# **ATTACHMENT 3: LABORATORY ANALYTICAL REPORTS (SUMMARY SHEETS)**

This attachment contains the groundwater monitoring well results from the laboratory analytical reports prepared by Alpha Analytical Inc. of Sparks, Nevada and Columbia Analytical Services (CAS) of Simi Valley, California.



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

**Date:** 01-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

BMI09111704

**Cooler Temp:** 

4 °C

Alpha's Sample ID	Client's Sample ID	Matrix	
09111704-01A	MW-21-5	Aqueous	
09111704-02A	MW-21-4	Aqueous	
09111704-03A	MW-21-3	Aqueous	
09111704-04A	MW-21-2	Aqueous	
09111704-05A	MW-21-1	Aqueous	
09111704-06A	EB-01-11/13/09	Aqueous	
09111704-07A	TB-01-11/13/09	Aqueous	
09111704-08A	MW-15	Aqueous	
09111704-09A	MW-19-5	Aqueous	
09111704-10A	MW-19-4	Aqueous	
09111704-11A	MW-19-3	Aqueous	
09111704-12A	MW-19-2	Aqueous	
09111704-13A	MW-19-1	Aqueous	
09111704-14A	EB-02-11/16/09	Aqueous	
09111704-15A	TB-02-11/16/09	Aqueous	

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 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: 11/17/09

Job:

G005862/JPL Groundwater Monitoring

#### Perchlorate by Ion Chromatography EPA Method 314.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-21-5 Lab ID: BMI09111704-01A Date Sampled 11/13/09 08:26	Perchlorate	3.75	1.00 µg/L	11/18/09 10:59	11/18/09 13:12
Client ID: MW-21-4 Lab ID: BMI09111704-02A Date Sampled 11/13/09 08:54	Perchlorate	2.82	1.00 μg/L	11/18/09 10:59	11/18/09 13:31
Client ID: MW-21-3 Lab ID: BMI09111704-03A Date Sampled 11/13/09 09:21	Perchlorate	2.86	1.00 µg/L	11/18/09 10:59	11/18/09 13:49
Client ID: MW-21-2 Lab ID: BMI09111704-04A Date Sampled 11/13/09 09:47	Perchlorate	1.79	1.00 µg/L	11/18/09 10:59	11/18/09 14:07
Client ID: MW-21-1 Lab ID: BMI09111704-05A Date Sampled 11/13/09 10:33	Perchlorate	2.42	1.00 µg/L	11/18/09 10:59	11/18/09 14:26
Client ID: <b>EB-01-11/13/09</b> Lab ID: BMI09111704-06A Date Sampled 11/13/09 10:21	Perchlorate	ND	1.00 µg/L	11/18/09 10:59	11/18/09 15:21
Client ID: MW-15 Lab ID: BMI09111704-08A Date Sampled 11/16/09 09:05	Perchlorate	ND	1.00 µg/L	11/18/09 10:59	11/18/09 15:39
Client ID: <b>MW-19-5</b> Lab ID: BMI09111704-09A Date Sampled 11/16/09 09:00	Perchlorate	3.04	1.00 µg/L	11/18/09 10:59	11/18/09 15:58
Client ID: <b>MW-19-4</b> Lab ID: BMI09111704-10A Date Sampled 11/16/09 09:24	Perchlorate	2.58	1.00 µg/L	11/18/09 10:59	11/18/09 16:16
Client ID: <b>MW-19-3</b> Lab ID: BMI09111704-11A Date Sampled 11/16/09 10:01	Perchlorate	2.93	1.00 μg/L	11/18/09 10:59	11/18/09 16:35
Client ID: <b>MW-19-2</b> Lab ID: BMI09111704-12A Date Sampled 11/16/09 10:24	Perchlorate	5.45	1.00 µg/L	11/18/09 10:59	11/18/09 17:30



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Client ID: MW-19-1

Lab ID: BMI09111704-13A Perchlorate

7.05

 $1.00~\mu\text{g/}L$ 

11/18/09 10:59 11/18/09 17:48

Date Sampled 11/16/09 10:48 Client ID: EB-02-11/16/09

Date Sampled 11/16/09 10:40

Lab ID: BMI09111704-14A Perchlorate

ND

 $1.00~\mu\text{g/L}$ 

11/18/09 10:59 11/18/09 18:07

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.

12/1/09

**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: 11/17/09

Job:

G005862/JPL Groundwater Monitoring

## Metals by ICPMS

#### EPA Method 200.8

		EFA Method 200.8			
	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-21-5 Lab ID: BMI09111704-01A Date Sampled 11/13/09 08:26	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 10:04	11/19/09 02:43
Client ID: <b>MW-21-4</b> Lab ID: BMI09111704-02A Date Sampled 11/13/09 08:54	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 10:04	11/19/09 02:48
Client ID: MW-21-3 Lab ID: BMI09111704-03A Date Sampled 11/13/09 09:21	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 10:04	11/19/09 02:54
Client ID: <b>MW-21-2</b> Lab ID: BMI09111704-04A Date Sampled 11/13/09 09:47	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 10:04	11/19/09 02:59
Client ID: MW-21-1 Lab ID: BMI09111704-05A Date Sampled 11/13/09 10:33	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 10:04	11/19/09 02:26
Client ID: <b>EB-01-11/13/09</b> Lab ID: BMI09111704-06A Date Sampled 11/13/09 10:21	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 10:04	11/19/09 03:05
Client ID: MW-15 Lab ID: BMI09111704-08A Date Sampled 11/16/09 09:05	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 10:04	11/19/09 03:11
Client ID: MW-19-5 Lab ID: BMI09111704-09A Date Sampled 11/16/09 09:00	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 10:04	11/19/09 03:16
Client ID: MW-19-4 Lab ID: BMI09111704-10A Date Sampled 11/16/09 09:24	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 10:04	11/19/09 03:22
Client ID: MW-19-3 Lab ID: BMI09111704-11A Date Sampled 11/16/09 10:01	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 10:04	11/19/09 03:28
Client ID: MW-19-2 Lab ID: BMI09111704-12A Date Sampled 11/16/09 10:24	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 10:04	11/19/09 04:08



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Client ID: MW-19-1

Lab ID: BMI09111704-13A Chromium (Cr)

ND

 $0.0050\ mg/L$ 

11/18/09 10:04 11/19/09 04:13

Date Sampled 11/16/09 10:48

Date Sampled 11/16/09 10:40

Client ID: EB-02-11/16/09

Lab ID: BMI09111704-14A Chromium (Cr)

ND

 $0.0050\ mg/L$ 

11/18/09 10:04 11/19/09 04:19

ND = Not Detected

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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

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

(614) 458-6641 Fax:

# Tentatively Identified Compounds - Volatile Organics by GC/MS

<del></del>			Estimated		•
	Parameter	Estimated	Reporting	Date	Date
		Concentration	Limit	Extracted	Analyzed
Client ID: MW-21-5 Lab ID: BMI09111704-01A Date Received: 11/17/09 Date Sampled: 11/13/09 08:26	*** None Found ***	ND	2.0 μg/L	11/20/09 18:03	11/20/09 18:03
Client ID: MW-21-4 Lab ID: BMI09111704-02A Date Received: 11/17/09 Date Sampled: 11/13/09 08:54	*** None Found ***	ND	2.0 μg/L	11/20/09 18:25	11/20/09 18:25
Client ID: MW-21-3 Lab ID: BMI09111704-03A Date Received: 11/17/09 Date Sampled: 11/13/09 09:21	*** None Found ***	ND	2.0 μg/L	11/20/09 18:47	11/20/09 18:47
Client ID: MW-21-2 Lab ID: BMI09111704-04A  Date Received: 11/17/09 Date Sampled: 11/13/09 09:47	*** None Found ***	ND	2.0 μg/L	11/20/09 19:09	11/20/09 19:09
Client ID: MW-21-1 Lab ID: BMI09111704-05A Date Received: 11/17/09 Date Sampled: 11/13/09 10:33	*** None Found ***	ND	2.0 μg/L	11/20/09 19:31	11/20/09 19:31
Client ID: <b>EB-01-11/13/09</b> Lab ID: BMI09111704-06A Date Received: 11/17/09 Date Sampled: 11/13/09 10:21	Tertiary Butyl Alcohol (TBA)	68	10 μ <b>g</b> /L	11/20/09 23:57	11/20/09 23:57
Client ID: TB-01-11/13/09  Lab ID: BMI09111704-07A  Date Received: 11/17/09  Date Sampled: 11/13/09 00:00	*** None Found ***	ND	2.0 μg/L	11/21/09 00:19	11/21/09 00:19
Client ID: MW-15  Lab ID: BMI09111704-08A  Date Received: 11/17/09  Date Sampled: 11/16/09 09:05	*** None Found ***	ND	2.0 μg/L	11/21/09 05:09	11/21/09 05:09
Client ID: MW-19-5 Lab ID: BMI09111704-09A Date Received: 11/17/09 Date Sampled: 11/16/09 09:00	*** None Found ***	ND	2.0 μg/L	11/21/09 05:32	11/21/09 05:32



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Client ID: MW-19-4 Lab ID: BMI09111704-10A Date Received: 11/17/09 Date Sampled: 11/16/09 09:24	*** None Found ***	ND	2.0 μg/L	11/21/09 05:54 11/21/09 05:54
Client ID: MW-19-3  Lab ID: BMI09111704-11A  Date Received: 11/17/09  Date Sampled: 11/16/09 10:01	*** None Found ***	ND	2.0 μg/L	11/21/09 06:16 11/21/09 06:16
Client ID: MW-19-2 Lab ID: BMI09111704-12A Date Received: 11/17/09 Date Sampled: 11/16/09 10:24	*** None Found ***	ND	2.0 μg/L	11/21/09 06:38 11/21/09 06:38
Client ID: MW-19-1 Lab ID: BMI09111704-13A Date Received: 11/17/09 Date Sampled: 11/16/09 10:48	*** None Found ***	ND	2.0 μg/L	11/21/09 07:00 11/21/09 07:00
Client ID: <b>EB-02-11/16/09</b> Lab ID: BMI09111704-14A Date Received: 11/17/09	Tertiary Butyl Alcohol (TBA) 2-Methyl-1-propene	65 2.0	10 μg/L 2.0 μg/L	11/21/09 00:41 11/21/09 00:41 11/21/09 00:41 11/21/09 00:41
Date Sampled: 11/16/09 10:40  Client ID: TB-02-11/16/09  Lab ID: BMI09111704-15A  Date Received: 11/17/09  Date Sampled: 11/16/09 00:00	*** None Found ***	ND	2.0 μg/L	11/21/09 01:03 11/21/09 01:03

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: G00

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111704-01A

Client I.D. Number: MW-21-5

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

Fax: (614) 458-6641

Sampled: 11/13/09 08:26

Received: 11/17/09

Extracted: 11/20/09 18:03 Analyzed: 11/20/09 18:03

#### 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	2.0	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	2.0	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	2.0	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	2.0	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	4.0	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	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	102	(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			•		

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

Dibromochloromethane

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulur

ND

ND

Walter Findrey

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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12/1/09

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: BMI09111704-02A

Client I.D. Number: MW-21-4

**David Conner** Attn:

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 11/13/09 08:54

Received: 11/17/09

Extracted: 11/20/09 18:25 Analyzed: 11/20/09 18:25

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

	Compound	Concentration	Reporting I	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	2.0	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	2.0	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	2.0	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	2.0	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	7.6	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	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	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	ua/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

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.

**Report Date** 



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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: BMI09111704-03A

Client I.D. Number: MW-21-3

Sampled: 11/13/09 09:21

Received: 11/17/09

Extracted: 11/20/09 18:47 Analyzed: 11/20/09 18:47

#### 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	2.0	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	2.0	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	2.0	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	2.0	μg/L
10	trans-1,2-Dichloroethene	l 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	1.2	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	2.3	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 tetrachioride	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 .	3.0	μg/L
25	Trichloroethene	1.5	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachiorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	108	(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

34 1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

8.6

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

μg/L

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

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111704-04A

Client I.D. Number: MW-21-2

Attn: David Conner

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

Sampled: 11/13/09 09:47

Received: 11/17/09

Extracted: 11/20/09 19:09 Analyzed: 11/20/09 19:09

#### 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	2.0	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	2.0	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	2.0	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	2.0	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	1.8	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 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	3.0	μg/L
25	Trichloroethene	0.80	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	107	(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	ua/L			•		

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

1,2-Dibromoethane (EDB)

Roger Scholl Kandy Sanlar

ND

ND

Walter Hiridian

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

μg/L

1.0

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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: BMI09111704-05A Client I.D. Number: MW-21-1 Attn:

David Conner

Phone: Fax:

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

Sampled: 11/13/09 10:33

Received: 11/17/09

Extracted: 11/20/09 19:31

Analyzed: 11/20/09 19:31

#### 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	2.0	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	2.0	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	2.0	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	2.0	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	0.93	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	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L.
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	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			•		

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

Kandg Saulner

Walter Strikmer

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 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.

12/1/09

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: BMI09111704-06A

Client I.D. Number: EB-01-11/13/09

Attn: **David Conner** 

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 11/13/09 10:21

Received: 11/17/09

Extracted: 11/20/09 23:57 Analyzed: 11/20/09 23:57

#### 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	2.0	μ <b>g/L</b>	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	2.0	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	2.0	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	2.0	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	μ <b>g/L</b>	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	. 58	n-Butylbenzene	ND	0.50	μ <b>g/L</b>
24	1,2-Dichloropropane	ND ·	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC)	P) ND	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	95	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	ua/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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12/1/09

**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: BMI09111704-07A

Client I.D. Number: TB-01-11/13/09

Attn: David Conner

Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 11/13/09 00:00

Received: 11/17/09

Extracted: 11/21/09 00:19 Analyzed: 11/21/09 00:19

#### 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	2.0	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	2.0	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	2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	96	(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

34 1,2-Dibromoethane (EDB)

Roger Scholl Kundy Saulur

ND

ND

Walter Findows

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 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.

12/1/09

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: BMI09111704-08A

Client I.D. Number: MW-15

Attn: David Conner

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 11/16/09 09:05

Received: 11/17/09

Extracted: 11/21/09 05:09 Analyzed: 11/21/09 05:09

#### 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	2.0	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	2.0	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	2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	107	(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					

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

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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#### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111704-09A

Client I.D. Number: MW-19-5

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 11/16/09 09:00

Received: 11/17/09

Extracted: 11/21/09 05:32 Analyzed: 11/21/09 05:32

#### 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	2.0	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	2.0	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	μ <b>g/L</b>
8	Dichloromethane	ND	2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	µg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	103	(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

35 Tetrachioroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulun

ND

ND

Walter Steredown

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 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.

12/1/09

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: BMI09111704-10A

Client I.D. Number: MW-19-4

Attn: **David Conner** 

(818) 393-2808 Phone: Fax:

(614) 458-6641

Sampled: 11/16/09 09:24

Received: 11/17/09

Extracted: 11/21/09 05:54 Analyzed: 11/21/09 05:54

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

	Compound	Concentration	Reporting 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	2.0	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	2.0	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	2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	107	(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	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

1.0

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.

12/1/09

**Report Date** 



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#### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Job:

Alpha Analytical Number: BMI09111704-11A

Client I.D. Number: MW-19-3

Attn: **David Conner** 

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 11/16/09 10:01

Received: 11/17/09

Extracted: 11/21/09 06:16 Analyzed: 11/21/09 06:16

#### 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	2.0	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	2.0	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	2.0	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	2.0	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 (DBC)	P) ND	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	105	(70-130)	%RE
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	103	(70-130)	%RE0
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	95	(70-130)	%RE0
32	1,3-Dichloropropane	ND	0.50	ua/L				, ,	

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

ND

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

0.50

1.0

μg/L

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.

Report Date Page 1 of 1



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#### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

Attn: Phone:

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

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111704-12A

Fax: (614) 458-6641

Sampled: 11/16/09 10:24

Received: 11/17/09

Client I.D. Number: MW-19-2

Extracted: 11/21/09 06:38 Analyzed: 11/21/09 06:38

#### 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	2.0	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	2.0	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	2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	1.2	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	107	(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			,		

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

35 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

0.50

μg/L

μg/L

μg/L

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12/1/09

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: BMI09111704-13A

Client I.D. Number: MW-19-1

Attn: David Conner

Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 11/16/09 10:48

Received: 11/17/09

Extracted: 11/21/09 07:00 Analyzed: 11/21/09 07:00

#### 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	2.0	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	2.0	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	2.0	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	2.0	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	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	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	100	(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	μα/L			•		

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

1,2-Dibromoethane (EDB)

Roger Scholl Kandy Sadner.

ND

ND

Walter Finhour

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

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12/1/09

Report Date
Page 1 of 1



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110 Attn:

David Conner (818) 393-2808

Phone: Fax:

(614) 458-6641

Job: C

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111704-14A

Client I.D. Number: EB-02-11/16/09

Sampled: 11/16/09 10:40

Received: 11/17/09

Extracted: 11/21/09 00:41 Analyzed: 11/21/09 00:41

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	2.0	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	2.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μ <b>g/L</b>
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μ <b>g/L</b>
8	Dichloromethane	ND	2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	96	(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

ND

Kandy Saulner

Walter Hinkow

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

0.50

μg/L

μg/L

μg/L

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12/1/09

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: BMI09111704-15A

Client I.D. Number: TB-02-11/16/09

**David Conner** Attn:

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 11/16/09 00:00

Received: 11/17/09

Extracted: 11/21/09 01:03 Analyzed: 11/21/09 01:03

#### 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	2.0	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	2.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichiorofluoromethane	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	2.0	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	2.0	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-Dichiorobenzene	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	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichioromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	102	(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

34 1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

ND

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

μg/L

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12/1/09

**Report Date** Page 1 of 1



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<b>Date:</b> 30-Nov-09		(	QC S	umma	ry Repor	t			<b>Work Orde</b> 09111704	
Method Bla	nk		Type		Test Code: El Batch ID: <b>230</b>		hod 314.0	Analysis Dat	e: 11/18/2009 12:17	
Sample ID:	MB-23098	Units : µg/L			C_3_091118/			Prep Date:	11/18/2009 10:59	
Analyte		Result	PQL	SpkVa	l SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
Perchlorate		ND		1						
Laboratory	Fortified Blank	•	Туре	LFB	Test Code: El	PA Met	hod 314.0			
File ID: 15					Batch ID: 230	98		Analysis Dat	e: <b>11/18/2009 12:35</b>	
Sample ID:	LFB-23098	Units : µg/L		Run ID: I	C_3_091118/	4		Prep Date:	11/18/2009 10:59	
Analyte		Result	PQL	SpkVa	l SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
Perchlorate		24.5		2 2	5	98	85	115		
Sample Mat	rix Spike		Туре	LFM	Test Code: El	PA Met	hod 314.0			
File ID: <b>22</b>	•				Batch ID: 230	98		Analysis Dat	e: 11/18/2009 14:44	
Sample ID:	09111704-05ALFM	Units : µg/L		Run ID: I	C_3_091118/	4		Prep Date:	11/18/2009 10:59	
Analyte		Result	PQL	SpkVa	al SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
Perchlorate		26.1		2 2	5 2.42	95	80	120		
Sample Mat	rix Spike Duplicate		Туре	LFMD	Test Code: E	PA Met	hod 314.0			
File ID: 23					Batch ID: 230	98		Analysis Dat	e: 11/18/2009 15:03	
Sample ID:	09111704-05ALFMD	Units : µg/L		Run ID: I	C_3_091118/	Ą		Prep Date:	11/18/2009 10:59	
Analyte		Result	PQL	SpkVa	al SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
Perchlorate		26.3		2 2	5 2.42	95	80	120 26	.12 0.5(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: 30-Nov-09	QC Summary Report	<b>Work Order:</b> 09111704
Method Blank File ID: 111809.B\102SMPL.D\ Sample ID: MB-23097	Type MBLK Test Code: EPA Method 200.8  Batch ID: 23097K Analysis Date: 1*  Units: mg/L Run ID: ICP/MS_091118D Prep Date: 1*	1/19/2009 02:03 1/18/2009 10:04
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal	%RPD(Limit) Qual
Chromium (Cr)	ND 0.005	
Laboratory Control Spike File ID: 111809.B\103_LCS.D\ Sample ID: LCS-23097	Type LCS Test Code: EPA Method 200.8  Batch ID: 23097K Analysis Date: 17  Units: mg/L Run ID: ICP/MS 091118D Prep Date: 17	1/19/2009 02:09 1/18/2009 10:04
Analyte	Units: mg/L Run ID: ICP/MS_091118D Prep Date: 1' Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal	
Chromium (Cr)	0.0517	
Sample Matrix Spike File ID: 111809.B\107SMPL.D\	Type MS Test Code: EPA Method 200.8  Batch ID: 23097K Analysis Date: 1	
Sample ID: <b>09111704-05AMS</b>		1/18/2009 10:04
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal	%RPD(Limit) Qual
Chromium (Cr)	0.0515 0.005 0.05 0 103 80 120	
Sample Matrix Spike Duplicate File ID: 111809.B\108SMPL.D\	Type MSD Test Code: EPA Method 200.8  Batch ID: 23097K Analysis Date: 1	1/19/2009 02:37
Sample ID: 9111704-05AMSD	Units: mg/L Run ID: ICP/MS_091118D Prep Date: 11	1/18/2009 10:04
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal	%RPD(Limit) Qual
Chromium (Cr)	0.0524 0.005 0.05 0 105 80 120 0.05145	1.9(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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01-Dec-09		(	<b>Work Order:</b> 09111704						
Method Bla			Туре МЕ		EPA Method				
File ID: <b>09112</b>				Batch ID: M	S15W1120N	1	•	11/20/2009 10:35	
Sample ID:	MBLK MS15W1120M	Units : μ <b>g/L</b>	F	un ID: <b>MSD_15_0</b> 9			Prep Date:	11/20/2009 10:35	
Analyte		Result	PQL	SpkVal SpkRefV	al %REC LO	CL(ME) UC	L(ME) RPDRef	/al %RPD(Limit)	Qua
Dichlorodifluo	romethane	ND	0.5						
Chloromethan	ne	ND	1						
Vinyl chloride		ND	0.5						
Chloroethane		ND	0.5						
Bromomethar	• =	ND	1						
Trichlorofluoro		ND	0.5						
1,1-Dichloroet Dichlorometha		ND ND	0.5						
Freon-113	ane	ND	1 0.5						
trans-1,2-Dich	nloroethene	ND	0.5						
	ityl ether (MTBE)	ND	0.5						
1,1-Dichloroet		ND	0.5						
2-Butanone (N		ND .	10						
cis-1,2-Dichlo		ND	0.5						
Bromochloron	nethane	ND	0.5						
Chloroform	ranana	ND	0.5						
2,2-Dichloropi 1.2-Dichloroet	· · · · · · · · · · · · · · · · · · ·	ND	0.5						
1,2-Dichloroet		ND ND	0.5 0.5						
1,1-Dichloropi		ND ND	0.5						
Carbon tetrac	•	ND	0.5						
Benzene	anonao	ND	0.5						
Dibromometh	ane	ND	0.5						
1,2-Dichloropi	ropane	ND	0.5						
Trichloroether		ND	0.5						
Bromodichlore		ND	0.5						
	entanone (MIBK)	ND	2.5						
cis-1,3-Dichlo	• •	ND	0.5						
trans-1,3-Dich 1,1,2-Trichlore		ND	0.5						
Toluene	oemane	ND ND	0.5 0.5						
1,3-Dichlorop	ropane	ND	0.5						
Dibromochlor	•	ND	0.5						
1,2-Dibromoe	thane (EDB)	ND	1						
Tetrachloroetl		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 Styrene		ND ND	0.5						
o-Xvlene		ND ND	0.5 0.5						
1,1,2,2-Tetrac	chloroethane	ND ND	0.5						
1,2,3-Trichlor		ND	1						
Isopropylbenz		ND	0.5						
Bromobenzen	ne	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-Trimethi sec-Butylbenz	•	ND	0.5						
sec-Butylbenz 1,3-Dichlorob		ND ND	0.5						
1,4-Dichlorob		ND ND	0.5 0.5						
4-Isopropyltol		ND ND	0.5						
1,2-Dichlorob		ND	0.5						
n-Butylbenzer		ND	0.5						
1,2-Dibromo-3	3-chloropropane (DBCP)	ND	2.5						
1,2,4-Trichlore	obenzene	ND	1						
Naphthalene		ND	1						
Hexachlorobu		ND	1						
1,2,3-Trichlor		ND	1		465		400		
	nloroethane-d4	10.6		10	106	70	130		



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<b>Date:</b> 01-Dec-09	QC Summary Report							<b>Work Order:</b> 09111704		
Surr: 4-Bromofluorobenzene	9.37		10	94	70	130				
Laboratory Control Spike		Type LC	S Te	est Code: EPA Me	thod SW8	260B		<del></del>		
File ID: <b>09112004.D</b>			Ba	atch ID: MS15W11	20M	•	11/20/2009 09:29			
Sample ID: LCS MS15W1120M	Units : µg/L			SD_15_091120A		Prep Date:	11/20/2009 09:29			
Analyte	Result	PQL	SpkVal	SpkRefVal %RE0	C LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qua		
Dichlorodifluoromethane	8.38	1	10	84	70	130				
Chloromethane	7.46	2	10	75	70	130				
Vinyl chloride Chloroethane	9.41 10.2	1 1	10	94 102	70 70	130 130				
Bromomethane	8.18	2	10 10	82	70 70	130				
Trichlorofluoromethane	11.3	1	10	113	70 70	130				
1,1-Dichloroethene	11.2	1	10	112	70	130				
Dichloromethane	9.92	2	10	99	70	130				
trans-1,2-Dichloroethene	11	1	10	110	70	130				
Methyl tert-butyl ether (MTBE) 1,1-Dichloroethane	11	0.5	10	110	70 70	130 130				
cis-1,2-Dichloroethene	10.3 11.1	1	10 10	103 111	70 70	130				
Bromochloromethane	11.4	i	10	114	70	130				
Chloroform	11.2	1	10	112	70	130				
2,2-Dichloropropane	12.2	1	10	122	70	130				
1,2-Dichloroethane	11	1	10	110	70	130				
1,1,1-Trichloroethane 1,1-Dichloropropene	11.9 11.1	1	10	119	70 70	130 130				
Carbon tetrachloride	11.1 12.4	1 1	10 10	111 124	70 70	130				
Benzene	10.4	0.5	10	104	70 70	130				
Dibromomethane	10.9	1	10	109	70 70	130				
1,2-Dichloropropane	10.4	1	10	104	70	130				
Trichloroethene	11.2	1	10	112	70	130				
Bromodichloromethane	11.4	1	10	. 114	70	130				
cis-1,3-Dichloropropene trans-1,3-Dichloropropene	11 9.97	1	10	110 99.7	70 70	130 130				
1,1,2-Trichloroethane	10.4	1	10 10	104	70 70	130				
Toluene	10.4	0.5	10	101	70	130				
1,3-Dichloropropane	10.6	1	10	106	70	130				
Dibromochloromethane	10.8	1	10	108	70	130				
1,2-Dibromoethane (EDB)	21.9	2	20	110	70	130				
Tetrachloroethene 1,1,1,2-Tetrachloroethane	11.7	1	10	117	70 70	130				
Chlorobenzene	11.2 10.3	1	10 10	112 103	70 70	130 130				
Ethylbenzene	10.5	0.5	10	105	70	130				
m,p-Xylene	10.7	0.5	10	107	70	130				
Bromoform	9.79	1	10	98	70	130				
Styrene	11.4	1	10	114	70	130				
o-Xylene 1,1,2,2-Tetrachloroethane	10.7	0.5	10	107	70	130				
1,2,3-Trichloropropane	9.67 20.9	1 2	10 20	97 105	70 70	130 130				
Isopropylbenzene	10.5	1	10	105	70 70	130				
Bromobenzene	10.4	1	10	104	70	130				
n-Propylbenzene	10.4	1	10	104	70	130				
4-Chlorotoluene	10.6	1	10	106	70	130				
2-Chlorotoluene	10.4	1	10	104	70	130				
1,3,5-Trimethylbenzene tert-Butylbenzene	10.6 10.2	1	10 10	106	70 70	130 130				
1,2,4-Trimethylbenzene	10.4	1	10	102 104	70 70	130				
sec-Butylbenzene	10.3	i	10	103	70	130				
1,3-Dichlorobenzene	10.5	i	10	105	70	130				
1,4-Dichlorobenzene	9.77	1	10	98	70	130				
4-Isopropyltoluene	10.5	1	10	105	70	130				
1,2-Dichlorobenzene n-Butylbenzene	9.91	1	10	99	70 70	130				
1,2-Dibromo-3-chloropropane (DBCP)	10.8 49.8	1 3	10	108 99.6	70 70	130 130				
1,2,4-Trichlorobenzene	49.8 11.1	2	50 10	99.6	70 70	130				
Naphthalene	10.5	2	10	105	70 70	130				
Hexachlorobutadiene	21.3	2	20	107	70	130				
1,2,3-Trichlorobenzene	10.6	2	10	106	70	130				
Surr: Taluana da	10.2		10	102	70 70	130				
Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	9.74		10	97	70 70	130				
oun. 4-biomonuoropenzene	9.77		10	98	70	130				



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Work Order: Date: **QC Summary Report** 01-Dec-09 Type MS Test Code: EPA Method SW8260B Sample Matrix Spike Analysis Date: 11/20/2009 10:58 File ID: 09112008.D Batch ID: MS15W1120M Sample ID: 09111704-05AMS Prep Date: 11/20/2009 10:58 Units: µg/L Run ID: MSD 15 091120A Analyte SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Result **PQL** Dichlorodifluoromethane 40.4 2.5 Chloromethane 33.5 Vinyl chloride 40.3 2.5 Chloroethane 42.6 2.5 Bromomethane 33.9 Trichlorofluoromethane 2.5 48.3 1.1-Dichloroethene 46.6 2.5 Dichloromethane 42.8 trans-1,2-Dichloroethene 45.9 2.5 Methyl tert-butyl ether (MTBE) 1.3 1,1-Dichloroethane 43.4 2.5 cis-1.2-Dichloroethene 2.5 Bromochloromethane 50.3 2.5 Chloroform 47.6 2.5 0.93 2,2-Dichloropropane 50.7 2.5 1,2-Dichloroethane 48.3 2.5 1.1.1-Trichloroethane 48.5 2.5 1,1-Dichloropropene 45.8 2.5 Carbon tetrachloride 50.3 2.5 Benzene 43.3 1.3 Dibromomethane 2.5 48.6 1,2-Dichloropropane 44.2 Trichloroethene 45.4 2.5 Bromodichloromethane 48.3 2.5 cis-1,3-Dichloropropene 45.1 2.5 trans-1,3-Dichloropropene 2.5 42 2 1,1,2-Trichloroethane 44.9 2.5 Toluene 41.4 1.3 1,3-Dichloropropane 44.6 2.5 Dibromochloromethane 45.7 2.5 1,2-Dibromoethane (EDB) 95.6 Tetrachloroethene 47.1 2.5 1,1,1,2-Tetrachloroethane 47.5 2.5 Chlorobenzene 42.8 2.5 Ethylbenzene 42.8 1.3 m.p-Xylene 44.1 1.3 **Bromoform** 43.3 2.5 Styrene 2.5 44.4 o-Xylene 1.3 1,1,2,2-Tetrachloroethane 42.8 2.5 1,2,3-Trichloropropane 93.3 Isopropylbenzene 42.8 2.5 Bromobenzene 43.6 n-Propylbenzene 41.8 2.5 4-Chlorotoluene 44.3 2.5 2-Chlorotoluene 43.3 2.5 1,3,5-Trimethylbenzene 42.7 2.5 tert-Butvlbenzene 2.5 41.7 1,2,4-Trimethylbenzene 2.5 sec-Butylbenzene 42.2 2.5 1,3-Dichlorobenzene 43.7 2.5 1,4-Dichlorobenzene 2.5 41.1 4-Isopropyltoluene 42.8 2.5 1.2-Dichlorobenzene 41.9 n-Butylbenzene 43.8 2.5 1,2-Dibromo-3-chloropropane (DBCP) 1,2,4-Trichlorobenzene 47.5 Naphthalene 44.4 Hexachlorobutadiene 87.7 1,2,3-Trichlorobenzene 44.9 Surr: 1,2-Dichloroethane-d4 51.6 Surr: Toluene-d8 48.4 Surr: 4-Bromofluorobenzene 48.2 



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<b>Date:</b> 01-Dec-09	(	QC Su	mmary	y Repor	t				<b>Work Ord</b> 09111704	
Sample Matrix Spike Duplicate	THE COLUMN TO SECUL	Type MS	SD Te	est Code: E	PA Met	hod SW8	260B			
File ID: <b>09112009.D</b>			Ba	atch ID: MS	15W11	20M	Analy	sis Date: 1	1/20/2009 11:20	
Sample ID: 09111704-05AMSD	Units : µg/L	F	Run ID: MS	SD_15_091	120A		Prep	Date: 1	1/20/2009 11:20	
Analyte	Result	PQL				LCL(ME)			l %RPD(Limit)	Qua
Dichlorodifluoromethane	42.2	2.5	<del></del>	0		13	167	40.39	4.4(20)	<del></del>
Chloromethane	42.2 36	2.5 10	50 50	0		28	145	33.54	7.0(20)	
Vinyl chloride	43.8	2.5	50	0	88	43	134	40.27	8.4(20)	
Chloroethane	44.2	2.5	50	Ő	88	39	154	42.56	3.8(20)	
Bromomethane	40.5	10	50	Ŏ		19	176	33.92	17.7(20)	
Trichlorofluoromethane	50.3	2.5	50	0	101	34	160	48.25	4.2(20)	
1,1-Dichloroethene	48.3	2.5	50	0	97	60	130	46.62	3.6(20)	
Dichloromethane	44.3	10	50	0		68	130	42.8	3.4(20)	
trans-1,2-Dichloroethene	48.6	2.5	50	0	97	63	130	45.88	5.8(20)	
Methyl tert-butyl ether (MTBE)	50	1.3	50	0	100	56	141	48.97	2.1(20)	
1,1-Dichloroethane cis-1,2-Dichloroethene	44.9	2.5	50	0		61	130	43.4 46.98	3.3(20)	
Bromochloromethane	48.5 50.9	2.5 2.5	50 50	0	97 102	70 70	130 130	50.31	3.3(20) 1.2(20)	
Chloroform	49.9	2.5	50	0.93		67	130	47.59	4.7(20)	
2,2-Dichloropropane	53.3	2.5	50	0.93		30	152	50.74	5.0(20)	
1,2-Dichloroethane	49.1	2.5	50	0		60	135	48.25	1.8(20)	
1,1,1-Trichloroethane	50.8	2.5	50	Ö		59	137	48.49	4.6(20)	
1,1-Dichloropropene	48.1	2.5	50	0	96	63	130	45.77	4.9(20)	
Carbon tetrachloride	52.9	2.5	50	0	106	50	147	50.28	5.1(20)	
Benzene	45.3	1.3	50	0		67	130	43.27	4.5(20)	
Dibromomethane	49.1	2.5	50	0		69	133	48.56	1.1(20)	
1,2-Dichloropropane	46.1	2.5	50	0		69	130	44.15	4.4(20)	
Trichloroethene Bromodichloromethane	47.5	2.5	50	0		69 66	130	45.36	4.6(20)	
cis-1,3-Dichloropropene	50 46.4	2.5 2.5	50 50	0	100 93	66 63	134 130	48.25 45.06	3.6(20) 2.8(20)	
trans-1,3-Dichloropropene	43.2	2.5	50 50	0	93 86	66	131	42.22	2.2(20)	
1,1,2-Trichloroethane	46.1	2.5	50	0		68	130	44.94	2.6(20)	
Toluene	43.5	1.3	50	0		66	130	41.36	5.1(20)	
1,3-Dichloropropane	46.7	2.5	50	0		70	130	44.61	4.6(20)	
Dibromochloromethane	47.4	2.5	50	0	95	70	130	45.66	3.8(20)	
1,2-Dibromoethane (EDB)	97.1	5	100	0		70	130	95.59	1.6(20)	
Tetrachloroethene	50.2	2.5	50	0		61	134	47.09	6.3(20)	
1,1,1,2-Tetrachloroethane	49.6	2.5	50	0		70	130	47.51	4.4(20)	
Chlorobenzene Ethylbenzene	45.2	2.5	50	0		70	130	42.82	5.5(20)	
m.p-Xylene	45 45.7	1.3	50 50	0		68 64	130 130	42.81 44.05	5.1(20) 3.7(20)	
Bromoform	45.7 44.2	1.3 2.5	50 50	0	88	64	138	43.27	2.2(20)	
Styrene	50	2.5	50	0	100	69	130	48	4.1(20)	
o-Xylene	47.1	1.3	50	Ö		70	130	44.39	5.9(20)	
1,1,2,2-Tetrachloroethane	44.2	2.5	50	Ŏ		65	131	42.76	3.4(20)	
1,2,3-Trichloropropane	96.9	10	100	0	97	70	130	93.31	3.8(20)	
Isopropylbenzene	45.6	2.5	50	0	91	64	138	42.77	6.4(20)	
Bromobenzene	46	2.5	50	0		70	130	43.58	5.4(20)	
n-Propylbenzene	45.6	2.5	50	0		66	132	41.78	8.8(20)	
4-Chlorotoluene	47.4	2.5	50	0		70	130	44.25	6.8(20)	
2-Chlorotoluene 1,3,5-Trimethylbenzene	45.6	2.5	50	0	91 91	70 66	130	43.28 42.73	5.1(20) 6.6(20)	
tert-Butylbenzene	45.6 45	2.5 2.5	50 50	0		66 65	136 137	42.73 41.7	7.6(20)	
1,2,4-Trimethylbenzene	45.8	2.5 2.5	50 50	0		65	137	43.02	6.3(20)	
sec-Butylbenzene	45.4	2.5	50	0		66	134	42.23	7.2(20)	
1,3-Dichlorobenzene	47.1	2.5	50	Ő	94	70	130	43.74	7.3(20)	
1,4-Dichlorobenzene	43.8	2.5	50	Ō		70	130	41.06	6.4(20)	
4-Isopropyltoluene	46.2	2.5	50	0	92	66	137	42.83	7.6(20)	
1,2-Dichlorobenzene	44.2	2.5	50	0		70	130	41.85	5.5(20)	
n-Butylbenzene	47.5	2.5	50	0		60	142	43.8	8.0(20)	
1,2-Dibromo-3-chloropropane (DBCP)	225	15	250	0	90	67	130	216.7	3.8(20)	
1,2,4-Trichlorobenzene	51.1	10	50	0	102	61	137	47.53	7.3(20)	
Naphthalene Hexachlorobutadiene	48.6	10	50	0		40	167	44.36	9.1(20)	
1,2,3-Trichlorobenzene	95.7 49.2	10 10	100 50	0		61 51	130 144	87.66 44.88	8.8(20) 9.1(20)	
Surr: 1,2-Dichloroethane-d4	51.4	10	50 50	U	103	70	130	44.00	3.1(20)	
Surr: Toluene-d8	48.5		50		97	70	130			
Surr: 4-Bromofluorobenzene	49.5		50		99	70	130			



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Date:	OC Symmony Donout	Work Order:
01-Dec-09	QC Summary Report	09111704

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.



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

Method Blaz File ID: 09112 Sample ID:	nk				-					
			Type N	/IBLK	Test Code: EPA	Method SW	/8260B			
Sample ID:	038.D				Batch ID: MS15	W1120N	Ana	lysis Date:	11/20/2009 22:28	
campio ib.	MBLK MS15W1120N	Units : µg/L		Run ID	: MSD_15_09112	0C	Pre	Date:	11/20/2009 22:28	
Analyte		Result	PQL	Spk\	Val SpkRefVal %	REC LCL(M	IE) UCL(ME	E) RPDRef	Val %RPD(Limit)	Qua
Dichlorodifluor	omethane	ND	0.5	5	·					
Chloromethan		ND	1							
Vinyl chloride		ND	0.5	5						
Chloroethane		ND	0.5	5						
Bromomethan	Ŧ	ND	1							
Trichlorofluoro		ND	0.5							
1,1-Dichloroeth Dichlorometha		ND	0.5							
Freon-113	ine.	ND ND	0.5							
trans-1,2-Dichl	loroethene	ND	0.5							
,	yl ether (MTBE)	ND	0.5							
1,1-Dichloroeth		ND	0.5							
2-Butanone (M		ND	10							
cis-1,2-Dichlor		ND	0.5							
Bromochiorom	iethane	ND	0.5							
Chloroform	onono	ND	0.5							
2,2-Dichloropro 1,2-Dichloroeth		ND ND	0.5							
1,1,1-Trichloro		ND ND	0.5 0.5							
1,1-Dichloropre		ND	0.5							
Carbon tetrach	•	ND	0.5							
Benzene		ND	0.5							
Dibromometha		ND	0.5	5		•				
1,2-Dichloropro		ND	0.5							
Trichloroethen		ND	0.5							
Bromodichloro	ometnane ntanone (MIBK)	ND	0.5							
cis-1,3-Dichlor	opropene	ND ND	2.5 0.5							
trans-1,3-Dichl		ND	0.5							
1,1,2-Trichloro		ND	0.5							
Toluene		ND	0.5							
1,3-Dichloropro		ND	0.5	5						
Dibromochloro		ND	0.5	5						
1,2-Dibromoet		ND	_ 1							
Tetrachloroeth		ND	0.5							
1,1,1,2-Tetrach Chlorobenzene		ND ND	0.5							
Ethylbenzene	5	ND ND	0.5 0.5							
m,p-Xylene		ND	0.5							
Bromoform		ND	0.5							
Styrene		ND	0.5							
o-Xylene		ND	0.5	5						
1,1,2,2-Tetrach		ND	0.5	5						
1,2,3-Trichloro	• •	ND	1							
lsopropylbenze Bromobenzene		ND ND	0.5							
n-Propylbenze		ND ND	0.5 0.5							
4-Chlorotoluen		ND	0.5							
2-Chlorotoluen	e	ND	0.5							
1,3,5-Trimethy		ND	0.5							
ert-Butylbenze		ND	0.5	;						
1,2,4-Trimethy		ND	0.5							
sec-Butylbenze		ND	0.5							
1,3-Dichlorobe		ND ND	0.5							
1,4-Dichlorobe 4-Isopropyltolu		ND ND	0.5							
1,2-Dichlorobe		ND ND	0.5 0.5							
n-Butylbenzen		ND	0.5							
	-chloropropane (DBCP)	ND	2.5							
1,2,4-Trichloro		ND	2.0							
Vaphthalene		ND	1							
Hexachlorobut		ND	1							
1,2,3-Trichloro		ND	1							
Surr: 1,2-Dichle Surr: Toluene-		10.3 10.2				103 70 102 70	130 130			



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<b>Date:</b> 01-Dec-09	(	QC Sun	nmary R	Leport			<b>Work Ord</b> 09111704	
Surr: 4-Bromofluorobenzene	9.44		10	94	70	130		
<b>Laboratory Control Spike</b>		Type LCS	Test C	ode: EPA Metho	d SW82	260B		
File ID: <b>09112035.D</b>			Batch	ID: MS15W1120I	N	Analysis Dat	e: <b>11/20/2009 21:22</b>	
Sample ID: LCS MS15W1120N	Units : µg/L		_	15_091120C		Prep Date:	11/20/2009 21:22	
Analyte	Result	PQL	SpkVal Spl	RefVal %REC L	CL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
Dichlorodifluoromethane	8.05	1	10	81	70	130		
Chloromethane Vinyl chloride	7.24	2	10	72	70 70	130		
Chloroethane	9.3 9.8	1 1	10 10	93 98	70 70	130 130		
Bromomethane	9.79	2	10	98	70	130		
Trichlorofluoromethane	11.2	1	10	112	70	130		
1,1-Dichloroethene	10.9	1	10	109	70	130		
Dichloromethane trans-1,2-Dichloroethene	9.7 10.9	2 1	10 10	97 109	70 70	130 130		
Methyl tert-butyl ether (MTBE)	10.6	0.5	10	109	70 70	130		
1,1-Dichloroethane	10.3	1	10	103	70	130		
cis-1,2-Dichloroethene	11	1	10	110	70	130		
Bromochloromethane Chloroform	11.1	1	10	111	70 70	130 130		
2,2-Dichloropropane	11.1 11.1	1	10 10	111 · 111	70 70	130		
1,2-Dichloroethane	10.8	1	10	108	70	130		
1,1,1-Trichloroethane	11.9	1	10	119	70	130		
1,1-Dichloropropene	11	1	10	110	70	130		
Carbon tetrachloride Benzene	12.3 10.3	1	10	123 103	70 70	130 130		
Dibromomethane	10.6	0.5 1	10 10	106	70 70	130		
1,2-Dichloropropane	10.3	i	10	103	70	130		
Trichloroethene	11.7	1	10	117	70	130		
Bromodichloromethane	11.2	1	10	112	70	130		
cis-1,3-Dichloropropene trans-1,3-Dichloropropene	10.5 9.58	1	10 10	105 96	70 70	130 130		
1,1,2-Trichloroethane	9.99	1	10	99.9	70 70	130		
Toluene	10.1	0.5	10	101	70	130		
1,3-Dichloropropane	10.3	1	10	103	70	130		
Dibromochloromethane 1,2-Dibromoethane (EDB)	10.4	1	10	104	70 70	130		
Tetrachloroethene	21.3 11.7	2 1	20 10	107 117	70 70	130 130		
1,1,1,2-Tetrachloroethane	11.1	1	10	111	70	130		
Chlorobenzene	10.3	1	10	103	70	130		
Ethylbenzene	10.5	0.5	10	105	70	130		
m,p-Xylene Bromoform	10.6 9.44	0.5 1	10 10	106 94	70 70	130 130		
Styrene	11.1	1	10	111	70	130		
o-Xylene	10.7	0.5	10	107	70	130		
1,1,2,2-Tetrachloroethane	8.67	1	10	87	70	130		
1,2,3-Trichloropropane Isopropylbenzene	20.1 10.7	2 1	20 10	101 107	70 70	130 130		
Bromobenzene	10.7	1	10	104	70 70	130		
n-Propylbenzene	10.4	i	10	104	70	130		
4-Chlorotoluene	10.8	. 1	10	108	70	130		
2-Chlorotoluene	10.4	1	10	104	70	130		
1,3,5-Trimethylbenzene tert-Butylbenzene	10.5 10.3	1	10 10	105 103	70 70	130 130		
1,2,4-Trimethylbenzene	10.4	1	10	103	70 70	130		
sec-Butylbenzene	10.4	1	10	104	70	130		
1,3-Dichlorobenzene	10.6	1	10	106	70	130		
1,4-Dichlorobenzene	9.85	1	10	99	70	130		
4-Isopropyltoluene 1,2-Dichlorobenzene	10.5 9.69	1 1	10 10	105 97	70 70	130 130		
n-Butylbenzene	10.8	1	10	108	70 70	130		
1,2-Dibromo-3-chloropropane (DBCP)	46.1	3	50	92	70	130		
1,2,4-Trichlorobenzene	11	2	10	110	70	130		
Naphthalene Hexachlorobutadione	10.1	2	10	101	70 70	130		
Hexachlorobutadiene 1,2,3-Trichlorobenzene	21.3 10.4	2 2	20 10	106 104	70 70	130 130		
Surr: 1,2-Dichloroethane-d4	10.4	2	10	100	70 70	130		
Surr: Toluene-d8	9.77		10	98	70	130		
Surr: 4-Bromofluorobenzene	10		10	100	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:

**OC Summary Report** 01-Dec-09 Sample Matrix Spike Test Code: EPA Method SW8260B Analysis Date: 11/20/2009 22:50 File ID: 09112039.D Batch ID: MS15W1120N Sample ID: 09111801-05AMS Units: µg/L Prep Date: 11/20/2009 22:50 Run ID: MSD\_15\_091120C Analyte SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Result Qual PQL Dichlorodifluoromethane 40.3 Chloromethane Vinyl chloride 45.2 2.5 Chloroethane 2.5 **Bromomethane** 41.2 Trichlorofluoromethane 47.9 2.5 1.1-Dichloroethene 50.6 2.5 Dichloromethane 46.3 O trans-1,2-Dichloroethene 50.7 2.5 Methyl tert-butyl ether (MTBE) 48.5 1.3 1,1-Dichloroethane 47.6 2.5 cis-1,2-Dichloroethene 2.5 Bromochloromethane 50.9 2.5 Chloroform 50.9 2.5 2.2-Dichloropropane 46.9 2.5 1.2-Dichloroethane 49.1 2.5 1,1,1-Trichloroethane 53.7 2.5 1,1-Dichloropropene 51.2 2.5 Carbon tetrachloride 55.1 2.5 Benzene 47.5 1.3 Dibromomethane 48.4 2.5 1.2-Dichloropropane 47.4 2.5 Trichloroethene 50.5 2.5 Bromodichloromethane 50.3 2.5 n cis-1,3-Dichloropropene 2.5 trans-1,3-Dichloropropene 41.4 2.5 1,1,2-Trichloroethane 45.3 2.5 Toluene 45.1 1.3 1,3-Dichloropropane 46.4 2.5 Dibromochloromethane 45.2 2.5 1,2-Dibromoethane (EDB) 94.9 Tetrachloroethene 2.5 50.8 1.1,1,2-Tetrachloroethane 49.1 2.5 Chlorobenzene 45.7 2.5 Ethylbenzene 46.4 1.3 m,p-Xylene 47.8 1.3 **Bromoform** 41.5 2.5 Styrene 50.3 2.5 o-Xvlene 48.2 1.3 1,1,2,2-Tetrachloroethane 41.3 2.5 1,2,3-Trichloropropane 89.7 Isopropylbenzene 2.5 Bromobenzene 46.3 2.5 n-Propvlbenzene 47.6 2.5 4-Chlorotoluene 48.6 2.5 2-Chlorotoluene 47.7 2.5 1,3,5-Trimethylbenzene 2.5 47.9 tert-Butylbenzene 47.3 2.5 1.2,4-Trimethylbenzene 47.6 2.5 sec-Butylbenzene 2.5 1,3-Dichlorobenzene 2.5 1,4-Dichlorobenzene 44.3 2.5 4-Isopropyltoluene 48.1 2.5 1.2-Dichlorobenzene 44.2 2.5 n-Butvibenzene 49.1 2.5 1,2-Dibromo-3-chloropropane (DBCP) 1.2.4-Trichlorobenzene Naphthalene 44.2 Hexachlorobutadiene 95.1 1,2,3-Trichlorobenzene 45.4 Surr: 1,2-Dichloroethane-d4 51.3 Surr: Toluene-d8 48.6 Surr: 4-Bromofluorobenzene 50.1 



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:

OC Summary Report 01-Dec-09 09111704 Type MSD Test Code: EPA Method SW8260B Sample Matrix Spike Duplicate File ID: 09112040.D Analysis Date: 11/20/2009 23:12 Batch ID: MS15W1120N Sample ID: 09111801-05AMSD Prep Date: 11/20/2009 23:12 Units: µq/L Run ID: MSD 15 091120C SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Analyte Result **PQL** Qual Dichlorodifluoromethane 43.4 2.5 50 0 87 13 167 40.33 7.3(20)Chloromethane 41.8 10 50 0 84 28 145 40 4.4(20)Vinvl chloride 8.3(20) 43 134 45.19 49.1 2.5 50 0 98 Chloroethane 52.3 2.5 105 39 154 50 4.5(20)50 0 Bromomethane 42.6 10 85 176 41.17 3.3(20)50 Trichlorofluoromethane 55.1 2.5 50 O 110 34 160 47.91 13.9(20) 1,1-Dichloroethene 54.8 2.5 50 0 110 60 130 50.55 8.1(20) Dichloromethane 47.3 10 50 95 68 130 46.29 2.2(20)trans-1,2-Dichloroethene 50.74 5.4(20) 53.5 2.5 50 107 63 130 n Methyl tert-butyl ether (MTBE) 48.5 5.1(20) 51 1.3 50 102 141 1.1-Dichloroethane 47.64 49.8 61 4.5(20)2.5 50 99.7 130 cis-1,2-Dichloroethene 53.4 2.5 50 107 70 130 51.17 4.2(20)Bromochloromethane 54.5 2.5 50 109 70 130 50.93 6.8(20)Chloroform 50.92 3.4(20)52.7 2.5 105 67 130 50 0 2,2-Dichloropropane 46.85 7.3(20) 50.4 2.5 50 101 152 1.2-Dichloroethane 60 49.14 4.3(20)51.3 2.5 50 0 103 135 1.1.1-Trichloroethane 57.1 2.5 50 O 114 59 137 53.73 6.0(20)1,1-Dichloropropene 54.5 2.5 109 63 130 51,17 6.3(20)50 Carbon tetrachloride 59.2 2.5 50 118 50 147 55.1 7.2(20) 0 Benzene 4.7(20) 49.8 1.3 50 0 100 67 130 47.45 Dibromomethane 51.1 2.5 50 102 69 133 48.43 5.3(20) 1,2-Dichloropropane 69 47.4 5.1(20) 49.9 2.5 50 99.8 130 0 Trichloroethene 69 4.1(20)2.5 50 105 130 Bromodichloromethane 50.25 5.7(20) 53.2 2.5 50 0 106 66 134 cis-1.3-Dichloropropene 48 2.5 50 ٥ 96 63 130 45 6.4(20)trans-1,3-Dichloropropene 44.2 2.5 50 88 66 131 41.36 6.6(20)1,1,2-Trichloroethane 68 45.29 3.6(20)47 2.5 0 94 130 50 Toluene 5.7(20) 47.7 1.3 50 0 95 66 130 45.06 1,3-Dichloropropane 46.43 4.4(20)48.5 2.5 50 0 97 70 130 Dibromochloromethane 49.2 2.5 50 0 98 70 130 45.22 8.5(20) 1.2-Dibromoethane (EDB) 99.4 5 100 99 70 130 94.87 4.7(20)Tetrachloroethene 54.9 2.5 61 50.83 7.7(20) 50 110 134 1.1.1.2-Tetrachloroethane 52.7 2.5 105 70 130 49.14 6.9(20)50 n Chlorobenzene 48.9 98 70 130 45.74 6.6(20)50 Ethylbenzene 68 46 44 6.5(20)49 5 1.3 50 Ω 99 130 m,p-Xylene 50.8 1.3 50 0 102 64 130 47.79 6.2(20)Bromoform 44.6 2.5 50 0 89 64 138 41.5 7.2(20)Styrene 53.7 2.5 107 69 130 50.27 6.6(20)50 0 o-Xvlene 51 1.3 50 102 70 130 48.24 5.5(20) 1.1.2.2-Tetrachloroethane 43.6 2.5 87 65 41.28 5.4(20) 50 0 131 1,2,3-Trichloropropane 93 10 100 0 93 70 130 89.65 3.7(20)Isopropylbenzene 50.5 2.5 50 0 101 64 138 47.99 5.1(20) Bromobenzene 48.9 2.5 50 0 98 70 130 46.31 5.4(20) n-Propylbenzene 50.4 50 101 66 132 47.64 5.7(20) 4-Chlorotoluene 2.5 50 70 130 48.6 5.6(20)51.4 0 103 2-Chlorotoluene 50.2 2.5 50 0 100 70 130 47.74 4.9(20)1,3,5-Trimethylbenzene 50.4 2.5 50 0 101 66 136 47.92 5.0(20)tert-Butylbenzene 47.34 49.3 2.5 50 O 99 65 137 4.1(20)1.2.4-Trimethylbenzene 49.8 2.5 50 0 99.5 65 137 47.56 4.5(20)sec-Butvlbenzene 50 2.5 50 0 99.9 66 134 46.98 6.2(20)1.3-Dichlorobenzene 50.1 70 47.99 4.2(20) 2.5 50 Ω 100 130 1,4-Dichlorobenzene 46.6 130 44.26 5.1(20) 2.5 50 0 93 70 4-Isopropyltoluene 50.8 66 48.06 5.6(20) 2.5 50 0 102 137 1,2-Dichlorobenzene 46.2 2.5 0 92 70 130 44.17 4.6(20)50 n-Butvlbenzene 51.8 2.5 50 0 104 60 142 49.12 5.3(20) 1,2-Dibromo-3-chloropropane (DBCP) 210.3 3.1(20)217 15 250 0 87 67 130 1,2,4-Trichlorobenzene 7.7(20) 52.9 10 50 0 106 61 137 48.99 Naphthalene 48 10 50 0 96 40 167 44.23 8.1(20) Hexachlorobutadiene 104 10 100 n 104 61 130 95.09 8.9(20) 1.2.3-Trichlorobenzene 49.9 99.8 144 45.39 9.5(20)50 51 Surr: 1,2-Dichloroethane-d4 50.3 70 130 50 101 Surr: Toluene-d8 48.6 50 97 70 130 Surr: 4-Bromofluorobenzene 49.5 70 130



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Date:	OC Common Donort	Work Order:
01-Dec-09	QC Summary Report	09111704
	<del></del>	

# 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

EMail Address

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

Battelle Memorial Institute Report Attention David Conner

Client:

PO: 218013 San Diego, CA 92110 Suite C-205

3990 Old Town Ave

Shane Walton

Betsy Cutie

(614) 424-4899 x

Client's COC #: 28888, 023589, 24116

Job :

Page: 1 of 2

Report Due By: 5:00 PM On: 02-Dec-2009 WorkOrder: BMIS09111704

EDD Required: Yes

waltons@battelle.org connerd@battelle.org

cutiee@batelle.org

Sampled by : GH/ DBL Cooler Temp

Samples Received

17-Nov-2009

17-Nov-2009 Date Printed

QC Level: DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates G005862/JPL Groundwater Monitoring

										Requested Tests	ests	
Alpha Sample ID	Client Sample ID	Matrix	Collection Matrix Date	No. of Alpha	No. of Bottles Npha Sub	TAT	314_W	METALS_D	METALS_D VOC_TIC_	VOC_W		Sample Remarks
BMI09111704-01A	MW-21-5	AQ	11/13/09 08:26	5	0	10	Perchlorate	႖	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09111704-02A	MW-21-4	ĄQ	11/13/09 08:54	Ŋ	0	10	Perchlorate	ဌ	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09111704-03A	MW-21-3	Ą	11/13/09 09:21	თ	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09111704-04A	MW-21-2	Ą	11/13/09 09:47	5	0	6	Perchlorate	Çŗ	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09111704-05A	MW-21-1	Ą	11/13/09 10:33	10	0	10	Perchlorate	Ω	VOC by 524 Criteria	VOC by 524 Criteria		MS/MSD
BMI09111704-06A	EB-01-11/13/09	å	11/13/09 10:21	5	0	õ	Perchlorate	Ō	VOC by 524 Criteria	VOC by 524 Criteria	3 3 3 3 3 3 3	Sample time on voas state 10:13 logged in per COC.
BMI09111704-07A	TB-01-11/13/09	á	11/13/09 00:00		0	10			VOC by 524 Criteria	VOC by 524 Criteria		Reno Trip Blank 6/22/09
BMI09111704-08A	MW-15	å	11/16/09 09:05	ڻ.	0	10	Perchlorate	Q	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09111704-09A	MW-19-5	å	11/16/09 09:00	5	0	10	Perchlorate	Ç	VOC by 524 Criteria	VOC by 524 Criteria		
BMI09111704-10A	MW-19-4	Ą	11/16/09 09:24	ζī.	0	10	Perchlorate	ζ	VOC by 524 Criteria	VOC by 524 Criteria		

Logged in by: ( lipsoith tlizabeth Alpha Analytical, Inc. Company 11-17-09 /230 Date/Time

No security seals. Frozen ice. Temp Blank #7706 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). Per Latricia's phone conversation w/ David Conner 11/17/09 all COC's can be combined: into one workorder and the sample date on sample -08A is 11/16/09 not 11/17/09 as stated on COC.

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

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

Battelle Memorial Institute

Page: 2 of 2

WorkOrder: BMIS09111704

Report Due By: 5:00 PM On: 02-Dec-2009

EDD Required: Yes

Sampled by: GH/DBL Cooler Temp

Samples Received 17-Nov-2009 17-Nov-2009 Date Printed

QC Level: DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates Client's COC #: 28888, 023589, 24116

Job :

G005862/JPL Groundwater Monitoring

San Diego, CA 92110

Suite C-205 3990 Old Town Ave

						_	Requested Tests	
Alpha Sample ID	Client Sample ID	Collection Matrix Date	Collection No. of Bottles x Date Alpha Sub TAT	314_W		METALS_D VOC_TIC_	VOC_W	Sample Remarks
BMI09111704-11A MW-19-3	MW-19-3	AQ 11/16/09 10:01	5	10 Perchlorate	Cr Cr	VOC by 524 V Criteria	VOC by 524 Criteria	
BMI09111704-12A MW-19-2	MW-19-2	AQ 11/16/09 10:24	5 0	10 Perchlorate	Cr Cr	VOC by 524 V Criteria	VOC by 524 Criteria	
BMI09111704-13A MW-19-	MW-19-1	AQ 11/16/09 10:48	5	10 Perchlorate		VOC by 524 V Criteria	VOC by 524 Criteria	Level IV QC
BMI09111704-14A EB-02-11/16/09	EB-02-11/16/09	AQ 11/16/09 10:40	5 0	10 Perchlorate	٠ <u>.</u>	VOC by 524 V Criteria	VOC by 524 Criteria	
BMI09111704-15A TB-02-11/16/09	TB-02-11/16/09	AQ 11/16/09 00:00	1 0	10		VOC by 524 V Criteria	VOC by 524 Criteria	Reno Trip Blank 6/22/09

Logged in by: w/ David Conner 11/17/09 all COC's can be combined: into one workorder and the sample date on sample -08A is 11/16/09 not 11/17/09 as stated on COC. Elizabeth Hdcox Alpha Analytical, Inc. Company 11-17-09 1230 Date/Time

No security seals. Frozen ice. Temp Blank #7706 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). Per Latricia's phone conversation

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

Relinquished by  Received by  *Key: AQ - Aqueous SO - Soil V	Received by	Received by Conglow Relinquished by	Relinguiened by	Signature		ADDITIONAL INSTRUCTIONS:		- Wyla A	1021 1/3/09	1033 W/A/A	Pris d	82/		50 OK/11 220	See Key Lab ID Number	Time Nate Matrix* Sampled by	D JOHN WVE	16	City, State, Zip Lawyus alt  Phone Number Fax Fax	नि है	g Information:
WA - Waste OT - Other AR - Air		ex Elizabeth El	- CHISE BROWDY	Print Name				·0773-01-11/13	·06-63-01-11/13	-(5 Mw-21-1	· OH MW-21-2	_	-	-01 MW-21-5	(Use Only) Sample Description	Report Attention	Prone #	P.O. # 2/80/3  EMail Address	73701	CHICAGO	,
**·   -  iter		dox	1 INS/64					109 4 1	3/09 4/25	18/10	•			_	TAT Filed containers		Fax#	Job # C005 767	Fax (775) 355-0406	255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 Phone (775) 355-1004	Alpha Analytical, Inc.
		lora"	T CEL IN.	Company				X	×	X X	XXX	XXX	X X	X X	SOUTON CIN	2 (3 (3) (3) (3)	2/3/03/00.0	2) 20 30 20 10 10 10 10 10 10 10 10 10 10 10 10 10	Analyses Required	OR OTHER	Samples Collected From Which State?
		11-17-09 1231	11/13/09 1300	Date Time	-	-		THE GILL	Escapeur of BLANK	JSW/SW					Global ID # REMARKS	EDD / EDF? YES		ğ	ed	Page #/	hich State? 26888 WA

## Billing Information:

Name GERALD TOMPKINS Address 505 King AUE

City, State, Zip CotumBUS, OH, 43201

Sparks, Nevada 89431-5778 Alpha Analytical, Inc. 255 Glendale Avenue, Suite 21

> Samples Collected From Which State? ō 9 OTHER

Phone Number 64424 4849 Fax 614 424 3667 5960 Sampled Sampled See Key COLUMBUS, 014 Client Name BATTELLE Address 505 King Aue Time 17NOV PG Date Matrix\* Sampled by 6H/DBL Lab ID Number 4320 (Use Only) -0% Report Attention DAVID COUNER EMail Address Connerd Obatte P.O. # Phone # 818 343 2808 64 MW-15 218013 Sample Description Phone (775) 355-1044 Fax (775) 355-0406 JOD # JPL-6W-4909 Fax#614 458-664 lle rova TAT \*\* See below Total and type of containers S Analyses Required Global ID # EDD / EDF? YES 🗶 NO Required QC Level? REMARKS = ₹

### ADDITIONAL INSTRUCTIONS: Ä CONNER やまるに # 619-726-73/

Signature	Print Name	Company	Date	Time
Relinquished by Jones Hearly from	GREG HEADING TON	BATTELLE	6010NBI	/30°C
Received by	Mario Marion	WIGHT FEC	11/16 1310	1310
Relinquished by Manager 1997	LANCO KENDON	INSIGNT FEC	11/16/09 1315	1315
Received by ( ) land th ( ) d Cax	Elizabuth Adrox	Asha	11:17-09	/23/5
(			, - 1	
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

		Sa	Samples Collected From Which State?	State? O/11A
1/4	SHE 255 Gleno	Alpha Analytical, Inc.  255 Glendale Avenue, Suite 21  1D	CA X NV WA OTHER	<b>6</b>
Address 505 KING MVC.  City, State, Zip Colour But of the colour bar of the colour b	\$\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fin}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}{\frac{\frac{\frac}{\frac{\frac{\frac{\fin}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{	Sparks, Nevada 89431-5778 Phone (775) 355-1044 Fax (775) 355-0406	nalys	
SATTELLE / DAVID CONNER	PO.# 2/80/3	Job# 6005867	(1.2)	76
OLD TOWN AVE, C	EMail Address		(2a)	1 11 /111/ IV
Str. 40ECO CA 97/10	18 726 - 73/1	⊢ax #	(cr/6)	EDD / EDF? YES NO
Time Date Matrix* Sampled by	Report Attention	Total and type of	722	Global ID #
Sampled Sampled Below Lab ID Number ( Office Only )	ny) Sample Description		70; C/o	REMARKS
SAD WINDO AQ	09 MW-19-5	× 12 de 111000	× ×	
94	-10 MW-19-4		×	
(80)	11 MW-19-3	×	×	
1024	12 Mw-19-2	X	X	
	13 MW-19-1	<b>4</b>	X	Leven III ac
in the contract of the contrac	14 68-17-11/11/09	×	X <	
	15 -13-11/16/09	× ·	4	γ) -
Signature	Print Name	Co	Company [	Date Time
Relinquished by	CHANE BROWN	WS64FC	ecc TNC 11/1	18/09 1330
Received by	MARCO MENDOSA	_ '	Cec /11	1/4/05 1340
Relinquished by	MARC LICADOR	INSIGHT	111	16/2 1400
Received by Charleth (IC	ox Elizabeth He	Cox (lep	ha 11.1	1-17-09 1230
Received by				
			<del>-</del>	

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: 02-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:

BMI09111801

**Cooler Temp:** 

4°C

Alpha's Sample ID	Client's Sample ID	Matrix	
09111801-01A	QCEB-16 NOV	Aqueous	
09111801-02A	MW-5	Aqueous	
09111801-03A	MW-6	Aqueous	
09111801-04A	MW-20-5	Aqueous	
09111801-05A	MW-20-4	Aqueous	
09111801-06A	MW-20-3	Aqueous	
09111801-07A	MW-20-2	Aqueous	
09111801-08A	MW-20-1	Aqueous	
09111801-09A	DUPE-01-4Q09	Aqueous	
09111801-10A	EB-03-11/17/09	Aqueous	
09111801-11A	TB-03-11/17/09	Aqueous	

Manuall	V Integrated	<b>Analytes</b>
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	Manually Integrated Man	<del>ces</del>	
Alpha's Sample ID	Test Reference	Analyte	
09111801-02A 09111801-04A 09111801-05A	EPA Method 314.0 EPA Method 314.0 EPA Method 314.0	Perchlorate 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.

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



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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: 11/18/09

Job: G005862/JPL Groundwater Monitoring

### Perchlorate by Ion Chromatography EPA Method 314.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-5 Lab ID: BMI09111801-02A Date Sampled 11/17/09 09:30	Perchlorate	17.0	1.00 μg/L	11/19/09 12:32	11/23/09 16:51
Client ID: <b>MW-6</b> Lab ID: BMI09111801-03A Date Sampled 11/17/09 12:00	Perchlorate	2.51	1.00 µg/L	11/19/09 12:32	11/23/09 17:09
Client ID: <b>MW-20-5</b> Lab ID: BMI09111801-04A Date Sampled 11/17/09 08:15	Perchlorate	22.6	1.00 μg/L	11/19/09 12:32	11/24/09 18:04
Client ID: <b>MW-20-4</b> Lab ID: BMI09111801-05A Date Sampled 11/17/09 08:59	Perchlorate	76.0	1.00 μg/L	11/19/09 12:32	11/24/09 18:22
Client ID: MW-20-3  Lab ID: BMI09111801-06A  Date Sampled 11/17/09 09:32	Perchlorate	ND	1.00 μg/L	11/19/09 12:32	11/23/09 18:41
Client ID: <b>MW-20-2</b> Lab ID: <b>BMI</b> 09111801-07A Date Sampled 11/17/09 09:58	Perchlorate	3.37	1.00 μg/L	11/19/09 12:32	11/23/09 19:00
Client ID: MW-20-1 Lab ID: BMI09111801-08A Date Sampled 11/17/09 10:48	Perchlorate	ND	1.00 μg/L	11/19/09 12:32	11/23/09 19:18
Client ID: <b>DUPE-01-4Q09</b> Lab ID: <b>BM</b> I09111801-09A  Date Sampled 11/17/09 00:00	Perchlorate	ND	1.00 μg/L	11/19/09 12:32	11/23/09 19:37
Client ID: <b>EB-03-11/17/09</b> Lab ID: BMI09111801-10A  Date Sampled 11/17/09 10:20	Perchlorate	ND	1.00 µg/L	11/19/09 12:32	11/23/09 19:55



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ND = Not Detected

Roger Scholl

Kandy Saulner

Walter Hinkman

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.

12/2/09

**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: 11/18/09

Job:

G005862/JPL Groundwater Monitoring

Metals by ICPMS EPA Method 200.8

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-5 Lab ID: BMI09111801-02A Date Sampled 11/17/09 09:30	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 05:27
Client ID: <b>MW-6</b> Lab ID: BMI09111801-03A Date Sampled 11/17/09 12:00	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 05:33
Client ID: MW-20-5 Lab ID: BMI09111801-04A Date Sampled 11/17/09 08:15	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 05:38
Client ID: <b>MW-20-4</b> Lab ID: <b>BM</b> I09111801-05A Date Sampled 11/17/09 08:59	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 05:10
Client ID: <b>MW-20-3</b> Lab ID: <b>BM</b> I09111801-06A Date Sampled 11/17/09 09:32	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 05:44
Client ID: <b>MW-20-2</b> Lab ID: BMI09111801-07A Date Sampled 11/17/09 09:58	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 05:50
Client ID: <b>MW-20-1</b> Lab ID: BMI09111801-08A Date Sampled 11/17/09 10:48	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 05:55
Client ID: <b>DUPE-01-4Q09</b> Lab ID: BMI09111801-09A Date Sampled 11/17/09 00:00	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 06:01
Client ID: <b>EB-03-11/17/09</b> Lab ID: BMI09111801-10A Date Sampled 11/17/09 10:20	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 06:07



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ND = Not Detected

Roger Scholl

Kandy Saulner

Walter Strikmer

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.

12/2/09

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

(614) 458-6641 Fax:

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

	Parameter	Estimated Concentration	Estimated Reporting Limit	Date Extracted	Date Analyzed	
Client ID : QCEB-16 NOV Lab ID : BMI09111801-01A Date Received : 11/18/09 Date Sampled : 11/16/09 14:15	*** None Found ***	ND	2.0 μg/L	11/21/09	11/21/09	
Client ID: MW-5  Lab ID: BMI09111801-02A  Date Received: 11/18/09  Date Sampled: 11/17/09 09:30	*** None Found ***	ND	2.0 μg/L	11/21/09	11/21/09	
Client ID: MW-6  Lab ID: BMI09111801-03A  Date Received: 11/18/09  Date Sampled: 11/17/09 12:00	*** None Found ***	ND	2.0 μg/L	11/21/09	11/21/09	
Client ID: MW-20-5 Lab ID: BMI09111801-04A Date Received: 11/18/09 Date Sampled: 11/17/09 08:15	Sulfur dioxide	11	2.0 μg/L	11/21/09	11/21/09	
Client ID : MW-20-4  Lab ID : BMI09111801-05A  Date Received : 11/18/09  Date Sampled : 11/17/09 08:59	Sulfur dioxide	15	2.0 μg/L	11/21/09	11/21/09	
Client ID: MW-20-3 Lab ID: BMI09111801-06A Date Received: 11/18/09 Date Sampled: 11/17/09 09:32	Sulfur dioxide	8.6	2.0 μg/L	11/21/09	11/21/09	
Client ID: MW-20-2 Lab ID: BMI09111801-07A Date Received: 11/18/09 Date Sampled: 11/17/09 09:58	Sulfur dioxide	3.1	2.0 μg/L	11/21/09	11/21/09	
Client ID: MW-20-1 Lab ID: BMI09111801-08A Date Received: 11/18/09 Date Sampled: 11/17/09 10:48	Sulfur dioxide	4.6	2.0 μg/L	11/21/09	11/21/09	
Client ID: <b>DUPE-01-4Q09</b> Lab ID: BMI09111801-09A Date Received: 11/18/09 Date Sampled: 11/17/09 00:00	*** None Found ***	ND	2.0 μg/L	11/21/09	11/21/09	



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Client ID: EB-03-11/17/09

10 μg/L 12 Lab ID: BMI09111801-10A Tertiary Butyl Alcohol (TBA)

Date Received: 11/18/09

Date Sampled: 11/17/09 10:20

Client ID: TB-03-11/17/09

11/22/09  $2.0 \mu g/L$ ND Lab ID: BMI09111801-11A \* \* \* None Found \* \* \*

Date Received: 11/18/09 Date Sampled: 11/17/09 00:00

Note: Analysis conducted using EPA Method 524.2 criteria.

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

11/21/09

11/22/09

11/21/09



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### ANALYTICAL REPORT

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring Job:

Alpha Analytical Number: BMI09111801-01A

Client I.D. Number: QCEB-16 NOV

Attn: **David Conner** 

(818) 393-2808 Phone: Fax:

(614) 458-6641

Sampled: 11/16/09 14:15

Received: 11/18/09 Extracted: 11/21/09 Analyzed: 11/21/09

### 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	1.0	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	1.9	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-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-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	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	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 Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

ND

ND

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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

12/2/09

**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

Client I.D. Number: MW-5

3990 Old Town Ave San Diego, CA 92110 Attn:

David Conner

Phone: Fax:

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

Job: G005862

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111801-02A

Sampled: 11/17/09 09:30

Received: 11/18/09

Extracted: 11/21/09 Analyzed: 11/21/09

### 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		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		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/Ł
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	0.58	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		ND	0.50	μg/L					
UZ	1,0 Didinoropropario	1	2.00	-5-					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane34 1,2-Dibromoethane (EDB)

Tetrachioroethene

Roger Scholl Kandy Saulow

ND

ND

ND

Walter Hinkow

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

0.50

μg/L

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12/2/09

Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

Client I.D. Number: MW-6

Job:

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111801-03A

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 11/17/09 12:00

Received: 11/18/09 Extracted: 11/21/09 Analyzed: 11/21/09

### 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		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		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	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	106	(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	96	(70-130)	%REC
32		ND	0.50	μg/L					
52	1,0 Diomoroproperio	110	0.50						

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulur

ND ND

Walter Firedown

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

μg/L

1.0

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12/2/09

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

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111801-04A

Client I.D. Number: MW-20-5

Sampled: 11/17/09 08:15

Received: 11/18/09

Extracted: 11/21/09 Analyzed: 11/21/09

### 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/Ľ	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	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	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 34 1,2-Dibromoethane (EDB)

Tetrachioroethene

Roger Scholl

ND

ND

ND

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

μg/L

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12/2/09

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

Job: G005862/J

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111801-05A

Client I.D. Number: MW-20-4

Sampled: 11/17/09 08:59

Received: 11/18/09 Extracted: 11/21/09 Analyzed: 11/21/09

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		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		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	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					
33		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 Kandy Sulver

ND

ND

Walter Hirihour

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

μg/L

μg/L

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12/2/09

Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

Client I.D. Number: MW-20-3

Attn: Phone: (818) 393-2808

David Conner

Fax:

(614) 458-6641

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111801-06A

Sampled: 11/17/09 09:32

Received: 11/18/09

Extracted: 11/21/09 Analyzed: 11/21/09

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
Dichlorodifluoromethane	ND	0.50	ug/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
Chloromethane	ND	1.0		37	Chlorobenzene	ND	0.50	μg/L
Vinvl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND		µg/L
Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND		µg/L
Bromomethane	ND	1.0	μg/L	40	Bromoform			μg/L
Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene			µg/L
1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene			μg/L
Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	1		μg/L
Freon-113	ND	0.50	µg/L	44	1,2,3-Trichloropropane			μg/L
trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene			μg/L
Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene			μg/L
1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene			μg/L
2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene			μg/L
cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene			μg/L
Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene			μg/L
Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	i		μg/L
2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene			μg/L
1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene			μg/L
1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene			μg/L
1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene			μg/L
Carbon tetrachloride	ND	0.50	μg/L	- 56	4-Isopropyltoluene			μg/L
Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	1		µg/L
Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene			μg/L
1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	,		μg/L
Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene			μg/L
Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene			μg/L
4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ł		μg/L 
cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene			µg/L
trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	1	, ,	%REC
1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8		, ,	%REC
Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	95	(70-130)	%REC
1,3-Dichloropropane	ND	0.50	μg/L					
Dibromochloromethane	ND	0.50	μg/L					
	Dichlorodifluoromethane Chlorodethane Vinyl chloride Chloroethane Bromomethane Trichlorofluoromethane 1,1-Dichloroethene Dichloromethane Freon-113 trans-1,2-Dichloroethene Methyl tert-butyl ether (MTBE) 1,1-Dichloroethane 2-Butanone (MEK) cis-1,2-Dichloroethene Bromochloromethane Chloroform 2,2-Dichloropropane 1,2-Dichloropropane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1-Dichloropropane 1,2-Dichloropropane 1,2-Dichloropropane Tichloroethane 1,1-Dichloropropane Tichloroethene Bromodichloromethane 4-Methyl-2-pentanone (MIBK) cis-1,3-Dichloropropene trans-1,3-Dichloropropene 1,1,2-Trichloroethane Toluene 1,3-Dichloropropane	Dichlorodifluoromethane Chloromethane Vinyl chloride Chloroethane ND Bromomethane ND Trichlorofluoromethane ND 1,1-Dichloroethene ND Dichloromethane ND Freon-113 ND Freon-113 ND Methyl tert-butyl ether (MTBE) ND 1,1-Dichloroethane ND 2-Butanone (MEK) Cis-1,2-Dichloroethene ND Bromochloromethane ND Chloroform ND 2,2-Dichloropropane ND 1,1-Trichloroethane ND 1,1,1-Trichloroethane ND 1,1-Dichloropropane ND 1,2-Dichloropropane ND 1,2-Dichloropropane ND 1,2-Dichloropropane ND 1,1-Dichloropropane ND ND 1,1-Dichloropropane ND ND 1,1-Dichloropropane ND	Dichlorodifluoromethane         ND         0.50           Chloromethane         ND         1.0           Vinyl chloride         ND         0.50           Chloroethane         ND         0.50           Bromomethane         ND         1.0           Trichlorofluoromethane         ND         0.50           1,1-Dichloroethene         ND         0.50           Dichloromethane         ND         0.50           Dichloromethane         ND         0.50           Methyl tert-butyl ether (MTBE)         ND         0.50           Methyl tert-butyl ether (MTBE)         ND         0.50           1,1-Dichloroethane         ND         0.50           2-Butanone (MEK)         ND         10           cis-1,2-Dichloroethene         ND         0.50           Bromochloromethane         ND         0.50           Chloroform         ND         0.50           2,2-Dichloropropane         ND         0.50           1,1-Trichloroethane         ND         0.50           1,1-Dichloropropane         ND         0.50           1,1-Dichloropropane         ND         0.50           1,1-Trichloroethane         ND         0.50 <t< td=""><td>Dichlorodifluoromethane         ND         0.50         µg/L           Chloromethane         ND         1.0         µg/L           Vinyl chloride         ND         0.50         µg/L           Chloroethane         ND         0.50         µg/L           Bromomethane         ND         0.50         µg/L           Trichlorofluoromethane         ND         0.50         µg/L           Trichloroethene         ND         0.50         µg/L           Dichloromethane         ND         0.50         µg/L           Freon-113         ND         0.50         µg/L           Itrans-1,2-Dichloroethene         ND         0.50         µg/L           Methyl tert-butyl ether (MTBE)         ND         0.50         µg/L           Methyl tert-butyl ether (MTBE)         ND         0.50         µg/L           1,1-Dichloroethane         ND         0.50         µg/L           2,Butanone (MEK)         ND         0.50         µg/L           2-Butanone (MEK)         ND         0.50         µg/L           2,2-Dichloroethane         ND         0.50         µg/L           2,2-Dichloropropane         ND         0.50         µg/L</td><td>  Dichlorodifluoromethane</td><td>Dichlorodifluoromethane         ND         0.50         µg/L         36         1,1,1,2-Tetrachloroethane           Chloromethane         ND         0.50         µg/L         37         Chlorobenzene           Vinyl chloride         ND         0.50         µg/L         38         Ethylbenzene           Chloroethane         ND         0.50         µg/L         39         m,p-Xylene           Bromomethane         ND         0.50         µg/L         41         Stryrene           Trichlorofluoromethane         ND         0.50         µg/L         41         Styrene           Trichloroethane         ND         0.50         µg/L         42         c-Xylene           Dichloromethane         ND         0.50         µg/L         42         c-Xylene           Freon-113         ND         0.50         µg/L         44         1,2,3-Trichloroethane           Freon-113         ND         0.50         µg/L         45         Isopropylbenzene           Methyl tert-butyl ether (MTBE)         ND         0.50         µg/L         45         Isopropylbenzene           Methyl tert-butyl ether (MTBE)         ND         0.50         µg/L         48         4-Chlorotoluene</td><td>  Dichlorodifluoromethane</td><td>  Dichloromethane</td></t<>	Dichlorodifluoromethane         ND         0.50         µg/L           Chloromethane         ND         1.0         µg/L           Vinyl chloride         ND         0.50         µg/L           Chloroethane         ND         0.50         µg/L           Bromomethane         ND         0.50         µg/L           Trichlorofluoromethane         ND         0.50         µg/L           Trichloroethene         ND         0.50         µg/L           Dichloromethane         ND         0.50         µg/L           Freon-113         ND         0.50         µg/L           Itrans-1,2-Dichloroethene         ND         0.50         µg/L           Methyl tert-butyl ether (MTBE)         ND         0.50         µg/L           Methyl tert-butyl ether (MTBE)         ND         0.50         µg/L           1,1-Dichloroethane         ND         0.50         µg/L           2,Butanone (MEK)         ND         0.50         µg/L           2-Butanone (MEK)         ND         0.50         µg/L           2,2-Dichloroethane         ND         0.50         µg/L           2,2-Dichloropropane         ND         0.50         µg/L	Dichlorodifluoromethane	Dichlorodifluoromethane         ND         0.50         µg/L         36         1,1,1,2-Tetrachloroethane           Chloromethane         ND         0.50         µg/L         37         Chlorobenzene           Vinyl chloride         ND         0.50         µg/L         38         Ethylbenzene           Chloroethane         ND         0.50         µg/L         39         m,p-Xylene           Bromomethane         ND         0.50         µg/L         41         Stryrene           Trichlorofluoromethane         ND         0.50         µg/L         41         Styrene           Trichloroethane         ND         0.50         µg/L         42         c-Xylene           Dichloromethane         ND         0.50         µg/L         42         c-Xylene           Freon-113         ND         0.50         µg/L         44         1,2,3-Trichloroethane           Freon-113         ND         0.50         µg/L         45         Isopropylbenzene           Methyl tert-butyl ether (MTBE)         ND         0.50         µg/L         45         Isopropylbenzene           Methyl tert-butyl ether (MTBE)         ND         0.50         µg/L         48         4-Chlorotoluene	Dichlorodifluoromethane	Dichloromethane

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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

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

12/2/09

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 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111801-07A

Client I.D. Number: MW-20-2

Attn: David Conner

(818) 393-2808 Phone: Fax:

(614) 458-6641

Sampled: 11/17/09 09:58

Received: 11/18/09 Extracted: 11/21/09 Analyzed: 11/21/09

### 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-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	0.89	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	102	(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	μα/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

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.

**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

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111801-08A

Client I.D. Number: MW-20-1

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 11/17/09 10:48

Received: 11/18/09 Extracted: 11/21/09 Analyzed: 11/21/09

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

	Compound	Concentration	Reporting 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/ <b>L</b>
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		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	107	(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	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

Dibromochloromethane

34 1,2-Dibromoethane (EDB)

Tetrachioroethene

Roger Scholl Kandy Santon

ND

ND

Walter Windows Overline Accourage Officer

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.

12/2/09

**Report Date** 



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### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

Attn: Phone:

David Conner

Fax:

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

San Diego, CA 92110 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111801-09A

Sampled: 11/17/09 00:00

Received: 11/18/09

Extracted: 11/21/09 Analyzed: 11/21/09

Client I.D. Number: DUPE-01-4Q09

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

	Compound	Concentration	Reporting I	_imit		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-Propyibenzene	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		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	108	(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		ND	0.50	μg/L					
	Dibiolitoriorioriorio	1	2.00						

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

34 1,2-Dibromoethane (EDB) 35 Tetrachloroethene

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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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

12/2/09

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: BMI09111801-10A

Client I.D. Number: EB-03-11/17/09

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 11/17/09 10:20

Received: 11/18/09 Extracted: 11/21/09 Analyzed: 11/21/09

### 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
10	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
20 21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
	Benzene	ND	0.50	μg/L	57	1.2-Dichlorobenzene	ND	0.50	μg/L
22	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
23		ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
24	1,2-Dichloropropane Trichloroethene	ND	0.50	μg/L	60	1.2.4-Trichlorobenzene	ND	1.0	μg/L
25	Bromodichloromethane	ND	0.50	μg/L μg/L	61	Naphthalene	ND	1.0	μg/L
26		ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	0.50	μg/L μg/L	63	1.2.3-Trichlorobenzene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%REC
29	trans-1,3-Dichloropropene	ND	0.50		65	Surr: Toluene-d8	100	(70-130)	%REC
30	1,1,2-Trichloroethane	1 '	0.50	μg/L	66		94	(70-130)	%REC
31	Toluene	ND		µg/L	00	Guil. 4-Diomondolobonzone	1	,,	
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 Kandy Saulman

ND

ND

ND

Walter Firehour

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

0.50

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.

12/2/09

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

Alpha Analytical Number: BMI09111801-11A

Client I.D. Number: TB-03-11/17/09

Sampled: 11/17/09 00:00

Received: 11/18/09

Extracted: 11/22/09 Analyzed: 11/22/09

### 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/Ľ
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	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	94	(70-130)	%REC
32		ND	0.50	μg/L					
		::=	0.50						

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

34 1,2-Dibromoethane (EDB) 35 Tetrachloroethene

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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12/2/09

Report Date



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### **VOC Sample Preservation Report**

Work Order: BMI09111801 Job: G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	рН	
09111801-01A	QCEB-16 NOV	Aqueous	2	
09111801-02A	MW-5	Aqueous	2	
09111801-03A	MW-6	Aqueous	2	*
09111801-04A	MW-20-5	Aqueous	2	
09111801-05A	MW-20-4	Aqueous	2	
09111801-06A	MW-20-3	Aqueous	2	
09111801-07A	MW-20-2	Aqueous	2	
09111801-08A	MW-20-1	Aqueous	2	
09111801-09A	DUPE-01-4Q09	Aqueous	2	
09111801-10A	EB-03-11/17/09	Aqueous	2	
09111801-11A	TB-03-11/17/09	Aqueous	2	

12/2/09

Report Date



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<b>Date:</b> 01-Dec-09		(	QC Si	ummar	y Repor	t				<b>Work Orde</b> 09111801	r:
Method Bla File ID: 19 Sample ID: Analyte	nk MB-23119	Units : <b>µg/L</b> Result	Type M	B. Run ID: IC	est Code: <b>El</b> atch ID: <b>231</b> -3_ <b>091123</b> SpkRefVal	19 \		Analy: Prep (	Date:	11/23/2009 15:37 11/19/2009 12:32 /al %RPD(Limit)	Qual
Perchlorate		ND	1							,	
Laboratory File ID: 21 Sample ID: Analyte	Fortified Blank LFB-23119	Units : <b>µg/L</b> Result	Type L	B Run ID: IC	est Code: <b>El</b> atch ID: <b>231</b> 3_ <b>091123/</b> SpkRefVal	19 \		Prep I	Date:	11/23/2009 16:14 11/19/2009 12:32 /al %RPD(Limit)	Qual
Perchlorate		26.1	2	2 25		105	85	115			
Sample Mat File ID: 15 Sample ID: Analyte	trix Spike 09111801-05ALFM	Units : µg/L Result	Type L	B Run ID: <b>IC</b>	est Code: El atch ID: <b>231</b> C_ <b>3_091123</b> SpkRefVal	19 A		Analy Prep	Date:	11/24/2009 11:37 11/19/2009 12:32 /al %RPD(Limit)	Qual
Perchlorate		189	10	125	76.01	91	80	120			
Sample Mar File ID: 16 Sample ID:	trix Spike Duplicate 09111801-05ALFMD	Units : µg/L	Type L	Run ID: IC	est Code: E atch ID: 231 2_3_091123	19 4		Analy Prep	Date:	11/24/2009 11:56 11/19/2009 12:32	
Analyte Perchlorate		Result 193	PQL 10				CLCL(ME)	UCL(ME)	RPDRef	Val %RPD(Limit) 4 2.0(15)	Qual

### 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: 30-Nov-09	QC Summary Report	<b>Work Order:</b> 09111801
Method Blank File ID: 111809.B\131SMPL.D\ Sample ID: MB-23103	Type MBLK         Test Code: EPA Method 200.8           Batch ID: 23103K         Analysis Date:           Units: mg/L         Run ID: ICP/MS_091118E         Prep Date:           Result         PQL         SpkVal         SpkRefVal         %REC         LCL(ME)         UCL(ME)         RPDRefVal	11/19/2009 04:47 11/18/2009 11:25 /al %RPD(Limit) Qual
Analyte Chromium (Cr)	ND 0.005	
Laboratory Control Spike File ID: 111809.B\132_LCS.D\ Sample ID: LCS-23103 Analyte	Type LCS Test Code: EPA Method 200.8  Batch ID: 23103K Analysis Date:  Units : mg/L Run ID: ICP/MS_091118E Prep Date:  Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefV	11/19/2009 04:53 11/18/2009 11:25 /al %RPD(Limit) Qual
Chromium (Cr)	0.052 0.005 0.05 104 80 120	
Sample Matrix Spike File ID: 111809.B\136SMPL.D\ Sample ID: 09111801-05AMS Analyte	Type MS Test Code: EPA Method 200.8  Batch ID: 23103K Analysis Date:  Units : mg/L Run ID: ICP/MS_091118E Prep Date:  Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefV	11/19/2009 05:16 11/18/2009 11:25 /al %RPD(Limit) Qual
Chromium (Cr)	0.0522	
Sample Matrix Spike Duplicate File ID: 111809.B\137SMPL.D\ Sample ID: 09111801-05AMSD Analyte	Type MSD         Test Code: EPA Method 200.8           Batch ID: 23103K         Analysis Date:           Units: mg/L         Run ID: ICP/MS_091118E         Prep Date:           Result         PQL         SpkVal         SpkRefVal         %REC         LCL(ME)         UCL(ME)         RPDRefVal	11/19/2009 05:21 11/18/2009 11:25 /al %RPD(Limit) Qual
Chromium (Cr)	0.0508 0.005 0.05 0 102 80 120 0.0522	21 2.8(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.

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

Work Order:

QC Summary Report 09111801 01-Dec-09 Test Code: EPA Method SW8260B Type MBLK Method Blank Analysis Date: 11/20/2009 22:28 File ID: 09112038.D Batch ID: MS15W1120N Prep Date: 11/20/2009 22:28 Run ID: MSD\_15\_091120C Sample ID: **MBLK MS15W1120N** Units: µg/L SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual PQL Analyte Result 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 ND 0.5 trans-1,2-Dichloroethene ND 0.5 Methyl tert-butyl ether (MTBE) ND 0.5 1.1-Dichloroethane ND 0.5 ND 10 2-Butanone (MEK) cis-1,2-Dichloroethene ND 0.5 Bromochloromethane ND 0.5 Chloroform ND 0.5 2,2-Dichloropropane ND 0.5 ND 0.5 1,2-Dichloroethane 1.1.1-Trichloroethane ND 0.5 1,1-Dichloropropene ND 0.5 Carbon tetrachloride ND 0.5 Benzene ND 0.5 Dibromomethane ND 0.5 1,2-Dichloropropane 0.5 ND 0.5 Trichloroethene ND Bromodichloromethane ND 0.5 4-Methyl-2-pentanone (MIBK) ND 2.5 0.5 cis-1,3-Dichloropropene ND trans-1.3-Dichloropropene ND 0.5 1,1,2-Trichloroethane ND 0.5 0.5 Toluene ND 1,3-Dichloropropane ND 0.5 Dibromochloromethane ND 0.5 1,2-Dibromoethane (EDB) ND Tetrachloroethene ND 0.5 ND 0.5 1,1,1,2-Tetrachloroethane Chlorobenzene ND 0.5 ND 0.5 Ethylbenzene 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 ND 1,2,3-Trichloropropane 1 ND 0.5 Isopropylbenzene ND 0.5 Bromobenzene n-Propylbenzene ND 0.5 4-Chlorotoluene ND 0.5 ND 0.5 2-Chiorotoluene 0.5 1,3,5-Trimethylbenzene ND ND 0.5 tert-Butylbenzene 1.2.4-Trimethylbenzene ND 0.5 sec-Butylbenzene ND 0.5 ND 0.5 1,3-Dichlorobenzene 1,4-Dichlorobenzene ND 0.5 4-Isopropyltoluene ND 0.5 0.5 1,2-Dichlorobenzene ND n-Butylbenzene ND 0.5 1,2-Dibromo-3-chloropropane (DBCP) ND 2.5 1,2,4-Trichlorobenzene ND Naphthalene ND 1 Hexachlorobutadiene ND 1 1,2,3-Trichlorobenzene ND Surr: 1,2-Dichloroethane-d4 10 103 70 130 10.3 70 102 130 Surr: Toluene-d8 10.2 10



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<b>Date:</b> 01-Dec-09	(	QC Sum	mary R	eport			<b>Work Orde</b> 09111801	
Surr: 4-Bromofluorobenzene	9.44		10	94	70	130		
Laboratory Control Spike		Type LCS	Test C	ode: <b>EPA Metho</b>	d SW8			
File ID: 09112035.D			Batch	ID: MS15W1120N	4	Analysis Date	e: 11/20/2009 21:22	
Sample ID: LCS MS15W1120N	Units : µg/L	Run	1D: <b>MSD_</b>	15_091120C		Prep Date:	11/20/2009 21:22	
Analyte	Result	PQL S	SpkVal Spk	RefVal %REC L	CL(ME	) UCL(ME) RPDRe	efVal %RPD(Limit)	Qu
Dichlorodifluoromethane	8.05	1	10	81	70	130		
Chloromethane	7.24	2	10	72	70	130		
Vinyl chloride	9.3	1	10	93	70	130		
Chloroethane	9.8	1	10	98	70	130		
Bromomethane	9.79	2	10	98	70	130		
Trichlorofluoromethane	11.2	1	10	112	70	130 130		
1,1-Dichloroethene	10.9	1	10 10	109 97	70 70	130		
Dichloromethane	9.7 10.9	2 1	10	109	70	130		
trans-1,2-Dichloroethene Methyl tert-butyl ether (MTBE)	10.6	0.5	10	106	70	130		
1,1-Dichloroethane	10.3	1	10	103	70	130		
cis-1,2-Dichloroethene	11	i	10	110	70	130		
Bromochloromethane	11.1	1	10	111	70	130		
Chloroform	11.1	1	10	111	70	130		
2,2-Dichloropropane	11.1	1	10	111	70	130		
1,2-Dichloroethane	10.8	1	10	108	70	130		
1,1,1-Trichloroethane	11.9	1	10	119	70	130		
1,1-Dichloropropene	11	1	10	110	70	130		
Carbon tetrachloride	12.3	1	10	123	70	130		
Benzene	10.3	0.5	10	103	70	130		
Dibromomethane	10.6	1	10	106	70 70	130 130		
1,2-Dichloropropane	10.3	1	10 10	103 117	70 70	130		
Trichloroethene	11.7 11.2	1	10	117	70	130		
Bromodichloromethane cis-1,3-Dichloropropene	10.5	1	10	105	70	130		
trans-1,3-Dichloropropene	9.58	1	10	96	70	130		
1,1,2-Trichloroethane	9.99	i	10	99.9	7.0	130		
Toluene	10.1	0.5	10	101	70	130		
1,3-Dichloropropane	10.3	1	10	103	70	130		
Dibromochloromethane	10.4	1	10	104	70	130		
1,2-Dibromoethane (EDB)	21.3	2	20	107	70	130		
Tetrachloroethene	11.7	1	10	117	70	130		
1,1,1,2-Tetrachloroethane	11.1	1	10	111	70	130		
Chlorobenzene	10.3	1	10	103	70	130		
Ethylbenzene	10.5	0.5	10	105	70	130		
m,p-Xylene	10.6	0.5	10	106	70 70	130 130		
Bromoform	9.44	1	10	94		130		
Styrene	11.1	1	10 10	111 107	70 70	130		
o-Xylene 1,1,2,2-Tetrachloroethane	10.7 8.67	0.5 1	10 10	87	70 70	130		
1,2,3-Trichloropropane	20.1	2	20	101	70	130		
Isopropylbenzene	10.7	1	10	107	70	130		
Bromobenzene	10.4	i	10	104	70	130		
n-Propylbenzene	10.4	1	10	104	70	130		
4-Chlorotoluene	10.8	1	10	108	70	130		
2-Chlorotoluene	10.4	1	10	104	70	130		
1,3,5-Trimethylbenzene	10.5	1	10	105	70	130		
tert-Butylbenzene	10.3	1	10	103	70	130		
1,2,4-Trimethylbenzene	10.4	1	10	104	70 70	130	•	
sec-Butylbenzene	10.4	1	10	104 106	70 70	130 130		
1,3-Dichlorobenzene	10.6	1	10 10	99	70 70	130		
1,4-Dichlorobenzene 4-Isopropyltoluene	9.85 10.5	1 1	10 10	99 105	70 70	130		
4-isopropyitoluerie 1,2-Dichlorobenzene	9.69	1	10	97	70	130		
n-Butylbenzene	10.8	1	10	108	70	130		
1,2-Dibromo-3-chloropropane (DBCP)	46.1	3	50	92	70	130		
1,2,4-Trichlorobenzene	11	2	10	110	70	130		
Naphthalene	10.1	2	10	101	70	130		
Hexachlorobutadiene	21.3	2	20	106	70	130		
1,2,3-Trichlorobenzene	10.4	2	10	104	70	130		
Surr: 1,2-Dichloroethane-d4	10		10	100	70	130		
Surr: Toluene-d8	9.77		10	98	70	130		
Surr: 4-Bromofluorobenzene	10		10	100	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:

QC Summary Report 01-Dec-09 Test Code: EPA Method SW8260B Type MS Sample Matrix Spike Analysis Date: 11/20/2009 22:50 Batch ID: MS15W1120N File ID: 09112039.D Prep Date: 11/20/2009 22:50 Units: µg/L Run ID: MSD 15\_091120C Sample ID: 09111801-05AMS SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Result **PQL** Analyte Dichlorodifluoromethane 40.3 2.5 Chloromethane Vinvl chloride 45.2 2.5 2.5 Chloroethane 41.2 Bromomethane Trichlorofluoromethane 47.9 2.5 n 50.6 2.5 1.1-Dichloroethene Dichloromethane 46.3 2.5 n trans-1,2-Dichloroethene 50.7 1.3 Methyl tert-butyl ether (MTBE) 48.5 47.6 2.5 1.1-Dichloroethane 2.5 cis-1,2-Dichloroethene 51.2 50.9 2.5 Bromochloromethane 50.9 2.5 Chloroform 46.9 2.5 2,2-Dichloropropane 1,2-Dichloroethane 49.1 2.5 n 1,1,1-Trichloroethane 53.7 2.5 51.2 2.5 n 1.1-Dichloropropene Carbon tetrachloride 55.1 2.5 O 1.3 47.5 Benzene Dibromomethane 48.4 2.5 1,2-Dichloropropane 47.4 2.5 50.5 2.5 Trichloroethene 50.3 2.5 Bromodichloromethane 2.5 O cis-1,3-Dichloropropene 41.4 2.5 trans-1,3-Dichloropropene 45.3 2.5 1,1,2-Trichloroethane 45.1 Toluene 1.3 1.3-Dichloropropane 46.4 2.5 Dibromochloromethane 45.2 2.5 94.9 1,2-Dibromoethane (EDB) 2.5 Tetrachloroethene 50.8 49:1 2.5 1,1,1,2-Tetrachloroethane Chlorobenzene 45.7 2.5 O Ethylbenzene 46.4 1.3 47.8 1.3 m,p-Xylene **Bromoform** 41.5 2.5 2.5 50.3 Styrene 48.2 1.3 o-Xvlene 1,1,2,2-Tetrachloroethane 41.3 2.5 1,2,3-Trichloropropane 89.7 2.5 isopropylbenzene n Bromobenzene 46.3 2.5 47.6 2.5 n-Propylbenzene 48.6 2.5 4-Chiorotoluene 2.5 2-Chlorotoluene 1.3.5-Trimethylbenzene 47.9 2.5 2.5 tert-Butylbenzene 47.3 47.6 2.5 1.2.4-Trimethylbenzene 2.5 sec-Butylbenzene 2.5 1,3-Dichlorobenzene 2.5 1.4-Dichlorobenzene 44.3 2.5 4-Isopropyltoluene 48.1 44.2 2.5 1,2-Dichlorobenzene 49.1 2.5 n-Butylbenzene 1,2-Dibromo-3-chloropropane (DBCP) 1,2,4-Trichlorobenzene Naphthalene 44.2 Hexachlorobutadiene 95.1 1,2,3-Trichlorobenzene 45.4 51.3 Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 48.6 Surr: 4-Bromofluorobenzene 50.1



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 09111801 01-Dec-09 Test Code: EPA Method SW8260B Type MSD Sample Matrix Spike Duplicate Batch ID: MS15W1120N Analysis Date: 11/20/2009 23:12 File ID: 09112040.D 11/20/2009 23:12 Run ID: MSD 15 091120C Prep Date: Sample ID: 09111801-05AMSD Units: µg/L SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Result PQL Analyte 40.33 7.3(20)167 2.5 87 13 43.4 Dichlorodifluoromethane 28 145 40 4.4(20)84 50 ٥ Chloromethane 41.8 10 45.19 2.5 50 0 98 43 134 8.3(20) 49 1 Vinyl chloride 50 4.5(20)154 39 Chloroethane 52.3 2.5 50 0 105 85 19 176 41.17 3.3(20)50 0 42.6 10 **Bromomethane** 47 91 13.9(20) 110 34 160 Trichlorofluoromethane 55.1 2.5 50 0 60 130 50.55 8.1(20) 54.8 2.5 50 n 110 1,1-Dichloroethene 2.2(20)68 130 46.29 47.3 10 50 0 95 Dichloromethane 50.74 5.4(20) 63 130 50 0 107 trans-1.2-Dichloroethene 53.5 2.5 56 141 48.5 5.1(20) 50 n 102 Methyl tert-butyl ether (MTBE) 51 1.3 47.64 4.5(20)99.7 61 130 49.8 2.5 50 1.1-Dichloroethane 51.17 4.2(20)107 70 130 53.4 2.5 50 0 cis-1.2-Dichloroethene 50.93 6.8(20)50 0 109 70 130 54.5 Bromochloromethane 2.5 3.4(20) 50 0 105 67 130 50.92 52.7 2.5 Chloroform 7.3(20) 30 152 46.85 101 2,2-Dichloropropane 50.4 2.5 50 0 135 49.14 4.3(20) 2.5 50 103 51.3 1,2-Dichloroethane 53.73 6.0(20)59 137 1,1,1-Trichloroethane 57.1 2.5 50 0 114 51.17 6.3(20)50 0 109 63 130 2.5 1,1-Dichloropropene 54.5 7.2(20)55.1 Carbon tetrachloride 59.2 2.5 50 0 118 50 147 67 130 47.45 4.7(20) 100 n 49.8 1.3 50 Benzene 5.3(20) 133 48.43 51 1 2.5 50 102 69 Dibromomethane 47.4 5.1(20) 2.5 50 0 99.8 69 130 49.9 1.2-Dichloropropane 50.45 4.1(20)0 105 69 130 2.5 50 Trichloroethene 52.6 50.25 5.7(20) 106 66 134 2.5 50 0 Bromodichloromethane 53.2 96 63 130 45 6.4(20)2.5 50 O cis-1,3-Dichloropropene 48 131 41.36 6.6(20)2.5 0 88 66 trans-1,3-Dichloropropene 44.2 50 3.6(20) 68 130 45.29 0 94 47 2.5 50 1.1.2-Trichloroethane 45.06 5.7(20) 95 66 130 n 47.7 1.3 50 Toluene 97 70 130 46.43 4.4(20)2.5 50 O 48.5 1,3-Dichloropropane 130 45.22 8.5(20) Dibromochloromethane 49.2 2.5 50 0 98 70 94.87 4.7(20)0 99 70 130 100 1,2-Dibromoethane (EDB) 99.4 5 7.7(20) 50.83 54.9 2.5 50 0 110 61 134 Tetrachloroethene 6.9(20)130 49.14 50 0 105 70 52.7 2.5 1,1,1,2-Tetrachloroethane 6.6(20)2.5 50 0 98 70 130 45.74 48.9 Chlorobenzene 46.44 6.5(20)130 68 50 0 99 Ethylbenzene 49.5 1.3 47.79 6.2(20)n 102 64 130 50 m,p-Xylene 50.8 1.3 7.2(20)44.6 2.5 50 0 89 64 138 41.5 Bromoform 69 130 50.27 6.6(20)0 107 53.7 2.5 50 Styrene 130 48.24 5.5(20) 0 102 70 1.3 50 51 o-Xylene 41 28 5.4(20) 1,1,2,2-Tetrachloroethane 50 0 87 65 131 43.6 2.5 89.65 3.7(20) 70 130 93 10 100 0 93 1,2,3-Trichloropropane 47.99 5.1(20) 101 64 138 50.5 2.5 50 0 isopropylbenzene 130 46.31 5.4(20) 70 2.5 50 0 98 Bromobenzene 48.9 0 101 66 132 47.64 5.7(20) 2.5 50 50.4 n-Propylbenzene 5.6(20) 48.6 0 103 70 130 51.4 2.5 50 4-Chlorotoluene 47.74 4.9(20)70 130 100 50 0 2-Chiorotoluene 50.2 2.5 47.92 5.0(20)2.5 50 0 101 66 136 50.4 1,3,5-Trimethylbenzene 47.34 4.1(20)65 137 2.5 50 0 99 tert-Butvlbenzene 49.3 0 99.5 65 137 47.56 4.5(20)50 1,2,4-Trimethylbenzene 49.8 2.5 46.98 6.2(20) 66 0 99.9 134 50 2.5 50 sec-Butylbenzene n 100 70 130 47.99 4.2(20)50.1 2.5 50 1,3-Dichlorobenzene 44.26 5.1(20) 0 70 130 46.6 2.5 50 93 1.4-Dichlorobenzene 66 137 48.06 5.6(20) ٥ 102 50.8 2.5 50 4-Isopropyltoluene 70 130 44.17 4.6(20)0 92 2.5 50 1.2-Dichlorobenzene 46.2 142 49.12 5.3(20) 50 0 104 60 51.8 2.5 n-Butvlbenzene 210.3 3.1(20)87 67 130 1,2-Dibromo-3-chloropropane (DBCP) 217 15 250 0 48.99 7.7(20) 0 106 61 137 10 50 52.9 1,2,4-Trichlorobenzene 167 44.23 8.1(20) 40 10 50 0 96 Naphthalene 48 130 95.09 8.9(20) 104 10 100 0 104 61 Hexachlorobutadiene 9.5(20) 45.39 50 0 99.8 51 144 1.2.3-Trichlorobenzene 49.9 10 101 70 130 50 Surr: 1,2-Dichloroethane-d4 50.3 50 97 70 130 Surr: Toluene-d8 48.6

130

99

50

49.5

70



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Date: 01-Dec-09	QC Summary Report	Work Order: 09111801
01 200 07		

### 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> 01-Dec-09	(		<b>Work Order:</b> 09111801		
Method Blank File ID: 09112140.D	•	Type MBLK	Test Code: EPA Method S Batch ID: MS15W1121M	Analysis Date:	11/21/2009 23:48
Sample ID: MBLK MS15W1121M	Units : µg/L		D: MSD_15_091121C	Prep Date:	11/21/2009 23:48
Analyte	Result	PQL Spk	Val SpkRefVal %REC LCL(	ME) UCL(ME) RPDRef	Val %RPD(Limit) Qua
Dichlorodifluoromethane	ND	0.5			
Chloromethane	ND	1			
Vinyl chloride	ND	0.5			
Chloroethane	ND	0.5			
Bromomethane	ND	1			
Trichlorofluoromethane	ND	0.5			
1,1-Dichloroethene	ND	0.5			
Dichloromethane Freon-113	ND ND	1 0.5			
trans-1,2-Dichloroethene	ND 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 ND	0.5 0.5			
1,1-Dichloropropene Carbon tetrachloride	ND ND	0.5			
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			
trans-1,3-Dichloropropene	ND	0.5			
1,1,2-Trichloroethane	ND	0.5			
Toluene	ND ND	0.5 0.5			
1,3-Dichloropropane Dibromochloromethane	ND ND	0.5			
1,2-Dibromoethane (EDB)	ND	1			
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	ND	0.5			
Styrene	ND	0.5			
o-Xylene	ND	0.5			
1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane	ND ND	0.5 1			
Isopropylbenzene	ND ND	0.5			
Bromobenzene	ND	0.5			
n-Propylbenzene	ND	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	ND	0.5			
sec-Butylbenzene	ND	0.5	•		
1,3-Dichlorobenzene	ND ND	0.5			
1,4-Dichlorobenzene 4-Isopropyltoluene	ND ND	0.5 0.5			
1,2-Dichlorobenzene	ND ND	0.5			
n-Butylbenzene	ND 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	1			
Surr: 1,2-Dichloroethane-d4	9.88		=	70 130	
Surr: Toluene-d8	10.2		10 102 7	70 130	



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<b>Date:</b> 01-Dec-09	(	QC Summary Report						<b>Work Order:</b> 09111801	
Surr: 4-Bromofluorobenzene	9.62		10	96	70	130			
Laboratory Control Spike		Type LCS	Test	Code: EPA Meth	od SW8				
File ID: 09112137.D			Batch	ID: MS15W112	1 M	Analysis Date:	11/21/2009 22:44		
Sample ID: LCS MS15W1121M	Units : µg/L	Rı	ın ID: MSD	_15_091121C		Prep Date:	11/21/2009 22:44		
Analyte	Result	PQL	SpkVal Sp	kRefVal %REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qua	
Dichlorodifluoromethane	7.12	1	10	71	70	130			
Chloromethane	7.73	2	10	77	70	130			
Vinyl chloride	9.48	1	10	95	70 70	130			
Chloroethane	10.3	1	10	103 107	70 70	130 130			
Bromomethane Tricklerefluoremethane	10.7 10.2	2 1	10 10	107	70	130			
Trichlorofluoromethane 1,1-Dichloroethene	10.6	i	10	106	70	130			
Dichloromethane	9.5	2	10	95	70	130			
trans-1,2-Dichloroethene	10.7	1	10	107	70	130			
Methyl tert-butyl ether (MTBE)	10.4	0.5	10	104	70	130			
1,1-Dichloroethane	10.1	1	10	101	70 70	130 130			
cis-1,2-Dichloroethene	10.8 10.9	1	10 10	108 109	70	130			
Bromochloromethane Chloroform	10.9	1	10	106	70	130			
2,2-Dichloropropane	10.8	1	10	108	70	130			
1,2-Dichloroethane	10.1	1	10	101	70	130			
1,1,1-Trichloroethane	11.1	1	10	111	70	130			
1,1-Dichloropropene	10.7	1	10	107	70 70	130			
Carbon tetrachloride	11.5	1	10	115 103	70 70	130 130			
Benzene	10.3 10.3	0.5 1	10 10	103	70	130			
Dibromomethane 1,2-Dichloropropane	10.5	1	10	105	70	130			
Trichloroethene	11.4	i 1	10	114	70	130			
Bromodichloromethane	10.6	1	10	106	70	130			
cis-1,3-Dichloropropene	10.4	1	10	104	70	130			
trans-1,3-Dichloropropene	9.33	1	10	93	70 70	130 130			
1,1,2-Trichloroethane	9.83	1 0.5	10 10	98 100	70 70	130			
Toluene 1,3-Dichloropropane	10 10.1	1	10	101	70	130			
Dibromochloromethane	9.94	i	10	99	70	130			
1,2-Dibromoethane (EDB)	20.6	2	20	103	70	130			
Tetrachloroethene	11.4	1	10	114	70	130			
1,1,1,2-Tetrachloroethane	10.8	1	10	108	70	130			
Chlorobenzene	10.2	1	10	102	70 70	130 130			
Ethylbenzene	10.3	0.5 0.5	10 10	103 105	70 70	130			
m,p-Xylene Bromoform	10.5 8.95	0.5 1	10	90	70	130			
Styrene	11.2	1	10	112	70	130			
o-Xylene	10.6	0.5	10	106	70	130			
1,1,2,2-Tetrachloroethane	8.51	1	10	85	70	130			
1,2,3-Trichloropropane	19.3	2	20	97 106	70 70	130 130			
Isopropylbenzene	10.6 10.2	1 1	10 10	100	70 70	130			
Bromobenzene n-Propylbenzene	10.2	1	10	104	70	130			
4-Chlorotoluene	10.6	i	10	106	70	130			
2-Chlorotoluene	10.4	1	10	104	70	130			
1,3,5-Trimethylbenzene	10.5	1	10	105	70	130			
tert-Butylbenzene	10.2	1	10	102	70 70	130 130			
1,2,4-Trimethylbenzene	10.3	1	10 10	103 104	70 70	130			
sec-Butylbenzene	10.4 10.5	1	10	105	70	130			
1,3-Dichlorobenzene 1,4-Dichlorobenzene	9.65	1	10	97	70	130			
4-isopropyltoluene	10.6	1	10	106	70	130			
1,2-Dichlorobenzene	9.61	1	10	96	70	130			
n-Butylbenzene	10.7	1	10	107	70 70	130			
1,2-Dibromo-3-chloropropane (DBCP)	44.7	3	50 10	89 111	70 70	130 130			
1,2,4-Trichlorobenzene	11.1 10.2	2 2	10 10	102	70 70	130			
Naphthalene Hexachlorobutadiene	21.5	2	20	107	70	130			
1,2,3-Trichlorobenzene	10.5	2	10	105	70	130			
Surr: 1,2-Dichloroethane-d4	9.61	_	10	96	70	130			
Surr: Toluene-d8	9.82		10	98	70	130			
Surr: 4-Bromofluorobenzene	9.96		10	99.6	70	130			



Surr: 4-Bromofluorobenzene

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Work Order: Date: QC Summary Report 01-Dec-09 Type MS Test Code: EPA Method SW8260B Sample Matrix Spike Analysis Date: 11/22/2009 00:10 Batch ID: MS15W1121M File ID: 09112141.D 11/22/2009 00:10 Prep Date: Run ID: MSD\_15\_091121C Sample ID: 09111903-01AMS Units: µg/L SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Result **PQL** Analyte 36.4 2.5 Dichlorodifluoromethane Chloromethane 38.2 2.5 Vinyl chloride 46.1 2.5 45.5 Chloroethane Bromomethane 45.4 45.9 2.5 Trichlorofluoromethane 2.5 1.1-Dichloroethene n Dichloromethane 45.1 50.3 2.5 trans-1,2-Dichloroethene Methyl tert-butyl ether (MTBE) 48.4 1.3 0.64 47.8 2.5 1.1-Dichloroethane 50.4 2.5 cis-1,2-Dichloroethene Bromochloromethane 2.5 2.5 0.5 Chloroform 49.5 2.5 2,2-Dichloropropane 46.4 2.5 1,2-Dichloroethane 46.7 51.3 2.5 1,1,1-Trichloroethane 50.3 2.5 1,1-Dichloropropene 2.5 52.6 Carbon tetrachloride 47.9 1.3 Benzene Dibromomethane 47.6 2.5 2.5 48.1 1,2-Dichloropropane 49.4 2.5 Trichloroethene 2.5 48.7 Bromodichloromethane cis-1,3-Dichloropropene 45.4 2.5 trans-1,3-Dichloropropene 41.5 2.5 45.4 2.5 1,1,2-Trichloroethane 45.5 1.3 Toluene 1,3-Dichloropropane 46.2 2.5 43.9 2.5 Dibromochloromethane 1,2-Dibromoethane (EDB) 94.5 52.2 2.5 1.02 Tetrachloroethene 2.5 1.1.1.2-Tetrachloroethane 2.5 46.1 Chlorobenzene 46.5 1.3 Ethylbenzene 47.6 1.3 m.p-Xylene 2.5 40.1 Bromoform 51.4 Styrene 48.2 1.3 o-Xylene 1,1,2,2-Tetrachloroethane 42.5 2.5 87.8 1,2,3-Trichloropropane 48.1 2.5 Isopropylbenzene 47.2 2.5 Bromobenzene 2.5 n-Propylbenzene 47.5 2.5 48.6 4-Chlorotoluene 2.5 2-Chlorotoluene 47.8 2.5 1,3,5-Trimethylbenzene 47 4 46.9 2.5 tert-Butylbenzene 1,2,4-Trimethylbenzene 2.5 2.5 46.8 sec-Butylbenzene 1.3-Dichlorobenzene 47.4 2.5 44.2 2.5 1,4-Dichlorobenzene 4-Isopropyltoluene 47.4 2.5 2.5 1,2-Dichlorobenzene 43.8 48.3 2.5 n-Butvlbenzene 1.2-Dibromo-3-chloropropane (DBCP) 1,2,4-Trichlorobenzene Naphthalene 44.8 Hexachlorobutadiene 94.1 45.5 1.2.3-Trichlorobenzene 48.2 Surr: 1,2-Dichloroethane-d4 49.1 Surr: Toluene-d8



Surr: Toluene-d8

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 09111801 01-Dec-09 Test Code: EPA Method SW8260B Type MSD Sample Matrix Spike Duplicate Analysis Date: 11/22/2009 00:32 Batch ID: MS15W1121M File ID: 09112142.D 11/22/2009 00:32 Prep Date: Sample ID: 09111903-01AMSD Units: µg/L Run ID: MSD 15 091121C SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Result PQL Analyte 167 8.0(20) 2.5 0 79 13 Dichlorodifluoromethane 39.4 38.21 4.1(20) Chloromethane 39.8 10 50 0 80 28 145 4.3(20) 46.1 96 43 134 Vinyl chloride 48.1 2.5 50 0 154 45.52 9.6(20)2.5 50 0 100 39 50.1 Chloroethane 45.38 16.5(20) 176 Bromomethane 53.6 10 50 0 107 19 34 160 45.89 10.3(20) 50.9 2.5 50 n 102 Trichlorofluoromethane 53 2.5 50 0 106 60 130 49.99 5.8(20) 1.1-Dichloroethene 45.06 4.0(20) 130 94 68 Dichloromethane 46.9 10 50 0 4.1(20) 52.4 2.5 50 0 105 63 130 50.29 trans-1,2-Dichloroethene 48.41 4.3(20)Methyl tert-butyl ether (MTBE) 50.6 1.3 50 0 101 56 141 0.64 97 61 130 47.82 3.0(20)2.5 50 1,1-Dichloroethane 49.3 105 70 130 50.37 4.1(20) 52.5 2.5 50 0 cis-1,2-Dichloroethene 105 70 130 50.04 5.1(20) 52.7 2.5 50 0 Bromochloromethane 49.54 2.9(20)101 67 130 Chloroform 51 2.5 50 0.5 46.4 3.2(20) 96 30 152 2,2-Dichloropropane 47.9 2.5 50 0 60 135 46.68 3.8(20) 97 1,2-Dichloroethane 48.5 2.5 50 0 53.7 2.5 50 0 107 59 137 51.32 4.5(20)1.1.1-Trichloroethane 50.26 3.6(20)50 0 104 63 130 1.1-Dichloropropene 52.1 2.5 50 147 52.62 4.8(20)0 110 2.5 50 Carbon tetrachloride 55.2 49.4 1.3 50 0 99 67 130 47.92 3.1(20)Benzene 47.59 133 3.1(20)Dibromomethane 49.1 2.5 50 0 98 69 0 99.7 69 130 48.14 3.5(20) 2.5 50 1.2-Dichloropropane 49.9 49.35 4.6(20)0 103 69 130 Trichloroethene 51.7 2.5 50 0 103 66 134 48.74 5.1(20) 2.5 50 Bromodichloromethane 51.3 63 130 45.42 3.6(20)cis-1,3-Dichloropropene 47.1 2.5 50 0 94 4.8(20) 66 131 41.51 0 87 trans-1,3-Dichloropropene 43.5 2.5 50 45.41 3.6(20) 0 94 68 130 47.1 2.5 50 1.1.2-Trichloroethane 0 94 66 130 45.51 3.6(20)Toluene 47.2 1.3 50 70 130 46.17 3.3(20)1,3-Dichloropropane 47.7 2.5 50 0 95 93 70 130 43.93 6.1(20)46.7 2.5 50 0 Dibromochloromethane 94.5 4.0(20)100 0 98 70 130 1,2-Dibromoethane (EDB) 98.4 5 52.23 4.1(20)2.5 1.02 107 61 134 54.4 50 Tetrachloroethene 101 70 130 47.98 5.5(20) 50.7 2.5 50 0 1,1,1,2-Tetrachloroethane 46.07 3.6(20) 130 Chlorobenzene 96 70 47.8 2.5 50 0 0 97 68 130 46.52 4.2(20)48.5 1.3 50 Ethylbenzene 0 98 64 130 47.59 3.4(20)m.p-Xviene 49.2 1.3 50 0 85 64 138 40.11 5.2(20) 50 Bromoform 42.3 2.5 2.7(20) 0 106 69 130 51.42 52.8 2.5 50 Styrene 70 130 48.2 4.2(20)101 50.3 1.3 50 0 o-Xylene 42.46 3.0(20)1,1,2,2-Tetrachloroethane 43 7 2.5 50 0 87 65 131 87.76 4.5(20)0 ٠92 70 130 1.2.3-Trichloropropane 91.8 10 100 64 138 48.1 3.1(20)2.5 0 99 Isopropylbenzene 49.6 50 0 95 70 130 47.16 1.2(20)47.7 2.5 50 Bromobenzene 47.47 2.8(20) 0 98 66 132 n-Propylbenzene 48.8 2.5 50 48.58 2.1(20) 0 99 70 130 49.6 2.5 50 4-Chlorotoluene 0 96 70 130 47.8 0.6(20)48.1 2.5 50 2-Chlorotoluene 47.36 2.5(20)0 97 66 136 1,3,5-Trimethylbenzene 48.5 2.5 50 0 46.91 2.9(20) 50 97 65 137 48.3 2.5 tert-Butvlbenzene 47.02 3.2(20)1.2.4-Trimethylbenzene 48.6 50 0 97 65 137 0 98 66 134 46.83 5.0(20) 2.5 50 sec-Butylbenzene 49.2 1.3-Dichlorobenzene 48.4 2.5 50 0 97 70 130 47.38 2.1(20)70 44.24 2.7(20)0 91 130 1,4-Dichlorobenzene 45.4 2.5 50 0 99 66 137 47.44 4.2(20)49.5 2.5 50 4-Isopropyltoluene 130 43.84 4.3(20)0 92 70 45.8 2.5 50 1,2-Dichlorobenzene 48.28 3.9(20)50.2 2.5 50 0 100 60 142 n-Butvlbenzene 0 205 2.9(20) 84 67 130 1.2-Dibromo-3-chloropropane (DBCP) 211 15 250 0 104 61 137 48.02 7.7(20)10 1,2,4-Trichlorobenzene 51.9 50 47.9 10 50 0 96 40 167 44.76 6.7(20)Naphthalene 94.1 5.0(20) 0 99 61 130 Hexachlorobutadiene 98.9 10 100 45.52 5.7(20) 96 51 144 48.2 10 50 1.2.3-Trichlorobenzene 98 70 130 Surr: 1,2-Dichloroethane-d4 49 50 98 70 130 49.1 50

97

50

70

130



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

Date:	QC Summary Report	<b>Work Order:</b> 09111801
01-Dec-09		

### 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

Report Attention

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

Client's COC #: 023590, 24117

Job: G005862/JPL Groundwater Monitoring

**Betsy Cutie** Shane Walton

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

cutice@batelle.org waltons@battelle.org

WorkOrder: BMIS09111801

Page: 1 of 2

Report Due By: 5:00 PM On: 03-Dec-2009

EDD Required: Yes Sampled by : GH/ DBL

Cooler Temp

Samples Received 18-Nov-2009

18-Nov-2009 Date Printed

Sample ID QC Level: DS4 BMI09111801-08A MW-20-1 BMI09111801-04A MW-20-5 BMI09111801-03A MW-6 BMI09111801-02A MW-5 BMI09111801-01A BMI09111801-10A EB-03-11/17/09 BMI09111801-09A DUPE-01-4Q09 BMI09111801-07A MW-20-2 BMI09111801-06A BMI09111801-05A MW-20-4 QCEB-16 NOV MW-20-3 Sample ID Client = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates AQ 11/17/09 00:00 å g å Š Matrix Date ğ Š á ð ğ 11/17/09 10:20 11/17/09 12:00 11/17/09 08:59 11/17/09 09:32 11/17/09 08:15 11/16/09 14:15 11/17/09 Collection 11/17/09 10:48 11/17/09 09:58 09:30 No. of Bottles Alpha Sub 6 ω Ŋ G G S G G G 0 0 0 0 0 0 0 0 0 0 TAT 10 6 6 6 6 5 5 5 5 5 Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate 314\_W METALS\_D VOC\_TIC\_ Ç Ω Ü Ç Ç ť Ç Ω VOC by 524 VOC by 524 Criteria Criteria VOC\_W Requested Tests Sample Remarks Level IV QC MS/MSD

Comments No security seals. Frozen ice. Temp Blank #8757 received @ 4°C. Level IV OC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).:

Logged in by: enabeth ldcox lizabeth Print Name Tacox Alpha Analytical, Inc. Company 11.18.59 9:41 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 Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) 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. 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

WorkOrder: BMIS09111801

Page: 2 of 2

Report Due By: 5:00 PM On: 03-Dec-2009

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

Battelle Memorial Institute

San Diego, CA 92110

218013

Suite C-205 3990 Old Town Ave

EDD Required: Yes

Sampled by : GH/ DBL

Cooler Temp Samples Received

18-Nov-2009 18-Nov-2009 Date Printed

QC Level: DS4 Client's COC #: 023590, 24117 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates Job: G005862/JPL Groundwater Monitoring

Sample ID BMI09111801-11A TB-03-11/17/09 Client Sample ID AQ 11/17/09 00:00 Matrix Date Collection No. of Bottles Alpha Sub 0 ΤAΤ 10 314\_W METALS\_D VOC\_TIC\_ VOC by 524 VOC by 524 Criteria Criteria VOC\_W Requested Tests Reno Trip Blank 6/22/09 Sample Remarks

Comments:

No security seals. Frozen ice. Temp Blank #8757 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).:

	Logged in by: Unak	
	buth Odcox	Signature
	Elizabeth Hdcox	Print Name
Acc .	Alpha Analytical, Inc.	Company
	11-18-07 9:41	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 Billing Information: TOMPKINS

Address 505 べきの その

City, State, Zip Columbus, OH 4320

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

> Ö Samples Collected From Which State? 023590 . NV

OTHER

TEL-7311  Sorte AN I Sorte A Sorte And Sorte A	Phone Number 614 424 4849 Fax 64 424 3667		rax (//3) 333-0400	Analyses Required	_
KING AUE:    Company	Client Name BATTEUE	- 1	581-6W-4QO	(3) (8) (1) (6)	Required QC Level
Companies   Ch. 4320   Prons # 848 3A3-23CORGAN   Fax #448 - Lu-11   Ch.	Address 505 KiNG AUE,	email Address econsordebattelle		24, 2 200 314, 6 VO3.	
AG BOTTONS: D. CONNER PROMETLY HEADING TON BATTELLE  Signature  Signature  Signature  Signature  Signature  Signature  Signature  Addition  Additi		Phone # 818 393-28086K	11-97-85h +	<u></u>	EDD / EDF? YES NO
Signature Signat	Matrix* Sampled by SH/DBL	Report Attention DAVID CONNER	Total and type of containers		obal ID#
PAR BMICHINSOLO) QCEB-16 NOV  ARROWS MW-6  A	Below Lab ID Number (Use Only)	Sample Description	Filtered ** See below	Toy Cil	REMARKS
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D. CONNER PRONER LIGHT TELET INTO Date  Print Name  Company  Date  Print Name  Print Name  ALANCA MENDORA  INSIGHT  INSI		MW-6	Ŋ	<u> </u>	A V V V V
D. CONNER PHONE # 619-726-7311  D. CONNER PHONE # 619-726-7311  Print Name  Print Name  Company  Company  Date  Company  Date  Company  Lily 65  MANGE MENDER  (NSIGHT  Lily 65  Lily 65					
D. CONNER PHONE # LI9-726-7311  Print Name  Print Name					
D. CONNER PHONE # 619-726-7311  D. CONNER PHONE # 619-726-7311  Company  Date  Print Name  FEADING Ton  BATTELLE  11/17/25  11/17/25					
D. CONNER PHONE & LIGHT - 726-7311  D. CONNER PHONE & LIGHT - 726-7311  Print Name  Print Name  Company  Date  PANOLO MENDO BATTELLE  INSIGHT  LIGHT					
D. CONNER PROMER LIGHT COMPANY Date  Print Name  Print					
D. CONNER PRONE # 619-726-7311  Print Name  Print Name  Company  Date  Print Name  Company  Date  AMARC MENDOR  (NSIGHT  MARC MENDOR  MAR					
D. CONNER PHONE # 619-726-7311  Print Name  Print Name  Company  Date  PANOLO MENDORA  INSIGNE  INSIGN					
D. CONNER PRONE # LIGHT - 726-7311  Print Name  Print					
Print Name Company Date  BRTTEUE 17NOV09  MANGE MENDORA INSIGNT 11/17/25  MANGE MENDORA INSIGNT 11/17/25	Ħ		6-7311		
ignature    Hungh   Company   Date     Hungh   GREB   HEADING TON     MANGO MENDORA   INSIGNA					
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	Relinquished by	RIANG MENDOZA	INSIGNATION OF THE PROPERTY OF	1/	_

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 Relinquished by Received by Relinquished by

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n: ////////		mples Collecte	
Name ( SIMP) DUP TO SMILLER	255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778	ID OR OTHER	rage # or
COL	Phone (775) 355-1044  Fax (775) 355-0406	Analyses Required	
Con Marie 21 F / David Converse	P.O.# 218013 Job# C005862	2 8 24	76
June C		24.	1    (    ) N
DECO CA 92110	Phone (6/9) 726-73/1   Fax #	"4-7-12 	EDD / EDF? YESNO
Matrix* Sampled by	Report Attention Total and type of containers	100	Global ID #
<u>~</u>	Sample Description TAT Filtered ** See below	below 7 RO C/C/R	REMARKS
0815 11/17/6 PQ . CH	MW-20-5 WAN 1/6 i	1 × × ×	
959	MW-20-9	XXX	MS/MSD
	MW-20-3	XXX	
4.07	mw-20-2	X	KEVEL Y &C
80.	MW-20-1	×	
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ADDITIONAL INSTRUCTIONS:			
Signatura	Print Name	Company Date	
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Received by	MARCO MENDOLA IN	NSIGHT ER LIN	4041 501
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Received by Chabeth Lacex	Elizabeth Hawx	(lefta 11-18:07	(7) /7/
Received by			-
*WAO A CO Coil WA Wasta	OT - Other AR - Air **: L-Liter V-Voa	S-Soil Jar O-Orbo T-Tedlar B-Brass P-P	P-Plastic OI-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.

\*Key: AQ - Aqueous

SO - Soil

WA - Waste

OT - Other

AR - Air

\*\*: L-Liter

V-Voa

S-Soil Jar

O-Orbo

T-Tedlar

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 01-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

BMI09111903

Cooler Temp:

4°C

Alpha's Sample ID	Client's Sample ID	Matrix
09111903-01A	MW-13	Aqueous
09111903-02A	MW-8	Aqueous
09111903-03A	QCEB-17 NOV	Aqueous
09111903-04A	MW-1	Aqueous
09111903-05A	MW-3-5	Aqueous
09111903-06A	MW-3-4	Aqueous
09111903-07A	MW-3-3	Aqueous
09111903-08A	MW-3-2	Aqueous
09111903-09A	MW-3-1	Aqueous
09111903-10A	DUPE-02-4O09	Aqueous
09111903-11A	EB-04-11/18/09	Aqueous
09111903-12A	TB-04-11/18/09	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 Saulm

Walter Findens



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: 11/19/09

Job:

G005862/JPL Groundwater Monitoring

Anions by IC

EPA Method 300.0

	Parameter	Concentration	Reporting	Date	Date
			Limit	Extracted	Analyzed
Client ID: MW-13					
Lab ID: BMI09111903-01A	Chloride	61	2.5 mg/L	11/19/09 12:38	11/19/09 14:24
Date Sampled 11/18/09 08:36	Nitrite (NO2) - N	ND	0.25 mg/L	11/19/09 12:38	11/19/09 13:47
_	Nitrate (NO3) - N	6.5	0.25 mg/L	11/19/09 12:38	11/19/09 13:47
	Sulfate (SO4)	69	0.50 mg/L	11/19/09 12:38	11/19/09 13:47
	Phosphate, ortho - P	ND	0.25  mg/L	11/19/09 12:38	11/19/09 13:47
Client ID: MW-8					
Lab ID: BMI09111903-02A	Chloride	46	2.5 mg/L	11/19/09 12:38	11/19/09 15:19
Date Sampled 11/18/09 10:45	Nitrite (NO2) - N	ND	0.25 mg/L	11/19/09 12:38	11/19/09 14:05
	Nitrate (NO3) - N	2.6	0.25 mg/L	11/19/09 12:38	11/19/09 14:05
	Sulfate (SO4)	58	0.50 mg/L	11/19/09 12:38	11/19/09 14:05
	Phosphate, ortho - P	ND	0.25 mg/L	11/19/09 12:38	11/19/09 14:05

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: 11/19/09

Job:

G005862/JPL Groundwater Monitoring

#### Perchlorate by Ion Chromatography EPA Method 314.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-13  Lab ID: BMI09111903-01A  Date Sampled 11/18/09 08:36	Perchlorate	182	10.0 μg/L	11/19/09 12:32	11/24/09 12:14
Client ID: MW-8  Lab ID: BMI09111903-02A  Date Sampled 11/18/09 10:45	Perchlorate	203	10.0 μg/L	11/19/09 12:32	11/24/09 12:32
Client ID: <b>MW-1</b> Lab ID: BMI09111903-04A Date Sampled 11/18/09 13:00	Perchlorate	ND	1.00 µg/L	11/19/09 12:32	11/23/09 21:27
Client ID: MW-3-5 Lab ID: BMI09111903-05A Date Sampled 11/18/09 08:34	Perchlorate	ND	1.00 µg/L	11/19/09 12:32	11/23/09 21:45
Client ID: MW-3-4 Lab ID: BMI09111903-06A Date Sampled 11/18/09 09:02	Perchlorate	ND	1.00 μg/L	11/19/09 12:32	11/23/09 22:04
Client ID: MW-3-3 Lab ID: BMI09111903-07A Date Sampled 11/18/09 09:29	Perchlorate	ND	1.00 μg/L	11/19/09 12:32	11/23/09 22:22
Client ID: MW-3-2 Lab ID: BMI09111903-08A Date Sampled 11/18/09 10:13	Perchlorate	109	5.00 μg/L	11/19/09 12:32	11/24/09 12:51
Client ID: MW-3-1 Lab ID: BMI09111903-09A Date Sampled 11/18/09 11:10	Perchlorate	ND	1.00 µg/L	11/19/09 12:32	11/23/09 22:59
Client ID: <b>DUPE-02-4Q09</b> Lab ID: BMI09111903-10A Date Sampled 11/18/09 00:00	Perchlorate	ND	1.00 μg/L	11/19/09 12:32	11/23/09 23:17
Client ID: <b>EB-04-11/18/09</b> Lab ID: BMI09111903-11A Date Sampled 11/18/09 10:50	Perchlorate	ND	1.00 μg/L	11/19/09 12:32	11/23/09 23:36



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

ND = Not Detected

Roger Scholl Kandy Soulun Walter Fired

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.

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.

12/3/09

**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: 11/19/09

Job:

G005862/JPL Groundwater Monitoring

Metals by ICPMS EPA Method 200.8

		EPA Method 200.8			
	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-13 Lab ID: BMI09111903-01A Date Sampled 11/18/09 08:36	Chromium (Cr)	0.012	0.0050 mg/L	11/18/09 11:25	11/19/09 14:13
Client ID: <b>MW-8</b> Lab ID: BMI09111903-02A Date Sampled 11/18/09 10:45	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 14:19
Client ID: MW-1 Lab ID: BMI09111903-04A Date Sampled 11/18/09 13:00	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 14:25
Client ID: MW-3-5 Lab ID: BMI09111903-05A Date Sampled 11/18/09 08:34	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 14:30
Client ID: <b>MW-3-4</b> Lab ID: BMI09111903-06A Date Sampled 11/18/09 09:02	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 14:36
Client ID: MW-3-3 Lab ID: BMI09111903-07A Date Sampled 11/18/09 09:29	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 14:42
Client ID: MW-3-2 Lab ID: BMI09111903-08A Date Sampled 11/18/09 10:13	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 14:47
Client ID: MW-3-1 Lab ID: BMI09111903-09A Date Sampled 11/18/09 11:10	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 14:53
Client ID: <b>DUPE-02-4Q09</b> Lab ID: BMI09111903-10A Date Sampled 11/18/09 00:00	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 14:59
Client ID: <b>EB-04-11/18/09</b> Lab ID: BMI09111903-11A Date Sampled 11/18/09 10:50	Chromium (Cr)	ND	0.0050 mg/L	11/18/09 11:25	11/19/09 15:05



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ND = Not Detected

Roger Scholl Kandy Soulun

Walter Stirkner

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.

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0/ 12/3/09

Report Date



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110 Job:

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

Fax: (614) 458-6641

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-13  Lab ID: BMI09111903-01A  Date Received: 11/19/09  Date Sampled: 11/18/09 08:36	*** None Found ***	ND	2.0 μg/L	11/22/09 03:52	11/22/09 03:52
Client ID: MW-8  Lab ID: BMI09111903-02A  Date Received: 11/19/09  Date Sampled: 11/18/09 10:45	*** None Found ***	ND	2.0 μg/L	11/22/09 04:14	11/22/09 04:14
Client ID: QCEB-17 NOV  Lab ID: BMI09111903-03A  Date Received: 11/19/09  Date Sampled: 11/17/09 14:30	*** None Found ***	ND	2.0 μg/L	11/22/09 02:23	11/22/09 02:23
Client ID: MW-1 Lab ID: BMI09111903-04A Date Received: 11/19/09 Date Sampled: 11/18/09 13:00	*** None Found ***	ND	2.0 μg/L	11/22/09 04:36	11/22/09 04:36
Client ID: MW-3-5 Lab ID: BMI09111903-05A Date Received: 11/19/09 Date Sampled: 11/18/09 08:34	*** None Found ***	ND	2.0 μg/L	11/22/09 04:59	11/22/09 04:59
Client ID: MW-3-4 Lab ID: BMI09111903-06A Date Received: 11/19/09 Date Sampled: 11/18/09 09:02	Sulfur dioxide	14	2.0 μg/L	11/22/09 05:21	11/22/09 05:21
Client ID: MW-3-3 Lab ID: BMI09111903-07A Date Received: 11/19/09 Date Sampled: 11/18/09 09:29	*** None Found ***	ND	2.0 μg/L	11/22/09 05:44	11/22/09 05:44
Client ID: MW-3-2 Lab ID: BMI09111903-08A Date Received: 11/19/09 Date Sampled: 11/18/09 10:13	*** None Found ***	ND	2.0 μg/L	11/22/09 06:06	11/22/09 06:06
Client ID: MW-3-1 Lab ID: BMI09111903-09A Date Received: 11/19/09 Date Sampled: 11/18/09 11:10	*** None Found ***	ND	2.0 μg/L	11/22/09 06:28	11/22/09 06:28



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Client ID : Lab ID : Date Received Date Sampled	 *** None Found ***	ND	2.0 μg/L	11/22/09 06:50 11/22/09 06:50
Client ID: Lab ID: Date Received Date Sampled	 2-Methyl-1-propene Tertiary Butyl Alcohol (TBA)	2.6 12	2.0 μg/L 10 μg/L	11/22/09 02:45 11/22/09 02:45 11/22/09 02:45 11/22/09 02:45
Client ID : Lab ID : Date Received Date Sampled	 *** None Found ***	ND	2.0 μg/L	11/22/09 03:08 11/22/09 03:08

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl Kandy Saulner Dalter Arrihner 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** Page 1 of 1

12/3/09



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

Client I.D. Number: MW-13

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111903-01A

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 11/18/09 08:36

Received: 11/19/09 Extracted: 11/22/09 03:52 Analyzed: 11/22/09 03:52

#### 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	0.64	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	0.50	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	98	(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	95	(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 KundgeSauleur

ND

Walter Firehour

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

μg/L

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12/3/09

Report Date



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#### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 3990 Old Town Ave

Attn: Fax:

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

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Sampled: 11/18/09 10:45

Received: 11/19/09

Extracted: 11/22/09 04:14 Analyzed: 11/22/09 04:14

Alpha Analytical Number: BMI09111903-02A

Client I.D. Number: MW-8

#### 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	0.66	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	2.7	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	2.5	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	95	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	0.95	0.50	μg/L					
		i							

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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Report Date



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#### **ANALYTICAL REPORT**

**Battelle Memorial Institute** 3990 Old Town Ave

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

San Diego, CA 92110

Fax:

(614) 458-6641

G005862/JPL Groundwater Monitoring

Sampled: 11/17/09 14:30

Alpha Analytical Number: BMI09111903-03A Client I.D. Number: QCEB-17 NOV

Received: 11/19/09

Extracted: 11/22/09 02:23

Analyzed: 11/22/09 02:23

#### 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	0.51	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	1.7	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	2.7	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	1.4	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	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					
33	Dibromochloromethane	ND	0.50	μg/L					
			2,00						

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

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12/3/09

**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: BMI09111903-04A

Client I.D. Number: MW-1

Attn: David Conner

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

Sampled: 11/18/09 13:00

Received: 11/19/09

Extracted: 11/22/09 04:36 Analyzed: 11/22/09 04:36

#### 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-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	102	(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		-	1	• •	

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl Randy Sanlan

ND

ND

Walter Hirihum

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

μg/L

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

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

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.

12/3/09

**Report Date** 



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#### **ANALYTICAL REPORT**

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

**David Conner** Attn: Phone:

(818) 393-2808

Fax:

(614) 458-6641

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111903-05A Client I.D. Number: MW-3-5

Sampled: 11/18/09 08:34

Received: 11/19/09

Extracted: 11/22/09 04:59 Analyzed: 11/22/09 04:59

#### 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	0.64	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	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	96	(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

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.

12/3/09

Report Date



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#### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

Client I.D. Number: MW-3-4

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111903-06A

Attn:

David Conner (818) 393-2808

Phone: Fax:

(614) 458-6641

Sampled: 11/18/09 09:02

Received: 11/19/09

Extracted: 11/22/09 05:21

Analyzed: 11/22/09 05:21

#### 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	99	(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	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

34 1,2-Dibromoethane (EDB)

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

12/3/09

**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: BMI09111903-07A

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

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

Fax: (614) 458-6641

Sampled: 11/18/09 09:29

Received: 11/19/09

Extracted: 11/22/09 05:44 Analyzed: 11/22/09 05:44

#### 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	99	(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	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 Kandy Sulm

ND

ND

Walter Hirehour

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.

**Report Date** 



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#### ANALYTICAL REPORT

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

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

Fax:

Attn:

(614) 458-6641

Alpha Analytical Number: BMI09111903-08A

Client I.D. Number: MW-3-2

Sampled: 11/18/09 10:13

Received: 11/19/09

Extracted: 11/22/09 06:06 Analyzed: 11/22/09 06:06

#### 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	1.5	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	4.4	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	2.0	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)	%REG
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	94	(70-130)	%RE
32	1,3-Dichloropropane	ND	0.50	μg/L			•		
33	Dibromochloromethane	ND	0.50	µa/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

ND

µg/L

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

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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12/3/09



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#### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Attn:

David Conner (818) 393-2808

Phone: Fax:

(614) 458-6641

Alpha Analytical Number: BMI09111903-09A

Client I.D. Number: MW-3-1

Sampled: 11/18/09 11:10

Received: 11/19/09

Extracted: 11/22/09 06:28 Analyzed: 11/22/09 06:28

#### 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	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	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

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

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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

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111903-10A

G003002/31 E G10tht water Wollhoffing

Client I.D. Number: DUPE-02-4Q09

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

Fax:

(614) 458-6641

Sampled: 11/18/09 00:00

Received: 11/19/09

Extracted: 11/22/09 06:50 Analyzed: 11/22/09 06:50

#### 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	NĐ	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-Butvlbenzene	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 = Not Detected

34

33 Dibromochloromethane

1,2-Dibromoethane (EDB)
Tetrachloroethene

Roger Scholl Kandy Soulm

ND

ND

Walter Firehour

Roger L. Scholl, 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.

12/3/09

**Report Date** 



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#### **ANALYTICAL REPORT**

Phone: (818) 393-2808

Fax:

**David Conner** 

(614) 458-6641

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09111903-11A

Client I.D. Number: EB-04-11/18/09

Sampled: 11/18/09 10:50 Received: 11/19/09

Extracted: 11/22/09 02:45 Analyzed: 11/22/09 02:45

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

	olorodifluoromethane promethane Il chloride	ND ND	0.50						
2 Chlor		ND		μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
	1 chloride	110	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3 Vinyl		ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4 Chlor	proethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5 Brom	nomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6 Trichl	nlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7 1,1-D	Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8 Dichle	loromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9 Freor	n-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10 trans-	s-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11 Methy	nyl tert-butyl ether (MTBE)	ND	0.50	µg/L	46	Bromobenzene	ND	0.50	μg/L
12 1,1-D	Dichloroethane	ND	0.50	µg/L	47	n-Propylbenzene	ND	0.50	μg/L
13 2-But	ıtanone (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-Chlorotoiuene	ND	0.50	μg/L
15 Brom	nochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16 Chlor	oroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17 2,2-D	Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18 1,2-D	Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19 1,1,1	1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20 1,1-D	Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21 Carbo	oon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22 Benz	zene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23 Dibro	omomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24 1,2-D	Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25 Trichl	nloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26 Brom	nodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27 4-Me	ethyl-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-	s-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	99	(70-130)	%REC
30 1,1,2	2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	103	(70-130)	%REC
31 Tolue	ene	ND	0.50	µg/L	66	Surr: 4-Bromofluorobenzene	97	(70-130)	%REC
32 1,3-D	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 Kandy Saulner

ND

ND

Walter Hirkory

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

μg/L

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

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

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12/3/09 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: BMI09111903-12A

Client I.D. Number: TB-04-11/18/09

**David Conner** Attn:

Phone: (818) 393-2808

(614) 458-6641 Fax:

Sampled: 11/18/09 00:00

Received: 11/19/09

Extracted: 11/22/09 03:08 Analyzed: 11/22/09 03:08

#### 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	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	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

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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# **VOC Sample Preservation Report**

Work Order: BMI09111903 Job: G005862/JPL Groundwater Monitoring

Alpha's S	ample ID	Client's Sample ID	Matrix	рН	100000000000000000000000000000000000000
091119	03-01A	MW-13	Aqueous	2	
091119	03-02A	MW-8	Aqueous	2	
091119	03-03A	QCEB-17 NOV	Aqueous	2	
091119	03-04A	MW-1	Aqueous	2	
091119	03-05A	MW-3-5	Aqueous	2	
091119	03-06A	MW-3-4	Aqueous	2	
091119	03-07A	MW-3-3	Aqueous	2	
091119	03-08A	MW-3-2	Aqueous	2	
091119	03-09A	MW-3-1	Aqueous	2	
091119	03-10A	DUPE-02-4Q09	Aqueous	2	
091119	03-11A	EB-04-11/18/09	Aqueous	2	
091119	03-12A	TB-04-11/18/09	Aqueous	2	
			*		

12/3/09



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<b>Date:</b> 03-Dec-09		Ç	QC Sι	ımmar	y Repor	t				<b>Work Ord</b> 0911190	
Method Blank File ID: 17 Sample ID: M	к МВ-23120	Units : <b>mg/L</b> Result	Type M	Ba Run ID: <b>IC</b>	est Code: <b>El</b> atch ID: <b>231</b> _ <b>1_091119</b> SpkRefVal	20A A		Prep D	Date:	11/19/2009 12:14 11/19/2009 12:38 /al %RPD(Limit)	
Nitrite (NO2) - N Nitrate (NO3) - N Phosphate, ortho		ND ND ND	0.25 0.25 0.25								
•	ortified Blank _FB-23120	Units : <b>mg/L</b> Result	Type <b>L</b> l	Ba Run ID: <b>IC</b>	est Code: El atch ID: 231: _1_091119A	20A A		Prep D	Date:	11/19/2009 12:33 11/19/2009 12:38 Val %RPD(Limit)	
Nitrite (NO2) - N Nitrate (NO3) - N Phosphate, ortho		1.2 1.23 1.26	0.25 0.25 0.25	1.25 1.25	Эркілегуаг	96 98 101	90 90 90 90	110 110 110 110	TO DITOIN	vai /m v o(ciimi)	
Sample Matrix File ID: 25 Sample ID: 0 Analyte	x Spike 09111903-01ALFM	Units : <b>mg/L</b> Result	Type <b>L</b> i PQL	Ba Run ID: <b>IC</b>	est Code: <b>El</b> atch ID: <b>231</b> _ <b>1_091119</b> SpkRefVal	20A		Analys Prep D	Date:	11/19/2009 14:42 11/19/2009 12:38 /al %RPD(Limit)	
Nitrite (NO2) - N Nitrate (NO3) - N Phosphate, ortho		5.93 12.4 6.88	0.25 0.25 0.25	6.25	0 6.501 0	95 94 110	80 80 80	120 120 120			
File ID: <b>26</b>	x Spike Duplicate	Units : mg/L	Type L	В	est Code: <b>El</b> atch ID: <b>23</b> 12 <b>1 091119</b>	20A	hod 300.0	Analys Prep D		11/19/2009 15:01 11/19/2009 12:38	
Analyte  Nitrite (NO2) - N  Nitrate (NO3) - N  Phosphate, ortho	·	Result 6.12 12.4 7.91	PQL 0.25 0.25 0.25	SpkVal 6.25 6.25			80 80 80 80			Val %RPD(Limit) 9 3.2(10) 6 0.6(10)	Qual M1 R5

#### 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.

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



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Date: 03-Dec-09	QC Summary Report									er: 3
Method Blar File ID: 17 Sample ID:	nk MB-23120	Units : mg/L	Type N	Ва	est Code: Electric El	20B	hod 300.0	Analysis Dat	e: 11/19/2009 12:14 11/19/2009 12:38	
Analyte		Result	PQL				LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
Sulfate (SO4)		ND	0.5	)						
File ID: 18	Fortified Blank		Type L	В	est Code: El	20B	hod 300.0	Analysis Dat Prep Date:	e: 11/19/2009 12:33 11/19/2009 12:38	
Sample ID: Analyte	LFB-23120	Units : mg/L Result	PQL		_ <b>1_091119<i>i</i></b> SpkRefVal		LCL(ME)	•	efVal %RPD(Limit)	Qual
Sulfate (SO4)		9.64	0.5			96	90	110		
Sample Mat	rix Spike		Type L		est Code: El		hod 300.0	Analysis Dat	e: 11/19/2009 14:42	
Sample ID: Analyte	09111903-01ALFM	Units : <b>mg/L</b> Result	PQL		_ <b>1_091119</b> SpkRefVal		LCL(ME)	Prep Date: UCL(ME) RPDR	11/19/2009 12:38 efVal %RPD(Limit)	Qual
Sulfate (SO4)		114	0.5	5 50	69.24	90	80	120		
Sample Mat	rix Spike Duplicate		Type L		est Code: El atch ID: 231		thod 300.0	Analysis Dat	e: 11/19/2009 15:01	
Sample ID: Analyte	09111903-01ALFMD	Units : <b>mg/L</b> Result	PQL		_ <b>1_091119</b> SpkRefVal		CLCL(ME)	Prep Date: UCL(ME) RPDR	11/19/2009 12:38 efVal %RPD(Limit)	Qual
Sulfate (SO4)		114	0.5	5 50	69.24	90	80	120 11	4.1 0.0(10)	

#### Comments:



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Date: 03-Dec-09			<b>Work Orde</b> 09111903							
Method Bla			Type N	В	est Code: El atch ID: <b>231</b>	20C	hod 300.0	•	11/19/2009 12:14	
Sample ID:	MB-23120	Units : mg/L			C_1_091119I			Prep Date:	11/19/2009 12:14	Qual
Analyte	······································	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	vai %RPD(Limit)	
Chloride		ND	0.5	5						
Laboratory	Fortified Blank		Type L	.FB T	est Code: E	PA Met	hod 300.0			
File ID: 18				В	atch ID: 231	20C		Analysis Date:	11/19/2009 12:33	
Sample ID:	LFB-23120	Units : mg/L		Run ID: IC	C_1_091119I	3		Prep Date:	11/19/2009 12:33	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Chloride		4.71	0.8	5 5		94	90	110		
Sample Mat	rix Spike		Type L	FM T	est Code: E	PA Met	hod 300.0			
File ID: 25	•			В	Batch ID: 231	20C		Analysis Date:	11/19/2009 14:42	
Sample ID:	09111903-01ALFM	Units : mg/L		Run ID: IC	C_1_091119I	3		Prep Date:	11/19/2009 14:42	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Chloride		87.7	0.5	5 25	61.38	105	80	120		
Sample Mat	rix Spike Duplicate		Type L	FMD T	est Code: E	PA Met	hod 300.0			
File ID: 26				E	Batch ID: 231	20C		Analysis Date:	11/19/2009 15:01	
Sample ID:	09111903-01ALFMD	Units : mg/L		Run ID: IC	C_1_091119I	3		Prep Date:	11/19/2009 15:01	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Chloride		88	0.5	5 25	61.38	106	80	120 87.6	9 0.3(10)	

#### Comments:



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<b>Date:</b> 03-Dec-09	QC Summary Report									<b>Work Orde</b> 09111903	
Method Blan	nk MB-23119	I Inito /l	Type N		Test Code: El	19	hod 314.0	Analys Prep D		11/23/2009 15:37 11/19/2009 12:32	
Sample ID: Analyte	MD-23119	Units : µg/L Result	PQL		<b>C_3_091123/</b> il SpkRefVal		LCL(ME)	•		/al %RPD(Limit)	Qual
Perchlorate		ND		1							_
Laboratory File ID: 21	Fortified Blank		Type L		Test Code: El Batch ID: <b>231</b>		hod 314.0	Analys	is Date:	11/23/2009 16:14	
Sample ID: Analyte	LFB-23119	Units : µg/L Result	PQL		<b>C_3_091123</b> al SpkRefVal		LCL(ME)	Prep D UCL(ME) F		11/19/2009 12:32 /al %RPD(Limit)	Qual
Perchlorate		26.1	2	2 2	5	105	85	115			
Sample Mat	rix Spike		Type I		Test Code: <b>E</b> l Batch ID: <b>231</b>		hod 314.0	Analys	is Date:	11/24/2009 11:37	
Sample ID: Analyte	09111801-05ALFM	Units : <b>µg/L</b> Result	PQL		C_3_091123/ al SpkRefVal		LCL(ME)	Prep D UCL(ME) f		11/19/2009 12:32 Val %RPD(Limit)	Qual
Perchlorate		189	10	) 12	5 76.01	91	80	120			
Sample Mat	rix Spike Duplicate		Type <b>I</b>		Test Code: <b>E</b> Batch ID: <b>231</b>		thod 314.0	Analys	is Date:	11/24/2009 11:56	
Sample ID:	09111801-05ALFMD	Units : µg/L			C_3_091123			Prep D		11/19/2009 12:32	
Analyte		Result	PQL	SpkVa	al SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	Val %RPD(Limit)	Qual
Perchlorate		193	10	12	5 76.01	94	80	120	189.4	4 2.0(15)	

#### Comments:



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Date: 03-Dec-09	QC Summary Report	<b>Work Order:</b> 09111903	
Method Blank File ID: 111809.B\131SMPL.D\	Type MBLK Test Code: EPA Method 200.8  Batch ID: 23103K Analysis Date: 11/1		
Sample ID: MB-23103	Cinic : high	8/2009 11:25	
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %	RPD(Limit) Qual	
Chromium (Cr)	ND 0.005		
Laboratory Control Spike	Type LCS Test Code: EPA Method 200.8		
File ID: 111809.B\132_LCS.D\	Batch ID: 23103K Analysis Date: 11/1	9/2009 04:53	
Sample ID: LCS-23103	Units: mg/L Run ID: ICP/MS_091118E Prep Date: 11/1	8/2009 11:25	
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %	RPD(Limit) Qual	
Chromium (Cr)	0.052 0.005 0.05 104 80 120		
Sample Matrix Spike	Type MS Test Code: EPA Method 200.8		
File ID: 111809.B\136SMPL.D\	Batch ID: 23103K Analysis Date: 11/1	9/2009 05:16	
Sample ID: 09111801-05AMS	Units: mg/L Run ID: ICP/MS_091118E Prep Date: 11/1	18/2009 11:25	
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %	6RPD(Limit) Qual	
Chromium (Cr)	0.0522		
Sample Matrix Spike Duplicate	Type MSD Test Code: EPA Method 200.8		
File ID: 111809.B\137SMPL.D\	Batch ID: 23103K Analysis Date: 11/1	9/2009 05:21	
Sample ID: 09111801-05AMSD	Units: mg/L Run ID: ICP/MS_091118E Prep Date: 11/1	8/2009 11:25	
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %	6RPD(Limit) Qual	
Chromium (Cr)	0.0508 0.005 0.05 0 102 80 120 0.05221	2.8(20)	

#### **Comments:**



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Work Order:

Date: QC Summary Report 09111903 03-Dec-09 Type MBLK Test Code: EPA Method SW8260B Method Blank Analysis Date: 11/21/2009 23:48 Batch ID: MS15W1121M File ID: 09112140.D Prep Date: 11/21/2009 23:48 Run ID: MSD\_15\_091121C Sample ID: **MBLK MS15W1121M** 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 0.5 ND Chloroethane ND 0.5 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 ND 0.5 Methyl tert-butyl ether (MTBE) 0.5 ND 1,1-Dichloroethane ND 0.5 2-Butanone (MEK) ND 10 cis-1.2-Dichloroethene ND 0.5 Bromochloromethane ND 0.5 0.5 Chloroform ND 2,2-Dichloropropane ND 0.5 1,2-Dichloroethane ND 0.5 0.5 1.1.1-Trichloroethane ND 1,1-Dichloropropene ND 0.5 Carbon tetrachloride ND 0.5 ND 0.5 Benzene Dibromomethane ND 0.5 1,2-Dichloropropane ND 0.5 Trichloroethene 0.5 ND 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 ND 0.5 Styrene ND 0.5 o-Xvlene ND 0.5 1,1,2,2-Tetrachloroethane ND 0.5 1,2,3-Trichloropropane ND Isopropylbenzene ND 0.5 Bromobenzene ND 0.5 0.5 n-Propylbenzene ND 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 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 ND 0.5 1.2-Dichlorobenzene 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 1,2,3-Trichlorobenzene 70 130 Surr: 1.2-Dichloroethane-d4 99 9.88 10 Surr: Toluene-d8 102 70 130 10.2 10



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Date: 03-Dec-09	(		<b>Work Order:</b> 09111903					
Surr: 4-Bromofluorobenzene	9.62		10	96	70	130		
Laboratory Control Spike		Type LC	S Test C	ode: <b>EPA Meth</b>	od SW82			
File ID: <b>09112137.D</b>			Batch I	D: MS15W1121	М	-	e: 11/21/2009 22:44	
Sample ID: LCS MS15W1121M	Units : µg/L	F	tun ID: MSD_1			Prep Date:	11/21/2009 22:44	
Analyte	Result	PQL	SpkVal Spk	RefVal %REC I	_CL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qua
Dichlorodifluoromethane	7.12	1	10	71	70	130		
Chloromethane	7.73	2	10	77	70	130		
Vinyl chloride	9.48	1	10	95	70 70	130		
Chloroethane	10.3	1	10	103 107	70 70	130 130		
Bromomethane Trichlorofluoromethane	10.7 10.2	2 1	10 10	107	70 70	130		
1,1-Dichloroethene	10.6	1	10	106	70	130		
Dichloromethane	9.5	2	10	95	70	130		
trans-1,2-Dichloroethene	10.7	1	10	107	70	130		
Methyl tert-butyl ether (MTBE)	10.4	0.5	10	104	70	130		
1,1-Dichloroethane	10.1	1	10	101	70	130		
cis-1,2-Dichloroethene	10.8	1	10	108	70 70	130 130		
Bromochloromethane Chloroform	10.9 10.6	1	10 10	109 106	70 70	130		
2,2-Dichloropropane	10.8	1	10	108	70	130		
1.2-Dichloroethane	10.1	1	10	101	70	130		
1,1,1-Trichloroethane	11.1	1	10	111	70	130		
1,1-Dichloropropene	10.7	1	10	107	70	130		
Carbon tetrachloride	11.5	1	10	115	70	130		
Benzene	10.3	0.5	10	103	70	130		
Dibromomethane	10.3	1	10 10	103 105	70 70	130 130		
1,2-Dichloropropane Trichloroethene	10.5 11.4	1	10 10	114	70	130		
Bromodichloromethane	10.6	1	10	106	70	130		
cis-1,3-Dichloropropene	10.4	1	10	104	70	130		
trans-1,3-Dichloropropene	9.33	1	10	93	70	130		
1,1,2-Trichloroethane	9.83	1	10	98	70	130		
Toluene	10	0.5	10	100	70	130		
1,3-Dichloropropane	10.1	1	10	101 99	70 70	130 130		
Dibromochloromethane 1,2-Dibromoethane (EDB)	9.94 20.6	1 2	10 20	103	70 70	130		
Tetrachloroethene	11.4	1	10	114	70	130		
1,1,1,2-Tetrachloroethane	10.8	1	10	108	70	130		
Chlorobenzene	10.2	1	10	102	70	130		
Ethylbenzene	10.3	0.5	10	103	70	130		
m,p-Xylene	10.5	0.5	10	105	70	130		
Bromoform	8.95	1	10 10	90 112	70 70	130 130		
Styrene o-Xylene	11.2 10.6	0.5	10	106	70	130		
1,1,2,2-Tetrachloroethane	8.51	1	10	85	70	130		
1,2,3-Trichloropropane	19.3	2	20	97	70	130		
Isopropylbenzene	10.6	1	10	106	70	130		
Bromobenzene	10.2	1	10	102	70 70	130	,	
n-Propylbenzene	10.4	1	10 10	104 106	70 70	130 130		
4-Chlorotoluene 2-Chlorotoluene	10.6 10.4	1 1	10 10	106	70 70	130		
1,3,5-Trimethylbenzene	10.4	1	10	105	70	130		
tert-Butylbenzene	10.2	1	10	102	70	130		
1,2,4-Trimethylbenzene	10.3	1	10	103	70	130		
sec-Butylbenzene	10.4	1	10	104	70	130		
1,3-Dichlorobenzene	10.5	1	10	105	70 70	130		
1,4-Dichlorobenzene	9.65 10.6	1	10 10	97 106	70 70	130 130		
4-isopropyltoluene 1,2-Dichlorobenzene	10.6 9.61	1	10 10	96	70 70	130		
n-Butylbenzene	10.7	1	10	107	70	130		
1,2-Dibromo-3-chloropropane (DBCP)	44.7	3	50	89	70	130		
1,2,4-Trichlorobenzene	11.1	2	10	111	70	130		
Naphthalene	10.2	2	10	102	70	130		
Hexachlorobutadiene	21.5	2	20	107	70 70	130		
1,2,3-Trichlorobenzene Surr: 1,2-Dichloroethane-d4	10.5	2	10	105 96	70 70	130 130		
Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8	9.61 9.82		10 10	98	70 70	130		
Surr: 4-Bromofluorobenzene	9.96		10	99.6	70	130		



Surr: 4-Bromofluorobenzene

# Alpha Analytical, Inc.

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Work Order: Date: QC Summary Report 03-Dec-09 Type MS Test Code: EPA Method SW8260B Sample Matrix Spike Analysis Date: 11/22/2009 00:10 File ID: 09112141.D Batch ID: MS15W1121M 11/22/2009 00:10 Prep Date: 09111903-01AMS Run ID: MSD\_15\_091121C Sample ID: Units: µg/L SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Analyte Result PQL Qual Dichlorodifluoromethane 36.4 2.5 Chloromethane 38.2 Vinyl chloride 46.1 2.5 Chloroethane 45.5 2.5 Bromomethane 45.4 Trichlorofluoromethane 45.9 2.5 1.1-Dichloroethene 2.5 Dichloromethane 45.1 trans-1.2-Dichloroethene 50.3 2.5 Methyl tert-butyl ether (MTBE) 48.4 1.3 0.64 1.1-Dichloroethane 47.8 2.5 cis-1,2-Dichloroethene 50.4 2.5 Bromochloromethane 2.5 O 2.5 0.5 Chloroform 49.5 2,2-Dichloropropane 46.4 2.5 1,2-Dichloroethane 46.7 2.5 1.1.1-Trichloroethane 51.3 2.5 1.1-Dichloropropene 50.3 2.5 52.6 2.5 Carbon tetrachloride Benzene 47.9 1.3 Dibromomethane 47.6 2.5 1,2-Dichloropropane 48.1 2.5 Trichloroethene 49.4 2.5 48.7 2.5 Bromodichloromethane cis-1,3-Dichloropropene 45.4 2.5 trans-1,3-Dichloropropene 41.5 2.5 45.4 2.5 1,1,2-Trichloroethane 45.5 1.3 Toluene 1,3-Dichloropropane 46.2 2.5 Dibromochloromethane 43.9 2.5 1,2-Dibromoethane (EDB) 94.5 52.2 2.5 1.02 Tetrachloroethene 1,1,1,2-Tetrachloroethane 2.5 46.1 2.5 Chlorobenzene Ethylbenzene 46.5 1.3 m,p-Xylene 47.6 1.3 40.1 2.5 Bromoform Styrene 51.4 2.5 48.2 o-Xylene 1.3 1.1.2.2-Tetrachloroethane 42.5 2.5 1,2,3-Trichloropropane 87.8 Isopropylbenzene 48.1 2.5 Bromobenzene 47.2 2.5 2.5 n-Propylbenzene 47.5 48.6 2.5 4-Chlorotoluene 47.8 2.5 2-Chlorotoluene 1,3,5-Trimethylbenzene 47.4 2.5 tert-Butvlbenzene 46.9 2.5 1,2,4-Trimethylbenzene 2.5 sec-Butvlbenzene 46.8 2.5 1,3-Dichlorobenzene 47.4 2.5 1,4-Dichlorobenzene 44 2 2.5 4-Isopropyltoluene 47.4 2.5 1,2-Dichlorobenzene 43.8 n-Butvibenzene 48.3 2.5 1,2-Dibromo-3-chloropropane (DBCP) 1,2,4-Trichlorobenzene Naphthalene 44.8 Hexachlorobutadiene 94.1 1,2,3-Trichlorobenzene 45.5 Surr: 1,2-Dichloroethane-d4 48.2 49.1 Surr: Toluene-d8 



Chloromethane

Vinvl chloride

Chloroethane

Bromomethane

Trichlorofluoromethane

trans-1,2-Dichloroethene

Methyl tert-butyl ether (MTBE)

1,1-Dichloroethene

1.1-Dichloroethane

Chloroform

Benzene

Toluene

cis-1,2-Dichloroethene

Bromochloromethane

2,2-Dichloropropane

1,2-Dichloroethane

1,1,1-Trichloroethane

1,1-Dichloropropene Carbon tetrachloride

1,2-Dichloropropane

Bromodichloromethane

cis-1,3-Dichloropropene

1.1.2-Trichloroethane

1,3-Dichloropropane

Tetrachloroethene

Chlorobenzene

Ethylbenzene

m,p-Xylene Bromoform

Styrene

o-Xvlene

Dibromochloromethane

1.2-Dibromoethane (EDB)

1,1,1,2-Tetrachloroethane

1,1,2,2-Tetrachloroethane

1,2,3-Trichloropropane

1,3,5-Trimethylbenzene

1,2,4-Trimethylbenzene

Isopropylbenzene

Bromobenzene

n-Propylbenzene

4-Chlorotoluene

2-Chlorotoluene

tert-Butylbenzene

sec-Butylbenzene

1.3-Dichlorobenzene

1.4-Dichlorobenzene

1,2-Dichlorobenzene

1,2,4-Trichiorobenzene

1.2.3-Trichlorobenzene

Surr: 1.2-Dichloroethane-d4

Surr: 4-Bromofluorobenzene

Hexachlorobutadiene

Surr: Toluene-d8

1,2-Dibromo-3-chloropropane (DBCP)

4-isopropyltoluene

n-Butylbenzene

Naphthalene

trans-1,3-Dichloropropene

Dibromomethane

Trichloroethene

Dichloromethane

# 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 03-Dec-09 Test Code: EPA Method SW8260B Type MS Sample Matrix Spike Batch ID: MS15W1121M Analysis Date: 11/22/2009 00:55 File ID: 09112143.D Sample ID: Run ID: MSD 15 091121C Prep Date: 11/22/2009 00:55 09111903-09AMS Units: µg/L SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual Analyte Result **PQL** Dichlorodifluoromethane 35.1 2.5 

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43.7

47.5

42.6

47.9

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45.6

49.5

49.3

47.6

44.9

45.2

49.9

48.7

51.3

46.6

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47.1 47.1

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97.4

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48 4

49.3

49.9

46.9

99.5

99.8

99.9



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

Date: 03-Dec-09 QC Summary Report Work Order: 09111903

Sample Matrix Spike Duplicate		Type M	SD To	est Code: <b>EF</b>	A Met	hod SW8	260B			
File ID: 09112142.D		.,,,		atch ID: MS1				sis Date: 1	11/22/2009 00:32	
Sample ID: 09111903-01AMSD	Units : µg/L		Run ID: M	SD_15_0911	121C		Prep	Date: 1	11/22/2009 00:32	
Analyte	Result	PQL				LCL(ME)	UCL(ME)	RPDRefVa	al %RPD(Limit)	Qu
Dichlorodifluoromethane	39.4	2.5	50	0	79	13	167	36.35	8.0(20)	
Chioromethane	39.8	10	50	0	80	28	145	38.21	4.1(20)	
Vinyl chloride	48.1	2.5	50	0	96	43	134	46.1	4.3(20)	
Chloroethane	50.1	2.5	50	0	100	39	154	45.52	9.6(20)	
Bromomethane Triable and the second s	53.6	10	50	0	107 102	19 34	176 160	45.38 45.89	16.5(20) 10.3(20)	
Trichlorofluoromethane	50.9 53	2.5 2.5	50 50	0	102	60	130	49.99	5.8(20)	
1,1-Dichloroethene Dichloromethane	46.9	10	50	0	94	68	130	45.06	4.0(20)	
trans-1,2-Dichloroethene	52.4	2.5	50	ő	105	63	130	50.29	4.1(20)	
Methyl tert-butyl ether (MTBE)	50.6	1.3	50	ŏ	101	56	141	48.41	4.3(20)	
1,1-Dichloroethane	49.3	2.5	50	0.64	97	61	130	47.82	3.0(20)	
cis-1,2-Dichloroethene	52.5	2.5	50	0	105	70	130	50.37	4.1(20)	
Bromochloromethane	52.7	2.5	50	0	105	70	130	50.04	5.1(20)	
Chloroform	51	2.5	50	0.5	101	67	130	49.54	2.9(20)	
2,2-Dichloropropane	47.9	2.5	50	0	96	30	152	46.4	3.2(20)	
1,2-Dichloroethane	48.5	2.5	50	0	97	60 50	135	46.68	3.8(20)	
1,1,1-Trichloroethane	53.7	2.5	50 50	0	107 104	59 63	137 130	51.32 50.26	4.5(20) 3.6(20)	
1,1-Dichloropropene Carbon tetrachloride	52.1 55.2	2.5 2.5	50 50	0	110	50	147	52.62	4.8(20)	
Benzene	49.4	1.3	50	0	99	67	130	47.92	3.1(20)	
Dibromomethane	49.1	2.5	50	0	98	69	133	47.59	3.1(20)	
1,2-Dichloropropane	49.9	2.5	50	ŏ	99.7	69	130	48.14	3.5(20)	
Trichloroethene	51.7	2.5	50	Ö	103	69	130	49.35	4.6(20)	
Bromodichloromethane	51.3	2.5	50	0	103	66	134	48.74	5.1(20)	
cis-1,3-Dichloropropene	47.1	2.5	50	0	94	63	130	45.42	3.6(20)	
trans-1,3-Dichloropropene	43.5	2.5	50	0	87	66	131	41.51	4.8(20)	
1,1,2-Trichloroethane	47.1	2.5	50	0	94	68	130	45.41	3.6(20)	
Toluene	47.2	1.3	50	0	94	66	130	45.51	3.6(20)	
1,3-Dichloropropane	47.7	2.5	50	0	95	70 70	130 130	46.17 43.93	3.3(20) 6.1(20)	
Dibromochloromethane	46.7 98.4	2.5	50 100	0	93 98	70 70	130	94.5	4.0(20)	
1,2-Dibromoethane (EDB) Tetrachloroethene	54.4	5 2.5	50	1.02	107	61	134	52.23	4.1(20)	
1,1,1,2-Tetrachioroethane	50.7	2.5	50	0	101	70	130	47.98	5.5(20)	
Chlorobenzene	47.8	2.5	50	ō	96	70	130	46.07	3.6(20)	
Ethylbenzene	48.5	1.3	50	Ō	97	68	130	46.52	4.2(20)	
m,p-Xylene	49.2	1.3	50	0	98	64	130	47.59	3.4(20)	
Bromoform	42.3	2.5	50	0	85	64	138	40.11	5.2(20)	
Styrene	52.8	2.5	50	0	106	69	130	51.42	2.7(20)	
o-Xylene	50.3	1.3	50	0	101	70	130	48.2	4.2(20)	
1,1,2,2-Tetrachloroethane	43.7	2.5	50	0	87	65 70	131	42.46	3.0(20)	
1,2,3-Trichloropropane	91.8	10	100	0	92 99	70 64	130 138	87.76 48.1	4.5(20) 3.1(20)	
Isopropylbenzene Bromobenzene	49.6 47.7	2.5 2.5	50 50	0	95	70	130	47.16	1.2(20)	
n-Propylbenzene	48.8	2.5	50	0	98	66	132	47.47	2.8(20)	
4-Chlorotoluene	49.6	2.5	50	0	99	70	130	48.58	2.1(20)	
2-Chlorotoluene	48.1	2.5		ő	96	70	130	47.8	0.6(20)	
1,3,5-Trimethylbenzene	48.5	2.5		0	97	66	136	47.36	2.5(20)	
tert-Butylbenzene	48.3	2.5	50	0	97	65	137	46.91	2.9(20)	
1,2,4-Trimethylbenzene	48.6	2.5		0	97	65	137	47.02	3.2(20)	
sec-Butylbenzene	49.2	2.5		0	98	66	134	46.83	5.0(20)	
1,3-Dichlorobenzene	48.4	2.5		0	97	70	130	47.38	2.1(20)	
1,4-Dichlorobenzene	45.4	2.5		0	91	70	130	44.24	2.7(20)	
4-Isopropyltoluene	49.5	2.5		0	99 92	66 70	137 130	47.44 43.84	4.2(20) 4.3(20)	
1,2-Dichlorobenzene	45.8 50.2	2.5 2.5		0	100	70 60	142	48.28	4.3(20) 3.9(20)	
n-Butylbenzene 1,2-Dibromo-3-chloropropane (DBCP)	50.2 211	2.5 15		0	84	67	130	205	2.9(20)	
1,2.4-Trichlorobenzene	51.9	10		0	104	61	137	48.02	7.7(20)	
Naphthalene	47.9	10		0	96	40	167	44.76	6.7(20)	
Hexachlorobutadiene	98.9	10		Ö	99	61	130	94.1	5.0(20)	
1,2,3-Trichlorobenzene	48.2	10		0	96	51	144	45.52	5.7(20)	
Surr: 1,2-Dichloroethane-d4	49		50		98	70	130			
Surr: Toluene-d8	49.1		50		98	70	130			
Surr: 4-Bromofluorobenzene	48.7		50		97	70	130			



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 09111903 03-Dec-09 Type MSD Test Code: EPA Method SW8260B Sample Matrix Spike Duplicate Analysis Date: 11/22/2009 01:17 File ID: 09112144.D Batch ID: MS15W1121M Prep Date: 11/22/2009 01:17 Sample ID: 09111903-09AMSD Units: µg/L Run ID: MSD 15 091121C SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Result PQL Qual Analyte 34.1 68 13 167 Dichlorodifluoromethane 2.5 0 50 36.47 8.9(20) Chloromethane 39.9 10 50 0 80 28 145 44.67 7.3(20)2.5 96 43 134 Vinyl chloride 48.1 50 0 39 154 43.71 12.4(20) 49.5 2.5 50 0 99 Chloroethane 47.48 16.3(20) 19 176 Bromomethane 55.9 10 50 0 112 0 34 160 42.61 13.9(20) Trichlorofluoromethane 2.5 50 98 49 1.1-Dichloroethene 52.3 2.5 50 0 105 60 130 47.85 9.0(20)44.14 5.6(20) 68 130 0 93 Dichloromethane 46.7 10 50 trans-1,2-Dichloroethene 52 2 2.5 50 0 104 63 130 49.3 5.8(20) 47.35 6.5(20)Methyl tert-butyl ether (MTBE) 50.5 1.3 50 0 101 56 141 0 98 61 130 45.57 7.5(20)2.5 50 1,1-Dichloroethane 49.1 cis-1,2-Dichloroethene 70 130 49.5 6.7(20)52.9 2.5 50 0 106 130 49.3 6.4(20)Bromochloromethane 52.6 2.5 50 0 105 70 0 67 130 47.55 6.1(20)Chloroform 50.5 2.5 50 101 0 30 152 44.85 5.2(20) 2,2-Dichloropropane 47.2 2.5 50 94 45.23 6.6(20) 60 1,2-Dichloroethane 48.3 2.5 50 0 97 135 52.9 2.5 50 0 106 59 137 49.94 5.8(20)1.1.1-Trichloroethane 6.0(20)1.1-Dichloropropene 50 0 103 63 130 48.73 51.7 2.5 0 50 147 51.32 6.6(20)Carbon tetrachloride 2.5 110 54.8 50 Benzene 49.8 1.3 50 0 99.6 67 130 46.59 6.6(20)46.2 7.2(20)69 133 Dibromomethane 49.7 2.5 50 O 99 50.2 2.5 50 0 100 69 130 46.71 7.1(20) 1.2-Dichloropropane 48.52 6.3(20)130 Trichloroethene 51.7 2.5 50 0 103 69 2.5 0 103 66 134 46.85 9.3(20)51.4 50 Bromodichloromethane 0 63 130 44.31 7.0(20)cis-1.3-Dichloropropene 47.5 2.5 50 95 66 40.22 7.6(20)0 87 131 trans-1.3-Dichloropropene 43.4 2.5 50 7.1(20) 0 95 68 130 44.02 1,1,2-Trichloroethane 47.3 2.5 50 0 96 66 130 44.93 6.3(20)Toluene 47.9 1.3 50 70 130 45.54 7.2(20)1,3-Dichloropropane 49 2.5 50 0 98 130 44.01 8.1(20) Dibromochloromethane 47.7 2.5 0 95 70 50 92 87 1,2-Dibromoethane (EDB) 100 5 100 0 100 70 130 7.7(20)6.9(20)53.8 2.5 0 108 61 134 50.21 Tetrachloroethene 50 0 102 70 130 47.33 7.8(20)1,1,1,2-Tetrachloroethane 51.2 2.5 50 130 45.67 6.7(20)0 70 2.5 98 Chlorobenzene 48.8 50 Ethylbenzene 49 1.3 50 0 98 130 46 6.2(20)47.17 7.4(20)m,p-Xylene 50.8 1.3 50 0 102 64 130 0 87 64 138 39.73 8.9(20) 43.4 50 2.5 Bromoform 50.94 6.2(20)0 108 69 130 Styrene 54.2 2.5 50 70 130 47.94 6.4(20)0 102 o-Xylene 51.1 1.3 50 1,1,2,2-Tetrachloroethane 41.61 6.6(20)44 5 2.5 50 0 89 65 131 87.2 7.6(20)10 100 0 94 70 130 1,2,3-Trichloropropane 94.1 0 99.6 64 138 47.02 5.8(20) 2.5 Isopropylbenzene 49.8 50 0 70 130 46.88 3.5(20)Bromobenzene 48.6 2.5 50 97 47.25 3.8(20)98 66 132 n-Propylbenzene 49.1 2.5 50 0 5.5(20) 0 101 70 130 47.71 50.4 2.5 50 4-Chlorotoluene 0 98 70 130 47.01 4.5(20)2-Chlorotoluene 49.2 2.5 50 0 99 136 46.94 4.9(20)50 66 1,3,5-Trimethylbenzene 49.3 2.5 0 97 65 137 46.42 4.6(20)48.6 2.5 50 tert-Butvlbenzene 46.67 5.2(20) 0 65 137 1,2,4-Trimethylbenzene 49.1 2.5 50 98 2.5 0 97 66 134 47.14 3.1(20) 48 6 50 sec-Butvlbenzene 47.09 5.5(20) 1,3-Dichlorobenzene 49.7 2.5 50 0 99 70 130 0 93 70 130 44.15 5.0(20)2.5 50 1,4-Dichlorobenzene 46.4 0 99 66 137 47.78 4.0(20)4-Isopropyltoluene 49.7 2.5 50 43.56 4.8(20) 0 91 70 130 1,2-Dichlorobenzene 45.7 2.5 50 48.48 4.5(20)50.7 2.5 50 0 101 60 142 n-Butvibenzene 203.2 4.1(20) 1,2-Dibromo-3-chloropropane (DBCP) 15 250 0 85 67 130 212 0 105 61 137 49.76 5.5(20) 1,2,4-Trichlorobenzene 52.6 10 50 Naphthalene 47.7 10 50 0 95 40 167 46.1 3.4(20)97.43 1.8(20)0 99 61 130 Hexachlorobutadiene 99.2 10 100 47.49 3.7(20) 1.2.3-Trichlorobenzene 49.3 50 99 51 144 10 Surr: 1,2-Dichloroethane-d4 48.3 50 97 70 130 49.2 98 70 130 Surr: Toluene-d8 50

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: 03-Dec-09 QC Summary Report Work Order: 09111903

#### **Comments:**

Client:

Battelle Memorial Institute

# CHAIN-OF-CUSTODY RECORD

# Alpha Analytical, Inc.

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

## A ME NOTED

WorkOrder: BMIS09111903

Report Due By: 5:00 PM On: 04-Dec-2009

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

EDD Required: No

Sampled by: GH/DBI

Cooler Temp Samples Received

19-Nov-2009

23-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 #: 023591, 24124

San Diego, CA 92110

Suite C-205 3990 Old Town Ave

		A STATE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN THE							Request	Requested Tests			
Alpha Sample ID	Client Sample ID	Mat	Collection Matrix Date	_	No. of Bottles Alpha Sub	TAT	300_0(A)_W 300_0(B)_W 300_0(C)_W	_W 300_0(C)_W	314_W	METALS_D	314_W METALS_D VOC_TIC_	VOC_W	Sample Remarks
											1001	1001-601	10000
BMI09111903-01A	MW-13	Ą	11/18/09 08:36	10	0	10	NO2, NO3, NO2, NO3, NO2, NO3, PO4, SO4, CI PO4, SO4, CI PO4, SO4, CI	)3, NO2, NO3, I, CI PO4, SO4, CI	Perchlorate	င္	Criteria Criteria	VOC by 524 Criteria	MS/MSD
BMI09111903-02A	MW-8	A Q	11/18/09 10:45	თ	0	10	NO2, NO3, NO2, NO3, NO2, NO3, PO4, SO4, CI PO4, SO4, CI PO4, SO4, CI PO4, SO4, CI	)3, NO2, NO3, I, CI PO4, SO4, CI	Perchlorate	cr	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09111903-03A	QCEB-17 NOV	ĄQ	11/17/09 14:30	ω	0	10					VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09111903-04A	MW-1	Ą	11/18/09 13:00	თ	0	70			Perchlorate	Ç	VOC by 524 Criteria	VOC by 524 Criteria	
BMI09111903-05A	MW-3-5	A Q	11/18/09 08:34	Çī	0	10			Perchlorate	Ç	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09111903-06A	MW-3-4	å	11/18/09 09:02	ĊΊ	0	10			Perchlorate	Cr	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09111903-07A	MW-3-3	AQ	11/18/09 09:29	Ω	0	10			Perchlorate	Ç	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09111903-08A	MW-3-2	- A	11/18/09 10:13	ζī	0	10			Perchlorate	Ω	VOC by 524 Criteria	VOC by 524 Criteria	
BMI09111903-09A	MW-3-1	å	11/18/09 11:10	10	0	10	44.000.000.000.000		Perchlorate	ជ	VOC by 524 Criteria	Criteria	MS/MSD
BMI09111903-10A DUPE-02-4Q09	DUPE-02-4Q09	ĄQ	11/18/09 00:00	ڻ.	0	10			Perchlorate	ç	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	

Comments: No security seals. Frozen ice. Temp Blank #8769 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). Amended 11/23/09 @ 8:09:. Added COC # to workorder due to login error. EA:

	Logged in by:	
(	Carabeth (Idea)	Signature
	Elizabeth Adox	Print Name
A A A A A A A A A A A A A A A A A A A	Alpha Analytical, Inc.	Company
And the state of t	11.23.09 8:15	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. Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) 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. Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

# 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 AttentionPhone NumberEMail AddressDavid Conner(818) 393-2808 xconnerd@battelle.orgShane Walton(614) 424-4117 xwaltons@battelle.org

Client's COC #: 023591, 24124 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates Job : G005862/JPL Groundwater Monitoring PO: 218013

Suite C-205

San Diego, CA 92110

Shane Walton Betsy Cutie

(614) 424-4899 x

cutiee@batelle.org

Battelle Memorial Institute

3990 Old Town Ave

CA AMENDED

WorkOrder: BMIS09111903

Report Due By: 5:00 PM On: 04-Dec-2009

EDD Required : No

Sampled by : GH/ DBL

Cooler Temp Samples Received

4 °C 19-Nov-2009

<u>Date Printed</u>
23-Nov-2009

QC Level: DS4	= DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates	d : Final Rpt	, MBLK, In	nitCal/Cor	nCal dat	a, LCS,	MS/MSD With Surro	ogates	Requested Tests	ed Tests			
Alpha	Client	_	Collection No. of Bottles	No. of	Bottles	•	300_0(A)_W 300_0(B)_W 300_0(C)_W	300_0(C)_W	314_W	METALS_D	314_W METALS_D VOC_TIC_ VOC_W	VOC_W	
Sample ID	Sample ID	Matrix	Matrix Date Alpha Sub TAT	Alpha	Sub	TAT				8	8		Sample Remarks
BMI09111903-11A EB-04-11/18/09	EB-04-11/18/09	Ą	AQ 11/18/09 10:50	5	0 10	10			Perchlorate	Ç	VOC by 524 VOC by 524 Criteria Criteria	/OC by 524 Criteria	
BMI09111903-12A TB-04-11/18/09	TB-04-11/18/09	Ã	AQ 11/18/09 00:00	_	0 10	10					VOC by 524 VOC by 524 Criteria Criteria	OC by 524 Criteria	Reno Trip Blank 6/22/09

Comments: No security seals. Frozen ice. Temp Blank #8769 received @ 4°C. Level IV OC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). Amended 11/23/09 @ 8:09: Added COC # to workorder due to login error. EA:

Logged in by: **Print Name** Alpha Analytical, Inc. Company 11.23.09 8:15 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 Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) 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. Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

# 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 Phone Number (818) 393-2808 x (614) 424-4117 connerd@battelle.org EMail Address

Shane Walton Betsy Cutie

(614) 424-4899 x

cutiee@batelle.org waltons@battelle.org **Battelle Memorial Institute** 

San Diego, CA 92110

Suite C-205 3990 Old Town Ave

Report Due By: 5:00 PM On: 04-Dec-2009

Page: 1 of 2

WorkOrder: BMIS09111903

EDD Required: Yes

Sampled by : GH/ DBL Cooler Temp

Samples Received 19-Nov-2009

19-Nov-2009 Date Printed

Client's COC #: 023591 QC Level: DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates Job: G005862/JPL Groundwater Monitoring

Sample ID BMI09111903-08A MW-3-2 BMI09111903-07A MW-3-3 BMI09111903-06A MW-3-4 BMI09111903-05A MW-3-5 BMI09111903-02A MW-8 BMI09111903-01A MW-13 BMI09111903-10A DUPE-02-4Q09 BMI09111903-09A MW-3-1 BMI09111903-04A BMI09111903-03A QCEB-17 NOV **MW-**1 Client Sample ID á Š å å Š å Matrix Date g Š g Š 11/18/09 00:00 11/17/09 14:30 11/18/09 10:45 11/18/09 10:13 11/18/09 11:10 11/18/09 08:34 Collection No. of Bottles 11/18/09 09:29 11/18/09 09:02 11/18/09 13:00 11/18/09 08:36 Alpha 6 G G Ŋ G G G G ω 5 Sub 0 0 0 0 0 0 0 0 0 0 ΤAΤ 5 6 6 5 5 5 5 5 5 70 NO2, NO3, NO2, NO3, NO2, NO3, Perchlorate PO4, SO4, Cl PO4, SO4, Cl PO4, SO4, Cl 300\_0(A)\_W 300\_0(B)\_W 300\_0(C)\_W NO2, NO3, NO2, NO3, NO2, NO3, Perchlorate PO4, SO4, CI PO4, SO4, CI PO4, SO4, CI 314\_W METALS\_D VOC\_TIC\_ VOC\_W Perchlorate Perchlorate Perchlorate Perchlorate Requested Tests Perchlorate Perchlorate Perchlorate Ü Ç Ç Ç Ç Ü Ç Ω VOC by 524 VOC by 524 Criteria Criteria Sample Remarks MS/MSD MS/MSD

Comments: No security seals. Frozen ice. Temp Blank #8769 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).

Logged in by: Emphoth (Lalcox Elizabeth Fldcox Alpha Analytical, Inc. Company 11-19-09 9:51 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

# CHAIN-OF-CUSTODY RECORD

# Alpha Analytical, Inc.

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

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

Phone Number

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

connerd@battelle.org

Report Attention

David Conner

Shane Walton Betsy Cutie

(614) 424-4899 x

cutiee@batelle.org waltons@battelle.org

**Battelle Memorial Institute** 3990 Old Town Ave

San Diego, CA 92110

Suite C-205

WorkOrder: BMIS09111903

Page: 2 of 2

Report Due By: 5:00 PM On: 04-Dec-2009

EDD Required: Yes

Sampled by : GH/ DBL

Cooler Temp Samples Received 19-Nov-2009 **Date Printed** 

Alpha Sample ID QC Level: DS4 Client's COC #: 023591 BMI09111903-12A TB-04-11/18/09 BMI09111903-11A EB-04-11/18/09 Sample ID = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates Job: G005862/JPL Groundwater Monitoring ð Š Matrix Date 11/18/09 00:00 11/18/09 10:50 Collection No. of Bottles Alpha Sub თ 0 0 TAT 5 5 300\_0(A)\_W 300\_0(B)\_W 300\_0(C)\_W 314\_W METALS\_D VOC\_TIC\_ VOC\_W Perchlorate Requested Tests Ü VOC by 524 VOC by 524 Criteria Criteria VOC by 524 VOC by 524 Criteria Criteria Reno Trip Blank 6/22/09 Sample Remarks 19-Nov-2009

Comments:

No security seals. Frozen ice. Temp Blank #8769 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.; MS/MSD).:

,	Logged in by:	
	Chart Ice	Signature
	<i>k</i>	Print Name
	Alpha Analytical, Inc.	Company
	11-19-09 9:51	Date/Time

### Name GERALD TOMPKINS Billing Information:

Address 505 King Ave.

City, State, Zip Columbus, OH 43201

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QCEB-17NOY

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Time

Date

Matrix\* Sampled by 6H / DBL

Lab ID Number

Office (Use Only)

City, State, Zip Columbus, Ott, 43201

Address SOS KING AUE Client NamBATTELLÉ

0836 | 18 MOV

B

109/11/03-01

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8	7

25	Alpha Analytical, Inc. 255 Glendale Avenue, Suite 21 258 Sparks, Nevada 89431-5778		Samples AZ	Samples Collected From Which Stands AZ CA NV WA NO NA OTHER	Which State	Page # / of /
3667 Fa	Fax (775) 355-0406			Analyses Required	uired	
PO.# 218013	Job# JPL-6W-4Q69	-4009	2)	8) / 62		Required QC Level?
Email Address Connerd Coatelle org	le.org		24,	4.0 103-10		1    (    )   V
Phone # 818 3/3 5808	Fax#614 458-6641		(5.	(3/1/3	/ /ED	EDD/EDF? YES X NO
Report Attention DAVID CONNER		r of	C 4/0	)4   50   43	/ /Glob.	Slobal ID #
Sample Description	TAT Filtered	v /	VI TOP	CIO E Pos —		REMARKS
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× MW-8		5	\ \ \	× ×		

**ADDITIONAL INSTRUCTIONS:** Ü Conner PHONE # 619-726-7311

Signature	Print Name	Company	Date	Time
Relinquished by Juny Hurthy	GREG HEADINGTON	BATTELLE	PONON81	1422
Received by	MARCO MENDO ZA	MSICAT	11/8/29	1430
Relinquished by	RANG LIENDON	instant.	11/18/15	1500
Received by Compbeth ( ) all or	Elizabeth Lacox	luna	11-19-09	9:5/
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Received by				

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 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

Name \_ City, State, Zip Columbus of Address \_ Billing Information: 205 KING 43201

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Alpha Analytical, Inc. 55 Glendale Avenue, Suite 21 parks, Nevada 89431-5778 hone (775) 355-1044 Sar AZ

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SMN DIE GO CA 921/0		Phone # (6/9) 726-73//	Fax #		314 316		
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Sampled Sampled Below	Lab ID Number ( Office Use Only )	Sample Description	TAT ,	Field ** See below	Valorion Clores	Giobal ID #	MADKS
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ADDITIONAL INSTRUCTIONS:	RUCTIONS:						
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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 B-Brass P-Plastic OT-Other

\*Key: AQ - Aqueous

SO - Soil

WA - Waste

OT - Other

AR - Air

\*\*: L-Liter

V-Voa

S-Soil Jar

O-Orbo

T-Tedlar

Received by Relinquished by Received by



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 (818) 393-2808

Suite C-205

**CASE NARRATIVE** 

Job:

G005862/JPL Groundwater Monitoring

Work Order

DMI00112009

Alpha's Sample ID	Client's Sample ID	Matrix	
09112008-01A	QCEB-18 NOV	Aqueous	
09112008-02A	MW-16	Aqueous	
09112008-03A	MW-7	Aqueous	
09112008-04A	MW-9	Aqueous	
09112008-05A	DUPE-8-4Q09	Aqueous	
09112008-06A	MW-17-5	Aqueous	
09112008-07A	MW-17-4	Aqueous	
09112008-08A	MW-17-3	Aqueous	
09112008-09A	MW-17-2	Aqueous	
09112008-10A	MW-17-1	Aqueous	
09112008-11A	DUPE-03-4Q09	Aqueous	
09112008-12A	EB-05-11/19/09	Aqueous	
09112008-13A	TB-05-11/19/09	Aqueous	

Test Reference

Alpha's Sample ID

Analyte

NONE

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.

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

Roger Scholl

Dalter Stirkner



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: 11/20/09

Job:

G005862/JPL Groundwater Monitoring

Anions by IC EPA Method 300.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-16					
Lab ID: BMI09112008-02A	Chloride	65	1.3 mg/L	11/20/09 11:34	11/20/09 17:23
Date Sampled 11/19/09 08:30	Nitrite (NO2) - N	ND	0.25 mg/L	11/20/09 11:34	11/20/09 17:05
•	Nitrate (NO3) - N	1.3	0.25 mg/L	11/20/09 11:34	11/20/09 17:05
	Sulfate (SO4)	47	0.50 mg/L	11/20/09 11:34	11/20/09 17:05
	Phosphate, ortho - P	ND	0.25 mg/L	11/20/09 11:34	11/20/09 17:05
Client ID: MW-7					
Lab ID: BMI09112008-03A	Chloride	66	1.3 mg/L	11/20/09 11:34	11/20/09 18:37
Date Sampled 11/19/09 10:50	Nitrite (NO2) - N	ND	0.25 mg/L	11/20/09 11:34	11/20/09 18:19
•	Nitrate (NO3) - N	1.3	0.25 mg/L	11/20/09 11:34	11/20/09 18:19
	Sulfate (SO4)	46	0.50 mg/L	11/20/09 11:34	11/20/09 18:19
	Phosphate, ortho - P	ND	0.25 mg/L	11/20/09 11:34	11/20/09 18:19

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

Date Received: 11/20/09

Job: G005862/JPL Groundwater Monitoring

### Perchlorate by Ion Chromatography EPA Method 314.0

	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: <b>MW-16</b> Lab ID: BMI09112008-02A Date Sampled 11/19/09 08:30	Perchlorate	ND	1.00 μg/L	11/23/09 13:44	11/24/09 13:46
Client ID: MW-7 Lab ID: BMI09112008-03A Date Sampled 11/19/09 10:50	Perchlorate	ND	1.00 µg/L	11/23/09 13:44	11/24/09 14:04
Client ID: <b>MW-9</b> Lab ID: BMI09112008-04A Date Sampled 11/19/09 13:55	Perchlorate	ND	1.00 μg/L	11/23/09 13:44	11/24/09 14:23
Client ID: DUPE-8-4Q09 Lab ID: BMI09112008-05A Date Sampled 11/19/09 13:55	Perchlorate	ND	1.00 µg/L	11/23/09 13:44	11/24/09 14:41
Client ID: <b>MW-17-5</b> Lab ID: BMI09112008-06A Date Sampled 11/19/09 08:20	Perchlorate	ND	1.00 µg/L	11/23/09 13:44	11/24/09 15:36
Client ID: <b>MW-17-4</b> Lab ID: BMI09112008-07A Date Sampled 11/19/09 08:52	Perchlorate	ND	1.00 µg/L	11/23/09 13:44	11/24/09 15:55
Client ID: MW-17-3 Lab ID: BMI09112008-08A Date Sampled 11/19/09 09:19	Perchlorate	10.2	1.00 µg/L	11/23/09 13:44	11/24/09 16:13
Client ID: MW-17-2 Lab ID: BMI09112008-09A Date Sampled 11/19/09 09:47	Perchlorate	4.32	1.00 µg/L	11/23/09 13:44	11/24/09 16:32
Client ID: MW-17-1 Lab ID: BMI09112008-10A Date Sampled 11/19/09 10:21	Perchlorate	ND	1.00 μg/L	11/23/09 13:44	11/24/09 16:50
Client ID: <b>DUPE-03-4Q09</b> Lab ID: BMI09112008-11A Date Sampled 11/19/09 00:00	Perchlorate	ND	1.00 μg/L	11/23/09 13:44	11/24/09 17:45
Client ID: <b>EB-05-11/19/09</b> Lab ID: BMI09112008-12A Date Sampled 11/19/09 10:09	Perchlorate	ND	1.00 µg/L	11/23/09 13:44	11/25/09 18:43



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ND = Not Detected

Roger Scholl Kandy Saulous Walter Hinchman, Quality Assurance Officer

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.

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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: 11/20/09

Job: G005862/JPL Groundwater Monitoring

### Metals by ICPMS EPA Method 200 8

		EPA Method 200.8			
	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-16 Lab ID: BMI09112008-02A Date Sampled 11/19/09 08:30	Chromium (Cr)	ND	0.0050 mg/L	11/20/09 14:14	11/20/09 20:37
Client ID: MW-7 Lab ID: BMI09112008-03A Date Sampled 11/19/09 10:50	Chromium (Cr)	ND	0.0050 mg/L	11/20/09 14:14	11/20/09 20:43
Client ID: MW-9 Lab ID: BMI09112008-04A Date Sampled 11/19/09 13:55	Chromium (Cr)	0.013	0.0050 mg/L	11/20/09 14:14	11/20/09 20:48
Client ID: <b>DUPE-8-4Q09</b> Lab ID: BMI09112008-05A Date Sampled 11/19/09 13:55	Chromium (Cr)	0.0078	0.0050 mg/L	11/20/09 14:14	11/20/09 20:54
Client ID: MW-17-5 Lab ID: BMI09112008-06A Date Sampled 11/19/09 08:20	Chromium (Cr)	ND	0.0050 mg/L	11/20/09 14:14	11/20/09 21:00
Client ID: <b>MW-17-4</b> Lab ID: BMI09112008-07A Date Sampled 11/19/09 08:52	Chromium (Cr)	ND	0.0050 mg/L	11/20/09 14:14	11/20/09 21:05
Client ID: <b>MW-17-3</b> Lab ID: BMI09112008-08A Date Sampled 11/19/09 09:19	Chromium (Cr)	ND	0.0050 mg/L	11/20/09 14:14	11/20/09 21:11
Client ID: MW-17-2 Lab ID: BMI09112008-09A Date Sampled 11/19/09 09:47	Chromium (Cr)	ND .	0.0050 mg/L	11/20/09 14:14	11/20/09 21:16
Client ID: MW-17-1 Lab ID: BMI09112008-10A Date Sampled 11/19/09 10:21	Chromium (Cr)	ND	0.0050 mg/L	11/20/09 14:14	11/20/09 20:20
Client ID: <b>DUPE-03-4Q09</b> Lab ID: BMI09112008-11A Date Sampled 11/19/09 00:00	Chromium (Cr)	ND	0.0050 mg/L	11/20/09 14:14	11/20/09 21:44
Client ID: <b>EB-05-11/19/09</b> Lab ID: BMI09112008-12A Date Sampled 11/19/09 10:09	Chromium (Cr)	ND	0.0050 mg/L	11/20/09 14:14	11/20/09 21:50



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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.

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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

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

Attn: David Conner

Job: G005862/J

G005862/JPL Groundwater Monitoring

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

			Estimated		
	Parameter	Estimated Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID : QCEB-18 NOV Lab ID : BMI09112008-01A Date Received : 11/20/09 Date Sampled : 11/18/09 15:30	*** None Found ***	ND	2.0 μg/L	11/23/09 14:03	11/23/09 14:03
Client ID: MW-16  Lab ID: BMI09112008-02A  Date Received: 11/20/09  Date Sampled: 11/19/09 08:30	*** None Found ***	ND	2.0 μg/L	11/23/09 14:25	11/23/09 14:25
Client ID : MW-7  Lab ID : BMI09112008-03A  Date Received : 11/20/09  Date Sampled : 11/19/09 10:50	*** None Found ***	ND	2.0 μg/L	11/23/09 14:48	11/23/09 14:48
Client ID : MW-9  Lab ID : BMI09112008-04A  Date Received : 11/20/09  Date Sampled : 11/19/09 13:55	*** None Found ***	ND	2.0 μg/L	11/23/09 15:11	11/23/09 15:11
Client ID : <b>DUPE-8-4Q09</b> Lab ID : BMI09112008-05A  Date Received : 11/20/09  Date Sampled : 11/19/09 13:55	*** None Found ***	ND	2.0 μg/L	11/23/09 15:32	11/23/09 15:32
Client ID: MW-17-5 Lab ID: BMI09112008-06A Date Received: 11/20/09 Date Sampled: 11/19/09 08:20	* * * None Found * * *	ND	<b>2.0</b> μg/L	11/23/09 15:54	11/23/09 15:54
Client ID: MW-17-4 Lab ID: BMI09112008-07A Date Received: 11/20/09 Date Sampled: 11/19/09 08:52	*** None Found ***	ND	2.0 μg/L	11/23/09 16:17	11/23/09 16:17
Client ID: MW-17-3 Lab ID: BMI09112008-08A Date Received: 11/20/09 Date Sampled: 11/19/09 09:19	*** None Found ***	ND	2.0 μg/L	11/23/09 16:39	11/23/09 16:39
Client ID: MW-17-2 Lab ID: BMI09112008-09A Date Received: 11/20/09 Date Sampled: 11/19/09 09:47	*** None Found ***	ND	2.0 μg/L	11/23/09 17:01	11/23/09 17:01



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Client ID: MW-17-1 Lab ID: BMI09112008-10A Date Received: 11/20/09 Date Sampled: 11/19/09 10:21	Sulfur dioxide	10	2.0 μg/L	11/23/09 17:23 11/23/09 17:23
Client ID: DUPE-03-4Q09 Lab ID: BMI09112008-11A Date Received: 11/20/09 Date Sampled: 11/19/09 00:00	Sulfur dioxide	9.6	2.0 μg/L	11/23/09 17:45 11/23/09 17:45
Client ID : EB-05-11/19/09 Lab ID : BMI09112008-12A Date Received : 11/20/09 Date Sampled : 11/19/09 10:09	*** None Found ***	ND	2.0 μg/L	11/23/09 13:41 11/23/09 13:41
Client ID: TB-05-11/19/09  Lab ID: BMI09112008-13A  Date Received: 11/20/09  Date Sampled: 11/19/09 00:00	*** None Found ***	ND	2.0 μg/L	11/23/09 13:18 11/23/09 13:18

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl Kandy Sanhan Walter Acrichner

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
Page 1 of 1

12/4/09



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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: BMI09112008-01A

Client I.D. Number: QCEB-18 NOV

Attn:

David Conner (818) 393-2808

Phone: Fax:

(614) 458-6641

Sampled: 11/18/09 15:30

Received: 11/20/09

Extracted: 11/23/09 14:03 Analyzed: 11/23/09 14:03

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

	Compound	Concentration	F	Reporting 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	2.0	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	0.79	0.50	μg/L
5	Bromomethane	ND		2.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND		0.50	μg/L	41	Styrene	0.92	0.50	μg/L
7	1,1-Dichloroethene	ND		0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND		2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	96	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	µg/L	65	Surr: Toluene-d8	105	(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

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl Kandy Soulur

Walter Heridian

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.

12/4/09

**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

G005862/JPL Groundwater Monitoring

Job:

Alpha Analytical Number: BMI09112008-02A

Client I.D. Number: MW-16

Attn: David Conner

Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 11/19/09 08:30

Received: 11/20/09

Extracted: 11/23/09 14:25 Analyzed: 11/23/09 14:25

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

	Compound	Concentration	F	Reporting I	Limit	Compound Con-		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	2.0	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		2.0	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		2.0	μg/L	43	1,1,2,2-Tetrachloroethane	. ND	0.50	μg/ <b>L</b>
9	Freon-113	ND		0.50	μg/L	44	1,2,3-Trichloropropane	ND	2.0	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 (DBCF	P) ND	3.0	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MiBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	µg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	97	(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

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

μg/L

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



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### ANALYTICAL REPO<u>RT</u>

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112008-03A Client I.D. Number: MW-7

Attn: **David Conner** 

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

Sampled: 11/19/09 10:50

Received: 11/20/09

Extracted: 11/23/09 14:48 Analyzed: 11/23/09 14:48

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

	Compound	Concentration	F	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	Q	2.0	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		2.0	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		2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	ND		0.50	µg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	97	(70-130)	%RE
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	105	(70-130)	%RE
31	Toluene	ND		0.50	μg/L	66	Surr: 4-Bromofluorobenzene	91	(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

Tetrachloroethene

35

34 1,2-Dibromoethane (EDB)

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.

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: BMI09112008-04A

Client I.D. Number: MW-9

Attn: David Conner

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 11/19/09 13:55

Received: 11/20/09

Extracted: 11/23/09 15:11 Analyzed: 11/23/09 15:11

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

	Compound	Concentration	F	Reporting Limit		Compound Co		Concentration	Reporting Limit	
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	2.0	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		2.0	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		2.0	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	2.0	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	3.0	µg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	µg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	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

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

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

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** 



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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: BMI09112008-05A

Client I.D. Number: DUPE-8-4Q09

David Conner Attn:

Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 11/19/09 13:55

Received: 11/20/09

Extracted: 11/23/09 15:32 Analyzed: 11/23/09 15:32

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

	Compound	Concentration	Reporting Limit		Limit	Compound C		Concentration	Reporting Limit	
1	Dichlorodifluoromethane	ND		0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	2.0	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		2.0	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		2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	96	(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	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

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 • • Walter Hinchman, Quality Assurance Officer

μg/L

μg/L

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.

12/4/09

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: BMI09112008-06A

Client I.D. Number: MW-17-5

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

Fax:

(614) 458-6641

Sampled: 11/19/09 08:20

Received: 11/20/09

Extracted: 11/23/09 15:54 Analyzed: 11/23/09 15:54

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

	Compound	Concentration	F	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	Q	2.0	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		2.0	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		2.0	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	2.0	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	3.0	µg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	µg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	µg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	106	(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

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 Saulun

Walter Hirkory

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

μg/L

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.

12/4/09

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: BMI09112008-07A

Client I.D. Number: MW-17-4

Attn: David Conner

Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 11/19/09 08:52

Received: 11/20/09 Extracted: 11/23/09 16:17

Analyzed: 11/23/09 16:17

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

	Compound	Concentration	Reporting	ng 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 2.0	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	2.0	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	2.0	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	2.0	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/Ľ
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	3.0	μg/L
25	Trichloroethene	0.87	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	µg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	99	(70-130)	%RE
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	105	(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					

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)

Roger Scholl

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

μg/L

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.

12/4/09

Report Date



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### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job: G005862/JP

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112008-08A

Client I.D. Number: MW-17-3

Attn: David Conner

Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 11/19/09 09:19

Received: 11/20/09

Extracted: 11/23/09 16:39 Analyzed: 11/23/09 16:39

### 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	Q	2.0	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		2.0	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		2.0	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	2.0	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	*	3.0	µg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	µg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	µg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	µg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	97	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	105	(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

Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulun

Walter Hirihan

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.

12/4/09

Report Date



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### ANALYTICAL REPORT

Battelle Memorial Institute

Client I.D. Number: MW-17-2

3990 Old Town Ave San Diego, CA 92110 Attn:

David Conner

Phone: Fax:

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

San Diego, CA 921 Job: G005862/J

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112008-09A

Sampled: 11/19/09 09:47

Received: 11/20/09

Extracted: 11/23/09 17:01 Analyzed: 11/23/09 17:01

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

	Compound	Concentration	Į.	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	Q	2.0	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		2.0	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		2.0	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	2.0	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		3.0	µg/L
25	Trichloroethene	0.98		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	106	(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 Dibromochloromethane34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl Kandy Salmer

Walter Hirehour

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 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.

12/4/09 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** 

Client I.D. Number: MW-17-1

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: BMI09112008-10A

Sampled: 11/19/09 10:21

Received: 11/20/09

Extracted: 11/23/09 17:23 Analyzed: 11/23/09 17:23

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

	Compound	Concentration	F	Reporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	i ND		0.50	µg/L	36	1,1,1,2-Tetrachioroethane	ND	0.50	μg/L
2	Chloromethane	ND	Q	2.0	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		2.0	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		2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	µg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	106	(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

ND

Note: Analysis conducted using EPA Method 524.2 criteria.

Q = One or more quality control criteria failed.

ND = Not Detected

33 Dibromochloromethane

35 Tetrachioroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl

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

12/4/09 **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

G005862/JPL Groundwater Monitoring

Job: Alpha Analytical Number: BMI09112008-11A

Client I.D. Number: DUPE-03-4Q09

David Conner Attn:

Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 11/19/09 00:00

Received: 11/20/09

Extracted: 11/23/09 17:45 Analyzed: 11/23/09 17:45

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

	Compound	Concentration	R	eporting l	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	2.0	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		2.0	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		2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	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	107	(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

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

μg/L

μg/L

μg/L

1.0

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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: BMI09112008-12A

Client I.D. Number: EB-05-11/19/09

David Conner Attn:

Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 11/19/09 10:09

Received: 11/20/09

Extracted: 11/23/09 13:41 Analyzed: 11/23/09 13:41

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

	Compound	Concentration	F	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	Q	2.0	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		2.0	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		2.0	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	2.0	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		3.0	µg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	97	(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	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

Tetrachioroethene

34 1.2-Dibromoethane (EDB)

μg/L

μg/L

1.0

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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.

12/4/09

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: BMI09112008-13A

Client I.D. Number: TB-05-11/19/09

David Conner Attn:

Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 11/19/09 00:00

Received: 11/20/09

Extracted: 11/23/09 13:18 Analyzed: 11/23/09 13:18

### 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	2.0	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		2.0	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		2.0	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	2.0	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	3.0	μg/L
25	Trichloroethene	ND		0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND		0.50	μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND		2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND		0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND		0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	97	(70-130)	%REC
30	1,1,2-Trichloroethane	ND		0.50	μg/L	65	Surr: Toluene-d8	105	(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								

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

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

μg/L

1.0

0.50

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

12/4/09



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

### **VOC Sample Preservation Report**

Work Order: BMI09112008

Job:

G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
09112008-01A	QCEB-18 NOV	Aqueous	2
09112008-02A	MW-16	Aqueous	2
09112008-03A	MW-7	Aqueous	2
09112008-04A	MW-9	Aqueous	2
09112008-05A	DUPE-8-4Q09	Aqueous	2
09112008-06A	MW-17-5	Aqueous	2
09112008-07A	MW-17-4	Aqueous	2
09112008-08A	MW-17-3	Aqueous	2
09112008-09A	MW-17-2	Aqueous	2
09112008-10A	MW-17-1	Aqueous	2
09112008-11A	DUPE-03-4Q09	Aqueous	2
09112008-12A	EB-05-11/19/09	Aqueous	2
09112008-13A	TB-05-11/19/09	Aqueous	2

12/4/09

**Report Date** 



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<b>Date:</b> 04-Dec-09	QC Summary Report	<b>Work Order:</b> 09112008
Method Blank File ID: 16 Sample ID: MB-23124 Analyte	Type MBLK Test Code: EPA Method 300.0  Batch ID: 23124A Analysis I  Units: mg/L Run ID: IC_1_091120A Prep Date  Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPI	
Nitrite (NO2) - N Nitrate (NO3) - N Phosphate, ortho - P	ND 0.25 ND 0.25 ND 0.25	
Laboratory Fortified Blank File ID: 17 Sample ID: LFB-23124 Analyte	Type LFB Test Code: EPA Method 300.0  Batch ID: 23124A Analysis I  Units: mg/L Run ID: IC_1_091120A Prep Date  Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPI	
Nitrite (NO2) - N Nitrate (NO3) - N Phosphate, ortho - P	1.19     0.25     1.25     95     90     110       1.24     0.25     1.25     99     90     110       1.32     0.25     1.25     106     90     110	
Sample Matrix Spike File ID: 34 Sample ID: 09112008-02ALFM Analyte	Type LFM Test Code: EPA Method 300.0  Batch ID: 23124A Analysis I  Units: mg/L Run ID: IC_1_091120A Prep Date  Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPI	
Nitrite (NO2) - N Nitrate (NO3) - N Phosphate, ortho - P	11.4 0.25 12.5 0 91 80 120 13.8 0.25 12.5 1.317 99.6 80 120 13.8 0.25 12.5 0 110 80 120	
Sample Matrix Spike Duplicate File ID: 35 Sample ID: 09112008-02ALFMD Analyte	Type LFMD Test Code: EPA Method 300.0  Batch ID: 23124A Analysis I  Units: mg/L Run ID: IC_1_091120A Prep Date  Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPI	
Nitrite (NO2) - N Nitrate (NO3) - N Phosphate, ortho - P	11.7 0.25 12.5 0 94 80 120 13.7 0.25 12.5 1.317 99 80 120 12.8 0.25 12.5 0 102 80 120	11.37 3.0(10) 13.77 0.6(10) 13.76 7.4(10)

### **Comments:**



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<b>Date:</b> 04-Dec-09		Ç	C S	ummar	y Repor	t				<b>Work Orde</b> 09112008	
Method Blan File ID: 16 Sample ID: Analyte	nk MB-23124	Units : <b>mg/L</b> Result	Type <b>N</b> PQL	Bun ID: IC	est Code: El atch ID: 231: -1_091120/	24B <b>A</b>			11	1/20/2009 12:09 1/20/2009 11:34 %BPD(Limit)	 Qual
Sulfate (SO4)		ND	0.5		Opiniorvai	7011120	202(11/2)	002(2) 2.	10110	/or 11 5 (5 mm)	
Laboratory I	Fortified Blank		Type L		est Code: El atch ID: 231:		thod 300.0		ate: 11	1/20/2009 12:27	<del></del>
Sample ID: Analyte	LFB-23124	Units : <b>mg/L</b> Result	PQL		_ <b>1_091120</b> SpkRefVal		C LCL(ME)	Prep Date: UCL(ME) RPDF		%RPD(Limit)	Qual
Sulfate (SO4)		9.39	0.5	5 10		94	90	110			
Sample Matri File ID: 34 Sample ID:	rix Spike 09112008-02ALFM	Units : mg/L	Type L	В	est Code: El atch ID: 231: :_1_091120/	24B	thod 300.0			1/20/2009 17:42 1/20/2009 11:34	
Analyte		Result	PQL				LCL(ME)	UCL(ME) RPDI			Qual
Sulfate (SO4)		141	0.5	5 100	46.72	94	80	120			
Sample Matr	rix Spike Duplicate		Type L		est Code: El atch ID: 231:		thod 300.0		ate: 11	1/20/2009 18:00	
Sample ID: Analyte	09112008-02ALFMD	Units : <b>mg/L</b> Result	PQL		_ <b>1_091120</b> SpkRefVal		C LCL(ME)	Prep Date: UCL(ME) RPDF		1/20/2009 11:34 %RPD(Limit)	Qual
Sulfate (SO4)		139	0.5	*******	46.72	92	80		40.8	1.3(10)	

### Comments:



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<b>Date:</b> 04-Dec-09		(	QC S	ummar	y Repor	t			Work Ord 0911200	
Method Blan File ID: 16 Sample ID: Analyte	nk MB-23124	Units : <b>mg/L</b> Result	Type <b>I</b> PQL	Ba Run ID: <b>IC</b>	est Code: El atch ID: 231: _1_0911206	24C 3		Prep Date:	tte: 11/20/2009 12:09 11/20/2009 11:34 RefVal %RPD(Limit)	Qual
Chloride		ND	0.		Ophi ioi vai	70.120		000() 2.		
Laboratory File ID: 17 Sample ID: Analyte	Fortified Blank LFB-23124	Units : <b>mg/L</b> Result	Type I	Ba Run ID: <b>IC</b>	est Code: El atch ID: 231: _1_0911206	24C 3		Prep Date:	tte: 11/20/2009 12:27 11/20/2009 11:34 RefVal %RPD(Limit)	Qual
Chloride		4.71	0.9		Opki ici vai	94	90	110	TOTAL 70711 D(EITH)	
Sample Mat File ID: 34 Sample ID: Analyte	rix Spike 09112008-02ALFM	Units : <b>mg/L</b> Result	Type I	Ba Run ID: IC	est Code: El atch ID: 231: _1_0911208 SpkRefVal	24C 3		Prep Date:	te: 11/20/2009 17:42 11/20/2009 11:34 RefVal %RPD(Limit)	
Chloride		115	0.9	· · · · · · · · · · · · · · · · · · ·		99.9	80	120		
Sample Mat File ID: 35 Sample ID: Analyte	rix Spike Duplicate 09112008-02ALFMD	Units : <b>mg/L</b> Result	Type I	Ba Run ID: IC	est Code: El atch ID: <b>231</b> : _ <b>1_091120</b> SpkRefVal	24C 3		Prep Date:	tte: 11/20/2009 18:00 11/20/2009 11:34 RefVal %RPD(Limit)	
Chloride		116	0.		65.3	100	80		15.2 0.3(10)	

### Comments:



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<b>Date:</b> 04-Dec-09		(	QC S	umm	ary l	Repor	t				<b>Work Orde</b> 09112008	
Method Bla File ID: 15 Sample ID: Analyte	nk MB-23136	Units : <b>µg/L</b> Result	Type I		Batch : IC_3_	D: <b>231</b> _ <b>091123</b>	36 3	thod 314.0	Prep	Date:	11/23/2009 14:24 11/23/2009 13:44 Val %RPD(Limit)	Qual
Perchlorate		ND	1 0(2	1	vai or	Kitervai	701 ILC	/ LOL(IVIL)	OOL(WIL	) TII DITO	Val. 701 II D(Estilly	
Laboratory File ID: 17	Fortified Blank		Type	LFB		Code: El		thod 314.0	Anal	ysis Date:	11/23/2009 15:01	
Sample ID: Analyte	LFB-23136	Units : µg/L Result	PQL			_ <b>091123E</b> kRefVal		LCL(ME)		Date: ) RPDRef	11/23/2009 13:44 Val %RPD(Limit)	Qual
Perchlorate		26.2		2	25		105	85	115			
Sample Mat File ID: 33 Sample ID:	rix Spike 09112008-10ALFM	Units : μ <b>g/L</b>	Type I		Batch	ID: <b>231</b>	36	thod 314.0		ysis Date: Date:	11/24/2009 17:08 11/23/2009 13:44	
Analyte	09/12000-10ALFW	Result	PQL			_ <b>091123E</b> kRefVal		LCL(ME)	•		Val %RPD(Limit)	Qual
Perchlorate		23.3		2	25	0		80	120	•		<del></del>
Sample Mat	rix Spike Duplicate		Туре	LFMD		Code: <b>Ei</b>		thod 314.0		ysis Date:	11/24/2009 17:27	
Sample ID: Analyte	09112008-10ALFMD	Units : µg/L Result	PQL			_091123E		· LCL(ME)	•	Date:	11/23/2009 13:44 Val %RPD(Limit)	Qual
Perchlorate		23.6		<u>эрк</u> 2	25	0		80	120	23.2		

### Comments:



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<b>Date:</b> _04-Dec-09	(	QC S	ummar	y Repor	t				<b>Work Ordo</b> 09112008	
Method Blank File ID: 112009.B\066SMPL.D\ Sample ID: MB-23127 Analyte	Units : <b>mg/L</b> Result	Type N	B Run ID: IC	est Code: EF atch ID: 2312 P/MS_09112 SpkRefVal	27K 20B		Prep Da	ate:	11/20/2009 19:52 11/20/2009 14:14 /al %RPD(Limit)	Qual
Chromium (Cr)	ND	0.00		<u>'                                    </u>		<u>```</u>				
Laboratory Control Spike File ID: 112009.B\067_LCS.D\ Sample ID: LCS-23127	Units : mg/L		Bun ID: IC	est Code: EF atch ID: 2312 P/MS_09112	27K 20B		Prep Da	ate:	11/20/2009 19:58 11/20/2009 14:14	
Analyte Chromium (Cr)	Result	PQL		SpkRefVal				PDRefV	/al %RPD(Limit)	Qual
Sample Matrix Spike File ID: 112009.B\072SMPL.D\ Sample ID: 09112008-10AMS Analyte	0.0444 Units : mg/L Result	0.008 Type I	IS T B Run ID: IC	est Code: EF atch ID: 2312 P/MS_09112 SpkRefVal	27K 20B		Prep Da	ate:	11/20/2009 20:26 11/20/2009 14:14 /al %RPD(Limit)	Qual
Chromium (Cr)  Sample Matrix Spike Duplicate	0.0409	0.008 Type <b>I</b>	ISD T	0 est Code: <b>Ef</b>		80 thod <b>200.8</b>	120			_
File ID: 112009.B\073SMPL.D\ Sample ID: 09112008-10AMSD Analyte	Units : <b>mg/L</b> Result	PQL	Run ID: IC	atch ID: <b>231</b> 2 P/MS_0911: SpkRefVal	20B	C LCL(ME)	Prep Da	ate:	11/20/2009 20:32 11/20/2009 14:14 /al %RPD(Limit)	Qual
Chromium (Cr)	0.0446	0.008	0.05	0	89	80	120	0.0408	35 8.8(20)	

### **Comments:**



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Method Blank File ID: 09112309.D Sample ID: MBLK MS15W1123M		Type MBLK	Test Code: E	DA Motho	d SW8260	.D		
		. , , , , , , , , , , , , , , , , , , ,						
Sample ID: MBLK MS15W1123M			Batch ID: MS	15W1123	М	Analysis Date	: 11/23/2009 10:43	
•	Units : µg/L		D: <b>MSD_15_091</b>			Prep Date:	11/23/2009 10:43	3
Analyte	Result	PQL Spl	kVal SpkRefVal	%REC L	CL(ME) U	CL(ME) RPDRe	fVal %RPD(Limit)	Qua
Dichlorodifluoromethane	ND	0.5						
Chloromethane	ND	1						
Vinyl chloride	ND	0.5						
Chloroethane	ND	0.5						
Bromomethane Trichlorofluoromethane	ND ND	1 0.5						
1,1-Dichloroethene	ND 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) cis-1,2-Dichloroethene	ND ND	10 0.5			1			
Bromochioromethane	ND 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						
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 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	ND	0.5						
Ethylbenzene	ND	0.5						
m,p-Xylene Bromoform	ND 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	ND	0.5						
Bromobenzene	ND	0.5						
n-Propylbenzene 4-Chlorotoluene	ND ND	0.5 0.5						
2-Chlorotoluene	ND ND	0.5 0.5						
1,3,5-Trimethylbenzene	ND ND	0.5						
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 1,2-Dichlorobenzene	ND ND	0.5 0.5						
n-Butylbenzene	ND ND	0.5 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	1				400		
Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8	9.81 10.4		10 10	98 104	70 70	130 130		



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<b>Date:</b> 04-Dec-09	(	<b>Work Ord</b> 0911 <b>2</b> 003							
Surr: 4-Bromofluorobenzene	9.16		10	92	70	130			
Laboratory Control Spike File  D: 09112305.D		Type LC	Ва	st Code: EPA Meth tch ID: MS15W112		Analysis Date:		: 11/23/2009 09:14	_ <b></b>
Sample ID: LCS MS15W1123M	Units : µg/L			D_15_091123D		Prep D		11/23/2009 09:14	
Analyte	Result	PQL		SpkRefVal %REC			KPDRetv	/ai %RPD(Limit)	Qua
Dichlorodifluoromethane	7.49	1	10	75 00	70 70(70)	130			L50
Chloromethane	6.61	2	10	66	70(70)	130			LOU
Vinyl chloride Chloroethane	9.24 10.2	1	10 10	92 102	70 70	130 130			
Bromomethane	9.58	2	10	96	70	130			
Trichlorofluoromethane	10.8	1	10	108	70	130			
1,1-Dichloroethene	10.6	1	10	106	70	130			
Dichloromethane	9.55	2	10	96	70	130			
trans-1,2-Dichloroethene	10.8	1	10	108	70 70	130			
Methyl tert-butyl ether (MTBE) 1.1-Dichloroethane	10.6 10.2	0.5 1	10 10	106 102	70 70	130 130			
cis-1,2-Dichloroethene	11	1	10	110	70	130			
Bromochloromethane	10.5	1	10	105	70	130			
Chloroform	10.6	1	10	106	70	130			
2,2-Dichloropropane	12.1	1	10	121	70	130			
1,2-Dichloroethane	10.1	1	10	101	70	130			
1,1,1-Trichloroethane	11.4	1	10 10	114 110	70 70	130 130			
1,1-Dichloropropene Carbon tetrachloride	11 11.5	1	10	115	70	130			
Benzene	10.4	0.5	10	104	70	130			
Dibromomethane	10.1	1	10	101	70	130			
1,2-Dichloropropane	10.3	1	10	103	70	130			
Trichloroethene	10.9	1	10	109	70	130			
Bromodichloromethane	10.7	1	10	107	70 70	130			
cis-1,3-Dichloropropene trans-1,3-Dichloropropene	10.5 9.33	1	10 10	105 93	70 70	130 130			
1,1,2-Trichloroethane	9.71	1	10	97	70	130			
Toluene	10.3	0.5	10	103	70	130			
1,3-Dichloropropane	10.3	1	10	103	70	130			
Dibromochloromethane	10.1	1	10	101	70	130			
1,2-Dibromoethane (EDB)	21.1	2	20	106	70 70	130			
Tetrachloroethene 1,1,1,2-Tetrachloroethane	11.5 10.9	1	10 10	115 109	70 70	130 130			
Chlorobenzene	10.9	1	10	109	70	130			
Ethylbenzene	10.4	0.5	10	104	70	130			
m,p-Xylene	10.7	0.5	10	107	70	130			
Bromoform	9.4	1	10	94	70	130			
Styrene	11.3	1	10	113	70 70	130			
o-Xylene	10.7	0.5	10	107 97	70 70	130 130			
1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane	9.65 20.2	1 2	10 20	101	70	130			
Isopropylbenzene	9.94	1	10	99	70	130			
Bromobenzene	9.81	1	10	98	70	130			
n-Propylbenzene	10	1	10	100	70	130			
4-Chlorotoluene	10.3	1	10	103	70	130			
2-Chlorotoluene 1,3,5-Trimethylbenzene	10	1	10	100 100	70 70	130 130			
tert-Butylbenzene	10 9.8	1	10 10	98	70 70	130			
1,2,4-Trimethylbenzene	10	· 1	10	100	70	130			
sec-Butylbenzene	10	1	10	100	70	130			
1,3-Dichlorobenzene	10.2	1	10	102	70	130			
1,4-Dichlorobenzene	9.58	1	10	96	70	130			
4-Isopropyltoluene	10.2	1	10	102	70 70	130 130			
1,2-Dichlorobenzene n-Butylbenzene	9.55 10.6	1	10 10	96 106	70 70	130			
1,2-Dibromo-3-chloropropane (DBCP)	46.5	3	50	93	70	130			
1,2,4-Trichlorobenzene	10.8	2	10	108	70	130			
Naphthalene	10.2	2	10	102	70	130			
Hexachlorobutadiene	20.7	2	20	103	70 70	130			
1,2,3-Trichlorobenzene	10.3	2	10	103	70 70	130			
Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8	9.59 10		10 10	96 100	70 <b>7</b> 0	130 130			
Surr: 4-Bromofluorobenzene	9.45		10	95	70	130			



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Work Order: 09112008 Date: QC Summary Report 04-Dec-09

Sample Matrix Spike	Type MS Test Code: EPA Method SW8260B									
File ID: <b>09112313.D</b>								Date: 11/23/2009 12:12		
Sample ID: 09112008-10AMS	Units : µg/L	· F	Run ID: <b>MS</b> I				Prep Date			
Analyte	Result	PQL	SpkVal S	SpkRefVal	%REC	LCL(ME)	UCL(ME) RP	RefVal %RPD(Limit)	Qua	
Dichlorodifluoromethane	35.4	2.5	50	0		13	167			
Chloromethane	35.6	10	50	0		28	145			
Vinyl chloride	41.2	2.5	50	0		43	134			
Chloroethane	44	2.5	50	0		39	154			
Bromomethane	44.3	10	50	0		19	176			
Trichlorofluoromethane	42.6	2.5	50	0		34	160			
1,1-Dichloroethene	45.3	2.5	50	0		60	130			
Dichloromethane	42.6	10	50	0		68	130			
trans-1,2-Dichloroethene	45.9	2.5	50	0		63	130			
Methyl tert-butyl ether (MTBE)	47.2	1.3	50	0		56	141			
1,1-Dichloroethane	44	2.5	50	0		61	130			
cis-1,2-Dichloroethene	47.6	2.5	50	0		70 70	130			
Bromochloromethane	47.7	2.5	50 50	0		70 67	130			
Chloroform	45.5	2.5	50	0		67 20	130			
2,2-Dichloropropane	50.6	2.5	50	0		30	152 135			
1,2-Dichloroethane	43.5	2.5	50 50	0		60 50	137			
1,1,1-Trichloroethane	47.3	2.5	50 50	0		59 63	137			
1,1-Dichloropropene	46.4	2.5	50 50	0		50	147			
Carbon tetrachloride	47.7	2.5	50 50	0		67	130			
Benzene	44.8	1.3	50 50	0		69	133			
Dibromomethane 1.2-Dichloropropane	45.2	2.5 2.5	50 50	0		69	130			
Trichloroethene	45.7 45.8	2.5	50 50	0		69	130			
Bromodichloromethane	45.6 45.6	2.5	50 50	0		66	134			
cis-1,3-Dichloropropene	44.2	2.5	50 50	0	-	63	130			
trans-1,3-Dichloropropene	40	2.5	50 50	0		66	131			
1,1,2-Trichloroethane	43.4	2.5	50 50	ő		68	130			
Toluene	44.8	1.3	50	ő		66	130			
1,3-Dichloropropane	46.1	2.5	50	ő		70	130			
Dibromochloromethane	42.8	2.5	50	ő		70	130			
1,2-Dibromoethane (EDB)	93.4	5	100	Ö		70	130			
Tetrachloroethene	49.8	2.5	50	Ŏ		61	134			
1,1,1,2-Tetrachloroethane	47.7	2.5	50	Ŏ		70	130			
Chlorobenzene	44.2	2.5	50	Ŏ		70	130			
Ethylbenzene	44.3	1.3	50	Ö		68	130			
m,p-Xylene	45.1	1.3	50	Ō		64	130			
Bromoform	38.7	2.5	50	. 0	77	64	138			
Styrene	48.4	2.5	50	0	97	69	130			
o-Xylene	46	1.3	50	0	92	70	130			
1,1,2,2-Tetrachloroethane	42.3	2.5	50	0	85	65	131			
1,2,3-Trichloropropane	86.6	10	100	0	87	70	130			
Isopropylbenzene	43.2	2.5	50	0	86	64	138			
Bromobenzene	42.8	2.5	50	0		70	130			
n-Propylbenzene	43.6	2.5	50	0		66	132			
4-Chlorotoluene	44.5	2.5	50	0	89	70	130			
2-Chlorotoluene	43	2.5	50	. 0		70	130			
1,3,5-Trimethylbenzene	43.6	2.5	50	0		66	136			
tert-Butylbenzene	42.5	2.5	50	0		65	137			
1,2,4-Trimethylbenzene	44	2.5	50	0		65	137			
sec-Butylbenzene	43.9	2.5	50	0		66	134			
1,3-Dichlorobenzene	45.4	2.5	50	0		70	130			
1,4-Dichlorobenzene	42.4	2.5	50	0		70	130			
4-isopropyltoluene	44.8	2.5	50	0		66	137			
1,2-Dichlorobenzene	42.5	2.5	50	0		70	130			
n-Butylbenzene	46.8	2.5	50	0		60	142			
1,2-Dibromo-3-chloropropane (DBCP)	202	15	250	0		67	130			
1,2,4-Trichlorobenzene	50.2	10	50	0		61	137			
Naphthalene	47.3	10	50	0		40	167			
Hexachlorobutadiene	92.2	10	100	0		61 54	130			
1,2,3-Trichlorobenzene	47.7	10	50	0		51	144			
• •										
Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8	46.7 50.5		50 50		93 101	70 70	130 130			



Surr: Toluene-d8

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 09112008 04-Dec-09 Test Code: EPA Method SW8260B Type MSD Sample Matrix Spike Duplicate Analysis Date: 11/23/2009 12:34 File ID: 09112314.D Batch ID: MS15W1123M Prep Date: 11/23/2009 12:34 Sample ID: 09112008-10AMSD Units: µg/L Run ID: MSD\_15\_091123D SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) PQL Qual Result Analyte 71 167 35.43 2.5 0 13 Dichlorodifluoromethane 35.5 50 50 O 69 28 145 35.58 3.6(20) Chloromethane 34.3 10 41.21 3.4(20) Vinyl chloride 42.6 2.5 50 0 85 43 134 44.04 1.4(20)39 154 0 87 2.5 50 Chloroethane 43.4 43.7 10 50 0 87 19 176 44.29 1.3(20)Bromomethane 42.57 2.1(20)34 160 Trichlorofluoromethane 43.5 2.5 50 0 87 0 93 60 130 45.31 2.3(20)2.5 50 1.1-Dichloroethene 46.4 42.6 0.8(20)0 86 68 130 Dichloromethane 43 10 50 63 130 45.94 0.8(20)2.5 ٥ 93 trans-1,2-Dichloroethene 46.3 50 48.4 1.3 50 0 97 141 47.23 2.3(20)Methyl tert-butyl ether (MTBE) 44.04 0.0(20)130 44 2.5 50 0 88 61 1,1-Dichloroethane 47.57 0.4(20)0 96 70 130 47.8 2.5 50 cis-1,2-Dichloroethene 47.69 2.2(20)0 98 70 130 Bromochloromethane 48.8 2.5 50 130 45.48 0.5(20)Chloroform 45.7 2.5 50 O 91 67 50.63 1.0(20)2.5 50 0 100 30 152 50.1 2,2-Dichloropropane 3.0(20)50 0 90 60 135 43.5 1,2-Dichloroethane 44.8 2.5 0 59 137 47.31 0.2(20)50 94 47.2 2.5 1,1,1-Trichloroethane 92 63 130 46.44 0.6(20)1,1-Dichloropropene 46.2 2.5 50 0 47.74 0.2(20)147 Carbon tetrachloride 47.8 2.5 50 0 96 50 0 90 67 130 44.78 0.7(20)1.3 45.1 50 Benzene 0 92 69 133 45.22 2.2(20)Dibromomethane 46.2 2.5 50 45.74 0.8(20)130 1,2-Dichloropropane 46.1 2.5 50 0 92 69 130 45.78 1.1(20)46.3 2.5 50 0 93 69 Trichloroethene 2.5(20) 134 45.6 2.5 50 0 93 66 Bromodichloromethane 46.7 1.9(20) 2.5 50 n 90 63 130 44.18 cis-1,3-Dichloropropene 45 40.02 0 82 66 131 2.4(20)trans-1.3-Dichloropropene 41 2.5 50 43.35 2.2(20) 0 89 68 130 1.1.2-Trichloroethane 44.3 2.5 50 44.79 0.3(20)44.9 1.3 50 0 90 66 130 Toluene 47.1 2.5 50 0 94 70 130 46.13 2.0(20)1,3-Dichloropropane 89 70 130 42.76 3.9(20) 0 Dibromochloromethane 44.5 2.5 50 0 97 70 130 93.42 3.3(20) 96.6 5 100 1,2-Dibromoethane (EDB) 49.78 0.7(20)99 134 Tetrachloroethene 49.5 2.5 50 0 61 47.71 2.3(20)0 93 70 130 1,1,1,2-Tetrachloroethane 46.6 2.5 50 44.21 0.9(20)Chlorobenzene 44.6 2.5 50 0 89 70 130 130 44.3 0.8(20)88 68 0 Ethylbenzene 43.9 1.3 50 130 45.05 0.9(20)m,p-Xylene 44 7 1.3 50 0 89 64 2.7(20) 64 38.71 Bromoform 39.8 2.5 50 0 80 138 0 98 69 130 48.44 1.2(20) 2.5 50 Styrene 49 0 91 70 130 45.96 0.9(20)45.5 1.3 50 o-Xvlene 86 65 131 42.32 1.1(20)1,1,2,2-Tetrachloroethane 42.8 2.5 50 0 86.57 4.2(20)0 90 70 130 1,2,3-Trichloropropane 90.3 10 100 43.21 0.9(20)0 87 64 138 Isopropylbenzene 43.6 2.5 50 70 130 42.76 2.3(20)0 88 Bromobenzene 43.8 2.5 50 43.2 2.5 50 0 86 66 132 43.57 0.9(20)n-Propylbenzene 44.51 0.8(20)130 44.9 2.5 50 0 90 70 4-Chiorotoluene 43.03 1.4(20) 0 87 70 130 43.7 2.5 50 2-Chlorotoluene 43.55 1.3(20)1,3,5-Trimethylbenzene 44.1 2.5 50 0 88 66 136 42.5 1.2(20)0 86 65 137 tert-Butylbenzene 43 2.5 50 44.4 50 0 89 65 137 43.97 1.0(20)2.5 1.2.4-Trimethylbenzene 43.89 0.1(20)66 43.9 2.5 50 0 88 134 sec-Butylbenzene 0.1(20) 2.5 0 91 70 130 45.44 45.5 50 1.3-Dichlorobenzene 42.39 0 86 70 130 1.2(20)1.4-Dichlorobenzene 42.9 2.5 50 0 90 66 137 44.82 0.8(20)50 4-Isopropyltoluene 45.2 2.5 0 87 70 130 42.45 2.4(20)1.2-Dichlorobenzene 43.5 2.5 50 94 60 142 46.76 0.4(20)47 2.5 50 0 n-Butvlbenzene 202.1 5.8(20) 0 86 67 130 1,2-Dibromo-3-chloropropane (DBCP) 214 15 250 50.21 1.3(20) 0 102 61 137 1,2,4-Trichlorobenzene 50.9 10 50 0 40 167 47.29 4.5(20)99 Naphthalene 49.4 10 50 0 94 61 130 92.19 2.1(20)Hexachlorobutadiene 94.1 10 100 144 47.69 3.9(20) 1,2,3-Trichlorobenzene 49.6 10 50 99 51 96 70 130 Surr: 1.2-Dichloroethane-d4 47.9 50

50

50

102

96

70

70

130

130

50.9

47.8



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

Date: 04-Dec-09

### QC Summary Report

Work Order: 09112008

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

Battelle Memorial Institute

Page: 1 of 2

Report Due By: 5:00 PM On: 07-Dec-2009 WorkOrder: BMIS09112008

EDD Required: Yes

Sampled by: GH/DBI Cooler Temp

Samples Received

20-Nov-2009 20-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 #: 023592, 24119

PO: 218013

San Diego, CA 92110

**Betsy Cutie** 

(614) 424-4899

×

cutiee@batelle.org

Suite C-205 3990 Old Town Ave

Alpha	Client		Collection	N Of	No. of Bottles		100 0(A) W 200 0(B) W 300		£	314 W METALS D	YOU TIC	₹ 1	
Sample ID	Sample ID	Matr	Matrix Date	Alpha	Sub	TAT	300_0(A)_W300_0(B)_W300_0(C)_W		314_W	WETALS_D	METALS_D VOC_TIC_ VOC_W	VOC_W	Sample Remarks
BMI09112008-01A	QCEB-18 NOV	Ą	11/18/09 15:30	ω	0	10					VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	AND AND WARRY STORY OF THE AND THE
BMI09112008-02A	MW-16	ĄQ	11/19/09 08:30	თ	0	10	NO2, NO3, NO2, NO3, NO2, NO3, PO4, SO4, CI PO4, SO4, CI PO4, SO4, CI	-	Perchlorate	ဂ	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09112008-03A	MW-7	AQ	11/19/09 10:50	5	0	10	NO2, NO3, NO2, NO3, NO2, NO3, PO4, SO4, CI PO4, SO4, CI PO4, SO4, CI		Perchlorate	ç.	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	ANALOGICA STRANSPORT
BMI09112008-04A	WW-9	AQ	11/19/09 13:55	Ŋ	0	10		Per	Perchlorate	ဂ္	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09112008-05A	DUPE-8-4Q09	á	11/19/09 13:55	ڻ ا	0	10		Per	Perchlorate	Ω	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09112008-06A	MW-17-5	Ą	11/19/09 08:20	Ŋ	0	10		Per	Perchlorate	Q.	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09112008-07A	MW-17-4	á	11/19/09 08:52	ζī	0	10		Per	Perchlorate	Ω	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09112008-08A	MW-17-3	Ą	11/19/09 09:19	ζī	0	10		Per	Perchlorate	Ç	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09112008-09A	MW-17-2	Ą	11/19/09 09:47	თ	0	10		Per	Perchlorate	Ω	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	
BMI09112008-10A	MW-17-1	ð	11/19/09	10	0	10		Per	Perchlorate	ଦ	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria	MS/MSD

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.

Elizabeth

HdCox

Alpha Analytical, Inc. Company

11-20-09 122C Date/Time

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

Logged in by:

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 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

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

EDD Required: Yes

Report Due By: 5:00 PM On: 07-Dec-2009

WorkOrder: BMIS09112008

Page: 2 of 2

Sampled by: GH/DBI

Cooler Temp

20-Nov-2009 **Date Printed** 

Samples Received 20-Nov-2009

Client's COC #: 023592, 24119 QC Level: DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates Job: 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 Client:

Battelle Memorial Institute

Sample ID BMI09112008-13A TB-05-11/19/09 BMI09112008-12A EB-05-11/19/09 BMI09112008-11A DUPE-03-4Q09 Client Sample ID å AQ 11/19/09 00:00 AQ 11/19/09 00:00 Matrix Date 11/19/09 10:09 Collection No. of Bottles Alpha Sub თ G 0 0 ΤAΤ 6 6 5 300\_0(A)\_W300\_0(B)\_W300\_0(C)\_W 314\_W METALS\_D VOC\_TIC\_ VOC\_W Perchlorate Perchlorate Requested Tests Ω ರ VOC by 524 VOC by 524 Criteria Criteria VOC by 524 VOC by 524 Criteria Criteria VOC by 524 VOC by 524 Criteria Criteria Reno Trip Blank 6/22/09 Logged in per bottles Sample Remarks

Comments: No security seals. Frozen ice. Temp Blank #8278 received @ 4°C. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).

Logged in by: Probeth (Sellox Elizabeth Hdcox Alpha Analytical, Inc. Company 11-20-09 /220 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

Address SOS KING AUE  City, State, Zip Columbus, OH 42701	Billing Information:
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8	<b>■</b>

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

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		Samples
OR	CAX	60/
'	×	Collected I
OTHER	` <b>≥</b> 	ed From
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Pa		Which State?
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Analyses Required

Client Name BATTEUE	PO.# 218013	JPL-6W-4009	1) 18) 19/54	Required QC Level?
Address SOS KING AVE	EMail Address connerdebattclle, org		314,2 200, 314,2	/
City, State, Zip Celumbus, CH, 43201	1479- 854 419 H3 8082-848 H54 H58 -6641		(5) Pr (5) NO. (3)	EDD/EDF? YES X NO
Time Date See Key Sampled by 6H/DBL	Report Attention DAUID CONNER		0C/2/04/504	Giobal ID#
Sampled Sampled Below Lab ID Number (Use Only)	Sample Description	TAT Filtered ** See below	VI Top CI;	REMARKS
W. W.				- NOSAMPRE HELL
1530 1840 AG 5m 01/2008-01	QCEB-ISNOV	ಎ< ×		
C830 19MOV AQ	mw-16	(J	× × × ×	
1050 19NOV AQ -03	mw-7		× × × × ×	
1355 19W AR - OH	mw-9	2	*	
1355 1910 Ag - 05	DUPE.8. 4009	۶ ۲	× ×	
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			Ajoha Analytical Samp	Sample Receipt
			>-	,
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				o°C
ADDITIONAL INSTRUCTIONS:	D. CONNER PHONE \$ 619-726-7311	726-7311	la la	

Signature	Print Name	Company	Date	Time
Relinquished by Juny Housington	GREG HEADINGTON	BATTEUE	PONONE	1412
Received by	MARCO MENDOJA	1NS16WT	11/19/09	1431
Relinquished by	MARCO LUENDOZA	1NSIGNT	11/19/09 1500	1500
Received by Combath (1809)	Elizabeth HdCox	Moha	11:20.09 /221	122D
Relinquished by			1	
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 0-Orbo T-Tedlar B-Brass P-Plastic OT-Other

3illing Information: Jame CERALD TOMPKINS/BATT	SATTERLE Alpha Analytical, Inc. 255 Glendale Avenue, Suite 21	AZ CA NV	WA Page # / of /
COLUMBUS ,	C.	Analys	
CHATTELLE DAVID CONNET	P.O.# 2/80/3 Job# Cop 5	8)	Required QC Level?
20 7		24.	/ / 11 11 E111/ IV
, CM 92,	Phone #6/9) 726-73// Fax#	150 Cr (300)	/ EDD / EDF? YES NO
Time Date Matrix* Sampled by	Report Attention	102 102	Global ID #
Sampled Sampled See Ney Below Lab ID Number ( Office )	Sample Description TAT Field Filtered	** See below VO TO	REMARKS
00. Oc.	Mady 7-71-MM	××××	
	·07 MW-17-4	×××	
<b>919</b> -08	MW-17-3	×	
947 09	MW-17-2	×××	
1021	1- £(-mm	X X X	HS/NSD
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- 11/19/10 PRQ 11	Dupe-03-4209	%	DUPLEME
1009 WAS AQ -12	23-05-11/19/09	76 Alpha Analytical Sal	amp & Beseipt - Bund
		14 OF 18 OF	3
- 1/9/5 PR - 13	TB-55-11/19/09		7210
	1	308	NO
ADDITIONAL INSTRICTIONS:	•		00
Signature	Print Name	Company	Date Time
Relinquished by	Marca Menora	1/001 CAT	11/16/09 1530
Received by Capath (Iday)	Elizabe	Olepha	11.20.09 /220
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.

\*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:** 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 Daulmer

Walter Hinkows



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: 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



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: 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

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.

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ول 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

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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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: BMI09112406-01A

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	Reporting 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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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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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

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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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 Attn:

David Conner

Phone: Fax:

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

San Diego, CA 9211 Job: G005862/JI

G005862/JPL Groundwater Monitoring

Sampled: 11/23/09 09:46

Received: 11/24/09

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

Alpha Analytical Number: BMI09112406-07A

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

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

	Compound	Concentration	Re	porting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	l DD		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	0.56		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	0.66		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-Butyibenzene	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	13		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)	%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	91	(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

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Soulur

Walter Hirihum

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

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

μg/L

µg/L

μg/L

12/8/09 Report Date



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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	Concentration	Re	porting 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	Chioromethane	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	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	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	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		_
Sample Mat	rix 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 Mat	rix Spike Duplicate		Туре І	LFMD	Test Code: E	PA Met	thod 314.0			
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		29.2		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	QC Summary Report Work Ort 0911240	
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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<b>Date:</b> 04-Dec-09	•	<b>Work Order:</b> 09112406				
Method Blank		Type MBLK	Test Code: EPA Method SW		42/04/2000 44:20	
File ID: 09120107.D			Batch ID: MS15W1201M	•	12/01/2009 11:30	
Sample ID: MBLK MS15W1201M	Units : µg/L		D: MSD_15_091201A	Prep Date:	12/01/2009 11:30	
Analyte	Result	PQL Sp	kVal SpkRefVal %REC LCL(MI	E) UCL(ME) RPDRef	/al %RPD(Limit)	Qua
Dichlorodifluoromethane	ND	0.5				
Chloromethane	ND	1				
Vinyl chloride	ND	0.5				
Chloroethane Bromomethane	ND ND	0.5 1				
Trichlorofluoromethane	ND 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 Bromochloromethane	ND ND	0.5 0.5				
Chloroform	ND	0.5	4			
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	ND	0.5				
Dibromomethane	ND ND	0.5 0.5				
1,2-Dichloropropane Trichloroethene	ND 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 Dibromochloromethane	ND ND	0.5 0.5				
1,2-Dibromoethane (EDB)	ND ND	1				
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	ND	0.5				
Styrene	ND	0.5				
o-Xylene 1,1,2,2-Tetrachloroethane	ND ND	0.5 0.5				
1,2,3-Trichloropropane	ND	1				
Isopropylbenzene	ND	0.5				
Bromobenzene	ND	0.5				
n-Propylbenzene	ND	0.5				
4-Chlorotoluene	ND	0.5				
2-Chlorotoluene	ND	0.5				
1,3,5-Trimethylbenzene	ND	0.5				
tert-Butylbenzene 1,2,4-Trimethylbenzene	ND ND	0.5 0.5				
sec-Butylbenzene	ND ND	0.5				
1,3-Dichlorobenzene	ND	0.5				
1,4-Dichlorobenzene	ND	0.5				
4-isopropyitoluene	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 Naphthalene	ND ND	1				
Hexachlorobutadiene	ND ND	1				
1,2,3-Trichlorobenzene	ND	1				
Surr: 1,2-Dichloroethane-d4	9.81	•	10 98 70	130		
Surr: Toluene-d8	10.2		10 102 70	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.

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 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



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

Date: QC Summary Report Work Order: 09112406

Sample Matrix Spike Duplicate	· ··	Type MS	D Te	st Code: El	PA Met	hod SW8	260B			
File ID: 09120109.D		. , ,		tch ID: MS				sis Date:	12/01/2009 12:14	
Sample ID: 09112406-05AMSD	Units : µg/L	F		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	2.5	50	0	110	63	130	52.39 48.97	4.8(20)	
Methyl tert-butyl ether (MTBE)	51.2	1.3	50	0	102	56 64	141 130	48.95	4.4(20) 4.5(20)	
1,1-Dichloroethane	51.2 515	2.5	50	0	102 52	61 20	182	494	4.2(20)	
2-Butanone (MEK)	54.6	50 2.5	1000 50	0	109	70	130	52.14	4.7(20)	
cis-1,2-Dichloroethene Bromochloromethane	54.6 51.5	2.5 2.5	50 50	0	103	70	130	49.79	3.5(20)	
Chloroform	52.3	2.5	50	0	105	67	130	50.45	3.7(20)	
2,2-Dichloropropane	58.7	2.5	50 50	0	117	30	152	56.45	4.0(20)	
1,2-Dichloroethane	48.7	2.5	50 50	0	97	60	135	47.44	2.7(20)	
1,1,1-Trichloroethane	54.6	2.5	50	ő	109	59	137	53.73	1.6(20)	
1,1-Dichloropropene	54.2	2.5	50	Ö	108	63	130	52.49	3.2(20)	
Carbon tetrachloride	57.5	2.5	50	Ō	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	0	94	68	130	45.13	3.6(20)	
Toluene	49.5	1.3	50	0	99	66	130	48.36	2.4(20)	
1,3-Dichloropropane	49.6	2.5	50	0	99	70	130	48	3.3(20)	
Dibromochloromethane	48.7	2.5	50	0	97	70	130	47.41	2.8(20)	
1,2-Dibromoethane (EDB)	101	5	100	0	101	70 64	130	97.44 54.26	3.7(20)	
Tetrachloroethene	56	2.5	50 50	0	112 106	61 70	134 130	51.15	3.2(20) 3.9(20)	
1,1,1,2-Tetrachloroethane Chlorobenzene	53.2 49.2	2.5 2.5	50 50	0	98	70 70	130	48.16	2.2(20)	
Ethylbenzene	50.1	1.3	50 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	Ö	109	69	130	52.87	2.7(20)	
o-Xylene	51.6	1.3	50	Ö		70	130	50.16	2.8(20)	
1,1,2,2-Tetrachloroethane	46.3	2.5	50	Ö	93	65	131	44.91	3.0(20)	
1,2,3-Trichloropropane	94	10	100	Ó	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	130	47.51	0.9(20)	
n-Propylbenzene	49.1	2.5	50	0	98	66	132	48.74	0.8(20)	
4-Chlorotoluene	51	2.5	50	0	102	70	130	50.04	1.9(20)	
2-Chlorotoluene	48.4	2.5	50	0	97	70	130	49.07	1.5(20)	
1,3,5-Trimethylbenzene	50	2.5	50	0	100	66	136	49.09	1.8(20)	
tert-Butylbenzene	49	2.5	50	0	98	65	137	47.86	2.4(20)	
1,2,4-Trimethylbenzene	49.8	2.5	50	0	99.5	65 66	137	48.75	2.1(20)	
sec-Butylbenzene	50 50.4	2.5	50	0	100	66 70	134	48.78	2.5(20)	
1,3-Dichlorobenzene	50.1	2.5	50	0	100	70 70	130	49.7	0.9(20)	
1,4-Dichlorobenzene	48.1	2.5	50	0	96 103	70 66	130 137	46.54 50.27	3.2(20) 2.5(20)	
4-Isopropyltoluene	51.6	2.5	50	0	103 95	70	137	45.93	2.9(20) 2.9(20)	
1,2-Dichlorobenzene n-Butylbenzene	47.3 53.6	2.5	50 50		95 107	70 60	142	52.31	2.5(20) 2.5(20)	
1,2-Dibromo-3-chloropropane (DBCP)	53.6 222	2.5 15	250	0	89	60 67	130	215.7	2.7(20)	
1,2,4-Trichlorobenzene	53.2	10	∠50 50	0	106	61	137	50.18	5.9(20)	
Naphthalene	53.2 47.7	10	50 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 50	U	96	70	130	,5.,0	5.5(20)	
Surr: Toluene-d8	50.1		50		100	70	130			



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

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 / 2/20/	义!	Required QC Level
Address 505 KING AVE	EMail Address Connerd @ battelle.		14.0	1    (ii) IV
City, State, Zip Columbus, OH 43201	Phone # 818-393-2808 64   Fax # 614 458-	6641		EDD / EDF? YES 💃 NO
Time Date See Key Sampled by CH /DBL	Report Attention DANIS CONNER	al and type of		Global ID #
Sampled Sampled Below Lab ID Number (Use Only)	Sample Description TAT	Filtered ** See below	C/	REMARKS
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		<u> </u>	Security Sec. 17 YES	(NO)
			Frozen Ide? (YES)	₹(
		Penning	Temperature 4	°C
ADDITIONAL INSTRUCTIONS: D	CONNER THONE # 619-726-7311	311		
Signature	Print Name	Company	Date	Time
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N.	MARCO MENDON	1NSIGHT	11/23/	1011 801
Relinquished by	MARCO MEN 95 20	1 NSICH	11/23/05	9 1200
Received by Confidence Auth () Along Relinquished by	Elizabeth Hocox	lupha	.trc.11	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

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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.

\*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	
09112508-03A 09112508-04A		MW-22-3	Aqueous	
		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	
09112	2508-08A	TB-07-11/24/09	Aqueous	
		Manually Integrated	l Analytes	
Alpha's Sa	mple ID	Test Reference	<u>Analyte</u>	
0911250	08-01A	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



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** 

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



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: 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: <b>MW-22-5</b> 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: <b>MW-22-2</b> Lab ID: BMI09112508-04A Date Sampled 11/24/09 09:22	Chromium (Ĉr)	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: <b>EB-07-11/24/09</b> 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

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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

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Report Date



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#### ANALYTICAL REPORT

Battelle Memorial Institute

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

3990 Old Town Ave San Diego, CA 92110

David Conner

Attn: Phone: Fax:

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

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09112508-01A

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

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 Scholl

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μg/L

μg/L

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: BMI09112508-02A

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

Attn: David Conner

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

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	Rep	orting	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	μ <b>g/L</b>
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	* 1	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	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					

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 34 1,2-Dibromoethane (EDB)

Tetrachloroethene

35

Roger Scholl

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

1.0

0.50

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 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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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	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	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 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	Reporting 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.	ρ μg/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 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 Reporting Limit			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

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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# **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 Blan			Туре	E	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 Park   Cities   Cities	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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Date: 06-Dec-09	(	QC Summ	ary Report			<b>Work Order</b> 09112508	r:
Method Blank File ID: 09120107.D Sample ID: MBLK MS15W1201M	Units : µg/L		Test Code: EPA Method Batch ID: MS15W1201N D: MSD_15_091201A	1	Analysis Date: Prep Date:	12/01/2009 11:30 12/01/2009 11:30	
Analyte	Result		Val SpkRefVal %REC LO	CL(ME) UC	L(ME) RPDRef	Val %RPD(Limit)	Qua
Dichlorodifluoromethane	ND	0.5					
Chloromethane	ND ND	1 0.5					
Vinyl chloride Chloroethane	ND ND	0.5					
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	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 ND	0.5 0.5					
Bromochloromethane Chloroform	ND ND	0.5 0.5					
2,2-Dichloropropane	ND 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	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) cis-1,3-Dichloropropene	ND ND	2.5 0.5					
trans-1,3-Dichloropropene	ND 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	1					
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	ND ND	0.5 0.5					
Styrene o-Xylene	ND ND	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	ND	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	ND	0.5					
sec-Butylbenzene	ND ND	0.5 0.5					
1,3-Dichlorobenzene 1,4-Dichlorobenzene	ND ND	0.5 0.5					
4-isopropyltoluene	ND 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 0.81	1	40 00	70	120		
Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8	9.81		10 98 10 102		130 130		
Sun. Toluene-uo	10.2		10 102	10	100		



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

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



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 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

# 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 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 O 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 0 130 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#	4	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	DUPHCASE
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



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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

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

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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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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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**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 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

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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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

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	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	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.

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

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	porting 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	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-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	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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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 Limit	
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 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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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: 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 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	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	QC Summary Report						Work Orde 09120150			
Method Bla	nk		Type N		est Code: El		thod 314.0	Analysis Date:	12/02/2009 13:38	
Sample ID:	MB-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		ND	1	1						
Laboratory File ID: 15	Fortified Blank		Type L		est Code: El		thod 314.0	Analysis Date:	12/02/2009 13:56	
Sample ID:	LFB-23184	Units : µg/L		Run ID: IC	3_091202	<b>\</b>		Prep Date:	12/02/2009 12:28	
Analyte		Result	PQL	-			LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Perchlorate		24.6	2	2 25		98	85	115		
Sample Mat	rix Spike		Type <b>L</b>		est Code: El		thod 314.0		12/02/2009 17:37	
Sample ID:	09120150-05ALFM	Units : μg/L		Run ID: IC	_3_091202	١.		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 Te	st Code: El	A Me	thod 314.0			
File ID: 28	•			Ва	tch ID: 231	34		Analysis Date:	12/02/2009 17:55	
Sample ID:	09120150-05ALFMD	Units : µg/L		Run ID: IC	_3_091202	١.		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	(	QC S	ummar	y Repor	t			<b>Work Orde</b> 09120150	
Method Blank File ID: 120309.B\79MB.D\		Type N		est Code: El atch ID: 231		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 N	ISD T	est Code: El	PA Met	hod 200.8			
File ID: 120309.B\79MSD.D\			В	atch ID: <b>231</b>	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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<b>Date:</b> 09-Dec-09	(	QC Sumn	nary Repo	rt			<b>Work Ord</b> 09120150	
Method Blank File ID: 09120408.D		Type MBLK	Test Code: I Batch ID: MS				e: <b>12/04/2009</b> 11:40	
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	Val SpkRefVa	al %REC	_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) Tetrachloroethene	ND ND	1 0.5						
1,1,1,2-Tetrachloroethane	ND ND	0.5						
Chlorobenzene	ND	0.5						
Ethylbenzene	ND	0.5						
m,p-Xylene	ND	0.5						
Bromoform Styrene	ND ND	0.5 0.5						
o-Xylene	ND ND	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 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 ND	0.5 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 0.5						
n-Butylbenzene 1,2-Dibromo-3-chloropropane (DBCP)	ND ND	0.5 2.5						
1,2,4-Trichlorobenzene	ND	1						
Naphthalene	ND	1						
Hexachlorobutadiene	ND	1						
1,2,3-Trichlorobenzene Surr: 1,2-Dichloroethane-d4	ND 10.1	1	10	101	70	130		
Jun. 1,2-Dignordenane-ut	10.1		10	101	, ,	100		



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<b>Date:</b> 09-Dec-09	QC :	Summary Rep	port			Work Order: 09120150
Surr: 4-Bromofluorobenzene	9.52	10	95	70	130	



Date:

### Alpha Analytical, Inc.

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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



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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 Surr: 4-Bromofluorobenzene 70

98

50

48.8

130



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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 S 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) STATES	Print 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 CONTROL OF THE PARTY OF	PO.# 218013 Job# GESSET	,,,	Required QC Level?
V1	EMail Address	14 Car (4 Car)	/
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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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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TRIPBLANK	COMPHENT BANK	DUPLICATE	MS/MSD			hever II ac		REMARKS	Global ID #	EDD / EDF? YES NO	" " " N	/ Hequired QC Level?

## **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



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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

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

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

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120203-01A

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

David Conner Attn:

Fax:

Phone: (818) 393-2808

(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 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/Ľ
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/Ľ
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/Ľ
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/Ľ
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/∟
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/Ľ
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	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 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

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** 



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 Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120203-02A

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

David Conner Attn:

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	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-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 Dibromochloromethane 34 1,2-Dibromoethane (EDB)

35 Tetrachioroethene

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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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

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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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** 

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

3990 Old Town Ave San Diego, CA 92110 Attn:

David Conner

Phone: Fax:

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

Job:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120203-04A

Sampled: 12/01/09 09:45

Received: 12/02/09

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

### 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	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					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane 34 1,2-Dibromoethane (EDB)

35 Tetrachloroethene

Roger Scholl

ND

ND

ND

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

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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.

12/15/09 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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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

12/15/09

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 S	ummar	y Repor	t				<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	QC Summary Repo	ort	Work Order: 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		<u> </u>	allilli	ary Repor				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	<b>i</b> .						
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	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.

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Cherry House	Fax (775)	Fax (775) 355-0406	/ Analyses Required	_
Client Name		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	×	×	
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· O	DUPE-06-4009	X	X	FUPHUAE
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Signature	Print Name		Company	Date Time
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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



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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

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.

12/16/09
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: <b>MW-11-4</b> 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: <b>MW-11-3</b> 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: <b>MW-11-2</b> 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: <b>BMI</b> 09120304-06A 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 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.

12/16/09

**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

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



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

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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

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09120304-01A

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

Attn: David Conner

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

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	, I	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					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Soular

ND

ND

Dalter Hinkow

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

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 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	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	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					

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	centration Reporting Limi	
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 certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

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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

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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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

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 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	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.

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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 Summary Report									
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 Summary Report								er:
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	Q	C S	ummary	Repor	t				<b>Work Orde</b> 09120304	
Method Blank File ID: 120409.B\92MB.D\ Sample ID: MB-23192	Units : mg/L	Гуре <b>N</b>		st Code: EF tch ID: 2319 VMS_09120	2K	hod 200.8	Analysis Prep Da		12/04/2009 21:08 12/04/2009 10:17	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RF	PDRef\	/al %RPD(Limit)	Qual
Chromium (Cr)	ND	0.005								
Laboratory Control Spike File ID: 120409.B\92L1.D\	-	Гуре L		st Code: EF		hod 200.8	Analysis	Date:	12/04/2009 21:14	
Sample ID: LCS-23192	Units : mg/L		Run ID: ICF	MS_09120	)4B		Prep Da	te:	12/04/2009 10:17	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RF	PDRef\	/al %RPD(Limit)	Qual
Chromium (Cr)	0.0535	0.005	0.05		107	80	120			
Sample Matrix Spike File ID: 120409.B\92MS.D\	_	Гуре <b>N</b>		st Code: EF		hod 200.8	Analysis	Date:	12/04/2009 21:42	
Sample ID: 09120401-01AMS	Units : mg/L		Run ID: ICF	/MS_09120	)4B		Prep Dat	te:	12/04/2009 10:17	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) RF	PDRef\	/al %RPD(Limit)	Qual
Chromium (Cr)	0.0487	0.005	0.05	0	97	80	120			
Sample Matrix Spike Duplicate File ID: 120409.B\92MSD.D\		Гуре <b>N</b>		st Code: EF		hod 200.8	Analysis	Date:	12/04/2009 21:48	
Sample ID: 09120401-01AMSD	Units : mg/L		Run ID: ICF	/MS_09120	)4B		Prep Dat	te:	12/04/2009 10:17	
Analyte	Result	PQL				LCL(ME)	UCL(ME) RF	PDRef\	/al %RPD(Limit)	Qual
Chromium (Cr)	0.0479	0.005	0.05	0	96	80	120	0.0487	71 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.

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

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.

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 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 10 0	Signature
LILLADETH FICICOX	[]	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	1985000) # gor	2) 20.8	Required QC Level?
13990 OLD TWI NIE. 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 II CC
·O.	04 MW-11-2	4	×	
1038 Hoya	D5 MW-11-1	78	××××	
1023 Hoslog - C	128-10-12/02/09	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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#### **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

#### 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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#### **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

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: <b>EB-11-12/03/09</b> 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

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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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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

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 C		Concentration	centration 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	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	ua/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 Conc		Concentration	Reporting L	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	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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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

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 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	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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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	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	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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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

Job: G005862/JPL Groundwater Monitoring

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	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	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/ <b>L</b>
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	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					
24	4.0 Dibanasakhana (EDD)	NID	4.0						

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulour

ND

ND

Walter Firehun

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 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:

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

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12/18/09

Report Date

Page 1 of 1



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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 Sı	ummar	y Repor	t				<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:

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



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<b>Date:</b> 09-Dec-09		(	QC S	ummar	y Repor	t				<b>Work Ord</b> 09120403	
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>		(	QC S	ummaı	y Repor	t			<b>Work Orde</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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M1 = Matrix spike recovery was high, the method control sample recovery was acceptable.



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<b>Date:</b> 17-Dec-09	QC Summary Report Work 0912	
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:

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18-Dec-2009			QC Sumn	nary Report		Work Order: 09120403
Method Bla	ank		Type MBLK	Test Code: EPA Meth	od SW8260B	
File ID: 0912	1007.D			Batch ID: MS15W1210	M Analysis	Date: 12/10/2009 10:14
Sample ID:	MBLK MS15W1210M	Units : µg/L	Run II	D: MSD_15_091210B	Prep Dat	e: <b>12/10/2009 10:14</b>
Analyte		Result	PQL Spl	√Val SpkRefVal %REC	LCL(ME) UCL(ME) RF	PDRefVal %RPD(Limit) Qu
Dichlorodifluo	romethane	ND	0.5			
Chloromethar	ne	ND	1			
Vinyl chloride		ND	0.5			
Chloroethane		ND	0.5			
Bromometha		ND	1			
Trichlorofluore 1.1-Dichloroe		ND ND	0.5			
Dichlorometh		ND ND	0.5 1			
Freon-113	and	ND	0.5			
trans-1,2-Dick	nloroethene	ND	0.5			
	ityl ether (MTBE)	ND	0.5			
1,1-Dichloroe		ND	0.5			
2-Butanone (i		ND	10			
cis-1,2-Dichlo Bromochloror		ND	0.5			
Chloroform	neuralie	ND ND	0.5 0.5			
2,2-Dichlorop	ropane	ND	0.5 0.5			
1,2-Dichloroe	•	ND	0.5			
1,1,1-Trichlor	oethane	ND	0.5			
1,1-Dichlorop	- 4	ND	0.5			
Carbon tetrac	chloride	ND	0.5			
Benzene		ND	0.5			
Dibromometh 1,2-Dichlorop		ND	0.5			
Trichloroethe	•	ND ND	0.5 0.5			
Bromodichlor		ND	0.5			
	entanone (MIBK)	ND	2.5			
cis-1,3-Dichlo		ND	0.5			
trans-1,3-Dick		ND	0.5			
1,1,2-Trichlor	oethane	ND	0.5			
Toluene 1,3-Dichlorop	ronane	ND ND	0.5			
Dibromochlor		ND ND	0.5 0.5			
1,2-Dibromoe		ND	1			
Tetrachloroet	hene	ND	0.5			
1,1,1,2-Tetra		ND	0.5			
Chlorobenzer		ND	0.5			
Ethylbenzene	•	ND	0.5			
m,p-Xylene Bromoform		ND ND	0.5			
Styrene		ND ND	0.5 0.5			
o-Xylene		ND	0.5			
1,1,2,2-Tetrad	chloroethane	ND	0.5			
1,2,3-Trichlor		ND	1			
Isopropylbenz		ND	0.5			
Bromobenzer n-Propylbenz		ND ND	0.5			
4-Chlorotolue		ND ND	0.5 0.5			
2-Chlorotolue	•	ND ND	0.5 0.5			
1,3,5-Trimeth		ND	0.5			
tert-Butylbenz	zene	ND	0.5			
1,2,4-Trimeth	•	ND	0.5			
sec-Butylben:		ND	0.5			
1,3-Dichlorob		ND ND	0.5			
1,4-Dichlorob 4-Isopropyltol		ND ND	0.5 0.5			
1,2-Dichlorob		ND ND	0.5 0.5			
n-Butylbenze		ND	0.5			
	3-chloropropane (DBCP)	ND	2.5			
1,2,4-Trichlor		ND	1			
Naphthalene	4 17	ND	1			
Hexachlorobu		ND	1			
1,2,3-Trichlor	obenzene nloroethane-d4	ND 9.94	1	10 99	70 130	
	e-d8	9.9 <del>4</del> 10.2		10 99	70 130	



<b>Date:</b> 18-Dec-2009		SC 20	mmary	Report			09120403	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>			Batc	h ID: <b>MS15W121</b> 0	M	Analysis	Date: 12/10/2009 09:18	
Sample ID: LCS MS15W1210M	Units : µg/L	1		_15_091210B		Prep Da		
Analyte	Result	PQL	SpkVal S	pkRefVal %REC	LCL(ME	) UCL(ME) RF	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 70	130		L51
Bromomethane	13.6	2	10	136	70 70	130(130) 130		LOT
Trichlorofluoromethane 1,1-Dichloroethene	9.59 11	1	10 10	96 110	70 70	130		
Dichloromethane	10.1	2	10	101	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 Bromochloromethane	11.3	1	10	113	70 70	130		
Chloroform	10.7 10.8	1 1	10 10	107 108	70 70	130 130		
2,2-Dichloropropane	12.4	1	10	124	70 70	130		
1,2-Dichloroethane	10.2	1	10	102	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 70	130		
Benzene Dibromomethane	10.8 10.3	0.5 1	10 10	108 103	70 70	130 130		
1,2-Dichloropropane	10.3	1	10	110	70 70	130		
Trichloroethene	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 70	130		
Toluene 1,3-Dichloropropane	10.5 10.3	0.5 1	10 10	105 103	70 70	130 130		
Dibromochloromethane	9.94	1	10	99	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 m.p-Xylene	10.8 11	0.5 0.5	10 10	108 110	70 70	130 130		
Bromoform	9.08	0.5	10	91	70	130		
Styrene	11.8	i	10	118	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 Bromobenzene	10.8 10.4	1 1	10 10	108 104	70 70	130 130		
n-Propylbenzene	10.4	1	10	109	70 70	130		
4-Chlorotoluene	11	i	10	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 sec-Butylbenzene	10.8 10.8	1	10 10	108 108	70 70	130 130		
1,3-Dichlorobenzene	10.8	1	10	108	70 70	130		
1,4-Dichlorobenzene	10.1	1	10	101	70	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 40.0	3	50	91	70 70	130		
1,2,4-Trichlorobenzene Naphthalene	10.6 9.72	2	10 10	106 97	70 70	130 130		
Hexachlorobutadiene	9.72 21.1	2 2	10 20	97 105	70 70	130		
1,2,3-Trichlorobenzene	10.1	2	10	101	70 70	130		
Surr: 1,2-Dichloroethane-d4	9.72	-	10	97	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 Sui	nmary	Report				Work Ord 0912040	
Sample Matrix Spike		Type MS		st Code: EP					
File ID: <b>09121010.D</b>			Bat	ch ID: MS1	5W12	10M	Analysis Date	e: 12/10/2009 11:21	
Sample ID: 09120308-07AMS	Units : µg/L	R	un 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) RPDRe	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 50	0	100	63 56	130		
1.1-Dichloroethane	51.9 48.3	1.3 2.5	50 50	0.86 0	102 97	56 61	141 130		
cis-1,2-Dichloroethene	46.3 51	2.5	50 50	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	0	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	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 m.p. Videne	46.9	1.3	50	0	94	68	130		
m,p-Xylene Bromoform	47.5 40.3	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	0	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 sec-Butylbenzene	46.4	2.5	50	0	93	65 66	137		
1,3-Dichlorobenzene	45.7 46.7	2.5	50 50	0 0	91 93	66 70	134 130		
1.4-Dichlorobenzene	46.7 44.2	2.5 2.5	50 50	0	93 88	70 70	130		
4-Isopropyltoluene	44.2 46.9	2.5 2.5	50 50	0	94	66	137		
1,2-Dichlorobenzene	43.7	2.5	50	0	87	70	130		
n-Butylbenzene	47.4	2.5	50	0	95	60	142		
1,2-Dibromo-3-chloropropane (DBCP)	219	15	250	Ö	88	67	130		
1,2,4-Trichlorobenzene	44.8	10	50	Ö	90	61	137		
Naphthalene	44.5	10	50	0	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: Toluene-d8	49.2		50		98	70	130 130		



<b>Date:</b> 18-Dec-2009	(	<u> 2C Sur</u>	nmary	Report	t				<b>Work Order:</b> 09120403		
Sample Matrix Spike Duplicate		Type MS	<b>)</b> Te	st Code: EP	A Met	hod SW82	260B				
File ID: 09121011.D			Ва	tch ID: MS1	5W121	IOM	Analy	sis Date: 1	2/10/2009 11:43	1	
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				LCL(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	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-Dichloroethane	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	Ö	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	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	66 68	130	47.54	6.0(20)		
Toluene	50.7	1.3	50 50	0	101	. 66	130	47.05	7.4(20)		
1,3-Dichloropropane	50.9	2.5	50	0	102	70	130	48.65	4.6(20)		
Dibromochloromethane	47.3	2.5	50	Ö	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	51.2	1.3	50	0	102	68	130	46.85	8.9(20)		
m,p-Xylene Bromoform	52.1 42.8	1.3 2.5	50 50	0	104 86	64 64	130 138	47.52 40.3	9.2(20) 6.0(20)		
Styrene	56.1	2.5	50 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	0	92	65	131	44	4.6(20)		
1,2,3-Trichloropropane	93	10	100	Ö	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	132	47.76	12.5(20)		
4-Chlorotoluene	54.5	2.5	50	0	109	70 70	130	47.71	13.2(20)		
2-Chlorotoluene 1,3,5-Trimethylbenzene	53.9	2.5	50	0	108	70	130	47.27	13.0(20)		
tert-Butylbenzene	52.9 51.5	2.5	50 50	0	106	66 65	136 137	47.21 45.53	11.3(20) 12.4(20)		
1,2,4-Trimethylbenzene	51.5 52.2	2.5 2.5	50 50	0	103 104	65	137	46.44	11.6(20)		
sec-Butylbenzene	53	2.5	50 50	0	106	66	134	45.65	15.0(20)		
1,3-Dichlorobenzene	52.3	2.5	50	0	105	70	130	46.68	11.3(20)		
1,4-Dichlorobenzene	48.8	2.5	50	Ö	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	250	0	92	67	130	219.1	4.8(20)		
1,2,4-Trichlorobenzene	51.1	10	50	0	102	61	137	44.75	13.2(20)		
Naphthalene Hexachlorobutadiene	48.8	10	50	0	98	40 61	167	44.48 85.39	9.3(20) 14.3(20)		
1,2,3-Trichlorobenzene	98.6 49.1	10 10	100 50	0	99 98	61 51	130 144	85.39 42.97	13.3(20)		
Surr: 1,2-Dichloroethane-d4	48.9	10	50 50	U	98	70	130	72.31	10.0(20)		
Surr: Toluene-d8	49		50 50		98	70	130				
Surr: 4-Bromofluorobenzene	50.4		50		101	70	130				



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**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.