlorobenzene 47.7 Ethylbenzene 47.7 1.3 m,p-Xylene 48.5 1.3 O Bromoform 40.2 2.5 Styrene 52.9 2.5 o-Xviene 1.3 1.1.2.2-Tetrachloroethane 44.7 2.5 1,2,3-Trichloropropane 92.8 2.5 Isopropylbenzene 48.5 Bromobenzene 47.5 2.5 n-Propylbenzene 48.2 2.5 4-Chlorotoluene 49.2 2.5 2-Chlorotoluene 48.4 2.5 1.3.5-Trimethylbenzene 48.2 2.5 tert-Butylbenzene 46.8 2.5 1,2,4-Trimethylbenzene 47.6 2.5 O sec-Butylbenzene 47.3 2.5 1.3-Dichlorobenzene 2.5 1,4-Dichlorobenzene 44.5 2.5 O 4-isopropyltoluene 2.5 1,2-Dichlorobenzene 44.5 2.5 O n-Butylbenzene 49.2 2.5 1,2-Dibromo-3-chloropropane (DBCP) 1.2,4-Trichlorobenzene 44.9 O Naphthalene 41.7 Hexachlorobutadiene 87.3 1,2,3-Trichlorobenzene 42.3 Surr: 1,2-Dichloroethane-d4 49.7 Surr: Toluene-d8 48.6

49.2



Surr: 4-Bromofluorobenzene

48.8

# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Work Order: Date: QC Summary Report 09120150 09-Dec-09 Type MSD Test Code: EPA Method SW8260B Sample Matrix Spike Duplicate Analysis Date: 12/04/2009 12:24 File ID: 09120410.D Batch ID: MS15W1204M Prep Date: 12/04/2009 12:24 Sample ID: 09120150-05AMSD Units: µg/L Run ID: MSD 15 091204B SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Analyte Result **PQL** Dichlorodifluoromethane 35.8 2.5 0 167 34.61 3.3(20)36.26 1.7(20) 0 145 50 74 28 Chloromethane 36.9 10 Vinvl chloride 2.5 50 0 80 43 134 40.08 0.2(20)40 4.8(20)Chloroethane 45 2.5 50 0 90 39 154 42.89 176 46.06 19.0(20) 0 19 55.7 10 50 111 Bromomethane 41.73 11.7(20) Trichlorofluoromethane 46.9 2.5 50 0 94 34 160 1,1-Dichloroethene 51.2 2.5 50 0 102 60 130 49.25 3.9(20) 47.9 10 50 0 96 68 130 47.32 1.2(20)Dichloromethane 2.5 0 108 49 141 54.24 0.2(20)Freon-113 54.2 50 0 105 63 130 51.38 1.9(20) trans-1,2-Dichloroethene 52.4 2.5 50 1.7(20)Methyl tert-butyl ether (MTBE) 51.3 1.3 50 0 103 56 141 50.45 1.4(20) 1.1-Dichloroethane 49.9 0 99.8 61 130 49.2 2.5 50 0 20 182 552.5 2.3(20)50 2-Butanone (MEK) 565 1000 57 cis-1,2-Dichloroethene 0 106 70 130 52.39 1.4(20)53.1 2.5 50 50.68 2.5(20) Bromochloromethane 52 2.5 50 0 104 70 130 0 104 67 130 50.75 2.6(20)Chloroform 52.1 2.5 50 2,2-Dichloropropane 56.4 2.5 50 0 113 30 152 55.97 0.7(20)60 135 48.58 2.0(20)0 1,2-Dichloroethane 49.5 2.5 50 99 1.1.1-Trichloroethane 2.5 50 0 106 59 137 52.11 1.3(20)52.8 1,1-Dichloropropene 2.5 50 0 104 63 130 51.62 1.1(20) 52.2 0 50 147 52.73 2.1(20) 53.8 2.5 50 108 Carbon tetrachloride 67 130 49.74 1.4(20) Benzene 50.4 1.3 50 0 101 48.45 3.8(20)0 69 Dibromomethane 50.3 2.5 50 101 133 0 103 69 130 50.14 2.3(20)1.2-Dichloropropane 51.3 2.5 50 Trichloroethene 2.5 50 0 104 69 130 49.95 3.6(20)51.8 3.9(20) 103 49.74 Bromodichloromethane 51.7 2.5 50 0 66 134 130 47.64 3.9(20)cis-1.3-Dichloropropene 49.5 2.5 50 0 99 63 trans-1,3-Dichloropropene 45.7 2.5 50 0 91 66 131 43.69 4.4(20) 0 97 68 130 47.12 3.1(20)2.5 50 1,1,2-Trichloroethane 48.6 Toluene 48 1.3 50 0 96 66 130 47.05 2.0(20)130 47.96 2.8(20)99 70 1,3-Dichloropropane 49.3 2.5 50 0 Dibromochloromethane 2.5 0 93 70 130 43.97 5.6(20)46.5 50 99.6 0 99.6 70 130 96.45 3.2(20)1,2-Dibromoethane (EDB) 5 100 2.1(20) 2.5 0 105 61 134 51.63 Tetrachloroethene 52.7 50 70 130 49.09 3.9(20)1.1.1.2-Tetrachioroethane 51.1 2.5 50 0 102 130 47.7 2.3(20) Chlorobenzene 48.8 2.5 50 0 98 70 0 97 68 130 47.72 2.0(20)Ethylbenzene 48.7 1.3 50 m,p-Xylene 0 99 64 130 48.46 1.7(20)49.3 1.3 50 0 86 64 138 40.16 6.4(20)Bromoform 42.8 2.5 50 52.85 Styrene 54 2.5 50 0 108 69 130 2.2(20)50.6 1.3 50 0 101 70 130 48.97 3.2(20) o-Xvlene 131 44.73 2.0(20)0 65 1,1,2,2-Tetrachloroethane 45.6 2.5 50 91 70 130 92.81 3.0(20)1,2,3-Trichloropropane 95.6 10 100 0 96 0.2(20)2.5 0 64 138 48.5 Isopropylbenzene 48.6 50 97 48.3 2.5 50 0 97 70 130 47.47 1.8(20)Bromobenzene n-Propylbenzene 48.3 2.5 50 0 97 66 132 48.21 0.2(20)49.24 1.8(20) 70 130 0 100 4-Chlorotoluene 50.1 2.5 50 0.5(20)2-Chlorotoluene 48.7 2.5 50 0 97 70 130 48.4 1,3,5-Trimethylbenzene 48.8 2.5 0 98 66 136 48.18 1.2(20)50 0 95 65 137 46.81 1.5(20)47.5 2.5 50 tert-Butvlbenzene 0 97 65 137 47.6 2.0(20)1,2,4-Trimethylbenzene 48.6 2.5 50 0 96 66 134 47 25 2.1(20)sec-Butvibenzene 48.2 2.5 50 1.9(20)1.3-Dichlorobenzene 48.9 2.5 50 0 98 70 130 48 44.5 4.2(20) 1.4-Dichlorobenzene 46.4 2.5 50 0 93 70 130 0 66 137 48.04 2.1(20) 98 4-isopropyltoluene 49.1 2.5 50 1,2-Dichlorobenzene 0 93 70 130 44.51 4.4(20)46.5 2.5 50 142 49.21 2.4(20)n-Butvlbenzene 50.4 2.5 50 0 101 60 3.1(20) 1,2-Dibromo-3-chloropropane (DBCP) 212 15 250 0 85 67 130 205.9 44.85 6.2(20)1,2,4-Trichlorobenzene 47.7 10 50 0 95 61 137 Nanhthalene 10 50 0 89 40 167 41.66 7.1(20)44.7 Hexachlorobutadiene 92.3 10 100 0 92 61 130 87.26 5.7(20) 51 144 8.2(20) 1.2.3-Trichlorobenzene 46 10 50 0 92 42.33 Surr: 1,2-Dichloroethane-d4 49.6 50 99 70 130 Surr: Toluene-d8 48.9 50 98 70 130

98

50

70

130



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 09-Dec-09

### QC Summary Report

**Work Order:** 09120150

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag.

L51 = Analyte recovery was above acceptance limits for the LCS, but was acceptable in the MS/MSD.

# Billing Information:

Client:

Battelle Memorial Institute

3990 Old Town Ave

# CHAIN-OF-CUSTODY RECORD

# Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 TEL: (775) 355-1044 FAX: (775) 355-0406

 Report Attention
 Phone Number
 EMail Address

 David Conner
 (818) 393-2808 x
 connerd@battelle.org

 Betsy Cutie
 (614) 424-4899 x
 cutiee@batelle.org

 Shane Walton
 (614) 424-4117 x
 waltons@battelle.org

ort Due By :

WorkOrder: BMIS09120150

Page: 1 of 1

Report Due By: 5:00 PM On: 15-Dec-09

EDD Required : Yes

Sampled by : Client

Cooler Temp
Samples

Cooler Temp Samples Received Date Printed
4 °C 01-Dec-09 01-Dec-09

QC Level: DS4 DOD QC Required: Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates

Job: G005862/JPL Groundwater Monitoring

Client's COC #: 24123

218013

San Diego, CA 92110

Sample ID BMI09120150-08A TB-08-11/30/09 BMI09120150-01A MW-4-5 BMI09120150-07A EB-08-11/30/09 BMI09120150-06A DUPE-05-4209 BMI09120150-05A MW-4-1 BMI09120150-04A BMI09120150-03A MW-4-3 BMI09120150-02A MW-4-4 MW-4-2 Client Sample ID AQ 11/30/09 00:00 Š Š Š Š Š AQ 11/30/09 08:56 AQ 11/30/09 08:31 Matrix Date 11/30/09 10:38 11/30/09 00:00 11/30/09 09:57 11/30/09 09:28 Collection No. of Bottles 11/30/09 10:18 Alpha Sub ഗ 5 G S G G S 0 0 0 0 0 0 ΤAΤ 6 5 5 5 5 5 5 5 Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate 314\_W METALS\_D VOC\_TIC\_ Ç Ç Ç Ç Ç Ç Ω VOC by 524 VOC by 524 Criteria Criteria VOC\_W Requested Tests Reno TB, 8/25/09 Sample Remarks Level IV QC MS/MSD

Comments: No security seals. Frozen ice. Temp Blank #7737 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD), Perchlorate RL of 1.0 ug/L.:

Logged in by:	
	Signature
LANGARYO, (1) STREET	Rcint Name
Alpha Analytical, Inc.	Company
7 2 2 4	Date/Time

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Avenue, Suite 21

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Address 505 KING AVE.	Sparks, Nevada 89431-5778	ID OR OTHER	Page # / of /
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SHOULD CONNEW DAVIEW	PO.# 218013 Job# GESSET	,,,	Required QC Level?
V1	EMail Address	24.7	/
City State, Zip SAN THEGO CA 921/0	Phone (69) 726-73// Fax #	5 4 3 30	EDD / EDF? YES NO

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0		(),		<del>,</del> 04	S	20-	2 -6 - MM 10-01/00/10-11-4-5	Lab ID Number ( Office Use Only )	Date   Matrix*   Sampled by	SAN YETO CA 921/0	1590 AD TOWN AVE C-205	MOUND CONNER
78-08-11/30/09	EB-08-11/30/09	Dupe-05-4009	(-4-MM	ルル-4-2	HW-4-3	カーナール	MW-4-5	Sample Description	Report Attention	Phone 69 726-73//	EMail Address	4800
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# **ADDITIONAL INSTRUCTIONS:**

Signature	Print Name	Company	Date	Time
Relinguistneady	Chase Bearen	31. 22 HOTEVI	11/39/08	ass
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of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report. NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis \*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air \*\*: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar **B-Brass** P-Plastic OT-Other



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

**Date:** 07-Dec-09

David Conner

Battelle Memorial Institute

3990 Old Town Ave

San Diego, CA 92110 (818) 393-2808

Suite C-205

**CASE NARRATIVE** 

100:	
Work Order:	

G005862/JPL Groundwater Monitoring

BMI09120203

**Cooler Temp:** 

4°C

Alpha's Sample ID	Client's Sample ID	Matrix
09120203-01A	MW-12-5	Aqueous
09120203-02A	MW-12-4	Aqueous
09120203-03A	MW-12-3	Aqueous
09120203-04A	MW-12-2	Aqueous
09120203-05A	MW-12-1	Aqueous
09120203-06A	DUPE-06-4Q09	Aqueous
09120203-07A	EB-09-12/01/09	Aqueous
09120203-08A	TB-09-12/01/09	Aqueous

#### Manually Integrated Analytes

Alpha's Sample ID

Test Reference

Analyte

NONE

Enclosed please find the analytical results of the samples received by Alpha Analytical, Inc. under the above mentioned Work Order/Chain-of-Custody.

Alpha Analytical, Inc. has a formal Quality Assurance/Quality Control program, which is designed to meet or exceed the EPA requirements. All relevant QC met quality assurance objectives for this project unless otherwise stated in the footnotes.

If you have any questions with regards to this report, please contact Randy Gardner, Project Manager, at (800) 283-1183.

Roger Scholl

Kandy Saulner

Walter Atrilian



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110 Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Date Received: 12/02/09

Job:

G005862/JPL Groundwater Monitoring

#### Perchlorate by Ion Chromatography EPA Method 314.0

,					
	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-12-5 Lab ID: BMI09120203-01A Date Sampled 12/01/09 08:11	Perchlorate	1.10	1.00 µg/L	12/02/09 12:28	12/02/09 19:27
Client ID: MW-12-4 Lab ID: BMI09120203-02A Date Sampled 12/01/09 08:41	Perchlorate	2.91	1.00 µg/L	12/02/09 12:28	12/02/09 19:46
Client ID: MW-12-3 Lab ID: BMI09120203-03A Date Sampled 12/01/09 09:19	Perchlorate	3.16	1.00 μg/L	12/02/09 12:28	12/02/09 20:04
Client ID: MW-12-2 Lab ID: BMI09120203-04A Date Sampled 12/01/09 09:45	Perchlorate	2.38	1.00 μg/L	12/02/09 12:28	12/02/09 20:22
Client ID: MW-12-1 Lab ID: BMI09120203-05A Date Sampled 12/01/09 10:15	Perchlorate	1.28	1.00 μg/L	12/02/09 12:28	12/02/09 20:41
Client ID: <b>DUPE-06-4Q09</b> Lab ID: BMI09120203-06A Date Sampled 12/01/09 00:00	Perchlorate	3.11	1.00 μg/L	12/02/09 12:28	12/02/09 20:59
Client ID: <b>EB-09-12/01/09</b> Lab ID: BMI09120203-07A Date Sampled 12/01/09 10:01	Perchlorate	ND	1.00 µg/L	12/02/09 12:28	12/02/09 21:18

ND = Not Detected

loger Scholl Kandy Saular a

Walter Hirihan

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com
Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/15/09

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Attn:

**David Conner** 

Phone:

(818) 393-2808

Fax:

(614) 458-6641

Date Received: 12/02/09

Job:

G005862/JPL Groundwater Monitoring

Metals by ICPMS

EPA Method 200.8

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: <b>MW-12-5</b> Lab ID: BMI09120203-01A Date Sampled 12/01/09 08:11	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/03/09 00:33
Client ID: <b>MW-12-4</b> Lab ID: BMI09120203-02A Date Sampled 12/01/09 08:41	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/03/09 00:38
Client ID: <b>MW-12-3</b> Lab ID: <b>BM</b> I09120203-03A Date Sampled 12/01/09 09:19	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/03/09 00:44
Client ID: <b>MW-12-2</b> Lab ID: BMI09120203-04A Date Sampled 12/01/09 09:45	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/03/09 00:50
Client ID: <b>MW-12-1</b> Lab ID: BMI09120203-05A Date Sampled 12/01/09 10:15	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/03/09 00:55
Client ID: <b>DUPE-06-4Q09</b> Lab ID: BMI09120203-06A Date Sampled 12/01/09 00:00	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/03/09 01:01
Client ID: <b>EB-09-12/01/09</b> Lab ID: BMI09120203-07A Date Sampled 12/01/09 10:01	Chromium (Cr)	ND	0.0050 mg/L	12/02/09 11:07	12/03/09 01:06

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Attn: David Conner Phone: (818) 393-2808

Fax: (614) 458-6641

Job: G005862/JPL Groundwater Monitoring

### Tentatively Identified Compounds - Volatile Organics by GC/MS

	Parameter	Estimated Concentration	Estimated Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-12-5 Lab ID: BMI09120203-01A Date Received: 12/02/09 Date Sampled: 12/01/09 08:11	*** None Found ***	ND	2.0 μg/L	12/03/09 13:10	12/03/09 13:10
Client ID : MW-12-4 Lab ID : BMI09120203-02A  Date Received : 12/02/09 Date Sampled : 12/01/09 08:41	Sulfur dioxide	8.5	2.0 μg/L	12/03/09 13:32	12/03/09 13:32
Client ID: MW-12-3 Lab ID: BMI09120203-03A  Date Received: 12/02/09 Date Sampled: 12/01/09 09:19	Sulfur dioxide	9.0	2.0 μg/L	12/03/09 13:54	12/03/09 13:54
Client ID: MW-12-2 Lab ID: BMI09120203-04A  Date Received: 12/02/09 Date Sampled: 12/01/09 09:45	Sulfur dioxide	2.8	2.0 μg/L	12/03/09 14:16	12/03/09 14:16
Client ID: MW-12-1 Lab ID: BMI09120203-05A Date Received: 12/02/09 Date Sampled: 12/01/09 10:15	*** None Found ***	ND	2.0 μg/L	12/03/09 14:38	12/03/09 14:38
Client ID : <b>DUPE-06-4Q09</b> Lab ID : BMI09120203-06A  Date Received : 12/02/09  Date Sampled : 12/01/09 00:00	Sulfur dioxide	7.4	2.0 μg/L	12/03/09 15:01	12/03/09 15:01
Client ID: <b>EB-09-12/01/09</b> Lab ID: BMI09120203-07A  Date Received: 12/02/09  Date Sampled: 12/01/09 10:01	Tertiary Butyl Alcohol (TBA) 2-Methyl-1-propene	15 5.9	10 μg/L 2.0 μg/L	12/03/09 12:47 12/03/09 12:47	12/03/09 12:47 12/03/09 12:47
Client ID: TB-09-12/01/09 Lab ID: BMI09120203-08A Date Received: 12/02/09 Date Sampled: 12/01/09 00:00	*** None Found ***	ND	2.0 μg/L	12/03/09 12:25	12/03/09 12:25



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Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl Kandy Saulner Walter Hinchman, Quality Assurance Officer

Roger L. Scholl, Ph.D., Laboratory Director · Randy Gardner, Laboratory Manager · Walter Hinchman, Quality Assurance Officer

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

**Report Date** 



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120203-01A

Client I.D. Number: MW-12-5

Attn: David Conner

Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 12/01/09 08:11

Received: 12/02/09

Extracted: 12/03/09 13:10 Analyzed: 12/03/09 13:10

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	DN	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND .	0.50	µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	µg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	µg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	µg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	µg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	µg/l
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/Ł
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	µg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/l
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/l
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	101	(70-130)	%RE
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%RE
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	94	(70-130)	%RE
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulur

ND

ND

Walter Heridian

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

μg/L

μg/L

1.0

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Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/15/09 Report Date



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110
Job: G005862/JPL

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120203-02A

Client I.D. Number: MW-12-4

Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Sampled: 12/01/09 08:41

Received: 12/02/09

Extracted: 12/03/09 13:32 Analyzed: 12/03/09 13:32

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	µg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chiorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	0.60	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	1.1	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC)	*	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane34 1,2-Dibromoethane (EDB)

35 Tetrachioroethene

Roger Scholl Kandy Sadmer

ND

Walter Firedown

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

μg/L

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12/15/09 Report Date



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job: (

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120203-03A

Client I.D. Number: MW-12-3

Attn:

David Conner (818) 393-2808

Phone: Fax:

(614) 458-6641

Sampled: 12/01/09 09:19

Received: 12/02/09

Extracted: 12/03/09 13:54 Analyzed: 12/03/09 13:54

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND ·	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	µg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	µg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	2.4	0.50	µg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	1.7	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	Й	0.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyi-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	92	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
		1							

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl

ND

Kandy Saulner

Walter Hirkon

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

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12/15/09 Report Date



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave

Attn:

David Conner

Phone: Fax:

(818) 393-2808 (614) 458-6641

San Diego, CA 92110 Job: G005862/JPL

G005862/JPL Groundwater Monitoring

Sampled: 12/01/09 09:45

Received: 12/02/09

Extracted: 12/03/09 14:16 Analyzed: 12/03/09 14:16

Alpha Analytical Number: BMI09120203-04A

Client I.D. Number: MW-12-2

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ПО	1.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	µg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochioromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	101	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	95	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
		1							

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulow

ND

ND

ND

Walter Hirkon

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/15/09

Report Date



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job: G005862/JPL G

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120203-05A

Client I.D. Number: MW-12-1

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 12/01/09 10:15

Received: 12/02/09

Extracted: 12/03/09 14:38 Analyzed: 12/03/09 14:38

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	µg/L
7	1.1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/ <b>L</b>
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1.1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/Ĺ
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1.2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	µg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	µg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC		2.5	µg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	92	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
			0.50	"					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Souland

ND

ND

ND

Dalter Hirkory

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

0.50

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μg/L

µg/L

μg/L

12/15/09

Report Date



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#### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120203-06A

Client I.D. Number: DUPE-06-4Q09

Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Sampled: 12/01/09 00:00

Received: 12/02/09

Extracted: 12/03/09 15:01 Analyzed: 12/03/09 15:01

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chiorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	2.9	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	2.2	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	,	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	µg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulaur

ND

ND

Walter Firehour

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

μg/L

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/15/09

Report Date



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#### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Client I.D. Number: EB-09-12/01/09

Alpha Analytical Number: BMI09120203-07A

Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Sampled: 12/01/09 10:01

Received: 12/02/09

Extracted: 12/03/09 12:47 Analyzed: 12/03/09 12:47

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L.
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	100	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND

ND

ND

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

34 1,2-Dibromoethane (EDB)

Roger Scholl Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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1.0

0.50

μg/L μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/15/09

Report Date



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#### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

Attn:

David Conner

San Diego, CA 92110

Phone: Fax:

(818) 393-2808 (614) 458-6641

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120203-08A

Client I.D. Number: TB-09-12/01/09

Sampled: 12/01/09 00:00

Received: 12/02/09

Extracted: 12/03/09 12:25 Analyzed: 12/03/09 12:25

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	µg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	,	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	98	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	µg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane 34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

ND

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples

12/15/09 Report Date



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## **VOC Sample Preservation Report**

Work Order: BMI09120203 Job: G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	рН
09120203-01A	MW-12-5	Aqueous	2
09120203-02A	MW-12-4	Aqueous	2
09120203-03A	MW-12-3	Aqueous	2
09120203-04A	MW-12-2	Aqueous	2
09120203-05A	MW-12-1	Aqueous	2
09120203-06A	DUPE-06-4Q09	Aqueous	2
09120203-07A	EB-09-12/01/09	Aqueous	2
09120203-08A	TB-09-12/01/09	Aqueous	2
07120203-0011	113-07-12/01/07	riqueous	<del>-</del>

12/15/09



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<b>Date:</b> 09-Dec-09	QC Summary Report							<b>Work Ordo</b> 09120203			
Method Bla	nk		Type I		est Code: El atch ID: 231		hod 314.0	Analys	sis Date:	12/02/2009 13:38	
Sample ID:	MB-23184	Units : µg/L			C_3_091202 <i>i</i>			Prep [		12/02/2009 12:28	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Perchlorate		ND		1						***************************************	
Laboratory	Fortified Blank	·	Type I	_FB T	est Code: El	PA Met	hod 314.0				
File ID: 15				В	atch ID: 231	84		Analys	sis Date:	12/02/2009 13:56	
Sample ID:	LFB-23184	Units : µg/L		Run ID: IC	C_3_091202 <i>A</i>	4		Prep [	Date:	12/02/2009 12:28	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Perchlorate		24.6	2	2 25		98	85	115			
Sample Mat	rix Spike		Type I	_FM T	est Code: El	PA Met	hod 314.0				
File ID: 27	•			. В	atch ID: 231	84		Analys	sis Date:	12/02/2009 17:37	
Sample ID:	09120150-05ALFM	Units : µg/L		Run ID: IC	C_3_091202 <i>A</i>	4		Prep [	Date:	12/02/2009 12:28	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Perchlorate		343	20	250	96.03	99	80	120			
Sample Mat	rix Spike Duplicate		Type I	_FMD T	est Code: El	PA Met	hod 314.0				
File ID: 28	• •			В	atch ID: 231	B4		Analys	sis Date:	12/02/2009 17:55	
Sample ID:	09120150-05ALFMD	Units : µg/L		Run ID: IC	C_3_091202 <i>A</i>	4		Prep [	Date:	12/02/2009 12:28	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	Val %RPD(Limit)	Qual
Perchlorate		349	20	250	96.03	101	80	120	343	1.7(15)	

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



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Date: 09-Dec-09	<b>Work Order:</b> 09120203		
Method Blank File ID: 120309.B\79MB.D\	Type <b>MBLK</b> Test Code: Batch ID: <b>2</b> 3	EPA Method 200.8 179K Analysis Date:	12/02/2009 22:39
Sample ID: MB-23179	Units : mg/L Run ID: ICP/MS_091	202C Prep Date:	12/02/2009 11:07
Analyte	Result PQL SpkVal SpkRefVal	al %REC LCL(ME) UCL(ME) RPDRef	Val %RPD(Limit) Qual
Chromium (Cr)	ND 0.005		
Laboratory Control Spike File ID: 120309.B\79L1.D\	Type LCS Test Code: Batch ID: 23	EPA Method 200.8 179K Analysis Date:	12/02/2009 22:45
Sample ID: LCS-23179	Units: mg/L Run ID: ICP/MS_091	202C Prep Date:	12/02/2009 11:07
Analyte	Result PQL SpkVal SpkRefVa	al %REC LCL(ME) UCL(ME) RPDRef	Val %RPD(Limit) Qual
Chromium (Cr)	0.057 0.005 0.05	114 80 120	
Sample Matrix Spike File ID: 120309.B\79MS.D\	Type <b>MS</b> Test Code: Batch ID: <b>23</b>	EPA Method 200.8 179K Analysis Date:	12/02/2009 23:13
Sample ID: 09120150-05AMS	Units : mg/L Run ID: ICP/MS_091	202C Prep Date:	12/02/2009 11:07
Analyte	Result PQL SpkVal SpkRefVa	al %REC LCL(ME) UCL(ME) RPDRef	Val %RPD(Limit) Qual
Chromium (Cr)	0.0605 0.005 0.05	0 121 80 120	M1
Sample Matrix Spike Duplicate File ID: 120309.B\79MSD.D\	Type MSD Test Code:	EPA Method 200.8	12/02/2009 23:19
Sample ID: 09120150-05AMSD	Units : mg/L Run ID: ICP/MS_091		12/02/2009 11:07
Analyte		al %REC LCL(ME) UCL(ME) RPDRef	Val %RPD(Limit) Qual
Chromium (Cr)		0 119 80 120 0.060	

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag.

M1 = Matrix spike recovery was high, the method control sample recovery was acceptable.



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09-Dec-09	QC Summary Report							09120203	3
Method Blank		Type N	IBLK	Test Code: E					
File ID: 09120308.D				Batch ID: MS	15W120	3M	Analysis Date:	12/03/2009 10:12	
Sample ID: MBLK MS15W1203M	Units : µg/L		Run ID	: MSD_15_091	203D		Prep Date:	12/03/2009 10:12	
Analyte	Result	PQL	Spk\	/al SpkRefVal	%REC	LCL(ME) U	CL(ME) RPDRef\	/al %RPD(Limit)	Qua
Dichlorodifluoromethane	ND	0.5		<u>-</u>					
Chloromethane	ND	1							
Vinyl chloride	ND	0.5							
Chloroethane	ND	0.5	i .						
Bromomethane	ND	1							
Trichlorofluoromethane	ND	0.5							
1,1-Dichloroethene	ND	0.5							
Dichloromethane	ND	1							
Freon-113	ND	0.5							
trans-1,2-Dichloroethene Methyl tert-butyl ether (MTBE)	ND ND	0.5 0.5							
1.1-Dichloroethane	ND ND	0.5							
2-Butanone (MEK)	ND ND	10							
cis-1,2-Dichloroethene	ND	0.5							
Bromochloromethane	ND	0.5							
Chloroform	ND	0.5							
2,2-Dichloropropane	ND	0.5							
1,2-Dichloroethane	ND	0.5							
1,1,1-Trichloroethane	ND	0.5							
1,1-Dichloropropene	ND	0.5							
Carbon tetrachloride	ND	0.5							
Benzene Dibromomethane	ND ND	0.5 0.5							
5.010mometriane 1,2-Dichloropropane	ND ND	0.5							
Trichloroethene	ND	0.5							
Bromodichloromethane	ND	0.5							
4-Methyl-2-pentanone (MIBK)	ND	2.5							
cis-1,3-Dichloropropene	ND	0.5							
trans-1,3-Dichloropropene	ND	0.5							
1,1,2-Trichloroethane	ND	0.5							
Toluene	ND	0.5							
1,3-Dichloropropane	ND	0.5							
Dibromochloromethane	ND	0.5							
1,2-Dibromoethane (EDB) Tetrachloroethene	ND ND	1							
1,1,1,2-Tetrachloroethane	ND ND	0.5 0.5							
Chlorobenzene	ND	0.5							
Ethylbenzene	ND	0.5							
m,p-Xylene	ND	0.5							
Bromoform	ND	0.5							
Styrene	ND	0.5							
o-Xylene	ND	0.5							
1,1,2,2-Tetrachloroethane	ND	0.5							
1,2,3-Trichloropropane	ND	1							
sopropylbenzene	ND	0.5							
Bromobenzene n-Propylhenzene	ND ND	0.5							
n-Propylbenzene 4-Chlorotoluene	ND ND	0.5 0.5							
2-Chlorotoluene	ND ND	0.5							
1,3,5-Trimethylbenzene	ND	0.5							
ert-Butylbenzene	ND	0.5							
1,2,4-Trimethylbenzene	ND	0.5							
sec-Butylbenzene	ND	0.5							
1,3-Dichlorobenzene	ND	0.5							
,4-Dichlorobenzene	ND	0.5							
4-Isopropyltoluene	ND	0.5							
1,2-Dichlorobenzene	ND	0.5							
n-Butylbenzene	ND	0.5							
1,2-Dibromo-3-chloropropane (DBCP)	ND ND	2.5							
1,2,4-Trichlorobenzene Naphthalene	ND ND	1							
vapninaiene Hexachlorobutadiene	ND ND	1							
1,2,3-Trichlorobenzene	ND ND	1							
Surr: 1,2-Dichloroethane-d4	9.87			10	99	70	130		
Surr: Toluene-d8	10.3			10	103	70	130		



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<b>Date:</b> 09-Dec-09	QC S	Summary Rep	port			Work Order: 09120203
Surr: 4-Bromofluorobenzene	9.36	10	94	70	130	



Surr: 4-Bromofluorobenzene

## Alpha Analytical, Inc.

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Work Order: Date: QC Summary Report 09-Dec-09 Test Code: EPA Method SW8260B Type MS Sample Matrix Spike Batch ID: MS15W1203M File ID: 09120309.D Analysis Date: 12/03/2009 10:34 Prep Date: 12/03/2009 10:34 Sample ID: 09120203-01AMS Units: µg/L Run ID: MSD\_15\_091203D SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Analyte Result **PQL** Dichlorodifluoromethane 37.5 2.5 n Chloromethane 33.7 Vinvl chloride 39.6 2.5 Chloroethane 44.6 2.5 43.4 Bromomethane Trichlorofluoromethane 46.3 2.5 1,1-Dichloroethene 48.3 2.5 O Dichloromethane 45.6 2.5 Freon-113 51.5 trans-1,2-Dichloroethene 48.3 2.5 Methyl tert-butyl ether (MTBE) 48.8 1.3 1,1-Dichloroethane 2.5 47.1 O 2-Butanone (MEK) cis-1,2-Dichloroethene 50.2 2.5 Bromochloromethane 50.4 2.5 Chloroform 2.5 2,2-Dichloropropane 53.5 2.5 O 1,2-Dichloroethane 2.5 1.1.1-Trichloroethane 49.5 2.5 1,1-Dichloropropene 48.1 2.5 Carbon tetrachloride 2.5 50.4 Benzene 47.4 1.3 Dibromomethane 48.6 2.5 1,2-Dichloropropane 2.5 47.9 Trichloroethene 2.5 Bromodichloromethane 2.5 cis-1.3-Dichloropropene 48.2 2.5 trans-1,3-Dichloropropene 44.3 2.5 46.7 1,1,2-Trichloroethane 2.5 Toluene 44.7 1.3 1,3-Dichloropropane 47.5 2.5 Dibromochloromethane 45.4 2.5 1,2-Dibromoethane (EDB) 96.1 Tetrachloroethene 48.6 2.5 1.1.1.2-Tetrachloroethane 48.5 2.5 Chlorobenzene 45.9 2.5 Ethylbenzene 45.7 1.3 m.p-Xylene 46.3 1.3 n Bromoform 42.3 2.5 51.4 2.5 n Styrene 47.2 o-Xvlene 1.3 1,1,2,2-Tetrachloroethane 2.5 1,2,3-Trichloropropane 90.8 n isopropylbenzene 46.8 2.5 Bromobenzene 47.1 2.5 n-Propylbenzene 46.3 2.5 2.5 4-Chlorotoluene 48.3 2-Chlorotoluene 47.1 2.5 1,3,5-Trimethylbenzene 46.8 2.5 tert-Butvlbenzene 1,2,4-Trimethylbenzene 46.8 2.5 sec-Butylbenzene 45.7 2.5 n 1.3-Dichlorobenzene 47.6 2.5 1,4-Dichlorobenzene 44.9 2.5 O 4-isopropyltoluene 46.9 2.5 1,2-Dichlorobenzene 45.1 2.5 n-Butylbenzene 2.5 1,2-Dibromo-3-chloropropane (DBCP) 1,2,4-Trichlorobenzene 46.4 Naphthalene 43.3 Hexachlorobutadiene 87.9 1.2.3-Trichlorobenzene 43.8 Surr: 1,2-Dichloroethane-d4 48.7 Surr: Toluene-d8 48.5 Surr: 4-Bromofluorobenzene 

48.5



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Date: Work Order: QC Summary Report 09-Dec-09 09120203 Type MSD Test Code: EPA Method SW8260B Sample Matrix Spike Duplicate File ID: 09120310.D Batch ID: MS15W1203M Analysis Date: 12/03/2009 10:56 Sample ID: 09120203-01AMSD Units: µg/L Run ID: MSD\_15\_091203D Prep Date: 12/03/2009 10:56 Analyte Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Dichlorodifluoromethane 34.4 2.5 0 167 37.52 8.6(20) 13 Chloromethane 32.7 0 33.68 10 50 65 28 145 3.1(20)Vinvl chloride 36.3 2.5 0 43 134 39.61 8.9(20) 50 73 Chloroethane 41.5 2.5 50 0 83 39 154 44.58 7.2(20)Bromomethane 46.4 10 50 0 93 19 176 43.35 6.9(20)Trichlorofluoromethane 42.2 2.5 50 0 84 34 160 46.29 9.3(20) 1.1-Dichloroethene 44.4 2.5 50 0 89 60 130 48.27 8.3(20) Dichloromethane 44.5 0 89 68 10 50 130 45.56 2.5(20)Freon-113 46.7 2.5 50 0 93 49 141 51.54 9.9(20)trans-1,2-Dichloroethene 46.2 2.5 50 0 92 63 130 48.32 4.5(20)Methyl tert-butyl ether (MTBE) 1.3 50 0 96 56 141 48.77 48 1.7(20)1,1-Dichloroethane 44.9 2.5 50 0 90 61 130 47.1 4.7(20)2-Butanone (MEK) 523 50 1000 0 52 20 182 535.5 2.4(20)cis-1,2-Dichloroethene 48.3 2.5 50 0 97 70 130 50.18 3.8(20) Bromochloromethane 48.9 2.5 50 0 98 70 130 50.42 3.1(20)Chloroform 47.1 0 4.0(20) 2.5 94 67 130 49.02 50 2,2-Dichloropropane 50.2 2.5 50 0 100 30 152 53.54 6.5(20)1,2-Dichloroethane 0 60 46.8 2.5 50 94 135 47.96 2.5(20)1,1,1-Trichloroethane 45.9 2.5 0 92 59 137 49.54 50 7.6(20)1,1-Dichloropropene 45 2.5 0 90 63 130 48.09 6.7(20)50 Carbon tetrachloride 46.6 2.5 93 50 147 50.43 50 0 8.0(20) Benzene 45.4 1.3 50 0 91 67 130 47.36 4.2(20) Dibromomethane 46.6 2.5 50 0 93 69 133 48.6 4.3(20)1,2-Dichloropropane 47.5 2.5 50 0 95 69 130 48.96 3.0(20)Trichloroethene 45 2.5 50 0 90 69 130 47.87 6.3(20)Bromodichloromethane 48.7 2.5 50 0 97 66 134 50.02 2.8(20)cis-1,3-Dichloropropene 46.3 0 130 2.5 50 93 63 48.21 4.1(20)trans-1,3-Dichloropropene 42.8 2.5 0 86 66 44.25 3.4(20)50 131 1,1,2-Trichloroethane 2.5 50 0 90 68 46.69 44.8 130 4.1(20) Toluene 42.9 1.3 50 0 86 66 130 44.74 4.3(20) 1,3-Dichloropropane 46 2.5 50 0 92 70 130 47.52 3.3(20)Dibromochloromethane 44.1 2.5 88 70 50 0 130 45.38 2.8(20) 1,2-Dibromoethane (EDB) 93.1 93 5 100 0 70 130 96.11 3.2(20)Tetrachloroethene 2.5 0 45.3 50 91 61 134 48.63 7.2(20)1,1,1,2-Tetrachloroethane 47.4 2.5 50 0 95 70 130 48.5 2.3(20)Chlorobenzene 44.7 2.5 0 89 70 130 45.9 2.7(20)50 Ethylbenzene 43.7 1.3 50 0 87 68 130 45.74 4.7(20)m,p-Xylene 44.4 1.3 50 0 89 64 130 46.3 4.2(20)**Bromoform** 41.1 2.5 50 0 82 64 138 42.26 2.8(20)Styrene 49.9 0 2.5 99.9 69 130 51.38 2.9(20) 50 o-Xylene 46.5 93 70 47.21 1.3 50 0 130 1.4(20)1.1.2.2-Tetrachloroethane 43 4 2.5 50 0 87 65 131 44.01 1.3(20)1,2,3-Trichloropropane 88.1 10 100 0 88 70 130 90.78 3.0(20)Isopropylbenzene 43.9 2.5 50 0 88 64 138 46.75 6.4(20)Bromobenzene 46 2 2.5 50 0 92 70 130 47.11 2.0(20) n-Propylbenzene 44.1 2.5 50 0 88 66 132 46.3 4.9(20)4-Chlorotoluene 2.5 45.9 92 70 50 0 130 48.33 5.2(20)2-Chlorotoluene 45.5 2.5 50 0 91 70 130 47.08 3.3(20) 1,3,5-Trimethylbenzene 44.8 2.5 50 0 90 66 136 46.8 4.5(20) tert-Butylbenzene 0 86 65 5.0(20) 42.8 2.5 50 137 45.03 1,2,4-Trimethylbenzene 45 2.5 50 0 90 65 137 46.81 3.9(20)sec-Butylbenzene 43.4 2.5 50 0 87 66 134 45.7 5.1(20) 1,3-Dichlorobenzene 47.2 2.5 50 0 94 70 130 47 62 0.9(20)1.4-Dichlorobenzene 44.2 88 2.5 50 0 70 130 44.93 1.7(20)4-Isopropyltoluene 0 447 2.5 50 89 66 137 46.93 4.9(20)1,2-Dichlorobenzene 43.9 2.5 50 0 88 70 130 45.12 2.8(20)n-Butvlbenzene 46.1 2.5 50 0 92 60 142 48.04 4.2(20)1,2-Dibromo-3-chloropropane (DBCP) 207 0 83 67 210.8 15 250 130 1.9(20) 1,2,4-Trichlorobenzene 47.2 10 50 0 94 61 137 46.36 1.7(20) Naphthalene 43.9 10 0 88 50 40 167 43.25 1.5(20) Hexachlorobutadiene 87.9 10 100 0 88 61 130 87.92 0.0(20)1.2.3-Trichlorobenzene 45.8 10 50 0 92 51 144 43.78 4.5(20)Surr: 1,2-Dichloroethane-d4 48.9 98 70 130 50 Surr: Toluene-d8 48.5 50 97 70 130 Surr: 4-Bromofluorobenzene 50 48.1 96 70 130



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Date:		
09-Dec-09		

QC Summary Report

Work Order: 09120203

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

# Billing Information:

# CHAIN-OF-CUSTODY RECORD

# Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 TEL: (775) 355-1044 FAX: (775) 355-0406

Phone Number

connerd@battelle.org

**EMail Address** 

David Conner Report Attention

Betsy Cutie Shane Walton

(614) 424-4899 x (614) 424-4117 x (818) 393-2808 x

cutiee@batelle.org waltons@battelle.org

Battelle Memorial Institute San Diego, CA 92110 Suite C-205 3990 Old Town Ave

Client:

PO: 218013

Client's COC #: 24121

Page: 1 of 1

Report Due By: 5:00 PM On: 16-Dec-2009 WorkOrder: BMIS09120203

EDD Required: Yes

Sampled by: Client Cooler Temp

Samples Received

Date Printed

02-Dec-2009 02-Dec-2009

QC Level: DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates

Job :

G005862/JPL Groundwater Monitoring

						•				Requested Tests	d Tests	
Alpha	Client		Collection	No. of	No. of Bottles	<b>.</b> ,	314_W	METALS_	METALS_D VOC_TIC_	VOC_W		
Sample ID	Sample ID	Matr	Matrix Date	Alpha	Sub	TAT		*	*			 Sample Remarks
BMI09120203-01A	MW-12-5	Ą	12/01/09 08:11	Ŋ	0	10	Perchlorate	Ω.	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120203-02A	MW-12-4	ΑQ	12/01/09 08:41	თ	0	10	Perchlorate	Ç	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120203-03A	MW-12-3	ĄQ	12/01/09 09:19	თ	0	10	Perchlorate	Q	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120203-04A	MW-12-2	Ą	12/01/09 09:45	თ	0	10	Perchlorate	유	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120203-05A	MW-12-1	á	12/01/09 10:15	51	0	10	Perchlorate	Ω	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120203-06A	DUPE-06-4Q09	A Q	12/01/09 00:00	σı	0	10	Perchlorate	ርተ	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120203-07A	EB-09-12/01/09	Ą	12/01/09 10:01	σı	0	10	Perchlorate	유	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120203-08A	TB-09-12/01/09	ĄQ	12/01/09 00:00		0	10			VOC by 524 Criteria	VOC by 524 Criteria		Reno Trip Blank 8/25/09

Comments:

No security seals. Frozen ice. Temp Blank #8765 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). Logged in EB and TB per previous workorders.

Logged in by:	- 10 AM
Chapter (locox	Signature
Elizabuth Adcox	Print Name
Alpha Analytical, Inc.	Company
12-2-09 1029	Date/Time

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

City, State, Zip CalumBus Address .

Sparks, Nevada 89431-5778 Phone (775) 355-1044 Fax (775) 355-0406 255 Glendale Avenue, Suite 21 Alpha Analytical, Inc.

D	AZ	Samples
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Cherry House	Fax (775)	Fax (775) 355-0406	/ Analyses Required	_
Tione Number rax		loh# \	1	
TATTELLE FOUND CONNELL	18013	Jos 2005 2	28	/ Required QC Level?
39% OLD TOWN NE C-205	EMail Address			/
o CA	Phone # (6/9) 726 - 73//	Fax#	es G	EDD / EDF? YESNO
87	Report Attention		DC 701 501 501 501 501 501 501 501 501 501 5	Global ID #
ampled Sampled Below Lab ID Number ( Office )	) Sample Description	TAT Filtered ** See below	S/ P/ Jo 20/ /	/ REMARKS
811 1961/2 18 BMI09120203-01	JW-12-5	X x & Imag	×	
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<i>mg</i>	3 MW-12-3	×	×	
0	Of MW-12-2	×	×	
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· O	DUPE-06-4009	X	X	FUPHUAE
	-+-			
	19/11/19/			Many Combined
0.	878-09-12/01/09	1 V		TRUP BLANK
ADDITIONAL INSTRUCTIONS:				
Signature	Print Name		Company	Date Time
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Received by Clark but all deep	Elizab	(Lept	ia l	2-2-03 1029
Received by				
Relinquished by				
Received by				

of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report. NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis \*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air \*\*: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar



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**Date:** 16-Dec-09

David Conner

Battelle Memorial Institute

3990 Old Town Ave

San Diego, CA 92110 (818) 393-2808

Suite C-205

**CASE NARRATIVE** 

Job:

G005862/JPL Groundwater Monitoring

Work Order:

BMI09120304

**Cooler Temp:** 

4°C

Alpha's Sample ID	Client's Sample ID	Matrix
09120304-01A	MW-11-5	Aqueous
09120304-02A	MW-11-4	Aqueous
09120304-03A	MW-11-3	Aqueous
09120304-04A	MW-11-2	Aqueous
09120304-05A	MW-11-1	Aqueous
09120304-06A	EB-10-12/02/09	Aqueous
09120304-07A	TB-10-12/02/09	Aqueous

#### **Manually Integrated Analytes**

Alpha's Sample ID	Test Reference	<u>Analyte</u>	-
09120304-01A 09120304-02A	EPA Method 314.0 EPA Method 314.0	Perchlorate Perchlorate	

Enclosed please find the analytical results of the samples received by Alpha Analytical, Inc. under the above mentioned Work Order/Chain-of-Custody.

Alpha Analytical, Inc. has a formal Quality Assurance/Quality Control program, which is designed to meet or exceed the EPA requirements. All relevant QC met quality assurance objectives for this project unless otherwise stated in the footnotes.

If you have any questions with regards to this report, please contact Randy Gardner, Project Manager, at (800) 283-1183.

Roger Scholl

Kandy Saulner

Walter Hirihm



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110 Attn: David Conner

Phone: (818) 393-2808

Fax:

(614) 458-6641

Date Received: 12/03/09

Job:

G005862/JPL Groundwater Monitoring

Anions by IC

EPA Method 300.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-11-1					
Lab ID: BMI09120304-05A	Chloride	31	0.50 mg/L	12/03/09 12:51	12/03/09 14:22
Date Sampled 12/02/09 10:38	Nitrite (NO2) - N	ND	0.25 mg/L	12/03/09 12:51	12/03/09 14:22
	Nitrate (NO3) - N	1.2	0.25 mg/L	12/03/09 12:51	12/03/09 14:22
	Sulfate (SO4)	51	0.50 mg/L	12/03/09 12:51	12/03/09 14:22
	Phosphate, ortho - P	ND	0.25  mg/L	12/03/09 12:51	12/03/09 14:22

ND = Not Detected

Roger Scholl Kandy Saulun

Walter Hinkon

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/16/09
Report Date



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Attn:

**David Conner** 

Phone:

(818) 393-2808

Fax:

(614) 458-6641

Date Received: 12/03/09

Job:

G005862/JPL Groundwater Monitoring

# Perchlorate by Ion Chromatography

EPA Method 314.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-11-5 Lab ID: BMI09120304-01A Date Sampled 12/02/09 08:42	Perchlorate	1.11	1.00 μg/L	12/11/09 11:22	12/11/09 13:16
Client ID: MW-11-4 Lab ID: BMI09120304-02A Date Sampled 12/02/09 09:09	Perchlorate	1.27	1.00 μg/L	12/11/09 11:22	12/11/09 13:35
Client ID: MW-11-3 Lab ID: BMI09120304-03A Date Sampled 12/02/09 09:41	Perchlorate	ND	1.00 μg/L	12/11/09 11:22	12/11/09 13:53
Client ID: MW-11-2 Lab ID: BMI09120304-04A Date Sampled 12/02/09 10:07	Perchlorate	ND	1.00 μg/L	12/11/09 11:22	12/11/09 14:12
Client ID: MW-11-1 Lab ID: BMI09120304-05A Date Sampled 12/02/09 10:38	Perchlorate	1.64	1.00 μg/L	12/11/09 11:22	12/11/09 14:30
Client ID: <b>EB-10-12/02/09</b> Lab ID: BMI09120304-06A Date Sampled 12/02/09 10:23	Perchlorate	ND	1.00 μg/L	12/11/09 11:22	12/11/09 14:48

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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12/16/09

**Report Date** 



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Attn:

**David Conner** 

Phone:

(818) 393-2808

Fax:

(614) 458-6641

Date Received: 12/03/09

Job:

G005862/JPL Groundwater Monitoring

Metals by ICPMS

EPA Method 200.8

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-11-5 Lab ID: BMI09120304-01A Date Sampled 12/02/09 08:42	Chromium (Cr)	ND	0.0050 mg/L	12/04/09 10:17	12/04/09 22:39
Client ID: <b>MW-11-4</b> Lab ID: BMI09120304-02A Date Sampled 12/02/09 09:09	Chromium (Cr)	ND	0.0050 mg/L	12/04/09 10:17	12/04/09 22:45
Client ID: MW-11-3 Lab ID: BMI09120304-03A Date Sampled 12/02/09 09:41	Chromium (Cr)	ND	0.0050 mg/L	12/04/09 10:17	12/04/09 22:50
Client ID: <b>MW-11-2</b> Lab ID: BMI09120304-04A Date Sampled 12/02/09 10:07	Chromium (Cr)	ND	0.0050 mg/L	12/04/09 10:17	12/04/09 22:56
Client ID: MW-11-1 Lab ID: BMI09120304-05A Date Sampled 12/02/09 10:38	Chromium (Cr)	ND	0.0050 mg/L	12/04/09 10:17	12/04/09 23:01
Client ID: <b>EB-10-12/02/09</b> Lab ID: BMI09120304-06A Date Sampled 12/02/09 10:23	Chromium (Cr)	ND	0.0050 mg/L	12/04/09 10:17	12/04/09 23:35

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

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#### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring Job:

Attn: David Conner

Phone: (818) 393-2808

Fax:

(614) 458-6641

Tentatively Identified Compounds - Volatile Organics by GC/MS

			Estimated		
	Parameter	Estimated	Reporting	Date	Date
		Concentration	Limit	Extracted	Analyzed
Client ID : MW-11-5 Lab ID : BMI09120304-01A Date Received : 12/03/09 Date Sampled : 12/02/09 08:42	Sulfur dioxide	8.4	2.0 μg/L	12/04/09 16:50	12/04/09 16:50
Client ID : MW-11-4 Lab ID : BMI09120304-02A Date Received : 12/03/09 Date Sampled : 12/02/09 09:09	Sulfur dioxide	9.9	2.0 μg/L	12/04/09 17:13	12/04/09 17:13
Client ID : MW-11-3 Lab ID : BMI09120304-03A Date Received : 12/03/09 Date Sampled : 12/02/09 09:41	Sulfur dioxide	10	2.0 μg/L	12/04/09 17:35	12/04/09 17:35
Client ID : MW-11-2 Lab ID : BM109120304-04A Date Received : 12/03/09 Date Sampled : 12/02/09 10:07	Sulfur dioxide	7.1	2.0 µg/L	12/04/09 17:57	12/04/09 17:57
Client ID : MW-11-1 Lab ID : BMI09120304-05A Date Received : 12/03/09 Date Sampled : 12/02/09 10:38	Sulfur dioxide	4.5	2.0 μg/L	12/04/09 18:20	12/04/09 18:20
Client ID : EB-10-12/02/09 Lab ID : BMI09120304-06A Date Received : 12/03/09 Date Sampled : 12/02/09 10:23	*** None Found ***	ND	2.0 μg/L	12/04/09 14:15	12/04/09 14:15
Client ID: TB-10-12/02/09 Lab ID: BMI09120304-07A Date Received: 12/03/09 Date Sampled: 12/02/09 00:00	*** None Found ***	ND	2.0 μg/L	12/04/09 13:53	12/04/09 13:53



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Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl Kandy Saulmer Walter Hinchman, Quality Assurance Officer

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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**Report Date** 



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#### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120304-01A

Client I.D. Number: MW-11-5

Attn: David Conner

Phone: (818) 393-2808 (614) 458-6641 Fax:

Sampled: 12/02/09 08:42

Received: 12/03/09

Extracted: 12/04/09 16:50 Analyzed: 12/04/09 16:50

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	µg/L	42	o-Xylene	ND	0.50	µg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
. 13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	µg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	µg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	µg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	µg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/Ľ
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	µg/L					
		1							

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

34 1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

µg/L

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12/16/09

Report Date



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#### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 3990 Old Town Ave

Client I.D. Number: MW-11-4

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Attn:

**David Conner** (818) 393-2808

Phone: Fax:

(614) 458-6641

Alpha Analytical Number: BMI09120304-02A

Sampled: 12/02/09 09:09

Received: 12/03/09

Extracted: 12/04/09 17:13 Analyzed: 12/04/09 17:13

#### Volatile Organics by GC/MS EPA Method SW8260B

Compound		Concentration	Reporting Limit			Compound	Concentration	Reporting Limit	
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	µg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	µg/L
5	Bromomethane	ND	1.0	µg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μ <b>g/L</b>
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	µg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	µg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L .
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	µg/L
21	Carbon tetrachloride	ND	0.50	µg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	NĐ	0.50	µg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	•	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	µg/L	62	Hexachlorobutadiene	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND	0.50	µg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	µg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	µg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	94	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

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12/16/09

Report Date



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#### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110 Job: G005862/JPL

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120304-03A

Client I.D. Number: MW-11-3

Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Sampled: 12/02/09 09:41

Received: 12/03/09

Extracted: 12/04/09 17:35 Analyzed: 12/04/09 17:35

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	µg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	, ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyttoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	µg/L	66	Surr: 4-Bromofluorobenzene	94	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulur

ND

ND

Walter Strikmer

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

µg/L

μg/L

µg/L

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12/16/09

Report Date
Page 1 of 1



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### ANALYTICAL REPORT

**Battelle Memorial Institute** 

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120304-04A

Client I.D. Number: MW-11-2

Attn: David Conner

(818) 393-2808 Phone: (614) 458-6641 Fax:

Sampled: 12/02/09 10:07

Received: 12/03/09

Extracted: 12/04/09 17:57 Analyzed: 12/04/09 17:57

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	µg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	µg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropy!toluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	µg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	µg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	µg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	µg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

34 1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

µg/L

µg/L

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Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/16/09 Report Date



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### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120304-05A

Client I.D. Number: MW-11-1

Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Sampled: 12/02/09 10:38

Received: 12/03/09

Extracted: 12/04/09 18:20 Analyzed: 12/04/09 18:20

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	µg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	µg/L
14	cis-1,2-Dichloroethene	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCl	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	µg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyi-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	µg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	. 93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulun

ND

ND

Walter Firehour

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Ouality Assurance Officer

μg/L

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical. Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/16/09

Report Date
Page 1 of 1



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### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120304-06A Client I.D. Number: EB-10-12/02/09

Attn: **David Conner** Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 12/02/09 10:23 Received: 12/03/09

Extracted: 12/04/09 14:15 Analyzed: 12/04/09 14:15

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	µg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	µg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	NÐ	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	92	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

0.50

μg/L

μg/L

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**Report Date** 



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### ANALYTICAL REPORT

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Client I.D. Number: TB-10-12/02/09

Attn:

**David Conner** 

Phone: (818) 393-2808

Fax:

(614) 458-6641

Alpha Analytical Number: BMI09120304-07A

Sampled: 12/02/09 00:00

Received: 12/03/09

Extracted: 12/04/09 13:53

Analyzed: 12/04/09 13:53

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	104	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	94	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	ua/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

0.50

μg/L

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples

12/16/09

**Report Date** 



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### **VOC Sample Preservation Report**

Work Order: BMI09120304

Job:

G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	рН	
09120304-01A	MW-11-5	Aqueous	2	
09120304-02A	MW-11-4	Aqueous	2	
09120304-03A	MW-11-3	Aqueous	2	
09120304-04A	MW-11-2	Aqueous	2	
09120304-05A	MW-11-1	Aqueous	2	
09120304-06A	EB-10-12/02/09	Aqueous	2	
09120304-07A	TB-10-12/02/09	Aqueous	2	

12/16/09



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Date: 09-Dec-09	. (	QC Sı	ımmar	y Repor	t				<b>Work Or</b> 0912030	
Method Blank File ID: 16		Туре М		est Code: El atch ID: 231		hod 300.0	Analysi	s Date:	12/03/2009 13:20	 6
Sample ID: MB-23190	Units : mg/L			_1_091203			Prep D		12/03/2009 12:51	1
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) F	RPDRefV	al %RPD(Limit)	Qual
Nitrite (NO2) - N	ND	0.25								
Nitrate (NO3) - N	ND ND	0.25 0.25								
Phosphate, ortho - P									<del></del>	
Laboratory Fortified Blank		Type LI		est Code: El		hod 300.0				_
File ID: 17				atch ID: 2319			•		12/03/2009 13:4	
Sample ID: LFB-23190	Units : mg/L			_1_091203			Prep D		12/03/2009 12:51	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) F	RPDRefV	al %RPD(Limit)	Qual
Nitrite (NO2) - N	1.16	0.25	1.25		92	90	110			
Nitrate (NO3) - N	1.29 1.42	0.25	1.25 1.25		103 113	90 90	110 110			L1
Phosphate, ortho - P	1.42	0.25	1.25		113	90	110			<u> </u>
Laboratory Fortified Blank Duplicate		Type LI		est Code: El		hod 300.0	A 1, 1	a Data:	40/02/2000 44-01	
File ID: 18				atch ID: 2319			•		12/03/2009 14:03	
Sample ID: LFBD-23190	Units : mg/L			_1_091203			Prep D		12/03/2009 12:51	
Analyte	Result	PQL	SpkVal	SpkRefVal					al %RPD(Limit)	Qual
Nitrite (NO2) - N	1.23	0.25	1.25		98	90	110	1.156		
Nitrate (NO3) - N Phosphate, ortho - P	1.32 1.33	0.25 0.25	1.25 1.25		106 106	90 90	110 110	1.288 1.418	• •	
		<del></del>					110	1.410	0.4(10)	
Sample Matrix Spike		Type LI		est Code: El		noa 300.0	A t :	- Dáta:	4010010000 45-01	
File ID: 23	11-9			atch ID: 2319			•		12/03/2009 15:36	
Sample ID: 09120304-05ALFM	Units : mg/L			_1_091203		10145	Prep Da		12/03/2009 12:51	
Analyte	Result	PQL			-			PDRetv	al %RPD(Limit)	Qual
Nitrite (NO2) - N	1.07	0.25	1.25	0		80	120			
Nitrate (NO3) - N Phosphate, ortho - P	2.48 1.54	0.25 0.25	1.25 1.25	1.186 0	103 123	80 80	120 120			M1
							120			
Sample Matrix Spike Duplicate File ID: 24		Type LI		est Code: <b>El</b> atch ID: <b>231</b> 9		hod 300.0	Analysi	e Date:	12/03/2009 15:54	1
	Unita i maril						Prep D		12/03/2009 13:51	
Sample ID: 09120304-05ALFMD	Units : mg/L			_1_091203 <i>A</i>		LOLIMEN	•			
Analyte	Result	PQL							al %RPD(Limit)	Qual
Nitrite (NO2) - N	1.09	0.25	1.25	0 1.186	87 103	80 80	120 120	1.074 2.477		
Nitrate (NO3) - N Phosphate, ortho - P	2.48 1.73	0.25 0.25	1.25 1.25	1.186	138	80 80	120	1.538		M1 R58
· ···	0	5.20	1.20	U	. 55					

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag.

L1 = The associated blank spike recovery was above laboratory acceptance limits.

M1 = Matrix spike recovery was high, the method control sample recovery was acceptable.

R58 = MS/MSD RPD exceeded the laboratory control limit.



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<b>Date:</b> 09-Dec-09		(	QC S	ummary	y Repor	t				<b>Work Orde</b> 09120304	
Method Blan	nk		Type N		est Code: El		hod 300.0	Analysis Da	ate:	12/03/2009 13:26	
Sample ID:	MB-23190	Units : mg/L		Run ID: IC	1 0912034			Prep Date:		12/03/2009 12:51	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDI	RefV	al %RPD(Limit)	Qual
Sulfate (SO4)		ND	0.5	5							
Laboratory	Fortified Blank		Type L	.FB Te	est Code: El	PA Met	hod 300.0				
File ID: 17				Ва	tch ID: 2319	90B		Analysis Da	ate:	12/03/2009 13:45	
Sample ID:	LFB-23190	Units : mg/L		Run ID: IC	_1_091203	1		Prep Date:		12/03/2009 12:51	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDI	RefV	al %RPD(Limit)	Qual
Sulfate (SO4)		9.62	0.5	5 10		96	90	110			
Sample Mat	rix Spike		Type L	.FM Te	est Code: Ei	PA Met	hod 300.0				
File ID: 23	•			Ba	tch ID: 2319	90B		Analysis Da	ate:	12/03/2009 15:36	
Sample ID:	09120304-05ALFM	Units: mg/L		Run ID: IC	_1_091203	١		Prep Date:		12/03/2009 12:51	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDI	RefV	'al %RPD(Limit)	Qual
Sulfate (SO4)		59.8	0.5	5 10	51.3	85	80	120			
Sample Mat	rix Spike Duplicate		Type L	.FMD Te	est Code: El	PA Met	hod 300.0				
File ID: <b>24</b>	•			Ва	tch ID: 2319	90B		Analysis Da	ate:	12/03/2009 15:54	
Sample ID:	09120304-05ALFMD	Units: mg/L		Run ID: IC	_1_091203 <i>A</i>	١.		Prep Date:		12/03/2009 12:51	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDI	RefV	al %RPD(Limit)	Qual
Sulfate (SO4)		60.7	0.5	5 10	51.3	94	80	120 5	9.78	1.5(10)	

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



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<b>Date:</b> 09-Dec-09		Ç	QC S	ummar	y Repor	t			<b>Work Orde</b> 09120304	
Method Bla File ID: 16 Sample ID:	nk MB-23190	Units : mg/L	Type I	B Run ID: IC	est Code: E atch ID: 231 C_1_091203	90C A		Prep Date:	e: 12/03/2009 13:26 12/03/2009 12:51	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
Chloride		ND	0.	5						
Laboratory File ID: 17	Fortified Blank		Туре <b>І</b>		est Code: E atch ID: <b>231</b>		hod 300.0	Analysis Date	e: <b>12/03/2009 13:45</b>	
Sample ID:	LFB-23190	Units : mg/L			C_1_091203			Prep Date:	12/03/2009 12:51	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
Chloride		4.74	0.	5 5		95	90	110		
Sample Mat	rix Spike		Type I		est Code: E		hod 300.0	Analysis Dat	e: <b>12/03/2009 15:36</b>	
Sample ID:	09120304-05ALFM	Units : mg/L		Run ID: IC	C_1_091203	A		Prep Date:	12/03/2009 12:51	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
Chloride		35.6	0.9	5 5	31.18	89	80	120		
	rix Spike Duplicate		Type I		est Code: E		hod 300.0	Analysis Dat	e: <b>12/03/2009 15:54</b>	
File ID: 24	00420204 0541 5MD	l leite		_				Prep Date:	12/03/2009 13:54	
Sample ID: Analyte	09120304-05ALFMD	Units : <b>mg/L</b> Result	PQL		C_1_091203 SpkRefVal		LCL(ME)	•	efVal %RPD(Limit)	Qual
Chloride		35.9	0.	5 5	31.18	93	80	120 35	.61 0.7(10)	

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



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<b>Date:</b> 16-Dec-09		Ç	C S	umma	ary Re	port			<b>Work Orde</b> 09120304	
Method Blan File ID: 14	nk		Type I	MBLK	Test Cod Batch ID		lethod 314.0		12/11/2009 12:21	
Sample ID:	MB-23231	Units : μ <b>g/L</b>			IC_3_09			Prep Date:	12/11/2009 11:22	
Analyte		Result	PQL	Spk\	/al SpkR	fVal %RI	EC LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		ND		1						
	Fortified Blank		Type I	_FB			lethod 314.0			
File ID: 15					Batch ID			•	12/11/2009 12:40	
Sample ID:	LFB-23231	Units : μg/L			IC_3_09			Prep Date:	12/11/2009 11:22	
Analyte		Result	PQL	Spk\	/al SpkR	efVal %RI	EC LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		24.7	:	2	25	99	9 85	115		
Sample Mat	rix Spike		Type I	_FM			flethod 314.0			
File ID: <b>34</b>					Batch ID	23231		•	12/11/2009 18:29	
Sample ID:	09121005-03ALFM	Units : µg/L			IC_3_09			Prep Date:	12/11/2009 11:22	
Analyte		Result	PQL	Spk\	al SpkR	efVal %RI	EC LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		72.6	:	2 :	25 4	2.21 12	2 80	120		M1
Sample Mat	rix Spike Duplicate		Type I	_FMD	Test Co	le: EPA N	lethod 314.0			
File ID: <b>35</b>					Batch ID	23231		Analysis Date:	12/11/2009 18:48	
Sample ID:	09121005-03ALFMD	Units : µg/L		Run ID:	IC_3_09	1211A		Prep Date:	12/11/2009 11:22	
Analyte		Result	PQL	Spk\	al SpkR	efVal %Rl	EC LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		73.4	:	2	25 4	2.21 12	5 80	120 72.6	5 1.0(15)	M1

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag.

M1 = Matrix spike recovery was high, the method control sample recovery was acceptable.



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<b>Date:</b> 16-Dec-09	(	QC S	ummary	Report	,			<b>Work Orde</b> 09120304	
Method Blank File ID: 120409.B\92MB.D\ Sample ID: MB-23192	Units : <b>mg/L</b>		Ba Run ID: <b>ICF</b>		2K 4B		Prep Date:	te: 12/04/2009 21:08 12/04/2009 10:17	Ougl
Analyte Chromium (Cr)	Result ND	PQL 0.005		Spкнетvai ·	%HEC	LCL(ME)	OCL(ME) RPDH	lefVal %RPD(Limit)	Qual
Laboratory Control Spike File ID: 120409.B\92L1.D\ Sample ID: LCS-23192 Analyte	Units : <b>mg/L</b> Result	Type L	.CS Te Ba Run ID: ICF	_	2K 4B		Prep Date:	te: 12/04/2009 21:14 12/04/2009 10:17 tefVal %RPD(Limit)	Qual
Chromium (Cr)	0.0535	0.005	<u>-</u>	Spknervar	107	80	120	leival 76111 D(Limit)	Quai
Sample Matrix Spike File ID: 120409.B\92MS.D\ Sample ID: 09120401-01AMS Analyte	Units : <b>mg/L</b> Result	Type M	Bar Run ID: <b>ICF</b>		2K 4B		Prep Date:	te: 12/04/2009 21:42 12/04/2009 10:17 tefVal %RPD(Limit)	Qual
Chromium (Cr)	0.0487	0.005		0	97	80	120		
Sample Matrix Spike Duplicate File ID: 120409.B\92MSD.D\ Sample ID: 09120401-01AMSD Analyte	Units : <b>mg/L</b> Result	Type M	Ba Run ID: I <b>CF</b>	_	2K 4B		Prep Date:	te: 12/04/2009 21:48 12/04/2009 10:17 tefVal %RPD(Limit)	Qual
Chromium (Cr)	0.0479	0.005	····	0	96	80		4871 1.8(20)	

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



Date:

### Alpha Analytical, Inc.

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Work Order:

QC Summary Report 09120304 09-Dec-09 Type MBLK Test Code: EPA Method SW8260B Method Blank Analysis Date: 12/04/2009 11:40 Batch ID: MS15W1204M File ID: 09120408.D Run ID: MSD\_15\_091204B Prep Date: 12/04/2009 11:40 Sample ID: **MBLK MS15W1204M** Units: µg/L SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Analyte Result PQL Dichlorodifluoromethane ND 0.5 Chloromethane ND Vinvl chloride ND 0.5 Chloroethane ND 0.5 Bromomethane ND 1 Trichlorofluoromethane ND 0.5 1,1-Dichloroethene ND 0.5 Dichloromethane ND 1 Freon-113 0.5 ND trans-1,2-Dichloroethene ND 0.5 Methyl tert-butyl ether (MTBE) ND 0.5 1,1-Dichloroethane ND 0.5 2-Butanone (MEK) ND 10 cis-1.2-Dichloroethene ND 0.5 Bromochloromethane ND 0.5 Chloroform ND 0.5 2,2-Dichloropropane ND 0.5 1,2-Dichloroethane ND 0.5 1.1.1-Trichloroethane ND 0.5 1,1-Dichloropropene ND 0.5 0.5 Carbon tetrachloride ND Benzene ND 0.5 Dibromomethane ND 0.5 1,2-Dichloropropane ND 0.5 Trichloroethene ND 0.5 Bromodichloromethane ND 0.5 4-Methyl-2-pentanone (MIBK) ND 2.5 cis-1,3-Dichloropropene ND 0.5 ND 0.5 trans-1,3-Dichloropropene 1.1.2-Trichloroethane ND 0.5 Toluene ND 0.5 1.3-Dichloropropane ND 0.5 Dibromochloromethane ND 0.5 1,2-Dibromoethane (EDB) ND Tetrachloroethene ND 0.5 1,1,1,2-Tetrachloroethane ND 0.5 0.5 Chlorobenzene ND Ethylbenzene ND 0.5 m,p-Xylene ND 0.5 **Bromoform** ND 0.5 Styrene ND 0.5 o-Xylene ND 0.5 1,1,2,2-Tetrachloroethane ND 0.5 1,2,3-Trichloropropane ND Isopropylbenzene ND 0.5 Bromobenzene ND 0.5 n-Propylbenzene 0.5 ND 4-Chlorotoluene ND 0.5 2-Chiorotoluene ND 0.5 1,3,5-Trimethylbenzene ND 0.5 tert-Butylbenzene ND 0.5 1,2,4-Trimethylbenzene ND 0.5 sec-Butvlbenzene ND 0.5 1,3-Dichlorobenzene ND 0.5 1.4-Dichlorobenzene ND 0.5 4-Isopropyltoluene ND 0.5 1,2-Dichlorobenzene ND 0.5 n-Butylbenzene ND 0.5 1,2-Dibromo-3-chloropropane (DBCP) ND 2.5 1.2.4-Trichlorobenzene ND 1 Naphthalene ND 1 Hexachlorobutadiene ND 1 1,2,3-Trichlorobenzene ND Surr: 1,2-Dichloroethane-d4 130 10.1 10 101 70 Surr: Toluene-d8 10 101 70 130 10.1



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Date: 09-Dec-09	QC	Summary Re	port			<b>Work Order:</b> 09120304
Surr: 4-Bromofluorobenzene	9.52	10	95	70	130	



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Work Order:



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48.6

49.2

Surr: 4-Bromofluorobenzene



Surr: 4-Bromofluorobenzene

### Alpha Analytical, Inc.

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Work Order: Date: QC Summary Report 09120304 09-Dec-09 Type MSD Test Code: EPA Method SW8260B Sample Matrix Spike Duplicate Analysis Date: 12/04/2009 12:24 Batch ID: MS15W1204M File ID: 09120410.D Prep Date: 12/04/2009 12:24 09120150-05AMSD Units: µg/L Run ID: MSD\_15\_091204B Sample ID: SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) **PQL** Qual Result Analyte 167 34.61 3.3(20)72 13 Dichlorodifluoromethane 35.8 2.5 50 0 50 0 74 28 145 36.26 1.7(20)10 Chloromethane 36.9 40.08 0.2(20)Vinyl chloride 40 2.5 50 0 80 43 134 154 42.89 4.8(20)90 39 2.5 50 0 Chloroethane 45 55.7 10 50 0 111 19 176 46.06 19.0(20) Bromomethane 160 41 73 11.7(20) 46.9 2.5 50 0 94 34 Trichlorofluoromethane 0 102 60 130 49.25 3.9(20)51.2 50 1.1-Dichloroethene 2.5 0 96 68 130 47.32 1.2(20)Dichloromethane 47.9 10 50 54.24 0.2(20)108 49 141 Freon-113 54.2 2.5 50 0 0 105 63 130 51.38 1.9(20)trans-1,2-Dichloroethene 52 4 2.5 50 1.7(20)1.3 50 0 103 56 141 50.45 Methyl tert-butyl ether (MTBE) 51.3 130 49.2 1.4(20)2.5 50 0 99.8 61 1.1-Dichloroethane 49.9 552.5 57 20 182 2.3(20)2-Butanone (MEK) 565 50 1000 0 1.4(20) 52.39 cis-1,2-Dichloroethene 53.1 2.5 50 0 106 70 130 2.5(20)2.5 0 104 70 130 50.68 50 Bromochloromethane 52 0 104 67 130 50.75 2.6(20)Chloroform 52.1 2.5 50 30 152 55.97 0.7(20)0 113 2,2-Dichloropropane 56.4 2.5 50 48.58 2.0(20)49.5 2.5 50 0 99 60 135 1.2-Dichloroethane 52.11 1.3(20) 1,1,1-Trichloroethane 52.8 2.5 50 0 106 59 137 130 51.62 1.1(20) 0 104 63 2.5 50 1,1-Dichloropropene 52.2 50 147 52.73 2.1(20)Carbon tetrachloride 53.8 2.5 50 0 108 49.74 1.4(20)50.4 1.3 50 0 101 67 130 Benzene 48.45 3.8(20) 50.3 2.5 50 0 101 69 133 Dibromomethane 50.14 2.3(20)0 103 69 130 1,2-Dichloropropane 51.3 2.5 50 2.5 0 104 69 130 49.95 3.6(20)Trichloroethene 51.8 50 66 134 49.74 3.9(20)Bromodichloromethane 51.7 2.5 50 0 103 47.64 63 130 3.9(20)49.5 2.5 50 0 99 cis-1,3-Dichloropropene 45.7 0 91 66 131 43.69 4.4(20)2.5 50 trans-1,3-Dichloropropene 0 97 68 130 47.12 3.1(20)1,1,2-Trichloroethane 48.6 2.5 50 47.05 2.0(20)66 130 Toluene 48 1.3 50 0 96 2.8(20)2.5 0 99 70 130 47.96 49.3 50 1,3-Dichloropropane 43.97 5.6(20) Dibromochloromethane 46.5 2.5 50 0 93 70 130 130 96.45 3.2(20)0 99.6 70 1,2-Dibromoethane (EDB) 99.6 5 100 52.7 2.5 50 0 105 61 134 51.63 2.1(20)Tetrachloroethene 49 09 3.9(20)70 130 1,1,1,2-Tetrachloroethane 51.1 2.5 50 0 102 2.5 0 98 70 130 47.7 2.3(20)48.8 50 Chlorobenzene 47.72 Ethylbenzene 48.7 1.3 50 0 97 68 130 2.0(20)0 99 64 130 48.46 1.7(20) m,p-Xylene 49.3 1.3 50 64 40.16 6.4(20)Bromoform 42.8 2.5 50 0 86 138 69 130 52.85 2.2(20)54 2.5 50 0 108 Styrene 0 101 70 130 48.97 3.2(20)o-Xvlene 50.6 1.3 50 0 91 65 131 44.73 2.0(20)1.1.2.2-Tetrachloroethane 45.6 2.5 50 92.81 3.0(20)0 70 130 1,2,3-Trichloropropane 95.6 10 100 96 2.5 0 97 64 138 48.5 0.2(20)486 50 Isopropylbenzene 0 97 70 130 47.47 1.8(20)Bromobenzene 48.3 2.5 50 132 48.21 0.2(20)0 97 66 2.5 n-Propylbenzene 48.3 50 50.1 2.5 50 0 100 70 130 49.24 1.8(20) 4-Chlorotoluene 70 130 48.4 0.5(20)48.7 50 0 97 2-Chlorotoluene 2.5 0 98 66 136 48.18 1.2(20)1,3,5-Trimethylbenzene 50 48.8 2.5 46.81 0 95 65 137 1.5(20)tert-Butylbenzene 47.5 50 0 97 65 137 47.6 2.0(20)1,2,4-Trimethylbenzene 48.6 2.5 50 47.25 2.1(20)sec-Butylbenzene 48.2 2.5 50 0 96 66 134 1.9(20)0 98 70 130 48 1.3-Dichlorobenzene 48.9 2.5 50 4.2(20)0 93 70 130 44.5 46.4 2.5 50 1,4-Dichlorobenzene 48.04 2.1(20) 0 98 66 137 4-Isopropyltoluene 49.1 2.5 50 70 44.51 4.4(20)1,2-Dichlorobenzene 46.5 2.5 50 0 93 130 101 142 49.21 2.4(20) 50.4 2.5 50 0 60 n-Butvibenzene 205.9 3.1(20)1,2-Dibromo-3-chloropropane (DBCP) 212 15 250 0 85 67 130 6.2(20)10 50 0 95 61 137 44.85 1.2.4-Trichlorobenzene 47.7 0 89 40 167 41.66 7.1(20)Naphthalene 44.7 10 50 87.26 5.7(20) 0 92 61 130 Hexachlorobutadiene 92.3 10 100 50 92 51 144 42.33 8.2(20) 1.2.3-Trichlorobenzene 46 10 Surr: 1,2-Dichloroethane-d4 49.6 50 99 70 130 98 70 130 Surr: Toluene-d8 48.9 50

98

70

130



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Date:
09-Dec-09

QC Summary Report

Work Order:
09120304

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag. L51 = Analyte recovery was above acceptance limits for the LCS, but was acceptable in the MS/MSD.

### Billing Information:

# CHAIN-OF-CUSTODY RECORD

## Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 TEL: (775) 355-1044 FAX: (775) 355-0406

Client:

Report Attention

Phone Number

(818) 393-2808 x

connerd@battelle.org

EMail Address

cutiee@batelle.org waltons@battelle.org

(614) 424-4117 x (614) 424-4899 x

Battelle Memorial Institute Suite C-205 3990 Old Town Ave

PO: 218013 San Diego, CA 92110

Page: 1 of 1

WorkOrder: BMIS09120304

Report Due By: 5:00 PM On: 17-Dec-2009

EDD Required: Yes

Sampled by: Client Cooler Temp

03-Dec-2009

Samples Received 03-Dec-2009

Date Printed

Job: G005862/JPL Groundwater Monitoring

**Betsy Cutie** Shane Walton

Client's COC #: 24122 QC Level: DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates

								Reque	Requested Tests	S		
Alpha Sample ID	Client Sample ID	Matr	Collection Matrix Date	No. of Bottles Alpha Sub	Bottles Sub	TAT	300_0(A)_W 300_0(B)_W 300_0(C)_W		/ METALS	314_W METALS_D VOC_TIC_ VOC_W	VOC_W	Sample Remarks
BMI09120304-01A	MW-11-5	Ą	12/02/09 08:42	თ	0	10		Perchlorate	Lite Cr	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	Level IV QC
BMI09120304-02A	MW-11-4	Ą	12/02/09 09:09	ഗ	0	6		Perchlorate	tte Cr	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09120304-03A	MW-11-3	Ã	12/02/09 09:41	Ŋ	0	10		Perchlorate	Ω	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	Level IV QC
BMI09120304-04A MW-11-2	MW-11-2	Ą	12/02/09 10:07	Ŋ	0	10		Perchlorate	Ω. Cr	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09120304-05A	MW-11-1	ΑQ	12/02/09 10:38	5	0	10	NO2, NO3, NO2, NO3, NO2, NO3, PO4, SO4, CI PO4, SO4, CI PO4, SO4, CI PO4, SO4, CI	NO3, Perchlorate SO4, CI	Ω.	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09120304-06A	EB-10-12/02/09	Ą	12/02/09 10:23	ပၢ	0	75		Perchlorate	tte Cr	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09120304-07A	TB-10-12/02/09	Ą	12/02/09 00:00	_	0	6				VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	Reno Trip Blank 8/25/09

Comments: No security seals. Frozen ice. Temp Blank #7776 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).

Logged in by:	7	
Empour (alex	10 M 100	Signature
LILLADETH FICICOX	11.	Print Name
Anplia Analyticas, and	Alpha Apolytical Inc	mpany
	(7.2.9 /7:2	Date/Time

The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other)

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing Information:
Name (JENAL) TOMPKINS / FATTELLE

City, State, Zip \_\_ Address \_

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### 255 Glendale Avenue, Suite 21 Alpha Analytical, Inc.

D	AZ	Samples
OR	CA X NV	Collecte
OTHER	NV	_
	WA	Which State?
Page #		ate?

Address 505 KING DVC .		Sparks, Nevada 89431-5778 Phone (775) 355-1044		/
Phone Number Fax		355-0406	Analyses Required	_
LANNO CINAS/STERNICA	P.O.# 218013	1985007 # gor	2) 20.8	Required QC Level?
13990 OLD TOWN NIET C-205	EMail Address		74. (24. C.)	/ / II (III/ IV
Sin State, Zip CA 92110	Phone #(6/9) 716-73//	Fax #	1 (3) 3 00 m	EDD / EDF? YES NO
Time Date Control Sampled by	Report Attention	Total and type of	_	Global ID #
Sampled Sampled Below Lab ID Number ( Office Only )	Sample Description	TAT Filtered ** See below	_	REMARKS
0842/49/19/9 BMT09/20364-01 MW-11-5	MW-11-5	Norm 1/0 4	×	TOKI III OC
0.70	.02 MW-11-4		×××	
0.	03 MW-11-3		X X	TENED IE CE
·O.	04 MW-11-2	4	×	
1038 Hoya	D5 MW-11-1	78	××××	
1023 Hoslog - C	12B-10-12/02/09	24/	XXX	Earpress Bring
- Maria 4	775-10-12/02/09	•	X	TRIP BLANK
		The state of the s		

# ADDITIONAL INSTRUCTIONS:

Signature	Print Name	Company	Date	Time
Relinquished by	CHASE-SIMON	INSTUATE CECETAL.	12/02/09	1300
Received by ( ) Report 1	Elizabuth Fldrax	) Jak	12.3.09	12:39
	,	\(\frac{1}{2}\)	1	~
Received by				
Relinquished by				
Received by				

of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report. NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis \*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air \*\*: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

**Date:** 17-Dec-09

David Conner

Battelle Memorial Institute

3990 Old Town Ave

San Diego, CA 92110

(818) 393-2808

Suite C-205

**CASE NARRATIVE** 

Job:

G005862/JPL Groundwater Monitoring

Work Order:

BMI09120403

Cooler Temp:

4°C

Alpha's Sample ID	Client's Sample ID	Matrix
09120403-01A	MW-24-5	Aqueous
09120403-02A	MW-24-4	Aqueous
09120403-03A	MW-24-3	Aqueous
09120403-04A	MW-24-2	Aqueous
09120403-05A	MW-24-1	Aqueous
09120403-06A	EB-11-12/03/09	Aqueous
09120403-07A	TB-11-12/03/09	Aqueous

### **Manually Integrated Analytes**

	THE PARTY NAMED IN TAIL	*1 ****
Alpha's Sample ID	Test Reference	Analyte
09120403-03A	EPA Method 314.0	Perchlorate

Enclosed please find the analytical results of the samples received by Alpha Analytical, Inc. under the above mentioned Work Order/Chain-of-Custody.

Alpha Analytical, Inc. has a formal Quality Assurance/Quality Control program, which is designed to meet or exceed the EPA requirements. All relevant QC met quality assurance objectives for this project unless otherwise stated in the footnotes.

If you have any questions with regards to this report, please contact Randy Gardner, Project Manager, at (800) 283-1183.

Roger Scholl

Kandy Saulner

Walter Acridium



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### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Attn:

**David Conner** 

Phone: (818) 393-2808

Fax:

(614) 458-6641

Date Received: 12/04/09

Job:

G005862/JPL Groundwater Monitoring

Anions by IC

EPA Method 300.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-24-1					
Lab ID: BMI09120403-05A	Chloride	71	2.5 mg/L	12/04/09 13:59	12/04/09 16:14
Date Sampled 12/03/09 10:11	Nitrite (NO2) - N	ND	0.25 mg/L	12/04/09 13:59	12/04/09 14:23
	Nitrate (NO3) - N	1.4	0.25 mg/L	12/04/09 13:59	12/04/09 14:23
	Sulfate (SO4)	46	0.50 mg/L	12/04/09 13:59	12/04/09 14:23
	Phosphate, ortho - P	ND	0.25 mg/L	12/04/09 13:59	12/04/09 14:23

ND = Not Detected

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Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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Attn:

**David Conner** 

Phone:

(818) 393-2808

Fax:

(614) 458-6641

Date Received: 12/04/09

Job:

G005862/JPL Groundwater Monitoring

### Perchlorate by Ion Chromatography

EPA Method 314.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-24-5 Lab ID: BMI09120403-01A Date Sampled 12/03/09 08:17	Perchlorate	ND	1.00 μg/L	12/11/09 11:22	12/11/09 15:07
Client ID: <b>MW-24-4</b> Lab ID: BMI09120403-02A Date Sampled 12/03/09 08:49	Perchlorate	ND	1.00 μg/L	12/11/09 11:22	12/11/09 15:25
Client ID: <b>MW-24-3</b> Lab ID: BMI09120403-03A Date Sampled 12/03/09 09:17	Perchlorate	27.9	1.00 μg/L	12/11/09 11:22	12/11/09 15:44
Client ID: <b>MW-24-2</b> Lab ID: BMI09120403-04A Date Sampled 12/03/09 09:40	Perchlorate	2.61	1.00 µg/L	12/11/09 11:22	12/11/09 16:02
Client ID: <b>MW-24-1</b> Lab ID: BMI09120403-05A Date Sampled 12/03/09 10:11	Perchlorate	1.13	1.00 μg/L	12/11/09 11:22	12/11/09 16:57
Client ID: EB-11-12/03/09 Lab ID: BMI09120403-06A Date Sampled 12/03/09 09:59	Perchlorate	ND	1.00 μg/L	12/11/09 11:22	12/11/09 17:16

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

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Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Attn:

**David Conner** 

Phone: (818) 393-2808

Fax:

(614) 458-6641

Date Received: 12/04/09

Job:

G005862/JPL Groundwater Monitoring

Metals by ICPMS

EPA Method 200.8

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-24-5 Lab ID: BMI09120403-01A Date Sampled 12/03/09 08:17	Chromium (Cr)	ND	0.0050 mg/L	12/04/09 10:17	12/04/09 23:47
Client ID: MW-24-4 Lab ID: BMI09120403-02A Date Sampled 12/03/09 08:49	Chromium (Cr)	ND	0.0050 mg/L	12/04/09 10:17	12/04/09 23:52
Client ID: <b>MW-24-3</b> Lab ID: BMI09120403-03A Date Sampled 12/03/09 09:17	Chromium (Cr)	ND	0.0050 mg/L	12/04/09 10:17	12/04/09 23:58
Client ID: <b>MW-24-2</b> Lab ID: BMI09120403-04A Date Sampled 12/03/09 09:40	Chromium (Cr)	ND	0.0050 mg/L	12/04/09 10:17	12/05/09 00:04
Client ID: <b>MW-24-1</b> Lab ID: BMI09120403-05A Date Sampled 12/03/09 10:11	Chromium (Cr)	0.013	0.0050 mg/L	12/04/09 10:17	12/05/09 00:09
Client ID: EB-11-12/03/09 Lab ID: BMI09120403-06A Date Sampled 12/03/09 09:59	Chromium (Cr)	ND	0.0050 mg/L	12/04/09 10:17	12/05/09 00:15

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave Attn: David Conner Phone: (818) 393-2808 Fax: (614) 458-6641

San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Tentatively Identified Compounds - Volatile Organics by GC/MS

			Estimated		
	Parameter	Estimated	Reporting	Date	Date
		Concentration	Limit	Extracted	Analyzed
Client ID : MW-24-5 Lab ID : BMI09120403-01A Date Received : 12/04/09 Date Sampled : 12/03/09 08:17	*** None Found ***	ND	2.0 μg/L	12/10/09	12/10/09
Client ID: MW-24-4 Lab ID: BMI09120403-02A Date Received: 12/04/09 Date Sampled: 12/03/09 08:49	Sulfur dioxide	18	2.0 μg/L	12/10/09	12/10/09
Client ID : MW-24-3 Lab ID : BMI09120403-03A Date Received : 12/04/09 Date Sampled : 12/03/09 09:17	Sulfur dioxide	20	2.0 μg/L	12/10/09	12/10/09
Client ID : MW-24-2 Lab ID : BMI09120403-04A Date Received : 12/04/09 Date Sampled : 12/03/09 09:40	Sulfur dioxide	9.2	2.0 μg/L	12/10/09	12/10/09
Client ID : MW-24-1 Lab ID : BMI09120403-05A Date Received : 12/04/09 Date Sampled : 12/03/09 10:11	Sulfur dioxide	5.5	2.0 μg/L	12/10/09	12/10/09
Client ID: EB-11-12/03/09 Lab ID: BMI09120403-06A Date Received: 12/04/09 Date Sampled: 12/03/09 09:59	*** None Found ***	ND	2.0 μg/L	12/10/09	12/10/09
Client ID: TB-11-12/03/09 Lab ID: BMI09120403-07A Date Received: 12/04/09 Date Sampled: 12/03/09 00:00	*** None Found ***	ND	2.0 μg/L	12/10/09	12/10/09



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Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director · Randy Gardner, Laboratory Manager · Walter Hinchman, Quality Assurance Officer

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12/18/09

**Report Date** 



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### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120403-01A

Client I.D. Number: MW-24-5

Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Sampled: 12/03/09 08:17

Received: 12/04/09 Extracted: 12/10/09 Analyzed: 12/10/09

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	µg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCF	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	101	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	100	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulmir

ND

ND

Dalter Hirkon

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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12/18/09

**Report Date** 



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### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Client I.D. Number: MW-24-4

Attn: Phone:

David Conner (818) 393-2808

Fax:

(614) 458-6641

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120403-02A

Sampled: 12/03/09 08:49

Received: 12/04/09

Extracted: 12/10/09 Analyzed: 12/10/09

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachioroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/l
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chiorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/l
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	µg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCF	P) ND	2.5	µg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MiBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%RE
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%RE
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	101	(70-130)	%RE
32	1,3-Dichloropropane	ND	0.50	ug/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

μg/L

μg/L

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12/18/09

Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120403-03A

Client I.D. Number: MW-24-3

Attn: David Conner

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 12/03/09 09:17

Received: 12/04/09 Extracted: 12/10/09

Analyzed: 12/10/09

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCF	) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	103	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane 34 1,2-Dibromoethane (EDB)

35 Tetrachloroethene

Roger Scholl

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/18/09

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110 Attn: Phone:

David Conner

Fax:

(818) 393-2808 (614) 458-6641

Job: G005862/

G005862/JPL Groundwater Monitoring

Sampled: 12/03/09 09:40

Received: 12/04/09

Extracted: 12/10/09 Analyzed: 12/10/09

Alpha Analytical Number: BMI09120403-04A

Client I.D. Number: MW-24-2

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	µg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	µg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MiBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	101	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	102	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulan

ND

ND

Walter Findows

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

1.0

0.50

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Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/18/09 Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Attn: Phone:

David Conner (818) 393-2808

Fax:

(614) 458-6641

G005862/JPL Groundwater Monitoring Job:

Alpha Analytical Number: BMI09120403-05A Client I.D. Number: MW-24-1

Sampled: 12/03/09 10:11

Received: 12/04/09

Extracted: 12/10/09 Analyzed: 12/10/09

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	µg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	1.2	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1.1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyitoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC)	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	101	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	102	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
	- · · · · · · · · · · · · · · · · · · ·								

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane 34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

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Page 1 of 1

12/18/09



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### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

David Conner (818) 393-2808

Phone: Fax:

Attn:

(614) 458-6641

G005862/JPL Groundwater Monitoring Job:

Alpha Analytical Number: BMI09120403-06A

Client I.D. Number: EB-11-12/03/09

Sampled: 12/03/09 09:59

Received: 12/04/09 Extracted: 12/10/09 Analyzed: 12/10/09

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachioroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/ <b>L</b>
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCF	P) ND	2.5	µg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	DN	0.50	μg/L	63	1,2,3-Trichlorobenzene	, ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	99	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	104	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	98	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

μg/L

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12/18/09

Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110 Attn:

David Conner

Phone: Fax:

(818) 393-2808 (614) 458-6641

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120403-07A

Client I.D. Number: TB-11-12/03/09

Sampled: 12/03/09 00:00

Received: 12/04/09

Extracted: 12/10/09 Analyzed: 12/10/09

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	µg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	µg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC)	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	104	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	98	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

35 Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

μg/L

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/18/09

Report Date



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### **VOC Sample Preservation Report**

Work Order: BMI09120403 Job: G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	рН	
09120403-01A	MW-24-5	Aqueous	2	
09120403-02A	MW-24-4	Aqueous	2	
09120403-03A	MW-24-3	Aqueous	2	
09120403-04A	MW-24-2	Aqueous	2	
09120403-05A	MW-24-1	Aqueous	2	
09120403-06A	EB-11-12/03/09	Aqueous	2	
09120403-07A	TB-11-12/03/09	Aqueous	2	

12/18/09

Report Date



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<b>Date:</b> 09-Dec-09	QC Summary Report									<b>Work Orde</b> 09120403	
Method Blan File ID: 18 Sample ID: Analyte	k MB-23198	Units : <b>mg/L</b> Result	Type M	Bar Run ID: IC	est Code: El atch ID: 231 -1_091204/	98A A		Prep Date	e:	12/04/2009 14:42 12/04/2009 13:59 /al %RPD(Limit)	Qual
Nitrite (NO2) - Nitrate (NO3) - Phosphate, orth	N	ND ND ND	0.25 0.25 0.25		Opkiterval	MICE	LOCKINE	OOL(ML) III		di 70 di O(cilillo)	
File ID: 19	Fortified Blank	Units : <b>mg/L</b>	Type <b>L</b>	В	est Code: El atch ID: 231 1 091204/	98A	thod 300.0	Analysis I		12/04/2009 15:00 12/04/2009 13:59	
Analyte		Result	PQL				LCL(ME)	UCL(ME) RP	DRefV	al %RPD(Limit)	Qual
Nitrite (NO2) - N Nitrate (NO3) - I Phosphate, orth	N	1.14 1.32 1.3	0.25 0.25 0.25	1.25		91 106 104	90 90 90	110 110 110			
Sample Matr File ID: 24 Sample ID:	ix Spike 09120403-05ALFM	Units : mg/L	Type <b>L</b>	В	est Code: El atch ID: 231 1 091204	98A	thod 300.0			12/04/2009 16:33 12/04/2009 13:59	
Analyte	OF IZOTOO OFFICE III	Result	PQL				LCL(ME)	•		'al %RPD(Limit)	Qual
Nitrite (NO2) - N Nitrate (NO3) - I Phosphate, orth	<b>N</b>	5.48 8.14 7.76	0.25 0.25 0.25	6.25	0 1.366 0	108	80 80 80	120 120 120			M1
•	ix Spike Duplicate		Type L		est Code: El		hod 300.0				<del></del>
File ID: <b>25</b> Sample ID:	09120403-05ALFMD	Units : mg/L			atch ID: 231			Analysis I Prep Date		12/04/2009 16:51 12/04/2009 13:59	
Analyte	03 120403-03ALI WID	Result	PQL				LCL(ME)	•		'al %RPD(Limit)	Qual
Nitrite (NO2) - N Nitrate (NO3) - I Phosphate, orth	N	5.52 7.82 7.63	0.25 0.25 0.25	6.25	0 1.366 0	88 103 122	80 80 80	120 120 120	5.482 8.139 7.757	4.0(10)	M1

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag.

M1 = Matrix spike recovery was high, the method control sample recovery was acceptable.



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<b>Date:</b> 09-Dec-09	QC Summary Report										er: 3
Method Bla			Type I	В	est Code: E atch ID: <b>231</b>	98B	thod 300.0			12/04/2009 14:42	<del></del>
Sample ID:	MB-23198	Units : mg/L	<b>5</b> 01		21_091204/			Prep [		12/04/2009 13:59	Ougl
Analyte		Result	PQL	SpkVai	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRen	Val %RPD(Limit)	Qual
Sulfate (SO4)		ND	0.5	5						*******	
Laboratory	Fortified Blank		Type <b>l</b>	.FB T	est Code: E	PA Met	thod 300.0				
File ID: 19				В	atch ID: 231	98B		Analys	sis Date:	12/04/2009 15:00	
Sample ID:	LFB-23198	Units : mg/L		Run ID: IC	_1_091204/	4		Prep [	Date:	12/04/2009 13:59	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	Val %RPD(Limit)	Qual
Sulfate (SO4)		9.52	0.9	5 10		95	90	110			
Sample Mat	rix Spike		Type L	.FM T	est Code: El	PA Met	thod 300.0				
File ID: 24	•			В	atch ID: 231	98B		Analys	sis Date:	12/04/2009 16:33	
Sample ID:	09120403-05ALFM	Units : mg/L		Run ID: IC	_1_091204/	4		Prep [	Date:	12/04/2009 13:59	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	Val %RPD(Limit)	Qual
Sulfate (SO4)		94.1	0.5	5 50	46.39	95	80	120			
Sample Mat	rix Spike Duplicate		Type I	FMD T	est Code: El	PA Met	thod 300.0				
File ID: 25				В	atch ID: 231	98B		Analys	sis Date:	12/04/2009 16:51	
Sample ID:	09120403-05ALFMD	Units : mg/L		Run ID: IC	_1_091204/	A		Prep [	Date:	12/04/2009 13:59	
Analyte		Result	PQL				LCL(ME)	UCL(ME)	RPDRef	Val %RPD(Limit)	Qual
Sulfate (SO4)		92.6	0.9	5 50	46.39	93	80	120	94.0	8 1.5(10)	

### Comments:

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<b>Date:</b> 09-Dec-09		(	QC S	ummar	y Repor	t			<b>Work Ord</b> 09120403	
Method Blan	ık		Type I		est Code: El atch ID: 231		hod 300.0	Analysis Date	e: <b>12/04/2009 14:42</b>	
Sample ID:	MB-23198	Units : mg/L		Run ID: IC	_1_091204E	3		Prep Date:	12/04/2009 13:59	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRe	efVal %RPD(Limit)	Qual
Chloride		ND	0.	5			:			
Laboratory 1	Fortified Blank		Type I	LFB T	est Code: El	PA Met	hod 300.0			
File ID: 19				В	atch ID: 231	98C		Analysis Date	e: 12/04/2009 15:00	
Sample ID:	LFB-23198	Units : mg/L		Run ID: IC	_1_091204E	3		Prep Date:	12/04/2009 13:59	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRe	efVal %RPD(Limit)	Qual
Chloride		4.73	0.	5 5		95	90	110		
Sample Mati	ix Spike		Type I	LFM T	est Code: El	PA Met	hod 300.0			
File ID: 24				В	atch ID: 231	98C		Analysis Date	e: 12/04/2009 16:33	
Sample ID:	09120403-05ALFM	Units : mg/L		Run ID: IC	_1_091204E	3		Prep Date:	12/04/2009 13:59	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRe	efVal %RPD(Limit)	Qual
Chloride		96.7	0.:	5 25	70.84	103	80	120		
Sample Matr	ix Spike Duplicate		Type I	LFMD T	est Code: El	PA Met	hod 300.0			
File ID: <b>25</b>	•			В	atch ID: 231	98C		Analysis Date	e: 12/04/2009 16:51	
Sample ID:	09120403-05ALFMD	Units : mg/L		Run ID: IC	_1_091204E	3		Prep Date:	12/04/2009 13:59	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRe	efVal %RPD(Limit)	Qual
Chloride		97	0.9	5 25	70.84	105	80	120 96	.7 0.3(10)	

### Comments:

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<b>Date:</b>		<b>Work Order:</b> 09120403								
Method Bla File ID: 14 Sample ID: Analyte	nk MB-23231	Units : <b>µg/L</b> Result	Type: N	E Run ID: IC	Fest Code: E Batch ID: 232 C_3_091211 FSpkRefVal	31 A		Analysis Date: Prep Date: UCL(ME) RPDRef	12/11/2009 12:21 12/11/2009 11:22 Val %RPD(Limit)	Qual
Perchlorate		ND		[						
Laboratory File ID: 15 Sample ID:	Fortified Blank	Units : µg/L	Туре: <b>L</b>	E	Fest Code: E Batch ID: 232 C_3_091211	31	thod 314.0	Analysis Date:	12/11/2009 12:40 12/11/2009 11:22	
Analyte	LI D-23231	Result	PQL				LCL(ME)	UCL(ME) RPDRef		Qual
Perchlorate		24.7		2 25		99	85	115		
Sample Mat	•		Туре: <b>L</b>	Ε	est Code: E Batch ID: <b>232</b>	31	thod 314.0	•	12/11/2009 18:29	
Sample ID:	09121005-03ALFM	Units : µg/L			2_3_0912114			Prep Date:	12/11/2009 11:22	0 .1
Analyte		Result	PQL					UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate	**************************************	72.6		2 25	42.21	122	80	120		M1
Sample Mat File ID: 35	rix Spike Duplicate		Type: L		est Code: <b>E</b> Batch ID: <b>232</b>		thod 314.0	Analysis Date:	12/11/2009 18:48	
Sample ID:	09121005-03ALFMD	Units : µg/L			2_3_091211			Prep Date:	12/11/2009 11:22	
Analyte		Result	PQL	SpkVa	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		73.4	2	2 25	42.21	125	80	120 72.6	5 1.0(15)	M1

### Comments:

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<b>Date:</b> 17-Dec-09	QC Summary Report Work 6	
Method Blank File ID: 120409.B\92MB.D\	Type: MBLK Test Code: EPA Method 200.8  Batch ID: 23192K Analysis Date: 12/04/2009 21	:08
Sample ID: MB-23192	Units: mg/L Run ID: ICP/MS_091204B Prep Date: 12/04/2009 10	:17
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limi	t) Qual
Chromium (Cr)	ND 0.005	
Laboratory Control Spike File ID: 120409.B\92L1.D\	Type: LCS Test Code: EPA Method 200.8  Batch ID: 23192K Analysis Date: 12/04/2009 21	:14
Sample ID: LCS-23192	Units : mg/L Run ID: ICP/MS_091204B Prep Date: 12/04/2009 10	:17
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limi	t) Qual
Chromium (Cr)	0.0535 0.005 0.05 107 80 120	
Sample Matrix Spike File ID: 120409.B\92MS.D\	Type: MS Test Code: EPA Method 200.8  Batch ID: 23192K Analysis Date: 12/04/2009 21	:42
Sample ID: 09120401-01AMS	Units : mg/L Run ID: ICP/MS 091204B Prep Date: 12/04/2009 10	
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limi	t) Qual
Chromium (Cr)	0.0487 0.005 0.05 0 97 80 120	
Sample Matrix Spike Duplicate	Type: MSD Test Code: EPA Method 200.8	
File ID: 120409.B\92MSD.D\	Batch ID: 23192K Analysis Date: 12/04/2009 21	:48
Sample ID: 09120401-01AMSD	Units: mg/L Run ID: ICP/MS_091204B Prep Date: 12/04/2009 10	:17
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limi	t) Qual
Chromium (Cr)	0.0479 0.005 0.05 0 96 80 120 0.04871 1.8(20)	

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



<b>Date:</b> 18-Dec-2009	(	QC Sumn	nary Report		<b>Work Order:</b> 09120403
Method Blank		Type MBLK	Test Code: EPA Metho	od SW8260B	
File ID: <b>09121007.D</b>			Batch ID: MS15W1210	M Analysis I	Date: 12/10/2009 10:14
Sample ID: MBLK MS15W1210M	Units : µg/L	Run II	D: MSD_15_091210B	Prep Date	e: 12/10/2009 10:14
Analyte	Result	PQL Spl	:Val SpkRefVal %REC L	.CL(ME) UCL(ME) RPI	DRefVal %RPD(Limit) Qu
Dichlorodifluoromethane	ND	0.5			
Chloromethane	ND	1			
Vinyl chloride	ND	0.5			
Chloroethane	ND	0.5			
Bromomethane	ND	1			
Trichlorofluoromethane 1.1-Dichloroethene	ND ND	0.5			
Dichloromethane	ND ND	0.5 1			
Freon-113	ND	0.5			
trans-1,2-Dichloroethene	ND	0.5			
Methyl tert-butyl ether (MTBE)	ND	0.5			
1,1-Dichloroethane	ND	0.5			
2-Butanone (MEK)	ND	10			
cis-1,2-Dichloroethene Bromochloromethane	ND ND	0.5			
Chloroform	ND ND	0.5 0.5			
2,2-Dichloropropane	ND	0.5			
1,2-Dichloroethane	ND	0.5			
1,1,1-Trichloroethane	ND	0.5			
1,1-Dichloropropene	ND	0.5			
Carbon tetrachloride	ND	0.5			
Benzene Dibromomethane	ND ND	0.5			
1,2-Dichloropropane	ND ND	0.5 0.5			
Trichloroethene	ND	0.5			
Bromodichloromethane	ND	0.5			
4-Methyl-2-pentanone (MIBK)	ND	2.5			
cis-1,3-Dichloropropene	ND	0.5			
trans-1,3-Dichloropropene	ND	0.5			
1,1,2-Trichloroethane Toluene	ND ND	0.5 0.5			
1,3-Dichloropropane	ND ND	0.5			
Dibromochloromethane	ND	0.5			
1,2-Dibromoethane (EDB)	ND	1			
Tetrachloroethene	ND	0.5			
1,1,1,2-Tetrachloroethane	ND	0.5			
Chlorobenzene Ethylbenzene	ND	0.5			
m,p-Xylene	ND ND	0.5			
Bromoform	ND	0.5 0.5			
Styrene	ND	0.5			
o-Xylene	ND	0.5			
1,1,2,2-Tetrachloroethane	ND	0.5			
1,2,3-Trichloropropane	ND	1			
Isopropylbenzene Bromobenzene	ND ND	0.5 0.5			
n-Propylbenzene	ND ND	0.5 0.5			
4-Chlorotoluene	ND	0.5			
2-Chlorotoluene	ND	0.5			
1,3,5-Trimethylbenzene	ND	0.5			
tert-Butylbenzene	ND	0.5	•		
1,2,4-Trimethylbenzene sec-Butylbenzene	ND	0.5			
1,3-Dichlorobenzene	ND ND	0.5 0.5			
1,4-Dichlorobenzene	ND ND	0.5 0.5			
4-Isopropyltoluene	ND	0.5			
1,2-Dichlorobenzene	ND	0.5			
n-Butylbenzene	ND	0.5			
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5			
1,2,4-Trichlorobenzene	ND ND	1			
Naphthalene Hexachlorobutadiene	ND ND	1			
1,2,3-Trichlorobenzene	ND ND	1 1			
Surr: 1,2-Dichloroethane-d4	9.94	'	10 99	70 130	
Surr: Toluene-d8	10.2		10 102	70 130	



<b>Date:</b> 18-Dec-2009		SC 20	mmary	Report			0912040	3
Surr: 4-Bromofluorobenzene	9.57		10	96	70	130		
Laboratory Control Spike		Type LC	S Test	Code: EPA Meth	od SW8			
File ID: <b>09121005.D</b>			Bato	h ID: MS15W1210	M	Analysis	Date: 12/10/2009 09:18	3
Sample ID: LCS MS15W1210M	Units : µg/L	1		_15_091210B		Prep Da		3
Analyte	Result	PQL	SpkVal S	pkRefVal %REC	LCL(ME	) UCL(ME) R	PDRefVal %RPD(Limit)	Qua
Dichlorodifluoromethane	8.35	1	10	84	70	130		
Chloromethane	8	2	10	80	70	130		
Vinyl chloride	8.45	1	10	85	70	130		
Chloroethane	9.56	1	10	96	70	130		1.54
Bromomethane	13.6	2	10	136	70	130(130)		L51
Trichlorofluoromethane	9.59	1	10	96	70 70	130 130		
1,1-Dichloroethene Dichloromethane	11 10.1	1 2	10 10	110 101	70 70	130		
trans-1,2-Dichloroethene	11	1	10	110	70	130		
Methyl tert-butyl ether (MTBE)	10.5	0.5	10	105	70	130		
1,1-Dichloroethane	10.5	1	10	105	70	130		
cis-1,2-Dichloroethene	11.3	1	10	113	70	130		
Bromochloromethane	10.7	1	10	107	70 70	130		
Chloroform 2,2-Dichloropropane	10.8 12.4	1 1	10 10	108 124	70 70	130 130		
1,2-Dichloroethane	10.2	1	10	102	70 70	130		
1,1,1-Trichloroethane	11.3	1	10	113	70	130		
1,1-Dichloropropene	11.2	1	10	112	70	130		
Carbon tetrachloride	11.7	1	10	117	70	130		
Benzene	10.8	0.5	10	108	70	130		
Dibromomethane 1,2-Dichloropropane	10.3	1	10 10	103 110	70 70	130 130		
Trichloroethene	11 11	1	10	110	70	130		
Bromodichloromethane	10.8	1	10	108	70	130		
cis-1,3-Dichloropropene	11	1	10	110	70	130		
trans-1,3-Dichloropropene	9.78	1	10	98	70	130		
1,1,2-Trichloroethane	9.87	1	10	99	70	130		
Toluene	10.5	0.5	10	105	70 70	130 130		
1,3-Dichloropropane Dibromochloromethane	10.3 9.94	1	10 10	103 99	70 70	130		
1,2-Dibromoethane (EDB)	21	2	20	105	70	130		
Tetrachloroethene	11.5	1	10	115	70	130		
1,1,1,2-Tetrachloroethane	11	1	10	110	70	130		
Chlorobenzene	10.5	1	10	105	70	130		
Ethylbenzene	10.8	0.5	10	108	70	130		
m,p-Xylene Bromoform	11 9.08	0.5 1	10 10	110 91	70 70	130 130		
Styrene	9.08 11.8	1	10	118	70 70	130		
o-Xylene	11.2	0.5	10	112	70	130		
1,1,2,2-Tetrachloroethane	9.77	1	10	98	70	130		
1,2,3-Trichloropropane	20	2	20	99.8	70	130		
Isopropylbenzene	10.8	1	10	108	70	130		
Bromobenzene n-Propylbenzene	10.4	1	10	104	70 70	130 130		
4-Chlorotoluene	10.9 11	1	10 10	109 110	70	130		
2-Chlorotoluene	10.8	1	10	108	70	130		
1,3,5-Trimethylbenzene	10.9	1	10	109	70	130		
tert-Butylbenzene	10.6	1	10	106	70	130		
1,2,4-Trimethylbenzene	10.8	1	10	108	70	130		
sec-Butylbenzene	10.8	1	10	108	70 70	130		
1,3-Dichlorobenzene 1,4-Dichlorobenzene	10.8 10.1	1	10 10	108 101	70 70	130 130		
4-Isopropyltoluene	10.9	1	10	109	70	130		
1,2-Dichlorobenzene	10.1	1	10	101	70	130		
n-Butylbenzene	11.3	1	10	113	70	130		
1,2-Dibromo-3-chloropropane (DBCP)	45.5	3	50	91	70	130		
1,2,4-Trichlorobenzene	10.6	2	10	106	70	130		
Naphthalene Hexachlorobutadiene	9.72	2	10	97 105	70 70	130		
1,2,3-Trichlorobenzene	21.1 10.1	2 2	20 10	105 101	70 70	130 130		
Surr: 1,2-Dichloroethane-d4	9.72	2	10	97	70 70	130		
Surr: Toluene-d8	9.9		10	99	70	130		
Surr: 4-Bromofluorobenzene	9.79		10	98	70	130		



<b>Date:</b> 18-Dec-2009	(	QC Su	mmary	Report				Work Ord 0912040	
Sample Matrix Spike		Type MS		st Code: EP.					
File ID: <b>09121010.D</b>			Bat	ch ID: MS1	5W121	10M	Analysis Date	e: 12/10/2009 11:21	
Sample ID: 09120308-07AMS	Units : µg/L	R	lun ID: MS	D_15_0912 <sup>,</sup>	10B		Prep Date:	12/10/2009 11:21	
Analyte	Result	PQL	SpkVal \$	SpkRefVal 9	%REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qua
Dichlorodifluoromethane	42.6	2.5	50	0	85	13	167		
Chloromethane	38.2	10	50	Õ	76	28	145		
Vinyl chloride	42.4	2.5	50	0	85	43	134		
Chloroethane	42.4	2.5	50	0	85	39	154		
Bromomethane	50.9	10	50	0	102	19	176		
Trichlorofluoromethane	42	2.5	50	0	84	34	160		
1,1-Dichloroethene	49.4	2.5	50	0	99	60	130		
Dichloromethane	46.6	10	50	0	93	68	130		
trans-1,2-Dichloroethene Methyl tert-butyl ether (MTBE)	50.2	2.5	50	0	100	63 56	130		
1.1-Dichloroethane	51.9	1.3	50 50	0.86	102 97	56 61	141 130		
cis-1,2-Dichloroethene	48.3 51	2.5 2.5	50 50	0 0	102	70	130		
Bromochloromethane	50.7	2.5	50	0	101	70	130		
Chloroform	48.9	2.5	50	0	98	67	130		
2,2-Dichloropropane	55.2	2.5	50	0	110	30	152		
1,2-Dichloroethane	48.4	2.5	50	ő	97	60	135		
1,1,1-Trichloroethane	50.6	2.5	50	Ō	101	59	137		
1,1-Dichloropropene	50.3	2.5	50	0	101	63	130		
Carbon tetrachloride	50.1	2.5	50	0	100	50	147		
Benzene	49.2	1.3	50	0	98	67	130		
Dibromomethane	48.1	2.5	50	0	96	69	133		
1,2-Dichloropropane	50.3	2.5	50	0	101	69	130		
Trichloroethene Bromodichloromethane	49.4	2.5	50	0	99	69 66	130		
cis-1,3-Dichloropropene	49.6 48.9	2.5 2.5	50 50	0 0	99 98	66 63	134 130		
trans-1,3-Dichloropropene	44.3	2.5	50 50	0	96 89	66	131		
1,1,2-Trichloroethane	47.5	2.5	50	0	95	68	130		
Toluene	47.1	1.3	50	0	94	66	130		
1,3-Dichloropropane	48.7	2.5	50	Ö	97	70	130		
Dibromochloromethane	44.4	2.5	50	0	89	70	130		
1,2-Dibromoethane (EDB)	98.1	5	100	0	98	70	130		
Tetrachloroethene	51.6	2.5	50	1.5	100	61	134		
1,1,1,2-Tetrachloroethane	49	2.5	50	0	98	70	130		
Chlorobenzene	46.7	2.5	50	0	93	70	130		
Ethylbenzene	46.9	1.3	50	0	94	68	130		
m,p-Xylene Bromoform	47.5	1.3	50	0	95 81	64 64	130 138		
Styrene	40.3 51	2.5 2.5	50 50	0 0	102	69	130		
o-Xylene	47.9	1.3	50 50	0	96	70	130		
1.1,2,2-Tetrachloroethane	44	2.5	50	0	88	65	131		
1,2,3-Trichloropropane	90.7	10	100	0	91	70	130		
Isopropylbenzene	48.6	2.5	50	Ö	97	64	138		
Bromobenzene	47.6	2.5	50	Ö	95	70	130		
n-Propylbenzene	47.8	2.5	50	0	96	66	132		
4-Chlorotoluene	47.7	2.5	50	0	95	70	130		
2-Chlorotoluene	47.3	2.5	50	0	95	70	130		
1,3,5-Trimethylbenzene	47.2	2.5	50	0	94	66	136		
tert-Butylbenzene	45.5	2.5	50	0	91	65	137		
1,2,4-Trimethylbenzene	46.4	2.5	50	0	93	65 66	137		
sec-Butylbenzene 1,3-Dichlorobenzene	45.7 46.7	2.5	50 50	0	91	66 70	134		
1,3-Dichlorobenzene	46.7 44.2	2.5 2.5	50 50	0 0	93 88	70 70	130 130		
4-Isopropyltoluene	46.9	2.5 2.5	50 50	0	94	66	137		
1,2-Dichlorobenzene	43.7	2.5	50 50	0	94 87	70	130		
n-Butylbenzene	47.4	2.5	50	0	95	60	142		
1,2-Dibromo-3-chloropropane (DBCP)	219	15	250	0	88	67	130		
1,2,4-Trichlorobenzene	44.8	10	50	Ö	90	61	137		
Naphthalene	44.5	10	50	Ō	89	40	167		
Hexachlorobutadiene	85.4	10	100	0	85	61	130		
1,2,3-Trichlorobenzene	43	10	50	0	86	51	144		
Surr: 1,2-Dichloroethane-d4	49		50		98	70	130		
Surr: 4 Promofluoropana	49.2		50		98	70 70	130		
Surr: 4-Bromofluorobenzene	49.4		50		99	70	130		



<b>Date:</b> 18-Dec-2009	(	<u> 2C Sur</u>	nmary	Repor	t				<b>Work Ord</b> 0912040	
Sample Matrix Spike Duplicate		Type MS	D Te	st Code: EF	A Met	hod SW82	260B			
File ID: 09121011.D			Ва	tch ID: MS1	5W12	10M	Analy	sis Date: 1	2/10/2009 11:43	
Sample ID: 09120308-07AMSD	Units : μ <b>g/L</b>	R	un ID: MS	D_15_0912	10B		Prep	Date: 1	2/10/2009 11:43	
Analyte	Result	PQL				: I CL(ME)	UCL(ME)	RPDRefVa	I %RPD(Limit)	Qua
Dichlorodifluoromethane	49.6	·		0	99	13	167	42.63	15.2(20)	
Chloromethane	49.6 43.6	2.5 10	50 50	0	99 87	28	145	38.2	13.1(20)	
Vinyl chloride	46.9	2.5	50 50	0	94	43	134	42.43	10.1(20)	
Chloroethane	48	2.5	50	0	96	39	154	42.4	12.3(20)	
Bromomethane	69	10	50	0	138	19	176	50.89	30.2(20)	R58
Trichlorofluoromethane	52.2	2.5	50	0	104	34	160	41.95	21.8(20)	R5
1,1-Dichloroethene	55.8	2.5	50	0	112	60	130	49.39	12.1(20)	
Dichloromethane	50	10	50	Ö	100	68	130	46.63	7.0(20)	
trans-1,2-Dichloroethene	55.3	2.5	50	0	111	63	130	50.18	9.7(20)	
Methyl tert-butyl ether (MTBE)	54	1.3	50	0.86	106	56	141	51.86	4.1(20)	
1,1-Dichloroethane	53.1	2.5	50	0	106	61	130	48.31	9.4(20)	
cis-1,2-Dichloroethene	56	2.5	50	0	112	70	130	51.01	9.4(20)	
Bromochloromethane	54.5	2.5	50	0	109	70	130	50.7	7.3(20)	
Chloroform 2,2-Dichloropropane	53.1 62	2.5	50	0	106 124	67 30	130 152	48.85 55.22	8.4(20) 11.5(20)	
1,2-Dichloroptopane	51.2	2.5 2.5	50 50	0	102	60	135	33.22 48.4	5.6(20)	
1,1,1-Trichloroethane	55.8	2.5 2.5	50 50	0	112	59	137	50.62	9.7(20)	
1,1-Dichloropropene	55.6	2.5	50	0	111	63	130	50.27	10.1(20)	
Carbon tetrachloride	57.7	2.5	50	Ō	115	50	147	50.12	14.1(20)	
Benzene	53.5	1.3	50	0	107	67	130	49.23	8.3(20)	
Dibromomethane	51.8	2.5	50	0	104	69	133	48.13	7.3(20)	
1,2-Dichloropropane	54	2.5	50	0	108	69	130	50.27	7.2(20)	
Trichloroethene	54.4	2.5	50	0	109	69	130	49.37	9.6(20)	
Bromodichloromethane	53.3	2.5	50	0	107	66	134	49.55	7.3(20)	
cis-1,3-Dichloropropene trans-1,3-Dichloropropene	53	2.5	50	0	106	63 66	130 131	48.94 44.33	8.0(20) 7.5(20)	
1,1,2-Trichloroethane	47.8 50.5	2.5 2.5	50 50	0	96 101	68	130	47.54	6.0(20)	
Toluene	50.7	1.3	50	0	101	. 66	130	47.05	7.4(20)	
1,3-Dichloropropane	50.9	2.5	50	Ö	102	70	130	48.65	4.6(20)	
Dibromochloromethane	47.3	2.5	50	0	95	70	130	44.35	6.5(20)	
1,2-Dibromoethane (EDB)	102	5	100	0	102	70	130	98.05	4.3(20)	
Tetrachloroethene	56.9	2.5	50	1.5	111	61	134	51.64	9.7(20)	
1,1,1,2-Tetrachloroethane	52.9	2.5	50	0	106	70	130	49.01	7.6(20)	
Chlorobenzene	50.6	2.5	50	0	101	70	130	46.66	8.0(20)	
Ethylbenzene m,p-Xylene	51.2	1.3	50 50	0	102 104	68 64	130 130	46.85 47.52	8.9(20) 9.2(20)	
Bromoform	52.1 42.8	1.3 2.5	50 50	0	86	64	138	40.3	6.0(20)	
Styrene	56.1	2.5	50	0	112	69	130	50.96	9.6(20)	
o-Xylene	52.6	1.3	50	0	105	70	130	47.88	9.4(20)	
1,1,2,2-Tetrachloroethane	46.1	2.5	50	Ō	92	65	131	44	4.6(20)	
1,2,3-Trichloropropane	93	10	100	0	93	70	130	90.71	2.5(20)	
Isopropylbenzene	55.1	2.5	50	0	110	64	138	48.64	12.5(20)	
Bromobenzene	52.3	2.5	50	0	105	70	130	47.6	9.5(20)	
n-Propylbenzene	54.1	2.5	50	0	108	66 70	132	47.76	12.5(20)	
4-Chlorotoluene 2-Chlorotoluene	54.5	2.5	50 50	0	109	70 70	130	47.71	13.2(20)	
1,3,5-Trimethylbenzene	53.9 52.9	2.5	50 50	0	108 106	70 66	130 136	47.27 47.21	13.0(20) 11.3(20)	
tert-Butylbenzene	5∠.9 51.5	2.5 2.5	50 50	0	106	65	136	47.21	12.4(20)	
1,2,4-Trimethylbenzene	52.2	2.5 2.5	50	0	103	65	137	46.44	11.6(20)	
sec-Butylbenzene	53	2.5	50	0	106	66	134	45.65	15.0(20)	
1,3-Dichlorobenzene	52.3	2.5	50	Ö	105	70	130	46.68	11.3(20)	
1,4-Dichlorobenzene	48.8	2.5	50	0	98	70	130	44.16	10.0(20)	
4-Isopropyltoluene	52.5	2.5	50	0	105	66	137	46.87	11.4(20)	
1,2-Dichlorobenzene	48.6	2.5	50	0	97	70	130	43.73	10.5(20)	
n-Butylbenzene	54.4	2.5	50	0	109	60	142	47.42	13.7(20)	
1,2-Dibromo-3-chloropropane (DBCP)	230	15	<b>2</b> 50	0	92	67 61	130	219.1	4.8(20)	
1,2,4-Trichlorobenzene Naphthalene	51.1 48.8	10 10	50 50	0	102 98	61 40	137 167	44.75 44.48	13.2(20) 9.3(20)	
Hexachlorobutadiene	48.8 98.6	10	100	0	98 99	40 61	130	85.39	14.3(20)	
1,2,3-Trichlorobenzene	49.1	10	50	0	98	51	144	42.97	13.3(20)	
Surr: 1,2-Dichloroethane-d4	48.9	,,	50	O	98	70	130		. 5.5(25)	
Surr: Toluene-d8	49		50		98	70	130			
Surr: 4-Bromofluorobenzene	50.4		50		101	70	130			



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

**Date:** 18-Dec-2009

#### QC Summary Report

Work Order: 09120403

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag.

L51 = Analyte recovery was above acceptance limits for the LCS, but was acceptable in the MS/MSD.

R5 = MS/MSD RPD exceeded the laboratory control limit. Recovery met acceptance criteria.

R58 = MS/MSD RPD exceeded the laboratory control limit.

# Billing Information:

# CHAIN-OF-CUSTODY RECORD

# Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Report Attention Shane Walton Betsy Cutie David Conner Phone Number (614) 424-4899 x (614) 424-4117 x (818) 393-2808 x cutice@batelle.org waltons@battelle.org connerd@battelle.org EMail Address

EDD Required: Yes

Report Due By: 5:00 PM On: 18-Dec-2009

WorkOrder: BMIS09120403

Page: 1 of 1

Sampled by: Client

Cooler Temp

Samples Received 04-Dec-2009 04-Dec-2009 **Date Printed** 

QC Level: DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates

G005862/JPL Groundwater Monitoring

PO: 218013

San Diego, CA 92110

Suite C-205 3990 Old Town Ave Battelle Memorial Institute

Client's COC #: 28891

Sample ID BMI09120403-07A TB-11-12/03/09 BMI09120403-06A EB-11-12/03/09 BMI09120403-05A BMI09120403-04A MW-24-2 BMI09120403-03A MW-24-3 BMI09120403-02A MW-24-4 BMI09120403-01A MW-24-5 MW-24-1 Sample ID å å Ø Matrix Date å Š Š AQ 12/03/09 08:17 12/03/09 00:00 12/03/09 09:59 12/03/09 09:17 12/03/09 08:49 Collection No. of Bottles 12/03/09 09:40 12/03/09 10:11 Alpha Sub G G G S Ġ S 0 0 0 0 0 0 0 ΤAΤ 6 6 5 6 5 7 5 NO2, NO3, NO2, NO3, NO2, NO3, Perchlorate PO4, SO4, CI PO4, SO4, CI PO4, SO4, CI 300\_0(A)\_W 300\_0(B)\_W 300\_0(C)\_W 314\_W METALS\_D VOC\_TIC\_ VOC\_W Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Requested Tests Ç Ç Ç Ç Ç VOC by 524 VOC by 524 Criteria Criteria Reno Trip Blank 8/25/09 Sample Remarks

Comments:

No security scals. Frozen ice. Temp Blank #7650 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). Logged in EB and TB per sample containers received.

	Logged in by:	
	( lnaboth ( )de	
	ex Elizabeth Eldox	Print Name
The state of the s	Alpha Analytical, Inc.	Company
And the state of t	124.09 1132	Date/Time

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

							<b>)</b>
Billing Information: lame (タモボルロ) ナロベル/バーン)	BATELLE		Alpha Analytical, Inc.	_)	Samples Collected From Which State?  AZ CA X NV WA	WA State? 2009	7
'		3	Sparks, Nevada 89431-5778  Phone (775) 355-1077	5778 <b>ID</b>	OR	Page #	of
hone Number Fax	43201		Fax (775) 355-0406		Analyses Required	quired /	
Client Name  Clien	Court	P.O.# 2/80/3	Job# Goe	1985009	2.8	Required QC Level	Level
20 PAIN AVE.	C-205	EMail Address			4.0		7
City State, Zip DICTO CA 9	92/10	Phone (6/9) 726-73/)	/ Fax#		'Cr (3)	EDD / EDF? YES	NO
Time Date Matrix* Sampled by	Re	Report Attention		Total and type of	2 (A)	Global ID #	
Lab ID Number	Office (Use Only)	Sample Description	TAT ,	Filtered ** See below	X 19 0/8 20/	REMARKS	
817 14910 A BM ID9/20403-01	<u> </u>	UW-24-5	THE	おアメ	X		
849	[2] 1	MW-24-4		X	X		
8/4	. 03 /	MW-24-3		_	×		
sto Other	4 40.	MW-24-2		X	×		
101/	8.	05 MW-24-1		× 5 4/6	× × ×		
	2	20 11 17 00	100	% ? ?		١	2.
	(					1/2000	10
A 4/6/1/2	.077	8-11-12/03/	60,	<u> </u>		TRIP BLANK	
ADDITIONAL INSTRUCTIONS:							
Signature		Print Name			Company	Date Time	ne
Relinantished by		CHASE- BANDO		Maria	CF-12 IN	12/03/09 1300	Ü
Received by ( Mabolity	Cox	Elizabeth H	dox		loha!	12.4.09 1132	
Relinquished by	_				7	~	
Received by							
Relinquished by							
Received by							
Key: AQ - Aqueous SO - Soil	WA - Waste	OT - Other AR - Air	**: L-Liter V-Voa	/oa S-Soil Jar	O-Orbo T-Tedlar B-	B-Brass P-Plastic OT-Other	ner

of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 23-Dec-09

David Conner

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

(818) 393-2808

Suite C-205

**CASE NARRATIVE** 

Job:	G005862/JPL Groundwater Monitoring
oob.	Goodoozisi E Giodildwater Mollitoring

Work Order: BMI09120901	Cooler Temp:	4 °C
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Alpha's Sample ID	Client's Sample ID	Matrix	
09120901-01A	MW-23-5	Aqueous	
09120901-02A	MW-23-4	Aqueous	
09120901-03A	MW-23-3	Aqueous	
09120901-04A	MW-23-2	Aqueous	
09120901-05A	MW-23-1	Aqueous	
09120901-06A	EB-12-12/04/09	Aqueous	
09120901-07A	TB-12-12/04/09	Aqueous	
09120901-08A	SB-1-4Q09	Aqueous	
09120901-09A	MW-25-5	Aqueous	
09120901-10A	MW-25-4	Aqueous	
09120901-11A	MW-25-3	Aqueous	
09120901-12A	MW-25-2	Aqueous	
09120901-13A	MW-25-1	Aqueous	
09120901-14A	DUPE-07-4Q09	Aqueous	
09120901-15A	EB-13-12/08/09	Aqueous	
09120901-16A	TB-13-12/08/09	Aqueous	
09120901-17A	MW-26-2	Aqueous	
09120901-18A	MW-26-1	Aqueous	

#### Manually Integrated Analytes

Alpha's Sample ID	Test Reference	<u>Analyte</u>	
09120901-01A 09120901-09A	EPA Method 314.0 EPA Method 314.0	Perchlorate Perchlorate	

Enclosed please find the analytical results of the samples received by Alpha Analytical, Inc. under the above mentioned Work Order/Chainof-Custody.

Alpha Analytical, Inc. has a formal Quality Assurance/Quality Control program, which is designed to meet or exceed the EPA requirements. All relevant QC met quality assurance objectives for this project unless otherwise stated in the footnotes.

Sample -16A was lost due to auto sampler error; no sample left to re-run.

If you have any questions with regards to this report, please contact Randy Gardner, Project Manager, at (800) 283-1183.

Roger Scholl



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110 Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641 Date Received: 12/09/09

Job: G005862/JPL Groundwater Monitoring

#### Perchlorate by Ion Chromatography EPA Method 314.0

		El A Wethod 514.0			
	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-23-5 Lab ID: BMI09120901-01A Date Sampled 12/04/09 08:39	Perchlorate	1.00	1.00 μg/L	12/10/09 12:34	12/10/09 15:21
Client ID: MW-23-4 Lab ID: BMI09120901-02A Date Sampled 12/04/09 09:08	Perchlorate	1.01	1.00 μg/L	12/10/09 12:34	12/10/09 15:40
Client ID: MW-23-3 Lab ID: BMI09120901-03A Date Sampled 12/04/09 09:39	Perchlorate	ND	1.00 µg/L	12/10/09 12:34	12/10/09 15:58
Client ID: MW-23-2 Lab ID: BMI09120901-04A Date Sampled 12/04/09 10:03	Perchlorate	4.43	1.00 μg/L	12/10/09 12:34	12/10/09 16:16
Client ID: MW-23-1 Lab ID: BMI09120901-05A Date Sampled 12/04/09 10:34	Perchlorate	2.80	1.00 µg/L	12/10/09 12:34	12/10/09 16:35
Client ID: <b>EB-12-12/04/09</b> Lab ID: BMI09120901-06A Date Sampled 12/04/09 10:11	Perchlorate	ND	1.00 μg/L	12/10/09 12:34	12/10/09 16:53
Client ID: MW-25-5 Lab ID: BMI09120901-09A Date Sampled 12/08/09 08:58	Perchlorate	12.0	1.00 µg/L	12/10/09 12:34	12/10/09 17:12
Client ID: MW-25-4 Lab ID: BMI09120901-10A Date Sampled 12/08/09 09:44	Perchlorate	7.42	1.00 µg/L	12/10/09 12:34	12/10/09 18:44
Client ID: MW-25-3 Lab ID: BMI09120901-11A Date Sampled 12/08/09 10:42	Perchlorate	8.99	1.00 μg/L	12/10/09 12:34	12/10/09 19:02
Client ID: <b>MW-25-2</b> Lab ID: BMI09120901-12A Date Sampled 12/08/09 11:09	Perchlorate	13.3	1.00 µg/L	12/10/09 12:34	12/10/09 19:21
Client ID: MW-25-1 Lab ID: BMI09120901-13A Date Sampled 12/08/09 11:40	Perchlorate	10.2	1.00 µg/L	12/10/09 12:34	12/10/09 19:39



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Client ID: <b>DUPE-07-4Q09</b> Lab ID: BMI09120901-14A Date Sampled 12/08/09 00:00	Perchlorate	7.42	1.00 μg/L	12/10/09 12:34	12/10/09 19:57
Client ID: EB-13-12/08/09 Lab ID: BMI09120901-15A Date Sampled 12/08/09 11:24	Perchlorate	ND	1.00 μg/L	12/10/09 12:34	12/10/09 20:16
Client ID: MW-26-2 Lab ID: BMI09120901-17A Date Sampled 12/08/09 12:52	Perchlorate	ND	1.00 μg/L	12/10/09 12:34	12/10/09 20:34
Client ID: MW-26-1 Lab ID: BMI09120901-18A Date Sampled 12/08/09 13:29	Perchlorate	2.34	1.00 µg/L	12/10/09 12:34	12/10/09 20:53

ND = Not Detected

Roger Scholl

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110 Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Date Received: 12/09/09

Job: G005862/JPL Groundwater Monitoring

Metals by ICPMS EPA Method 200.8

		LI A Without 200.8			
	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-23-5 Lab ID: BMI09120901-01A Date Sampled 12/04/09 08:39	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16	12/11/09 13:19
Client ID: <b>MW-23-4</b> Lab ID: BMI09120901-02A Date Sampled 12/04/09 09:08	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16	12/11/09 13:35
Client ID: MW-23-3 Lab ID: BMI09120901-03A Date Sampled 12/04/09 09:39	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16	12/11/09 13:41
Client ID: <b>MW-23-2</b> Lab ID: BMI09120901-04A Date Sampled 12/04/09 10:03	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16	12/11/09 13:47
Client ID: MW-23-1 Lab ID: BMI09120901-05A Date Sampled 12/04/09 10:34	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16	12/11/09 13:52
Client ID: <b>EB-12-12/04/09</b> Lab ID: BMI09120901-06A Date Sampled 12/04/09 10:11	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16	12/11/09 13:58
Client ID: MW-25-5 Lab ID: BMI09120901-09A Date Sampled 12/08/09 08:58	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16	12/11/09 14:04
Client ID: MW-25-4 Lab ID: BMI09120901-10A Date Sampled 12/08/09 09:44	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16	12/11/09 14:09
Client ID: <b>MW-25-3</b> Lab ID: BMI09120901-11A Date Sampled 12/08/09 10:42	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16	12/11/09 14:15
Client ID: MW-25-2 Lab ID: BMI09120901-12A Date Sampled 12/08/09 11:09	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16	12/11/09 14:21
Client ID: <b>MW-25-1</b> Lab ID: BMI09120901-13A Date Sampled 12/08/09 11:40	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16	12/11/09 15:09



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Client ID: <b>DUPE-07-4Q09</b> Lab ID: BMI09120901-14A Date Sampled 12/08/09 00:00	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16 12/11/09 15:1	5
Client ID: <b>EB-13-12/08/09</b> Lab ID: BMI09120901-15A Date Sampled 12/08/09 11:24	Chromium (Cr)	ND ·	0.0050 mg/L	12/09/09 13:16 12/11/09 15:2	0
Client ID: MW-26-2 Lab ID: BMI09120901-17A Date Sampled 12/08/09 12:52	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16 12/11/09 15:2	6
Client ID: MW-26-1 Lab ID: BMI09120901-18A Date Sampled 12/08/09 13:29	Chromium (Cr)	ND	0.0050 mg/L	12/09/09 13:16 12/11/09 15:3	2

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Attn: David Conner

Phone: (818) 393-2808

(614) 458-6641 Fax:

#### Tentatively Identified Compounds - Volatile Organics by GC/MS

			Estimated		
	Parameter	Estimated Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-23-5 Lab ID: BMI09120901-01A Date Received: 12/09/09 Date Sampled: 12/04/09 08:39	Sulfur dioxide	17	2.0 μg/L	12/15/09	12/15/09
Client ID : MW-23-4 Lab ID : BMI09120901-02A Date Received : 12/09/09 Date Sampled : 12/04/09 09:08	Sulfur dioxide	6.7	2.0 μg/L	12/15/09	12/15/09
Client ID : MW-23-3 Lab ID : BMI09120901-03A Date Received : 12/09/09 Date Sampled : 12/04/09 09:39	Sulfur dioxide	6.6	2.0 μg/L	12/15/09	12/15/09
Client ID: MW-23-2 Lab ID: BMI09120901-04A  Date Received: 12/09/09 Date Sampled: 12/04/09 10:03	Sulfur dioxide	2.2	2.0 μg/L	12/15/09	12/15/09
Client ID : MW-23-1 Lab ID : BMI09120901-05A Date Received : 12/09/09 Date Sampled : 12/04/09 10:34	*** None Found ***	ND	2.0 μg/L	12/15/09	12/15/09
Client ID : <b>EB-12-12/04/09</b> Lab ID : BMI09120901-06A Date Received : 12/09/09 Date Sampled : 12/04/09 10:11	*** None Found ***	ND	2.0 μg/L	12/15/09	12/15/09
Client ID : TB-12-12/04/09 Lab ID : BMI09120901-07A Date Received : 12/09/09 Date Sampled : 12/04/09 00:00	*** None Found ***	ND	2.0 μg/L	12/15/09	12/15/09
Client ID : SB-1-4Q09  Lab ID : BMI09120901-08A  Date Received : 12/09/09  Date Sampled : 12/04/09 11:35	*** None Found ***	ND	2.0 μg/L	12/15/09	12/15/09
Client ID : MW-25-5 Lab ID : BMI09120901-09A Date Received : 12/09/09 Date Sampled : 12/08/09 08:58	Sulfur dioxide	32	2.0 μg/L	12/15/09	12/15/09



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Client ID: MW-25-4 Lab ID: BMI09120901-10A Date Received: 12/09/09 Date Sampled: 12/08/09 09:44	Sulfur dioxide	6.5	2.0 μg/L	12/15/09	12/15/09
Client ID: MW-25-3 Lab ID: BMI09120901-11A Date Received: 12/09/09 Date Sampled: 12/08/09 10:42	Sulfur dioxide	6.0	2.0 μg/L	12/15/09	12/15/09
Client ID: MW-25-2 Lab ID: BMI09120901-12A Date Received: 12/09/09 Date Sampled: 12/08/09 11:09	Sulfur dioxide	3.1	2.0 μg/L	12/15/09	12/15/09
Client ID: MW-25-1 Lab ID: BMI09120901-13A Date Received: 12/09/09 Date Sampled: 12/08/09 11:40	Sulfur dioxide	2.5	2.0 μg/L	12/15/09	12/15/09
Client ID: <b>DUPE-07-4Q09</b> Lab ID: BMI09120901-14A  Date Received: 12/09/09  Date Sampled: 12/08/09 00:00	*** None Found ***	ND	2.0 μg/L	12/15/09	12/15/09
Client ID: EB-13-12/08/09 Lab ID: BMI09120901-15A Date Received: 12/09/09 Date Sampled: 12/08/09 11:24	2-Methyl-1-propene	2.3	2.0 μg/L	12/15/09	12/15/09
Client ID: MW-26-2 Lab ID: BMI09120901-17A Date Received: 12/09/09 Date Sampled: 12/08/09 12:52	* * * None Found * * *	ND	2.0 μg/L	12/15/09	12/15/09
Client ID: MW-26-1 Lab ID: BMI09120901-18A Date Received: 12/09/09 Date Sampled: 12/08/09 13:29	*** None Found ***	ND	2.0 μg/L	12/15/09	12/15/09

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl

KandySaulner

Walter Hinkman

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

 $Sacramento, CA \bullet (916)\ 366-9089\ /\ Las\ Vegas,\ NV \bullet (702)\ 736-7522\ /\ info@alpha-analytical.com$ 

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

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12/22/09

Report Date

Page 1 of 1



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#### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-01A

Client I.D. Number: MW-23-5

Attn: **David Conner** 

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 12/04/09 08:39

Received: 12/09/09

Extracted: 12/15/09 13:57 Analyzed: 12/15/09 13:57

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	0.59	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	µg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND ND	0.50	μg/L
16	Chloroform	ND		0.50	µg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	µg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	µg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	µg/L	64	Surr: 1,2-Dichloroethane-d4	104	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	µg/L	65	Surr: Toluene-d8	98	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L		-		. ,	
33	Dibromochloromethane	ND		0.50	μg/L					
		1								

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • •

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μg/L

μg/L

1.0

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12/22/09 Report Date



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-02A

Client I.D. Number: MW-23-4

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 12/04/09 09:08

Received: 12/09/09

Extracted: 12/15/09 14:19 Analyzed: 12/15/09 14:19

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting	Limit		Compound	Concentration	Reporting L	mit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	µg/L
8	Dichloromethane	ND		1.0	µg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	µg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					
33	Dibromochloromethane	ND		0.50	µg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

1,2-Dibromoethane (EDB)

Tetrachioroethene

Roger Scholl Kandy Sanlaur

Walter Findows

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-03A

Client I.D. Number: MW-23-3

Attn: David Conner

Phone: (818) 393-2808 Fax: (614) 458-6641

Sampled: 12/04/09 09:39

Received: 12/09/09

Extracted: 12/15/09 14:41 Analyzed: 12/15/09 14:41

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting l	_imit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	µg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	· ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	µg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L.	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	µg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	µg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	µg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	µg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	µg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	99	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	97	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L			,		

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

35 Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulner

Walter Firehour

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

µg/L

µg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples

12/22/09 Report Date



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-04A

Client I.D. Number: MW-23-2

Attn: David Conner Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 12/04/09 10:03

Received: 12/09/09

Extracted: 12/15/09 15:03 Analyzed: 12/15/09 15:03

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting i	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	µg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	µg/L
16	Chloroform	0.51		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	· ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	1.4		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND		0.50	µg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	105	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	92	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					
33	Dibromochloromethane	ND		0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

0.50

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

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μg/L

μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

**Report Date** Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

Client I.D. Number: MW-23-1

San Diego, CA 92110 Job: G005862/JPL

G005862/JPL Groundwater Monitoring

Attn: Phone:

David Conner (818) 393-2808

Fax:

(614) 458-6641

Alpha Analytical Number: BMI09120901-05A

-05A Sampled: 12/04/09 10:34

Received: 12/09/09

Extracted: 12/15/09 15:25 Analyzed: 12/15/09 15:25

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND		0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	. ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	i ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	· ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	. 0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	2.6		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	105	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	91	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L				•	
33	Dibromochlorometharie	ND		0.50	µg/L					
24	4.0 Dibanasahana (EDD)				. •					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

0.62

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl Kandy Souther

Walter Hiredown

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

0.50

µg/L

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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#### ANALYTICAL REPORT

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-06A

Client I.D. Number: EB-12-12/04/09

**David Conner** Attn:

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 12/04/09 10:11

Received: 12/09/09 Extracted: 12/15/09 12:50

Analyzed: 12/15/09 12:50

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting I	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND		0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L.	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	NĐ	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoiuene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyttoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	. ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	. ND		0.50	μg/L			•		
33	Dibromochloromethane	ND		0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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1.0

0.50

µg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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#### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-07A

Client I.D. Number: TB-12-12/04/09

David Conner Attn:

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 12/04/09 00:00

Received: 12/09/09

Extracted: 12/15/09 12:28 Analyzed: 12/15/09 12:28

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting l	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	µg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND		0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	µg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	µg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	µg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	µg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	·	2.5	µg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

**Report Date** 

Page 1 of 1



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#### ANALYTICAL REPORT

**Battelle Memorial Institute** 

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Attn:

**David Conner** 

Phone: (818) 393-2808

Fax:

(614) 458-6641

Alpha Analytical Number: BMI09120901-08A

Client I.D. Number: SB-1-4Q09

Sampled: 12/04/09 11:35

Received: 12/09/09

Extracted: 12/15/09 13:35

Analyzed: 12/15/09 13:35

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting l	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	µg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	. ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chiorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyitoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC)	P) ND	2.5	μg/L
25	Trichloroethene	ND		0.50	µg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	µg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	94	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					
33	Dibromochloromethane	ND		0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

34 1.2-Dibromoethane (EDB)

35 Tetrachloroethene

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager •

0.50

μg/L

μg/L.

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/22/09

**Report Date** 

Page 1 of 1



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

#### ANALYTICAL REPORT

**Battelle Memorial Institute** 3990 Old Town Ave

Job:

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-09A

Client I.D. Number: MW-25-5

**David Conner** Attn: Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 12/08/09 08:58

Received: 12/09/09

Extracted: 12/15/09 15:47 Analyzed: 12/15/09 15:47

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	ug/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	ug/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	ug/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L.
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	µg/L	51	tert-Butylbenzene	ND	0.50	μg/t.
17	2,2-Dichloropropane	ND		0.50	µg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	µg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	µg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	µg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					
33	Dibromochloromethane	ND		0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • •

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1.0

μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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#### ANALYTICAL REPORT

**Battelle Memorial Institute** 3990 Old Town Ave

Client I.D. Number: MW-25-4

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-10A

**David Conner** Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 12/08/09 09:44

Received: 12/09/09

Extracted: 12/15/09 16:10 Analyzed: 12/15/09 16:10

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND		0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chioroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xvlene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	µg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	µg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butvibenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	µg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	µg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	104	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND		0.50	µg/L	66	Surr: 4-Bromofluorobenzene	91	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	ua/L			'	, ,	

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

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µg/L

μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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#### ANALYTICAL REPORT

**Battelle Memorial Institute** 

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-11A

Client I.D. Number: MW-25-3

Attn: **David Conner** Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 12/08/09 10:42

Received: 12/09/09

Extracted: 12/15/09 16:32 Analyzed: 12/15/09 16:32

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting I	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND		0.50	µg/L	36	1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	. ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	µg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	µg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	0.52		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	µg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthaiene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichioroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	99	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	95	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	µg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

0.96

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

µg/L

μg/L

µg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Alpha Analytical, Inc currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/22/09 **Report Date** 

Page 1 of 1



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#### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110 Job: G005862/JPL

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-12A

Client I.D. Number: MW-25-2

Attn: David Conner Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 12/08/09 11:09

Received: 12/09/09

Extracted: 12/15/09 16:54 Analyzed: 12/15/09 16:54

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting l	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND:	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	µg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC)	P) ND	2.5	μg/L
25	Trichloroethene	ND		0.50	µg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	µg/L	61	Naphthalene	: ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	, ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	99	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	ua/L		· · · · · · · · · · · · · · · ·	,	, ,	

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulur

Walter Firedown

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

µq/L

μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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#### ANALYTICAL REPORT

**Battelle Memorial Institute** 

Client I.D. Number: MW-25-1

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-13A

Attn:

**David Conner** Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 12/08/09 11:40

Received: 12/09/09 Extracted: 12/15/09 17:16

Analyzed: 12/15/09 17:16

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	· · · · · · · · · · · · · · · · · · ·		Limit	imit Compound Co		Concentration Reporting Lin		imit	
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	0.63		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L.	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	µg/L	59	1,2-Dibromo-3-chloropropane (DBC)	P) ND	2.5	μg/L
25	Trichloroethene	3.3		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	105	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	99	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	92	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	ua/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

µg/L

μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples. **Report Date** 

Page 1 of 1



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#### ANALYTICAL REPORT

**Battelle Memorial Institute** 

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-14A

Client I.D. Number: DUPE-07-4Q09

**David Conner** 

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 12/08/09 00:00

Received: 12/09/09

Extracted: 12/15/09 17:39 Analyzed: 12/15/09 17:39

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	µg/L	42	o-Xylene	ND -	0.50	µg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	µg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochioromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	90	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					
33	Dibromochloromethane	ND		0.50	μg/L.					
0.4	4.0 Dit	1			-					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

1,2-Dibromoethane (EDB)

Tetrachloroethene

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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1.0

µg/L

μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/22/09 **Report Date** 

Page 1 of 1



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-15A

Client I.D. Number: EB-13-12/08/09

Attn: David Conner

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 12/08/09 11:24

Received: 12/09/09

Extracted: 12/15/09 13:12 Analyzed: 12/15/09 13:12

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting l	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND		0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichloroftuoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	µg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L.
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	104	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	94	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

Roger L. Scholi, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/22/09 Report Date



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#### ANALYTICAL REPORT

**Battelle Memorial Institute** 

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-17A

Client I.D. Number: MW-26-2

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 12/08/09 12:52

Received: 12/09/09

Extracted: 12/15/09 18:01 Analyzed: 12/15/09 18:01

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	µg/L	38	Ethylbenzene	ND	0.50	µg/L
4	Chloroethane	ND		0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	µg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND		0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND.	0.50	μg/L
23	Dibromomethane	ND		0.50	µg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ; ND	2.5	μg/L
25	Trichloroethene	ND		0.50	µg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	µg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	µg/L	62	Hexachlorobutadiene	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND		0.50	µg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	106	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	µg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND		0.50	µg/L	66	Surr: 4-Bromofluorobenzene	92	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					
33	Dibromochloromethane	ND		0.50	ua/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

1,2-Dibromoethane (EDB)

Tetrachioroethene

Roger Scholl Kandy Saulur

Walter Hirihour

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

μg/L

μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/22/09

**Report Date** 

Page 1 of 1



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#### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120901-18A

Client I.D. Number: MW-26-1

**David Conner** Attn: Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 12/08/09 13:29

Received: 12/09/09

Extracted: 12/15/09 18:23 Analyzed: 12/15/09 18:23

#### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	R	eporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND		0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND		0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	Q	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND		0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND		0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND		0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	Q	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND		0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND		0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND		0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND		0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND		0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND		0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND		0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND		0.50	μg/L	56	4-isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND		0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND		0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND		0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC)	P) ND	2.5	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	µg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	µg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	104	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	95	(70-130)	%REC
32	1,3-Dichloropropane	ND		0.50	μg/L					
33	Dibromochloromethane	ND		0.50	μg/L					

Data flags are DOD specified with criteria that may differ from EPA or inhouse statistical criteria.

ND

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager •

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

μg/L

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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### **VOC Sample Preservation Report**

Work Order: BMI09120901

Job:

G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	рН	
09120901-01A	MW-23-5	Aqueous	2	
09120901-02A	MW-23-4	Aqueous	2	
09120901-03A	MW-23-3	Aqueous	2	
09120901-04A	MW-23-2	Aqueous	2	
09120901-05A	MW-23-1	Aqueous	2	
09120901-06A	EB-12-12/04/09	Aqueous	2	
09120901-07A	TB-12-12/04/09	Aqueous	2	
09120901-08A	SB-1-4Q09	Aqueous	2	
09120901-09A	MW-25-5	Aqueous	2	
09120901-10A	MW-25-4	Aqueous	2	
09120901-11A	MW-25-3	Aqueous	2	
09120901-12A	MW-25-2	Aqueous	2	
09120901-13A	MW-25-1	Aqueous	2	
09120901-14A	DUPE-07-4Q09	Aqueous	2	
09120901-15A	EB-13-12/08/09	Aqueous	2	
09120901-17A	MW-26-2	Aqueous	2	
09120901-18A	MW-26-1	Aqueous	2	

12/22/09



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Date: 22-Dec-09		(	QC S	ummar	y Repor	t				<b>Work Ord</b> 0912090	
Method Bla File ID: 14	nk		Type: N		est Code: El		thod 314.0	Analys	sis Date:	12/10/2009 13:31	
Sample ID:	MB-23222	Units : µg/L		Run ID: IC	3_091210	4		Prep [	Date:	12/10/2009 12:34	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef	Val %RPD(Limit)	Qual
Perchlorate		ND	1								
_	Fortified Blank		Type: L	.FB T	est Code: El	PA Met	thod 314.0				
File ID: <b>15</b>				В	atch ID: 232	22		Analys	sis Date:	12/10/2009 13:49	
Sample ID:	LFB-23222	Units : µg/L		Run ID: IC	_3_0912104	4		Prep [	Date:	12/10/2009 12:34	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef	Val %RPD(Limit)	Qual
Perchlorate		24.1	2	2 25		96	85	115			
Sample Mat	rix Spike		Type: L	.FM T	est Code: El	PA Met	thod 314.0				
File ID: <b>27</b>				В	atch ID: 2322	22		Analys	sis Date:	12/10/2009 17:30	
Sample ID:	09120901-09ALFM	Units : <b>µg/L</b>		Run ID: IC	_3_091210 <i>A</i>	١.		Prep [	Date:	12/10/2009 12:34	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef	Val %RPD(Limit)	Qual
Perchlorate		37	2	2 25	11.97	100	80	120			
Sample Mat	rix Spike Duplicate		Type: L	FMD T	est Code: Ef	A Met	hod 314.0				
File ID: 28				В	atch ID: <b>232</b> 2	22		Analys	sis Date:	12/10/2009 17:49	
Sample ID:	09120901-09ALFMD	Units : μg/L		Run ID: IC	_3_091210	١		Prep [	Date:	12/10/2009 12:34	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef	Val %RPD(Limit)	Qual
Perchlorate		38.6	2	2 25	11.97	107	80	120	37.0	2 4.2(15)	

#### Comments

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



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<b>Date:</b> 22-Dec-09	QC Summary Report								Work Order: 09120901	
Method Blank File ID: 121109.B\019SMPL.D\ Sample ID: MB-23217	Units : mg/L	Type: N	Ва	est Code: El atch ID: 232 P/MS 0912	17K	thod 200.8	Analysi Prep Da		12/11/2009 12:56 12/09/2009 13:16	
Analyte	Result	PQL		_		LCL(ME)	UCL(ME) F	RPDRef\	/al %RPD(Limit)	Qual
Chromium (Cr)	ND	0.00	5							
Laboratory Control Spike File ID: 121109.B\020_LCS.D\		Type: L		est Code: Ei		thod 200.8	Analysi	s Date:	12/11/2009 13:02	
Sample ID: LCS-23217 Analyte	Units : <b>mg/L</b> Result	PQL		<b>P/MS_0912</b> SpkRefVal		C LCL(ME)	Prep Da UCL(ME) R		12/09/2009 13:16 /al %RPD(Limit)	Qual
Chromium (Cr)	0.0577	0.00	0.05		115	80	120			····
Sample Matrix Spike File ID: 121109.B\024SMPL.D\ Sample ID: 09120901-01AMS Analyte	Units : <b>mg/L</b> Result	Type: N	Ba Run ID: <b>IC</b>	est Code: El atch ID: 232 P/MS_0912	17K 11A		Prep Da	ate:	12/11/2009 13:24 12/09/2009 13:16 /al %RPD(Limit)	
Chromium (Cr)	0.0611	0.00		0		80	120		(4)	M1
Sample Matrix Spike Duplicate File ID: 121109.B\025SMPL.D\	Type: MSD Test Code: EPA Method 200.8  Batch ID: 23217K Analysis Date:							12/11/2009 13:30		
Sample ID: 09120901-01AMSD	Units : mg/L			P/MS_0912			Prep Da		12/09/2009 13:16	
Analyte Chromium (Cr)	Result 0.0623	PQL 0.008	<del></del>	SpkRefVal 0		BO 80	120	0.061	/al %RPD(Limit) 1 1.9(20)	Qual M1

#### **Comments:**

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag.

M1 = Matrix spike recovery was high, the method control sample recovery was acceptable.



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<b>Date:</b> 22-Dec-09	(		<b>Work Order:</b> 09120901				
Method Blank		Type: MBL	K Test Code: EPA	Method SW826	0B		
File ID: <b>09121507.D</b>			Batch ID: MS15\	W1215M	Analysis Date:	12/15/2009 09:52	
Sample ID: MBLK MS15W1215M	Units : µg/L		n ID: <b>MSD_15_09121</b> :		Prep Date:	12/15/2009 09:52	
Analyte	Result	PQL	SpkVal SpkRefVal %	REC LCL(ME) U	JCL(ME) RPDRef	/al %RPD(Limit)	Qual
Dichlorodifluoromethane	ND	0.5					
Chloromethane	ND	1					
Vinyl chloride	ND	0.5					
Chloroethane Bromomethane	ND	0.5					
Trichlorofluoromethane	ND ND	1 0.5					
1,1-Dichloroethene	ND	0.5					
Dichloromethane	ND	1					
Freon-113	ND	0.5					
trans-1,2-Dichloroethene	ND	0.5					
Methyl tert-butyl ether (MTBE) 1.1-Dichloroethane	ND	0.5					
2-Butanone (MEK)	ND ND	0.5 10					
cis-1,2-Dichloroethene	ND ND	0.5					
Bromochloromethane	ND	0.5					
Chloroform	ND	0.5					
2,2-Dichloropropane	ND	0.5					
1,2-Dichloroethane	ND	0.5					
1,1,1-Trichloroethane 1,1-Dichloropropene	ND ND	0.5					
Carbon tetrachloride	ND ND	0.5 0.5					
Benzene	ND	0.5					
Dibromomethane	ND	0.5					
1,2-Dichloropropane	ND	0.5					
Trichloroethene	ND	0.5					
Bromodichloromethane 4-Methyl-2-pentanone (MIBK)	ND ND	0.5 2.5					
cis-1,3-Dichloropropene	ND ND	2.5 0.5					
trans-1,3-Dichloropropene	ND	0.5					
1,1,2-Trichloroethane	ND	0.5					
Toluene	ND	0.5					
1,3-Dichloropropane	ND	0.5					
Dibromochloromethane 1,2-Dibromoethane (EDB)	ND ND	0.5 1					
Tetrachloroethene	ND ND	0.5					
1,1,1,2-Tetrachloroethane	ND	0.5					
Chlorobenzene	ND	0.5					
Ethylbenzene	ND	0.5					
m,p-Xylene	ND	0.5					
Bromoform Styrene	ND ND	0.5					
o-Xylene	ND ND	0.5 0.5					
1,1,2,2-Tetrachloroethane	ND	0.5					
1,2,3-Trichloropropane	ND	1					
Isopropylbenzene	ND	0.5					
Bromobenzene n-Propylbenzene	ND ND	0.5					
4-Chlorotoluene	ND ND	0.5					
2-Chlorotoluene	ND ND	0.5 0.5					
1,3,5-Trimethylbenzene	ND	0.5					
tert-Butylbenzene	ND	0.5					
1,2,4-Trimethylbenzene	ND	0.5					
sec-Butylbenzene 1,3-Dichlorobenzene	ND	0.5					
1,3-Dichlorobenzene 1,4-Dichlorobenzene	ND ND	0.5 0.5					
4-Isopropyltoluene	ND ND	0.5 0.5					
1,2-Dichlorobenzene	ND	0.5					
n-Butylbenzene	ND	0.5					
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5					
1,2,4-Trichlorobenzene Naphthalene	ND ND	1					
Hexachlorobutadiene	ND ND	1 1					
1,2,3-Trichlorobenzene	ND	1					
Surr: 1,2-Dichloroethane-d4	10.3	•	10	103 70	130		
Surr: Toluene-d8	10.2			102 70	130		
·							



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<b>Date:</b> 22-Dec-09		SC 21	ımmary R	teport			<b>Work Ord</b> 0912090	
Surr: 4-Bromofluorobenzene	9.61		10	96	70	130		
Laboratory Control Spike		Type: L		Code: EPA Meth				
File ID: 09121505.D				ID: MS15W121	5M	<del>-</del>	Date: 12/15/2009 08:58	
Sample ID: LCS MS15W1215M	Units : μg/L		Run ID: MSD_			Prep Date		
Analyte	Result	PQL	SpkVal Spk	RefVal %REC	LCL(ME)	UCL(ME) RP	DRefVal %RPD(Limit)	Qua
Dichlorodifluoromethane	8.13	1		81	70	130		
Chloromethane	6.37	2		64	70(70)	130		L50
Vinyl chloride	8.4	1		84	70	130		
Chloroethane Bromomethane	9.07	1	10	91	70	130		1.50
Trichlorofluoromethane	6.23	2		62	70(70)	130		L50
1,1-Dichloroethene	10.4 11.3	1 1	10 10	104 113	70 70	130 130		
Dichloromethane	9.88	2		99	70	130	•	
trans-1,2-Dichloroethene	10.7	1	10	107	70	130		
Methyl tert-butyl ether (MTBE)	10.7	0.5	10	107	70	130		
1,1-Dichloroethane	10.6	1	10	106	70	130		
cis-1,2-Dichloroethene Bromochloromethane	10.9 9.92	1	10 10	109 99	70 70	130 130		
Chloroform	9.92	1 1	10 10	110	70 70	130		
2,2-Dichloropropane	12.1	1	10	121	70	130		
1,2-Dichloroethane	10.4	1	10	104	70	130		
1,1,1-Trichloroethane	11.5	1	10	115	70	130		
1,1-Dichloropropene	11.2	1	10	112	70	130		
Carbon tetrachloride Benzene	11.5	1	10	115	70 70	130		
Dibromomethane	10.8 10.3	0.5 1	10 10	108 103	70 70	130 130		
1,2-Dichloropropane	11.1	1	10	111	70	130		
Trichloroethene	10.8	1	10	108	70	130		
Bromodichloromethane	11.2	1	10	112	70	130		
cis-1,3-Dichloropropene	10.7	1	10	107	70	130		
trans-1,3-Dichloropropene 1,1,2-Trichloroethane	9.47	1	10	95	70	130		
Toluene	10.3 10.3	1 0.5	10 10	103 103	70 70	130 130	,	
1,3-Dichloropropane	10.3	1	10	104	70	130		
Dibromochloromethane	10.1	1	10	101	70	130		
1,2-Dibromoethane (EDB)	21	2	20	105	70	130		
Tetrachloroethene	11.3	1	10	113	70	130		
1,1,1,2-Tetrachloroethane Chlorobenzene	10.8	1	10	108	70	130		
Ethylbenzene	10.3 10.5	1 0.5	10 10	103 105	70 70	130 130		
m,p-Xylene	10.7	0.5	10	107	70 70	130		
Bromoform	9.5	1	10	95	70	130		
Styrene	11.5	1	10	115	70	130		
o-Xylene	10.7	0.5	10	107	70	130		
1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane	9.76	1	10	98 101	70 70	130		
Isopropylbenzene	20.1 10.8	2 1	20 10	101 108	70 70	130 130		
Bromobenzene	10.6	1	10	106	70	130		
n-Propylbenzene	10.7	1	10	107	70	130		
4-Chlorotoluene	10.7	1	10	107	70	130		
2-Chlorotoluene	10.6	1	10	106	70	130		
1,3,5-Trimethylbenzene tert-Butylbenzene	10.5	1	10	105	70 70	130		
1,2,4-Trimethylbenzene	10.2 10.5	1 1	10 10	102 105	70 70	130 130		
sec-Butylbenzene	10.2	1	10	102	70	130		
1,3-Dichlorobenzene	10.7	1	10	107	70	130		
1,4-Dichlorobenzene	9.81	1	10	98	70	130		
4-Isopropyltoluene	10.2	1	10	102	70	130		
1,2-Dichlorobenzene	9.86	1	10	99 105	70 70	130		
n-Butylbenzene 1,2-Dibromo-3-chloropropane (DBCP)	10.5 49.5	1	10 50	105 99	70 70	130 130		
1,2,4-Trichlorobenzene	49.5 9.67	2	50 10	99 97	70 70	130		
Naphthalene	9.67	2	10	97	70	130		
Hexachlorobutadiene	17.8	2	20	89	70	130		
1,2,3-Trichlorobenzene	9.61	2	10	96	70	130		
Surr: 1,2-Dichloroethane-d4	9.73		10	97	70 70	130		
Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	9.64 9.82		10 10	96 98	70 70	130 130		



Surr: 4-Bromofluorobenzene

48.7

### Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Work Order: Date: QC Summary Report 22-Dec-09 Sample Matrix Spike Type: MS Test Code: EPA Method SW8260B File ID: 09121509.D Analysis Date: 12/15/2009 10:37 Batch ID: MS15W1215M Sample ID: 09120901-09AMS Units: µg/L Prep Date: 12/15/2009 10:37 Run ID: MSD 15 091215B SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Analyte Result PQL Qual Dichlorodifluoromethane 38.6 2.5 Chloromethane 33.9 Vinyl chloride 2.5 44.6 Chloroethane 42.9 2.5 Bromomethane 21.4 Trichlorofluoromethane 44.7 2.5 1,1-Dichloroethene 51.5 2.5 Dichloromethane 48.6 trans-1,2-Dichloroethene 50.6 2.5 Methyl tert-butyl ether (MTBE) 54.5 1.3 1,1-Dichloroethane 2.5 99.9 cis-1,2-Dichloroethene 52.6 2.5 Bromochloromethane 48.5 2.5 Chloroform 2.5 51.8 2,2-Dichloropropane 56.2 2.5 1.2-Dichloroethane 50.2 2.5 1,1,1-Trichloroethane 51.7 2.5 1,1-Dichloropropene 52.4 2.5 Carbon tetrachloride 2.5 Benzene 50.7 1.3 Dibromomethane 49.9 2.5 99.8 1,2-Dichloropropane 52.2 2.5 Trichloroethene 49.7 2.5 Bromodichloromethane 52.4 2.5 cis-1,3-Dichloropropene 2.5 49 6 aa trans-1,3-Dichloropropene 2.5 1,1,2-Trichloroethane 50.3 2.5 Toluene 47.3 1.3 1,3-Dichloropropane 49.2 2.5 Dibromochloromethane 46.5 2.5 1,2-Dibromoethane (EDB) Tetrachloroethene 50.5 2.5 1,1,1,2-Tetrachloroethane 50.1 2.5 Chlorobenzene 47.5 2.5 Ethylbenzene 47 9 1.3 m.p-Xylene 48.2 1.3 **Bromoform** 44.1 2.5 Styrene 52.2 2.5 o-Xylene 48.7 1.3 1,1,2,2-Tetrachloroethane 47.6 2.5 1,2,3-Trichioropropane 97.8 Isopropylbenzene 48.3 2.5 Bromobenzene 48.2 2.5 n-Propylbenzene 2.5 47 2 4-Chlorotoluene 48 4 2.5 2-Chlorotoluene 48.1 2.5 1,3,5-Trimethylbenzene 47.1 2.5 tert-Butylbenzene 2.5 1,2,4-Trimethylbenzene 47.6 2.5 sec-Butylbenzene 44.8 2.5 1,3-Dichlorobenzene 48.2 2.5 1,4-Dichlorobenzene 44.6 2.5 ନ୍ଦ 4-Isopropyltoluene 45.4 2.5 1,2-Dichlorobenzene 45.5 2.5 n-Butylbenzene 46.2 2.5 1,2-Dibromo-3-chloropropane (DBCP) 1,2,4-Trichlorobenzene 42.6 Naphthalene 43.9 Hexachlorobutadiene 74.6 1.2.3-Trichlorobenzene 41.3 Surr: 1,2-Dichloroethane-d4 49.6 Surr: Toluene-d8 



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: Work Order: QC Summary Report 09120901 22-Dec-09 Sample Matrix Spike Duplicate Type: MSD Test Code: EPA Method SW8260B File ID: 09121510.D Analysis Date: 12/15/2009 10:59 Batch ID: MS15W1215M Sample ID: 09120901-09AMSD Units: µg/L 12/15/2009 10:59 Run ID: MSD 15 091215B Prep Date: Analyte Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Dichlorodifluoromethane 33.4 2.5 13 167 14.4(20) Chloromethane 0 33.89 16.0(20) 28.9 10 50 58 28 145 23.7(20) Vinvl chloride 35.2 2.5 50 0 70 43 134 44.61 R5 Chloroethane 38.4 39 2.5 50 0 77 154 42.9 11.1(20) Bromomethane 26.3 10 0 19 21.35 20.8(20) **R58** 50 53 176 Trichlorofluoromethane 2.5 0 4.5(20)42.8 50 86 34 160 44.71 1,1-Dichloroethene 45.4 2.5 50 0 91 60 130 51.54 12.7(20) Dichloromethane 0 130 48.6 12.3(20) 43 10 50 86 68 trans-1,2-Dichloroethene 2.5 14.5(20) 43.8 0 63 130 50.64 50 88 Methyl tert-butyl ether (MTBE) 50.7 1.3 50 0 101 56 141 54.54 7.4(20)1.1-Dichloroethane 43.7 2.5 50 0 87 61 130 49.95 13.3(20) cis-1,2-Dichloroethene 45.5 0 52.64 2.5 91 70 130 14.5(20) 50 Bromochloromethane 2.5 0 89 70 130 48.54 8.7(20) 44.5 50 Chloroform 2.5 46 50 0 92 67 130 51.75 11.8(20) 2,2-Dichloropropane 48.7 2.5 50 0 97 30 152 56.18 14.3(20) 1.2-Dichloroethane 46.9 2.5 50 0 94 60 135 50.16 6.8(20)1.1.1-Trichloroethane 46.3 2.5 50 0 Q3 59 51.71 11.0(20) 137 1.1-Dichloropropene 45.4 2.5 50 0 91 63 130 52.42 14.3(20) Carbon tetrachloride 13.3(20) 45.6 2.5 50 0 91 50 147 52.03 Benzene 44.6 1.3 50 0 89 67 130 50.72 12.8(20) Dibromomethane 46.6 2.5 0 93 133 49.91 6.9(20)50 69 1,2-Dichloropropane 0 46.3 2.5 93 69 52.24 12.2(20) 50 130 Trichloroethene 43.8 2.5 50 0 88 69 130 49.65 12.5(20) Bromodichloromethane 47.7 2.5 0 95 66 134 52.37 9.4(20)50 cis-1,3-Dichloropropene 45.8 2.5 50 0 92 63 130 49 64 8.0(20) trans-1,3-Dichloropropene 41.6 2.5 50 0 83 66 131 44.95 7.7(20)1,1,2-Trichloroethane 46.7 2.5 0 93 68 130 50.33 7.4(20)50 Toluene 0 12.8(20) 41.6 1.3 50 83 66 130 47.28 1,3-Dichloropropane 46.7 2.5 50 0 93 70 130 49 24 5.3(20) Dibromochloromethane 44 2.5 50 0 88 70 130 46.51 5.5(20)1,2-Dibromoethane (EDB) 95.5 0 96 70 130 101.1 5.7(20) 5 100 Tetrachloroethene 44.5 2.5 0 89 61 50.54 12.7(20) 50 134 1,1,1,2-Tetrachloroethane 45 6 0 91 70 130 50.12 9.4(20) 2.5 50 Chlorobenzene 10.1(20) 42.9 2.5 50 0 86 70 130 47.49 Ethylbenzene 42.5 1.3 50 0 85 68 130 47.92 12.1(20) m,p-Xylene 10.6(20) 43.3 1.3 50 0 87 64 130 48 19 **Bromoform** 42.8 2.9(20)2.5 50 0 86 64 138 44.05 Styrene 48.3 2.5 50 0 97 69 130 52.19 7.7(20)o-Xylene 0 70 44.4 50 89 130 48.69 9.2(20)1.3 1,1,2,2-Tetrachloroethane 2.8(20) 46.3 2.5 50 0 93 65 131 47.6 1.2.3-Trichloropropane 97.82 95 10 100 0 95 70 130 3.0(20)Isopropylbenzene 43.8 2.5 0 88 64 138 48.3 9.8(20)50 Bromobenzene 45.4 2.5 50 0 91 70 130 48.18 6.1(20)n-Propylbenzene 42.8 2.5 0 86 66 47 21 9.8(20)50 132 4-Chlorotoluene 45.1 2.5 50 0 90 70 130 48.43 7.2(20)2-Chlorotoluene 9.3(20) 70 48.12 43.8 2.5 50 0 88 130 1,3,5-Trimethylbenzene 43.4 2.5 50 0 87 66 136 47.14 8.3(20) tert-Butvlbenzene 41.8 2.5 0 84 65 137 44.99 7.5(20) 50 1,2,4-Trimethylbenzene 43.9 88 47.62 8.0(20) 2.5 50 0 65 137 sec-Butylbenzene 41.8 2.5 50 0 84 66 134 44.75 6.9(20)1.3-Dichlorobenzene 44.8 2.5 50 0 90 70 130 48.19 7.2(20)1,4-Dichlorobenzene 42.6 2.5 70 44.58 50 O 85 130 4.6(20)4-Isopropyltoluene 41.9 2.5 50 0 84 66 137 45.36 8.0(20)1.2-Dichlorobenzene 43.5 2.5 0 87 70 130 45.5 4.5(20)50 n-Butylbenzene 0 46.21 2.5 86 60 7.0(20)43.1 50 142 1,2-Dibromo-3-chloropropane (DBCP) 238 15 250 0 95 67 130 238.8 0.4(20)1.2.4-Trichlorobenzene 0.0(20)42.6 10 50 0 85 61 137 42.55 Naphthalene 44.8 50 90 40 167 43.93 1.9(20) 10 0 Hexachlorobutadiene 73.6 0 74 130 74.56 1.3(20) 10 100 61 1.2.3-Trichlorobenzene 84 41.28 1.4(20) 41.8 10 50 51 144 Surr: 1,2-Dichloroethane-d4 49.8 50 99.6 70 130 Surr: Toluene-d8 48.1 70 130 50 96 Surr: 4-Bromofluorobenzene 99 70 130 49.4 50



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 22-Dec-09

QC Summary Report

Work Order: 09120901

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag.

L50 = Analyte recovery was below acceptance limits for the LCS, but was acceptable in the MS/MSD.

R5 = MS/MSD RPD exceeded the laboratory control limit. Recovery met acceptance criteria.

R58 = MS/MSD RPD exceeded the laboratory control limit.

### Billing Information:

# CHAIN-OF-CUSTODY RECORD

### Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Report Attention David Conner Shane Walton Phone Number (818) 393-2808 x (614) 424-4117 x connerd@battelle.org waltons@battelle.org EMail Address

Battelle Memorial Institute

Client's COC #: 28890, 24118

. <del>g</del>o

G005862/JPL Groundwater Monitoring

PO: 218013

San Diego, CA 92110

Betsy Cutie

(614) 424-4899 x

cutiee@batelle.org

Suite C-205 3990 Old Town Ave

Page: 1 of 2

WorkOrder: BMIS09120901

Report Due By: 5:00 PM On: 23-Dec-2009

EDD Required: Yes Sampled by: Client

Cooler Temp Samples Received

09-Dec-2009 09-Dec-2009 Date Printed

BMI09120901-09A MW-25-5 BMI09120901-08A BMI09120901-07A BMI09120901-06A EB-12-12/04/09 Sample ID BMI09120901-10A BMI09120901-05A MW-23-1 BMI09120901-04A MW-23-2 BMI09120901-03A MW-23-3 BMI09120901-02A MW-23-4 BMI09120901-01A MW-23-5 QC Level: DS4 SB-1-4Q09 MW-25-4 TB-12-12/04/09 Sample ID Client DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates Ş å Š Š g Š Matrix Date å å Š å 12/04/09 08:39 12/08/09 08:58 12/04/09 00:00 12/04/09 10:11 12/04/09 10:03 12/08/09 09:44 12/04/09 09:08 Collection No. of Bottles 12/04/09 10:34 12/04/09 11:35 12/04/09 09:39 Alpha Sub S S ω G G Ŋ Ö Ç 0 0 0 0 0 0 0 0 0 TAT 5 10 6 6 5 6 5 5 5 Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate 314\_W METALS\_D VOC\_TIC\_ Ç Ç Ç ζ, Ç Ç Ü Ç VOC by 524 VOC by 524 Criteria Criteria VOC\_W Requested Tests Reno Trip Blank 8/25/09 Sample Remarks Level IV QC

Logged in by: Chapter (Ideay Elizabeth Hdcox Alpha Analytical, Inc. Company 12-9.09 1032 Date/Time

No security seals. Frozen ice. Temp Blank #8842 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).

Comments:

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

### Billing Information:

# CHAIN-OF-CUSTODY RECORD

### Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Phone Number

connerd@battelle.org

EMail Address

(614) 424-4117 x (818) 393-2808 x

(614) 424-4899 x

cutiee@batelle.org waltons@battelle.org Report Attention

Battelle Memorial Institute San Diego, CA 92110 Suite C-205 3990 Old Town Ave

Client:

PO: 218013

Client's COC #: 28890, 24118

Page: 2 of 2

WorkOrder: BMIS09120901

Report Due By: 5:00 PM On: 23-Dec-2009

EDD Required: Yes Sampled by: Client

Cooler Temp

Samples Received 09-Dec-2009 09-Dec-2009 **Date Printed** 

QC Level: DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates

Job :

**Betsy Cutie** Shane Walton David Conner

G005862/JPL Groundwater Monitoring

										Requested Tests	Tests	
Alpha Sample ID	Client Sample ID	Matr	Collection Matrix Date	No. of Bottle Alpha Sub	No. of Bottles Alpha Sub	TAT	314_W	METALS.	METALS_D VOC_TIC_			Sample Remarks
BMI09120901-11A	MW-25-3	AQ	12/08/09 10:42	5	0	10	Perchlorate	Ç	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120901-12A	MW-25-2	AQ	12/08/09 11:09	51	0	10	Perchlorate	Ω	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120901-13A	MW-25-1	AΩ	12/08/09 11:40	51	0	10	Perchlorate	t.	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120901-14A	DUPE-07-4Q09	ΑQ	12/08/09 00:00	თ	0	10	Perchlorate	ន	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120901-15A	EB-13-12/08/09	Ą	12/08/09 11:24	Ŋ	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120901-16A	TB-13-12/08/09	Ã	12/08/09 00:00		0	10			VOC by 524 Criteria	VOC by 524 Criteria	תכ	Reno Trip Blank 8/25/09
BMI09120901-17A	MW-26-2	å	12/08/09 12:52	රා	0	10	Perchlorate	Çr	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09120901-18A	MW-26-1	AQ	12/08/09 13:29	ഗ	0	6	Perchlorate	ç.	VOC by 524 Criteria	VOC by 524 Criteria		

No security seals. Frozen ice. Temp Blank #8842 received @ 4°C. Level IV OC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).

Comments:

Logged in by:

Enjalaith (Idicax izabeth Alpha Analytical, Inc. Company 129-09 1032

Date/Time

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

### Name GERALD TOMPKINS Phone Number\_ City, State, Zip CoLymbus of Address \_ Billing Information: \*Key: AQ - Aqueous 6260 ADDITIONAL INSTRUCTIONS: 90% 159 6/ 100/ Client Warmer Control ( DAVI) Control Relinquished by 135 Sampled City State, zip Received by Received by Relinquished by Relimquished by Received by me Sampled 505 KIM- DIE as pun pie. C-205 See Key Matrix\* Ello 10 Signature DMI09/20701 .01 Sampled by SO - Soil Lab ID Number Fax 43201 (Use Only) BATTETHE WA - Waste - 83 MW-23-3 MW-23-2 Report Attention Phone (6/9) P.O. # MW-23-1 MW-23-5 EMail Address MW-23-4 18-OT - Other 218013 , 7 4009 Sample Description 726-73/1 **Print Name** AR - Air 20 Sparks, Nevada 89431-5778 Phone (775) 355-1044 255 Glendale Avenue, Suite 21 Alpha Analytical, Inc. Fax (775) 355-0406 \*\*: L-Liter Fax # Job# Wigh アプラ TAT GB5862 < Total and type of \ v \*\* See below containers ď J AZ × Ö Samples Collected From Which State? Company **9** Analyses Required |× |**×**| OTHER 12/04/09 SOURCE **SAMPLE-TIME: 1003** Eaupre 1 TRAP BLANC Global ID # EDD / EDF? YES\_\_\_\_ Required QC Level? Page # REMARKS 2889 1300 lime BLANG đ š ₹

of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis

V-Voa

S-Soil Jar

O-Orbo

T-Tedlar

B-Brass

P-Plastic

OT-Other

(E)

Alpha Analytical, Inc. 255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 Phone (775) 355-1044

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18 .09 MW-25-5 NORM -10 MW-25-4 -11 MW-25-4 -12 MW-25-3 -13 MW-25-1 -14 DAR07-4209 -15 23-12/08/09 -10 TB-13-12/08/09 -18 MW-26-1	Š	ampled S	ampled See K Belov	
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Signature	Print Name	Company	Date	Time
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Received by			-	
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Received by				

of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.

\*Key: AQ - Aqueous

SO - Soil

WA - Waste

OT - Other

AR - Air

\*\*: L-Liter

V-Voa

S-Soil Jar

O-Orbo

T-Tedlar

B-Brass

P-Plastic

OT-Other

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

**Date:** 23-Dec-09

David Conner

Battelle Memorial Institute

3990 Old Town Ave

San Diego, CA 92110 (818) 393-2808 Suite C-205

**CASE NARRATIVE** 

Job:

G005862/JPL Groundwater Monitoring

Work Order:

BMI09121005

**Cooler Temp:** 

4°C

Alpha's Sample ID	Client's Sample ID	Matrix
09121005-01A	MW-18-5	Aqueous
09121005-02A	MW-18-4	Aqueous
09121005-03A	MW-18-3	Aqueous
09121005-04A	MW-18-2	Aqueous
09121005-05A	MW-18-1	Aqueous
09121005-06A	EB-14-12/09/09	Aqueous
09121005-07A	TB-14-12/09/09	Aqueous

### **Manually Integrated Analytes**

Alpha's Sample ID	Test Reference	<u>Analyte</u>	
09121005-01A	EPA Method 314.0	Perchlorate	
09121005-02A	EPA Method 314.0	Perchlorate	
09121005-03A	EPA Method 314.0	Perchlorate	

Enclosed please find the analytical results of the samples received by Alpha Analytical, Inc. under the above mentioned Work Order/Chain-of-Custody.

Alpha Analytical, Inc. has a formal Quality Assurance/Quality Control program, which is designed to meet or exceed the EPA requirements. All relevant QC met quality assurance objectives for this project unless otherwise stated in the footnotes.

If you have any questions with regards to this report, please contact Randy Gardner, Project Manager, at (800) 283-1183.

Roger Scholl

Kandy Saulner

Dalter Hirihon



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

**David Conner** Attn: (818) 393-2808 Phone: Fax: (614) 458-6641

Date Received: 12/10/09

Job: G005862/JPL Groundwater Monitoring

### Perchlorate by Ion Chromatography EPA Method 314.0

					<del></del>
	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-18-5 Lab ID: BMI09121005-01A Date Sampled 12/09/09 08:53	Perchlorate	2.68	1.00 μg/L	12/11/09 11:22	12/11/09 17:34
Client ID: <b>MW-18-4</b> Lab ID: BMI09121005-02A Date Sampled 12/09/09 09:22	Perchlorate	52.9	2.00 μg/L	12/11/09 11:22	12/11/09 17:52
Client ID: <b>MW-18-3</b> Lab ID: BMI09121005-03A Date Sampled 12/09/09 10:22	Perchlorate	43.0	1.00 μg/L	12/11/09 11:22	12/11/09 18:11
Client ID: <b>MW-18-2</b> Lab ID: BMI09121005-04A Date Sampled 12/09/09 10:50	Perchlorate	6.66	1.00 μg/L	12/11/09 11:22	12/11/09 19:06
Client ID: MW-18-1 Lab ID: BMI09121005-05A Date Sampled 12/09/09 11:18	Perchlorate	ND	1.00 μg/L	12/11/09 11:22	12/11/09 19:24
Client ID: <b>EB-14-12/09/09</b> Lab ID: BMI09121005-06A Date Sampled 12/09/09 11:07	Perchlorate	ND	1.00 μg/L	12/11/09 11:22	12/11/09 19:43

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Attn:

**David Conner** 

Phone:

(818) 393-2808

Fax:

(614) 458-6641

Date Received: 12/10/09

Job:

G005862/JPL Groundwater Monitoring

Metals by ICPMS

EPA Method 200.8

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-18-5 Lab ID: BMI09121005-01A Date Sampled 12/09/09 08:53	Chromium (Cr)	ND	0.0050 mg/L	12/11/09 11:33	12/11/09 17:07
Client ID: <b>MW-18-4</b> Lab ID: BMI09121005-02A Date Sampled 12/09/09 09:22	Chromium (Cr)	ND	0.0050 mg/L	12/11/09 11:33	12/11/09 17:13
Client ID: <b>MW-18-3</b> Lab ID: BMI09121005-03A Date Sampled 12/09/09 10:22	Chromium (Cr)	ND	0.0050 mg/L	12/11/09 11:33	12/11/09 16:50
Client ID: <b>MW-18-2</b> Lab ID: BMI09121005-04A Date Sampled 12/09/09 10:50	Chromium (Cr)	ND	0.0050 mg/L	12/11/09 11:33	12/11/09 17:18
Client ID: <b>MW-18-1</b> Lab ID: BMI09121005-05A Date Sampled 12/09/09 11:18	Chromium (Cr)	ND	0.0050 mg/L	12/11/09 11:33	12/11/09 17:24
Client ID: <b>EB-14-12/09/09</b> Lab ID: <b>BMI</b> 09121005-06A Date Sampled 12/09/09 11:07	Chromium (Cr)	ND	0.0050 mg/L	12/11/09 11:33	12/11/09 17:30

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / info@alpha-analytical.com

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Report Date



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### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110

Fax:

Phone: (818) 393-2808 (614) 458-6641

Attn: David Conner

Job:

G005862/JPL Groundwater Monitoring

### Tentatively Identified Compounds - Volatile Organics by GC/MS

			Estimated		,
	Parameter	Estimated	Reporting	Date	Date
		Concentration	Limit	Extracted	Analyzed
Client ID: MW-18-5 Lab ID: BMI09121005-01A Date Received: 12/10/09 Date Sampled: 12/09/09 08:53	Sulfur dioxide	9.1	2.0 µg/L	12/11/09 17:57	12/11/09 17:57
Client ID: MW-18-4 Lab ID: BMI09121005-02A Date Received: 12/10/09 Date Sampled: 12/09/09 09:22	Sulfur dioxide	6.5	2.0 μg/L	12/11/09 18:19	12/11/09 18:19
Client ID: MW-18-3 Lab ID: BMI09121005-03A Date Received: 12/10/09 Date Sampled: 12/09/09 10:22	* * * None Found * * *	ND	2.0 μg/L	12/11/09 18:41	12/11/09 18:41
Client ID: MW-18-2 Lab ID: BMI09121005-04A  Date Received: 12/10/09  Date Sampled: 12/09/09 10:50	*** None Found ***	ND	2.0 μg/L	12/11/09 19:04	12/11/09 19:04
Client ID: MW-18-1 Lab ID: BMI09121005-05A Date Received: 12/10/09 Date Sampled: 12/09/09 11:18	*** None Found ***	ND	2.0 μg/L	12/11/09 19:26	12/11/09 19:26
Client ID : EB-14-12/09/09 Lab ID : BMI09121005-06A Date Received : 12/10/09 Date Sampled : 12/09/09 11:07	2-Methyl-1-propene	2.9	2.0 μg/L	12/11/09 19:48	12/11/09 19:48
Client ID : TB-14-12/09/09  Lab ID : BMI09121005-07A  Date Received : 12/10/09  Date Sampled : 12/09/09 00:00	*** None Found ***	ND	2.0 μg/L	12/11/09 12:02	12/11/09 12:02



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Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl Kandy Saulner Walter Hinchman, Quality Assurance Officer

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer

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Report Date



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### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

Client I.D. Number: MW-18-5

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09121005-01A

Attn: Phone:

David Conner (818) 393-2808

Fax:

(614) 458-6641

Sampled: 12/09/09 08:53

Received: 12/10/09

Extracted: 12/11/09 17:57 Analyzed: 12/11/09 17:57

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	µg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	µg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	µg/L	66	Surr: 4-Bromofluorobenzene	101	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachioroethene

1,2-Dibromoethane (EDB)

Roger Scholl Kandys

ND

Walter Firehour

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

ua/L

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12/24/09

Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09121005-02A

Client I.D. Number: MW-18-4

David Conner Attn: Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 12/09/09 09:22

Received: 12/10/09

Extracted: 12/11/09 18:19 Analyzed: 12/11/09 18:19

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	· ND	0.50	μg/L	41	Styrene	, ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	2.8	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	16	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	1.5	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	103	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulmer

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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12/24/09

Report Date



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### ANALYTICAL REPORT

**Battelle Memorial Institute** 

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09121005-03A

Client I.D. Number: MW-18-3

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 12/09/09 10:22

Received: 12/10/09

Extracted: 12/11/09 18:41 Analyzed: 12/11/09 18:41

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	µg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	1.4	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	µg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	. ND	0.50	μg/L
21	Carbon tetrachloride	4.7	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	µg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	0.55	0.50	µg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	; ND	0.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	104	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	101	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

34 1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

μg/L

μg/L

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

12/24/09

**Report Date** 



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### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

Client I.D. Number: MW-18-2

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09121005-04A

Attn:

David Conner

Phone:

(818) 393-2808

Fax:

(614) 458-6641

Sampled: 12/09/09 10:50

Received: 12/10/09

Extracted: 12/11/09 19:04 Analyzed: 12/11/09 19:04

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND .	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	µg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	µg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1.2.4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1.3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	µg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	101	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L			,	, ,	-
33	Dibromochloromethane	ND	0.50	μg/L					
		_	2,00	r-0					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

1,2-Dibromoethane (EDB)

Tetrachloroethene

34

Roger Scholl

ND

Kandy Saulner

Dalter Hirkon

 $Roger\ L.\ Scholl,\ Ph.D.,\ Laboratory\ Director \bullet \bullet Randy\ Gardner,\ Laboratory\ Manager \bullet \bullet Walter\ Hinchman,\ Quality\ Assurance\ Officer$ 

μg/L

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12/24/09

Report Date



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### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09121005-05A

Client I.D. Number: MW-18-1

Attn: David Conner Phone: (818) 393-2808

(614) 458-6641 Fax:

Sampled: 12/09/09 11:18

Received: 12/10/09

Extracted: 12/11/09 19:26 Analyzed: 12/11/09 19:26

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1.1.1.2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND .	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xvlene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	µg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	µg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	µg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	104	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.50	µg/L	66	Surr: 4-Bromofluorobenzene	101	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

1.0

μg/L

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### ANALYTICAL REPORT

**Battelle Memorial Institute** 

Client I.D. Number: EB-14-12/09/09

3990 Old Town Ave San Diego, CA 92110 Attn:

David Conner

Phone: Fax:

(818) 393-2808 (614) 458-6641

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09121005-06A

Sampled: 12/09/09 11:07

Received: 12/10/09

Extracted: 12/11/09 19:48

Analyzed: 12/11/09 19:48

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	- 51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	µg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	µg/L
25	Trichloroethene	ND	0.50	µg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	106	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	103	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	97	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	µg/L					
33	Dibromochloromethane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

μg/L

1.0

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Report Date



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### ANALYTICAL REPORT

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09121005-07A

Client I.D. Number: TB-14-12/09/09

Attn: **David Conner** 

(818) 393-2808 Phone: Fax:

(614) 458-6641

Sampled: 12/09/09 00:00

Received: 12/10/09

Extracted: 12/11/09 12:02 Analyzed: 12/11/09 12:02

### Volatile Organics by GC/MS EPA Method SW8260B

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	µg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	µg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chiorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	µg/L
18	1,2-Dichloroethane	ND	0.50	µg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	, ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	µg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	µg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	101	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	102	(70-130)	%REC
31	Toluene	ND	0.50	µg/L	66	Surr: 4-Bromofluorobenzene	95	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

34

1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

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12/24/09

Report Date



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### **VOC Sample Preservation Report**

Work Order: BMI09121005	Job:	G005862/JPL Groundwater Monitoring
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Alpha's Sample ID	Client's Sample ID	Matrix	рН
09121005-01A	MW-18-5	Aqueous	2
09121005-02A	MW-18-4	Aqueous	2
09121005-03A	MW-18-3	Aqueous	2
09121005-04A	MW-18-2	Aqueous	2
09121005-05A	MW-18-1	Aqueous	2
09121005-06A	EB-14-12/09/09	Aqueous	2
09121005-07A	TB-14-12/09/09	Aqueous	2



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<b>Date:</b> 23-Dec-09	Q	C Sur	nmary	Repor	t				<b>Work Ord</b> 0912100	
Method Blank File ID: 14	7	ype: <b>MB</b> l		est Code: EF		hod 314.0	Analy	sis Date:	12/11/2009 12:21	
Sample ID: MB-23231	Units : μg/L	Rı	un ID: IC_	_3_091211A			Prep l	Date:	12/11/2009 11:22	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	Val %RPD(Limit)	Qual
Perchlorate	ND	1								
Laboratory Fortified Blank	7	ype: LFB	Te	est Code: <b>EF</b>	A Met	hod 314.0				
File ID: 15			Ва	tch ID: 2323	31		Analy	sis Date:	12/11/2009 12:40	
Sample ID: LFB-23231	Units : µg/L	Rı	ın ID: <b>IC</b> _	_3_091211A			Prep l	Date:	12/11/2009 11:22	
Analyte	Result					LCL(ME)	JCL(ME)	RPDRef\	Val %RPD(Limit)	Qual
Perchlorate	24.7	2	25		99	85	115			
Sample Matrix Spike	7	ype: LFN	l Te	est Code: EF	A Met	hod 314.0				
File ID: 34			Ва	tch ID: 2323	31		Analy	sis Date:	12/11/2009 18:29	
Sample ID: <b>09121005-03ALFM</b>	Units : <b>μg/L</b>	Ru	ın ID: <b>IC</b> _	_3_091211A	١		Prep l	Date:	12/11/2009 11:22	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	Val %RPD(Limit)	Qual
Perchlorate	72.6	2	25	42.21	122	80	120			M1
Sample Matrix Spike Duplicate	7	ype: LFN	ID Te	est Code: EF	A Met	hod 314.0				
File ID: 35			Ва	tch ID: 2323	31		Analy	sis Date:	12/11/2009 18:48	
Sample ID: 09121005-03ALFMD	Units : µg/L	R	ın ID: IC_	3_091211A	١		Prep l	Date:	12/11/2009 11:22	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	Val %RPD(Limit)	Qual
Perchlorate	73.4	2	25	42.21	125	80	120	72.6		M1

### **Comments:**

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha uses descriptive data qualifier flags, which could be replaced with either a DOD Q or J flag.

M1 = Matrix spike recovery was high, the method control sample recovery was acceptable.



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<b>Date:</b> 23-Dec-09	(	QC S	ummary	Report				<b>Work Orde</b> 09121005	
Method Blank File ID: 121109.B\053SMPL.D\		Type: N	Bat	st Code: <b>EP</b> ch ID: <b>2323</b>	2K	hod 200.8	Analysis D	ate: 12/11/2009 16:28	
Sample ID: MB-23232	Units : mg/L		Run ID: ICP				Prep Date:		
Analyte	Result	PQL	SpkVal 3	SpkRefVal 9	%REC	LCL(ME)	UCL(ME) RPD	RefVal %RPD(Limit)	Qual
Chromium (Cr)	ND	0.00	5						
Laboratory Control Spike		Type: L		st Code: <b>EP</b> .		hod 200.8			
File ID: 121109.B\054_LCS.D\			Bat	ch ID: 2323	2K		Analysis D	ate: 12/11/2009 16:34	
Sample ID: LCS-23232	Units : mg/L		Run ID: ICP	/MS_09121	1D		Prep Date:	12/11/2009 11:33	
Analyte	Result	PQL	SpkVal 3	SpkRefVal 9	%REC	LCL(ME)	UCL(ME) RPD	RefVal %RPD(Limit)	Qual
Chromium (Cr)	0.0469	0.00	0.05		94	80	120		
Sample Matrix Spike		Type: N	/IS Te	st Code: <b>EP</b> .	A Met	hod 200.8			
File ID: 121109.B\058SMPL.D\			Bat	ch ID: 2323	2K		Analysis D	ate: 12/11/2009 16:56	
Sample ID: 09121005-03AMS	Units : mg/L		Run ID: ICP	/MS_09121	1D		Prep Date:	12/11/2009 11:33	
Analyte	Result	PQL	SpkVal 3	SpkRefVal 9	%REC	LCL(ME)	UCL(ME) RPD	RefVal %RPD(Limit)	Qual
Chromium (Cr)	0.045	0.00	0.05	0	90	80	120		
Sample Matrix Spike Duplicate		Type: N	<b>ISD</b> Tes	st Code: <b>EP</b> .	A Met	hod 200.8			
File ID: 121109.B\059SMPL.D\			Bat	ch ID: 2323	2K		Analysis D	ate: 12/11/2009 17:01	
Sample ID: 09121005-03AMSD	Units: mg/L		Run ID: ICP	/MS_09121	1D		Prep Date:	12/11/2009 11:33	
Analyte	Result	PQL		_		LCL(ME)	UCL(ME) RPD	RefVal %RPD(Limit)	Qual
Chromium (Cr)	0.046	0.00	5 0.05	0	92	80	120 0.	04498 2.2(20)	

### Comments

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



### Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

<b>Date:</b> 24-Dec-09	(	QC Sumn	nary Report	<b>Work Order:</b> 09121005
Method Blank File ID: 09121107.D Sample ID: MBLK MS15W1211M	Units : µg/L	Type MBLK	Test Code: EPA Method SW826 Batch ID: MS15W1211M D: MSD_15_091211B	Analysis Date: 12/11/2009 11:40 Prep Date: 12/11/2009 11:40
Analyte	Result		:Val SpkRefVal %REC LCL(ME)	•
Dichlorodifluoromethane	ND	0.5	trui opiniorui /iriteo eoe(iiie)	333(112) (113)
Chloromethane	ND	1		
Vinyl chloride	ND	0.5		
Chloroethane	ND	0.5		
Bromomethane Trichlorofluoromethane	ND	1		
1,1-Dichloroethene	ND ND	0.5 0.5		
Dichloromethane	ND	1		
Freon-113	ND	0.5		
trans-1,2-Dichloroethene	ND	0.5		
Methyl tert-butyl ether (MTBE) 1,1-Dichloroethane	ND ND	0.5 0.5		
2-Butanone (MEK)	ND ND	0.5 10		
cis-1,2-Dichloroethene	ND	0.5		
Bromochloromethane	ND	0.5		
Chloroform	ND	0.5		
2,2-Dichloropropane 1,2-Dichloroethane	ND ND	0.5 0.5		
1,1,1-Trichloroethane	ND ND	0.5		
1,1-Dichloropropene	ND	0.5		
Carbon tetrachloride	ND	0.5		
Benzene	ND	0.5		
Dibromomethane 1,2-Dichloropropane	ND	0.5		
Trichloroethene	ND ND	0.5 0.5		
Bromodichloromethane	ND	0.5		
4-Methyl-2-pentanone (MIBK)	ND	2.5		
cis-1,3-Dichloropropene	ND	0.5		
trans-1,3-Dichloropropene 1,1,2-Trichloroethane	ND	0.5		
Toluene	ND ND	0.5 0.5		
1,3-Dichloropropane	ND	0.5		
Dibromochloromethane	ND	0.5		
1,2-Dibromoethane (EDB)	ND	1		
Tetrachloroethene 1,1,1,2-Tetrachloroethane	ND ND	0.5		
Chlorobenzene	ND ND	0.5 0.5		
Ethylbenzene	ND	0.5		
m,p-Xylene	ND	0.5		
Bromoform	ND	0.5		
Styrene o-Xylene	ND ND	0.5 0.5		
1,1,2,2-Tetrachloroethane	ND	0.5		
1,2,3-Trichloropropane	ND	1		
Isopropylbenzene	ND	0.5		
Bromobenzene	ND	0.5		
n-Propylbenzene 4-Chlorotoluene	ND ND	0.5 0.5		
2-Chlorotoluene	ND	0.5		
1,3,5-Trimethylbenzene	ND	0.5		
tert-Butylbenzene	ND	0.5		
1,2,4-Trimethylbenzene sec-Butylbenzene	ND ND	0.5		
1,3-Dichlorobenzene	ND ND	0.5 0.5		
1,4-Dichlorobenzene	ND	0.5		
4-Isopropyltoluene	ND	0.5		
1,2-Dichlorobenzene	ND	0.5		
n-Butylbenzene 1,2-Dibromo-3-chloropropane (DBCP)	ND	0.5		
1,2,4-Trichlorobenzene	ND ND	2.5 1		
Naphthalene	ND	1		
Hexachlorobutadiene	ND	1		
1,2,3-Trichlorobenzene	ND	1		
Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8	10 10.2		10 100 70 10 102 70	130
Carri Toldono do	10.2		10 102 70	130



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<b>Date:</b> 24-Dec-09	(	QC Sui	mmary	y Report			Work Ord 09121003	
Surr: 4-Bromofluorobenzene	9.65		10	97	70	130	0712100.	
Laboratory Control Spike	<u></u>	Type LC:	<b>S</b> Te	est Code: EPA Meth	nod SW8	260B		
File ID: <b>09121105.D</b>			Ba	tch ID: MS15W121	1 <b>M</b>	Analysis Dat	e: <b>12/11/2009 10:55</b>	;
Sample ID: LCS MS15W1211M	Units : µg/L	R		SD_15_091211B		Prep Date:	12/11/2009 10:55	j
Analyte	Result	PQL	SpkVal	SpkRefVal %REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
Dichlorodifluoromethane	8.37	1	10	84	70	130		
Chloromethane	7.63	2	10	76	70 70	130		
Vinyl chloride Chloroethane	8.58 9.93	1 1	10 10	86 99	70 70	130 130		
Bromomethane	11.7	2	10	117	70 70	130		
Trichlorofluoromethane	10.4	1	10	104	70	130		
1,1-Dichloroethene	11.4	1	10	114	70	130		
Dichloromethane	10.2	2	10	102	70 70	130		
trans-1,2-Dichloroethene Methyl tert-butyl ether (MTBE)	11.2 11	1 0.5	10 10	112 110	70 70	130 130		
1,1-Dichloroethane	10.8	1	10	108	70	130		
cis-1,2-Dichloroethene	11.2	1	10	112	70	130		
Bromochloromethane	11.1	1	10	111	70	130		
Chloroform	11.1	1	10	111	70 <b>7</b> 0	130		
2,2-Dichloropropane 1,2-Dichloroethane	12.2 10.6	1	10 10	122 106	70 70	130 130		
1,1,1-Trichloroethane	11.5	i	10	115	70	130		
1,1-Dichloropropene	11.4	1	10	114	70	130		
Carbon tetrachloride	11.8	1	10	118	70	130		
Benzene Dibromomethane	10.9 10.7	0.5 1	10 10	109 107	70 70	130 130		
1,2-Dichloropropane	10.7	1	10	111	70 70	130		
Trichloroethene	11.1	i	10	111	70	130		
Bromodichloromethane	11	1	10	110	70	130		
cis-1,3-Dichloropropene	10.9	1	10	109	70	130		
trans-1,3-Dichloropropene 1,1,2-Trichloroethane	9.75 10.1	1 1	10 10	98 101	70 70	130 130		
Toluene	10.7	0.5	10	107	70 70	130		
1,3-Dichloropropane	10.8	1	10	108	70	130		
Dibromochloromethane	10.1	1	10	101	70	130		
1,2-Dibromoethane (EDB)	21.6	2	20	108	70 70	130		
Tetrachloroethene 1,1,1,2-Tetrachloroethane	11.6 10.9	1 1	10 10	116 109	70 70	130 130		
Chlorobenzene	10.4	1	10	104	70	130		
Ethylbenzene	10.6	0.5	10	106	70	130		
m,p-Xylene	10.6	0.5	10	106	70	130		
Bromoform	9.04	1	10	90	70	130		
Styrene o-Xylene	11.5 10.8	1 0.5	10 10	115 108	70 70	130 130		
1,1,2,2-Tetrachloroethane	9.62	1	10	96	70	130		
1,2,3-Trichloropropane	19.7	2	20	99	70	130		
Isopropylbenzene	10.7	1	10	107	70	130		
Bromobenzene	10.3	1	10	103	70 70	130		
n-Propylbenzene 4-Chlorotoluene	10.7 10.8	1 1	10 10	107 108	70 70	130 130		
2-Chlorotoluene	10.6	i	10	106	70	130		
1,3,5-Trimethylbenzene	10.7	1	10	107	70	130		
tert-Butylbenzene	10.5	1	10	105	70	130		
1,2,4-Trimethylbenzene sec-Butylbenzene	10.7	1 1	10	107	70 70	130		
1,3-Dichlorobenzene	10.6 10.7	1	10 10	106 107	70 70	130 130		
1,4-Dichlorobenzene	9.96	i	10	99.6	70	130		
4-Isopropyltoluene	10.7	1	10	107	70	130		
1,2-Dichlorobenzene	10	1	10	100	70	130		
n-Butylbenzene 1,2-Dibromo-3-chloropropane (DBCP)	11.4 49.1	1 3	10 50	114 98	70 70	130 130		
1,2,4-Trichlorobenzene	49.1 10.6	2	50 10	98 106	70 70	130		
Naphthalene	10	2	10	100	70	130		
Hexachlorobutadiene	21.3	2	20	106	70	130		
1,2,3-Trichlorobenzene Surr: 1,2-Dichloroethane-d4	10.4	2	10	104	70 70	130		
Surr: Toluene-d8	9.99 9.97		10 10	99.9 99.7	70 70	130 130		
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Work Order: Date: **QC Summary Report** 24-Dec-09 Sample Matrix Spike Type MS Test Code: EPA Method SW8260B File ID: 09121109.D Batch ID: MS15W1211M Analysis Date: 12/11/2009 12:24 Sample ID: 09121005-03AMS Units: µg/L Run ID: MSD 15 091211B Prep Date: 12/11/2009 12:24 Analyte Result **PQL** SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Dichlorodifluoromethane 41.1 2.5 Chloromethane 38.5 Vinyl chloride 42.5 2.5 Chloroethane 44.1 2.5 **Bromomethane** 49.4 Trichlorofluoromethane 2.5 46.5 1,1-Dichloroethene 52.6 2.5 Dichloromethane 48.5 trans-1,2-Dichloroethene 2.5 Methyl tert-butyl ether (MTBE) 1.3 1.1-Dichloroethane 50.2 2.5 cis-1,2-Dichloroethene 52.9 2.5 Bromochloromethane 51.6 2.5 Chloroform 53.1 2.5 1.44 2,2-Dichloropropane 2.5 1,2-Dichloroethane 50.4 2.5 1,1,1-Trichloroethane 52.9 2.5 1,1-Dichloropropene 52.7 2.5 Carbon tetrachloride 2.5 4.73 Benzene 50.7 1.3 Dibromomethane 49.7 2.5 1,2-Dichloropropane 52.3 2.5 Trichloroethene 2.5 51.3 0.55 Bromodichloromethane 51.3 2.5 cis-1,3-Dichloropropene 49.1 2.5 trans-1,3-Dichloropropene 45.2 2.5 1,1,2-Trichloroethane Toluene 1.3 1,3-Dichloropropane 49.5 2.5 Dibromochloromethane 46.3 2.5 1.2-Dibromoethane (EDB) Tetrachloroethene 52.1 2.5 1,1,1,2-Tetrachloroethane 49.8 2.5 99.7 Chlorobenzene 2.5 47.7 Ethylbenzene 48.1 1.3 m,p-Xylene 47.9 1.3 Bromoform 40.6 2.5 Styrene 51.7 2.5 o-Xvlene 48.4 1.3 1,1,2,2-Tetrachloroethane 44.5 2.5 1,2,3-Trichloropropane 91.6 Isopropylbenzene 2.5 48.7 Bromobenzene 47.9 2.5 n-Propylbenzene 48.6 2.5 4-Chlorotoluene 49.4 2.5 2-Chlorotoluene 48.7 2.5 1.3.5-Trimethylbenzene 48.6 2.5 tert-Butylbenzene 46.9 2.5 1,2,4-Trimethylbenzene 48.3 2.5 sec-Butvlbenzene 47.5 2.5 1,3-Dichlorobenzene 48.4 2.5 1,4-Dichlorobenzene 2.5 4-Isopropyltoluene 48.1 2.5 1,2-Dichlorobenzene 45.7 2.5 n-Butylbenzene 50.2 2.5 1,2-Dibromo-3-chloropropane (DBCP) 1,2,4-Trichlorobenzene 47.5 Naphthalene 44.4 Hexachlorobutadiene 89.2 1,2,3-Trichlorobenzene 44.5 Surr: 1,2-Dichloroethane-d4 49.4 Surr: Toluene-d8 48.8 Surr: 4-Bromofluorobenzene 48.5 



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Work Order: 09121005 Date: QC Summary Report 24-Dec-09 Type MSD Sample Matrix Spike Duplicate Test Code: EPA Method SW8260B

File ID: 09121110.D		Type Mi		atch ID: MS1				rsis Date	12/11/2009 12:46	
Sample ID: 09121005-03AMSD	Units : µg/L			SD_15_091			•		12/11/2009 12:46	
Analyte	Result	PQL				LCL(ME)	•		al %RPD(Limit)	Qual
Dichlorodifluoromethane				<u> </u>		<del></del>	<del></del>			- Quai
Chloromethane	45.1 40.5	2.5 10	50 50	0	90 81	13 28	167 145	41.11 38.45	9.2(20) 5.2(20)	
Vinyl chloride	44.3	2.5	50	0	89	43	134	42.49	4.3(20)	
Chloroethane	47.7	2.5	50	0	95	39	154	44.06	7.8(20)	
Bromomethane	55.9	10	50	0	112	19	176	49.4	12.4(20)	
Trichlorofluoromethane	51.3	2.5	50	0	103	34	160	46.52	9.8(20)	
1,1-Dichloroethene	53.6	2.5	50	0	107	60	130	52.6	1.9(20)	
Dichloromethane	48.6	10	50	ő	97	68	130	48.53	0.1(20)	
trans-1,2-Dichloroethene	53.4	2.5	50	0	107	63	130	51.98	2.7(20)	
Methyl tert-butyl ether (MTBE)	51.5	1.3	50	0	103	56	141	51.95	0.9(20)	
1,1-Dichloroethane	51.4	2.5	50	0	103	61	130	50.18	2.4(20)	
cis-1,2-Dichloroethene	53.7	2.5	50	0	107	70	130	52.86	1.5(20)	
Bromochloromethane	51.8	2.5	50	0	104	70	130	51.6	0.5(20)	
Chloroform	53.9	2.5	50	1.44	105	67	130	53.05	1.6(20)	
2,2-Dichloropropane	57.4	2.5	50	0	115	30	152	55.96	2.5(20)	
1,2-Dichloroethane	50.1	2.5	50	0	100	60	135	50.38	0.5(20)	
1,1,1-Trichloroethane	54.1	2.5	50	0	108	59	137	52.88	2.2(20)	
1,1-Dichloropropene	53	2.5	50	0	106	63	130	52.66	0.7(20)	
Carbon tetrachloride	61.3	2.5	50	4.73	113	50	147	59.04	3.8(20)	
Benzene Dibromomethane	51.5	1.3	50	0	103	67	130	50.71	1.5(20)	
1,2-Dichloropropane	49.7 53	2.5	50	0	99	69 60	133	49.73	0.2(20)	
Trichloroethene	53 51.7	2.5 2.5	50 50	0 0.55	106 102	69 69	130 130	52.26 51.28	1.4(20) 0.8(20)	
Bromodichloromethane	51.7	2.5 2.5	50 50	0.55	102	66	134	51.26	3.3(20)	
cis-1,3-Dichloropropene	50	2.5	50	0	99.9	63	130	49.11	1.7(20)	
trans-1,3-Dichloropropene	45.3	2.5	50	0	91	66	131	45.19	0.2(20)	
1,1,2-Trichloroethane	47.6	2.5	50	0	95	68	130	47.95	0.7(20)	
Toluene	48.5	1.3	50	ő	97	66	130	48.04	1.0(20)	
1,3-Dichloropropane	49.4	2.5	50	ő	99	70	130	49.49	0.3(20)	
Dibromochloromethane	46	2.5	50	ő	92	70	130	46.32	0.7(20)	
1,2-Dibromoethane (EDB)	99.2	5	100	Ō	99	70	130	98.02	1.2(20)	
Tetrachloroethene	53	2.5	50	0	106	61	134	52.06	1.8(20)	
1,1,1,2-Tetrachloroethane	51	2.5	50	0	102	70	130	49.84	2.3(20)	
Chlorobenzene	49.1	2.5	50	0	98	70	130	47.68	2.9(20)	
Ethylbenzene	49.5	1.3	50	0	99	68	130	48.12	2.8(20)	
m,p-Xylene	49.4	1.3	50	0	99	64	130	47.91	3.1(20)	
Bromoform	41.7	2.5	50	0	83	64	138	40.62	2.7(20)	
Styrene	52.7	2.5	50	0	105	69	130	51.7	1.8(20)	
o-Xylene	50.4	1.3	50	0	101	70	130	48.38	4.1(20)	
1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane	43.9	2.5	50	0	88	65 70	131	44.52	1.3(20)	
Isopropylbenzene	91.4	10	100	0	91	70	130	91.56	0.2(20)	
Bromobenzene	51.9 50.1	2.5 2.5	50	0	104 100	64	138 130	48.7 47.89	6.4(20) 4.5(20)	
n-Propylbenzene	51.3	2.5	50 50	0	103	70 66	132	48.57	5.5(20)	
4-Chlorotoluene	51.8	2.5	50	0	103	70	130	49.42	4.7(20)	
2-Chlorotoluene	50.7	2.5	50	0	101	70	130	48.74	4.0(20)	
1,3,5-Trimethylbenzene	50.8	2.5	50	ő	102	66	136	48.61	4.5(20)	
tert-Butylbenzene	49.1	2.5	50	Ö	98	65	137	46.91	4.6(20)	
1,2,4-Trimethylbenzene	50.8	2.5	50	Ō	102	65	137	48.26	5.1(20)	
sec-Butylbenzene	50.2	2.5	50	0	100	66	134	47.53	5.5(20)	
1,3-Dichlorobenzene	50.3	2.5	50	0	101	70	130	48.43	3.9(20)	
1,4-Dichlorobenzene	47.2	2.5	50	0	94	70	130	45	4.8(20)	
4-Isopropyltoluene	50.5	2.5	50	0	101	66	137	48.13	4.9(20)	
1,2-Dichlorobenzene	47.5	2.5	50	0	95	70	130	45.74	3.8(20)	
n-Butylbenzene	52.1	2.5	50	0	104	60	142	50.17	3.7(20)	
1,2-Dibromo-3-chloropropane (DBCP)	228	15	250	0	91	67	130	220.2	3.5(20)	
1,2,4-Trichlorobenzene	49.7	10	50	0	99	61	137	47.53	4.5(20)	
Naphthalene	47.3	10	50	0	95	40	167	44.43	6.2(20)	
Hexachlorobutadiene 1,2,3-Trichlorobenzene	94.8	10	100	0	95	61	130	89.16	6.1(20)	
Surr: 1,2-Dichloroethane-d4	47.6 40.7	10	50 50	0	95	51	144	44.51	6.7(20)	
Surr: Toluene-d8	49.7 48.2		50 50		99 96	70 70	130 130			
Surr: 4-Bromofluorobenzene	46.2 49.1		50 50		96 98	70 70	130			
·			50		00	, 0	100			



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Date:	QC Summary Report	Work Order:
24-Dec-09	QC Builling Report	09121005

### **Comments:**

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

### Billing Information:

# CHAIN-OF-CUSTODY RECORD

### Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 TEL: (775) 355-1044 FAX: (775) 355-0406

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Page: 1 of 1

WorkOrder: BMIS09121005

Report Due By: 5:00 PM On: 24-Dec-2009

Report Attention Shane Walton Phone Number (818) 393-2808 x (614) 424-4899 (614) 424-4117 x connerd@battelle.org waltons@battelle.org EMail Address

PO: 218013

San Diego, CA 92110

Battelle Memorial Institute

3990 Old Town Ave Suite C-205

Client's COC #: 26623

Job: G005862/JPL Groundwater Monitoring

Sampled by: Client

EDD Required: Yes

cutiee@batelle.org

Cooler Temp

Samples Received 10-Dec-2009

10-Dec-2009 Date Printed

Sample ID QC Level: DS4 BMI09121005-07A TB-14-12/09/09 BMI09121005-06A BMI09121005-05A MW-18-1 BMI09121005-04A MW-18-2 BMI09121005-03A MW-18-3 BMI09121005-02A MW-18-4 BMI09121005-01A MW-18-5 EB-14-12/09/09 Sample ID Client = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates ð å Ã å Matrix Date å ğ Š 12/09/09 00:00 12/09/09 11:18 12/09/09 10:22 12/09/09 09:22 Collection 12/09/09 11:07 12/09/09 10:50 12/09/09 08:53 No. of Bottles Alpha S G S 6 S Ç Sub 0 0 0 0 0 0 0 TAT 5 6 6 ರ 5 5 ರ Perchlorate Perchlorate Perchlorate Perchlorate Perchiorate Perchlorate 314\_W METALS\_D VOC\_TIC\_ Ç Ç Ü Ç Ç Ç VOC by 524 VOC by 524 Criteria Criteria VOC\_W Requested Tests Reno Trip Blank 8/25/09 Sample Remarks Level IV QC MS/MSD

Comments: No security seals. Frozen ice. Temp Blank #7848 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).

Logged in by:	THE CALL AND THE C
Clapkth	
Idox	Signature
Elizabeth F	Print Name
COX Alpha Analytical, Inc. [2-10-07]	Company
12-10-07 1144	Date/Time

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

*Key: AQ - Aqueous SO - Soil	Received by	Relinquished by	Received by	Relinquished by	Received by Change	Relinquished by	Signature		ADDITIONAL INSTRUCTIONS:			170/04	Theolia M	11074474011	. «	11/8	0201	120	9922	1912 May 10 3M 10912	Sampled Sampled Below Lab ID Number	Time Date Matrix* Sampled by	Shato Elo CA	SON OLD DWN +	OD and STELLINGS	City, State, Zip CRUMISUS  Phone NumberF	Address 3 505 KING	::
WA - Waste					edar	P			NS:			10/0	Ť	.0.				_	.02 M	1005-01	oer (Use Only)	Repo	92110 Ph	AVE, C-205 EM	CONSER PO.#	Fax	of BATTEH	
OT - Other /					Elizabeth	CHASE BA	Print			The state of the s		13-17 -12/	Ĭ	8-14 -12		NW-18-1	MW-18-2	MW-18-3	H-81-WM	18-5 MW-18-5	Sample Description	Report Attention	Phone (6/9) 72	EMail Address	# 218013			
AR - Air **: L-Liter					Hdeox	Marson	Print Name		:			10110	20/20	109 109							cription		6-73// Fa			Fax (775) 355-0406	255 Glenda Sparks, Nev	- Alpha A
iter V-Voa												4								MADIN	TAT Field Filtered		Fax#		500 # dot	55-0406	255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778	nalvtical. Ir
S-Soil Jar						Tasua						,	17/	7		1/0 2/2 2/4/2	7	10000	4/05		containers  ** See below	Total and type of			7888		21 9	J
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of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis



### CAS SR #P0903920

### **Table of Contents**

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### LABORATORY REPORT

November 17, 2009

Columbia

Analytical Services

David Conner Battelle 3990 Old Town Ave., Suite C-205 San Diego, CA 92110

RE: JPL GW Mon 4Q09 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on November 13, 2009. For your reference, these analyses have been assigned our service request number P0903920.

All analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 26 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-09-TX; Minnesota Department of Health, Certificate No. 11495AA. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Erderk

Respectfully submitted,

Columbia Analytical Services, Inc.

Sue Anderson Project Manager

Page 1 of <u>26</u>



2855 Park Center Drive, Suite A

Simi Valley, CA 93065

805 526 7161

BDS 526 7270 Ray

www.caslab.com

Client:

Battelle

CAS Project No:

P0903920

Project:

JPL GW Mon 4Q09 / G486090

### **CASE NARRATIVE**

The samples were received intact under chain of custody on November 13, 2009 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Cheromium by EPA 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client:

Battelle

Project:

JPL GW Mon 4Q09/G486090

Service Request: P0903920

### SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	<u>DATE</u>	<u>TIME</u>
P0903920-001	MW-21-5	11/13/09	08:26
P0903920-002	MW-21-4	11/13/09	08:54
P0903920-003	MW-21-3	11/13/09	09:21
P0903920-004	MW-21-2	11/13/09	09:47
P0903920-005	MW-21-1	11/13/09	10:33
P0903920-006	EB-01-11/13/09	11/13/09	10:21

### Columbia Analytical Services, Inc.

### Acronyms

CA LUFT California DHS LUFT Method

ASTM American Society for Testing and Materials
BTEX Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number Chemical Abstract Service Registry Number

CFC Chlorofluorocarbon

CRDL Contract Required Detection Limit
DLCS Duplicate Laboratory Control Sample

DMS Duplicate Matrix Spike
DOH or DHS Department of Health Services
EPA U.S. Environmental Protection Agency

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

ICIon ChromatographyICBInitial Calibration BlankICVInitial Calibration VerificationLCSLaboratory Control SampleLUFTLeaking Underground Fuel Tank

M Modified MethodMDL Method Detection LimitMRL Method Reporting Limit

MS Matrix Spike

MTBE Methyl tert - Butyl Ether
NA Not Applicable

NC Not Applicable
NC Not Calculated

ND None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)

NTU Nephelometric Turbidity Units

ppb Parts Per Billionppm Parts Per Million

PQL Practical Quantitation Limit
QA/QC Quality Assurance/Quality Control
RCRA Resource Conservation and Recovery Act

RPD Relative Percent Difference SIM Selected Ion Monitoring

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.
SW Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846,

Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.

TDS Total Dissolved Solids
TPH Total Petroleum Hydrocarbons
TSS Total Suspended Solids

TTLC Total Threshold Limit Concentration

VOA Volatile Organic Analyte(s)
VOC Volatile Organic Compound(s)

### Qualifiers

U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

J The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.

B Analyte detected in the method blank above MRL (PQL).

E Estimated; result based on response which exceeded the instrument calibration range.

N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.

**D** The reported result is from a dilution.

X See case narrative.

### Page 1 of 1

# Water & Soil - Chain of Custody Record & Analytical Service Request

Columbia
Analytical
Services Mc
An Emptoyee - Owned Company

2655 Park Center Drive, Suite A Simi Valley, California 93065 Phone (805) 526-7161 Fax (805) 526-7270

An Employee - Owned Company Pho	Phone (805) 526-7161 Fax (805) 526-7270	ш	Requested T Day (100%)	urnaround T 2 Day (75%	Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day	<b>s Days (Surc</b> 4 Day (35%)	harges) please 5 Day (25%) 1	narges) please circle 5 Day (25%) 10 Day - Standard	CAS Project No	oject No.	3
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Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)	Signature)			<b>.</b>	Tomorature		Ç

# Columbia Analytical Services, Inc. Chain of Custody Report

Client: Project: Battelle

JPL GW Mon 4Q09/G486090

Service Request: P0903920

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P0903920-001.01					
	7196A				
		11/13/09	1305	SMO / MZAMORA	
		11/13/09 11/13/09	1305	P-37 / MZAMORA In Lab / SANDERSON	
		11/16/09	1344 0825	P-37 / SANDERSON	
		11/10/09	0023	1-3// SANDERSON	
P0903920-002.01					
	7196A	11/12/00	1205	CMO / MZ A MOD A	
		11/13/09	1305	SMO / MZAMORA	
		11/13/09	1305	P-37 / MZAMORA	
		11/13/09	1344	In Lab / SANDERSON	
		11/16/09	0825	P-37 / SANDERSON	
P0903920-003.01					
	7196A	11/10/00	1005	0.40 / 3.47 / 3.40 %	
		11/13/09	1305	SMO / MZAMORA	
		11/13/09	1305	P-37 / MZAMORA	
		11/13/09	1344	In Lab / SANDERSON	
		11/16/09	0825	P-37 / SANDERSON	
P0903920-004.01					
	7196A				
		11/13/09	1305	SMO / MZAMORA	
		11/13/09	1305	P-37 / MZAMORA	
		11/13/09	1344	In Lab / SANDERSON	
		11/16/09	0825	P-37 / SANDERSON	
P0903920-005.01					
	7196A				
		11/13/09	1305	SMO / MZAMORA	
		11/13/09	1305	P-37 / MZAMORA	
		11/13/09	1344	In Lab / SANDERSON	
		11/16/09	0825	P-37 / SANDERSON	
P0903920-005.02					
		11/13/09	1305	SMO / MZAMORA	
		11/13/09	1305	P-37 / MZAMORA	
		11/13/09	1344	In Lab / SANDERSON	
		11/16/09	0825	P-37 / SANDERSON	
P0903920-006.01					<del>y</del>
. 0703720-000.01	7196A				
		11/13/09	1305	SMO / MZAMORA	
		11/13/09	1305	P-37 / MZAMORA	
		11/13/09	1344	In Lab / SANDERSON	
		11/16/09	0825	P-37 / SANDERSON	

### Columbia Analytical Services, Inc. Sample Acceptance Check Form

	Battelle					Work order:	P0903920	TO MAKE THE OWN TO SHAPE A SHIP OF THE OWN TO SHIP		gagneratura programa y y y sagrafigação en esp
		4Q09 / G486090							A	
Sample(s	s) received on:	11/13/09			Date opened:	11/13/09	_ by:	MZAN	10RA	• · • • • • • • • • • • • • • • • • • •
		samples received by CAS							indicatio:	n of
compliance	or nonconformity.	Thermal preservation and	pH will only be	evaluated either a	t the request of the	he client and/or as re	quired by the meth		No	N/A
1	Word sample	containers properly n	oarked with el	iont cample IP	<b>1</b> 9			<u>Yes</u>	$\frac{N_0}{\Box}$	
1	-		iaikeu wiiii ci	ient sample il	, ,			$\overline{\mathbf{X}}$		
2	` `	upplied by CAS?	1 1'4' 0							
3	_	ontainers arrive in go	od condition?					$\times$		
4		of-custody provided?						$\times$		
5	Was the chair	-of-custody properly	completed?				•	$\times$		
6	Did sample co	ontainer labels and/or	tags agree wi	th custody par	ers?			$\boxtimes$		
7	Was sample v	olume received adequ	iate for analys	is?				$\times$		
8	Are samples w	rithin specified holdin	g times?					$\times$		
9	Was proper te	mperature (thermal 1	oreservation) o	f cooler at rec	eipt adhered	to?		$\times$		
	С	ooler Temperature	3	°C Blank	Геmperature		°C			
10	Was a trip bla	<del>-</del>			-		<del></del>			$[\times]$
	-	upplied by CAS:								
11	•	seals on outside of co	oler/Box?				-		$\times$	
	Location of						Sealing Lid?			$[\times]$
		are and date included?	)	······································			_ = = = = = = = = = = = = = = = = = = =			×
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	Were seals i				1/502					$\boxtimes$
12		have appropriate pre	•	-		dient specified in	formation?	X		
		nt indication that the s	_		reserved?					$\times$
	Were <u>VOA v</u>	ials checked for prese	nce/absence of	f air bubbles?						$[\times]$
	Does the clien	nt/method/SOP require	e that the analy	st check the s	ample pH and	d if necessary al	ter it?			$\times$
13	Tubes:	Are the tubes cap	ped and intact	?						$\times$
		Do they contain n	noisture?							$[\times]$
14	Badges:	Are the badges p		l and intact?						$[\times]$
, ,		Are dual bed badg			v capped and	Lintact?				$\boxtimes$
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Labe	Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)		i / Pres Iommer	ervatioi its	1
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20903920	-005.02	125mL Plastic NP								
Explain ar	ny discrepancies	: (include lab sample ID	numbers):		······································				Orden er	

<sup>\*</sup>Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

		Columb Sampl	oia Analytica le Acceptance	al Services, l Check Form	ı		
Client: Battelle				-	Work order:	P0903920	
Project: JPL GW Mon	4Q09 / G486090		<del></del>				
Sample(s) received on:	: 11/13/09			Date opened:	11/13/09	by:	MZAMORA
I.I.C. J.ID	Container	ъ	ъ т		VOLUE I	n	/b
Lab Sample ID	Description Description	Required pH *	Received	Adjusted	VOA Headspace (Presence/Absence)	Rece	pt / Preservation Comments
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P0903920-006.01	125mL Plastic NP						
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Explain any discrepancies: (include lab sample ID numbers):

# **DIVIDER SHEET**

# ANALYTICAL DATA FOR

**Hexavalent Chromium** 

**ANALYSIS** 

### Analytical Report

Client: Battelle

Project Name: JPL GW Mon 4Q09

Project Number: G486090 Sample Matrix: WATER Service Request: P0903920 Date Collected: 11/13/09

Date Received: 11/13/09

Chromium, Hexavalent

Prep Method: None Units: mg/L (ppm)

Analysis Method: 7196A Basis: NA

Test Notes:

				Dilution	Date	Date/Time		Result
Sample Name	Lab Code	PQL	MDL	Factor	Extracted	Analyzed	Result	Notes
MW-21-5	P0903920-001	0.010	0.003	1	NA	11/13/09 15:00	ND	
MW-21-4	P0903920-002	0.010	0.003	1	NA	11/13/09 15:00	ND	
MW-21-3	P0903920-003	0.010	0.003	1	NA	11/13/09 15:00	ND	
MW-21-2	P0903920-004	0.010	0.003	1	NA	11/13/09 15:00	ND	
MW-21-1	P0903920-005	0.010	0.003	1	NA	11/13/09 15:00	ND	
EB-01-11/13/09	P0903920-006	0.010	0.003	1	NA	11/13/09 15:00	ND	
Method Blank	P0903920-MB	0.010	0.003	1	NA	11/13/09 15:00	ND	

Approved By Kau Rya Date: 11/16/09 10

Report By:SAnderson

QA/QC Report

Client:

Battelle

Service Request: P0903920

Project:

JPL GW Mon 4Q09 / G486090

Date Analyzed: 11/13/09

Title:

Initial and Continuing Calibration Blank (ICB and CCB) Summary

Analyte:

Chromium, Hexavalent

Method:

7196A

Units:

mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By:

ICCBMDL/120594

Date:

Karen Rya

QA/QC Report

Client:

Battelle

**Project:** JPL GW Mon 4Q09 / G486090

Service Request: P0903920

Date Analyzed: 11/13/09

Title:

Initial and Continuing Calibration Verification (ICV and CCV) Summary

Karen Rya

Analyte:

Chromium, Hexavalent

Method:

7196A

Units:

mg/L (ppm)

Sample Name	Truc Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0579	0.0559	97	90-110
CCVI	0.0579	0.0559	97	90-110
CCV2	0.0579	0.0559	97	90-110

Approved By:

CCV1A/120594

Date: 11/16/09

QA/QC Report

Client: Battelle

JPL GW Mon 4Q09

Service Request: P0903920

Project Name: JPL GW 1
Project Number: G486090
Sample Matrix: WATER

Date Collected: NA
Date Received: NA

Date Extracted: NA

Date Analyzed: 11/13/09

Laboratory Control Sample Summary

Inorganic Parameters

Sample Name: Laboratory Control Sample

Units: mg/L (ppm)

Lab Code: P0903920-LCS

Basis: NA

Test Notes:

						CAS	
						Percent	
						Recovery	
Analyte	Prep Method	Analysis Method	True Value	Result		Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0415	104	86-114	

Approved By Kau Pya Date: 11/14/09 13

Report By:SAnderson

COMUNDIA ANAMI IICAM BERTICES, MC.

QA/QC Report

Client: Battelle

Project Name: JPL GW Mon 4Q09

Project Number: G486090 Sample Matrix: WATER Service Request: P0903920
Date Collected: 11/13/09

Date Received: 11/13/09
Date Extracted: NA

Date Analyzed: 11/13/09

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name: Lab Code: MW-21-1

P0903920-005MS

P0903920-005DMS

Units: mg/L (ppm)

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	PQL	Spike MS	Level DMS	Sample Result	Spike MS		Rec	oike overy DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0477	0.0477	95	95	80-120	<1	

Approved By Kall Rya Date: 11/16/09 14



### CAS SR #P0903941

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Hexavalent Chromium Raw Data	14-26



### LABORATORY REPORT

November 17, 2009

David Conner Battelle 3990 Old Town Ave., Suite C-205 San Diego, CA 92110

RE: JPL GW Mon 4Q09 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on November 16, 2009. For your reference, these analyses have been assigned our service request number P0903941.

All analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 26 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-09-TX; Minnesota Department of Health, Certificate No. 11495AA. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted.

Columbia Analytical Services, Inc.

re Julestr\_

Sue Anderson Project Manager



2656 Park Center Drive, Suite A

Simi Valley CA 90066

805 528 7481

BOA KOK HOTHER

www.caslah.com

Client: Project:

Battelle

JPL GW Mon 4Q09 / G486090

CAS Project No:

P0903941

### **CASE NARRATIVE**

The samples were received intact under chain of custody on November 16, 2009 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Cheromium by EPA 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle Service Request: P0903941

Project: JPL GW Mon 4Q09/G486090

### SAMPLE CROSS-REFERENCE

SAMPLE#	<u>CLIENT SAMPLE ID</u>	DATE	TIME
P0903941-001	MW-19-5	11/16/09	09:00
P0903941-002	MW-19-4	11/16/09	09:24
P0903941-003	MW-19-3	11/16/09	10:01
P0903941-004	MW-19-2	11/16/09	10:24
P0903941-005	MW-19-1	11/16/09	10:48
P0903941-006	EB-02-11/16/09	11/16/09	10:40

### Columbia Analytical Services, Inc.

### Acronyms

CA LUFT California DHS LUFT Method

ASTM American Society for Testing and Materials
BTEX Benzenc/Toluene/Ethylbenzene/Xylenes
CAS Number Chemical Abstract Service Registry Number

CFC Chlorofluorocarbon

CRDL Contract Required Detection Limit
DLCS Duplicate Laboratory Control Sample

DMS Duplicate Matrix Spike
DOH or DHS Department of Health Services
EPA U.S. Environmental Protection Agency

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

IClon ChromatographyICBInitial Calibration BlankICVInitial Calibration VerificationLCSLaboratory Control SampleLUFTLeaking Underground Fuel Tank

MModified MethodMDLMethod Detection LimitMRLMethod Reporting Limit

MS Matrix Spike

MTBE Methyl tert - Butyl Ether

NA Not Applicable NC Not Calculated

ND None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)

NTU Nephelometric Turbidity Units

ppb Parts Per Billionppm Parts Per Million

PQL Practical Quantitation Limit
QA/QC Quality Assurance/Quality Control
RCRA Resource Conservation and Recovery Act

RPD Relative Percent Difference
SIM Selected Ion Monitoring

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.
 SW Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846,

Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.

TDS Total Dissolved Solids
TPH Total Petroleum Hydrocarbons
TSS Total Suspended Solids

TTLC Total Threshold Limit Concentration

VOA Volatile Organic Analyte(s)
VOC Volatile Organic Compound(s)

### **Qualifiers**

U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

J The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.

B Analyte detected in the method blank above MRL (PQL).

E Estimated; result based on response which exceeded the instrument calibration range.

N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.

D The reported result is from a dilution.

X See case narrative.

# Water & Soil - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A

Columbia

Simi Valley, California 93065 Phone (805) 526-7161 Fax (805) 526-7270

CAS Project No.	
Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard	

Zn Acetate TO Earphon Block Asc Acid Project Requirements (MRLs, QAPP) Preservative Key H2S04 NaOH HN03 Other HCL Remarks Cooler / Blank / Ice / No Ice Temperature 3 C 0 -က 4 4 6 5 CAS Contact: PATE LEGISTITISTES OF EDD required Yes / No Type: Analysis Method and/or Analytes Preservative Code MRL required Yes / No MDL / PQL / J required Yes / No Semi-Volatile Organics GC/MS S25 (3 8270C (Subcontracted) TPH FC 🗆 8015M (Subcontracted) TPH Diesel 8015B 🖂 (Subconfracted) TPH Gas 8015B [] BTEX 8021B [] M Volatile Organics GC/MS 624 ☐ 82608 ☐ Oxygenates ☐ Number of Containers Project Number Tier III - (Data Validation Package) 10% Surcharge The Genne Tamp SOS KING. AVE C-486090 P.O. # / Billing Information 2439 (BATELL Matrix 20 HAMBUS Project Name Sampler (Print & Sign) Date Time Collected Tier V - (client specified) 0060 1048 1014 4760 1001 10/03 3990 OLD TOWN AVE, C-205 Company Name & Address (Reporting Information) Laboratory ID Number (2) (4) SAN DIEGO CA 92110 MART Email Address for Result Reporting Fier 1 - (Results/Default if not specified) B Report Tier Levels - please select 19, 726-731, BATTELLE Tier II - (Results + QC) 11-70-83 Project Manager MW-19-5 5-61-MA MW-19-7 Client Sample ID 4-61-MH MW-19-Phone

# Columbia Analytical Services, Inc. Chain of Custody Report

Client:

Battelle

Project: JPL GW Mon 4Q09/G486090

Service Request: P0903941

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P0903941-001.01					
	7196A				
		11/16/09	1503	SMO / MZAMORA	
		11/16/09	1503	P-37 / MZAMORA	
		11/16/09	1540	In Lab / SANDERSON	
		11/16/09	1725	P-37 / SANDERSON	
P0903941-002.01					
	7196A				
		11/16/09	1503	SMO / MZAMORA	
		11/16/09	1503	P-37 / MZAMORA	
		11/16/09	1540	In Lab / SANDERSON	
		11/16/09	1725	P-37 / SANDERSON	
P0903941-003.01					7.00
	7196Λ				
		11/16/09	1503	SMO/MZAMORA	
		11/16/09	1503	P-37 / MZAMORA	
		11/16/09	1540	In Lab / SANDERSON	
% in the second		11/16/09	1725	P-37 / SANDERSON	
P0903941-004.01					
	7196A				
		11/16/09	1503	SMO / MZAMORA	
		11/16/09	1503	P-37 / MZAMORA	
		11/16/09	1540	In Lab / SANDERSON	
		11/16/09	1725	P-37 / SANDERSON	
P0903941-005.01					
	7196A				
		11/16/09	1503	SMO / MZAMORA	
		11/16/09	1503	P-37 / MZAMORA	
		11/16/09	1540	In Lab / SANDERSON	
		11/16/09	1725	P-37 / SANDERSON	
P0903941-006.01					
	7196A				
		11/16/09	1503	SMO / MZAMORA	
		11/16/09	1503	P-37 / MZAMORA	
		11/16/09	1540	In Lab / SANDERSON	
		11/16/09	1725	P-37 / SANDERSON	

# Columbia Analytical Services, Inc. Sample Acceptance Check Form

Client	: Battelle		Sampl	e Acceptance	Check Form		D0002041			
		n 4Q09 / G486090	4-41-41	· · · · · · · · · · · · · · · · · · ·	-	Work order:	P0903941			
	e(s) received on				Date opened:	11/16/09	by:	MZAN	10RA	
<u>Note:</u> Thi	s form is used for a	ll samples received by CA	S. The use of this:					not as an	indicatio	n of
complianc	e or nonconformity	. Thermal preservation an	d pH will only be	evaluated either a	t the request of the	ne client and/or as re	quired by the meth	iod/SOP,		
1								<u>Yes</u>	No	N/A
1		containers properly	marked with cli	ient sample IE	<b>)</b> ?			$[\times]$		
2		supplied by CAS?						$\times$		
3		containers arrive in go						$\times$		
4		of-custody provided?						$[\overline{\times}]$		
5		n-of-custody properly	-					$\times$		
6		container labels and/o		2 1 1	pers?			$\times$		
7		volume received adeq	· •	is?				$[\overline{\times}]$		
8		within specified holding	<u> </u>					$[\times]$		
9		emperature (thermal						$\times$		
		Cooler Temperature		°C Blank	remperature .	3	_ °C			
1()	•	ank received?								$[\times]$
	-	supplied by CAS:					<del>-</del>			
11		y seals on outside of c	ooler/Box?						$\times$	
	Location of	• /					_Sealing Lid?			$[\times]$
		ure and date included	?							$[\times]$
	Were seals i									$[\times]$
		seals on outside of sa	mple container	·?					$\times$	
	Location of	` '		***			_Sealing Lid?			$\times$
		ure and date included	?							$\times$
	Were seals i									$[\overline{\times}]$
12		have appropriate pro				lient specified in	.formation?	$\times$		
		ent indication that the			reserved?					$[\times]$
		<u>rials</u> checked for preso								$\times$
	Does the clien	nt/method/SOP requir	e that the analy	st check the s	ample pH and	if necessary all	ter it?			$\times$
13	Tubes:	Are the tubes cap	ped and intact?	?						$\times$
		Do they contain r	noisture?							$[\times]$
14	Badges:	Are the badges p	properly capped	l and intact?						$[\times]$
		Are dual bed bad	ges separated a	nd individuall	y capped and	intact?				$\overline{\times}$
Lab	Sample ID	Container	Required	Received	Adjusted	VOA Headspace	Recein	t / Presc	rvation	
		Description	pH *	pН	рН	(Presence/Absence)		Commen		
P()9()394	i-()()1.()1	125mL Plastic NP						***************************************		
	1-002.01	125mL Plastic NP								
	1-003.01	125mL Plastie NP								
	1-()()4.()1	125mL Plastic NP							~~~	
090394 2090394		125mL Plastic NP 125mL Plastic NP							-	~~
Explain a	my discrepancies	: (include lab sample ID	numbers):					Contraction of the Contraction o		
		•	<i>′</i> –							

# **DIVIDER SHEET**

# ANALYTICAL DATA FOR

**Hexavalent Chromium** 

**ANALYSIS** 

### Analytical Report

Client:

Battelle

Project Name:

JPL GW Mon 4Q09

Project Number: G486090

Sample Matrix:

WATER

Service Request: P0903941

Date Collected: 11/16/09

Date Received: 11/16/09

Chromium, Hexavalent

Prep Method:

None

Analysis Method: 7196A

Test Notes:

Units: mg/L (ppm)

Basis: NA

Dilution Date Date/Time Result Sample Name Lab Code PQL MDL Factor Extracted Analyzed Result Notes MW-19-5 P0903941-001 0.010 0.003 NA 11/16/09 16:50 ND MW-19-4P0903941-002 0.010 0.003 1 NA 11/16/09 16:50 ND MW-19-3 P0903941-003 0.010 0.003 NA 11/16/09 16:50 ND MW-19-2 P0903941-004 0.010 0.003 NA 11/16/09 16:50 ND MW-19-1 P0903941-005 0.010 0.003 1 NA 11/16/09 16:50 ND EB-02-11/16/09 P0903941-006 0.010 0.003 11/16/09 16:50 1 NA ND Method Blank P0903941-MB 0.010 0.003 NΑ 11/16/09 16:50 ND

Haru Rya Approved By

QA/QC Report

Client: Project:

Battelle

JPL GW Mon 4Q09 / G486090

Service Request: P0903941

Date Analyzed: 11/16/09

Title:

Initial and Continuing Calibration Blank (ICB and CCB) Summary

Analyte:

Chromium, Hexavalent

Method:

7196A

Units:

mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

approved By: KAUL	Rya	Date:	11/17/0
CBMDL-120594			

QA/QC Report

Client:

Battelle

Project:

JPL GW Mon 4Q09 / G486090

Service Request: P0903941

Date Analyzed: 11/16/09

Title:

Initial and Continuing Calibration Verification (ICV and CCV) Summary

Analyte:

Chromium, Hexavalent

Method:

7196A

Units:

mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0579	().()59()	102	9()-11()
CCVI	0.0579	().()58()	100	9()-11()
CCV2	0.0579	().()58()	100	9()-11()

Approved By:

CCV1A-120594

Date: 11/17/09

Karu Rya

QA/QC Report

Client: Ba

Battelle

JPL GW Mon 4Q09

Project Name : Project Number :

G486090

Sample Matrix :

WATER

P0903941-LCS

Service Request: P0903941

Date Collected: NA
Date Received: NA

: NA : NA

Date Extracted: NA
Date Analyzed: 11/16/09

Laboratory Control Sample Summary

Inorganic Parameters

Sample Name: Lab Code: Laboratory Control Sample

Units: mg/L (ppm)

Basis: NA

Test Notes:

CAS Percent Recovery Prep Analysis Acceptance Percent Result Analyte Method Method True Value Result Recovery Limits Notes Chromium, Hexavalent 7196A None 0.0400 0.0400 1()() 86-114

Approved By Karn Rya Date: 11/17/09 12

QA/QC Report

Client:

Battelle

Project Name:

JPL GW Mon 4Q09

Project Number: G486090 Sample Matrix: WATER

Service Request: P0903941

Date Collected: 11/16/09 Date Received: 11/16/09

Date Extracted: NA Date Analyzed: 11/16/09

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name: Lab Code:

MW-19-5

P0903941-001MS

P0903941-001DMS

Units: mg/L (ppm)

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	PQL	Spike MS	Level DMS	Sample Result	Spike MS	Result DMS	Rec	oike overy DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0506	0.0506	101	101	80-120	<1	

Karu Rya 13



### CAS SR #P0903942

### **Table of Contents**

Cover Letter	1
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Texavalent Chromium Raw Data	14.27



### LABORATORY REPORT

November 17, 2009

David Conner Battelle 3990 Old Town Ave., Suite C-205 San Diego, CA 92110

RE: JPL-GW-4Q09

Dear David:

Enclosed are the results of the sample submitted to our laboratory on November 16, 2009. For your reference, this analysis has been assigned our service request number P0903942.

All analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 26 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-09-TX; Minnesota Department of Health, Certificate No. 11495AA. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Qualerer

Respectfully submitted,

Columbia Analytical Services, Inc.

Sue Anderson Project Manager

Page 1 of *26* 



2865 Florik Center Driver Suite A

Simi Valley, CA 93066

805,526 7181

805 K96 7270 fs

www.caslab.com

Client:

Battelle

Project:

JPL-GW-4Q09

CAS Project No:

P0903942

### **CASE NARRATIVE**

The sample was received intact under chain of custody on November 16, 2009 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

### Hexavalent Cheromium by EPA 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client:

Battelle

Project:

JPL-GW-4Q09

Service Request: P0903942

SAMPLE CROSS-REFERENCE

SAMPLE#

CLIENT SAMPLE ID

P0903942-001

MW-15

<u>Date</u>

TIME

11/16/09

09:05

### Columbia Analytical Services, Inc.

### Acronyms

CA LUFT California DHS LUFT Method

ASTM American Society for Testing and Materials
BTEX Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number Chemical Abstract Service Registry Number

CFC Chlorofluorocarbon

CRDL Contract Required Detection Limit
DLCS Duplicate Laboratory Control Sample

DMS Duplicate Matrix Spike
DOH or DHS Department of Health Services
EPA U.S. Environmental Protection Agency

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

IC Ion Chromatography
ICB Initial Calibration Blank
ICV Initial Calibration Verification
LCS Laboratory Control Sample
LUFT Leaking Underground Fuel Tank

MModified MethodMDLMethod Detection LimitMRLMethod Reporting Limit

MS Matrix Spike

MTBE Methyl tert - Butyl Ether

NA Not Applicable NC Not Calculated

ND None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)

NTU Nephelometric Turbidity Units

ppbppmParts Per BillionppmParts Per Million

PQL Practical Quantitation Limit

QA/QC Quality Assurance/Quality Control

RCRA Resource Conservation and Recovery Act

RPD Relative Percent Difference SIM Selected Ion Monitoring

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.
SW Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846,

Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.

TDS Total Dissolved Solids

TPH Total Petroleum Hydrocarbons
TSS Total Suspended Solids

TTLC Total Threshold Limit Concentration

VOA Volatile Organic Analyte(s)
VOC Volatile Organic Compound(s)

### Qualifiers

U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

J The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.

B Analyte detected in the method blank above MRL (PQL).

E Estimated; result based on response which exceeded the instrument calibration range.

N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.

D The reported result is from a dilution.

X See case narrative.

Billing Information:		LABORATORY	>	Page #	of	
Name Gerald Tompkins		1 35	Hufi-		909.	80923942
zip Columbus, OH 4320	11 Fax 614-424-3667	Address 2655 PARK FRIER Soute A, Struttury CH Phone SCS 526-716	4 526.5 H 93665	Analys	Analyses Required	DATA REPORT
Olient Name Battelle Memorial Institute	Institute	PO.# 214375 DO.TL	1-6W-4000	2/*(	(	<b>—</b>
Address 505 King Avenue		0	Dallelle. C. x	St. 50	11 10/09	NEDTS FORMAT
City, State, Zip Columbus, OH 43201	101	Phone # Fax # Fax # 12-25-564			V: 4	// // // // // // // // // // // // //
Time Date Matrix* Office Use Sampled by £1+	SILIDE	tention DAV. D. Co.	Ho oc	્રેંડિ	$\frac{1}{\xi} y^{\epsilon l}$ $\frac{1}{\xi} y^{\epsilon l}$ $\frac{1}{\xi} y^{\epsilon l}$ $\frac{1}{\xi} y^{\epsilon l}$	LEVE EDF FORMAT
Ciny		Sample Description	Ţ		10/0/2/	REMARKS
CTCS IGNIN AQ	-3W	-15			÷	
						300
ADDITIONAL INSTRUCTIONS:		Specific VOC Requirements (please specify)	specify)			
D. CONNER PHONE #	# 619-726-7311	Ø€	hive T			
Signature		Print Name		Company	Date	Time
Relinquished by Johns Leineller	GREE	HEAD, WETON	BATTELLE	4	1800Veg	7 / 300
Received by	MAKE	Lo KVENZOZA	(NSICH)	EEC	41/1665	1312
Relinquished by	MANG	X	125/047	FET	50/ 9/1/11	2011 5
Beckined by Christian Chri	The same of the sa	ł	) } /		-	$\vdash$

P-Plastic OT-Other

B-Brass

T-Tedlar

V-Voa S-Soil Jar O-Orbo

\*\*: L- Liter

SO - Soil WA - Waste OT - Other

Received by \*Key: AQ - Aqueous

# Columbia Analytical Services, Inc. Chain of Custody Report

Client:

Battelle

Project: JPL-GW-4Q09

Service Request: P0903942

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P0903942-001.01					
	7196A				
		11/16/09	1509	SMO / MZAMORA	
		11/16/09	1510	P-37 / MZAMORA	
		11/16/09	1540	In Lab / SANDERSON	
		11/16/09	1725	P-37 / SANDERSON	

# Columbia Analytical Services, Inc. Sample Acceptance Check Form

	Battelle Work order: P090394	12			
	JPL-GW-4Q09 s) received on: 11/16/09 Date opened: 11/16/09 by:		17 A A	4 ( ) D 4	
	by: Date opened: 11/16/09 by: Orm is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence		MZAN		a . C
	or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the			moreatro.	1 (7)
			<u>Yes</u>	<u>No</u>	N/A
	Were sample containers properly marked with client sample ID?		$\times$		
	Container(s) supplied by CAS?		$\times$		
	Did sample containers arrive in good condition?		[X]		
	Was a <b>chain-of-custody</b> provided?		[X]		
	Was the <b>chain-of-custody</b> properly completed?		$[\times]$		
	Did sample container labels and/or tags agree with custody papers?		$\overline{\times}$		
	Was sample volume received adequate for analysis?		[X]		
	Are samples within specified holding times?		$\times$		
9	Was proper temperature (thermal preservation) of cooler at receipt adhered to?		$\times$		
	Cooler Temperature °C Blank Temperature 3 °C				
I ()	Was a <b>trip blank</b> received?  Trip blank supplied by CAS:				[ <u>×</u> ]
11	Were <b>custody seals</b> on outside of cooler/Box?			$[\times]$	
	Location of scal(s)? Sealing I	(449			□ [×]
	Were signature and date included?	J(( ;			$[\times]$
	Were seals intact?				[X]
	Were custody seals on outside of sample container?			$\boxtimes$	
	Location of seal(s)? Sealing I	ia19			<u> </u>
	Were signature and date included?	J1(1 .			$\overline{\mathbb{X}}$
	Were seals intact?				$\overline{\mathbb{X}}$
12	Do containers have appropriate preservation, according to method/SOP or Client specified information	9	$\boxtimes$		
	Is there a client indication that the submitted samples are <b>pH</b> preserved?	•			$\boxtimes$
	Were <u>VOA vials</u> checked for presence/absence of air bubbles?				$\overline{\mathbf{X}}$
	Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?				$\overline{\mathbf{X}}$
13	Tubes: Are the tubes capped and intact?				
	Do they contain moisture?		$\Box$	Н	
14	Badges: Are the badges properly capped and intact?				X
1 1	Are dual bed badges separated and individually capped and intact?				[X]
					$[\times]$
Lab S				rvation	
D. ((() 2 () 1 ()		Co	mmen	ts	
P0903942-	001.01   125mL Plastic NP			-	
TO NOTE OF THE PARTY OF THE PAR			-		
				*****	
			T. (1040)41		
Explain an	y discrepancies: (include lab sample ID numbers):				
			deliberar verse serve	···	
				Manager (of the colored) (of the colored days)	

<sup>\*</sup>Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

# **DIVIDER SHEET**

# ANALYTICAL DATA FOR

**Hexavalent Chromium** 

**ANALYSIS** 

### Analytical Report

Client: Battelle

Project Name: JPL-GW-4Q09

Project Number: NA Sample Matrix: WATER Service Request: P0903942

**Date Collected**: 11/16/09 **Date Received**: 11/16/09

Chromium, Hexavalent

Prep Method: None Analysis Method: 7196A

Units: mg/L (ppm)

Basis: NA

Test Notes:

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Fime Analyzed	Result	Result Notes
MW-15 Method Blank	P0903942-001 P0903942-MB	0.010	0.003 0.003	1	NA NA	11/16/09 16:50 11/16/09 16:50	ND ND	

Approved By Kau Rya Date: 11/17/09 9

Report By:SAnderson

### QA/QC Report

Client:

Battelle

Project: JPL-GW-4Q09 Service Request: P0903942

Date Analyzed: 11/16/09

Title:

Initial and Continuing Calibration Blank (ICB and CCB) Summary

Analyte:

Chromium, Hexavalent

Method:

7196A

Units:

mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By:

ICCBMDL (20594

\_\_\_\_\_Date: 11/17/09

Kam Rya