

ATTACHMENT 3: LABORATORY ANALYTICAL REPORTS

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

ALPHA



Alpha Analytical, Inc.

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

Date: 10-Feb-12

David Conner
Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
(619) 726-7311

Suite 1420

CASE NARRATIVE

Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Work Order: BMI12013123

Cooler Temp: 2°C

Alpha's Sample ID	Client's Sample ID	Matrix
12013123-01A	MW-21-5	Aqueous
12013123-02A	MW-21-4	Aqueous
12013123-03A	MW-21-3	Aqueous
12013123-04A	MW-21-2	Aqueous
12013123-05A	MW-21-1	Aqueous
12013123-06A	DUPE-1-1Q12	Aqueous
12013123-07A	EB-1-1/30/12	Aqueous
12013123-08A	SB-1-1/30/12	Aqueous
12013123-09A	TB-1-1/30/12	Aqueous
12013123-10A	MW-7	Aqueous

Manually Integrated Analytes

<u>Alpha's Sample ID</u>	<u>Test Reference</u>	<u>Analyte</u>
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.

Note : The final report format has been altered from the DOD QSM to meet client instructions.

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 01/31/12

Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Anions by IC
EPA Method 300.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-7				
Lab ID: BM112013123-10A Chloride	55	0.50 mg/L	01/31/12 09:40	01/31/12 19:53
Date Sampled 01/30/12 09:47 Nitrite (NO2) - N	ND	0.25 mg/L	01/31/12 09:40	01/31/12 19:53
Nitrate (NO3) - N	1.4	0.25 mg/L	01/31/12 09:40	01/31/12 19:53
Phosphate, ortho - P	ND	0.50 mg/L	01/31/12 09:40	01/31/12 19:53
Sulfate (SO4)	45	0.50 mg/L	01/31/12 09:40	01/31/12 19:53

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/10/12

Report Date



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Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 01/31/12

Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Perchlorate by Ion Chromatography
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-21-5 Lab ID: BMI12013123-01A Perchlorate Date Sampled 01/30/12 09:28	2.99	1.00 µg/L	02/06/12 13:47	02/06/12 16:37
Client ID: MW-21-4 Lab ID: BMI12013123-02A Perchlorate Date Sampled 01/30/12 09:50	2.94	1.00 µg/L	02/06/12 13:47	02/06/12 16:55
Client ID: MW-21-3 Lab ID: BMI12013123-03A Perchlorate Date Sampled 01/30/12 10:09	3.76	1.00 µg/L	02/06/12 13:47	02/06/12 17:13
Client ID: MW-21-2 Lab ID: BMI12013123-04A Perchlorate Date Sampled 01/30/12 10:40	2.72	1.00 µg/L	02/06/12 13:47	02/06/12 17:32
Client ID: MW-21-1 Lab ID: BMI12013123-05A Perchlorate Date Sampled 01/30/12 11:20	3.36	1.00 µg/L	02/06/12 13:47	02/06/12 17:50
Client ID: DUPE-1-1Q12 Lab ID: BMI12013123-06A Perchlorate Date Sampled 01/30/12 00:00	2.94	1.00 µg/L	02/06/12 13:47	02/06/12 18:45
Client ID: EB-1-1/30/12 Lab ID: BMI12013123-07A Perchlorate Date Sampled 01/30/12 11:01	ND	1.00 µg/L	02/06/12 13:47	02/06/12 19:04
Client ID: SB-1-1/30/12 Lab ID: BMI12013123-08A Perchlorate Date Sampled 01/30/12 11:12	ND	1.00 µg/L	02/06/12 13:47	02/06/12 19:22
Client ID: MW-7 Lab ID: BMI12013123-10A Perchlorate Date Sampled 01/30/12 09:47	3.58	1.00 µg/L	02/06/12 13:47	02/06/12 19:41



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ND = Not Detected

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 01/31/12

Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Metals by ICPMS
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-21-5 Lab ID: BMI12013123-01A Date Sampled 01/30/12 09:28	Chromium (Cr)	ND	0.0050 mg/L	02/01/12 14:14 02/07/12 23:13
Client ID: MW-21-4 Lab ID: BMI12013123-02A Date Sampled 01/30/12 09:50	Chromium (Cr)	ND	0.0050 mg/L	02/01/12 14:14 02/07/12 23:19
Client ID: MW-21-3 Lab ID: BMI12013123-03A Date Sampled 01/30/12 10:09	Chromium (Cr)	ND	0.0050 mg/L	02/01/12 14:14 02/07/12 23:25
Client ID: MW-21-2 Lab ID: BMI12013123-04A Date Sampled 01/30/12 10:40	Chromium (Cr)	ND	0.0050 mg/L	02/01/12 14:14 02/07/12 23:55
Client ID: MW-21-1 Lab ID: BMI12013123-05A Date Sampled 01/30/12 11:20	Chromium (Cr)	ND	0.0050 mg/L	02/01/12 14:14 02/07/12 22:49
Client ID: DUPE-1-1Q12 Lab ID: BMI12013123-06A Date Sampled 01/30/12 00:00	Chromium (Cr)	ND	0.0050 mg/L	02/01/12 14:14 02/07/12 00:01
Client ID: EB-1-1/30/12 Lab ID: BMI12013123-07A Date Sampled 01/30/12 11:01	Chromium (Cr)	ND	0.0050 mg/L	02/01/12 14:14 02/07/12 00:07
Client ID: SB-1-1/30/12 Lab ID: BMI12013123-08A Date Sampled 01/30/12 11:12	Chromium (Cr)	ND	0.0050 mg/L	02/01/12 14:14 02/07/12 00:13
Client ID: MW-7 Lab ID: BMI12013123-10A Date Sampled 01/30/12 09:47	Chromium (Cr)	ND	0.0050 mg/L	02/01/12 14:14 02/07/12 00:19



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Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 01/31/12

Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Special BMI TICs
EPA Method SW8260B

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-21-5				
Lab ID: BMI12013123-01A	Acrylonitrile	ND	10 µg/L	02/03/12 19:55 02/03/12 19:55
Date Sampled 01/30/12 09:28	Allyl chloride	ND	2.0 µg/L	02/03/12 19:55 02/03/12 19:55
	Carbon disulfide	ND	2.0 µg/L	02/03/12 19:55 02/03/12 19:55
	Chloroacetonitrile	ND	10 µg/L	02/03/12 19:55 02/03/12 19:55
	1-Chlorobutane	ND	2.0 µg/L	02/03/12 19:55 02/03/12 19:55
	1,1-Dichloropropanone	ND	10 µg/L	02/03/12 19:55 02/03/12 19:55
	Diethyl ether	ND	2.0 µg/L	02/03/12 19:55 02/03/12 19:55
	Ethyl methacrylate	ND	10 µg/L	02/03/12 19:55 02/03/12 19:55
	Hexachloroethane	ND	10 µg/L	02/03/12 19:55 02/03/12 19:55
	Methacrylonitrile	ND	10 µg/L	02/03/12 19:55 02/03/12 19:55
	Methyl acrylate	ND	10 µg/L	02/03/12 19:55 02/03/12 19:55
	Methyl iodide	ND	2.0 µg/L	02/03/12 19:55 02/03/12 19:55
	Methyl methacrylate	ND	10 µg/L	02/03/12 19:55 02/03/12 19:55
	Nitrobenzene	ND	10 µg/L	02/03/12 19:55 02/03/12 19:55
	2-Nitropropane	ND	2.0 µg/L	02/03/12 19:55 02/03/12 19:55
	Pentachloroethane	ND	2.0 µg/L	02/03/12 19:55 02/03/12 19:55
	Propionitrile	ND	50 µg/L	02/03/12 19:55 02/03/12 19:55
	Tetrahydrofuran	ND	10 µg/L	02/03/12 19:55 02/03/12 19:55
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/03/12 19:55 02/03/12 19:55
Client ID: MW-21-4				
Lab ID: BMI12013123-02A	Acrylonitrile	ND	10 µg/L	02/03/12 20:17 02/03/12 20:17
Date Sampled 01/30/12 09:50	Allyl chloride	ND	2.0 µg/L	02/03/12 20:17 02/03/12 20:17
	Carbon disulfide	ND	2.0 µg/L	02/03/12 20:17 02/03/12 20:17
	Chloroacetonitrile	ND	10 µg/L	02/03/12 20:17 02/03/12 20:17
	1-Chlorobutane	ND	2.0 µg/L	02/03/12 20:17 02/03/12 20:17
	1,1-Dichloropropanone	ND	10 µg/L	02/03/12 20:17 02/03/12 20:17
	Diethyl ether	ND	2.0 µg/L	02/03/12 20:17 02/03/12 20:17
	Ethyl methacrylate	ND	10 µg/L	02/03/12 20:17 02/03/12 20:17
	Hexachloroethane	ND	10 µg/L	02/03/12 20:17 02/03/12 20:17
	Methacrylonitrile	ND	10 µg/L	02/03/12 20:17 02/03/12 20:17
	Methyl acrylate	ND	10 µg/L	02/03/12 20:17 02/03/12 20:17
	Methyl iodide	ND	2.0 µg/L	02/03/12 20:17 02/03/12 20:17
	Methyl methacrylate	ND	10 µg/L	02/03/12 20:17 02/03/12 20:17
	Nitrobenzene	ND	10 µg/L	02/03/12 20:17 02/03/12 20:17
	2-Nitropropane	ND	2.0 µg/L	02/03/12 20:17 02/03/12 20:17
	Pentachloroethane	ND	2.0 µg/L	02/03/12 20:17 02/03/12 20:17
	Propionitrile	ND	50 µg/L	02/03/12 20:17 02/03/12 20:17
	Tetrahydrofuran	ND	10 µg/L	02/03/12 20:17 02/03/12 20:17
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/03/12 20:17 02/03/12 20:17



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Client ID: MW-21-3

Lab ID : BM112013123-03A	Acrylonitrile	ND	10 µg/L	02/03/12 20:39	02/03/12 20:39
Date Sampled 01/30/12 10:09	Allyl chloride	ND	2.0 µg/L	02/03/12 20:39	02/03/12 20:39
	Carbon disulfide	ND	2.0 µg/L	02/03/12 20:39	02/03/12 20:39
	Chloroacetonitrile	ND	10 µg/L	02/03/12 20:39	02/03/12 20:39
	1-Chlorobutane	ND	2.0 µg/L	02/03/12 20:39	02/03/12 20:39
	1,1-Dichloropropanone	ND	10 µg/L	02/03/12 20:39	02/03/12 20:39
	Diethyl ether	ND	2.0 µg/L	02/03/12 20:39	02/03/12 20:39
	Ethyl methacrylate	ND	10 µg/L	02/03/12 20:39	02/03/12 20:39
	Hexachloroethane	ND	10 µg/L	02/03/12 20:39	02/03/12 20:39
	Methacrylonitrile	ND	10 µg/L	02/03/12 20:39	02/03/12 20:39
	Methyl acrylate	ND	10 µg/L	02/03/12 20:39	02/03/12 20:39
	Methyl iodide	ND	2.0 µg/L	02/03/12 20:39	02/03/12 20:39
	Methyl methacrylate	ND	10 µg/L	02/03/12 20:39	02/03/12 20:39
	Nitrobenzene	ND	10 µg/L	02/03/12 20:39	02/03/12 20:39
	2-Nitropropane	ND	2.0 µg/L	02/03/12 20:39	02/03/12 20:39
	Pentachloroethane	ND	2.0 µg/L	02/03/12 20:39	02/03/12 20:39
	Propionitrile	ND	50 µg/L	02/03/12 20:39	02/03/12 20:39
	Tetrahydrofuran	ND	10 µg/L	02/03/12 20:39	02/03/12 20:39
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/03/12 20:39	02/03/12 20:39

Client ID: MW-21-2

Lab ID : BM112013123-04A	Acrylonitrile	ND	10 µg/L	02/03/12 21:00	02/03/12 21:00
Date Sampled 01/30/12 10:40	Allyl chloride	ND	2.0 µg/L	02/03/12 21:00	02/03/12 21:00
	Carbon disulfide	ND	2.0 µg/L	02/03/12 21:00	02/03/12 21:00
	Chloroacetonitrile	ND	10 µg/L	02/03/12 21:00	02/03/12 21:00
	1-Chlorobutane	ND	2.0 µg/L	02/03/12 21:00	02/03/12 21:00
	1,1-Dichloropropanone	ND	10 µg/L	02/03/12 21:00	02/03/12 21:00
	Diethyl ether	ND	2.0 µg/L	02/03/12 21:00	02/03/12 21:00
	Ethyl methacrylate	ND	10 µg/L	02/03/12 21:00	02/03/12 21:00
	Hexachloroethane	ND	10 µg/L	02/03/12 21:00	02/03/12 21:00
	Methacrylonitrile	ND	10 µg/L	02/03/12 21:00	02/03/12 21:00
	Methyl acrylate	ND	10 µg/L	02/03/12 21:00	02/03/12 21:00
	Methyl iodide	ND	2.0 µg/L	02/03/12 21:00	02/03/12 21:00
	Methyl methacrylate	ND	10 µg/L	02/03/12 21:00	02/03/12 21:00
	Nitrobenzene	ND	10 µg/L	02/03/12 21:00	02/03/12 21:00
	2-Nitropropane	ND	2.0 µg/L	02/03/12 21:00	02/03/12 21:00
	Pentachloroethane	ND	2.0 µg/L	02/03/12 21:00	02/03/12 21:00
	Propionitrile	ND	50 µg/L	02/03/12 21:00	02/03/12 21:00
	Tetrahydrofuran	ND	10 µg/L	02/03/12 21:00	02/03/12 21:00
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/03/12 21:00	02/03/12 21:00



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Client ID: MW-21-1

Lab ID : BMII2013123-05A	Acrylonitrile	ND	10 µg/L	02/03/12 21:22	02/03/12 21:22
Date Sampled 01/30/12 11:20	Allyl chloride	ND	2.0 µg/L	02/03/12 21:22	02/03/12 21:22
	Carbon disulfide	ND	2.0 µg/L	02/03/12 21:22	02/03/12 21:22
	Chloroacetonitrile	ND	10 µg/L	02/03/12 21:22	02/03/12 21:22
	1-Chlorobutane	ND	2.0 µg/L	02/03/12 21:22	02/03/12 21:22
	1,1-Dichloropropanone	ND	10 µg/L	02/03/12 21:22	02/03/12 21:22
	Diethyl ether	ND	2.0 µg/L	02/03/12 21:22	02/03/12 21:22
	Ethyl methacrylate	ND	10 µg/L	02/03/12 21:22	02/03/12 21:22
	Hexachloroethane	ND	10 µg/L	02/03/12 21:22	02/03/12 21:22
	Methacrylonitrile	ND	10 µg/L	02/03/12 21:22	02/03/12 21:22
	Methyl acrylate	ND	10 µg/L	02/03/12 21:22	02/03/12 21:22
	Methyl iodide	ND	2.0 µg/L	02/03/12 21:22	02/03/12 21:22
	Methyl methacrylate	ND	10 µg/L	02/03/12 21:22	02/03/12 21:22
	Nitrobenzene	ND	10 µg/L	02/03/12 21:22	02/03/12 21:22
	2-Nitropropane	ND	2.0 µg/L	02/03/12 21:22	02/03/12 21:22
	Pentachloroethane	ND	2.0 µg/L	02/03/12 21:22	02/03/12 21:22
	Propionitrile	ND	50 µg/L	02/03/12 21:22	02/03/12 21:22
	Tetrahydrofuran	ND	10 µg/L	02/03/12 21:22	02/03/12 21:22
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/03/12 21:22	02/03/12 21:22

Client ID: DUPE-1-1Q12

Lab ID : BMII2013123-06A	Acrylonitrile	ND	10 µg/L	02/03/12 21:43	02/03/12 21:43
Date Sampled 01/30/12 00:00	Allyl chloride	ND	2.0 µg/L	02/03/12 21:43	02/03/12 21:43
	Carbon disulfide	ND	2.0 µg/L	02/03/12 21:43	02/03/12 21:43
	Chloroacetonitrile	ND	10 µg/L	02/03/12 21:43	02/03/12 21:43
	1-Chlorobutane	ND	2.0 µg/L	02/03/12 21:43	02/03/12 21:43
	1,1-Dichloropropanone	ND	10 µg/L	02/03/12 21:43	02/03/12 21:43
	Diethyl ether	ND	2.0 µg/L	02/03/12 21:43	02/03/12 21:43
	Ethyl methacrylate	ND	10 µg/L	02/03/12 21:43	02/03/12 21:43
	Hexachloroethane	ND	10 µg/L	02/03/12 21:43	02/03/12 21:43
	Methacrylonitrile	ND	10 µg/L	02/03/12 21:43	02/03/12 21:43
	Methyl acrylate	ND	10 µg/L	02/03/12 21:43	02/03/12 21:43
	Methyl iodide	ND	2.0 µg/L	02/03/12 21:43	02/03/12 21:43
	Methyl methacrylate	ND	10 µg/L	02/03/12 21:43	02/03/12 21:43
	Nitrobenzene	ND	10 µg/L	02/03/12 21:43	02/03/12 21:43
	2-Nitropropane	ND	2.0 µg/L	02/03/12 21:43	02/03/12 21:43
	Pentachloroethane	ND	2.0 µg/L	02/03/12 21:43	02/03/12 21:43
	Propionitrile	ND	50 µg/L	02/03/12 21:43	02/03/12 21:43
	Tetrahydrofuran	ND	10 µg/L	02/03/12 21:43	02/03/12 21:43
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/03/12 21:43	02/03/12 21:43



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Client ID: **EB-1-1/30/12**

Lab ID: BMI12013123-07A	Acrylonitrile	ND	10 µg/L	02/03/12 22:05	02/03/12 22:05
Date Sampled 01/30/12 11:01	Allyl chloride	ND	2.0 µg/L	02/03/12 22:05	02/03/12 22:05
	Carbon disulfide	ND	2.0 µg/L	02/03/12 22:05	02/03/12 22:05
	Chloroacetonitrile	ND	10 µg/L	02/03/12 22:05	02/03/12 22:05
	1-Chlorobutane	ND	2.0 µg/L	02/03/12 22:05	02/03/12 22:05
	1,1-Dichloropropanone	ND	10 µg/L	02/03/12 22:05	02/03/12 22:05
	Diethyl ether	ND	2.0 µg/L	02/03/12 22:05	02/03/12 22:05
	Ethyl methacrylate	ND	10 µg/L	02/03/12 22:05	02/03/12 22:05
	Hexachloroethane	ND	10 µg/L	02/03/12 22:05	02/03/12 22:05
	Methacrylonitrile	ND	10 µg/L	02/03/12 22:05	02/03/12 22:05
	Methyl acrylate	ND	10 µg/L	02/03/12 22:05	02/03/12 22:05
	Methyl iodide	ND	2.0 µg/L	02/03/12 22:05	02/03/12 22:05
	Methyl methacrylate	ND	10 µg/L	02/03/12 22:05	02/03/12 22:05
	Nitrobenzene	ND	10 µg/L	02/03/12 22:05	02/03/12 22:05
	2-Nitropropane	ND	2.0 µg/L	02/03/12 22:05	02/03/12 22:05
	Pentachloroethane	ND	2.0 µg/L	02/03/12 22:05	02/03/12 22:05
	Propionitrile	ND	50 µg/L	02/03/12 22:05	02/03/12 22:05
	Tetrahydrofuran	ND	10 µg/L	02/03/12 22:05	02/03/12 22:05
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/03/12 22:05	02/03/12 22:05

Client ID: **SB-1-1/30/12**

Lab ID: BMI12013123-08A	Acrylonitrile	ND	10 µg/L	02/03/12 22:27	02/03/12 22:27
Date Sampled 01/30/12 11:12	Allyl chloride	ND	2.0 µg/L	02/03/12 22:27	02/03/12 22:27
	Carbon disulfide	ND	2.0 µg/L	02/03/12 22:27	02/03/12 22:27
	Chloroacetonitrile	ND	10 µg/L	02/03/12 22:27	02/03/12 22:27
	1-Chlorobutane	ND	2.0 µg/L	02/03/12 22:27	02/03/12 22:27
	1,1-Dichloropropanone	ND	10 µg/L	02/03/12 22:27	02/03/12 22:27
	Diethyl ether	ND	2.0 µg/L	02/03/12 22:27	02/03/12 22:27
	Ethyl methacrylate	ND	10 µg/L	02/03/12 22:27	02/03/12 22:27
	Hexachloroethane	ND	10 µg/L	02/03/12 22:27	02/03/12 22:27
	Methacrylonitrile	ND	10 µg/L	02/03/12 22:27	02/03/12 22:27
	Methyl acrylate	ND	10 µg/L	02/03/12 22:27	02/03/12 22:27
	Methyl iodide	ND	2.0 µg/L	02/03/12 22:27	02/03/12 22:27
	Methyl methacrylate	ND	10 µg/L	02/03/12 22:27	02/03/12 22:27
	Nitrobenzene	ND	10 µg/L	02/03/12 22:27	02/03/12 22:27
	2-Nitropropane	ND	2.0 µg/L	02/03/12 22:27	02/03/12 22:27
	Pentachloroethane	ND	2.0 µg/L	02/03/12 22:27	02/03/12 22:27
	Propionitrile	ND	50 µg/L	02/03/12 22:27	02/03/12 22:27
	Tetrahydrofuran	ND	10 µg/L	02/03/12 22:27	02/03/12 22:27
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/03/12 22:27	02/03/12 22:27



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Client ID: **TB-1-1/30/12**

Lab ID : BMI12013123-09A	Acrylonitrile	ND	10 µg/L	02/03/12 22:49	02/03/12 22:49
Date Sampled 01/30/12 07:30	Allyl chloride	ND	2.0 µg/L	02/03/12 22:49	02/03/12 22:49
	Carbon disulfide	ND	2.0 µg/L	02/03/12 22:49	02/03/12 22:49
	Chloroacetonitrile	ND	10 µg/L	02/03/12 22:49	02/03/12 22:49
	1-Chlorobutane	ND	2.0 µg/L	02/03/12 22:49	02/03/12 22:49
	1,1-Dichloropropanone	ND	10 µg/L	02/03/12 22:49	02/03/12 22:49
	Diethyl ether	ND	2.0 µg/L	02/03/12 22:49	02/03/12 22:49
	Ethyl methacrylate	ND	10 µg/L	02/03/12 22:49	02/03/12 22:49
	Hexachloroethane	ND	10 µg/L	02/03/12 22:49	02/03/12 22:49
	Methacrylonitrile	ND	10 µg/L	02/03/12 22:49	02/03/12 22:49
	Methyl acrylate	ND	10 µg/L	02/03/12 22:49	02/03/12 22:49
	Methyl iodide	ND	2.0 µg/L	02/03/12 22:49	02/03/12 22:49
	Methyl methacrylate	ND	10 µg/L	02/03/12 22:49	02/03/12 22:49
	Nitrobenzene	ND	10 µg/L	02/03/12 22:49	02/03/12 22:49
	2-Nitropropane	ND	2.0 µg/L	02/03/12 22:49	02/03/12 22:49
	Pentachloroethane	ND	2.0 µg/L	02/03/12 22:49	02/03/12 22:49
	Propionitrile	ND	50 µg/L	02/03/12 22:49	02/03/12 22:49
	Tetrahydrofuran	ND	10 µg/L	02/03/12 22:49	02/03/12 22:49
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/03/12 22:49	02/03/12 22:49

Client ID: **MW-7**

Lab ID : BMI12013123-10A	Acrylonitrile	ND	10 µg/L	02/03/12 23:10	02/03/12 23:10
Date Sampled 01/30/12 09:47	Allyl chloride	ND	2.0 µg/L	02/03/12 23:10	02/03/12 23:10
	Carbon disulfide	ND	2.0 µg/L	02/03/12 23:10	02/03/12 23:10
	Chloroacetonitrile	ND	10 µg/L	02/03/12 23:10	02/03/12 23:10
	1-Chlorobutane	ND	2.0 µg/L	02/03/12 23:10	02/03/12 23:10
	1,1-Dichloropropanone	ND	10 µg/L	02/03/12 23:10	02/03/12 23:10
	Diethyl ether	ND	2.0 µg/L	02/03/12 23:10	02/03/12 23:10
	Ethyl methacrylate	ND	10 µg/L	02/03/12 23:10	02/03/12 23:10
	Hexachloroethane	ND	10 µg/L	02/03/12 23:10	02/03/12 23:10
	Methacrylonitrile	ND	10 µg/L	02/03/12 23:10	02/03/12 23:10
	Methyl acrylate	ND	10 µg/L	02/03/12 23:10	02/03/12 23:10
	Methyl iodide	ND	2.0 µg/L	02/03/12 23:10	02/03/12 23:10
	Methyl methacrylate	ND	10 µg/L	02/03/12 23:10	02/03/12 23:10
	Nitrobenzene	ND	10 µg/L	02/03/12 23:10	02/03/12 23:10
	2-Nitropropane	ND	2.0 µg/L	02/03/12 23:10	02/03/12 23:10
	Pentachloroethane	ND	2.0 µg/L	02/03/12 23:10	02/03/12 23:10
	Propionitrile	ND	50 µg/L	02/03/12 23:10	02/03/12 23:10
	Tetrahydrofuran	ND	10 µg/L	02/03/12 23:10	02/03/12 23:10
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/03/12 23:10	02/03/12 23:10

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Sampled: 01/30/12 09:28
Received: 01/31/12
Extracted: 02/03/12 19:55
Analyzed: 02/03/12 19:55

Alpha Analytical Number: BMI12013123-01A
Client I.D. Number: MW-21-5

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	1.3	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	5.1	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	93	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	104	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	103	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/10/12

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12013123-02A
Client I.D. Number: MW-21-4

Sampled: 01/30/12 09:50
Received: 01/31/12
Extracted: 02/03/12 20:17
Analyzed: 02/03/12 20:17

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	1.4	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	7.0	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	95	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	101	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl

Randy Gardner

Walter Hinchman

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12013123-03A
Client I.D. Number: MW-21-3

Sampled: 01/30/12 10:09
Received: 01/31/12
Extracted: 02/03/12 20:39
Analyzed: 02/03/12 20:39

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	4.7	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	0.65	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	5.5	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	1.3	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	96	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/10/12

Report Date

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Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12013123-04A
Client I.D. Number: MW-21-2

Sampled: 01/30/12 10:40
Received: 01/31/12
Extracted: 02/03/12 21:00
Analyzed: 02/03/12 21:00

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	2.2	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	6.1	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	94	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	102	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12013123-05A
Client I.D. Number: MW-21-1

Sampled: 01/30/12 11:20
Received: 01/31/12
Extracted: 02/03/12 21:22
Analyzed: 02/03/12 21:22

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	1.0	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	95	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	103	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	104	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12013123-06A
Client I.D. Number: DUPE-1-1Q12

Sampled: 01/30/12 00:00
Received: 01/31/12
Extracted: 02/03/12 21:43
Analyzed: 02/03/12 21:43

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	1.5	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	4.5	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	95	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	103	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	101	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12013123-07A
Client I.D. Number: EB-1-1/30/12

Sampled: 01/30/12 11:01
Received: 01/31/12
Extracted: 02/03/12 22:05
Analyzed: 02/03/12 22:05

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	93	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	103	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 10006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12013123-08A
Client I.D. Number: SB-1-1/30/12

Sampled: 01/30/12 11:12
Received: 01/31/12
Extracted: 02/03/12 22:27
Analyzed: 02/03/12 22:27

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	97	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	101	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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2/10/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12013123-09A
Client I.D. Number: TB-1-1/30/12

Sampled: 01/30/12 07:30
Received: 01/31/12
Extracted: 02/03/12 22:49
Analyzed: 02/03/12 22:49

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	95	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	103	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	104	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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2/10/12

Report Date

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Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12013123-10A
Client I.D. Number: MW-7

Sampled: 01/30/12 09:47
Received: 01/31/12
Extracted: 02/03/12 23:10
Analyzed: 02/03/12 23:10

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	96	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	103	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
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[Signature]
2/10/12

Report Date

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Alpha Analytical, Inc.

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: BMI12013123

Job: 100006114/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12013123-01A	MW-21-5	Aqueous	2
12013123-02A	MW-21-4	Aqueous	2
12013123-03A	MW-21-3	Aqueous	2
12013123-04A	MW-21-2	Aqueous	2
12013123-05A	MW-21-1	Aqueous	2
12013123-06A	DUPE-1-1Q12	Aqueous	2
12013123-07A	EB-1-1/30/12	Aqueous	2
12013123-08A	SB-1-1/30/12	Aqueous	2
12013123-09A	TB-1-1/30/12	Aqueous	2
12013123-10A	MW-7	Aqueous	2

2/10/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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

Date:
03-Feb-12

QC Summary Report

Work Order:
12013123

Method Blank

Type: **MBLK** Test Code: **EPA Method 300.0**

File ID: **28**

Batch ID: **28114**

Analysis Date: **01/31/2012 11:33**

Sample ID: **MB-28114**

Units : **mg/L**

Run ID: **IC_1_120131A**

Prep Date: **01/31/2012 09:40**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	ND	0.5								
Nitrite (NO2) - N	ND	0.25								
Nitrate (NO3) - N	ND	0.25								
Phosphate, ortho - P	ND	0.5								
Sulfate (SO4)	ND	0.5								

Laboratory Fortified Blank

Type: **LFB** Test Code: **EPA Method 300.0**

File ID: **29**

Batch ID: **28114**

Analysis Date: **01/31/2012 11:52**

Sample ID: **LFB-28114**

Units : **mg/L**

Run ID: **IC_1_120131A**

Prep Date: **01/31/2012 09:40**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	48.9	0.5	50		98	90	110			
Nitrite (NO2) - N	5.44	0.25	5		109	90	110			
Nitrate (NO3) - N	5.32	0.25	5		106	90	110			
Phosphate, ortho - P	5.15	0.5	5		103	90	110			
Sulfate (SO4)	106	0.5	100		106	90	110			

Sample Matrix Spike

Type: **LFM** Test Code: **EPA Method 300.0**

File ID: **34**

Batch ID: **28114**

Analysis Date: **01/31/2012 13:24**

Sample ID: **12013143-03ALFM**

Units : **mg/L**

Run ID: **IC_1_120131A**

Prep Date: **01/31/2012 09:40**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	331	1.3	250		94.4	95	80	120		
Nitrite (NO2) - N	28.1	0.63	25		0	112	80	120		
Nitrate (NO3) - N	28.7	0.63	25		2.904	103	80	120		
Phosphate, ortho - P	26.5	1.3	25		0	106	80	120		
Sulfate (SO4)	546	1.3	500		67.78	96	80	120		

Sample Matrix Spike Duplicate

Type: **LFMD** Test Code: **EPA Method 300.0**

File ID: **35**

Batch ID: **28114**

Analysis Date: **01/31/2012 13:43**

Sample ID: **12013143-03ALFMD**

Units : **mg/L**

Run ID: **IC_1_120131A**

Prep Date: **01/31/2012 09:40**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	334	1.3	250		94.4	96	80	120	331.1	0.7(15)
Nitrite (NO2) - N	28.8	0.63	25		0	115	80	120	28.06	2.5(15)
Nitrate (NO3) - N	29	0.63	25		2.904	104	80	120	28.7	1.1(15)
Phosphate, ortho - P	27.8	1.3	25		0	111	80	120	26.47	5.0(15)
Sulfate (SO4)	548	1.3	500		67.78	96	80	120	546.1	0.4(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.



Alpha Analytical, Inc.

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Date:
09-Feb-12

QC Summary Report

Work Order:
12013123

Method Blank

Type: **MBLK** Test Code: **EPA Method 314.0**

File ID: 19	Batch ID: 28150K	Analysis Date: 02/06/2012 15:41								
Sample ID: MB-28150	Run ID: IC_3_120206A	Prep Date: 02/06/2012 13:47								
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

Laboratory Fortified Blank

Type: **LFB** Test Code: **EPA Method 314.0**

File ID: 40	Batch ID: 28150K	Analysis Date: 02/06/2012 22:08								
Sample ID: LFB-28150	Run ID: IC_3_120206A	Prep Date: 02/06/2012 13:47								
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	28.8	2	25		115	85	115			

Sample Matrix Spike

Type: **LFM** Test Code: **EPA Method 314.0**

File ID: 27	Batch ID: 28150K	Analysis Date: 02/06/2012 18:09								
Sample ID: 12013123-05ALFM	Run ID: IC_3_120206A	Prep Date: 02/06/2012 13:47								
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	31.8	2	25	3.364	114	85	115			

Sample Matrix Spike Duplicate

Type: **LFMD** Test Code: **EPA Method 314.0**

File ID: 28	Batch ID: 28150K	Analysis Date: 02/06/2012 18:27								
Sample ID: 12013123-05ALFMD	Run ID: IC_3_120206A	Prep Date: 02/06/2012 13:47								
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	32.4	2	25	3.364	116	85	115	31.79	2.0(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.



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
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Date:
10-Feb-12

QC Summary Report

Work Order:
12013123

Method Blank

Type: **MBLK** Test Code: **EPA Method 200.8**

File ID: 020712.B\081_M.D\

Batch ID: 28128K

Analysis Date: 02/07/2012 22:19

Sample ID: MB-28128

Units : mg/L

Run ID: ICP/MS_120207E

Prep Date: 02/01/2012 14:14

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: 020712.B\082_M.D\

Batch ID: 28128K

Analysis Date: 02/07/2012 22:25

Sample ID: LCS-28128

Units : mg/L

Run ID: ICP/MS_120207E

Prep Date: 02/01/2012 14:14

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0479	0.005	0.05		96	80	120			

Sample Matrix Spike

Type: **MS** Test Code: **EPA Method 200.8**

File ID: 020712.B\087_M.D\

Batch ID: 28128K

Analysis Date: 02/07/2012 22:55

Sample ID: 12013123-05AMS

Units : mg/L

Run ID: ICP/MS_120207E

Prep Date: 02/01/2012 14:14

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0461	0.005	0.05	0	92	80	120			

Sample Matrix Spike Duplicate

Type: **MSD** Test Code: **EPA Method 200.8**

File ID: 020712.B\088_M.D\

Batch ID: 28128K

Analysis Date: 02/07/2012 23:01

Sample ID: 12013123-05AMSD

Units : mg/L

Run ID: ICP/MS_120207E

Prep Date: 02/01/2012 14:14

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0478	0.005	0.05	0	96	80	120	0.04613	3.6(20)	

Comments:

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



Alpha Analytical, Inc.

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Date:
09-Feb-12

QC Summary Report

Work Order:
12013123

Surr: 1,2-Dichloroethane-d4	9.28	10	93	70	130
Surr: Toluene-d8	10.5	10	105	70	130
Surr: 4-Bromofluorobenzene	9.97	10	99.7	70	130



Alpha Analytical, Inc.

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Date:
09-Feb-12

QC Summary Report

Work Order:
12013123

Laboratory Control Spike

Type: LCS

Test Code: EPA Method SW8260B

File ID: 12020317.D

Batch ID: MS15W0203M

Analysis Date: 02/03/2012 14:52

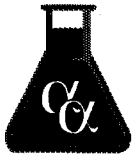
Sample ID: LCS MS15W0203M

Units: µg/L

Run ID: MSD_15_120203B

Prep Date: 02/03/2012 14:52

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	7.68	1	10		77	70	130			
Chloromethane	8.24	2	10		82	70	130			
Vinyl chloride	9.65	1	10		97	70	130			
Chloroethane	10.2	1	10		102	70	130			
Bromomethane	8.81	2	10		88	70	130			
Trichlorofluoromethane	9.64	1	10		96	70	130			
Acetone	219	10	200		110	36	171			
1,1-Dichloroethene	9.04	1	10		90	70	130			
Dichloromethane	9	2	10		90	70	130			
Freon-113	9.32	1	10		93	70	137			
trans-1,2-Dichloroethene	9.73	1	10		97	70	130			
Methyl tert-butyl ether (MTBE)	9.27	0.5	10		93	70	130			
1,1-Dichloroethane	9.65	1	10		97	70	130			
2-Butanone (MEK)	199	10	200		99.6	70	130			
cis-1,2-Dichloroethene	9.92	1	10		99	70	130			
Bromochloromethane	9.89	1	10		99	70	130			
Chloroform	9.4	1	10		94	70	130			
2,2-Dichloropropane	10.4	1	10		104	70	130			
1,2-Dichloroethane	9.45	1	10		95	70	130			
1,1,1-Trichloroethane	10.2	1	10		102	70	130			
1,1-Dichloropropene	10.1	1	10		101	70	130			
Carbon tetrachloride	8.87	1	10		89	70	130			
Benzene	9.29	0.5	10		93	70	130			
Dibromomethane	9.58	1	10		96	70	130			
1,2-Dichloropropane	9.67	1	10		97	70	130			
Trichloroethene	9.59	1	10		96	70	130			
Bromodichloromethane	9.08	1	10		91	70	130			
4-Methyl-2-pentanone (MIBK)	23.5	2.5	25		94	20	182			
cis-1,3-Dichloropropene	9.09	1	10		91	70	130			
trans-1,3-Dichloropropene	8.8	1	10		88	70	130			
1,1,2-Trichloroethane	9.6	1	10		96	70	130			
Toluene	9.56	0.5	10		96	70	130			
1,3-Dichloropropane	9.38	1	10		94	70	130			
2-Hexanone	101	5	100		101	20	182			
Dibromochloromethane	9.06	1	10		91	70	130			
1,2-Dibromoethane (EDB)	18.8	2	20		94	70	130			
Tetrachloroethene	10	1	10		100	70	130			
1,1,1,2-Tetrachloroethane	9.41	1	10		94	70	130			
Chlorobenzene	9.64	1	10		96	70	130			
Ethylbenzene	9.72	0.5	10		97	70	130			
m,p-Xylene	9.93	0.5	10		99	70	130			
Bromoform	8.66	1	10		87	70	130			
Styrene	8.14	1	10		81	70	130			
o-Xylene	9.88	0.5	10		99	70	130			
1,1,2,2-Tetrachloroethane	9.57	1	10		96	70	130			
1,2,3-Trichloropropane	19.9	2	20		99	70	130			
Isopropylbenzene	10	1	10		100	70	130			
Bromobenzene	10	1	10		100	70	130			
n-Propylbenzene	9.97	1	10		99.7	70	130			
4-Chlorotoluene	9.91	1	10		99	70	130			
2-Chlorotoluene	9.85	1	10		99	70	130			
1,3,5-Trimethylbenzene	10	1	10		100	70	130			
tert-Butylbenzene	9.82	1	10		98	70	130			
1,2,4-Trimethylbenzene	10.3	1	10		103	70	130			
sec-Butylbenzene	9.85	1	10		99	70	130			
1,3-Dichlorobenzene	10.2	1	10		102	70	130			
1,4-Dichlorobenzene	9.65	1	10		97	70	130			
4-Isopropyltoluene	10	1	10		100	70	130			
1,2-Dichlorobenzene	9.43	1	10		94	70	130			
n-Butylbenzene	9.69	1	10		97	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	44.7	3	50		89	67	130			
1,2,4-Trichlorobenzene	9	2	10		90	70	130			
Naphthalene	8.24	2	10		82	70	130			
Hexachlorobutadiene	19	2	20		95	70	130			
1,2,3-Trichlorobenzene	8.24	2	10		82	70	130			



Alpha Analytical, Inc.

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

Date:
09-Feb-12

QC Summary Report

Work Order:
12013123

Surr: 1,2-Dichloroethane-d4	10.1	10	101	70	130
Surr: Toluene-d8	10.3	10	103	70	130
Surr: 4-Bromofluorobenzene	10.7	10	107	70	130



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Date:
09-Feb-12

QC Summary Report

Work Order:
12013123

Sample Matrix Spike

Type: MS

Test Code: EPA Method SW8260B

File ID: 12020321.D

Batch ID: MS15W0203M

Analysis Date: 02/03/2012 16:18

Sample ID: 12013123-05AMS

Units: µg/L

Run ID: MSD_15_120203B

Prep Date: 02/03/2012 16:18

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	31.2	2.5	50	0	62	21	138			
Chloromethane	39.3	10	50	0	79	23	144			
Vinyl chloride	47.2	2.5	50	0	94	49	136			
Chloroethane	53	2.5	50	0	106	21	159			
Bromomethane	47.5	10	50	0	95	10	174			
Trichlorofluoromethane	53.9	2.5	50	0	108	32	154			
Acetone	523	50	1000	0	52	10	171			
1,1-Dichloroethene	49.2	2.5	50	0	98	64	130			
Dichloromethane	49	10	50	0	98	69	130			
Freon-113	50.2	2.5	50	0	100	55	141			
trans-1,2-Dichloroethene	53.5	2.5	50	0	107	63	130			
Methyl tert-butyl ether (MTBE)	52.7	1.3	50	0	105	47	150			
1,1-Dichloroethane	55.1	2.5	50	0	110	66	130			
2-Butanone (MEK)	763	50	1000	0	76	23	182			
cis-1,2-Dichloroethene	56.2	2.5	50	0	112	70	130			
Bromochloromethane	55.3	2.5	50	0	111	70	132			
Chloroform	55.2	2.5	50	1.01	108	70	130			
2,2-Dichloropropane	55	2.5	50	0	110	38	154			
1,2-Dichloroethane	54.8	2.5	50	0	110	65	134			
1,1,1-Trichloroethane	58.2	2.5	50	0	116	65	136			
1,1-Dichloropropene	56.5	2.5	50	0	113	68	132			
Carbon tetrachloride	50.9	2.5	50	0	102	58	148			
Benzene	52.8	1.3	50	0	106	59	138			
Dibromomethane	54.5	2.5	50	0	109	70	130			
1,2-Dichloropropane	55.1	2.5	50	0	110	70	131			
Trichloroethene	54.9	2.5	50	0	110	65	144			
Bromodichloromethane	52.6	2.5	50	0	105	50	157			
4-Methyl-2-pentanone (MIBK)	124	13	125	0	99	20	182			
cis-1,3-Dichloropropene	50.1	2.5	50	0	100	63	131			
trans-1,3-Dichloropropene	49.6	2.5	50	0	99	65	136			
1,1,2-Trichloroethane	55.4	2.5	50	0	111	70	131			
Toluene	52.5	1.3	50	0	105	68	130			
1,3-Dichloropropane	51.5	2.5	50	0	103	70	130			
2-Hexanone	355	25	500	0	71	20	182			
Dibromochloromethane	51.2	2.5	50	0	102	42	155			
1,2-Dibromoethane (EDB)	103	5	100	0	103	70	130			
Tetrachloroethene	54.4	2.5	50	0	109	65	130			
1,1,1,2-Tetrachloroethane	53.8	2.5	50	0	108	70	130			
Chlorobenzene	54	2.5	50	0	108	70	130			
Ethylbenzene	54.3	1.3	50	0	109	68	130			
m,p-Xylene	54.6	1.3	50	0	109	68	131			
Bromoform	49.6	2.5	50	0	99	65	143			
Styrene	45.6	2.5	50	0	91	59	153			
o-Xylene	55.7	1.3	50	0	111	70	130			
1,1,2,2-Tetrachloroethane	54.7	2.5	50	0	109	67	130			
1,2,3-Trichloropropane	111	10	100	0	111	70	130			
Isopropylbenzene	55.2	2.5	50	0	110	55	138			
Bromobenzene	55.2	2.5	50	0	110	70	130			
n-Propylbenzene	53.9	2.5	50	0	108	67	133			
4-Chlorotoluene	54.5	2.5	50	0	109	70	130			
2-Chlorotoluene	53.7	2.5	50	0	107	70	130			
1,3,5-Trimethylbenzene	55.1	2.5	50	0	110	67	134			
tert-Butylbenzene	55.1	2.5	50	0	110	55	147			
1,2,4-Trimethylbenzene	56.3	2.5	50	0	113	65	135			
sec-Butylbenzene	53.8	2.5	50	0	108	68	135			
1,3-Dichlorobenzene	55.9	2.5	50	0	112	70	130			
1,4-Dichlorobenzene	52.6	2.5	50	0	105	70	130			
4-Isopropyltoluene	55	2.5	50	0	110	68	132			
1,2-Dichlorobenzene	52.3	2.5	50	0	105	70	130			
n-Butylbenzene	51.9	2.5	50	0	104	62	134			
1,2-Dibromo-3-chloropropane (DBCP)	242	15	250	0	97	64	130			
1,2,4-Trichlorobenzene	48.5	10	50	0	97	62	133			
Naphthalene	42.2	10	50	0	84	32	166			
Hexachlorobutadiene	104	10	100	0	104	63	130			
1,2,3-Trichlorobenzene	43.3	10	50	0	87	55	138			



Alpha Analytical, Inc.

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Date:
09-Feb-12

QC Summary Report

Work Order:
12013123

Surr: 1,2-Dichloroethane-d4	51.6	50	103	70	130
Surr: Toluene-d8	50.1	50	100	70	130
Surr: 4-Bromofluorobenzene	51.4	50	103	70	130



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Date:
09-Feb-12

QC Summary Report

Work Order:
12013123

Sample Matrix Spike Duplicate

File ID: 12020322.D

Sample ID: 12013123-05AMSD

Analyte	Units : µg/L		Run ID: MSD_15_120203B				Prep Date: 02/03/2012 16:40				Qual
	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)		
Dichlorodifluoromethane	30.2	2.5	50	0	60	21	138	31.16	3.1(33)		
Chloromethane	37.9	10	50	0	76	23	144	39.33	3.6(27)		
Vinyl chloride	45.7	2.5	50	0	91	49	136	47.16	3.1(21)		
Chloroethane	50.9	2.5	50	0	102	21	159	53.04	4.1(40)		
Bromomethane	48.4	10	50	0	97	10	174	47.45	1.9(40)		
Trichlorofluoromethane	52.3	2.5	50	0	105	32	154	53.87	3.1(37)		
Acetone	522	50	1000	0	52	10	171	523.5	0.2(23)		
1,1-Dichloroethene	48.1	2.5	50	0	96	64	130	49.2	2.2(21)		
Dichloromethane	48.7	10	50	0	97	69	130	49.02	0.7(20)		
Freon-113	48.8	2.5	50	0	98	55	141	50.18	2.7(40)		
trans-1,2-Dichloroethene	53.5	2.5	50	0	107	63	130	53.52	0.1(20)		
Methyl tert-butyl ether (MTBE)	51.2	1.3	50	0	102	47	150	52.72	3.0(40)		
1,1-Dichloroethane	53.2	2.5	50	0	106	66	130	55.05	3.5(20)		
2-Butanone (MEK)	741	50	1000	0	74	23	182	763	2.9(22)		
cis-1,2-Dichloroethene	54.5	2.5	50	0	109	70	130	56.18	3.1(20)		
Bromochloromethane	54.3	2.5	50	0	109	70	132	55.31	1.8(20)		
Chloroform	53.4	2.5	50	1.01	105	70	130	55.22	3.4(20)		
2,2-Dichloropropane	54	2.5	50	0	108	38	154	55.03	1.9(22)		
1,2-Dichloroethane	52.2	2.5	50	0	104	65	134	54.8	4.9(20)		
1,1,1-Trichloroethane	56.2	2.5	50	0	112	65	136	58.15	3.5(20)		
1,1-Dichloropropene	55.6	2.5	50	0	111	68	132	56.48	1.7(20)		
Carbon tetrachloride	50.2	2.5	50	0	100	58	148	50.94	1.4(20)		
Benzene	51.5	1.3	50	0	103	59	138	52.76	2.5(21)		
Dibromomethane	52.3	2.5	50	0	105	70	130	54.48	4.1(20)		
1,2-Dichloropropane	53.9	2.5	50	0	108	70	131	55.05	2.1(20)		
Trichloroethene	53.3	2.5	50	0	107	65	144	54.85	2.9(20)		
Bromodichloromethane	51.4	2.5	50	0	103	50	157	52.61	2.4(20)		
4-Methyl-2-pentanone (MIBK)	123	13	125	0	99	20	182	124.2	0.8(20)		
cis-1,3-Dichloropropene	49.5	2.5	50	0	99	63	131	50.09	1.1(20)		
trans-1,3-Dichloropropene	49	2.5	50	0	98	65	136	49.63	1.3(20)		
1,1,2-Trichloroethane	54.4	2.5	50	0	109	70	131	55.43	1.9(20)		
Toluene	52	1.3	50	0	104	68	130	52.45	0.9(20)		
1,3-Dichloropropane	51	2.5	50	0	102	70	130	51.52	1.0(20)		
2-Hexanone	349	25	500	0	70	20	182	354.9	1.7(20)		
Dibromochloromethane	50.5	2.5	50	0	101	42	155	51.19	1.3(20)		
1,2-Dibromoethane (EDB)	103	5	100	0	103	70	130	103.5	0.0(20)		
Tetrachloroethene	54	2.5	50	0	108	65	130	54.43	0.8(20)		
1,1,1,2-Tetrachloroethane	53.2	2.5	50	0	106	70	130	53.84	1.3(20)		
Chlorobenzene	53.4	2.5	50	0	107	70	130	54	1.1(20)		
Ethylbenzene	53.6	1.3	50	0	107	68	130	54.32	1.3(20)		
m,p-Xylene	54.6	1.3	50	0	109	68	131	54.63	0.1(20)		
Bromoform	48.8	2.5	50	0	98	65	143	49.62	1.6(20)		
Styrene	45.8	2.5	50	0	92	59	153	45.58	0.4(37)		
o-Xylene	55.3	1.3	50	0	111	70	130	55.66	0.7(20)		
1,1,2,2-Tetrachloroethane	53.3	2.5	50	0	107	67	130	54.66	2.6(20)		
1,2,3-Trichloropropane	111	10	100	0	111	70	130	111.2	0.5(20)		
Isopropylbenzene	54.7	2.5	50	0	109	55	138	55.23	0.9(20)		
Bromobenzene	54.5	2.5	50	0	109	70	130	55.17	1.3(20)		
n-Propylbenzene	54.5	2.5	50	0	109	67	133	53.92	1.1(30)		
4-Chlorotoluene	53.9	2.5	50	0	108	70	130	54.48	1.1(20)		
2-Chlorotoluene	52.9	2.5	50	0	106	70	130	53.68	1.4(20)		
1,3,5-Trimethylbenzene	55	2.5	50	0	110	67	134	55.14	0.3(21)		
tert-Butylbenzene	54.7	2.5	50	0	109	55	147	55.1	0.7(20)		
1,2,4-Trimethylbenzene	56	2.5	50	0	112	65	135	56.26	0.6(25)		
sec-Butylbenzene	54.5	2.5	50	0	109	68	135	53.81	1.2(20)		
1,3-Dichlorobenzene	55.5	2.5	50	0	111	70	130	55.92	0.7(20)		
1,4-Dichlorobenzene	52.5	2.5	50	0	105	70	130	52.61	0.3(20)		
4-Isopropyltoluene	55	2.5	50	0	110	68	132	55.01	0.0(20)		
1,2-Dichlorobenzene	52.4	2.5	50	0	105	70	130	52.33	0.2(20)		
n-Butylbenzene	52.1	2.5	50	0	104	62	134	51.91	0.4(21)		
1,2-Dibromo-3-chloropropane (DBCP)	245	15	250	0	98	64	130	242.5	0.9(20)		
1,2,4-Trichlorobenzene	49.1	10	50	0	98	62	133	48.46	1.2(29)		
Naphthalene	42.8	10	50	0	86	32	166	42.17	1.4(40)		
Hexachlorobutadiene	105	10	100	0	105	63	130	103.6	1.3(21)		
1,2,3-Trichlorobenzene	43.5	10	50	0	87	55	138	43.31	0.4(36)		



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
09-Feb-12

QC Summary Report

Work Order:
12013123

Surr: 1,2-Dichloroethane-d4	50.7	50	101	70	130
Surr: Toluene-d8	50.4	50	101	70	130
Surr: 4-Bromofluorobenzene	51.2	50	102	70	130

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.

CHAIN-OF-CUSTODY RECORD

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

CA
 WorkOrder : BMIS12013123
 Report Due By : 5:00 PM On : 13-Feb-12

Client: Battelle Memorial Institute
 655 West Broadway
 Suite 1420
 San Diego, CA 92101
 PO : 287215
 Client's COC # : 28943, 58123

Report Attention **Phone Number** **Email Address**
 David Conner (619) 726-7311 x connerd@battelle.org
 Betsy Cutie (614) 424-4899 x cutiee@battelle.org
 Shane Walton (614) 424-4117 x waltonss@battelle.org

Job : 100006114/JPL Groundwater Monitoring Cooler Temp Samples Received Date Printed
 QC Level : DS4 = DOD QC Required : Final Rpt, MBLK, Initial/Concal data, LCS, MS/MSD with Surrogates 2 °C 31-Jan-12 31-Jan-12

Alpha Sample ID	Client Sample ID	Collection Date	No. of Bottles Alpha	Sub	TAT	Requested Tests				Sample Remarks
						300_0_W	314_W	METALS_D W	VOC_BMI TIC_W	
BMI12013123-01A	MW-21-5	AQ 01/30/12 09:28	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12013123-02A	MW-21-4	AQ 01/30/12 09:50	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12013123-03A	MW-21-3	AQ 01/30/12 10:09	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12013123-04A	MW-21-2	AQ 01/30/12 10:40	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12013123-05A	MW-21-1	AQ 01/30/12 11:20	10	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	MS/MSD. Level IV QC.
BMI12013123-06A	DUPE-1-1Q12	AQ 01/30/12 00:00	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12013123-07A	EB-1-1/30/12	AQ 01/30/12 11:01	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12013123-08A	SB-1-1/30/12	AQ 01/30/12 11:12	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12013123-09A	TB-1-1/30/12	AQ 01/30/12 07:30	1	0	9			VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 10/14/11
BMI12013123-10A	MW-7	AQ 01/30/12 09:47	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	

Comments: Security seals intact. Frozen ice. Temp Blank #9127 received @ 2°C. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). PO# logged in per client notes. Level IV QC on sample -05A.

Logged in by: K Murray Signature Print Name Company Date/Time
 Alpha Analytical, Inc. 1/31/12 1235

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.
 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-Tedar B-Brass P-Plastic OT-Other

Billing Information:

Name BATTLE / General Tompkins
 Address 505 KYLE AVE
 City, State, Zip COLUMBUS, OH 43201
 Phone Number _____ Fax _____



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

Samples Collected From Which State? 28943
 AZ CA NV WA
 ID OR OTHER
 Page # 1 of 1

Analyses Required

Required QC Level?
 1 2 3 4

EDD / EDP? YES NO

Global ID # _____
 REMARKS _____

Client Name	Address	City, State, Zip	PO #	Job #	Sample Description	TAT	Field Filtered	Total and type of containers ** See below	VOC (524.2)	TOTAL C (20.8)	C104 (314.0)	REMARKS
BATTLE / DAVID CONNER	5990 OLD TOWN AVE, C-105	COLUMBUS, OH 43201	286479	100006114	CONCRETE	NOVEN		5 / Vials	X	X	X	
			Command & Conner (619) 726-7311	(619) 458-6814	MW-21-5			5 / Vials	X	X	X	
					MW-21-4			5 / Vials	X	X	X	
					MW-21-3			5 / Vials	X	X	X	
					MW-21-2			5 / Vials	X	X	X	
					MW-21-1			10 / Vials	X	X	X	MISMS / LEAK II VOC
					DURE-1-1012			5 / Vials	X	X	X	DURACORE
					ERS-1-1/30/12			5 / Vials	X	X	X	EQUIP BLANK
					SB-1-1/30/12			5 / Vials	X	X	X	SAMPLE BLANK
					TR-1-1/30/12			1 / V	X	X	X	TRAP BLANK

ADDITIONAL INSTRUCTIONS:

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	CHRIS BRADSON	INTEGRITY	1-30-12	1230
<i>[Signature]</i>	Anthony Stark	Alpha Analytical	1-30-12	1230
<i>[Signature]</i>	Anthony Stark	Alpha Analytical	1-30-12	1230
<i>[Signature]</i>	K Murney	AAI	1/31/12	1200

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** - L-Liter V-Vol S-Soil Jar O-Orho 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 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.

Billing Information:
 Company Name Battelle
 Address 505 Kings Ave
 City, State, Zip Columbus OH 43201
 Phone Number 614 726-7311 Fax 614 458-6691



Samples Collected From Which State?
 AZ CA NV WA
 ID OR OTHER
 Page # 1 of 1

Consultant / Client Name David Conner
 Address
 City, State, Zip

Job # 286479 Job Name
 Report Attention / Project Manager
 Name: David Conner
 Email: connerd@battelle.com
 Phone: 614 726-7311 Fax: 614 458-6691

Time Sampled 04/7/12 Matrix* AA P.O. # 286479
 See Key Below Lab ID Number (Use Only)

Sample Description MMU-7 TAT ID Field Filtered 3V 2P # Containers**

Analyses Required
VOC's (524.2)
Total Cr (200.8)
Perchlorate (314.0)
*300.0

Data Validation Level: III or IV
 EDD / EDF? YES ___ NO ___
 Global ID #
 REMARKS

ADDITIONAL INSTRUCTIONS: * Chloride, Nitrate, Nitrite, Orthophosphate, Sulfate

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Sampled by: David Coena

Relinquished by: (Signature/Affiliation) <u>David Coena / Battelle</u>	Received by: (Signature/Affiliation) <u>[Signature] / ISS/MS</u>	Date: <u>1/30/12</u>	Time: <u>1200</u>
Relinquished by: (Signature/Affiliation) <u>[Signature] / ISS/MS</u>	Received by: (Signature/Affiliation) <u>[Signature] / Alpha Analytical</u>	Date: <u>1/30/12</u>	Time: <u>1230</u>
Relinquished by: (Signature/Affiliation) <u>[Signature] / Alpha Analytical</u>	Received by: (Signature/Affiliation) <u>[Signature] / ISS/MS</u>	Date: <u>1/31/12</u>	Time: <u>1200</u>

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** - L-Liter V-Vol S-Soil Jar O-Orbo T-Testlar 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 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.



Alpha Analytical, Inc.

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

Date: 13-Feb-12

David Conner
Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
(619) 726-7311

Suite 1420

CASE NARRATIVE

Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Work Order: BMI12020140

Cooler Temp: 3 °C

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12020140-01A	MW-6	Aqueous	
12020140-02A	DUPE-5-1Q12	Aqueous	
12020140-03A	MW-13	Aqueous	
12020140-04A	DUPE-6-1Q12	Aqueous	
12020140-05A	MW-16	Aqueous	
12020140-06A	DUPE-7-1Q12	Aqueous	
12020140-07A	MW-15	Aqueous	
12020140-08A	MW-14-5	Aqueous	
12020140-09A	MW-14-4	Aqueous	
12020140-10A	MW-14-3	Aqueous	
12020140-11A	MW-14-2	Aqueous	
12020140-12A	MW-14-1	Aqueous	
12020140-13A	EB-2-1/31/12	Aqueous	
12020140-14A	TB-2-1/31/12	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.

Note : The final report format has been altered from the DOD QSM to meet client instructions.

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/01/12

Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Anions by IC EPA Method 300.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-13				
Lab ID: BMII2020140-03A Chloride	66	0.50 mg/L	02/01/12 10:37	02/01/12 15:02
Date Sampled 01/31/12 10:43 Nitrite (NO2) - N	ND	0.25 mg/L	02/01/12 10:37	02/01/12 15:02
Nitrate (NO3) - N	5.2	0.25 mg/L	02/01/12 10:37	02/01/12 15:02
Phosphate, ortho - P	ND	0.50 mg/L	02/01/12 10:37	02/01/12 15:02
Sulfate (SO4)	53	0.50 mg/L	02/01/12 10:37	02/01/12 15:02
Client ID: DUPE-6-1Q12				
Lab ID: BMII2020140-04A Chloride	66	0.50 mg/L	02/01/12 10:37	02/01/12 15:21
Date Sampled 01/31/12 10:43 Nitrite (NO2) - N	ND	0.25 mg/L	02/01/12 10:37	02/01/12 15:21
Nitrate (NO3) - N	5.1	0.25 mg/L	02/01/12 10:37	02/01/12 15:21
Phosphate, ortho - P	ND	0.50 mg/L	02/01/12 10:37	02/01/12 15:21
Sulfate (SO4)	52	0.50 mg/L	02/01/12 10:37	02/01/12 15:21
Client ID: MW-16				
Lab ID: BMII2020140-05A Chloride	54	0.50 mg/L	02/01/12 10:37	02/01/12 15:39
Date Sampled 01/31/12 13:18 Nitrite (NO2) - N	ND	0.25 mg/L	02/01/12 10:37	02/01/12 15:39
Nitrate (NO3) - N	1.4	0.25 mg/L	02/01/12 10:37	02/01/12 15:39
Phosphate, ortho - P	ND	0.50 mg/L	02/01/12 10:37	02/01/12 15:39
Sulfate (SO4)	45	0.50 mg/L	02/01/12 10:37	02/01/12 15:39
Client ID: DUPE-7-1Q12				
Lab ID: BMII2020140-06A Chloride	53	0.50 mg/L	02/01/12 10:37	02/01/12 15:58
Date Sampled 01/31/12 13:18 Nitrite (NO2) - N	ND	0.25 mg/L	02/01/12 10:37	02/01/12 15:58
Nitrate (NO3) - N	1.4	0.25 mg/L	02/01/12 10:37	02/01/12 15:58
Phosphate, ortho - P	ND	0.50 mg/L	02/01/12 10:37	02/01/12 15:58
Sulfate (SO4)	45	0.50 mg/L	02/01/12 10:37	02/01/12 15:58

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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✓
2/13/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/01/12

Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Perchlorate by Ion Chromatography EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-6				
Lab ID : BMI12020140-01A Perchlorate	3.75	1.00 µg/L	02/06/12 14:21	02/07/12 00:17
Date Sampled 01/31/12 08:45				
Client ID: DUPE-5-1Q12				
Lab ID : BMI12020140-02A Perchlorate	3.96	1.00 µg/L	02/06/12 14:21	02/07/12 00:35
Date Sampled 01/31/12 08:45				
Client ID: MW-13				
Lab ID : BMI12020140-03A Perchlorate	346	20.0 µg/L	02/06/12 14:21	02/07/12 09:17
Date Sampled 01/31/12 10:43				
Client ID: DUPE-6-1Q12				
Lab ID : BMI12020140-04A Perchlorate	349	20.0 µg/L	02/06/12 14:21	02/07/12 09:36
Date Sampled 01/31/12 10:43				
Client ID: MW-16				
Lab ID : BMI12020140-05A Perchlorate	ND	1.00 µg/L	02/06/12 14:21	02/07/12 01:30
Date Sampled 01/31/12 13:18				
Client ID: DUPE-7-1Q12				
Lab ID : BMI12020140-06A Perchlorate	ND	1.00 µg/L	02/06/12 14:21	02/07/12 01:49
Date Sampled 01/31/12 13:18				
Client ID: MW-14-5				
Lab ID : BMI12020140-08A Perchlorate	ND	1.00 µg/L	02/06/12 14:21	02/07/12 02:07
Date Sampled 01/31/12 08:29				
Client ID: MW-14-4				
Lab ID : BMI12020140-09A Perchlorate	5.44	1.00 µg/L	02/06/12 14:21	02/07/12 02:26
Date Sampled 01/31/12 08:52				
Client ID: MW-14-3				
Lab ID : BMI12020140-10A Perchlorate	6.39	1.00 µg/L	02/06/12 14:21	02/07/12 02:44
Date Sampled 01/31/12 09:26				
Client ID: MW-14-2				
Lab ID : BMI12020140-11A Perchlorate	4.07	1.00 µg/L	02/06/12 14:21	02/07/12 03:39
Date Sampled 01/31/12 09:55				
Client ID: MW-14-1				
Lab ID : BMI12020140-12A Perchlorate	4.21	1.00 µg/L	02/06/12 14:21	02/07/12 04:34
Date Sampled 01/31/12 10:20				
Client ID: EB-2-1/31/12				
Lab ID : BMI12020140-13A Perchlorate	ND	1.00 µg/L	02/06/12 14:21	02/07/12 04:53
Date Sampled 01/31/12 10:08				



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2/13/12

Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/01/12

Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Metals by ICPMS
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-6				
Lab ID : BMII2020140-01A Chromium (Cr) Date Sampled 01/31/12 08:45	ND	0.0050 mg/L	02/01/12 14:14	02/08/12 00:25
Client ID: DUPE-5-1Q12				
Lab ID : BMII2020140-02A Chromium (Cr) Date Sampled 01/31/12 08:45	ND	0.0050 mg/L	02/01/12 14:14	02/08/12 00:31
Client ID: MW-13				
Lab ID : BMII2020140-03A Chromium (Cr) Date Sampled 01/31/12 10:43	0.0058	0.0050 mg/L	02/01/12 14:14	02/08/12 00:37
Client ID: DUPE-6-1Q12				
Lab ID : BMII2020140-04A Chromium (Cr) Date Sampled 01/31/12 10:43	0.0056	0.0050 mg/L	02/01/12 14:14	02/08/12 01:07
Client ID: MW-16				
Lab ID : BMII2020140-05A Chromium (Cr) Date Sampled 01/31/12 13:18	ND	0.0050 mg/L	02/01/12 14:14	02/08/12 01:13
Client ID: DUPE-7-1Q12				
Lab ID : BMII2020140-06A Chromium (Cr) Date Sampled 01/31/12 13:18	ND	0.0050 mg/L	02/01/12 14:14	02/08/12 01:19
Client ID: MW-15				
Lab ID : BMII2020140-07A Chromium (Cr) Date Sampled 01/31/12 14:47	ND	0.0050 mg/L	02/01/12 14:14	02/08/12 01:25
Client ID: MW-14-3				
Lab ID : BMII2020140-10A Chromium (Cr) Date Sampled 01/31/12 09:26	ND	0.0050 mg/L	02/01/12 14:14	02/08/12 01:31
Client ID: MW-14-2				
Lab ID : BMII2020140-11A Chromium (Cr) Date Sampled 01/31/12 09:55	ND	0.0050 mg/L	02/01/12 14:14	02/08/12 01:37
Client ID: MW-14-1				
Lab ID : BMII2020140-12A Chromium (Cr) Date Sampled 01/31/12 10:20	ND	0.0050 mg/L	02/01/12 14:14	02/08/12 01:43
Client ID: EB-2-1/31/12				
Lab ID : BMII2020140-13A Chromium (Cr) Date Sampled 01/31/12 10:08	ND	0.0050 mg/L	02/01/12 14:14	02/08/12 01:49



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cl
2/13/12

Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/01/12

Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Special BMI TICs
EPA Method SW8260B

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-6				
Lab ID: BMI12020140-01A	Acrylonitrile	ND	10 µg/L	02/08/12 12:09
Date Sampled 01/31/12 08:45	Allyl chloride	ND	2.0 µg/L	02/08/12 12:09
	Carbon disulfide	ND	2.0 µg/L	02/08/12 12:09
	Chloroacetonitrile	ND	10 µg/L	02/08/12 12:09
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 12:09
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 12:09
	Diethyl ether	ND	2.0 µg/L	02/08/12 12:09
	Ethyl methacrylate	ND	10 µg/L	02/08/12 12:09
	Hexachloroethane	ND	10 µg/L	02/08/12 12:09
	Methacrylonitrile	ND	10 µg/L	02/08/12 12:09
	Methyl acrylate	ND	10 µg/L	02/08/12 12:09
	Methyl iodide	ND	2.0 µg/L	02/08/12 12:09
	Methyl methacrylate	ND	10 µg/L	02/08/12 12:09
	Nitrobenzene	ND	10 µg/L	02/08/12 12:09
	2-Nitropropane	ND	2.0 µg/L	02/08/12 12:09
	Pentachloroethane	ND	2.0 µg/L	02/08/12 12:09
	Propionitrile	ND	50 µg/L	02/08/12 12:09
	Tetrahydrofuran	ND	10 µg/L	02/08/12 12:09
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 12:09
Client ID: DUPE-5-1Q12				
Lab ID: BMI12020140-02A	Acrylonitrile	ND	10 µg/L	02/08/12 12:31
Date Sampled 01/31/12 08:45	Allyl chloride	ND	2.0 µg/L	02/08/12 12:31
	Carbon disulfide	ND	2.0 µg/L	02/08/12 12:31
	Chloroacetonitrile	ND	10 µg/L	02/08/12 12:31
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 12:31
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 12:31
	Diethyl ether	ND	2.0 µg/L	02/08/12 12:31
	Ethyl methacrylate	ND	10 µg/L	02/08/12 12:31
	Hexachloroethane	ND	10 µg/L	02/08/12 12:31
	Methacrylonitrile	ND	10 µg/L	02/08/12 12:31
	Methyl acrylate	ND	10 µg/L	02/08/12 12:31
	Methyl iodide	ND	2.0 µg/L	02/08/12 12:31
	Methyl methacrylate	ND	10 µg/L	02/08/12 12:31
	Nitrobenzene	ND	10 µg/L	02/08/12 12:31
	2-Nitropropane	ND	2.0 µg/L	02/08/12 12:31
	Pentachloroethane	ND	2.0 µg/L	02/08/12 12:31
	Propionitrile	ND	50 µg/L	02/08/12 12:31
	Tetrahydrofuran	ND	10 µg/L	02/08/12 12:31
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 12:31



Alpha Analytical, Inc.

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Client ID: MW-13

Lab ID : BMI12020140-03A	Acrylonitrile	ND	10 µg/L	02/08/12 12:53	02/08/12 12:53
Date Sampled 01/31/12 10:43	Allyl chloride	ND	2.0 µg/L	02/08/12 12:53	02/08/12 12:53
	Carbon disulfide	ND	2.0 µg/L	02/08/12 12:53	02/08/12 12:53
	Chloroacetonitrile	ND	10 µg/L	02/08/12 12:53	02/08/12 12:53
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 12:53	02/08/12 12:53
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 12:53	02/08/12 12:53
	Diethyl ether	ND	2.0 µg/L	02/08/12 12:53	02/08/12 12:53
	Ethyl methacrylate	ND	10 µg/L	02/08/12 12:53	02/08/12 12:53
	Hexachloroethane	ND	10 µg/L	02/08/12 12:53	02/08/12 12:53
	Methacrylonitrile	ND	10 µg/L	02/08/12 12:53	02/08/12 12:53
	Methyl acrylate	ND	10 µg/L	02/08/12 12:53	02/08/12 12:53
	Methyl iodide	ND	2.0 µg/L	02/08/12 12:53	02/08/12 12:53
	Methyl methacrylate	ND	10 µg/L	02/08/12 12:53	02/08/12 12:53
	Nitrobenzene	ND	10 µg/L	02/08/12 12:53	02/08/12 12:53
	2-Nitropropane	ND	2.0 µg/L	02/08/12 12:53	02/08/12 12:53
	Pentachloroethane	ND	2.0 µg/L	02/08/12 12:53	02/08/12 12:53
	Propionitrile	ND	50 µg/L	02/08/12 12:53	02/08/12 12:53
	Tetrahydrofuran	ND	10 µg/L	02/08/12 12:53	02/08/12 12:53
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 12:53	02/08/12 12:53

Client ID: DUPE-6-1Q12

Lab ID : BMI12020140-04A	Acrylonitrile	ND	10 µg/L	02/08/12 13:15	02/08/12 13:15
Date Sampled 01/31/12 10:43	Allyl chloride	ND	2.0 µg/L	02/08/12 13:15	02/08/12 13:15
	Carbon disulfide	ND	2.0 µg/L	02/08/12 13:15	02/08/12 13:15
	Chloroacetonitrile	ND	10 µg/L	02/08/12 13:15	02/08/12 13:15
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 13:15	02/08/12 13:15
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 13:15	02/08/12 13:15
	Diethyl ether	ND	2.0 µg/L	02/08/12 13:15	02/08/12 13:15
	Ethyl methacrylate	ND	10 µg/L	02/08/12 13:15	02/08/12 13:15
	Hexachloroethane	ND	10 µg/L	02/08/12 13:15	02/08/12 13:15
	Methacrylonitrile	ND	10 µg/L	02/08/12 13:15	02/08/12 13:15
	Methyl acrylate	ND	10 µg/L	02/08/12 13:15	02/08/12 13:15
	Methyl iodide	ND	2.0 µg/L	02/08/12 13:15	02/08/12 13:15
	Methyl methacrylate	ND	10 µg/L	02/08/12 13:15	02/08/12 13:15
	Nitrobenzene	ND	10 µg/L	02/08/12 13:15	02/08/12 13:15
	2-Nitropropane	ND	2.0 µg/L	02/08/12 13:15	02/08/12 13:15
	Pentachloroethane	ND	2.0 µg/L	02/08/12 13:15	02/08/12 13:15
	Propionitrile	ND	50 µg/L	02/08/12 13:15	02/08/12 13:15
	Tetrahydrofuran	ND	10 µg/L	02/08/12 13:15	02/08/12 13:15
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 13:15	02/08/12 13:15



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Client ID: **MW-16**

Lab ID : BMI12020140-05A	Acrylonitrile	ND	10 µg/L	02/08/12 13:36	02/08/12 13:36
Date Sampled 01/31/12 13:18	Allyl chloride	ND	2.0 µg/L	02/08/12 13:36	02/08/12 13:36
	Carbon disulfide	ND	2.0 µg/L	02/08/12 13:36	02/08/12 13:36
	Chloroacetonitrile	ND	10 µg/L	02/08/12 13:36	02/08/12 13:36
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 13:36	02/08/12 13:36
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 13:36	02/08/12 13:36
	Diethyl ether	ND	2.0 µg/L	02/08/12 13:36	02/08/12 13:36
	Ethyl methacrylate	ND	10 µg/L	02/08/12 13:36	02/08/12 13:36
	Hexachloroethane	ND	10 µg/L	02/08/12 13:36	02/08/12 13:36
	Methacrylonitrile	ND	10 µg/L	02/08/12 13:36	02/08/12 13:36
	Methyl acrylate	ND	10 µg/L	02/08/12 13:36	02/08/12 13:36
	Methyl iodide	ND	2.0 µg/L	02/08/12 13:36	02/08/12 13:36
	Methyl methacrylate	ND	10 µg/L	02/08/12 13:36	02/08/12 13:36
	Nitrobenzene	ND	10 µg/L	02/08/12 13:36	02/08/12 13:36
	2-Nitropropane	ND	2.0 µg/L	02/08/12 13:36	02/08/12 13:36
	Pentachloroethane	ND	2.0 µg/L	02/08/12 13:36	02/08/12 13:36
	Propionitrile	ND	50 µg/L	02/08/12 13:36	02/08/12 13:36
	Tetrahydrofuran	ND	10 µg/L	02/08/12 13:36	02/08/12 13:36
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 13:36	02/08/12 13:36

Client ID: **DUPE-7-1Q12**

Lab ID : BMI12020140-06A	Acrylonitrile	ND	10 µg/L	02/08/12 13:58	02/08/12 13:58
Date Sampled 01/31/12 13:18	Allyl chloride	ND	2.0 µg/L	02/08/12 13:58	02/08/12 13:58
	Carbon disulfide	ND	2.0 µg/L	02/08/12 13:58	02/08/12 13:58
	Chloroacetonitrile	ND	10 µg/L	02/08/12 13:58	02/08/12 13:58
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 13:58	02/08/12 13:58
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 13:58	02/08/12 13:58
	Diethyl ether	ND	2.0 µg/L	02/08/12 13:58	02/08/12 13:58
	Ethyl methacrylate	ND	10 µg/L	02/08/12 13:58	02/08/12 13:58
	Hexachloroethane	ND	10 µg/L	02/08/12 13:58	02/08/12 13:58
	Methacrylonitrile	ND	10 µg/L	02/08/12 13:58	02/08/12 13:58
	Methyl acrylate	ND	10 µg/L	02/08/12 13:58	02/08/12 13:58
	Methyl iodide	ND	2.0 µg/L	02/08/12 13:58	02/08/12 13:58
	Methyl methacrylate	ND	10 µg/L	02/08/12 13:58	02/08/12 13:58
	Nitrobenzene	ND	10 µg/L	02/08/12 13:58	02/08/12 13:58
	2-Nitropropane	ND	2.0 µg/L	02/08/12 13:58	02/08/12 13:58
	Pentachloroethane	ND	2.0 µg/L	02/08/12 13:58	02/08/12 13:58
	Propionitrile	ND	50 µg/L	02/08/12 13:58	02/08/12 13:58
	Tetrahydrofuran	ND	10 µg/L	02/08/12 13:58	02/08/12 13:58
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 13:58	02/08/12 13:58



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Client ID: MW-14-5

Lab ID : BMI12020140-08A	Acrylonitrile	ND	10 µg/L	02/08/12 14:20	02/08/12 14:20
Date Sampled 01/31/12 08:29	Allyl chloride	ND	2.0 µg/L	02/08/12 14:20	02/08/12 14:20
	Carbon disulfide	ND	2.0 µg/L	02/08/12 14:20	02/08/12 14:20
	Chloroacetonitrile	ND	10 µg/L	02/08/12 14:20	02/08/12 14:20
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 14:20	02/08/12 14:20
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 14:20	02/08/12 14:20
	Diethyl ether	ND	2.0 µg/L	02/08/12 14:20	02/08/12 14:20
	Ethyl methacrylate	ND	10 µg/L	02/08/12 14:20	02/08/12 14:20
	Hexachloroethane	ND	10 µg/L	02/08/12 14:20	02/08/12 14:20
	Methacrylonitrile	ND	10 µg/L	02/08/12 14:20	02/08/12 14:20
	Methyl acrylate	ND	10 µg/L	02/08/12 14:20	02/08/12 14:20
	Methyl iodide	ND	2.0 µg/L	02/08/12 14:20	02/08/12 14:20
	Methyl methacrylate	ND	10 µg/L	02/08/12 14:20	02/08/12 14:20
	Nitrobenzene	ND	10 µg/L	02/08/12 14:20	02/08/12 14:20
	2-Nitropropane	ND	2.0 µg/L	02/08/12 14:20	02/08/12 14:20
	Pentachloroethane	ND	2.0 µg/L	02/08/12 14:20	02/08/12 14:20
	Propionitrile	ND	50 µg/L	02/08/12 14:20	02/08/12 14:20
	Tetrahydrofuran	ND	10 µg/L	02/08/12 14:20	02/08/12 14:20
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 14:20	02/08/12 14:20

Client ID: MW-14-4

Lab ID : BMI12020140-09A	Acrylonitrile	ND	10 µg/L	02/08/12 14:41	02/08/12 14:41
Date Sampled 01/31/12 08:52	Allyl chloride	ND	2.0 µg/L	02/08/12 14:41	02/08/12 14:41
	Carbon disulfide	ND	2.0 µg/L	02/08/12 14:41	02/08/12 14:41
	Chloroacetonitrile	ND	10 µg/L	02/08/12 14:41	02/08/12 14:41
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 14:41	02/08/12 14:41
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 14:41	02/08/12 14:41
	Diethyl ether	ND	2.0 µg/L	02/08/12 14:41	02/08/12 14:41
	Ethyl methacrylate	ND	10 µg/L	02/08/12 14:41	02/08/12 14:41
	Hexachloroethane	ND	10 µg/L	02/08/12 14:41	02/08/12 14:41
	Methacrylonitrile	ND	10 µg/L	02/08/12 14:41	02/08/12 14:41
	Methyl acrylate	ND	10 µg/L	02/08/12 14:41	02/08/12 14:41
	Methyl iodide	ND	2.0 µg/L	02/08/12 14:41	02/08/12 14:41
	Methyl methacrylate	ND	10 µg/L	02/08/12 14:41	02/08/12 14:41
	Nitrobenzene	ND	10 µg/L	02/08/12 14:41	02/08/12 14:41
	2-Nitropropane	ND	2.0 µg/L	02/08/12 14:41	02/08/12 14:41
	Pentachloroethane	ND	2.0 µg/L	02/08/12 14:41	02/08/12 14:41
	Propionitrile	ND	50 µg/L	02/08/12 14:41	02/08/12 14:41
	Tetrahydrofuran	ND	10 µg/L	02/08/12 14:41	02/08/12 14:41
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 14:41	02/08/12 14:41



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Client ID: MW-14-3

Lab ID :	BMI12020140-10A	Acrylonitrile	ND	10 µg/L	02/08/12 15:03	02/08/12 15:03
Date Sampled	01/31/12 09:26	Allyl chloride	ND	2.0 µg/L	02/08/12 15:03	02/08/12 15:03
		Carbon disulfide	ND	2.0 µg/L	02/08/12 15:03	02/08/12 15:03
		Chloroacetonitrile	ND	10 µg/L	02/08/12 15:03	02/08/12 15:03
		1-Chlorobutane	ND	2.0 µg/L	02/08/12 15:03	02/08/12 15:03
		1,1-Dichloropropanone	ND	10 µg/L	02/08/12 15:03	02/08/12 15:03
		Diethyl ether	ND	2.0 µg/L	02/08/12 15:03	02/08/12 15:03
		Ethyl methacrylate	ND	10 µg/L	02/08/12 15:03	02/08/12 15:03
		Hexachloroethane	ND	10 µg/L	02/08/12 15:03	02/08/12 15:03
		Methacrylonitrile	ND	10 µg/L	02/08/12 15:03	02/08/12 15:03
		Methyl acrylate	ND	10 µg/L	02/08/12 15:03	02/08/12 15:03
		Methyl iodide	ND	2.0 µg/L	02/08/12 15:03	02/08/12 15:03
		Methyl methacrylate	ND	10 µg/L	02/08/12 15:03	02/08/12 15:03
		Nitrobenzene	ND	10 µg/L	02/08/12 15:03	02/08/12 15:03
		2-Nitropropane	ND	2.0 µg/L	02/08/12 15:03	02/08/12 15:03
		Pentachloroethane	ND	2.0 µg/L	02/08/12 15:03	02/08/12 15:03
		Propionitrile	ND	50 µg/L	02/08/12 15:03	02/08/12 15:03
		Tetrahydrofuran	ND	10 µg/L	02/08/12 15:03	02/08/12 15:03
		trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 15:03	02/08/12 15:03

Client ID: MW-14-2

Lab ID :	BMI12020140-11A	Acrylonitrile	ND	10 µg/L	02/08/12 15:25	02/08/12 15:25
Date Sampled	01/31/12 09:55	Allyl chloride	ND	2.0 µg/L	02/08/12 15:25	02/08/12 15:25
		Carbon disulfide	ND	2.0 µg/L	02/08/12 15:25	02/08/12 15:25
		Chloroacetonitrile	ND	10 µg/L	02/08/12 15:25	02/08/12 15:25
		1-Chlorobutane	ND	2.0 µg/L	02/08/12 15:25	02/08/12 15:25
		1,1-Dichloropropanone	ND	10 µg/L	02/08/12 15:25	02/08/12 15:25
		Diethyl ether	ND	2.0 µg/L	02/08/12 15:25	02/08/12 15:25
		Ethyl methacrylate	ND	10 µg/L	02/08/12 15:25	02/08/12 15:25
		Hexachloroethane	ND	10 µg/L	02/08/12 15:25	02/08/12 15:25
		Methacrylonitrile	ND	10 µg/L	02/08/12 15:25	02/08/12 15:25
		Methyl acrylate	ND	10 µg/L	02/08/12 15:25	02/08/12 15:25
		Methyl iodide	ND	2.0 µg/L	02/08/12 15:25	02/08/12 15:25
		Methyl methacrylate	ND	10 µg/L	02/08/12 15:25	02/08/12 15:25
		Nitrobenzene	ND	10 µg/L	02/08/12 15:25	02/08/12 15:25
		2-Nitropropane	ND	2.0 µg/L	02/08/12 15:25	02/08/12 15:25
		Pentachloroethane	ND	2.0 µg/L	02/08/12 15:25	02/08/12 15:25
		Propionitrile	ND	50 µg/L	02/08/12 15:25	02/08/12 15:25
		Tetrahydrofuran	ND	10 µg/L	02/08/12 15:25	02/08/12 15:25
		trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 15:25	02/08/12 15:25



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Client ID: MW-14-1

Lab ID : BMI12020140-12A	Acrylonitrile	ND	10 µg/L	02/08/12 15:47	02/08/12 15:47
Date Sampled 01/31/12 10:20	Allyl chloride	ND	2.0 µg/L	02/08/12 15:47	02/08/12 15:47
	Carbon disulfide	ND	2.0 µg/L	02/08/12 15:47	02/08/12 15:47
	Chloroacetonitrile	ND	10 µg/L	02/08/12 15:47	02/08/12 15:47
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 15:47	02/08/12 15:47
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 15:47	02/08/12 15:47
	Diethyl ether	ND	2.0 µg/L	02/08/12 15:47	02/08/12 15:47
	Ethyl methacrylate	ND	10 µg/L	02/08/12 15:47	02/08/12 15:47
	Hexachloroethane	ND	10 µg/L	02/08/12 15:47	02/08/12 15:47
	Methacrylonitrile	ND	10 µg/L	02/08/12 15:47	02/08/12 15:47
	Methyl acrylate	ND	10 µg/L	02/08/12 15:47	02/08/12 15:47
	Methyl iodide	ND	2.0 µg/L	02/08/12 15:47	02/08/12 15:47
	Methyl methacrylate	ND	10 µg/L	02/08/12 15:47	02/08/12 15:47
	Nitrobenzene	ND	10 µg/L	02/08/12 15:47	02/08/12 15:47
	2-Nitropropane	ND	2.0 µg/L	02/08/12 15:47	02/08/12 15:47
	Pentachloroethane	ND	2.0 µg/L	02/08/12 15:47	02/08/12 15:47
	Propionitrile	ND	50 µg/L	02/08/12 15:47	02/08/12 15:47
	Tetrahydrofuran	ND	10 µg/L	02/08/12 15:47	02/08/12 15:47
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 15:47	02/08/12 15:47

Client ID: EB-2-1/31/12

Lab ID : BMI12020140-13A	Acrylonitrile	ND	10 µg/L	02/08/12 16:08	02/08/12 16:08
Date Sampled 01/31/12 10:08	Allyl chloride	ND	2.0 µg/L	02/08/12 16:08	02/08/12 16:08
	Carbon disulfide	ND	2.0 µg/L	02/08/12 16:08	02/08/12 16:08
	Chloroacetonitrile	ND	10 µg/L	02/08/12 16:08	02/08/12 16:08
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 16:08	02/08/12 16:08
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 16:08	02/08/12 16:08
	Diethyl ether	ND	2.0 µg/L	02/08/12 16:08	02/08/12 16:08
	Ethyl methacrylate	ND	10 µg/L	02/08/12 16:08	02/08/12 16:08
	Hexachloroethane	ND	10 µg/L	02/08/12 16:08	02/08/12 16:08
	Methacrylonitrile	ND	10 µg/L	02/08/12 16:08	02/08/12 16:08
	Methyl acrylate	ND	10 µg/L	02/08/12 16:08	02/08/12 16:08
	Methyl iodide	ND	2.0 µg/L	02/08/12 16:08	02/08/12 16:08
	Methyl methacrylate	ND	10 µg/L	02/08/12 16:08	02/08/12 16:08
	Nitrobenzene	ND	10 µg/L	02/08/12 16:08	02/08/12 16:08
	2-Nitropropane	ND	2.0 µg/L	02/08/12 16:08	02/08/12 16:08
	Pentachloroethane	ND	2.0 µg/L	02/08/12 16:08	02/08/12 16:08
	Propionitrile	ND	50 µg/L	02/08/12 16:08	02/08/12 16:08
	Tetrahydrofuran	ND	10 µg/L	02/08/12 16:08	02/08/12 16:08
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 16:08	02/08/12 16:08



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Client ID: **TB-2-1/31/12**

Lab ID : BMI12020140-14A	Acrylonitrile	ND	10 µg/L	02/08/12 16:30	02/08/12 16:30
Date Sampled 01/31/12 07:30	Allyl chloride	ND	2.0 µg/L	02/08/12 16:30	02/08/12 16:30
	Carbon disulfide	ND	2.0 µg/L	02/08/12 16:30	02/08/12 16:30
	Chloroacetonitrile	ND	10 µg/L	02/08/12 16:30	02/08/12 16:30
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 16:30	02/08/12 16:30
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 16:30	02/08/12 16:30
	Diethyl ether	ND	2.0 µg/L	02/08/12 16:30	02/08/12 16:30
	Ethyl methacrylate	ND	10 µg/L	02/08/12 16:30	02/08/12 16:30
	Hexachloroethane	ND	10 µg/L	02/08/12 16:30	02/08/12 16:30
	Methacrylonitrile	ND	10 µg/L	02/08/12 16:30	02/08/12 16:30
	Methyl acrylate	ND	10 µg/L	02/08/12 16:30	02/08/12 16:30
	Methyl iodide	ND	2.0 µg/L	02/08/12 16:30	02/08/12 16:30
	Methyl methacrylate	ND	10 µg/L	02/08/12 16:30	02/08/12 16:30
	Nitrobenzene	ND	10 µg/L	02/08/12 16:30	02/08/12 16:30
	2-Nitropropane	ND	2.0 µg/L	02/08/12 16:30	02/08/12 16:30
	Pentachloroethane	ND	2.0 µg/L	02/08/12 16:30	02/08/12 16:30
	Propionitrile	ND	50 µg/L	02/08/12 16:30	02/08/12 16:30
	Tetrahydrofuran	ND	10 µg/L	02/08/12 16:30	02/08/12 16:30
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 16:30	02/08/12 16:30

Information regarding the estimate of the uncertainty of measurement is available upon client request.

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
 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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

JSB

2/13/12

Report Date



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-01A
Client I.D. Number: MW-6

Sampled: 01/31/12 08:45
Received: 02/01/12
Extracted: 02/08/12 12:09
Analyzed: 02/08/12 12:09

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	1.2	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	2.8	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	100	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-02A
Client I.D. Number: DUPE-5-1Q12

Sampled: 01/31/12 08:45
Received: 02/01/12
Extracted: 02/08/12 12:31
Analyzed: 02/08/12 12:31

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	1.1	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	2.5	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	103	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	101	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	102	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-03A
Client I.D. Number: MW-13

Sampled: 01/31/12 10:43
Received: 02/01/12
Extracted: 02/08/12 12:53
Analyzed: 02/08/12 12:53

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	0.56	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	7.1	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	1.5	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	2.6	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	102	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	103	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	0.55	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-04A
Client I.D. Number: DUPE-6-1Q12

Sampled: 01/31/12 10:43
Received: 02/01/12
Extracted: 02/08/12 13:15
Analyzed: 02/08/12 13:15

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	0.52	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	7.1	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	1.5	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	2.6	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	104	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	101	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	0.55	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/13/12

Report Date



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-05A
Client I.D. Number: MW-16

Sampled: 01/31/12 13:18
Received: 02/01/12
Extracted: 02/08/12 13:36
Analyzed: 02/08/12 13:36

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	106	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	101	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	102	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 10006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-06A
Client I.D. Number: DUPE-7-1Q12

Sampled: 01/31/12 13:18
Received: 02/01/12
Extracted: 02/08/12 13:58
Analyzed: 02/08/12 13:58

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	106	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	101	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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JS
2/13/12

Report Date

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 10006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-08A
Client I.D. Number: MW-14-5

Sampled: 01/31/12 08:29
Received: 02/01/12
Extracted: 02/08/12 14:20
Analyzed: 02/08/12 14:20

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	107	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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[Signature]
2/13/12

Report Date

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 10006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-09A
Client I.D. Number: MW-14-4

Sampled: 01/31/12 08:52
Received: 02/01/12
Extracted: 02/08/12 14:41
Analyzed: 02/08/12 14:41

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	110	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/13/12

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-10A
Client I.D. Number: MW-14-3

Sampled: 01/31/12 09:26
Received: 02/01/12
Extracted: 02/08/12 15:03
Analyzed: 02/08/12 15:03

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	1.3	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	113	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-11A
Client I.D. Number: MW-14-2

Sampled: 01/31/12 09:55
Received: 02/01/12
Extracted: 02/08/12 15:25
Analyzed: 02/08/12 15:25

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	0.55	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	6.7	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	114	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	98	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	102	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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2/13/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-12A
Client I.D. Number: MW-14-1

Sampled: 01/31/12 10:20
Received: 02/01/12
Extracted: 02/08/12 15:47
Analyzed: 02/08/12 15:47

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethane	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropene	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	2.7	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	112	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	100	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/13/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-13A
Client I.D. Number: EB-2-1/31/12

Sampled: 01/31/12 10:08
Received: 02/01/12
Extracted: 02/08/12 16:08
Analyzed: 02/08/12 16:08

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	112	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	101	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	101	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020140-14A
Client I.D. Number: TB-2-1/31/12

Sampled: 01/31/12 07:30
Received: 02/01/12
Extracted: 02/08/12 16:30
Analyzed: 02/08/12 16:30

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	114	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	100	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/13/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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: BMI12020140

Job: 100006114/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12020140-01A	MW-6	Aqueous	2
12020140-02A	DUPE-5-1Q12	Aqueous	2
12020140-03A	MW-13	Aqueous	2
12020140-04A	DUPE-6-1Q12	Aqueous	2
12020140-05A	MW-16	Aqueous	2
12020140-06A	DUPE-7-1Q12	Aqueous	2
12020140-08A	MW-14-5	Aqueous	2
12020140-09A	MW-14-4	Aqueous	2
12020140-10A	MW-14-3	Aqueous	2
12020140-11A	MW-14-2	Aqueous	2
12020140-12A	MW-14-1	Aqueous	2
12020140-13A	EB-2-1/31/12	Aqueous	2
12020140-14A	TB-2-1/31/12	Aqueous	2

2/13/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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

Date:
13-Feb-12

QC Summary Report

Work Order:
12020140

Method Blank

Type: MBLK Test Code: EPA Method 300.0

File ID: 31

Batch ID: 28121K

Analysis Date: 02/01/2012 12:53

Sample ID: MB-28121

Units : mg/L

Run ID: IC_1_120201A

Prep Date: 02/01/2012 10:37

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	ND	0.5								
Nitrite (NO2) - N	ND	0.25								
Nitrate (NO3) - N	ND	0.25								
Phosphate, ortho - P	ND	0.5								
Sulfate (SO4)	ND	0.5								

Laboratory Fortified Blank

Type: LFB Test Code: EPA Method 300.0

File ID: 32

Batch ID: 28121K

Analysis Date: 02/01/2012 13:11

Sample ID: LFB-28121

Units : mg/L

Run ID: IC_1_120201A

Prep Date: 02/01/2012 10:37

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	48.7	0.5	50		97	90	110			
Nitrite (NO2) - N	5.47	0.25	5		109	90	110			
Nitrate (NO3) - N	5.44	0.25	5		109	90	110			
Phosphate, ortho - P	4.71	0.5	5		94	90	110			
Sulfate (SO4)	106	0.5	100		106	90	110			

Sample Matrix Spike

Type: LFM Test Code: EPA Method 300.0

File ID: 35

Batch ID: 28121K

Analysis Date: 02/01/2012 14:07

Sample ID: 12020121-01ALFM

Units : mg/L

Run ID: IC_1_120201A

Prep Date: 02/01/2012 10:37

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	352	1.3	250	109.3	97	90	110			
Nitrite (NO2) - N	29.4	0.63	25	0	117	90	110			M1
Nitrate (NO3) - N	27.9	0.63	25	0	112	90	110			M1
Phosphate, ortho - P	28.9	1.3	25	0	116	90	110			M1
Sulfate (SO4)	554	1.3	500	66.64	98	90	110			

Sample Matrix Spike Duplicate

Type: LFMD Test Code: EPA Method 300.0

File ID: 36

Batch ID: 28121K

Analysis Date: 02/01/2012 14:25

Sample ID: 12020121-01ALFMD

Units : mg/L

Run ID: IC_1_120201A

Prep Date: 02/01/2012 10:37

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	354	1.3	250	109.3	98	90	110	352	0.7(15)	
Nitrite (NO2) - N	29	0.63	25	0	116	90	110	29.36	1.2(15)	M1
Nitrate (NO3) - N	27.3	0.63	25	0	109	90	110	27.89	2.3(15)	
Phosphate, ortho - P	31.8	1.3	25	0	127	90	110	28.93	9.5(15)	M1
Sulfate (SO4)	558	1.3	500	66.64	98	90	110	554.3	0.7(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.

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.

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

Date:
14-Feb-12

QC Summary Report

Work Order:
12020140

Method Blank

Type: **MBLK** Test Code: **EPA Method 314.0**

File ID: 44				Batch ID: 28151K				Analysis Date: 02/06/2012 23:21		
Sample ID: MB-28151	Units : µg/L		Run ID: IC_3_120206B					Prep Date: 02/06/2012 14:21		
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

Laboratory Fortified Blank

Type: **LFB** Test Code: **EPA Method 314.0**

File ID: 45				Batch ID: 28151K				Analysis Date: 02/06/2012 23:40		
Sample ID: LFB-28151	Units : µg/L		Run ID: IC_3_120206B					Prep Date: 02/06/2012 14:21		
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	28.5	2	25		114	85	115			

Sample Matrix Spike

Type: **LFM** Test Code: **EPA Method 314.0**

File ID: 14				Batch ID: 28151K				Analysis Date: 02/14/2012 13:39		
Sample ID: 12020140-10ALFM	Units : µg/L		Run ID: IC_3_120206B					Prep Date: 02/06/2012 14:21		
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	34.4	2	25	6.387	112	85	115			

Sample Matrix Spike Duplicate

Type: **LFMD** Test Code: **EPA Method 314.0**

File ID: 15				Batch ID: 28151K				Analysis Date: 02/14/2012 13:58		
Sample ID: 12020140-10ALFMD	Units : µg/L		Run ID: IC_3_120206B					Prep Date: 02/06/2012 14:21		
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	35.1	2	25	6.387	115	85	115	34.41	1.9(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:
10-Feb-12

QC Summary Report

Work Order:
12020140

Method Blank

Type **MBLK** Test Code: **EPA Method 200.8**

File ID: 020712.B\081_M.D\

Batch ID: 28128K

Analysis Date: 02/07/2012 22:19

Sample ID: MB-28128

Units : mg/L

Run ID: ICP/MS_120207E

Prep Date: 02/01/2012 14:14

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: 020712.B\082_M.D\

Batch ID: 28128K

Analysis Date: 02/07/2012 22:25

Sample ID: LCS-28128

Units : mg/L

Run ID: ICP/MS_120207E

Prep Date: 02/01/2012 14:14

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0479	0.005	0.05		96	80	120			

Sample Matrix Spike

Type **MS** Test Code: **EPA Method 200.8**

File ID: 020712.B\087_M.D\

Batch ID: 28128K

Analysis Date: 02/07/2012 22:55

Sample ID: 12013123-05AMS

Units : mg/L

Run ID: ICP/MS_120207E

Prep Date: 02/01/2012 14:14

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0461	0.005	0.05	0	92	80	120			

Sample Matrix Spike Duplicate

Type **MSD** Test Code: **EPA Method 200.8**

File ID: 020712.B\088_M.D\

Batch ID: 28128K

Analysis Date: 02/07/2012 23:01

Sample ID: 12013123-05AMSD

Units : mg/L

Run ID: ICP/MS_120207E

Prep Date: 02/01/2012 14:14

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0478	0.005	0.05	0	96	80	120	0.04613	3.6(20)	

Comments:

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



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Date:
13-Feb-12

QC Summary Report

Work Order:
12020140

Surr: 1,2-Dichloroethane-d4	9.45	10	95	70	130
Surr: Toluene-d8	10.4	10	104	70	130
Surr: 4-Bromofluorobenzene	10.3	10	103	70	130



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Date:
13-Feb-12

QC Summary Report

Work Order:
12020140

Laboratory Control Spike

File ID: 12020803.D

Type LCS

Test Code: EPA Method SW8260B

Batch ID: MS15W0208M

Analysis Date: 02/08/2012 09:40

Sample ID: LCS MS15W0208M

Units: µg/L

Run ID: MSD_15_120208A

Prep Date: 02/08/2012 09:40

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	9.12	1	10		91	70	130			
Chloromethane	8.98	2	10		90	70	130			
Vinyl chloride	10.8	1	10		108	70	130			
Chloroethane	11.5	1	10		115	70	130			
Bromomethane	11	2	10		110	70	130			
Trichlorofluoromethane	12.9	1	10		129	70	130			
Acetone	190	10	200		95	36	171			
1,1-Dichloroethene	10.1	1	10		101	70	130			
Dichloromethane	9.59	2	10		96	70	130			
Freon-113	11	1	10		110	70	137			
trans-1,2-Dichloroethene	10.6	1	10		106	70	130			
Methyl tert-butyl ether (MTBE)	9.71	0.5	10		97	70	130			
1,1-Dichloroethane	10.7	1	10		107	70	130			
2-Butanone (MEK)	186	10	200		93	70	130			
cis-1,2-Dichloroethene	10.3	1	10		103	70	130			
Bromochloromethane	10.2	1	10		102	70	130			
Chloroform	11.1	1	10		111	70	130			
2,2-Dichloropropane	11.9	1	10		119	70	130			
1,2-Dichloroethane	11.3	1	10		113	70	130			
1,1,1-Trichloroethane	12.4	1	10		124	70	130			
1,1-Dichloropropene	11.6	1	10		116	70	130			
Carbon tetrachloride	11.4	1	10		114	70	130			
Benzene	10	0.5	10		100	70	130			
Dibromomethane	10.6	1	10		106	70	130			
1,2-Dichloropropane	10.1	1	10		101	70	130			
Trichloroethene	10.7	1	10		107	70	130			
Bromodichloromethane	10.9	1	10		109	70	130			
4-Methyl-2-pentanone (MIBK)	23.6	2.5	25		94	20	182			
cis-1,3-Dichloropropene	9.65	1	10		97	70	130			
trans-1,3-Dichloropropene	9.74	1	10		97	70	130			
1,1,2-Trichloroethane	10.1	1	10		101	70	130			
Toluene	9.71	0.5	10		97	70	130			
1,3-Dichloropropane	9.23	1	10		92	70	130			
2-Hexanone	91	5	100		91	20	182			
Dibromochloromethane	9.87	1	10		99	70	130			
1,2-Dibromoethane (EDB)	18.8	2	20		94	70	130			
Tetrachloroethene	10.6	1	10		106	70	130			
1,1,1,2-Tetrachloroethane	10.4	1	10		104	70	130			
Chlorobenzene	9.96	1	10		99.6	70	130			
Ethylbenzene	10.3	0.5	10		103	70	130			
m,p-Xylene	10.3	0.5	10		103	70	130			
Bromoform	9.64	1	10		96	70	130			
Styrene	8.48	1	10		85	70	130			
o-Xylene	10.5	0.5	10		105	70	130			
1,1,2,2-Tetrachloroethane	9.49	1	10		95	70	130			
1,2,3-Trichloropropane	20.7	2	20		103	70	130			
Isopropylbenzene	10.8	1	10		108	70	130			
Bromobenzene	10.5	1	10		105	70	130			
n-Propylbenzene	10.8	1	10		108	70	130			
4-Chlorotoluene	10.4	1	10		104	70	130			
2-Chlorotoluene	10.5	1	10		105	70	130			
1,3,5-Trimethylbenzene	11	1	10		110	70	130			
tert-Butylbenzene	10.9	1	10		109	70	130			
1,2,4-Trimethylbenzene	11.1	1	10		111	70	130			
sec-Butylbenzene	10.7	1	10		107	70	130			
1,3-Dichlorobenzene	10.8	1	10		108	70	130			
1,4-Dichlorobenzene	10.2	1	10		102	70	130			
4-Isopropyltoluene	11	1	10		110	70	130			
1,2-Dichlorobenzene	9.98	1	10		99.8	70	130			
n-Butylbenzene	10.6	1	10		106	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	47.3	3	50		95	67	130			
1,2,4-Trichlorobenzene	9.11	2	10		91	70	130			
Naphthalene	7.11	2	10		71	70	130			
Hexachlorobutadiene	21.5	2	20		108	70	130			
1,2,3-Trichlorobenzene	7.53	2	10		75	70	130			



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13-Feb-12

QC Summary Report

Work Order:
12020140

Surr: 1,2-Dichloroethane-d4	11.3	10	113	70	130
Surr: Toluene-d8	9.68	10	97	70	130
Surr: 4-Bromofluorobenzene	10.3	10	103	70	130



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Date:
13-Feb-12

QC Summary Report

Work Order:
12020140

Sample Matrix Spike

File ID: 12020807.D

Type MS

Test Code: EPA Method SW8260B

Sample ID: 12020140-10AMS

Units: µg/L

Run ID: MSD_15_120208A

Batch ID: MS15W0208M

Analysis Date: 02/08/2012 11:26

Prep Date: 02/08/2012 11:26

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	38	2.5	50	0	76	21	138			
Chloromethane	41	10	50	0	82	23	144			
Vinyl chloride	48.5	2.5	50	0	97	49	136			
Chloroethane	53.3	2.5	50	0	107	21	159			
Bromomethane	50.3	10	50	0	101	10	174			
Trichlorofluoromethane	62.9	2.5	50	0	126	32	154			
Acetone	466	50	1000	0	47	10	171			
1,1-Dichloroethene	48.8	2.5	50	0	98	64	130			
Dichloromethane	47.2	10	50	0	94	69	130			
Freon-113	52.9	2.5	50	0	106	55	141			
trans-1,2-Dichloroethene	51.6	2.5	50	0	103	63	130			
Methyl tert-butyl ether (MTBE)	48.4	1.3	50	0	97	47	150			
1,1-Dichloroethane	53.1	2.5	50	0	106	66	130			
2-Butanone (MEK)	661	50	1000	0	66	23	182			
cis-1,2-Dichloroethene	51.2	2.5	50	0	102	70	130			
Bromochloromethane	52	2.5	50	0	104	70	132			
Chloroform	54.6	2.5	50	0	109	70	130			
2,2-Dichloropropane	59.3	2.5	50	0	119	38	154			
1,2-Dichloroethane	54.7	2.5	50	0	109	65	134			
1,1,1-Trichloroethane	60.3	2.5	50	0	121	65	136			
1,1-Dichloropropene	56.2	2.5	50	0	112	68	132			
Carbon tetrachloride	54.5	2.5	50	0	109	58	148			
Benzene	50.1	1.3	50	0	100	59	138			
Dibromomethane	51.6	2.5	50	0	103	70	130			
1,2-Dichloropropane	50.9	2.5	50	0	102	70	131			
Trichloroethene	53.9	2.5	50	1.26	105	65	144			
Bromodichloromethane	52.7	2.5	50	0	105	50	157			
4-Methyl-2-pentanone (MIBK)	108	13	125	0	86	20	182			
cis-1,3-Dichloropropene	47.1	2.5	50	0	94	63	131			
trans-1,3-Dichloropropene	47.1	2.5	50	0	94	65	136			
1,1,2-Trichloroethane	50	2.5	50	0	100	70	131			
Toluene	49.3	1.3	50	0	99	68	130			
1,3-Dichloropropane	46.9	2.5	50	0	94	70	130			
2-Hexanone	306	25	500	0	61	20	182			
Dibromochloromethane	49.3	2.5	50	0	99	42	155			
1,2-Dibromoethane (EDB)	95.2	5	100	0	95	70	130			
Tetrachloroethene	54.6	2.5	50	0	109	65	130			
1,1,1,2-Tetrachloroethane	51.7	2.5	50	0	103	70	130			
Chlorobenzene	50.6	2.5	50	0	101	70	130			
Ethylbenzene	52	1.3	50	0	104	68	130			
m,p-Xylene	52.5	1.3	50	0	105	68	131			
Bromoform	47.9	2.5	50	0	96	65	143			
Styrene	42.4	2.5	50	0	85	59	153			
o-Xylene	52.8	1.3	50	0	106	70	130			
1,1,2,2-Tetrachloroethane	48.3	2.5	50	0	97	67	130			
1,2,3-Trichloropropane	106	10	100	0	106	70	130			
Isopropylbenzene	53.8	2.5	50	0	108	55	138			
Bromobenzene	52.7	2.5	50	0	105	70	130			
n-Propylbenzene	53	2.5	50	0	106	67	133			
4-Chlorotoluene	52.8	2.5	50	0	106	70	130			
2-Chlorotoluene	51.7	2.5	50	0	103	70	130			
1,3,5-Trimethylbenzene	54.3	2.5	50	0	109	67	134			
tert-Butylbenzene	53.6	2.5	50	0	107	55	147			
1,2,4-Trimethylbenzene	55.1	2.5	50	0	110	65	135			
sec-Butylbenzene	52.5	2.5	50	0	105	68	135			
1,3-Dichlorobenzene	54.1	2.5	50	0	108	70	130			
1,4-Dichlorobenzene	50.7	2.5	50	0	101	70	130			
4-Isopropyltoluene	54.4	2.5	50	0	109	68	132			
1,2-Dichlorobenzene	49.4	2.5	50	0	99	70	130			
n-Butylbenzene	52.2	2.5	50	0	104	62	134			
1,2-Dibromo-3-chloropropane (DBCP)	228	15	250	0	91	64	130			
1,2,4-Trichlorobenzene	45.2	10	50	0	90	62	133			
Naphthalene	33.7	10	50	0	67	32	166			
Hexachlorobutadiene	103	10	100	0	103	63	130			
1,2,3-Trichlorobenzene	36.5	10	50	0	73	55	138			



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Date:
13-Feb-12

QC Summary Report

Work Order:
12020140

Surr: 1,2-Dichloroethane-d4	53.8	50	108	70	130
Surr: Toluene-d8	49.9	50	99.7	70	130
Surr: 4-Bromofluorobenzene	51.7	50	103	70	130



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Date:
13-Feb-12

QC Summary Report

Work Order:
12020140

Sample Matrix Spike Duplicate

Type **MSD** Test Code: **EPA Method SW8260B**

File ID: **12020808.D**

Batch ID: **MS15W0208M**

Analysis Date: **02/08/2012 11:48**

Sample ID: **12020140-10AMSD**

Units: **µg/L**

Run ID: **MSD_15_120208A**

Prep Date: **02/08/2012 11:48**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	34.8	2.5	50	0	70	21	138	38.03	9.0(33)	
Chloromethane	38.5	10	50	0	77	23	144	40.98	6.3(27)	
Vinyl chloride	44.8	2.5	50	0	90	49	136	48.45	7.8(21)	
Chloroethane	50	2.5	50	0	99.9	21	159	53.33	6.6(40)	
Bromomethane	48.7	10	50	0	97	10	174	50.3	3.3(40)	
Trichlorofluoromethane	56.3	2.5	50	0	113	32	154	62.92	11.0(37)	
Acetone	458	50	1000	0	46	10	171	465.8	1.8(23)	
1,1-Dichloroethene	45.8	2.5	50	0	92	64	130	48.81	6.5(21)	
Dichloromethane	44.5	10	50	0	89	69	130	47.17	5.9(20)	
Freon-113	48.3	2.5	50	0	97	55	141	52.87	9.1(40)	
trans-1,2-Dichloroethene	48.1	2.5	50	0	96	63	130	51.6	7.0(20)	
Methyl tert-butyl ether (MTBE)	46.6	1.3	50	0	93	47	150	48.35	3.6(40)	
1,1-Dichloroethane	49.2	2.5	50	0	98	66	130	53.11	7.7(20)	
2-Butanone (MEK)	641	50	1000	0	64	23	182	661.4	3.2(22)	
cis-1,2-Dichloroethene	49.4	2.5	50	0	99	70	130	51.16	3.5(20)	
Bromochloromethane	48.8	2.5	50	0	98	70	132	52.01	6.4(20)	
Chloroform	49.8	2.5	50	0	99.7	70	130	54.55	9.0(20)	
2,2-Dichloropropane	54.7	2.5	50	0	109	38	154	59.34	8.2(22)	
1,2-Dichloroethane	50.2	2.5	50	0	100	65	134	54.74	8.6(20)	
1,1,1-Trichloroethane	55	2.5	50	0	110	65	136	60.3	9.2(20)	
1,1-Dichloropropene	51.9	2.5	50	0	104	68	132	56.22	8.0(20)	
Carbon tetrachloride	51	2.5	50	0	102	58	148	54.54	6.8(20)	
Benzene	46.9	1.3	50	0	94	59	138	50.13	6.6(21)	
Dibromomethane	48.4	2.5	50	0	97	70	130	51.55	6.4(20)	
1,2-Dichloropropane	47.9	2.5	50	0	96	70	131	50.87	6.1(20)	
Trichloroethene	50.7	2.5	50	1.26	99	65	144	53.85	6.0(20)	
Bromodichloromethane	49.1	2.5	50	0	98	50	157	52.72	7.1(20)	
4-Methyl-2-pentanone (MIBK)	107	13	125	0	85	20	182	107.8	1.2(20)	
cis-1,3-Dichloropropene	45	2.5	50	0	90	63	131	47.13	4.7(20)	
trans-1,3-Dichloropropene	45.9	2.5	50	0	92	65	136	47.08	2.6(20)	
1,1,2-Trichloroethane	48.2	2.5	50	0	96	70	131	50.03	3.8(20)	
Toluene	46.3	1.3	50	0	93	68	130	49.31	6.3(20)	
1,3-Dichloropropane	45.4	2.5	50	0	91	70	130	46.94	3.3(20)	
2-Hexanone	300	25	500	0	60	20	182	306.2	2.0(20)	
Dibromochloromethane	47.4	2.5	50	0	95	42	155	49.3	3.9(20)	
1,2-Dibromoethane (EDB)	91.8	5	100	0	92	70	130	95.23	3.7(20)	
Tetrachloroethene	50.7	2.5	50	0	101	65	130	54.59	7.3(20)	
1,1,1,2-Tetrachloroethane	49.3	2.5	50	0	99	70	130	51.74	4.8(20)	
Chlorobenzene	48	2.5	50	0	96	70	130	50.58	5.3(20)	
Ethylbenzene	49.3	1.3	50	0	99	68	130	51.97	5.3(20)	
m,p-Xylene	49.9	1.3	50	0	99.8	68	131	52.49	5.0(20)	
Bromoform	46.8	2.5	50	0	94	65	143	47.94	2.5(20)	
Styrene	40.7	2.5	50	0	81	59	153	42.41	4.0(37)	
o-Xylene	50.1	1.3	50	0	100	70	130	52.81	5.4(20)	
1,1,2,2-Tetrachloroethane	46.6	2.5	50	0	93	67	130	48.26	3.5(20)	
1,2,3-Trichloropropane	99.9	10	100	0	99.9	70	130	106.2	6.2(20)	
Isopropylbenzene	50.4	2.5	50	0	101	55	138	53.82	6.6(20)	
Bromobenzene	49.9	2.5	50	0	99.7	70	130	52.67	5.5(20)	
n-Propylbenzene	50.2	2.5	50	0	100	67	133	53	5.4(30)	
4-Chlorotoluene	49.7	2.5	50	0	99	70	130	52.79	6.1(20)	
2-Chlorotoluene	48.7	2.5	50	0	97	70	130	51.67	5.9(20)	
1,3,5-Trimethylbenzene	50.7	2.5	50	0	101	67	134	54.29	6.9(21)	
tert-Butylbenzene	50.1	2.5	50	0	100	55	147	53.59	6.7(20)	
1,2,4-Trimethylbenzene	51.7	2.5	50	0	103	65	135	55.12	6.4(25)	
sec-Butylbenzene	49.9	2.5	50	0	99.8	68	135	52.46	5.0(20)	
1,3-Dichlorobenzene	51.4	2.5	50	0	103	70	130	54.1	5.1(20)	
1,4-Dichlorobenzene	48.2	2.5	50	0	96	70	130	50.71	5.2(20)	
4-Isopropyltoluene	51	2.5	50	0	102	68	132	54.35	6.3(20)	
1,2-Dichlorobenzene	47	2.5	50	0	94	70	130	49.37	5.0(20)	
n-Butylbenzene	49.3	2.5	50	0	99	62	134	52.18	5.8(21)	
1,2-Dibromo-3-chloropropane (DBCP)	222	15	250	0	89	64	130	228.3	3.0(20)	
1,2,4-Trichlorobenzene	44.4	10	50	0	89	62	133	45.2	1.7(29)	
Naphthalene	37.1	10	50	0	74	32	166	33.74	9.4(40)	
Hexachlorobutadiene	98.4	10	100	0	98	63	130	103.1	4.7(21)	
1,2,3-Trichlorobenzene	38.5	10	50	0	77	55	138	36.51	5.4(36)	



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
13-Feb-12

QC Summary Report

Work Order:
12020140

Surr: 1,2-Dichloroethane-d4	53.2	50	106	70	130
Surr: Toluene-d8	49.4	50	99	70	130
Surr: 4-Bromofluorobenzene	52.5	50	105	70	130

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

CA

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

WorkOrder : BMIS12020140
Report Due By : 5:00 PM On : 14-Feb-12

Client: **Battelle Memorial Institute**
 655 West Broadway
 Suite 1420
 San Diego, CA 92101

Report Attention: **David Comer** Phone Number: (619) 726-7311 x Email Address: **comerd@battelle.org**
Betsy Cutie (614) 424-4899 x cutiee@battelle.org
Shane Walton (614) 424-4117 x waltonsm@battelle.org

Job : 100006114/JPL Groundwater Monitoring
 Client's COC # : 53783, 26615 = DOD OC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD with Surrogates
 QC Level : DS4
 EDD Required : Yes
 Sampled by : David Loera, Chase Brogdon
 Cooler Temp 3 °C Samples Received 01-Feb-12 Date Printed 01-Feb-12

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles Alpha Sub TAT	Requested Tests			Sample Remarks
				300_0_W	314_W	METALS_D W	
BM12020140-01A	MW-6	AQ 01/31/12 08:45	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	
BM12020140-02A	DUPE-5-1Q12	AQ 01/31/12 08:45	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	
BM12020140-03A	MW-13	AQ 01/31/12 10:43	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	
BM12020140-04A	DUPE-6-1Q12	AQ 01/31/12 10:43	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	
BM12020140-05A	MW-16	AQ 01/31/12 13:18	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	
BM12020140-06A	DUPE-7-1Q12	AQ 01/31/12 13:18	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	
BM12020140-07A	MW-15	AQ 01/31/12 14:47	1 0 9	Perchlorate	Cr	VOC by 524 Criteria	
BM12020140-08A	MW-14-5	AQ 01/31/12 08:29	4 0 9	Perchlorate	Cr	VOC by 524 Criteria	
BM12020140-09A	MW-14-4	AQ 01/31/12 08:52	4 0 9	Perchlorate	Cr	VOC by 524 Criteria	
BM12020140-10A	MW-14-3	AQ 01/31/12 09:26	10 0 9	Perchlorate	Cr	VOC by 524 Criteria	MS/MSD

Comments: Security seals intact. Frozen Ice Temp Blank #8539 received @ 3°C. Samples should be used as the control spike sample if possible (I.E. MS/MSD).

Logged in by: *Sara Lofer* Signature *Sara Lofer* Print Name Sara Lofer Company Alpha Analytical, Inc. Date/Time 2/1/12 10:37

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.
 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

CHAIN-OF-CUSTODY RECORD

CA

Alpha Analytical, Inc.

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

Work-Order : BMIS12020140

Report Due By : 5:00 PM On : 14-Feb-12

Client: Battelle Memorial Institute
 655 West Broadway
 Suite 1420
 San Diego, CA 92101

Report Attention Phone Number Email Address
 David Conner (619) 726-7311 x connerd@battelle.org
 Betsy Cutie (614) 424-4899 x cutiee@battelle.org
 Shane Walton (614) 424-4117 x waltonsh@battelle.org

EDD Required : Yes

Sampled by : David Loera, Chase Brogdon

PO : 287215

Cooler Temp Samples Received Date Printed
 3 °C 01-Feb-12 01-Feb-12

Client's COC # : 53783, 26615

Job : 100006114/JPL Groundwater Monitoring

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

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles Alpha Sub TAT	Requested Tests				Sample Remarks
				300_0_W	314_W	METALS_D W	VOC_BMI_T IC_W	
BM112020140-11A	MW-14-2	AQ 01/31/12 09:55	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020140-12A	MW-14-1	AQ 01/31/12 10:20	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020140-13A	EB-2-1/31/12	AQ 01/31/12 10:08	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020140-14A	TB-2-1/31/12	AQ 01/31/12 07:30	1 0 9			VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 10/14/11

Comments: Security seals intact. Frozen Ice Temp Blank #8539 received @ 3°C. Samples should be used as the control spike sample if possible (I.E. MS/MSD).

Logged in by: Sara Lettlee Signature: Sara Lettlee Print Name: Sara Lettlee Company: Alpha Analytical, Inc. Date/Time: 2/1/12 10:37

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. 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

Samples Collected From Which State?

AZ CA NV WA OR OTHER

DOD Site

Page # 1 of 1



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

Billing Information: Company Name Battelle

Address: 505 King Ave Columbus OH 43201 City, State, Zip Phone Number: 614 726-7311 Fax: 614 458-6641

Consultant / Client Name: David Conner Job #: 100006114 Job Name: SPL-BW-1012

Address: David Conner Report Attention / Project Manager Name: David Conner Email: connerd@battelle.com Phone: 614 726-7311

City, State, Zip: P.O. # 286479 Lab ID Number (Use Only): Office (Use Only):

Table with columns: Time Sampled, Date Sampled, Matrix, See Key Below, P.O. #, Lab ID Number, Sample Description, TAT, Field Filtered, # Containers, and REMARKS. Includes handwritten entries like 'VOC's (524.2)', 'Total Cr (200.8)', and 'Perchlorate (314.0) *300.0'.

ADDITIONAL INSTRUCTIONS: *Chloride, Nitrate, Nitrite, Orthophosphate, Sulfate

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Sampled By: David Esena

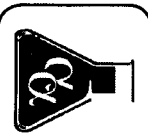
Signature and date fields for Relinquished by and Received by, including names like David Battelle and Alan Strasser.

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** - L-Liter V-Voa S-Soil Jar O-Orbo T-Teclar 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 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.

Billing Information:

Name BATTLE / GERALD TAMPERS
 Address 505 KING AVE
 City, State, Zip COLUMBUS, OH 43201
 Phone Number _____ Fax _____



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

Samples Collected From Which State? 26615
 AZ CA NV WA
 ID OR OTHER
 Page # 1 of 1

Analyses Required

Required QC Level?
 I II III IV

EDD / EDF? YES NO

Global ID #

REMARKS

Client Name	Address	City, State, Zip	PO #	Job #	Matrix*	Sampled by	Lab ID Number	Office (Use Only)	Repeat Attention	Sample Description	TAT	Field Filtered	Total and type of containers** See below	VOC (524.2)	Total Cr (200.8)	ClO ₄ ⁻ (314.0)	REMARKS	
BATTLE / DAVID	3990 3RD TOWN AVE, CANTON	CA 92113	286479	100006114	AA	CHASE BRADSTON			DAVID									
0829					AA					MW-14-5			4/way	X				
0532										MW-14-4			4/way	X				
0926										MW-14-3			10/way	X				
0955										MW-14-2			5/way	X				
1020										MW-14-1			5/way	X				
1008										EB-2-1	1/31/12		5/way	X				EDD.P. BLANK
0730										TB-2-1	1/31/12		1V	X				TRIP BLANK.

ADDITIONAL INSTRUCTIONS:

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	CHASE BRADSTON	INSIGHTS ETC, INC.	1/31/12	1506
<i>[Signature]</i>	CHASE BRADSTON	INSIGHTS ETC, INC.	1/31/12	1530
<i>[Signature]</i>	''	Alpha Analytical	1/31/12	1530
<i>[Signature]</i>	''	alpha analytical	2/1/12	10:04

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** - L-Liter V-Voa S-Soil Jar O-Orho 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 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.



Alpha Analytical, Inc.

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

Date: 13-Feb-12

David Conner
Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
(619) 726-7311

Suite 1420

CASE NARRATIVE

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)
Work Order: BMI12020240 Cooler Temp: 0 °C

Alpha's Sample ID	Client's Sample ID	Matrix
12020240-01A	MW-8	Aqueous
12020240-02A	MW-5	Aqueous
12020240-03A	MW-10	Aqueous
12020240-04A	MW-18-5	Aqueous
12020240-05A	MW-18-4	Aqueous
12020240-06A	MW-18-3	Aqueous
12020240-07A	MW-18-2	Aqueous
12020240-08A	EB-3-2/01/12	Aqueous
12020240-09A	TB-3-2/01/12	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.

Note : The final report format has been altered from the DOD QSM to meet client instructions.

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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 Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/02/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Anions by IC
EPA Method 300.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-8				
Lab ID: BM112020240-01A Chloride	7.7	0.50 mg/L	02/02/12 09:57	02/02/12 14:01
Date Sampled 02/01/12 09:00 Nitrite (NO2) - N	ND	0.25 mg/L	02/02/12 09:57	02/02/12 14:01
Nitrate (NO3) - N	0.42	0.25 mg/L	02/02/12 09:57	02/02/12 14:01
Phosphate, ortho - P	ND	0.50 mg/L	02/02/12 09:57	02/02/12 14:01
Sulfate (SO4)	22	0.50 mg/L	02/02/12 09:57	02/02/12 14:01

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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2/14/12

Report Date



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/02/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Perchlorate by Ion Chromatography EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-8 Lab ID : BMI12020240-01A Perchlorate Date Sampled 02/01/12 09:00	ND	1.00 µg/L	02/06/12 14:21	02/07/12 05:11
Client ID: MW-5 Lab ID : BMI12020240-02A Perchlorate Date Sampled 02/01/12 10:54	ND	1.00 µg/L	02/06/12 14:21	02/07/12 05:30
Client ID: MW-10 Lab ID : BMI12020240-03A Perchlorate Date Sampled 02/01/12 13:43	1.01	1.00 µg/L	02/06/12 14:21	02/07/12 05:48
Client ID: MW-18-5 Lab ID : BMI12020240-04A Perchlorate Date Sampled 02/01/12 08:38	ND	1.00 µg/L	02/06/12 14:21	02/07/12 06:06
Client ID: MW-18-4 Lab ID : BMI12020240-05A Perchlorate Date Sampled 02/01/12 09:15	16.5	1.00 µg/L	02/06/12 14:21	02/07/12 06:25
Client ID: MW-18-3 Lab ID : BMI12020240-06A Perchlorate Date Sampled 02/01/12 10:12	126	10.0 µg/L	02/06/12 14:21	02/07/12 09:54
Client ID: MW-18-2 Lab ID : BMI12020240-07A Perchlorate Date Sampled 02/01/12 10:40	ND	1.00 µg/L	02/06/12 14:21	02/07/12 07:02
Client ID: EB-3-2/01/12 Lab ID : BMI12020240-08A Perchlorate Date Sampled 02/01/12 10:29	ND	1.00 µg/L	02/06/12 14:21	02/07/12 07:20



Alpha Analytical, Inc.

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Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/14/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/02/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Metals by ICPMS
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-8 Lab ID: BM112020240-01A Chromium (Cr) Date Sampled 02/01/12 09:00	ND	0.0050 mg/L	02/06/12 14:46	02/07/12 20:54
Client ID: MW-5 Lab ID: BM112020240-02A Chromium (Cr) Date Sampled 02/01/12 10:54	ND	0.0050 mg/L	02/06/12 14:46	02/07/12 21:24
Client ID: MW-10 Lab ID: BM112020240-03A Chromium (Cr) Date Sampled 02/01/12 13:43	ND	0.0050 mg/L	02/06/12 14:46	02/07/12 21:31
Client ID: MW-18-4 Lab ID: BM112020240-05A Chromium (Cr) Date Sampled 02/01/12 09:15	ND	0.0050 mg/L	02/06/12 14:46	02/07/12 21:37
Client ID: MW-18-3 Lab ID: BM112020240-06A Chromium (Cr) Date Sampled 02/01/12 10:12	ND	0.0050 mg/L	02/06/12 14:46	02/07/12 21:43
Client ID: MW-18-2 Lab ID: BM112020240-07A Chromium (Cr) Date Sampled 02/01/12 10:40	ND	0.0050 mg/L	02/06/12 14:46	02/07/12 21:49
Client ID: EB-3-2/01/12 Lab ID: BM112020240-08A Chromium (Cr) Date Sampled 02/01/12 10:29	ND	0.0050 mg/L	02/06/12 14:46	02/07/12 21:55

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/14/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/02/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Special BMI TICs
EPA Method SW8260B

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed	
Client ID: MW-8					
Lab ID : BMI12020240-01A	Acrylonitrile	ND	10 µg/L	02/06/12 14:46	02/09/12 13:46
Date Sampled 02/01/12 09:00	Allyl chloride	ND	2.0 µg/L	02/06/12 14:46	02/09/12 13:46
	Carbon disulfide	ND	2.0 µg/L	02/06/12 14:46	02/09/12 13:46
	Chloroacetonitrile	ND	10 µg/L	02/06/12 14:46	02/09/12 13:46
	1-Chlorobutane	ND	2.0 µg/L	02/06/12 14:46	02/09/12 13:46
	1,1-Dichloropropanone	ND	10 µg/L	02/06/12 14:46	02/09/12 13:46
	Diethyl ether	ND	2.0 µg/L	02/06/12 14:46	02/09/12 13:46
	Ethyl methacrylate	ND	10 µg/L	02/06/12 14:46	02/09/12 13:46
	Hexachloroethane	ND	10 µg/L	02/06/12 14:46	02/09/12 13:46
	Methacrylonitrile	ND	10 µg/L	02/06/12 14:46	02/09/12 13:46
	Methyl acrylate	ND	10 µg/L	02/06/12 14:46	02/09/12 13:46
	Methyl iodide	ND	2.0 µg/L	02/06/12 14:46	02/09/12 13:46
	Methyl methacrylate	ND	10 µg/L	02/06/12 14:46	02/09/12 13:46
	Nitrobenzene	ND	10 µg/L	02/06/12 14:46	02/09/12 13:46
	2-Nitropropane	ND	2.0 µg/L	02/06/12 14:46	02/09/12 13:46
	Pentachloroethane	ND	2.0 µg/L	02/06/12 14:46	02/09/12 13:46
	Propionitrile	ND	50 µg/L	02/06/12 14:46	02/09/12 13:46
	Tetrahydrofuran	ND	10 µg/L	02/06/12 14:46	02/09/12 13:46
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/06/12 14:46	02/09/12 13:46
Client ID: MW-5					
Lab ID : BMI12020240-02A	Acrylonitrile	ND	10 µg/L	02/09/12 14:07	02/09/12 14:07
Date Sampled 02/01/12 10:54	Allyl chloride	ND	2.0 µg/L	02/09/12 14:07	02/09/12 14:07
	Carbon disulfide	ND	2.0 µg/L	02/09/12 14:07	02/09/12 14:07
	Chloroacetonitrile	ND	10 µg/L	02/09/12 14:07	02/09/12 14:07
	1-Chlorobutane	ND	2.0 µg/L	02/09/12 14:07	02/09/12 14:07
	1,1-Dichloropropanone	ND	10 µg/L	02/09/12 14:07	02/09/12 14:07
	Diethyl ether	ND	2.0 µg/L	02/09/12 14:07	02/09/12 14:07
	Ethyl methacrylate	ND	10 µg/L	02/09/12 14:07	02/09/12 14:07
	Hexachloroethane	ND	10 µg/L	02/09/12 14:07	02/09/12 14:07
	Methacrylonitrile	ND	10 µg/L	02/09/12 14:07	02/09/12 14:07
	Methyl acrylate	ND	10 µg/L	02/09/12 14:07	02/09/12 14:07
	Methyl iodide	ND	2.0 µg/L	02/09/12 14:07	02/09/12 14:07
	Methyl methacrylate	ND	10 µg/L	02/09/12 14:07	02/09/12 14:07
	Nitrobenzene	ND	10 µg/L	02/09/12 14:07	02/09/12 14:07
	2-Nitropropane	ND	2.0 µg/L	02/09/12 14:07	02/09/12 14:07
	Pentachloroethane	ND	2.0 µg/L	02/09/12 14:07	02/09/12 14:07
	Propionitrile	ND	50 µg/L	02/09/12 14:07	02/09/12 14:07
	Tetrahydrofuran	ND	10 µg/L	02/09/12 14:07	02/09/12 14:07
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/09/12 14:07	02/09/12 14:07



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Client ID: **MW-10**

Lab ID : BMI12020240-03A	Acrylonitrile	ND	10 µg/L	02/09/12 14:29	02/09/12 14:29
Date Sampled 02/01/12 13:43	Allyl chloride	ND	2.0 µg/L	02/09/12 14:29	02/09/12 14:29
	Carbon disulfide	ND	2.0 µg/L	02/09/12 14:29	02/09/12 14:29
	Chloroacetonitrile	ND	10 µg/L	02/09/12 14:29	02/09/12 14:29
	1-Chlorobutane	ND	2.0 µg/L	02/09/12 14:29	02/09/12 14:29
	1,1-Dichloropropanone	ND	10 µg/L	02/09/12 14:29	02/09/12 14:29
	Diethyl ether	ND	2.0 µg/L	02/09/12 14:29	02/09/12 14:29
	Ethyl methacrylate	ND	10 µg/L	02/09/12 14:29	02/09/12 14:29
	Hexachloroethane	ND	10 µg/L	02/09/12 14:29	02/09/12 14:29
	Methacrylonitrile	ND	10 µg/L	02/09/12 14:29	02/09/12 14:29
	Methyl acrylate	ND	10 µg/L	02/09/12 14:29	02/09/12 14:29
	Methyl iodide	ND	2.0 µg/L	02/09/12 14:29	02/09/12 14:29
	Methyl methacrylate	ND	10 µg/L	02/09/12 14:29	02/09/12 14:29
	Nitrobenzene	ND	10 µg/L	02/09/12 14:29	02/09/12 14:29
	2-Nitropropane	ND	2.0 µg/L	02/09/12 14:29	02/09/12 14:29
	Pentachloroethane	ND	2.0 µg/L	02/09/12 14:29	02/09/12 14:29
	Propionitrile	ND	50 µg/L	02/09/12 14:29	02/09/12 14:29
	Tetrahydrofuran	ND	10 µg/L	02/09/12 14:29	02/09/12 14:29
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/09/12 14:29	02/09/12 14:29

Client ID: **MW-18-5**

Lab ID : BMI12020240-04A	Acrylonitrile	ND	10 µg/L	02/09/12 14:51	02/09/12 14:51
Date Sampled 02/01/12 08:38	Allyl chloride	ND	2.0 µg/L	02/09/12 14:51	02/09/12 14:51
	Carbon disulfide	ND	2.0 µg/L	02/09/12 14:51	02/09/12 14:51
	Chloroacetonitrile	ND	10 µg/L	02/09/12 14:51	02/09/12 14:51
	1-Chlorobutane	ND	2.0 µg/L	02/09/12 14:51	02/09/12 14:51
	1,1-Dichloropropanone	ND	10 µg/L	02/09/12 14:51	02/09/12 14:51
	Diethyl ether	ND	2.0 µg/L	02/09/12 14:51	02/09/12 14:51
	Ethyl methacrylate	ND	10 µg/L	02/09/12 14:51	02/09/12 14:51
	Hexachloroethane	ND	10 µg/L	02/09/12 14:51	02/09/12 14:51
	Methacrylonitrile	ND	10 µg/L	02/09/12 14:51	02/09/12 14:51
	Methyl acrylate	ND	10 µg/L	02/09/12 14:51	02/09/12 14:51
	Methyl iodide	ND	2.0 µg/L	02/09/12 14:51	02/09/12 14:51
	Methyl methacrylate	ND	10 µg/L	02/09/12 14:51	02/09/12 14:51
	Nitrobenzene	ND	10 µg/L	02/09/12 14:51	02/09/12 14:51
	2-Nitropropane	ND	2.0 µg/L	02/09/12 14:51	02/09/12 14:51
	Pentachloroethane	ND	2.0 µg/L	02/09/12 14:51	02/09/12 14:51
	Propionitrile	ND	50 µg/L	02/09/12 14:51	02/09/12 14:51
	Tetrahydrofuran	ND	10 µg/L	02/09/12 14:51	02/09/12 14:51
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/09/12 14:51	02/09/12 14:51



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Client ID: MW-18-4

Lab ID : BMI12020240-05A	Acrylonitrile	ND	10 µg/L	02/09/12 15:13	02/09/12 15:13
Date Sampled 02/01/12 09:15	Allyl chloride	ND	2.0 µg/L	02/09/12 15:13	02/09/12 15:13
	Carbon disulfide	ND	2.0 µg/L	02/09/12 15:13	02/09/12 15:13
	Chloroacetonitrile	ND	10 µg/L	02/09/12 15:13	02/09/12 15:13
	1-Chlorobutane	ND	2.0 µg/L	02/09/12 15:13	02/09/12 15:13
	1,1-Dichloropropanone	ND	10 µg/L	02/09/12 15:13	02/09/12 15:13
	Diethyl ether	ND	2.0 µg/L	02/09/12 15:13	02/09/12 15:13
	Ethyl methacrylate	ND	10 µg/L	02/09/12 15:13	02/09/12 15:13
	Hexachloroethane	ND	10 µg/L	02/09/12 15:13	02/09/12 15:13
	Methacrylonitrile	ND	10 µg/L	02/09/12 15:13	02/09/12 15:13
	Methyl acrylate	ND	10 µg/L	02/09/12 15:13	02/09/12 15:13
	Methyl iodide	ND	2.0 µg/L	02/09/12 15:13	02/09/12 15:13
	Methyl methacrylate	ND	10 µg/L	02/09/12 15:13	02/09/12 15:13
	Nitrobenzene	ND	10 µg/L	02/09/12 15:13	02/09/12 15:13
	2-Nitropropane	ND	2.0 µg/L	02/09/12 15:13	02/09/12 15:13
	Pentachloroethane	ND	2.0 µg/L	02/09/12 15:13	02/09/12 15:13
	Propionitrile	ND	50 µg/L	02/09/12 15:13	02/09/12 15:13
	Tetrahydrofuran	ND	10 µg/L	02/09/12 15:13	02/09/12 15:13
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/09/12 15:13	02/09/12 15:13

Client ID: MW-18-3

Lab ID : BMI12020240-06A	Acrylonitrile	ND	10 µg/L	02/09/12 15:34	02/09/12 15:34
Date Sampled 02/01/12 10:12	Allyl chloride	ND	2.0 µg/L	02/09/12 15:34	02/09/12 15:34
	Carbon disulfide	ND	2.0 µg/L	02/09/12 15:34	02/09/12 15:34
	Chloroacetonitrile	ND	10 µg/L	02/09/12 15:34	02/09/12 15:34
	1-Chlorobutane	ND	2.0 µg/L	02/09/12 15:34	02/09/12 15:34
	1,1-Dichloropropanone	ND	10 µg/L	02/09/12 15:34	02/09/12 15:34
	Diethyl ether	ND	2.0 µg/L	02/09/12 15:34	02/09/12 15:34
	Ethyl methacrylate	ND	10 µg/L	02/09/12 15:34	02/09/12 15:34
	Hexachloroethane	ND	10 µg/L	02/09/12 15:34	02/09/12 15:34
	Methacrylonitrile	ND	10 µg/L	02/09/12 15:34	02/09/12 15:34
	Methyl acrylate	ND	10 µg/L	02/09/12 15:34	02/09/12 15:34
	Methyl iodide	ND	2.0 µg/L	02/09/12 15:34	02/09/12 15:34
	Methyl methacrylate	ND	10 µg/L	02/09/12 15:34	02/09/12 15:34
	Nitrobenzene	ND	10 µg/L	02/09/12 15:34	02/09/12 15:34
	2-Nitropropane	ND	2.0 µg/L	02/09/12 15:34	02/09/12 15:34
	Pentachloroethane	ND	2.0 µg/L	02/09/12 15:34	02/09/12 15:34
	Propionitrile	ND	50 µg/L	02/09/12 15:34	02/09/12 15:34
	Tetrahydrofuran	ND	10 µg/L	02/09/12 15:34	02/09/12 15:34
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/09/12 15:34	02/09/12 15:34



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Client ID: MW-18-2

Lab ID : BMI12020240-07A	Acrylonitrile	ND	10 µg/L	02/09/12 15:56	02/09/12 15:56
Date Sampled 02/01/12 10:40	Allyl chloride	ND	2.0 µg/L	02/09/12 15:56	02/09/12 15:56
	Carbon disulfide	ND	2.0 µg/L	02/09/12 15:56	02/09/12 15:56
	Chloroacetonitrile	ND	10 µg/L	02/09/12 15:56	02/09/12 15:56
	1-Chlorobutane	ND	2.0 µg/L	02/09/12 15:56	02/09/12 15:56
	1,1-Dichloropropanone	ND	10 µg/L	02/09/12 15:56	02/09/12 15:56
	Diethyl ether	ND	2.0 µg/L	02/09/12 15:56	02/09/12 15:56
	Ethyl methacrylate	ND	10 µg/L	02/09/12 15:56	02/09/12 15:56
	Hexachloroethane	ND	10 µg/L	02/09/12 15:56	02/09/12 15:56
	Methacrylonitrile	ND	10 µg/L	02/09/12 15:56	02/09/12 15:56
	Methyl acrylate	ND	10 µg/L	02/09/12 15:56	02/09/12 15:56
	Methyl iodide	ND	2.0 µg/L	02/09/12 15:56	02/09/12 15:56
	Methyl methacrylate	ND	10 µg/L	02/09/12 15:56	02/09/12 15:56
	Nitrobenzene	ND	10 µg/L	02/09/12 15:56	02/09/12 15:56
	2-Nitropropane	ND	2.0 µg/L	02/09/12 15:56	02/09/12 15:56
	Pentachloroethane	ND	2.0 µg/L	02/09/12 15:56	02/09/12 15:56
	Propionitrile	ND	50 µg/L	02/09/12 15:56	02/09/12 15:56
	Tetrahydrofuran	ND	10 µg/L	02/09/12 15:56	02/09/12 15:56
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/09/12 15:56	02/09/12 15:56

Client ID: EB-3-2/01/12

Lab ID : BMI12020240-08A	Acrylonitrile	ND	10 µg/L	02/09/12 16:18	02/09/12 16:18
Date Sampled 02/01/12 10:29	Allyl chloride	ND	2.0 µg/L	02/09/12 16:18	02/09/12 16:18
	Carbon disulfide	ND	2.0 µg/L	02/09/12 16:18	02/09/12 16:18
	Chloroacetonitrile	ND	10 µg/L	02/09/12 16:18	02/09/12 16:18
	1-Chlorobutane	ND	2.0 µg/L	02/09/12 16:18	02/09/12 16:18
	1,1-Dichloropropanone	ND	10 µg/L	02/09/12 16:18	02/09/12 16:18
	Diethyl ether	ND	2.0 µg/L	02/09/12 16:18	02/09/12 16:18
	Ethyl methacrylate	ND	10 µg/L	02/09/12 16:18	02/09/12 16:18
	Hexachloroethane	ND	10 µg/L	02/09/12 16:18	02/09/12 16:18
	Methacrylonitrile	ND	10 µg/L	02/09/12 16:18	02/09/12 16:18
	Methyl acrylate	ND	10 µg/L	02/09/12 16:18	02/09/12 16:18
	Methyl iodide	ND	2.0 µg/L	02/09/12 16:18	02/09/12 16:18
	Methyl methacrylate	ND	10 µg/L	02/09/12 16:18	02/09/12 16:18
	Nitrobenzene	ND	10 µg/L	02/09/12 16:18	02/09/12 16:18
	2-Nitropropane	ND	2.0 µg/L	02/09/12 16:18	02/09/12 16:18
	Pentachloroethane	ND	2.0 µg/L	02/09/12 16:18	02/09/12 16:18
	Propionitrile	ND	50 µg/L	02/09/12 16:18	02/09/12 16:18
	Tetrahydrofuran	ND	10 µg/L	02/09/12 16:18	02/09/12 16:18
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/09/12 16:18	02/09/12 16:18



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Client ID: TB-3-2/01/12

Lab ID : BM112020240-09A	Acrylonitrile	ND	10 µg/L	02/09/12 16:39	02/09/12 16:39
Date Sampled 02/01/12 07:30	Allyl chloride	ND	2.0 µg/L	02/09/12 16:39	02/09/12 16:39
	Carbon disulfide	ND	2.0 µg/L	02/09/12 16:39	02/09/12 16:39
	Chloroacetonitrile	ND	10 µg/L	02/09/12 16:39	02/09/12 16:39
	1-Chlorobutane	ND	2.0 µg/L	02/09/12 16:39	02/09/12 16:39
	1,1-Dichloropropanone	ND	10 µg/L	02/09/12 16:39	02/09/12 16:39
	Diethyl ether	ND	2.0 µg/L	02/09/12 16:39	02/09/12 16:39
	Ethyl methacrylate	ND	10 µg/L	02/09/12 16:39	02/09/12 16:39
	Hexachloroethane	ND	10 µg/L	02/09/12 16:39	02/09/12 16:39
	Methacrylonitrile	ND	10 µg/L	02/09/12 16:39	02/09/12 16:39
	Methyl acrylate	ND	10 µg/L	02/09/12 16:39	02/09/12 16:39
	Methyl iodide	ND	2.0 µg/L	02/09/12 16:39	02/09/12 16:39
	Methyl methacrylate	ND	10 µg/L	02/09/12 16:39	02/09/12 16:39
	Nitrobenzene	ND	10 µg/L	02/09/12 16:39	02/09/12 16:39
	2-Nitropropane	ND	2.0 µg/L	02/09/12 16:39	02/09/12 16:39
	Pentachloroethane	ND	2.0 µg/L	02/09/12 16:39	02/09/12 16:39
	Propionitrile	ND	50 µg/L	02/09/12 16:39	02/09/12 16:39
	Tetrahydrofuran	ND	10 µg/L	02/09/12 16:39	02/09/12 16:39
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/09/12 16:39	02/09/12 16:39

Information regarding the estimate of the uncertainty of measurement is available upon client request.

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/14/12

Report Date



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 10006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020240-01A
Client I.D. Number: MW-8

Sampled: 02/01/12 09:00
Received: 02/02/12
Extracted: 02/09/12 13:46
Analyzed: 02/09/12 13:46

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	106	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	101	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

PS
2/14/12

Report Date

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 10006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020240-02A
Client I.D. Number: MW-5

Sampled: 02/01/12 10:54
Received: 02/02/12
Extracted: 02/09/12 14:07
Analyzed: 02/09/12 14:07

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	109	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
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PJ
2/14/12

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Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 10006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020240-03A
Client I.D. Number: MW-10

Sampled: 02/01/12 13:43
Received: 02/02/12
Extracted: 02/09/12 14:29
Analyzed: 02/09/12 14:29

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	111	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020240-04A
Client I.D. Number: MW-18-5

Sampled: 02/01/12 08:38
Received: 02/02/12
Extracted: 02/09/12 14:51
Analyzed: 02/09/12 14:51

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	110	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	101	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020240-05A
Client I.D. Number: MW-18-4

Sampled: 02/01/12 09:15
Received: 02/02/12
Extracted: 02/09/12 15:13
Analyzed: 02/09/12 15:13

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	0.58	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	1.6	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	0.65	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	113	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Report Date

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020240-06A
Client I.D. Number: MW-18-3

Sampled: 02/01/12 10:12
Received: 02/02/12
Extracted: 02/09/12 15:34
Analyzed: 02/09/12 15:34

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	0.54	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	2.8	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	25	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	2.4	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	112	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	103	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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JS
2/14/12

Report Date

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Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 10006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020240-07A
Client I.D. Number: MW-18-2

Sampled: 02/01/12 10:40
Received: 02/02/12
Extracted: 02/09/12 15:56
Analyzed: 02/09/12 15:56

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	113	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	101	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/14/12

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020240-08A
Client I.D. Number: EB-3-2/01/12

Sampled: 02/01/12 10:29
Received: 02/02/12
Extracted: 02/09/12 16:18
Analyzed: 02/09/12 16:18

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethane	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	114	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/14/12

Report Date

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Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020240-09A
Client I.D. Number: TB-3-2/01/12

Sampled: 02/01/12 07:30
Received: 02/02/12
Extracted: 02/09/12 16:39
Analyzed: 02/09/12 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 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	115	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	101	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/14/12

Report Date

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Alpha Analytical, Inc.

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: BMI12020240

Job: 100006114/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12020240-01A	MW-8	Aqueous	2
12020240-02A	MW-5	Aqueous	2
12020240-03A	MW-10	Aqueous	2
12020240-04A	MW-18-5	Aqueous	2
12020240-05A	MW-18-4	Aqueous	2
12020240-06A	MW-18-3	Aqueous	2
12020240-07A	MW-18-2	Aqueous	2
12020240-08A	EB-3-2/01/12	Aqueous	2
12020240-09A	TB-3-2/01/12	Aqueous	2

2/14/12

Report Date

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Alpha Analytical, Inc.

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

Date:
14-Feb-12

QC Summary Report

Work Order:
12020240

Method Blank

Type: **MBLK** Test Code: **EPA Method 300.0**

File ID: **28**

Batch ID: **28129K**

Analysis Date: **02/02/2012 10:56**

Sample ID: **MB-28129**

Units : **mg/L**

Run ID: **IC_1_120202A**

Prep Date: **02/02/2012 09:57**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	ND	0.5								
Nitrite (NO2) - N	ND	0.25								
Nitrate (NO3) - N	ND	0.25								
Phosphate, ortho - P	ND	0.5								
Sulfate (SO4)	ND	0.5								

Laboratory Fortified Blank

Type: **LFB** Test Code: **EPA Method 300.0**

File ID: **29**

Batch ID: **28129K**

Analysis Date: **02/02/2012 11:15**

Sample ID: **LFB-28129**

Units : **mg/L**

Run ID: **IC_1_120202A**

Prep Date: **02/02/2012 09:57**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	48.9	0.5	50		98	90	110			
Nitrite (NO2) - N	5.46	0.25	5		109	90	110			
Nitrate (NO3) - N	5.37	0.25	5		107	90	110			
Phosphate, ortho - P	5.14	0.5	5		103	90	110			
Sulfate (SO4)	107	0.5	100		107	90	110			

Sample Matrix Spike

Type: **LFM** Test Code: **EPA Method 300.0**

File ID: **35**

Batch ID: **28129K**

Analysis Date: **02/02/2012 13:06**

Sample ID: **12020220-05ALFM**

Units : **mg/L**

Run ID: **IC_1_120202A**

Prep Date: **02/02/2012 09:57**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	327	1.3	250		89.93	95	90	110		
Nitrite (NO2) - N	28.6	0.63	25		0	114	90	110		M1
Nitrate (NO3) - N	27.6	0.63	25		0.4681	108	90	110		
Phosphate, ortho - P	25.7	1.3	25		0	103	90	110		
Sulfate (SO4)	539	1.3	500		48.71	98	90	110		

Sample Matrix Spike Duplicate

Type: **LFMD** Test Code: **EPA Method 300.0**

File ID: **36**

Batch ID: **28129K**

Analysis Date: **02/02/2012 13:24**

Sample ID: **12020220-05ALFMD**

Units : **mg/L**

Run ID: **IC_1_120202A**

Prep Date: **02/02/2012 09:57**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	331	1.3	250		89.93	96	90	110	327.4	1.1(15)
Nitrite (NO2) - N	28.8	0.63	25		0	115	90	110	28.56	1.0(15)
Nitrate (NO3) - N	27.9	0.63	25		0.4681	110	90	110	27.59	1.0(15)
Phosphate, ortho - P	27	1.3	25		0	108	90	110	25.67	4.9(15)
Sulfate (SO4)	544	1.3	500		48.71	99	90	110	539.2	0.9(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.

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.

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

Date:
14-Feb-12

QC Summary Report

Work Order:
12020240

Method Blank

Type: MBLK Test Code: EPA Method 314.0

File ID: 44

Batch ID: 28151K

Analysis Date: 02/06/2012 23:21

Sample ID: MB-28151

Units: µg/L

Run ID: IC_3_120206B

Prep Date: 02/06/2012 14:21

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

Laboratory Fortified Blank

Type: LFB Test Code: EPA Method 314.0

File ID: 45

Batch ID: 28151K

Analysis Date: 02/06/2012 23:40

Sample ID: LFB-28151

Units: µg/L

Run ID: IC_3_120206B

Prep Date: 02/06/2012 14:21

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	28.5	2	25		114	85	115			

Sample Matrix Spike

Type: LFM Test Code: EPA Method 314.0

File ID: 14

Batch ID: 28151K

Analysis Date: 02/14/2012 13:39

Sample ID: 12020140-10ALFM

Units: µg/L

Run ID: IC_3_120206B

Prep Date: 02/06/2012 14:21

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	34.4	2	25	6.387	112	85	115			

Sample Matrix Spike Duplicate

Type: LFMD Test Code: EPA Method 314.0

File ID: 15

Batch ID: 28151K

Analysis Date: 02/14/2012 13:58

Sample ID: 12020140-10ALFMD

Units: µg/L

Run ID: IC_3_120206B

Prep Date: 02/06/2012 14:21

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	35.1	2	25	6.387	115	85	115	34.41	1.9(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.



Alpha Analytical, Inc.

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

Date:
14-Feb-12

QC Summary Report

Work Order:
12020240

Method Blank

File ID: 020712.B\053_M.D\	Type: MBLK	Test Code: EPA Method 200.8	Batch ID: 28152K	Analysis Date: 02/07/2012 19:30
Sample ID: MB-28152	Units : mg/L	Run ID: ICP/MS_120207C	Prep Date: 02/06/2012 14:46	
Analyte	Result	PQL	SpkVal	SpkRefVal %REC LCL(ME) UCL(ME) RPDPRefVal %RPD(Limit) Qual
Chromium (Cr)	ND	0.005		

Laboratory Control Spike

File ID: 020712.B\054_M.D\	Type: LCS	Test Code: EPA Method 200.8	Batch ID: 28152K	Analysis Date: 02/07/2012 19:36
Sample ID: LCS-28152	Units : mg/L	Run ID: ICP/MS_120207C	Prep Date: 02/06/2012 14:46	
Analyte	Result	PQL	SpkVal	SpkRefVal %REC LCL(ME) UCL(ME) RPDPRefVal %RPD(Limit) Qual
Chromium (Cr)	0.05	0.005	0.05	100 85 115

Sample Matrix Spike

File ID: 020712.B\059_M.D\	Type: MS	Test Code: EPA Method 200.8	Batch ID: 28152K	Analysis Date: 02/07/2012 20:06
Sample ID: 12020341-03AMS	Units : mg/L	Run ID: ICP/MS_120207C	Prep Date: 02/06/2012 14:46	
Analyte	Result	PQL	SpkVal	SpkRefVal %REC LCL(ME) UCL(ME) RPDPRefVal %RPD(Limit) Qual
Chromium (Cr)	0.0472	0.005	0.05	0 94 70 130

Sample Matrix Spike Duplicate

File ID: 020712.B\060_M.D\	Type: MSD	Test Code: EPA Method 200.8	Batch ID: 28152K	Analysis Date: 02/07/2012 20:12
Sample ID: 12020341-03AMSD	Units : mg/L	Run ID: ICP/MS_120207C	Prep Date: 02/06/2012 14:46	
Analyte	Result	PQL	SpkVal	SpkRefVal %REC LCL(ME) UCL(ME) RPDPRefVal %RPD(Limit) Qual
Chromium (Cr)	0.05	0.005	0.05	0 100 70 130 0.04724 5.7(20)

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



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Date:

13-Feb-12

QC Summary Report

Work Order:

12020240

Surr: 1,2-Dichloroethane-d4	10.2	10	102	70	130
Surr: Toluene-d8	10.1	10	101	70	130
Surr: 4-Bromofluorobenzene	10.2	10	102	70	130



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Date:
13-Feb-12

QC Summary Report

Work Order:
12020240

Laboratory Control Spike

Type **LCS**

Test Code: **EPA Method SW8260B**

File ID: **12020903.D**

Batch ID: **MS15W0209M**

Analysis Date: **02/09/2012 09:55**

Sample ID: **LCS MS15W0209M**

Units : **µg/L**

Run ID: **MSD_15_120209A**

Prep Date: **02/09/2012 09:55**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	8.74	1	10		87	70	130			
Chloromethane	8.88	2	10		89	70	130			
Vinyl chloride	10.4	1	10		104	70	130			
Chloroethane	11.3	1	10		113	70	130			
Bromomethane	11.3	2	10		113	70	130			
Trichlorofluoromethane	13.1	1	10		131	70	130(130)			L51
Acetone	186	10	200		93	36	171			
1,1-Dichloroethene	9.74	1	10		97	70	130			
Dichloromethane	9.28	2	10		93	70	130			
Freon-113	10.5	1	10		105	70	137			
trans-1,2-Dichloroethene	10.2	1	10		102	70	130			
Methyl tert-butyl ether (MTBE)	9.96	0.5	10		99.6	70	130			
1,1-Dichloroethane	10.5	1	10		105	70	130			
2-Butanone (MEK)	185	10	200		92	70	130			
cis-1,2-Dichloroethene	10.4	1	10		104	70	130			
Bromochloromethane	10.5	1	10		105	70	130			
Chloroform	11	1	10		110	70	130			
2,2-Dichloropropane	11.9	1	10		119	70	130			
1,2-Dichloroethane	11.5	1	10		115	70	130			
1,1,1-Trichloroethane	12.2	1	10		122	70	130			
1,1-Dichloropropene	11.3	1	10		113	70	130			
Carbon tetrachloride	11.2	1	10		112	70	130			
Benzene	9.83	0.5	10		98	70	130			
Dibromomethane	10.6	1	10		106	70	130			
1,2-Dichloropropane	10	1	10		100	70	130			
Trichloroethene	10.5	1	10		105	70	130			
Bromodichloromethane	10.8	1	10		108	70	130			
4-Methyl-2-pentanone (MIBK)	23.6	2.5	25		94	20	182			
cis-1,3-Dichloropropene	9.74	1	10		97	70	130			
trans-1,3-Dichloropropene	9.83	1	10		98	70	130			
1,1,2-Trichloroethane	10.2	1	10		102	70	130			
Toluene	9.54	0.5	10		95	70	130			
1,3-Dichloropropane	9.33	1	10		93	70	130			
2-Hexanone	91.3	5	100		91	20	182			
Dibromochloromethane	9.92	1	10		99	70	130			
1,2-Dibromoethane (EDB)	18.8	2	20		94	70	130			
Tetrachloroethene	10.4	1	10		104	70	130			
1,1,1,2-Tetrachloroethane	10.3	1	10		103	70	130			
Chlorobenzene	9.87	1	10		99	70	130			
Ethylbenzene	10.2	0.5	10		102	70	130			
m,p-Xylene	10.3	0.5	10		103	70	130			
Bromoform	9.64	1	10		96	70	130			
Styrene	8.4	1	10		84	70	130			
o-Xylene	10.2	0.5	10		102	70	130			
1,1,2,2-Tetrachloroethane	9.64	1	10		96	70	130			
1,2,3-Trichloropropane	21.5	2	20		107	70	130			
Isopropylbenzene	10.4	1	10		104	70	130			
Bromobenzene	10.3	1	10		103	70	130			
n-Propylbenzene	10.3	1	10		103	70	130			
4-Chlorotoluene	10.1	1	10		101	70	130			
2-Chlorotoluene	10	1	10		100	70	130			
1,3,5-Trimethylbenzene	10.6	1	10		106	70	130			
tert-Butylbenzene	10.5	1	10		105	70	130			
1,2,4-Trimethylbenzene	10.8	1	10		108	70	130			
sec-Butylbenzene	10.2	1	10		102	70	130			
1,3-Dichlorobenzene	10.6	1	10		106	70	130			
1,4-Dichlorobenzene	10.1	1	10		101	70	130			
4-Isopropyltoluene	10.6	1	10		106	70	130			
1,2-Dichlorobenzene	9.89	1	10		99	70	130			
n-Butylbenzene	10.2	1	10		102	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	48.3	3	50		97	67	130			
1,2,4-Trichlorobenzene	9.35	2	10		94	70	130			
Naphthalene	7.69	2	10		77	70	130			
Hexachlorobutadiene	21.1	2	20		106	70	130			
1,2,3-Trichlorobenzene	7.92	2	10		79	70	130			



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Date:

13-Feb-12

QC Summary Report

Work Order:

12020240

Surr: 1,2-Dichloroethane-d4	11.6	10	116	70	130
Surr: Toluene-d8	9.62	10	96	70	130
Surr: 4-Bromofluorobenzene	10.2	10	102	70	130



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Date:

13-Feb-12

QC Summary Report

Work Order:

12020240

Sample Matrix Spike

File ID: 12020907.D

Type MS

Test Code: EPA Method SW8260B

Sample ID: 12020240-01AMS

Units: µg/L

Batch ID: MS15W0209M

Analysis Date: 02/09/2012 13:02

Analyte	Result	PQL	Run ID: MSD_15_120209A	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	34.2	2.5	50	0	68	21	138			
Chloromethane	38.3	10	50	0	77	23	144			
Vinyl chloride	44.9	2.5	50	0	90	49	136			
Chloroethane	50.2	2.5	50	0	100	21	159			
Bromomethane	46.4	10	50	0	93	10	174			
Trichlorofluoromethane	57.6	2.5	50	0	115	32	154			
Acetone	444	50	1000	0	44	10	171			
1,1-Dichloroethene	45.1	2.5	50	0	90	64	130			
Dichloromethane	44	10	50	0	88	69	130			
Freon-113	48.6	2.5	50	0	97	55	141			
trans-1,2-Dichloroethene	47.5	2.5	50	0	95	63	130			
Methyl tert-butyl ether (MTBE)	46	1.3	50	0	92	47	150			
1,1-Dichloroethane	49.2	2.5	50	0	98	66	130			
2-Butanone (MEK)	671	50	1000	0	67	23	182			
cis-1,2-Dichloroethene	47.7	2.5	50	0	95	70	130			
Bromochloromethane	48.6	2.5	50	0	97	70	132			
Chloroform	50.1	2.5	50	0	100	70	130			
2,2-Dichloropropane	52.7	2.5	50	0	105	38	154			
1,2-Dichloroethane	52.7	2.5	50	0	105	65	134			
1,1,1-Trichloroethane	56.8	2.5	50	0	114	65	136			
1,1-Dichloropropene	52.2	2.5	50	0	104	68	132			
Carbon tetrachloride	52.4	2.5	50	0	105	58	148			
Benzene	46.3	1.3	50	0	93	59	138			
Dibromomethane	49.6	2.5	50	0	99	70	130			
1,2-Dichloropropane	47.2	2.5	50	0	94	70	131			
Trichloroethene	49.1	2.5	50	0	98	65	144			
Bromodichloromethane	49.9	2.5	50	0	99.8	50	157			
4-Methyl-2-pentanone (MIBK)	110	13	125	0	88	20	182			
cis-1,3-Dichloropropene	44.7	2.5	50	0	89	63	131			
trans-1,3-Dichloropropene	44.8	2.5	50	0	90	65	136			
1,1,2-Trichloroethane	48.4	2.5	50	0	97	70	131			
Toluene	44.2	1.3	50	0	88	68	130			
1,3-Dichloropropane	43.2	2.5	50	0	86	70	130			
2-Hexanone	302	25	500	0	60	20	182			
Dibromochloromethane	45.4	2.5	50	0	91	42	155			
1,2-Dibromoethane (EDB)	88.3	5	100	0	88	70	130			
Tetrachloroethene	48.9	2.5	50	0	98	65	130			
1,1,1,2-Tetrachloroethane	48.4	2.5	50	0	97	70	130			
Chlorobenzene	46.2	2.5	50	0	92	70	130			
Ethylbenzene	47.4	1.3	50	0	95	68	130			
m,p-Xylene	47.8	1.3	50	0	96	68	131			
Bromoform	45.6	2.5	50	0	91	65	143			
Styrene	39.5	2.5	50	0	79	59	153			
o-Xylene	48.5	1.3	50	0	97	70	130			
1,1,2,2-Tetrachloroethane	45.8	2.5	50	0	92	67	130			
1,2,3-Trichloropropane	101	10	100	0	101	70	130			
Isopropylbenzene	48	2.5	50	0	96	55	138			
Bromobenzene	47.8	2.5	50	0	96	70	130			
n-Propylbenzene	47.7	2.5	50	0	95	67	133			
4-Chlorotoluene	46.7	2.5	50	0	93	70	130			
2-Chlorotoluene	46.6	2.5	50	0	93	70	130			
1,3,5-Trimethylbenzene	49.3	2.5	50	0	99	67	134			
tert-Butylbenzene	48.6	2.5	50	0	97	55	147			
1,2,4-Trimethylbenzene	49.9	2.5	50	0	99.8	65	135			
sec-Butylbenzene	48.4	2.5	50	0	97	68	135			
1,3-Dichlorobenzene	49.5	2.5	50	0	99	70	130			
1,4-Dichlorobenzene	46.3	2.5	50	0	93	70	130			
4-Isopropyltoluene	49.5	2.5	50	0	99	68	132			
1,2-Dichlorobenzene	45.4	2.5	50	0	91	70	130			
n-Butylbenzene	47.2	2.5	50	0	94	62	134			
1,2-Dibromo-3-chloropropane (DBCP)	229	15	250	0	92	64	130			
1,2,4-Trichlorobenzene	43.8	10	50	0	88	62	133			
Naphthalene	38.7	10	50	0	77	32	166			
Hexachlorobutadiene	96.6	10	100	0	97	63	130			
1,2,3-Trichlorobenzene	38.9	10	50	0	78	55	138			



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Date:

13-Feb-12

QC Summary Report

Work Order:

12020240

Surr: 1,2-Dichloroethane-d4	57	50	114	70	130
Surr: Toluene-d8	47.8	50	96	70	130
Surr: 4-Bromofluorobenzene	50.6	50	101	70	130



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Date:
13-Feb-12

QC Summary Report

Work Order:
12020240

Sample Matrix Spike Duplicate

Type **MSD** Test Code: **EPA Method SW8260B**

File ID: **12020908.D**

Batch ID: **MS15W0209M**

Analysis Date: **02/09/2012 13:24**

Sample ID: **12020240-01AMSD**

Units: **µg/L**

Run ID: **MSD_15_120209A**

Prep Date: **02/09/2012 13:24**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	34.3	2.5	50	0	69	21	138	34.21	0.2(33)	
Chloromethane	40.9	10	50	0	82	23	144	38.27	6.6(27)	
Vinyl chloride	46	2.5	50	0	92	49	136	44.89	2.4(21)	
Chloroethane	50.3	2.5	50	0	101	21	159	50.19	0.3(40)	
Bromomethane	44.4	10	50	0	89	10	174	46.35	4.2(40)	
Trichlorofluoromethane	54	2.5	50	0	108	32	154	57.57	6.4(37)	
Acetone	512	50	1000	0	51	10	171	444	14.2(23)	
1,1-Dichloroethene	45.6	2.5	50	0	91	64	130	45.08	1.0(21)	
Dichloromethane	45.4	10	50	0	91	69	130	43.96	3.2(20)	
Freon-113	48.3	2.5	50	0	97	55	141	48.64	0.7(40)	
trans-1,2-Dichloroethene	48.5	2.5	50	0	97	63	130	47.53	2.0(20)	
Methyl tert-butyl ether (MTBE)	51.2	1.3	50	0	102	47	150	45.98	10.8(40)	
1,1-Dichloroethane	50	2.5	50	0	99.9	66	130	49.17	1.6(20)	
2-Butanone (MEK)	705	50	1000	0	71	23	182	670.9	5.0(22)	
cis-1,2-Dichloroethene	48.5	2.5	50	0	97	70	130	47.65	1.8(20)	
Bromochloromethane	51.1	2.5	50	0	102	70	132	48.64	5.0(20)	
Chloroform	50.1	2.5	50	0	100	70	130	50.05	0.1(20)	
2,2-Dichloropropane	53.5	2.5	50	0	107	38	154	52.71	1.5(22)	
1,2-Dichloroethane	54.4	2.5	50	0	109	65	134	52.68	3.3(20)	
1,1,1-Trichloroethane	56.4	2.5	50	0	113	65	136	56.8	0.7(20)	
1,1-Dichloropropene	52.2	2.5	50	0	104	68	132	52.15	0.1(20)	
Carbon tetrachloride	52	2.5	50	0	104	58	148	52.39	0.7(20)	
Benzene	47.1	1.3	50	0	94	59	138	46.27	1.7(21)	
Dibromomethane	51.4	2.5	50	0	103	70	130	49.55	3.7(20)	
1,2-Dichloropropane	48.3	2.5	50	0	97	70	131	47.22	2.2(20)	
Trichloroethene	49.4	2.5	50	0	99	65	144	49.07	0.8(20)	
Bromodichloromethane	51.2	2.5	50	0	102	50	157	49.92	2.5(20)	
4-Methyl-2-pentanone (MIBK)	119	13	125	0	95	20	182	110	8.1(20)	
cis-1,3-Dichloropropene	46.3	2.5	50	0	93	63	131	44.65	3.6(20)	
trans-1,3-Dichloropropene	47.3	2.5	50	0	95	65	136	44.83	5.3(20)	
1,1,2-Trichloroethane	50.4	2.5	50	0	101	70	131	48.35	4.2(20)	
Toluene	45.4	1.3	50	0	91	68	130	44.2	2.6(20)	
1,3-Dichloropropane	46.8	2.5	50	0	94	70	130	43.24	7.9(20)	
2-Hexanone	339	25	500	0	68	20	182	302.5	11.4(20)	
Dibromochloromethane	48.7	2.5	50	0	97	42	155	45.38	7.1(20)	
1,2-Dibromoethane (EDB)	95.1	5	100	0	95	70	130	88.25	7.4(20)	
Tetrachloroethene	49.3	2.5	50	0	99	65	130	48.87	0.9(20)	
1,1,1,2-Tetrachloroethane	48.8	2.5	50	0	98	70	130	48.36	0.9(20)	
Chlorobenzene	46.7	2.5	50	0	93	70	130	46.17	1.2(20)	
Ethylbenzene	47.8	1.3	50	0	96	68	130	47.36	0.8(20)	
m,p-Xylene	47.5	1.3	50	0	95	68	131	47.84	0.7(20)	
Bromoform	48.3	2.5	50	0	97	65	143	45.61	5.7(20)	
Styrene	39.9	2.5	50	0	80	59	153	39.54	0.8(37)	
o-Xylene	48.5	1.3	50	0	97	70	130	48.47	0.0(20)	
1,1,2,2-Tetrachloroethane	49.8	2.5	50	0	99.7	67	130	45.81	8.4(20)	
1,2,3-Trichloropropane	106	10	100	0	106	70	130	101.3	4.3(20)	
Isopropylbenzene	48	2.5	50	0	96	55	138	48.03	0.0(20)	
Bromobenzene	49.3	2.5	50	0	99	70	130	47.77	3.1(20)	
n-Propylbenzene	47.7	2.5	50	0	95	67	133	47.66	0.0(30)	
4-Chlorotoluene	48	2.5	50	0	96	70	130	46.66	2.8(20)	
2-Chlorotoluene	46.6	2.5	50	0	93	70	130	46.63	0.1(20)	
1,3,5-Trimethylbenzene	49	2.5	50	0	98	67	134	49.29	0.6(21)	
tert-Butylbenzene	48.5	2.5	50	0	97	55	147	48.56	0.2(20)	
1,2,4-Trimethylbenzene	49.9	2.5	50	0	99.7	65	135	49.9	0.1(25)	
sec-Butylbenzene	47.8	2.5	50	0	96	68	135	48.4	1.4(20)	
1,3-Dichlorobenzene	50.1	2.5	50	0	100	70	130	49.54	1.1(20)	
1,4-Dichlorobenzene	47.5	2.5	50	0	95	70	130	46.31	2.5(20)	
4-Isopropyltoluene	49.4	2.5	50	0	99	68	132	49.52	0.2(20)	
1,2-Dichlorobenzene	47.4	2.5	50	0	95	70	130	45.39	4.3(20)	
n-Butylbenzene	48	2.5	50	0	96	62	134	47.22	1.6(21)	
1,2-Dibromo-3-chloropropane (DBCP)	254	15	250	0	102	64	130	229.1	10.2(20)	
1,2,4-Trichlorobenzene	49.4	10	50	0	99	62	133	43.79	12.0(29)	
Naphthalene	49.4	10	50	0	99	32	166	38.68	24.4(40)	
Hexachlorobutadiene	104	10	100	0	104	63	130	96.63	7.6(21)	
1,2,3-Trichlorobenzene	49.5	10	50	0	99	55	138	38.87	24.0(36)	



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Date:

13-Feb-12

QC Summary Report

Work Order:

12020240

Surr: 1,2-Dichloroethane-d4	57.6	50	115	70	130
Surr: Toluene-d8	48.7	50	97	70	130
Surr: 4-Bromofluorobenzene	51.5	50	103	70	130

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

CA

Alpha Analytical, Inc.

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

WorkOrder : BMIS12020240
Report Due By : 5:00 PM On : 15-Feb-12

Client: Battelle Memorial Institute
655 West Broadway
Suite 1420
San Diego, CA 92101

Report Attention Phone Number Email Address
David Conner (619) 726-7311 x connerd@battelle.org
Betsy Cutie (614) 424-4899 x cutiee@battelle.org
Shane Walton (614) 424-4117 x waltonss@battelle.org

EDD Required : Yes

Sampled by : David Loera, Chase Brogdon

PO : 287215
Client's COC # : 53784, 28945

Job : 100006114/JPL Groundwater Monitoring

Cooler Temp 0 °C Samples Received 02-Feb-12 Date Printed 02-Feb-12

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

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles Alpha Sub	TAT	Requested Tests				Sample Remarks	
					300_0_W	314_W	METALS_D W	VOC_BMI_T IC_W		VOC_W
BM112020240-01A	MMW-8	AQ 02/01/12 09:00	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020240-02A	MMW-5	AQ 02/01/12 10:54	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020240-03A	MMW-10	AQ 02/01/12 13:43	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020240-04A	MMW-18-5	AQ 02/01/12 08:38	4	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020240-05A	MMW-18-4	AQ 02/01/12 09:15	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020240-06A	MMW-18-3	AQ 02/01/12 10:12	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020240-07A	MMW-18-2	AQ 02/01/12 10:40	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020240-08A	EB-3-2/01/12	AQ 02/01/12 10:29	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020240-09A	TB-3-2/01/12	AQ 02/01/12 07:30	1	0	9			VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 10/14/11

Comments: Security seals intact. Frozen ice. Temp Blank #7684 received @ 0°C. Samples should be used as the control spike sample if possible (I.E. MS/MSD). PO# logged in per client notes.

Logged in by: *Sara Loffe* Signature *Sara Loffe* Print Name Sara Loffe Company Alpha Analytical, Inc. Date/Time afajja 11:04

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.
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-Otbo T-Tedar B-Brass P-Plastic OT-Other

Billing Information:
 Company Name Battelle
 Attn: 505 Kings Ave
 Address Columbus OH 43201
 City, State, Zip 619 726-7311 Fax 614 458-6641
 Phone Number



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

Samples Collected From Which State?
 AZ CA NV WA
 ID OR OTHER
 Page # 1 of 1

Consultant / Client Name David Conner
 Address
 City, State, Zip

Job # 100006114 Job Name SPL-610-1012
 Report Attention / Project Manager David Conner

Name: David Conner
 Email: dconner@battelle.com
 Phone: 614 726-7311 Mobile: 614 458-6641

Time Sampled 3/12 Matrix* AD PO # 286479
 Sampled 3/12 See Key Below Lab ID Number (Use Only) 001A

1054 AD 001A MMW-8 1D 3V 2P X X X
1343 AD 001A MMW-5 1D 3V 2P X X X
1343 AD 001A MMW-10 1D 3V 2P X X X

Analyses Required
VOCs (524.2)
Total Cr (200.8)
Perchlorate (314.0)
*300.0

Data Validation Level: III or IV
 EDD / ED? YES NO
 Global ID # _____
 REMARKS

Time Sampled	Matrix*	PO #	Lab ID Number (Use Only)	Sample Description	TAT	Field Filtered	# Containers**	Analysis	Remarks
0900 3/12	AD	BMT1A0840-D1A		MMW-8	1D		3V 2P	X	
1054 3/12	AD	001A		MMW-5	1D		3V 2P	X	
1343 3/12	AD	001A		MMW-10	1D		3V 2P	X	
				LAB					
				USE					
				ONLY					

ADDITIONAL INSTRUCTIONS: *Chloride, Nitrate, Nitrite, Orthophosphate, Sulfate

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Sampled By: David Conner

Relinquished by: (Signature/Affiliation)	Received by: (Signature/Affiliation)	Date:	Time:
<u>David Conner / Battelle</u>	<u>David Conner</u>	<u>2-1-12</u>	<u>1430</u>
<u>David Conner / Battelle</u>	<u>David Conner</u>	<u>2-1-12</u>	<u>1510</u>
<u>David Conner / Battelle</u>	<u>David Conner</u>	<u>2/2/12</u>	<u>11:00</u>

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** L-Liter V-Voa S-Soil Jar O-Orto T-Teclar 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 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.

Billing Information:

Name BATTLE / GENARO TOMPKINS
 Address 505 KING AVE
 City, State, Zip COLUMBUS, OH 43201
 Phone Number _____ Fax _____



Alpha Analytical, Inc.
 255 Glendale Avenue, Suite 21
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Samples Collected From Which State? **28945**
 AZ CA NV WA
 ID OR OTHER
 Page # 1 of 1

Analyses Required

Required QC Level?
 I II **III** IV

EDD / EDF? YES NO

Global ID #

REMARKS

Client Name	Address	City, State, Zip	Phone #	Fax #	Job #	Report Attention	Sample Description	TAT	Field Filtered	Total and Type of containers ** See below	Analysis	Remarks
BATTLE / DAVID	3990 OLD TOWN AVE, C-205	CA 92110	(619) 726-7311	(619) 458-8614	150006114	DAVID	MW-18-5	ASGM			VOC (524.2)	
							MW-18-4				TOTAL (200.8)	
							MW-18-3				CIOL (314.0)	
							MW-18-2					
							ER-3-2 / 01/12					EDUP BLOW
							TB-3-2 / 01/12					TRAP BLOW

ADDITIONAL INSTRUCTIONS:

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	CHRIS BRADSON	INSIGHT SEC, INC	2/01/12	1510
<i>[Signature]</i>	CHRIS BRADSON Anthony Stark	Alpha Analytical	2/1/12	1510
<i>[Signature]</i>	Anthony Stark	Alpha Analytical	2/1/12	1510
<i>[Signature]</i>	Surchoffe	Alpha Analytical	2/2/12	11:00

*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 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.



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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 15-Feb-12

David Conner
Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
(619) 726-7311

Suite 1420

CASE NARRATIVE

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Work Order: BMI12020341 Cooler Temp: 0 °C

Alpha's Sample ID	Client's Sample ID	Matrix
12020341-01A	MW-17-4	Aqueous
12020341-02A	MW-17-3	Aqueous
12020341-03A	MW-17-2	Aqueous
12020341-04A	EB-4-2/2/12	Aqueous
12020341-05A	TB-4-2/2/12	Aqueous

Manually Integrated Analytes

<u>Alpha's Sample ID</u>	<u>Test Reference</u>	<u>Analyte</u>
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.

Note : The final report format has been altered from the DOD QSM to meet client instructions.

Roger Scholl

Randy Gardner

Walter Hinchman

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/03/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Perchlorate by Ion Chromatography
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-17-4 Lab ID : BMII2020341-01A Perchlorate Date Sampled 02/02/12 09:01	1.81	1.00 µg/L	02/06/12 13:47	02/06/12 20:54
Client ID: MW-17-3 Lab ID : BMII2020341-02A Perchlorate Date Sampled 02/02/12 09:35	7.27	1.00 µg/L	02/06/12 13:47	02/06/12 21:13
Client ID: MW-17-2 Lab ID : BMII2020341-03A Perchlorate Date Sampled 02/02/12 10:25	90.1	1.00 µg/L	02/06/12 13:47	02/06/12 21:31
Client ID: EB-4-2/2/12 Lab ID : BMII2020341-04A Perchlorate Date Sampled 02/02/12 10:15	ND	1.00 µg/L	02/06/12 13:47	02/06/12 21:49

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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2/15/12

Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/03/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Metals by ICPMS
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-17-4				
Lab ID : BMI12020341-01A Chromium (Cr) Date Sampled 02/02/12 09:01	ND	0.0050 mg/L	02/06/12 14:46	02/07/12 20:24
Client ID: MW-17-3				
Lab ID : BMI12020341-02A Chromium (Cr) Date Sampled 02/02/12 09:35	ND	0.0050 mg/L	02/06/12 14:46	02/07/12 20:30
Client ID: MW-17-2				
Lab ID : BMI12020341-03A Chromium (Cr) Date Sampled 02/02/12 10:25	ND	0.0050 mg/L	02/06/12 14:46	02/07/12 20:00
Client ID: EB-4-2/2/12				
Lab ID : BMI12020341-04A Chromium (Cr) Date Sampled 02/02/12 10:15	ND	0.0050 mg/L	02/06/12 14:46	02/07/12 20:36

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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RJ
2/15/12

Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/03/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Special BMI TICs
EPA Method SW8260B

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed	
Client ID: MW-17-4					
Lab ID : BM112020341-01A	Acrylonitrile	ND	10 µg/L	02/08/12 16:52	02/08/12 16:52
Date Sampled 02/02/12 09:01	Allyl chloride	ND	2.0 µg/L	02/08/12 16:52	02/08/12 16:52
	Carbon disulfide	ND	2.0 µg/L	02/08/12 16:52	02/08/12 16:52
	Chloroacetonitrile	ND	10 µg/L	02/08/12 16:52	02/08/12 16:52
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 16:52	02/08/12 16:52
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 16:52	02/08/12 16:52
	Diethyl ether	ND	2.0 µg/L	02/08/12 16:52	02/08/12 16:52
	Ethyl methacrylate	ND	10 µg/L	02/08/12 16:52	02/08/12 16:52
	Hexachloroethane	ND	10 µg/L	02/08/12 16:52	02/08/12 16:52
	Methacrylonitrile	ND	10 µg/L	02/08/12 16:52	02/08/12 16:52
	Methyl acrylate	ND	10 µg/L	02/08/12 16:52	02/08/12 16:52
	Methyl iodide	ND	2.0 µg/L	02/08/12 16:52	02/08/12 16:52
	Methyl methacrylate	ND	10 µg/L	02/08/12 16:52	02/08/12 16:52
	Nitrobenzene	ND	10 µg/L	02/08/12 16:52	02/08/12 16:52
	2-Nitropropane	ND	2.0 µg/L	02/08/12 16:52	02/08/12 16:52
	Pentachloroethane	ND	2.0 µg/L	02/08/12 16:52	02/08/12 16:52
	Propionitrile	ND	50 µg/L	02/08/12 16:52	02/08/12 16:52
	Tetrahydrofuran	ND	10 µg/L	02/08/12 16:52	02/08/12 16:52
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 16:52	02/08/12 16:52
Client ID: MW-17-3					
Lab ID : BM112020341-02A	Acrylonitrile	ND	10 µg/L	02/08/12 17:13	02/08/12 17:13
Date Sampled 02/02/12 09:35	Allyl chloride	ND	2.0 µg/L	02/08/12 17:13	02/08/12 17:13
	Carbon disulfide	ND	2.0 µg/L	02/08/12 17:13	02/08/12 17:13
	Chloroacetonitrile	ND	10 µg/L	02/08/12 17:13	02/08/12 17:13
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 17:13	02/08/12 17:13
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 17:13	02/08/12 17:13
	Diethyl ether	ND	2.0 µg/L	02/08/12 17:13	02/08/12 17:13
	Ethyl methacrylate	ND	10 µg/L	02/08/12 17:13	02/08/12 17:13
	Hexachloroethane	ND	10 µg/L	02/08/12 17:13	02/08/12 17:13
	Methacrylonitrile	ND	10 µg/L	02/08/12 17:13	02/08/12 17:13
	Methyl acrylate	ND	10 µg/L	02/08/12 17:13	02/08/12 17:13
	Methyl iodide	ND	2.0 µg/L	02/08/12 17:13	02/08/12 17:13
	Methyl methacrylate	ND	10 µg/L	02/08/12 17:13	02/08/12 17:13
	Nitrobenzene	ND	10 µg/L	02/08/12 17:13	02/08/12 17:13
	2-Nitropropane	ND	2.0 µg/L	02/08/12 17:13	02/08/12 17:13
	Pentachloroethane	ND	2.0 µg/L	02/08/12 17:13	02/08/12 17:13
	Propionitrile	ND	50 µg/L	02/08/12 17:13	02/08/12 17:13
	Tetrahydrofuran	ND	10 µg/L	02/08/12 17:13	02/08/12 17:13
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 17:13	02/08/12 17:13



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Client ID: MW-17-2

Lab ID : BM112020341-03A	Acrylonitrile	ND	10 µg/L	02/08/12 17:35	02/08/12 17:35
Date Sampled 02/02/12 10:25	Allyl chloride	ND	2.0 µg/L	02/08/12 17:35	02/08/12 17:35
	Carbon disulfide	ND	2.0 µg/L	02/08/12 17:35	02/08/12 17:35
	Chloroacetonitrile	ND	10 µg/L	02/08/12 17:35	02/08/12 17:35
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 17:35	02/08/12 17:35
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 17:35	02/08/12 17:35
	Diethyl ether	ND	2.0 µg/L	02/08/12 17:35	02/08/12 17:35
	Ethyl methacrylate	ND	10 µg/L	02/08/12 17:35	02/08/12 17:35
	Hexachloroethane	ND	10 µg/L	02/08/12 17:35	02/08/12 17:35
	Methacrylonitrile	ND	10 µg/L	02/08/12 17:35	02/08/12 17:35
	Methyl acrylate	ND	10 µg/L	02/08/12 17:35	02/08/12 17:35
	Methyl iodide	ND	2.0 µg/L	02/08/12 17:35	02/08/12 17:35
	Methyl methacrylate	ND	10 µg/L	02/08/12 17:35	02/08/12 17:35
	Nitrobenzene	ND	10 µg/L	02/08/12 17:35	02/08/12 17:35
	2-Nitropropane	ND	2.0 µg/L	02/08/12 17:35	02/08/12 17:35
	Pentachloroethane	ND	2.0 µg/L	02/08/12 17:35	02/08/12 17:35
	Propionitrile	ND	50 µg/L	02/08/12 17:35	02/08/12 17:35
	Tetrahydrofuran	ND	10 µg/L	02/08/12 17:35	02/08/12 17:35
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 17:35	02/08/12 17:35

Client ID: EB-4-2/2/12

Lab ID : BM112020341-04A	Acrylonitrile	ND	10 µg/L	02/08/12 17:57	02/08/12 17:57
Date Sampled 02/02/12 10:15	Allyl chloride	ND	2.0 µg/L	02/08/12 17:57	02/08/12 17:57
	Carbon disulfide	ND	2.0 µg/L	02/08/12 17:57	02/08/12 17:57
	Chloroacetonitrile	ND	10 µg/L	02/08/12 17:57	02/08/12 17:57
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 17:57	02/08/12 17:57
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 17:57	02/08/12 17:57
	Diethyl ether	ND	2.0 µg/L	02/08/12 17:57	02/08/12 17:57
	Ethyl methacrylate	ND	10 µg/L	02/08/12 17:57	02/08/12 17:57
	Hexachloroethane	ND	10 µg/L	02/08/12 17:57	02/08/12 17:57
	Methacrylonitrile	ND	10 µg/L	02/08/12 17:57	02/08/12 17:57
	Methyl acrylate	ND	10 µg/L	02/08/12 17:57	02/08/12 17:57
	Methyl iodide	ND	2.0 µg/L	02/08/12 17:57	02/08/12 17:57
	Methyl methacrylate	ND	10 µg/L	02/08/12 17:57	02/08/12 17:57
	Nitrobenzene	ND	10 µg/L	02/08/12 17:57	02/08/12 17:57
	2-Nitropropane	ND	2.0 µg/L	02/08/12 17:57	02/08/12 17:57
	Pentachloroethane	ND	2.0 µg/L	02/08/12 17:57	02/08/12 17:57
	Propionitrile	ND	50 µg/L	02/08/12 17:57	02/08/12 17:57
	Tetrahydrofuran	ND	10 µg/L	02/08/12 17:57	02/08/12 17:57
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 17:57	02/08/12 17:57



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Client ID: **TB-4-2/2/12**

Lab ID : BMI12020341-05A	Acrylonitrile	ND	10 µg/L	02/08/12 18:18	02/08/12 18:18
Date Sampled 02/02/12 07:30	Allyl chloride	ND	2.0 µg/L	02/08/12 18:18	02/08/12 18:18
	Carbon disulfide	ND	2.0 µg/L	02/08/12 18:18	02/08/12 18:18
	Chloroacetonitrile	ND	10 µg/L	02/08/12 18:18	02/08/12 18:18
	1-Chlorobutane	ND	2.0 µg/L	02/08/12 18:18	02/08/12 18:18
	1,1-Dichloropropanone	ND	10 µg/L	02/08/12 18:18	02/08/12 18:18
	Diethyl ether	ND	2.0 µg/L	02/08/12 18:18	02/08/12 18:18
	Ethyl methacrylate	ND	10 µg/L	02/08/12 18:18	02/08/12 18:18
	Hexachloroethane	ND	10 µg/L	02/08/12 18:18	02/08/12 18:18
	Methacrylonitrile	ND	10 µg/L	02/08/12 18:18	02/08/12 18:18
	Methyl acrylate	ND	10 µg/L	02/08/12 18:18	02/08/12 18:18
	Methyl iodide	ND	2.0 µg/L	02/08/12 18:18	02/08/12 18:18
	Methyl methacrylate	ND	10 µg/L	02/08/12 18:18	02/08/12 18:18
	Nitrobenzene	ND	10 µg/L	02/08/12 18:18	02/08/12 18:18
	2-Nitropropane	ND	2.0 µg/L	02/08/12 18:18	02/08/12 18:18
	Pentachloroethane	ND	2.0 µg/L	02/08/12 18:18	02/08/12 18:18
	Propionitrile	ND	50 µg/L	02/08/12 18:18	02/08/12 18:18
	Tetrahydrofuran	ND	10 µg/L	02/08/12 18:18	02/08/12 18:18
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/08/12 18:18	02/08/12 18:18

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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2/15/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020341-01A
Client I.D. Number: MW-17-4

Sampled: 02/02/12 09:01
Received: 02/03/12
Extracted: 02/08/12 16:52
Analyzed: 02/08/12 16:52

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	0.53	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	112	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	97	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl

Randy Gardner

Walter Hinchman

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[Signature]

2/15/12

Report Date

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020341-02A
Client I.D. Number: MW-17-3

Sampled: 02/02/12 09:35
Received: 02/03/12
Extracted: 02/08/12 17:13
Analyzed: 02/08/12 17:13

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	113	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	101	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Alpha Analytical Number: BMI12020341-03A
Client I.D. Number: MW-17-2

Sampled: 02/02/12 10:25
Received: 02/03/12
Extracted: 02/08/12 17:35
Analyzed: 02/08/12 17:35

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	114	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	100	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020341-04A
Client I.D. Number: EB-4-2/2/12

Sampled: 02/02/12 10:15
Received: 02/03/12
Extracted: 02/08/12 17:57
Analyzed: 02/08/12 17:57

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	114	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	98	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	102	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Alpha Analytical Number: BMI12020341-05A
Client I.D. Number: TB-4-2/2/12

Sampled: 02/02/12 07:30
Received: 02/03/12
Extracted: 02/08/12 18:18
Analyzed: 02/08/12 18:18

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	113	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	100	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/15/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

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VOC Sample Preservation Report

Work Order: BMI12020341

Job: 100006114/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12020341-01A	MW-17-4	Aqueous	2
12020341-02A	MW-17-3	Aqueous	2
12020341-03A	MW-17-2	Aqueous	2
12020341-04A	EB-4-2/2/12	Aqueous	2
12020341-05A	TB-4-2/2/12	Aqueous	2

2/15/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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Date:
14-Feb-12

QC Summary Report

Work Order:
12020341

Method Blank

Type: MBLK Test Code: EPA Method 314.0

File ID: 19

Batch ID: 28150K

Analysis Date: 02/06/2012 15:41

Sample ID: MB-28150

Units: µg/L

Run ID: IC_3_120206A

Prep Date: 02/06/2012 13:47

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

Laboratory Fortified Blank

Type: LFB Test Code: EPA Method 314.0

File ID: 40

Batch ID: 28150K

Analysis Date: 02/06/2012 22:08

Sample ID: LFB-28150

Units: µg/L

Run ID: IC_3_120206A

Prep Date: 02/06/2012 13:47

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	28.8	2	25		115	85	115			

Sample Matrix Spike

Type: LFM Test Code: EPA Method 314.0

File ID: 27

Batch ID: 28150K

Analysis Date: 02/06/2012 18:09

Sample ID: 12013123-05ALFM

Units: µg/L

Run ID: IC_3_120206A

Prep Date: 02/06/2012 13:47

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	31.8	2	25	3.364	114	85	115			

Sample Matrix Spike Duplicate

Type: LFMD Test Code: EPA Method 314.0

File ID: 28

Batch ID: 28150K

Analysis Date: 02/06/2012 18:27

Sample ID: 12013123-05ALFMD

Units: µg/L

Run ID: IC_3_120206A

Prep Date: 02/06/2012 13:47

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	32.4	2	25	3.364	116	85	115	31.79	2.0(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.



Alpha Analytical, Inc.

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Date:
15-Feb-12

QC Summary Report

Work Order:
12020341

Method Blank

File ID: 020712.B\053_M.D\	Type MBLK	Test Code: EPA Method 200.8	Batch ID: 28152K	Analysis Date: 02/07/2012 19:30						
Sample ID: MB-28152	Units : mg/L	Run ID: ICP/MS_120207C	Prep Date: 02/06/2012 14:46							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	ND	0.005								

Laboratory Control Spike

File ID: 020712.B\054_M.D\	Type LCS	Test Code: EPA Method 200.8	Batch ID: 28152K	Analysis Date: 02/07/2012 19:36						
Sample ID: LCS-28152	Units : mg/L	Run ID: ICP/MS_120207C	Prep Date: 02/06/2012 14:46							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.05	0.005	0.05		100	80	120			

Sample Matrix Spike

File ID: 020712.B\059_M.D\	Type MS	Test Code: EPA Method 200.8	Batch ID: 28152K	Analysis Date: 02/07/2012 20:06						
Sample ID: 12020341-03AMS	Units : mg/L	Run ID: ICP/MS_120207C	Prep Date: 02/06/2012 14:46							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0472	0.005	0.05	0	94	80	120			

Sample Matrix Spike Duplicate

File ID: 020712.B\060_M.D\	Type MSD	Test Code: EPA Method 200.8	Batch ID: 28152K	Analysis Date: 02/07/2012 20:12						
Sample ID: 12020341-03AMSD	Units : mg/L	Run ID: ICP/MS_120207C	Prep Date: 02/06/2012 14:46							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.05	0.005	0.05	0	100	80	120	0.04724	5.7(20)	

Comments:

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



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Date:

13-Feb-12

QC Summary Report

Work Order:

12020341

Surr: 1,2-Dichloroethane-d4	9.45	10	95	70	130
Surr: Toluene-d8	10.4	10	104	70	130
Surr: 4-Bromofluorobenzene	10.3	10	103	70	130



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Date:
13-Feb-12

QC Summary Report

Work Order:
12020341

Laboratory Control Spike

Type: LCS Test Code: EPA Method SW8260B

File ID: 12020803.D

Batch ID: MS15W0208M

Analysis Date: 02/08/2012 09:40

Sample ID: LCS MS15W0208M

Units : µg/L

Run ID: MSD_15_120208A

Prep Date: 02/08/2012 09:40

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	9.12	1	10		91	70	130			
Chloromethane	8.98	2	10		90	70	130			
Vinyl chloride	10.8	1	10		108	70	130			
Chloroethane	11.5	1	10		115	70	130			
Bromomethane	11	2	10		110	70	130			
Trichlorofluoromethane	12.9	1	10		129	70	130			
Acetone	190	10	200		95	36	171			
1,1-Dichloroethene	10.1	1	10		101	70	130			
Dichloromethane	9.59	2	10		96	70	130			
Freon-113	11	1	10		110	70	137			
trans-1,2-Dichloroethene	10.6	1	10		106	70	130			
Methyl tert-butyl ether (MTBE)	9.71	0.5	10		97	70	130			
1,1-Dichloroethane	10.7	1	10		107	70	130			
2-Butanone (MEK)	186	10	200		93	70	130			
cis-1,2-Dichloroethene	10.3	1	10		103	70	130			
Bromochloromethane	10.2	1	10		102	70	130			
Chloroform	11.1	1	10		111	70	130			
2,2-Dichloropropane	11.9	1	10		119	70	130			
1,2-Dichloroethane	11.3	1	10		113	70	130			
1,1,1-Trichloroethane	12.4	1	10		124	70	130			
1,1-Dichloropropene	11.6	1	10		116	70	130			
Carbon tetrachloride	11.4	1	10		114	70	130			
Benzene	10	0.5	10		100	70	130			
Dibromomethane	10.6	1	10		106	70	130			
1,2-Dichloropropane	10.1	1	10		101	70	130			
Trichloroethene	10.7	1	10		107	70	130			
Bromodichloromethane	10.9	1	10		109	70	130			
4-Methyl-2-pentanone (MIBK)	23.6	2.5	25		94	20	182			
cis-1,3-Dichloropropene	9.65	1	10		97	70	130			
trans-1,3-Dichloropropene	9.74	1	10		97	70	130			
1,1,2-Trichloroethane	10.1	1	10		101	70	130			
Toluene	9.71	0.5	10		97	70	130			
1,3-Dichloropropane	9.23	1	10		92	70	130			
2-Hexanone	91	5	100		91	20	182			
Dibromochloromethane	9.87	1	10		99	70	130			
1,2-Dibromoethane (EDB)	18.8	2	20		94	70	130			
Tetrachloroethene	10.6	1	10		106	70	130			
1,1,1,2-Tetrachloroethane	10.4	1	10		104	70	130			
Chlorobenzene	9.96	1	10		99.6	70	130			
Ethylbenzene	10.3	0.5	10		103	70	130			
m,p-Xylene	10.3	0.5	10		103	70	130			
Bromoform	9.64	1	10		96	70	130			
Styrene	8.48	1	10		85	70	130			
o-Xylene	10.5	0.5	10		105	70	130			
1,1,2,2-Tetrachloroethane	9.49	1	10		95	70	130			
1,2,3-Trichloropropane	20.7	2	20		103	70	130			
Isopropylbenzene	10.8	1	10		108	70	130			
Bromobenzene	10.5	1	10		105	70	130			
n-Propylbenzene	10.8	1	10		108	70	130			
4-Chlorotoluene	10.4	1	10		104	70	130			
2-Chlorotoluene	10.5	1	10		105	70	130			
1,3,5-Trimethylbenzene	11	1	10		110	70	130			
tert-Butylbenzene	10.9	1	10		109	70	130			
1,2,4-Trimethylbenzene	11.1	1	10		111	70	130			
sec-Butylbenzene	10.7	1	10		107	70	130			
1,3-Dichlorobenzene	10.8	1	10		108	70	130			
1,4-Dichlorobenzene	10.2	1	10		102	70	130			
4-Isopropyltoluene	11	1	10		110	70	130			
1,2-Dichlorobenzene	9.98	1	10		99.8	70	130			
n-Butylbenzene	10.6	1	10		106	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	47.3	3	50		95	67	130			
1,2,4-Trichlorobenzene	9.11	2	10		91	70	130			
Naphthalene	7.11	2	10		71	70	130			
Hexachlorobutadiene	21.5	2	20		108	70	130			
1,2,3-Trichlorobenzene	7.53	2	10		75	70	130			



Alpha Analytical, Inc.

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Date:

13-Feb-12

QC Summary Report

Work Order:

12020341

Surr: 1,2-Dichloroethane-d4	11.3	10	113	70	130
Surr: Toluene-d8	9.68	10	97	70	130
Surr: 4-Bromofluorobenzene	10.3	10	103	70	130



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Date:
13-Feb-12

QC Summary Report

Work Order:
12020341

Sample Matrix Spike

Type: MS

Test Code: EPA Method SW8260B

File ID: 12020807.D

Batch ID: MS15W0208M

Analysis Date: 02/08/2012 11:26

Sample ID: 12020140-10AMS

Units: µg/L

Run ID: MSD_15_120208A

Prep Date: 02/08/2012 11:26

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	38	2.5	50	0	76	21	138			
Chloromethane	41	10	50	0	82	23	144			
Vinyl chloride	48.5	2.5	50	0	97	49	136			
Chloroethane	53.3	2.5	50	0	107	21	159			
Bromomethane	50.3	10	50	0	101	10	174			
Trichlorofluoromethane	62.9	2.5	50	0	126	32	154			
Acetone	466	50	1000	0	47	10	171			
1,1-Dichloroethene	48.8	2.5	50	0	98	64	130			
Dichloromethane	47.2	10	50	0	94	69	130			
Freon-113	52.9	2.5	50	0	106	55	141			
trans-1,2-Dichloroethene	51.6	2.5	50	0	103	63	130			
Methyl tert-butyl ether (MTBE)	48.4	1.3	50	0	97	47	150			
1,1-Dichloroethane	53.1	2.5	50	0	106	66	130			
2-Butanone (MEK)	661	50	1000	0	66	23	182			
cis-1,2-Dichloroethene	51.2	2.5	50	0	102	70	130			
Bromochloromethane	52	2.5	50	0	104	70	132			
Chloroform	54.6	2.5	50	0	109	70	130			
2,2-Dichloropropane	59.3	2.5	50	0	119	38	154			
1,2-Dichloroethane	54.7	2.5	50	0	109	65	134			
1,1,1-Trichloroethane	60.3	2.5	50	0	121	65	136			
1,1-Dichloropropene	56.2	2.5	50	0	112	68	132			
Carbon tetrachloride	54.5	2.5	50	0	109	58	148			
Benzene	50.1	1.3	50	0	100	59	138			
Dibromomethane	51.6	2.5	50	0	103	70	130			
1,2-Dichloropropane	50.9	2.5	50	0	102	70	131			
Trichloroethene	53.9	2.5	50	1.26	105	65	144			
Bromodichloromethane	52.7	2.5	50	0	105	50	157			
4-Methyl-2-pentanone (MIBK)	108	13	125	0	86	20	182			
cis-1,3-Dichloropropene	47.1	2.5	50	0	94	63	131			
trans-1,3-Dichloropropene	47.1	2.5	50	0	94	65	136			
1,1,2-Trichloroethane	50	2.5	50	0	100	70	131			
Toluene	49.3	1.3	50	0	99	68	130			
1,3-Dichloropropane	46.9	2.5	50	0	94	70	130			
2-Hexanone	306	25	500	0	61	20	182			
Dibromochloromethane	49.3	2.5	50	0	99	42	155			
1,2-Dibromoethane (EDB)	95.2	5	100	0	95	70	130			
Tetrachloroethene	54.6	2.5	50	0	109	65	130			
1,1,1,2-Tetrachloroethane	51.7	2.5	50	0	103	70	130			
Chlorobenzene	50.6	2.5	50	0	101	70	130			
Ethylbenzene	52	1.3	50	0	104	68	130			
m,p-Xylene	52.5	1.3	50	0	105	68	131			
Bromoform	47.9	2.5	50	0	96	65	143			
Styrene	42.4	2.5	50	0	85	59	153			
o-Xylene	52.8	1.3	50	0	106	70	130			
1,1,2,2-Tetrachloroethane	48.3	2.5	50	0	97	67	130			
1,2,3-Trichloropropane	106	10	100	0	106	70	130			
Isopropylbenzene	53.8	2.5	50	0	108	55	138			
Bromobenzene	52.7	2.5	50	0	105	70	130			
n-Propylbenzene	53	2.5	50	0	106	67	133			
4-Chlorotoluene	52.8	2.5	50	0	106	70	130			
2-Chlorotoluene	51.7	2.5	50	0	103	70	130			
1,3,5-Trimethylbenzene	54.3	2.5	50	0	109	67	134			
tert-Butylbenzene	53.6	2.5	50	0	107	55	147			
1,2,4-Trimethylbenzene	55.1	2.5	50	0	110	65	135			
sec-Butylbenzene	52.5	2.5	50	0	105	68	135			
1,3-Dichlorobenzene	54.1	2.5	50	0	108	70	130			
1,4-Dichlorobenzene	50.7	2.5	50	0	101	70	130			
4-Isopropyltoluene	54.4	2.5	50	0	109	68	132			
1,2-Dichlorobenzene	49.4	2.5	50	0	99	70	130			
n-Butylbenzene	52.2	2.5	50	0	104	62	134			
1,2-Dibromo-3-chloropropane (DBCP)	228	15	250	0	91	64	130			
1,2,4-Trichlorobenzene	45.2	10	50	0	90	62	133			
Naphthalene	33.7	10	50	0	67	32	166			
Hexachlorobutadiene	103	10	100	0	103	63	130			
1,2,3-Trichlorobenzene	36.5	10	50	0	73	55	138			



Alpha Analytical, Inc.

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Date:

13-Feb-12

QC Summary Report

Work Order:

12020341

Surr: 1,2-Dichloroethane-d4	53.8	50	108	70	130
Surr: Toluene-d8	49.9	50	99.7	70	130
Surr: 4-Bromofluorobenzene	51.7	50	103	70	130



Alpha Analytical, Inc.

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Date:
13-Feb-12

QC Summary Report

Work Order:
12020341

Sample Matrix Spike Duplicate

Type: **MSD** Test Code: **EPA Method SW8260B**

File ID: **12020808.D**

Batch ID: **MS15W0208M**

Analysis Date: **02/08/2012 11:48**

Sample ID: **12020140-10AMSD**

Units: **µg/L**

Run ID: **MSD_15_120208A**

Prep Date: **02/08/2012 11:48**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	34.8	2.5	50	0	70	21	138	38.03	9.0(33)	
Chloromethane	38.5	10	50	0	77	23	144	40.98	6.3(27)	
Vinyl chloride	44.8	2.5	50	0	90	49	136	48.45	7.8(21)	
Chloroethane	50	2.5	50	0	99.9	21	159	53.33	6.6(40)	
Bromomethane	48.7	10	50	0	97	10	174	50.3	3.3(40)	
Trichlorofluoromethane	56.3	2.5	50	0	113	32	154	62.92	11.0(37)	
Acetone	458	50	1000	0	46	10	171	465.8	1.8(23)	
1,1-Dichloroethene	45.8	2.5	50	0	92	64	130	48.81	6.5(21)	
Dichloromethane	44.5	10	50	0	89	69	130	47.17	5.9(20)	
Freon-113	48.3	2.5	50	0	97	55	141	52.87	9.1(40)	
trans-1,2-Dichloroethene	48.1	2.5	50	0	96	63	130	51.6	7.0(20)	
Methyl tert-butyl ether (MTBE)	46.6	1.3	50	0	93	47	150	48.35	3.6(40)	
1,1-Dichloroethane	49.2	2.5	50	0	98	66	130	53.11	7.7(20)	
2-Butanone (MEK)	641	50	1000	0	64	23	182	661.4	3.2(22)	
cis-1,2-Dichloroethene	49.4	2.5	50	0	99	70	130	51.16	3.5(20)	
Bromochloromethane	48.8	2.5	50	0	98	70	132	52.01	6.4(20)	
Chloroform	49.8	2.5	50	0	99.7	70	130	54.55	9.0(20)	
2,2-Dichloropropane	54.7	2.5	50	0	109	38	154	59.34	8.2(22)	
1,2-Dichloroethane	50.2	2.5	50	0	100	65	134	54.74	8.6(20)	
1,1,1-Trichloroethane	55	2.5	50	0	110	65	136	60.3	9.2(20)	
1,1-Dichloropropene	51.9	2.5	50	0	104	68	132	56.22	8.0(20)	
Carbon tetrachloride	51	2.5	50	0	102	58	148	54.54	6.8(20)	
Benzene	46.9	1.3	50	0	94	59	138	50.13	6.6(21)	
Dibromomethane	48.4	2.5	50	0	97	70	130	51.55	6.4(20)	
1,2-Dichloropropane	47.9	2.5	50	0	96	70	131	50.87	6.1(20)	
Trichloroethene	50.7	2.5	50	1.26	99	65	144	53.85	6.0(20)	
Bromodichloromethane	49.1	2.5	50	0	98	50	157	52.72	7.1(20)	
4-Methyl-2-pentanone (MIBK)	107	13	125	0	85	20	182	107.8	1.2(20)	
cis-1,3-Dichloropropene	45	2.5	50	0	90	63	131	47.13	4.7(20)	
trans-1,3-Dichloropropene	45.9	2.5	50	0	92	65	136	47.08	2.6(20)	
1,1,2-Trichloroethane	48.2	2.5	50	0	96	70	131	50.03	3.8(20)	
Toluene	46.3	1.3	50	0	93	68	130	49.31	6.3(20)	
1,3-Dichloropropane	45.4	2.5	50	0	91	70	130	46.94	3.3(20)	
2-Hexanone	300	25	500	0	60	20	182	306.2	2.0(20)	
Dibromochloromethane	47.4	2.5	50	0	95	42	155	49.3	3.9(20)	
1,2-Dibromoethane (EDB)	91.8	5	100	0	92	70	130	95.23	3.7(20)	
Tetrachloroethene	50.7	2.5	50	0	101	65	130	54.59	7.3(20)	
1,1,1,2-Tetrachloroethane	49.3	2.5	50	0	99	70	130	51.74	4.8(20)	
Chlorobenzene	48	2.5	50	0	96	70	130	50.58	5.3(20)	
Ethylbenzene	49.3	1.3	50	0	99	68	130	51.97	5.3(20)	
m,p-Xylene	49.9	1.3	50	0	99.8	68	131	52.49	5.0(20)	
Bromoform	46.8	2.5	50	0	94	65	143	47.94	2.5(20)	
Styrene	40.7	2.5	50	0	81	59	153	42.41	4.0(37)	
o-Xylene	50.1	1.3	50	0	100	70	130	52.81	5.4(20)	
1,1,2,2-Tetrachloroethane	46.6	2.5	50	0	93	67	130	48.26	3.5(20)	
1,2,3-Trichloropropane	99.9	10	100	0	99.9	70	130	106.2	6.2(20)	
Isopropylbenzene	50.4	2.5	50	0	101	55	138	53.82	6.6(20)	
Bromobenzene	49.9	2.5	50	0	99.7	70	130	52.67	5.5(20)	
n-Propylbenzene	50.2	2.5	50	0	100	67	133	53	5.4(30)	
4-Chlorotoluene	49.7	2.5	50	0	99	70	130	52.79	6.1(20)	
2-Chlorotoluene	48.7	2.5	50	0	97	70	130	51.67	5.9(20)	
1,3,5-Trimethylbenzene	50.7	2.5	50	0	101	67	134	54.29	6.9(21)	
tert-Butylbenzene	50.1	2.5	50	0	100	55	147	53.59	6.7(20)	
1,2,4-Trimethylbenzene	51.7	2.5	50	0	103	65	135	55.12	6.4(25)	
sec-Butylbenzene	49.9	2.5	50	0	99.8	68	135	52.46	5.0(20)	
1,3-Dichlorobenzene	51.4	2.5	50	0	103	70	130	54.1	5.1(20)	
1,4-Dichlorobenzene	48.2	2.5	50	0	96	70	130	50.71	5.2(20)	
4-Isopropyltoluene	51	2.5	50	0	102	68	132	54.35	6.3(20)	
1,2-Dichlorobenzene	47	2.5	50	0	94	70	130	49.37	5.0(20)	
n-Butylbenzene	49.3	2.5	50	0	99	62	134	52.18	5.8(21)	
1,2-Dibromo-3-chloropropane (DBCP)	222	15	250	0	89	64	130	228.3	3.0(20)	
1,2,4-Trichlorobenzene	44.4	10	50	0	89	62	133	45.2	1.7(29)	
Naphthalene	37.1	10	50	0	74	32	166	33.74	9.4(40)	
Hexachlorobutadiene	98.4	10	100	0	98	63	130	103.1	4.7(21)	
1,2,3-Trichlorobenzene	38.5	10	50	0	77	55	138	36.51	5.4(36)	



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:

13-Feb-12

QC Summary Report

Work Order:

12020341

Surr: 1,2-Dichloroethane-d4	53.2	50	106	70	130
Surr: Toluene-d8	49.4	50	99	70	130
Surr: 4-Bromofluorobenzene	52.5	50	105	70	130

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

AMENDED
CA

Alpha Analytical, Inc.

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

WorkOrder : BMIS12020341

Report Due By : 5:00 PM On : 16-Feb-12

Client:

Battelle Memorial Institute
655 West Broadway
Suite 1420
San Diego, CA 92101

Report Attention Phone Number Email Address

David Corner (619) 726-7311 x connerd@battelle.org
Betsy Cutie (614) 424-4899 x cutiee@battelle.org
Shane Walton (614) 424-4117 x walton@battelle.org

EDD Required : Yes

Sampled by : Chase Brogdon

Cooler Temp Samples Received

0 °C 03-Feb-12 15-Feb-12

PO : 287215 Client's COC # : 28946 Job : 100006114/JPL Groundwater Monitoring

QC Level : DS4 = DOD QC Required : Final Rpt, MBLK, Initial/Concal data, LCS, MS/MSD with Surrogates

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles			Requested Tests		Sample Remarks
			Alpha	Sub	TAT	314_W	METALS_D W	
BM12020341-01A	NW-17-4	AQ 02/02/12 09:01	5	0	9	Perchlorate Criteria	VOC by 524 Criteria	
BM12020341-02A	NW-17-3	AQ 02/02/12 09:35	5	0	9	Perchlorate Criteria	VOC by 524 Criteria	
BM12020341-03A	NW-17-2	AQ 02/02/12 10:25	5	0	9	Perchlorate Criteria	VOC by 524 Criteria	Level IV QC
BM12020341-04A	EB-4-2/2/12	AQ 02/02/12 10:15	5	0	9	Perchlorate Criteria	VOC by 524 Criteria	
BM12020341-05A	TB-4-2/2/12	AQ 02/02/12 07:30	1	0	9	VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 10/14/11

Comments: No security seals. Frozen ice. Temp Blank #8391 received @ 0°C. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). Level IV QC on samples -03A. Amended 2/15/12 @ 8:21 to add PO to COC, due to login error. SC:

Signature

Shane Walton

Print Name

Sara Chfee

Company

Alpha Analytical, Inc.

Date/Time

2/15/12 8:25

Logged in 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. 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 :

CHAIN-OF-CUSTODY RECORD

CA

Alpha Analytical, Inc.

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

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

WorkOrder : BMIS12020341

Report Due By : 5:00 PM On : 16-Feb-12

Client:

Battelle Memorial Institute
655 West Broadway
Suite 1420
San Diego, CA 92101

Report Attention Phone Number Email Address

David Conner (619) 726-7311 x connerd@battelle.org

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

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

EDD Required : Yes

Sampled by : Chase Brogdon

Cooler Temp Samples Received

0 °C 03-Feb-12 03-Feb-12

Date Printed

Client's COC # : 28946

Job : 100006114/JPL Groundwater Monitoring

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

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles			314_W	METALS_D W	VOC_BMI_T IC_W	VOC_W	Requested Tests	Sample Remarks
			Alpha	Sub	TAT						
BM112020341-01A	MMW-17-4	AQ 02/02/12 09:01	5	0	9	Perchlorate	C	VOC by 524 Criteria	VOC by 524 Criteria		
BM112020341-02A	MMW-17-3	AQ 02/02/12 09:35	5	0	9	Perchlorate	C	VOC by 524 Criteria	VOC by 524 Criteria		
BM112020341-03A	MMW-17-2	AQ 02/02/12 10:25	5	0	9	Perchlorate	C	VOC by 524 Criteria	VOC by 524 Criteria	Level IV QC	
BM112020341-04A	EB-4-2/2/12	AQ 02/02/12 10:15	5	0	9	Perchlorate	C	VOC by 524 Criteria	VOC by 524 Criteria		
BM112020341-05A	TB-4-2/2/12	AQ 02/02/12 07:30	1	0	9	Perchlorate	C	VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 10/14/11	

Comments: No security seals. Frozen ice. Temp Blank #8391 received @ 0°C. Samples should be used as the control spike sample if possible (I.E. MS/MSD). Level IV QC on samples -03A.

Signature

Print Name

Company

Date/Time

Logged in by: *David Conner*

Shane Walton

Alpha Analytical, Inc.


2/6/12 10:50

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. 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 BATTELLE / GENARD TEMPKINS
 Address 505 KING AVE
 City, State, Zip CAUCHEMUS, OH 43201
 Phone Number _____ Fax _____



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

Samples Collected From Which State? 28946
 AZ CA NV WA
 ID OR OTHER
 Page # 1 of 1

Analyses Required

Client Name BATTELLE / David Cowner PO. # 286479 Job # 100006114
 Address 3990 OLD TOWN AVE, C-205 Email Address conrad@battelle.com
 City, State, Zip SAVIEGO CA 92110 Phone # (619) 726-7311 Fax # (619) 458-6614

Time Sampled	Date Sampled	Matrix See Key Below	Sampled by	Lab ID Number (Use Only)	Report Attention	Sample Description	TAT	Field Filtered	Total and type of containers ** See below	Global ID #	REMARKS
0901	2/2/12	AQ	CHASSA BROWN	BMT1A000341-01A	DAVID COWNER	MW-17-4	Norm		5/variety		
0935						MW-17-3					
1025						MW-17-2					LEAK IN GC
1015						DNB EG-4 - 2/2/12					EQUIP. BLANK
0930	2/2/12	AQ				DNB TB-4 - 2/2/12			IV		TRIP BLANK

ADDITIONAL INSTRUCTIONS:

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	CHASSA BROWN	INSIGHT SEC, INC	2/2/12	1200
<i>[Signature]</i>	ANTHONY STRK	Alpha Analytical	2/2/12	1800
<i>[Signature]</i>	SARA OFFICE	alpha	2/3/12	10:46

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** L-Lier V-Voa S-Soil Jar O-Orbo T-Teclat 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 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.



Alpha Analytical, Inc.

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

Date: 17-Feb-12

David Conner
Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
(619) 726-7311

Suite 1420

CASE NARRATIVE

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Work Order: BMI12020740

Cooler Temp: 5°C

Alpha's Sample ID	Client's Sample ID	Matrix
12020740-01A	MW-4-3	Aqueous
12020740-02A	MW-4-2	Aqueous
12020740-03A	MW-4-1	Aqueous
12020740-04A	EB-6-2/6/12	Aqueous
12020740-05A	TB-6-2/6/12	Aqueous
12020740-06A	MW-3-4	Aqueous
12020740-07A	MW-3-3	Aqueous
12020740-08A	MW-3-2	Aqueous
12020740-09A	MW-19-5	Aqueous
12020740-10A	MW-19-4	Aqueous
12020740-11A	MW-19-3	Aqueous
12020740-12A	MW-19-2	Aqueous
12020740-13A	MW-19-1	Aqueous
12020740-14A	EB-5-2/3/12	Aqueous
12020740-15A	TB-5-2/3/12	Aqueous

Manually Integrated Analytes

<u>Alpha's Sample ID</u>	<u>Test Reference</u>	<u>Analyte</u>
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.

Note : The final report format has been altered from the DOD QSM to meet client instructions.

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/07/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Perchlorate by Ion Chromatography
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-4-3 Lab ID : BMII2020740-01A Perchlorate Date Sampled 02/06/12 09:30	ND	1.00 µg/L	02/14/12 12:39	02/14/12 15:11
Client ID: MW-4-2 Lab ID : BMII2020740-02A Perchlorate Date Sampled 02/06/12 10:04	157	10.0 µg/L	02/14/12 12:39	02/15/12 09:25
Client ID: MW-4-1 Lab ID : BMII2020740-03A Perchlorate Date Sampled 02/06/12 10:40	ND	1.00 µg/L	02/14/12 12:39	02/14/12 16:25
Client ID: EB-6-2/6/12 Lab ID : BMII2020740-04A Perchlorate Date Sampled 02/06/12 10:33	ND	1.00 µg/L	02/14/12 12:39	02/14/12 16:43
Client ID: MW-3-4 Lab ID : BMII2020740-06A Perchlorate Date Sampled 02/06/12 11:41	ND	1.00 µg/L	02/14/12 12:39	02/14/12 17:02
Client ID: MW-3-3 Lab ID : BMII2020740-07A Perchlorate Date Sampled 02/06/12 12:05	ND	1.00 µg/L	02/14/12 12:39	02/14/12 17:20
Client ID: MW-3-2 Lab ID : BMII2020740-08A Perchlorate Date Sampled 02/06/12 12:30	ND	1.00 µg/L	02/14/12 12:39	02/14/12 17:38
Client ID: MW-19-5 Lab ID : BMII2020740-09A Perchlorate Date Sampled 02/03/12 09:00	3.06	1.00 µg/L	02/14/12 12:39	02/14/12 17:57
Client ID: MW-19-4 Lab ID : BMII2020740-10A Perchlorate Date Sampled 02/03/12 09:25	3.76	1.00 µg/L	02/14/12 12:39	02/14/12 18:15
Client ID: MW-19-3 Lab ID : BMII2020740-11A Perchlorate Date Sampled 02/03/12 09:43	4.01	1.00 µg/L	02/14/12 12:39	02/14/12 18:34
Client ID: MW-19-2 Lab ID : BMII2020740-12A Perchlorate Date Sampled 02/03/12 10:09	7.13	1.00 µg/L	02/14/12 12:39	02/14/12 19:29



Alpha Analytical, Inc.

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Client ID: **MW-19-1**

Lab ID : BMI12020740-13A Perchlorate

ND

1.00 µg/L

02/14/12 12:39 02/14/12 19:47

Date Sampled 02/03/12 10:48

Client ID: **EB-5-2/3/12**

Lab ID : BMI12020740-14A Perchlorate

ND

1.00 µg/L

02/14/12 12:39 02/14/12 20:06

Date Sampled 02/03/12 10:40

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/20/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/07/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Metals by ICPMS
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-4-3 Lab ID: BMII2020740-01A Chromium (Cr) Date Sampled 02/06/12 09:30	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 15:20
Client ID: MW-4-2 Lab ID: BMII2020740-02A Chromium (Cr) Date Sampled 02/06/12 10:04	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 15:50
Client ID: MW-4-1 Lab ID: BMII2020740-03A Chromium (Cr) Date Sampled 02/06/12 10:40	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 15:56
Client ID: EB-6-2/6/12 Lab ID: BMII2020740-04A Chromium (Cr) Date Sampled 02/06/12 10:33	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 16:08
Client ID: MW-3-4 Lab ID: BMII2020740-06A Chromium (Cr) Date Sampled 02/06/12 11:41	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 16:14
Client ID: MW-3-3 Lab ID: BMII2020740-07A Chromium (Cr) Date Sampled 02/06/12 12:05	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 16:20
Client ID: MW-3-2 Lab ID: BMII2020740-08A Chromium (Cr) Date Sampled 02/06/12 12:30	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 16:45

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/20/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/07/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Special BMI TICs
EPA Method SW8260B

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-4-3				
Lab ID: BMI12020740-01A	Acrylonitrile	ND	10 µg/L	02/14/12 12:52
Date Sampled 02/06/12 09:30	Allyl chloride	ND	2.0 µg/L	02/14/12 12:52
	Carbon disulfide	ND	2.5 µg/L	02/14/12 12:52
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 12:52
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 12:52
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 12:52
	Diethyl ether	ND	2.0 µg/L	02/14/12 12:52
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 12:52
	Hexachloroethane	ND	2.0 µg/L	02/14/12 12:52
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 12:52
	Methyl acrylate	ND	2.0 µg/L	02/14/12 12:52
	Methyl iodide	ND	2.0 µg/L	02/14/12 12:52
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 12:52
	Nitrobenzene	ND	2.0 µg/L	02/14/12 12:52
	2-Nitropropane	ND	2.0 µg/L	02/14/12 12:52
	Pentachloroethane	ND	2.0 µg/L	02/14/12 12:52
	Propionitrile	ND	2.0 µg/L	02/14/12 12:52
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 12:52
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 12:52
Client ID: MW-4-2				
Lab ID: BMI12020740-02A	Acrylonitrile	ND	10 µg/L	02/14/12 13:14
Date Sampled 02/06/12 10:04	Allyl chloride	ND	2.0 µg/L	02/14/12 13:14
	Carbon disulfide	ND	2.5 µg/L	02/14/12 13:14
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 13:14
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 13:14
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 13:14
	Diethyl ether	ND	2.0 µg/L	02/14/12 13:14
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 13:14
	Hexachloroethane	ND	2.0 µg/L	02/14/12 13:14
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 13:14
	Methyl acrylate	ND	2.0 µg/L	02/14/12 13:14
	Methyl iodide	ND	2.0 µg/L	02/14/12 13:14
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 13:14
	Nitrobenzene	ND	2.0 µg/L	02/14/12 13:14
	2-Nitropropane	ND	2.0 µg/L	02/14/12 13:14
	Pentachloroethane	ND	2.0 µg/L	02/14/12 13:14
	Propionitrile	ND	2.0 µg/L	02/14/12 13:14
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 13:14
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 13:14



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Client ID: **MW-4-1**

Lab ID : BMI12020740-03A	Acrylonitrile	ND	10 µg/L	02/14/12 13:36	02/14/12 13:36
Date Sampled 02/06/12 10:40	Allyl chloride	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Carbon disulfide	ND	2.5 µg/L	02/14/12 13:36	02/14/12 13:36
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Diethyl ether	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Hexachloroethane	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Methyl acrylate	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Methyl iodide	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Nitrobenzene	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	2-Nitropropane	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Pentachloroethane	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Propionitrile	ND	2.0 µg/L	02/14/12 13:36	02/14/12 13:36
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 13:36	02/14/12 13:36
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 13:36	02/14/12 13:36

Client ID: **EB-6-2/6/12**

Lab ID : BMI12020740-04A	Acrylonitrile	ND	10 µg/L	02/14/12 13:57	02/14/12 13:57
Date Sampled 02/06/12 10:33	Allyl chloride	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Carbon disulfide	ND	2.5 µg/L	02/14/12 13:57	02/14/12 13:57
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Diethyl ether	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Hexachloroethane	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Methyl acrylate	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Methyl iodide	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Nitrobenzene	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	2-Nitropropane	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Pentachloroethane	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Propionitrile	ND	2.0 µg/L	02/14/12 13:57	02/14/12 13:57
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 13:57	02/14/12 13:57
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 13:57	02/14/12 13:57

Client ID: **TB-6-2/6/12**

Lab ID : BMI12020740-05A	Acrylonitrile	ND	10 µg/L	02/14/12 14:19	02/14/12 14:19
Date Sampled 02/06/12 08:00	Allyl chloride	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Carbon disulfide	ND	2.5 µg/L	02/14/12 14:19	02/14/12 14:19
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Diethyl ether	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Hexachloroethane	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Methyl acrylate	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Methyl iodide	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Nitrobenzene	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	2-Nitropropane	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Pentachloroethane	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Propionitrile	ND	2.0 µg/L	02/14/12 14:19	02/14/12 14:19
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 14:19	02/14/12 14:19
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 14:19	02/14/12 14:19



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Client ID: MW-3-4

Lab ID: BMI12020740-06A	Acrylonitrile	ND	10 µg/L	02/14/12 14:41	02/14/12 14:41
Date Sampled 02/06/12 11:41	Allyl chloride	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Carbon disulfide	ND	2.5 µg/L	02/14/12 14:41	02/14/12 14:41
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Diethyl ether	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Hexachloroethane	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Methyl acrylate	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Methyl iodide	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Nitrobenzene	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	2-Nitropropane	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Pentachloroethane	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Propionitrile	ND	2.0 µg/L	02/14/12 14:41	02/14/12 14:41
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 14:41	02/14/12 14:41
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 14:41	02/14/12 14:41

Client ID: MW-3-3

Lab ID: BMI12020740-07A	Acrylonitrile	ND	10 µg/L	02/14/12 15:02	02/14/12 15:02
Date Sampled 02/06/12 12:05	Allyl chloride	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Carbon disulfide	ND	2.5 µg/L	02/14/12 15:02	02/14/12 15:02
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Diethyl ether	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Hexachloroethane	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Methyl acrylate	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Methyl iodide	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Nitrobenzene	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	2-Nitropropane	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Pentachloroethane	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Propionitrile	ND	2.0 µg/L	02/14/12 15:02	02/14/12 15:02
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 15:02	02/14/12 15:02
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 15:02	02/14/12 15:02

Client ID: MW-3-2

Lab ID: BMI12020740-08A	Acrylonitrile	ND	10 µg/L	02/14/12 15:24	02/14/12 15:24
Date Sampled 02/06/12 12:30	Allyl chloride	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Carbon disulfide	ND	2.5 µg/L	02/14/12 15:24	02/14/12 15:24
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Diethyl ether	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Hexachloroethane	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Methyl acrylate	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Methyl iodide	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Nitrobenzene	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	2-Nitropropane	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Pentachloroethane	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Propionitrile	ND	2.0 µg/L	02/14/12 15:24	02/14/12 15:24
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 15:24	02/14/12 15:24
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 15:24	02/14/12 15:24



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Client ID: MW-19-5

Lab ID : BMI12020740-09A	Acrylonitrile	ND	10 µg/L	02/14/12 15:46	02/14/12 15:46
Date Sampled 02/03/12 09:00	Allyl chloride	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Carbon disulfide	ND	2.5 µg/L	02/14/12 15:46	02/14/12 15:46
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Diethyl ether	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Hexachloroethane	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Methyl acrylate	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Methyl iodide	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Nitrobenzene	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	2-Nitropropane	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Pentachloroethane	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Propionitrile	ND	2.0 µg/L	02/14/12 15:46	02/14/12 15:46
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 15:46	02/14/12 15:46
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 15:46	02/14/12 15:46

Client ID: MW-19-4

Lab ID : BMI12020740-10A	Acrylonitrile	ND	10 µg/L	02/14/12 16:07	02/14/12 16:07
Date Sampled 02/03/12 09:25	Allyl chloride	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Carbon disulfide	ND	2.5 µg/L	02/14/12 16:07	02/14/12 16:07
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Diethyl ether	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Hexachloroethane	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Methyl acrylate	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Methyl iodide	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Nitrobenzene	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	2-Nitropropane	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Pentachloroethane	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Propionitrile	ND	2.0 µg/L	02/14/12 16:07	02/14/12 16:07
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 16:07	02/14/12 16:07
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 16:07	02/14/12 16:07

Client ID: MW-19-3

Lab ID : BMI12020740-11A	Acrylonitrile	ND	10 µg/L	02/14/12 16:29	02/14/12 16:29
Date Sampled 02/03/12 09:43	Allyl chloride	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Carbon disulfide	ND	2.5 µg/L	02/14/12 16:29	02/14/12 16:29
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Diethyl ether	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Hexachloroethane	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Methyl acrylate	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Methyl iodide	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Nitrobenzene	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	2-Nitropropane	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Pentachloroethane	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Propionitrile	ND	2.0 µg/L	02/14/12 16:29	02/14/12 16:29
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 16:29	02/14/12 16:29
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 16:29	02/14/12 16:29



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Client ID: MW-19-2

Lab ID : BM112020740-12A	Acrylonitrile	ND	10 µg/L	02/14/12 16:51	02/14/12 16:51
Date Sampled 02/03/12 10:09	Allyl chloride	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Carbon disulfide	ND	2.5 µg/L	02/14/12 16:51	02/14/12 16:51
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Diethyl ether	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Hexachloroethane	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Methyl acrylate	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Methyl iodide	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Nitrobenzene	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	2-Nitropropane	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Pentachloroethane	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Propionitrile	ND	2.0 µg/L	02/14/12 16:51	02/14/12 16:51
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 16:51	02/14/12 16:51
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 16:51	02/14/12 16:51

Client ID: MW-19-1

Lab ID : BM112020740-13A	Acrylonitrile	ND	10 µg/L	02/14/12 17:12	02/14/12 17:12
Date Sampled 02/03/12 10:48	Allyl chloride	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Carbon disulfide	ND	2.5 µg/L	02/14/12 17:12	02/14/12 17:12
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Diethyl ether	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Hexachloroethane	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Methyl acrylate	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Methyl iodide	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Nitrobenzene	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	2-Nitropropane	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Pentachloroethane	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Propionitrile	ND	2.0 µg/L	02/14/12 17:12	02/14/12 17:12
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 17:12	02/14/12 17:12
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 17:12	02/14/12 17:12

Client ID: EB-5-2/3/12

Lab ID : BM112020740-14A	Acrylonitrile	ND	10 µg/L	02/14/12 17:34	02/14/12 17:34
Date Sampled 02/03/12 10:40	Allyl chloride	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Carbon disulfide	ND	2.5 µg/L	02/14/12 17:34	02/14/12 17:34
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Diethyl ether	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Hexachloroethane	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Methyl acrylate	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Methyl iodide	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Nitrobenzene	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	2-Nitropropane	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Pentachloroethane	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Propionitrile	ND	2.0 µg/L	02/14/12 17:34	02/14/12 17:34
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 17:34	02/14/12 17:34
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 17:34	02/14/12 17:34



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Client ID: **TB-5-2/3/12**

Lab ID : BMI12020740-15A	Acrylonitrile	ND	10 µg/L	02/14/12 17:56	02/14/12 17:56
Date Sampled 02/03/12 07:45	Allyl chloride	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Carbon disulfide	ND	2.5 µg/L	02/14/12 17:56	02/14/12 17:56
	Chloroacetonitrile	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	1-Chlorobutane	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	1,1-Dichloropropanone	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Diethyl ether	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Ethyl methacrylate	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Hexachloroethane	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Methacrylonitrile	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Methyl acrylate	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Methyl iodide	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Methyl methacrylate	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Nitrobenzene	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	2-Nitropropane	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Pentachloroethane	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Propionitrile	ND	2.0 µg/L	02/14/12 17:56	02/14/12 17:56
	Tetrahydrofuran	ND	5.0 µg/L	02/14/12 17:56	02/14/12 17:56
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/14/12 17:56	02/14/12 17:56

Information regarding the estimate of the uncertainty of measurement is available upon client request.

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
 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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

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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.

2/20/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Alpha Analytical Number: BMI12020740-01A

Sampled: 02/06/12 09:30

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

Received: 02/07/12

Extracted: 02/14/12 12:52

Analyzed: 02/14/12 12:52

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	97	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-02A
Client I.D. Number: MW-4-2

Sampled: 02/06/12 10:04
Received: 02/07/12
Extracted: 02/14/12 13:14
Analyzed: 02/14/12 13:14

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	0.57	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	100	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Alpha Analytical Number: BMI12020740-03A
Client I.D. Number: MW-4-1

Sampled: 02/06/12 10:40
Received: 02/07/12
Extracted: 02/14/12 13:36
Analyzed: 02/14/12 13:36

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	100	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	101	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl

Randy Gardner

Walter Hinchman

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-04A
Client I.D. Number: EB-6-2/6/12

Sampled: 02/06/12 10:33
Received: 02/07/12
Extracted: 02/14/12 13:57
Analyzed: 02/14/12 13:57

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	101	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	101	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
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Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-05A
Client I.D. Number: TB-6-2/6/12

Sampled: 02/06/12 08:00
Received: 02/07/12
Extracted: 02/14/12 14:19
Analyzed: 02/14/12 14:19

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	102	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-06A
Client I.D. Number: MW-3-4

Sampled: 02/06/12 11:41
Received: 02/07/12
Extracted: 02/14/12 14:41
Analyzed: 02/14/12 14:41

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	103	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-07A
Client I.D. Number: MW-3-3

Sampled: 02/06/12 12:05
Received: 02/07/12
Extracted: 02/14/12 15:02
Analyzed: 02/14/12 15:02

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	1.0 µg/L	36 1,2-Dibromoethane (EDB)	ND	2.0 µg/L
2 Chloromethane	ND	2.0 µg/L	37 Tetrachloroethane	ND	1.0 µg/L
3 Vinyl chloride	ND	1.0 µg/L	38 1,1,1,2-Tetrachloroethane	ND	1.0 µg/L
4 Chloroethane	ND	1.0 µg/L	39 Chlorobenzene	ND	1.0 µg/L
5 Bromomethane	ND	2.0 µg/L	40 Ethylbenzene	1.2	1.0 µg/L
6 Trichlorofluoromethane	ND	1.0 µg/L	41 m,p-Xylene	ND	1.0 µg/L
7 Acetone	ND	20 µg/L	42 Bromoform	ND	1.0 µg/L
8 1,1-Dichloroethane	ND	1.0 µg/L	43 Styrene	ND	1.0 µg/L
9 Dichloromethane	ND	2.0 µg/L	44 o-Xylene	ND	1.0 µg/L
10 Freon-113	ND	1.0 µg/L	45 1,1,2,2-Tetrachloroethane	ND	1.0 µg/L
11 trans-1,2-Dichloroethane	ND	1.0 µg/L	46 1,2,3-Trichloropropane	ND	2.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	1.0 µg/L	47 Isopropylbenzene	ND	1.0 µg/L
13 1,1-Dichloroethane	ND	1.0 µg/L	48 Bromobenzene	ND	1.0 µg/L
14 2-Butanone (MEK)	ND	20 µg/L	49 n-Propylbenzene	ND	1.0 µg/L
15 cis-1,2-Dichloroethane	ND	1.0 µg/L	50 4-Chlorotoluene	ND	1.0 µg/L
16 Bromochloromethane	ND	1.0 µg/L	51 2-Chlorotoluene	ND	1.0 µg/L
17 Chloroform	ND	1.0 µg/L	52 1,3,5-Trimethylbenzene	ND	1.0 µg/L
18 2,2-Dichloropropane	ND	1.0 µg/L	53 tert-Butylbenzene	ND	1.0 µg/L
19 1,2-Dichloroethane	ND	1.0 µg/L	54 1,2,4-Trimethylbenzene	ND	1.0 µg/L
20 1,1,1-Trichloroethane	ND	1.0 µg/L	55 sec-Butylbenzene	ND	1.0 µg/L
21 1,1-Dichloropropene	ND	1.0 µg/L	56 1,3-Dichlorobenzene	ND	1.0 µg/L
22 Carbon tetrachloride	ND	1.0 µg/L	57 1,4-Dichlorobenzene	ND	1.0 µg/L
23 Benzene	ND	1.0 µg/L	58 4-Isopropyltoluene	ND	1.0 µg/L
24 Dibromomethane	ND	1.0 µg/L	59 1,2-Dichlorobenzene	ND	1.0 µg/L
25 1,2-Dichloropropane	ND	1.0 µg/L	60 n-Butylbenzene	ND	1.0 µg/L
26 Trichloroethane	ND	1.0 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0 µg/L
27 Bromodichloromethane	ND	1.0 µg/L	62 1,2,4-Trichlorobenzene	ND	2.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	5.0 µg/L	63 Naphthalene	ND	2.0 µg/L
29 cis-1,3-Dichloropropene	ND	1.0 µg/L	64 Hexachlorobutadiene	ND	2.0 µg/L
30 trans-1,3-Dichloropropene	ND	1.0 µg/L	65 1,2,3-Trichlorobenzene	ND	2.0 µg/L
31 1,1,2-Trichloroethane	ND	1.0 µg/L	66 Surr: 1,2-Dichloroethane-d4	102	(70-120) %REC
32 Toluene	ND	1.0 µg/L	67 Surr: Toluene-d8	100	(85-120) %REC
33 1,3-Dichloropropane	ND	1.0 µg/L	68 Surr: 4-Bromofluorobenzene	99	(75-120) %REC
34 2-Hexanone	ND	10 µg/L			
35 Dibromochloromethane	ND	1.0 µg/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.

Reporting Limits were increased due to sample foaming.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl

Randy Gardner

Walter Hinchman

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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Y28

2/20/12

Report Date

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-08A
Client I.D. Number: MW-3-2

Sampled: 02/06/12 12:30
Received: 02/07/12
Extracted: 02/14/12 15:24
Analyzed: 02/14/12 15:24

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	104	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	100	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-09A
Client I.D. Number: MW-19-5

Sampled: 02/03/12 09:00
Received: 02/07/12
Extracted: 02/14/12 15:46
Analyzed: 02/14/12 15:46

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	1.6	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	106	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	99	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	97	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

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ANALYTICAL REPORT

Battelle Memorial Institute

655 West Broadway

San Diego, CA 92101

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner

Phone: (619) 726-7311

Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-10A

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

Sampled: 02/03/12 09:25

Received: 02/07/12

Extracted: 02/14/12 16:07

Analyzed: 02/14/12 16:07

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	0.93	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	104	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	101	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

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ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-11A
Client I.D. Number: MW-19-3

Sampled: 02/03/12 09:43
Received: 02/07/12
Extracted: 02/14/12 16:29
Analyzed: 02/14/12 16:29

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	105	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	101	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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2/20/12

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-12A
Client I.D. Number: MW-19-2

Sampled: 02/03/12 10:09
Received: 02/07/12
Extracted: 02/14/12 16:51
Analyzed: 02/14/12 16:51

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	0.55	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	107	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	96	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

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ND = Not Detected

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Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-13A
Client I.D. Number: MW-19-1

Sampled: 02/03/12 10:48
Received: 02/07/12
Extracted: 02/14/12 17:12
Analyzed: 02/14/12 17:12

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	106	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	101	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	97	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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

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2/20/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-14A
Client I.D. Number: EB-5-2/3/12

Sampled: 02/03/12 10:40
Received: 02/07/12
Extracted: 02/14/12 17:34
Analyzed: 02/14/12 17:34

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	105	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	100	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/20/12

Report Date



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020740-15A
Client I.D. Number: TB-5-2/3/12

Sampled: 02/03/12 07:45
Received: 02/07/12
Extracted: 02/14/12 17:56
Analyzed: 02/14/12 17:56

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	106	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	101	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/20/12

Report Date



Alpha Analytical, Inc.

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: BMI12020740

Job: 100006114/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12020740-01A	MW-4-3	Aqueous	2
12020740-02A	MW-4-2	Aqueous	2
12020740-03A	MW-4-1	Aqueous	2
12020740-04A	EB-6-2/6/12	Aqueous	2
12020740-05A	TB-6-2/6/12	Aqueous	2
12020740-06A	MW-3-4	Aqueous	2
12020740-07A	MW-3-3	Aqueous	2
12020740-08A	MW-3-2	Aqueous	2
12020740-09A	MW-19-5	Aqueous	2
12020740-10A	MW-19-4	Aqueous	2
12020740-11A	MW-19-3	Aqueous	2
12020740-12A	MW-19-2	Aqueous	2
12020740-13A	MW-19-1	Aqueous	2
12020740-14A	EB-5-2/3/12	Aqueous	2
12020740-15A	TB-5-2/3/12	Aqueous	2

2/20/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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Date:
20-Feb-12

QC Summary Report

Work Order:
12020740

Method Blank

File ID: 16	Type: MBLK	Test Code: EPA Method 314.0	Batch ID: 28206K	Analysis Date: 02/14/2012 14:16						
Sample ID: MB-28206	Units : µg/L	Run ID: IC_3_120214A	Prep Date: 02/14/2012 12:39							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

Laboratory Fortified Blank

File ID: 42	Type: LFB	Test Code: EPA Method 314.0	Batch ID: 28206K	Analysis Date: 02/14/2012 22:14						
Sample ID: LFB-28206	Units : µg/L	Run ID: IC_3_120214A	Prep Date: 02/14/2012 12:39							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	28.4	2	25		114	85	115			

Sample Matrix Spike

File ID: 20	Type: LFM	Test Code: EPA Method 314.0	Batch ID: 28206K	Analysis Date: 02/14/2012 15:30						
Sample ID: 12020740-01ALFM	Units : µg/L	Run ID: IC_3_120214A	Prep Date: 02/14/2012 12:39							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	26	2	25	0	104	85	115			

Sample Matrix Spike Duplicate

File ID: 21	Type: LFMD	Test Code: EPA Method 314.0	Batch ID: 28206K	Analysis Date: 02/14/2012 15:48						
Sample ID: 12020740-01ALFMD	Units : µg/L	Run ID: IC_3_120214A	Prep Date: 02/14/2012 12:39							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27.4	2	25	0	110	85	115	26.01	5.2(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.



Alpha Analytical, Inc.

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Date:
15-Feb-12

QC Summary Report

Work Order:
12020740

Method Blank

Type: **MBLK** Test Code: **EPA Method 200.8**

File ID: 021012.B\048_M.D\

Batch ID: **28189K**

Analysis Date: **02/10/2012 14:43**

Sample ID: **MB-28189**

Units : **mg/L**

Run ID: **ICP/MS_120210B**

Prep Date: **02/10/2012 14:25**

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: 021012.B\049_M.D\

Batch ID: **28189K**

Analysis Date: **02/10/2012 14:50**

Sample ID: **LCS-28189**

Units : **mg/L**

Run ID: **ICP/MS_120210B**

Prep Date: **02/10/2012 14:25**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0503	0.005	0.05		101	80	120			

Sample Matrix Spike

Type: **MS** Test Code: **EPA Method 200.8**

File ID: 021012.B\054_M.D\

Batch ID: **28189K**

Analysis Date: **02/10/2012 15:26**

Sample ID: **12020740-01AMS**

Units : **mg/L**

Run ID: **ICP/MS_120210B**

Prep Date: **02/10/2012 14:25**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0531	0.005	0.05	0	106	80	120			

Sample Matrix Spike Duplicate

Type: **MSD** Test Code: **EPA Method 200.8**

File ID: 021012.B\055_M.D\

Batch ID: **28189K**

Analysis Date: **02/10/2012 15:32**

Sample ID: **12020740-01AMSD**

Units : **mg/L**

Run ID: **ICP/MS_120210B**

Prep Date: **02/10/2012 14:25**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0539	0.005	0.05	0	108	80	120	0.05313	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 Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

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Date:

17-Feb-12

QC Summary Report

Work Order:

12020740

Surr: 1,2-Dichloroethane-d4	9.72	10	97	70	130
Surr: Toluene-d8	10.2	10	102	70	130
Surr: 4-Bromofluorobenzene	9.87	10	99	70	130



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
17-Feb-12

QC Summary Report

Work Order:
12020740

Laboratory Control Spike

Type: LCS

Test Code: EPA Method SW8260B

File ID: 12021407.D

Batch ID: MS15W0214M

Analysis Date: 02/14/2012 11:25

Sample ID: LCS MS15W0214M

Units : µg/L

Run ID: MSD_15_120214B

Prep Date: 02/14/2012 11:25

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	10.3	1	10		103	70	130			
Chloromethane	5.88	2	10		59	70(70)	130			L50
Vinyl chloride	10.1	1	10		101	70	130			
Chloroethane	10.1	1	10		101	70	130			
Bromomethane	7.32	2	10		73	70	130			
Trichlorofluoromethane	10.3	1	10		103	70	130			
Acetone	212	10	200		106	36	171			
1,1-Dichloroethene	9.03	1	10		90	70	130			
Dichloromethane	8.94	2	10		89	70	130			
Freon-113	9.51	1	10		95	70	137			
trans-1,2-Dichloroethene	9.65	1	10		97	70	130			
Methyl tert-butyl ether (MTBE)	9.24	0.5	10		92	70	130			
1,1-Dichloroethane	9.76	1	10		98	70	130			
2-Butanone (MEK)	198	10	200		99	70	130			
cis-1,2-Dichloroethene	9.85	1	10		99	70	130			
Bromochloromethane	9.9	1	10		99	70	130			
Chloroform	9.53	1	10		95	70	130			
2,2-Dichloropropane	10.5	1	10		105	70	130			
1,2-Dichloroethane	9.7	1	10		97	70	130			
1,1,1-Trichloroethane	10.5	1	10		105	70	130			
1,1-Dichloropropene	10.1	1	10		101	70	130			
Carbon tetrachloride	9.58	1	10		96	70	130			
Benzene	9.3	0.5	10		93	70	130			
Dibromomethane	9.51	1	10		95	70	130			
1,2-Dichloropropane	9.66	1	10		97	70	130			
Trichloroethene	9.67	1	10		97	70	130			
Bromodichloromethane	9.44	1	10		94	70	130			
4-Methyl-2-pentanone (MIBK)	24.1	2.5	25		96	20	182			
cis-1,3-Dichloropropene	9.07	1	10		91	70	130			
trans-1,3-Dichloropropene	9.03	1	10		90	70	130			
1,1,2-Trichloroethane	9.67	1	10		97	70	130			
Toluene	9.25	0.5	10		93	70	130			
1,3-Dichloropropane	9.1	1	10		91	70	130			
2-Hexanone	101	5	100		101	20	182			
Dibromochloromethane	9.32	1	10		93	70	130			
1,2-Dibromoethane (EDB)	18.4	2	20		92	70	130			
Tetrachloroethene	9.91	1	10		99	70	130			
1,1,1,2-Tetrachloroethane	9.52	1	10		95	70	130			
Chlorobenzene	9.34	1	10		93	70	130			
Ethylbenzene	9.5	0.5	10		95	70	130			
m,p-Xylene	9.63	0.5	10		96	70	130			
Bromoform	9.03	1	10		90	70	130			
Styrene	8	1	10		80	70	130			
o-Xylene	9.87	0.5	10		99	70	130			
1,1,2,2-Tetrachloroethane	9.49	1	10		95	70	130			
1,2,3-Trichloropropane	19.8	2	20		99	70	130			
Isopropylbenzene	9.81	1	10		98	70	130			
Bromobenzene	9.79	1	10		98	70	130			
n-Propylbenzene	9.71	1	10		97	70	130			
4-Chlorotoluene	9.56	1	10		96	70	130			
2-Chlorotoluene	9.47	1	10		95	70	130			
1,3,5-Trimethylbenzene	9.78	1	10		98	70	130			
tert-Butylbenzene	9.71	1	10		97	70	130			
1,2,4-Trimethylbenzene	9.98	1	10		99.8	70	130			
sec-Butylbenzene	9.7	1	10		97	70	130			
1,3-Dichlorobenzene	10.1	1	10		101	70	130			
1,4-Dichlorobenzene	9.52	1	10		95	70	130			
4-Isopropyltoluene	9.87	1	10		99	70	130			
1,2-Dichlorobenzene	9.35	1	10		94	70	130			
n-Butylbenzene	9.56	1	10		96	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	46.9	3	50		94	67	130			
1,2,4-Trichlorobenzene	9.42	2	10		94	70	130			
Naphthalene	9.19	2	10		92	70	130			
Hexachlorobutadiene	19.5	2	20		98	70	130			
1,2,3-Trichlorobenzene	9.21	2	10		92	70	130			



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
17-Feb-12

QC Summary Report

Work Order:
12020740

Surr: 1,2-Dichloroethane-d4	10.5	10	105	70	130
Surr: Toluene-d8	10	10	100	70	130
Surr: 4-Bromofluorobenzene	10.4	10	104	70	130



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Date:
17-Feb-12

QC Summary Report

Work Order:
12020740

Sample Matrix Spike

Type: MS

Test Code: EPA Method SW8260B

File ID: 12021427.D

Batch ID: MS15W0214M

Analysis Date: 02/14/2012 18:39

Sample ID: 12020740-01AMS

Units: µg/L

Run ID: MSD_15_120214B

Prep Date: 02/14/2012 18:39

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	49.7	2.5	50	0	99	21	138			
Chloromethane	32.7	10	50	0	65	23	144			
Vinyl chloride	49.2	2.5	50	0	98	49	136			
Chloroethane	52.5	2.5	50	0	105	21	159			
Bromomethane	40.4	10	50	0	81	10	174			
Trichlorofluoromethane	65.1	2.5	50	0	130	32	154			
Acetone	500	50	1000	0	50	10	171			
1,1-Dichloroethene	48.2	2.5	50	0	96	64	130			
Dichloromethane	46.5	10	50	0	93	69	130			
Freon-113	51.9	2.5	50	0	104	55	141			
trans-1,2-Dichloroethene	51.1	2.5	50	0	102	63	130			
Methyl tert-butyl ether (MTBE)	49.4	1.3	50	0	99	47	150			
1,1-Dichloroethane	52.4	2.5	50	0	105	66	130			
2-Butanone (MEK)	696	50	1000	0	70	23	182			
cis-1,2-Dichloroethene	52	2.5	50	0	104	70	130			
Bromochloromethane	51.5	2.5	50	0	103	70	132			
Chloroform	52	2.5	50	0	104	70	130			
2,2-Dichloropropane	49.6	2.5	50	0	99	38	154			
1,2-Dichloroethane	55.3	2.5	50	0	111	65	134			
1,1,1-Trichloroethane	58.9	2.5	50	0	118	65	136			
1,1-Dichloropropene	55.5	2.5	50	0	111	68	132			
Carbon tetrachloride	54.7	2.5	50	0	109	58	148			
Benzene	49.5	1.3	50	0	99	59	138			
Dibromomethane	52.4	2.5	50	0	105	70	130			
1,2-Dichloropropane	51.1	2.5	50	0	102	70	131			
Trichloroethene	51.4	2.5	50	0	103	65	144			
Bromodichloromethane	52.8	2.5	50	0	106	50	157			
4-Methyl-2-pentanone (MIBK)	116	13	125	0	93	20	182			
cis-1,3-Dichloropropene	46.5	2.5	50	0	93	63	131			
trans-1,3-Dichloropropene	46.7	2.5	50	0	93	65	136			
1,1,2-Trichloroethane	52.5	2.5	50	0	105	70	131			
Toluene	47.3	1.3	50	0	95	68	130			
1,3-Dichloropropane	47	2.5	50	0	94	70	130			
2-Hexanone	321	25	500	0	64	20	182			
Dibromochloromethane	49.2	2.5	50	0	98	42	155			
1,2-Dibromoethane (EDB)	95.7	5	100	0	96	70	130			
Tetrachloroethene	51.3	2.5	50	0	103	65	130			
1,1,1,2-Tetrachloroethane	50.8	2.5	50	0	102	70	130			
Chlorobenzene	48.8	2.5	50	0	98	70	130			
Ethylbenzene	50.1	1.3	50	0	100	68	130			
m,p-Xylene	50.4	1.3	50	0	101	68	131			
Bromoform	48.2	2.5	50	0	96	65	143			
Styrene	41.8	2.5	50	0	84	59	153			
o-Xylene	51.5	1.3	50	0	103	70	130			
1,1,2,2-Tetrachloroethane	50.7	2.5	50	0	101	67	130			
1,2,3-Trichloropropane	106	10	100	0	106	70	130			
Isopropylbenzene	50.8	2.5	50	0	102	55	138			
Bromobenzene	50.4	2.5	50	0	101	70	130			
n-Propylbenzene	49.6	2.5	50	0	99	67	133			
4-Chlorotoluene	49.8	2.5	50	0	99.6	70	130			
2-Chlorotoluene	49.1	2.5	50	0	98	70	130			
1,3,5-Trimethylbenzene	50.8	2.5	50	0	102	67	134			
tert-Butylbenzene	50.6	2.5	50	0	101	55	147			
1,2,4-Trimethylbenzene	52	2.5	50	0	104	65	135			
sec-Butylbenzene	49.8	2.5	50	0	99.6	68	135			
1,3-Dichlorobenzene	51.8	2.5	50	0	104	70	130			
1,4-Dichlorobenzene	48.6	2.5	50	0	97	70	130			
4-Isopropyltoluene	50.8	2.5	50	0	102	68	132			
1,2-Dichlorobenzene	48.1	2.5	50	0	96	70	130			
n-Butylbenzene	49	2.5	50	0	98	62	134			
1,2-Dibromo-3-chloropropane (DBCP)	237	15	250	0	95	64	130			
1,2,4-Trichlorobenzene	45.9	10	50	0	92	62	133			
Naphthalene	40.2	10	50	0	80	32	166			
Hexachlorobutadiene	97.3	10	100	0	97	63	130			
1,2,3-Trichlorobenzene	40.5	10	50	0	81	55	138			



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
17-Feb-12

QC Summary Report

Work Order:
12020740

Surr: 1,2-Dichloroethane-d4	55.9	50	112	70	130
Surr: Toluene-d8	48.2	50	96	70	130
Surr: 4-Bromofluorobenzene	50.7	50	101	70	130



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Date:
17-Feb-12

QC Summary Report

Work Order:
12020740

Sample Matrix Spike Duplicate

Type: **MSD** Test Code: **EPA Method SW8260B**

File ID: **12021428.D**

Batch ID: **MS15W0214M**

Analysis Date: **02/14/2012 19:00**

Sample ID: **12020740-01AMSD**

Units: **µg/L**

Run ID: **MSD_15_120214B**

Prep Date: **02/14/2012 19:00**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	47.9	2.5	50	0	96	21	138	49.68	3.7(33)	
Chloromethane	40	10	50	0	80	23	144	32.67	20.3(27)	
Vinyl chloride	50.4	2.5	50	0	101	49	136	49.17	2.4(21)	
Chloroethane	52.3	2.5	50	0	105	21	159	52.46	0.2(40)	
Bromomethane	44.6	10	50	0	89	10	174	40.41	9.9(40)	
Trichlorofluoromethane	61.9	2.5	50	0	124	32	154	65.08	5.0(37)	
Acetone	532	50	1000	0	53	10	171	500.4	6.1(23)	
1,1-Dichloroethene	48.8	2.5	50	0	98	64	130	48.18	1.3(21)	
Dichloromethane	47.3	10	50	0	95	69	130	46.52	1.6(20)	
Freon-113	51.3	2.5	50	0	103	55	141	51.89	1.2(40)	
trans-1,2-Dichloroethene	51.1	2.5	50	0	102	63	130	51.09	0.0(20)	
Methyl tert-butyl ether (MTBE)	49.5	1.3	50	0	99	47	150	49.4	0.1(40)	
1,1-Dichloroethane	51.9	2.5	50	0	104	66	130	52.4	0.9(20)	
2-Butanone (MEK)	719	50	1000	0	72	23	182	696.3	3.2(22)	
cis-1,2-Dichloroethene	51.9	2.5	50	0	104	70	130	52.02	0.2(20)	
Bromochloromethane	52.7	2.5	50	0	105	70	132	51.47	2.4(20)	
Chloroform	51	2.5	50	0	102	70	130	51.99	1.9(20)	
2,2-Dichloropropane	48.9	2.5	50	0	98	38	154	49.58	1.4(22)	
1,2-Dichloroethane	53.3	2.5	50	0	107	65	134	55.26	3.5(20)	
1,1,1-Trichloroethane	57	2.5	50	0	114	65	136	58.91	3.3(20)	
1,1-Dichloropropene	54.3	2.5	50	0	109	68	132	55.46	2.2(20)	
Carbon tetrachloride	53.5	2.5	50	0	107	58	148	54.69	2.2(20)	
Benzene	49.5	1.3	50	0	99	59	138	49.46	0.1(21)	
Dibromomethane	52.4	2.5	50	0	105	70	130	52.41	0.1(20)	
1,2-Dichloropropane	51.6	2.5	50	0	103	70	131	51.07	1.0(20)	
Trichloroethene	50.8	2.5	50	0	102	65	144	51.42	1.2(20)	
Bromodichloromethane	51.5	2.5	50	0	103	50	157	52.8	2.5(20)	
4-Methyl-2-pentanone (MIBK)	118	13	125	0	94	20	182	116.4	1.0(20)	
cis-1,3-Dichloropropene	47.3	2.5	50	0	95	63	131	46.52	1.6(20)	
trans-1,3-Dichloropropene	46.9	2.5	50	0	94	65	136	46.67	0.5(20)	
1,1,2-Trichloroethane	51.8	2.5	50	0	104	70	131	52.47	1.3(20)	
Toluene	48	1.3	50	0	96	68	130	47.34	1.3(20)	
1,3-Dichloropropane	47.3	2.5	50	0	95	70	130	47	0.7(20)	
2-Hexanone	332	25	500	0	66	20	182	321.2	3.3(20)	
Dibromochloromethane	49.7	2.5	50	0	99	42	155	49.22	1.0(20)	
1,2-Dibromoethane (EDB)	97.1	5	100	0	97	70	130	95.72	1.5(20)	
Tetrachloroethene	52.2	2.5	50	0	104	65	130	51.32	1.7(20)	
1,1,1,2-Tetrachloroethane	50.4	2.5	50	0	101	70	130	50.77	0.7(20)	
Chlorobenzene	48.7	2.5	50	0	97	70	130	48.83	0.3(20)	
Ethylbenzene	49.9	1.3	50	0	99.8	68	130	50.09	0.3(20)	
m,p-Xylene	51	1.3	50	0	102	68	131	50.39	1.2(20)	
Bromoform	48.3	2.5	50	0	97	65	143	48.16	0.2(20)	
Styrene	41.9	2.5	50	0	84	59	153	41.76	0.4(37)	
o-Xylene	51.2	1.3	50	0	102	70	130	51.47	0.5(20)	
1,1,2,2-Tetrachloroethane	51	2.5	50	0	102	67	130	50.65	0.7(20)	
1,2,3-Trichloropropane	107	10	100	0	107	70	130	105.8	0.8(20)	
Isopropylbenzene	50.4	2.5	50	0	101	55	138	50.84	1.0(20)	
Bromobenzene	50.4	2.5	50	0	101	70	130	50.35	0.0(20)	
n-Propylbenzene	50.3	2.5	50	0	101	67	133	49.55	1.5(30)	
4-Chlorotoluene	50.3	2.5	50	0	101	70	130	49.82	1.0(20)	
2-Chlorotoluene	49.3	2.5	50	0	99	70	130	49.1	0.3(20)	
1,3,5-Trimethylbenzene	50.8	2.5	50	0	102	67	134	50.84	0.1(21)	
tert-Butylbenzene	50.6	2.5	50	0	101	55	147	50.64	0.1(20)	
1,2,4-Trimethylbenzene	52.1	2.5	50	0	104	65	135	52.03	0.0(25)	
sec-Butylbenzene	49.7	2.5	50	0	99	68	135	49.78	0.3(20)	
1,3-Dichlorobenzene	52.5	2.5	50	0	105	70	130	51.81	1.4(20)	
1,4-Dichlorobenzene	49.5	2.5	50	0	99	70	130	48.62	1.7(20)	
4-Isopropyltoluene	51.2	2.5	50	0	102	68	132	50.84	0.7(20)	
1,2-Dichlorobenzene	49	2.5	50	0	98	70	130	48.14	1.7(20)	
n-Butylbenzene	49.8	2.5	50	0	99.5	62	134	49	1.5(21)	
1,2-Dibromo-3-chloropropane (DBCP)	241	15	250	0	96	64	130	237.4	1.4(20)	
1,2,4-Trichlorobenzene	48.1	10	50	0	96	62	133	45.92	4.6(29)	
Naphthalene	43.2	10	50	0	86	32	166	40.16	7.3(40)	
Hexachlorobutadiene	101	10	100	0	101	63	130	97.28	3.3(21)	
1,2,3-Trichlorobenzene	43.8	10	50	0	88	55	138	40.52	7.7(36)	



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
17-Feb-12

QC Summary Report

Work Order:
12020740

Surr: 1,2-Dichloroethane-d4	54	50	108	70	130
Surr: Toluene-d8	49.3	50	99	70	130
Surr: 4-Bromofluorobenzene	51.1	50	102	70	130

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

CA

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

WorkOrder : BMIS12020740
Report Due By : 5:00 PM On : 21-Feb-12

Client: Battelle Memorial Institute
 655 West Broadway
 Suite 1420
 San Diego, CA 92101

Report Attention: David Conner (619) 726-7311 x connerd@battelle.org
 Betsy Cutie (614) 424-4899 x cutiee@battelle.org
 Shane Walton (614) 424-4117 x waltonss@battelle.org

Job : 100006114/JPL Groundwater Monitoring
 Client's COC # : 28883, 28944
 QC Level : DS4 = DOD QC Required : Final Rpt. MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates

EDD Required : Yes
 Sampled by : Chase Brogdon
 Cooler Temp 5 °C Samples Received 07-Feb-12 Date Printed 07-Feb-12

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles Alpha Sub TAT	Requested Tests			Sample Remarks
				314_W	METALS_D W	VOC_BMI_T IC_W	
BM112020740-01A	MW-4-3	AQ 02/06/12 09:30	10 0 10	Perchlorate	Cr	VOC by 524 Criteria	MS/MSD
BM112020740-02A	MW-4-2	AQ 02/06/12 10:04	5 0 10	Perchlorate	Cr	VOC by 524 Criteria	
BM112020740-03A	MW-4-1	AQ 02/06/12 10:40	5 0 10	Perchlorate	Cr	VOC by 524 Criteria	
BM112020740-04A	EB-6-2/6/12	AQ 02/06/12 10:33	5 0 10	Perchlorate	Cr	VOC by 524 Criteria	
BM112020740-05A	TB-6-2/6/12	AQ 02/06/12 08:00	1 0 10	Perchlorate	Cr	VOC by 524 Criteria	Reno Trip Blank 10/14/11
BM112020740-06A	MW-3-4	AQ 02/06/12 11:41	5 0 10	Perchlorate	Cr	VOC by 524 Criteria	
BM112020740-07A	MW-3-3	AQ 02/06/12 12:05	5 0 10	Perchlorate	Cr	VOC by 524 Criteria	
BM112020740-08A	MW-3-2	AQ 02/06/12 12:30	5 0 10	Perchlorate	Cr	VOC by 524 Criteria	
BM112020740-09A	MW-19-5	AQ 02/03/12 09:00	4 0 10	Perchlorate	Cr	VOC by 524 Criteria	
BM112020740-10A	MW-19-4	AQ 02/03/12 09:25	4 0 10	Perchlorate	Cr	VOC by 524 Criteria	

Comments: Security seals intact. Frozen ice. Temp Blank #9136 received @ 5°C. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). Level IV QC on sample - 11A.:

Logged in by: *Donna Luff* Signature *Sara Loffe* Print Name Alpha Analytical, Inc. Company 2/7/12 10:01 Date/Time

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.
 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-Tradlar B-Brass P-Plastic OT-Other

Billing Information :

CHAIN-OF-CUSTODY RECORD

CA

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

WorkOrder : BMIS12020740
Report Due By : 5:00 PM On : 21-Feb-12

Client: Battelle Memorial Institute
 655 West Broadway
 Suite 1420
 San Diego, CA 92101

Report Attention Phone Number **Email Address**

David Comer	(619) 726-7311 x	comer@battelle.org
Betsy Cutie	(614) 424-4899 x	cutie@battelle.org
Shane Walton	(614) 424-4117 x	walton@battelle.org

PO : 287215
 Client's COC # : 28883, 28944
 QC Level : DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD with Surrogates

Job : 100006114/JPL Groundwater Monitoring

Sampled by : Chase Brogdon
 Cooler Temp 5 °C Samples Received 07-Feb-12 Date Printed 07-Feb-12

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles		TAT	Requested Tests				Sample Remarks
			Alpha	Sub		314_W	METALS_D W	VOC_BMI_T IC_W	VOC_W	
BM12020740-11A	MW-19-3	02/03/12 09:43	4	0	10	Perchlorate		VOC by 524 Criteria	VOC by 524 Criteria	Level IV QC
BM12020740-12A	MW-19-2	02/03/12 10:09	4	0	10	Perchlorate		VOC by 524 Criteria	VOC by 524 Criteria	
BM12020740-13A	MW-19-1	02/03/12 10:48	4	0	10	Perchlorate		VOC by 524 Criteria	VOC by 524 Criteria	
BM12020740-14A	EB-5-2/3/12	02/03/12 10:40	4	0	10	Perchlorate		VOC by 524 Criteria	VOC by 524 Criteria	
BM12020740-15A	TB-5-2/3/12	02/03/12 07:45	1	0	10			VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 10/14/11

Comments: Security seals intact. Frozen ice. Temp Blank #9136 received @ 5°C. Samples should be used as the control spike sample if possible (I.E. MS/MSD). Level IV QC on sample -11A.

Logged in by: *Sharon Smulderlee* Signature _____ Print Name Sara Coffee

Company Alpha Analytical, Inc. Date/Time 2/7/12 10:01

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. 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 BATELLE / GERALD TOMPKINS
 Address 505 KING AVE
 City, State, Zip COLUMBUS, OH 43201
 Phone Number _____ Fax _____



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

Samples Collected From Which State? 28883
 AZ CA NV WA
 ID OR OTHER
 Page # 1 of 1

Analyses Required

Required QC Level?
 I II III IV

EDD / EDF? YES NO

Global ID #

REMARKS

Client Name	Address	City, State, Zip	PO #	Job #	Phone #	Fax #	Report Attention	Sample Description	TAT	Field Filtered	Total and type of containers ** See below	Global ID #	REMARKS
BATELLE / DAVID CONNER	3990 EAD TOWN AVE, C-205	San Diego, CA 92110	286479	100006114	619 726-7311	619 458-6614	DAVID CONNER						
0830	2/6/12	AA	BMT10000740-08A		MW-4-3						10/units		As Inso
1004	2/6	AA	-09A		MW-4-2						5/units		
1040	2/6	AA	-08A		MW-4-1						5/units		
1033	2/6/12	AA	-04A		EB-6 - 2 / 6 / 12						5/units		EQUIP BEANIE TRIP BANK.
0800	2/6/12	AA	-05A		TS-6 - 2 / 6 / 12						1 v		
1141	2/6	AA	-06A		MW-3-4						5/units		
1205	2/6	AA	-07A		MW-3-3						5/units		
1230	2/6/12	AA	-08A		MW-3-2						5/units		

ADDITIONAL INSTRUCTIONS:

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	CHRIS BRADSON	INSISTENT	2/6/12	1300
<i>[Signature]</i>	MARLYN SELLERS		2/6/12	1300
<i>[Signature]</i>	SARA LOFFE	alpha analytical	2/7/12	9:45

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** L-Liter V-Vol S-Soil Jar O-Orbo T-Tecllar 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 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.

Billing Information:

Name BATTLE / GERRARD TORPINS
 Address 505 KINE AVE
 City, State, Zip COLUMBUS, OH 43231
 Phone Number _____ Fax _____



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

Samples Collected From Which State? **28944**
 AZ CA NV WA
 ID OR OTHER
 Page # 1 of 1

Analyses Required

Client Name <u>BATTLE / DAVID CONNER</u>	PO. # <u>286479</u>	Job # <u>100006114</u>
Address <u>3450 000 TOWN AVE., C205</u>	Email Address <u>connerd@battelle.com</u>	
City, State, Zip <u>San Diego, CA 92113</u>	Phone # <u>(619) 726-7311</u>	Fax # <u>(619) 458-6614</u>
Time Sampled	Date Sampled	Matrix See Key Below
		Sampled by <u>CHRIS BRADSON</u>
		Lab ID Number (Use Only)
		Report Location <u>DAVID CONNER</u>
		Sample Description
		TAT
		Field Filtered
		Total and type of containers ** See below
		Required QC Level? I II (III) IV
		EDD / EDF? YES NO
		REMARKS
		Global ID #

Time Sampled	Date Sampled	Matrix See Key Below	Sampled by	Lab ID Number	Office (Use Only)	Report Location	Sample Description	TAT	Field Filtered	Total and type of containers ** See below	Analyses Required	Required QC Level?	EDD / EDF? YES NO	REMARKS
0900	2/3/12	AQ		BMT12A020740-09A			MW-19-5			4/many	VOC (524.2)	I II (III) IV		
0925				-10A -10A			MW-19-4				ClO4- (314.2)			
0943				-11A -11A			MW-19-3							LEVEL IV VOC
1009				-12A -12A			MW-19-2							
1048				-13A -13A			MW-19-1							
1040				-14A -14A			EB-5 - 2/3/12							EDUP BRANE
0745	2/3/12			-15A -15A			TB-5 - 2/3/12			1V				TRIP BRANK.

ADDITIONAL INSTRUCTIONS:

Signature 	Print Name <u>CHRIS BRADSON</u>	Company <u>INSIGHT</u>	Date <u>2/6/12</u>	Time <u>1300</u>
Relinquished by 	Print Name <u>SARA COFFE</u>	Company <u>alpha analytical</u>	Date <u>2/6/12</u>	Time <u>1300</u>
Received by <u>EDD-EX</u>	Print Name <u>EDD-EX</u>	Company <u>INSIGHT</u>	Date <u>2/6/12</u>	Time <u>1300</u>
Relinquished by	Print Name	Company	Date	Time
Received by <u>SARA COFFE</u>	Print Name <u>SARA COFFE</u>	Company <u>alpha analytical</u>	Date <u>2/7/12</u>	Time <u>9:45</u>
Relinquished by	Print Name	Company	Date	Time
Received by	Print Name	Company	Date	Time

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** L-Litter V-Voa S-Soil Jar O-Orbo T-Teclat 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 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.



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 20-Feb-12

David Conner
Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
(619) 726-7311

Suite 1420

CASE NARRATIVE

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)
Work Order: BMI12020840 Cooler Temp: 0 °C

Alpha's Sample ID	Client's Sample ID	Matrix
12020840-01A	MW-20-5	Aqueous
12020840-02A	MW-20-4	Aqueous
12020840-03A	MW-20-3	Aqueous
12020840-04A	MW-20-2	Aqueous
12020840-05A	MW-20-1	Aqueous
12020840-06A	EB-7-2/7/12	Aqueous
12020840-07A	TB-7-2/7/12	Aqueous

Manually Integrated Analytes

Alpha's Sample ID	Test Reference	Analyte
12020840-01A	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.

Note : The final report format has been altered from the DOD QSM to meet client instructions.

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/08/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Perchlorate by Ion Chromatography
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-20-5				
Lab ID : BMI12020840-01A Perchlorate	56.5	1.00 µg/L	02/14/12 12:39	02/14/12 20:24
Date Sampled 02/07/12 08:25				
Client ID: MW-20-4				
Lab ID : BMI12020840-02A Perchlorate	123	10.0 µg/L	02/14/12 12:39	02/15/12 09:43
Date Sampled 02/07/12 09:15				
Client ID: MW-20-3				
Lab ID : BMI12020840-03A Perchlorate	12.6	1.00 µg/L	02/14/12 12:39	02/14/12 21:01
Date Sampled 02/07/12 09:45				
Client ID: MW-20-2				
Lab ID : BMI12020840-04A Perchlorate	5.22	1.00 µg/L	02/14/12 12:39	02/14/12 21:19
Date Sampled 02/07/12 10:08				
Client ID: MW-20-1				
Lab ID : BMI12020840-05A Perchlorate	1.66	1.00 µg/L	02/14/12 12:39	02/14/12 21:38
Date Sampled 02/07/12 10:40				
Client ID: EB-7-2/7/12				
Lab ID : BMI12020840-06A Perchlorate	ND	1.00 µg/L	02/14/12 12:39	02/14/12 21:56
Date Sampled 02/07/12 10:23				

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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2/20/12

Report Date



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/08/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Metals by ICPMS
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-20-5				
Lab ID: BM112020840-01A Chromium (Cr)	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 16:51
Date Sampled 02/07/12 08:25				
Client ID: MW-20-4				
Lab ID: BM112020840-02A Chromium (Cr)	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 16:57
Date Sampled 02/07/12 09:15				
Client ID: MW-20-3				
Lab ID: BM112020840-03A Chromium (Cr)	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 17:27
Date Sampled 02/07/12 09:45				
Client ID: MW-20-2				
Lab ID: BM112020840-04A Chromium (Cr)	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 17:33
Date Sampled 02/07/12 10:08				
Client ID: MW-20-1				
Lab ID: BM112020840-05A Chromium (Cr)	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 17:39
Date Sampled 02/07/12 10:40				
Client ID: EB-7-2/7/12				
Lab ID: BM112020840-06A Chromium (Cr)	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 17:45
Date Sampled 02/07/12 10:23				

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/20/12

Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/08/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Special BMI TICs EPA Method SW8260B

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed	
Client ID: MW-20-5					
Lab ID : BMI12020840-01A	Acrylonitrile	ND	10 µg/L	02/10/12 15:59	02/10/12 15:59
Date Sampled 02/07/12 08:25	Allyl chloride	ND	2.0 µg/L	02/10/12 15:59	02/10/12 15:59
	Carbon disulfide	2.2	2.0 µg/L	02/10/12 15:59	02/10/12 15:59
	Chloroacetonitrile	ND	10 µg/L	02/10/12 15:59	02/10/12 15:59
	1-Chlorobutane	ND	2.0 µg/L	02/10/12 15:59	02/10/12 15:59
	1,1-Dichloropropanone	ND	10 µg/L	02/10/12 15:59	02/10/12 15:59
	Diethyl ether	ND	2.0 µg/L	02/10/12 15:59	02/10/12 15:59
	Ethyl methacrylate	ND	10 µg/L	02/10/12 15:59	02/10/12 15:59
	Hexachloroethane	ND	10 µg/L	02/10/12 15:59	02/10/12 15:59
	Methacrylonitrile	ND	10 µg/L	02/10/12 15:59	02/10/12 15:59
	Methyl acrylate	ND	10 µg/L	02/10/12 15:59	02/10/12 15:59
	Methyl iodide	ND	2.0 µg/L	02/10/12 15:59	02/10/12 15:59
	Methyl methacrylate	ND	10 µg/L	02/10/12 15:59	02/10/12 15:59
	Nitrobenzene	ND	10 µg/L	02/10/12 15:59	02/10/12 15:59
	2-Nitropropane	ND	2.0 µg/L	02/10/12 15:59	02/10/12 15:59
	Pentachloroethane	ND	2.0 µg/L	02/10/12 15:59	02/10/12 15:59
	Propionitrile	ND	50 µg/L	02/10/12 15:59	02/10/12 15:59
	Tetrahydrofuran	ND	10 µg/L	02/10/12 15:59	02/10/12 15:59
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/10/12 15:59	02/10/12 15:59
Client ID: MW-20-4					
Lab ID : BMI12020840-02A	Acrylonitrile	ND	10 µg/L	02/10/12 16:21	02/10/12 16:21
Date Sampled 02/07/12 09:15	Allyl chloride	ND	2.0 µg/L	02/10/12 16:21	02/10/12 16:21
	Carbon disulfide	ND	2.0 µg/L	02/10/12 16:21	02/10/12 16:21
	Chloroacetonitrile	ND	10 µg/L	02/10/12 16:21	02/10/12 16:21
	1-Chlorobutane	ND	2.0 µg/L	02/10/12 16:21	02/10/12 16:21
	1,1-Dichloropropanone	ND	10 µg/L	02/10/12 16:21	02/10/12 16:21
	Diethyl ether	ND	2.0 µg/L	02/10/12 16:21	02/10/12 16:21
	Ethyl methacrylate	ND	10 µg/L	02/10/12 16:21	02/10/12 16:21
	Hexachloroethane	ND	10 µg/L	02/10/12 16:21	02/10/12 16:21
	Methacrylonitrile	ND	10 µg/L	02/10/12 16:21	02/10/12 16:21
	Methyl acrylate	ND	10 µg/L	02/10/12 16:21	02/10/12 16:21
	Methyl iodide	ND	2.0 µg/L	02/10/12 16:21	02/10/12 16:21
	Methyl methacrylate	ND	10 µg/L	02/10/12 16:21	02/10/12 16:21
	Nitrobenzene	ND	10 µg/L	02/10/12 16:21	02/10/12 16:21
	2-Nitropropane	ND	2.0 µg/L	02/10/12 16:21	02/10/12 16:21
	Pentachloroethane	ND	2.0 µg/L	02/10/12 16:21	02/10/12 16:21
	Propionitrile	ND	50 µg/L	02/10/12 16:21	02/10/12 16:21
	Tetrahydrofuran	ND	10 µg/L	02/10/12 16:21	02/10/12 16:21
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/10/12 16:21	02/10/12 16:21



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Client ID: MW-20-3

Lab ID : BMII2020840-03A	Acrylonitrile	ND	10 µg/L	02/10/12 16:42	02/10/12 16:42
Date Sampled 02/07/12 09:45	Allyl chloride	ND	2.0 µg/L	02/10/12 16:42	02/10/12 16:42
	Carbon disulfide	ND	2.0 µg/L	02/10/12 16:42	02/10/12 16:42
	Chloroacetonitrile	ND	10 µg/L	02/10/12 16:42	02/10/12 16:42
	1-Chlorobutane	ND	2.0 µg/L	02/10/12 16:42	02/10/12 16:42
	1,1-Dichloropropanone	ND	10 µg/L	02/10/12 16:42	02/10/12 16:42
	Diethyl ether	ND	2.0 µg/L	02/10/12 16:42	02/10/12 16:42
	Ethyl methacrylate	ND	10 µg/L	02/10/12 16:42	02/10/12 16:42
	Hexachloroethane	ND	10 µg/L	02/10/12 16:42	02/10/12 16:42
	Methacrylonitrile	ND	10 µg/L	02/10/12 16:42	02/10/12 16:42
	Methyl acrylate	ND	10 µg/L	02/10/12 16:42	02/10/12 16:42
	Methyl iodide	ND	2.0 µg/L	02/10/12 16:42	02/10/12 16:42
	Methyl methacrylate	ND	10 µg/L	02/10/12 16:42	02/10/12 16:42
	Nitrobenzene	ND	10 µg/L	02/10/12 16:42	02/10/12 16:42
	2-Nitropropane	ND	2.0 µg/L	02/10/12 16:42	02/10/12 16:42
	Pentachloroethane	ND	2.0 µg/L	02/10/12 16:42	02/10/12 16:42
	Propionitrile	ND	50 µg/L	02/10/12 16:42	02/10/12 16:42
	Tetrahydrofuran	ND	10 µg/L	02/10/12 16:42	02/10/12 16:42
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/10/12 16:42	02/10/12 16:42

Client ID: MW-20-2

Lab ID : BMII2020840-04A	Acrylonitrile	ND	10 µg/L	02/10/12 17:04	02/10/12 17:04
Date Sampled 02/07/12 10:08	Allyl chloride	ND	2.0 µg/L	02/10/12 17:04	02/10/12 17:04
	Carbon disulfide	ND	2.0 µg/L	02/10/12 17:04	02/10/12 17:04
	Chloroacetonitrile	ND	10 µg/L	02/10/12 17:04	02/10/12 17:04
	1-Chlorobutane	ND	2.0 µg/L	02/10/12 17:04	02/10/12 17:04
	1,1-Dichloropropanone	ND	10 µg/L	02/10/12 17:04	02/10/12 17:04
	Diethyl ether	ND	2.0 µg/L	02/10/12 17:04	02/10/12 17:04
	Ethyl methacrylate	ND	10 µg/L	02/10/12 17:04	02/10/12 17:04
	Hexachloroethane	ND	10 µg/L	02/10/12 17:04	02/10/12 17:04
	Methacrylonitrile	ND	10 µg/L	02/10/12 17:04	02/10/12 17:04
	Methyl acrylate	ND	10 µg/L	02/10/12 17:04	02/10/12 17:04
	Methyl iodide	ND	2.0 µg/L	02/10/12 17:04	02/10/12 17:04
	Methyl methacrylate	ND	10 µg/L	02/10/12 17:04	02/10/12 17:04
	Nitrobenzene	ND	10 µg/L	02/10/12 17:04	02/10/12 17:04
	2-Nitropropane	ND	2.0 µg/L	02/10/12 17:04	02/10/12 17:04
	Pentachloroethane	ND	2.0 µg/L	02/10/12 17:04	02/10/12 17:04
	Propionitrile	ND	50 µg/L	02/10/12 17:04	02/10/12 17:04
	Tetrahydrofuran	ND	10 µg/L	02/10/12 17:04	02/10/12 17:04
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/10/12 17:04	02/10/12 17:04



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Client ID: **MW-20-1**

Lab ID : BMII2020840-05A	Acrylonitrile	ND	10 µg/L	02/10/12 17:26	02/10/12 17:26
Date Sampled 02/07/12 10:40	Allyl chloride	ND	2.0 µg/L	02/10/12 17:26	02/10/12 17:26
	Carbon disulfide	ND	2.0 µg/L	02/10/12 17:26	02/10/12 17:26
	Chloroacetonitrile	ND	10 µg/L	02/10/12 17:26	02/10/12 17:26
	1-Chlorobutane	ND	2.0 µg/L	02/10/12 17:26	02/10/12 17:26
	1,1-Dichloropropanone	ND	10 µg/L	02/10/12 17:26	02/10/12 17:26
	Diethyl ether	ND	2.0 µg/L	02/10/12 17:26	02/10/12 17:26
	Ethyl methacrylate	ND	10 µg/L	02/10/12 17:26	02/10/12 17:26
	Hexachloroethane	ND	10 µg/L	02/10/12 17:26	02/10/12 17:26
	Methacrylonitrile	ND	10 µg/L	02/10/12 17:26	02/10/12 17:26
	Methyl acrylate	ND	10 µg/L	02/10/12 17:26	02/10/12 17:26
	Methyl iodide	ND	2.0 µg/L	02/10/12 17:26	02/10/12 17:26
	Methyl methacrylate	ND	10 µg/L	02/10/12 17:26	02/10/12 17:26
	Nitrobenzene	ND	10 µg/L	02/10/12 17:26	02/10/12 17:26
	2-Nitropropane	ND	2.0 µg/L	02/10/12 17:26	02/10/12 17:26
	Pentachloroethane	ND	2.0 µg/L	02/10/12 17:26	02/10/12 17:26
	Propionitrile	ND	50 µg/L	02/10/12 17:26	02/10/12 17:26
	Tetrahydrofuran	ND	10 µg/L	02/10/12 17:26	02/10/12 17:26
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/10/12 17:26	02/10/12 17:26

Client ID: **EB-7-2/7/12**

Lab ID : BMII2020840-06A	Acrylonitrile	ND	10 µg/L	02/10/12 17:48	02/10/12 17:48
Date Sampled 02/07/12 10:23	Allyl chloride	ND	2.0 µg/L	02/10/12 17:48	02/10/12 17:48
	Carbon disulfide	ND	2.0 µg/L	02/10/12 17:48	02/10/12 17:48
	Chloroacetonitrile	ND	10 µg/L	02/10/12 17:48	02/10/12 17:48
	1-Chlorobutane	ND	2.0 µg/L	02/10/12 17:48	02/10/12 17:48
	1,1-Dichloropropanone	ND	10 µg/L	02/10/12 17:48	02/10/12 17:48
	Diethyl ether	ND	2.0 µg/L	02/10/12 17:48	02/10/12 17:48
	Ethyl methacrylate	ND	10 µg/L	02/10/12 17:48	02/10/12 17:48
	Hexachloroethane	ND	10 µg/L	02/10/12 17:48	02/10/12 17:48
	Methacrylonitrile	ND	10 µg/L	02/10/12 17:48	02/10/12 17:48
	Methyl acrylate	ND	10 µg/L	02/10/12 17:48	02/10/12 17:48
	Methyl iodide	ND	2.0 µg/L	02/10/12 17:48	02/10/12 17:48
	Methyl methacrylate	ND	10 µg/L	02/10/12 17:48	02/10/12 17:48
	Nitrobenzene	ND	10 µg/L	02/10/12 17:48	02/10/12 17:48
	2-Nitropropane	ND	2.0 µg/L	02/10/12 17:48	02/10/12 17:48
	Pentachloroethane	ND	2.0 µg/L	02/10/12 17:48	02/10/12 17:48
	Propionitrile	ND	50 µg/L	02/10/12 17:48	02/10/12 17:48
	Tetrahydrofuran	ND	10 µg/L	02/10/12 17:48	02/10/12 17:48
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/10/12 17:48	02/10/12 17:48



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Client ID: TB-7-2/7/12

Lab ID : BM112020840-07A	Acrylonitrile	ND	10 µg/L	02/10/12 18:09	02/10/12 18:09
Date Sampled 02/07/12 00:00	Allyl chloride	ND	2.0 µg/L	02/10/12 18:09	02/10/12 18:09
	Carbon disulfide	ND	2.0 µg/L	02/10/12 18:09	02/10/12 18:09
	Chloroacetonitrile	ND	10 µg/L	02/10/12 18:09	02/10/12 18:09
	1-Chlorobutane	ND	2.0 µg/L	02/10/12 18:09	02/10/12 18:09
	1,1-Dichloropropanone	ND	10 µg/L	02/10/12 18:09	02/10/12 18:09
	Diethyl ether	ND	2.0 µg/L	02/10/12 18:09	02/10/12 18:09
	Ethyl methacrylate	ND	10 µg/L	02/10/12 18:09	02/10/12 18:09
	Hexachloroethane	ND	10 µg/L	02/10/12 18:09	02/10/12 18:09
	Methacrylonitrile	ND	10 µg/L	02/10/12 18:09	02/10/12 18:09
	Methyl acrylate	ND	10 µg/L	02/10/12 18:09	02/10/12 18:09
	Methyl iodide	ND	2.0 µg/L	02/10/12 18:09	02/10/12 18:09
	Methyl methacrylate	ND	10 µg/L	02/10/12 18:09	02/10/12 18:09
	Nitrobenzene	ND	10 µg/L	02/10/12 18:09	02/10/12 18:09
	2-Nitropropane	ND	2.0 µg/L	02/10/12 18:09	02/10/12 18:09
	Pentachloroethane	ND	2.0 µg/L	02/10/12 18:09	02/10/12 18:09
	Propionitrile	ND	50 µg/L	02/10/12 18:09	02/10/12 18:09
	Tetrahydrofuran	ND	10 µg/L	02/10/12 18:09	02/10/12 18:09
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/10/12 18:09	02/10/12 18:09

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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2/20/12

Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020840-01A
Client I.D. Number: MW-20-5

Sampled: 02/07/12 08:25
Received: 02/08/12
Extracted: 02/10/12 15:59
Analyzed: 02/10/12 15:59

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	106	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	100	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl

Randy Gardner

Walter Hinchman

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020840-02A
Client I.D. Number: MW-20-4

Sampled: 02/07/12 09:15
Received: 02/08/12
Extracted: 02/10/12 16:21
Analyzed: 02/10/12 16:21

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	106	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	100	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020840-03A
Client I.D. Number: MW-20-3

Sampled: 02/07/12 09:45
Received: 02/08/12
Extracted: 02/10/12 16:42
Analyzed: 02/10/12 16:42

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethane	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethane	ND	0.50 µg/L	43 Styrene	1.7	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	1.2	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	107	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	100	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020840-04A
Client I.D. Number: MW-20-2

Sampled: 02/07/12 10:08
Received: 02/08/12
Extracted: 02/10/12 17:04
Analyzed: 02/10/12 17:04

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	1.5	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	108	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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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Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020840-05A
Client I.D. Number: MW-20-1

Sampled: 02/07/12 10:40
Received: 02/08/12
Extracted: 02/10/12 17:26
Analyzed: 02/10/12 17:26

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	109	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	100	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020840-06A
Client I.D. Number: EB-7-2/7/12

Sampled: 02/07/12 10:23
Received: 02/08/12
Extracted: 02/10/12 17:48
Analyzed: 02/10/12 17:48

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	109	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	102	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	97	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020840-07A
Client I.D. Number: TB-7-2/7/12

Sampled: 02/07/12 00:00
Received: 02/08/12
Extracted: 02/10/12 18:09
Analyzed: 02/10/12 18:09

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	108	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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: BMI12020840

Job: 100006114/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12020840-01A	MW-20-5	Aqueous	2
12020840-02A	MW-20-4	Aqueous	2
12020840-03A	MW-20-3	Aqueous	2
12020840-04A	MW-20-2	Aqueous	2
12020840-05A	MW-20-1	Aqueous	2
12020840-06A	EB-7-2/7/12	Aqueous	2
12020840-07A	TB-7-2/7/12	Aqueous	2

2/20/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
20-Feb-12

QC Summary Report

Work Order:
12020840

Method Blank

Type: **MBLK** Test Code: **EPA Method 314.0**

File ID: **16**

Batch ID: **28206K**

Analysis Date: **02/14/2012 14:16**

Sample ID: **MB-28206**

Units : **µg/L**

Run ID: **IC_3_120214A**

Prep Date: **02/14/2012 12:39**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

Laboratory Fortified Blank

Type: **LFB** Test Code: **EPA Method 314.0**

File ID: **42**

Batch ID: **28206K**

Analysis Date: **02/14/2012 22:14**

Sample ID: **LFB-28206**

Units : **µg/L**

Run ID: **IC_3_120214A**

Prep Date: **02/14/2012 12:39**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	28.4	2	25		114	85	115			

Sample Matrix Spike

Type: **LFM** Test Code: **EPA Method 314.0**

File ID: **20**

Batch ID: **28206K**

Analysis Date: **02/14/2012 15:30**

Sample ID: **12020740-01ALFM**

Units : **µg/L**

Run ID: **IC_3_120214A**

Prep Date: **02/14/2012 12:39**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	26	2	25	0	104	85	115			

Sample Matrix Spike Duplicate

Type: **LFMD** Test Code: **EPA Method 314.0**

File ID: **21**

Batch ID: **28206K**

Analysis Date: **02/14/2012 15:48**

Sample ID: **12020740-01ALFMD**

Units : **µg/L**

Run ID: **IC_3_120214A**

Prep Date: **02/14/2012 12:39**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27.4	2	25	0	110	85	115	26.01	5.2(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.



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
15-Feb-12

QC Summary Report

Work Order:
12020840

Method Blank		Type	Test Code: EPA Method 200.8							Analysis Date:	02/10/2012 14:43
File ID: 021012.B\048_M.D\			Batch ID: 28189K							Prep Date:	02/10/2012 14:25
Sample ID:	MB-28189	Units : mg/L	Run ID: ICP/MS_120210B								
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual	
Chromium (Cr)	ND	0.005									

Laboratory Control Spike		Type	Test Code: EPA Method 200.8							Analysis Date:	02/10/2012 14:50
File ID: 021012.B\049_M.D\			Batch ID: 28189K							Prep Date:	02/10/2012 14:25
Sample ID:	LCS-28189	Units : mg/L	Run ID: ICP/MS_120210B								
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual	
Chromium (Cr)	0.0503	0.005	0.05		101	80	120				

Sample Matrix Spike		Type	Test Code: EPA Method 200.8							Analysis Date:	02/10/2012 15:26
File ID: 021012.B\054_M.D\			Batch ID: 28189K							Prep Date:	02/10/2012 14:25
Sample ID:	12020740-01AMS	Units : mg/L	Run ID: ICP/MS_120210B								
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual	
Chromium (Cr)	0.0531	0.005	0.05	0	106	80	120				

Sample Matrix Spike Duplicate		Type	Test Code: EPA Method 200.8							Analysis Date:	02/10/2012 15:32
File ID: 021012.B\055_M.D\			Batch ID: 28189K							Prep Date:	02/10/2012 14:25
Sample ID:	12020740-01AMSD	Units : mg/L	Run ID: ICP/MS_120210B								
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual	
Chromium (Cr)	0.0539	0.005	0.05	0	108	80	120	0.05313	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.



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Date:

16-Feb-12

QC Summary Report

Work Order:

12020840

Surr: 1,2-Dichloroethane-d4	9.38	10	94	70	130
Surr: Toluene-d8	10.4	10	104	70	130
Surr: 4-Bromofluorobenzene	9.85	10	99	70	130



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Date:
16-Feb-12

QC Summary Report

Work Order:
12020840

Laboratory Control Spike

Type: **LCS** Test Code: **EPA Method SW8260B**

File ID: **12021003.D**

Batch ID: **MS15W0210M**

Analysis Date: **02/10/2012 09:49**

Sample ID: **LCS MS15W0210M**

Units: **µg/L**

Run ID: **MSD_15_120210A**

Prep Date: **02/10/2012 09:49**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	7.54	1	10		75	70	130			
Chloromethane	9.22	2	10		92	70	130			
Vinyl chloride	9.46	1	10		95	70	130			
Chloroethane	10.1	1	10		101	70	130			
Bromomethane	9.52	2	10		95	70	130			
Trichlorofluoromethane	10.7	1	10		107	70	130			
Acetone	228	10	200		114	36	171			
1,1-Dichloroethene	9.43	1	10		94	70	130			
Dichloromethane	9.36	2	10		94	70	130			
Freon-113	9.95	1	10		100	70	137			
trans-1,2-Dichloroethene	10	1	10		100	70	130			
Methyl tert-butyl ether (MTBE)	9.58	0.5	10		96	70	130			
1,1-Dichloroethane	10.2	1	10		102	70	130			
2-Butanone (MEK)	209	10	200		104	70	130			
cis-1,2-Dichloroethene	10.4	1	10		104	70	130			
Bromochloromethane	10.1	1	10		101	70	130			
Chloroform	10.1	1	10		101	70	130			
2,2-Dichloropropane	10.9	1	10		109	70	130			
1,2-Dichloroethane	10.2	1	10		102	70	130			
1,1,1-Trichloroethane	10.9	1	10		109	70	130			
1,1-Dichloropropene	10.6	1	10		106	70	130			
Carbon tetrachloride	9.7	1	10		97	70	130			
Benzene	9.83	0.5	10		98	70	130			
Dibromomethane	9.96	1	10		99.6	70	130			
1,2-Dichloropropane	10.2	1	10		102	70	130			
Trichloroethene	10.3	1	10		103	70	130			
Bromodichloromethane	9.69	1	10		97	70	130			
4-Methyl-2-pentanone (MIBK)	25.3	2.5	25		101	20	182			
cis-1,3-Dichloropropene	9.6	1	10		96	70	130			
trans-1,3-Dichloropropene	9.44	1	10		94	70	130			
1,1,2-Trichloroethane	10.2	1	10		102	70	130			
Toluene	9.82	0.5	10		98	70	130			
1,3-Dichloropropane	9.53	1	10		95	70	130			
2-Hexanone	105	5	100		105	20	182			
Dibromochloromethane	9.34	1	10		93	70	130			
1,2-Dibromoethane (EDB)	19.1	2	20		96	70	130			
Tetrachloroethene	10.6	1	10		106	70	130			
1,1,1,2-Tetrachloroethane	9.84	1	10		98	70	130			
Chlorobenzene	9.9	1	10		99	70	130			
Ethylbenzene	10.1	0.5	10		101	70	130			
m,p-Xylene	10.3	0.5	10		103	70	130			
Bromoform	9.05	1	10		91	70	130			
Styrene	8.45	1	10		85	70	130			
o-Xylene	10.3	0.5	10		103	70	130			
1,1,2,2-Tetrachloroethane	9.85	1	10		99	70	130			
1,2,3-Trichloropropane	20.4	2	20		102	70	130			
Isopropylbenzene	10.4	1	10		104	70	130			
Bromobenzene	10.3	1	10		103	70	130			
n-Propylbenzene	10.3	1	10		103	70	130			
4-Chlorotoluene	10.3	1	10		103	70	130			
2-Chlorotoluene	10.1	1	10		101	70	130			
1,3,5-Trimethylbenzene	10.3	1	10		103	70	130			
tert-Butylbenzene	10.3	1	10		103	70	130			
1,2,4-Trimethylbenzene	10.6	1	10		106	70	130			
sec-Butylbenzene	10.2	1	10		102	70	130			
1,3-Dichlorobenzene	10.6	1	10		106	70	130			
1,4-Dichlorobenzene	9.97	1	10		99.7	70	130			
4-Isopropyltoluene	10.5	1	10		105	70	130			
1,2-Dichlorobenzene	9.75	1	10		98	70	130			
n-Butylbenzene	10.1	1	10		101	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	44.7	3	50		89	67	130			
1,2,4-Trichlorobenzene	9.3	2	10		93	70	130			
Naphthalene	8.21	2	10		82	70	130			
Hexachlorobutadiene	20.1	2	20		100	70	130			
1,2,3-Trichlorobenzene	8.1	2	10		81	70	130			



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Date:
16-Feb-12

QC Summary Report

Work Order:
12020840

Surr: 1,2-Dichloroethane-d4	10.3	10	103	70	130
Surr: Toluene-d8	9.99	10	99.9	70	130
Surr: 4-Bromofluorobenzene	10.3	10	103	70	130



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Date:
16-Feb-12

QC Summary Report

Work Order:
12020840

Sample Matrix Spike

Type: **MS** Test Code: **EPA Method SW8260B**

File ID: **12021008.D**

Batch ID: **MS15W0210M**

Analysis Date: **02/10/2012 11:38**

Sample ID: **12020840-05AMS**

Units: **µg/L**

Run ID: **MSD_15_120210A**

Prep Date: **02/10/2012 11:38**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	48.4	2.5	50	0	97	21	138			
Chloromethane	52.2	10	50	0	104	23	144			
Vinyl chloride	50.7	2.5	50	0	101	49	136			
Chloroethane	51.7	2.5	50	0	103	21	159			
Bromomethane	49.4	10	50	0	99	10	174			
Trichlorofluoromethane	53.2	2.5	50	0	106	32	154			
Acetone	504	50	1000	0	50	10	171			
1,1-Dichloroethene	47.2	2.5	50	0	94	64	130			
Dichloromethane	46.1	10	50	0	92	69	130			
Freon-113	49.5	2.5	50	0	99	55	141			
trans-1,2-Dichloroethene	49.2	2.5	50	0	98	63	130			
Methyl tert-butyl ether (MTBE)	47.9	1.3	50	0	96	47	150			
1,1-Dichloroethane	49.5	2.5	50	0	99	66	130			
2-Butanone (MEK)	685	50	1000	0	69	23	182			
cis-1,2-Dichloroethene	48.4	2.5	50	0	97	70	130			
Bromochloromethane	50.1	2.5	50	0	100	70	132			
Chloroform	47.9	2.5	50	0	96	70	130			
2,2-Dichloropropane	53.2	2.5	50	0	106	38	154			
1,2-Dichloroethane	48.9	2.5	50	0	98	65	134			
1,1,1-Trichloroethane	52.5	2.5	50	0	105	65	136			
1,1-Dichloropropene	52.2	2.5	50	0	104	68	132			
Carbon tetrachloride	46.5	2.5	50	0	93	58	148			
Benzene	47.9	1.3	50	0	96	59	138			
Dibromomethane	48	2.5	50	0	96	70	130			
1,2-Dichloropropane	49.1	2.5	50	0	98	70	131			
Trichloroethene	49.3	2.5	50	0	99	65	144			
Bromodichloromethane	45.7	2.5	50	0	91	50	157			
4-Methyl-2-pentanone (MIBK)	113	13	125	0	91	20	182			
cis-1,3-Dichloropropene	44.9	2.5	50	0	90	63	131			
trans-1,3-Dichloropropene	44.2	2.5	50	0	88	65	136			
1,1,2-Trichloroethane	49.7	2.5	50	0	99	70	131			
Toluene	47.3	1.3	50	0	95	68	130			
1,3-Dichloropropane	46.8	2.5	50	0	94	70	130			
2-Hexanone	325	25	500	0	65	20	182			
Dibromochloromethane	43.5	2.5	50	0	87	42	155			
1,2-Dibromoethane (EDB)	93.1	5	100	0	93	70	130			
Tetrachloroethene	50.5	2.5	50	0	101	65	130			
1,1,1,2-Tetrachloroethane	46.8	2.5	50	0	94	70	130			
Chlorobenzene	47.7	2.5	50	0	95	70	130			
Ethylbenzene	48.4	1.3	50	0	97	68	130			
m,p-Xylene	49.9	1.3	50	0	99.7	68	131			
Bromoform	42.2	2.5	50	0	84	65	143			
Styrene	41	2.5	50	0	82	59	153			
o-Xylene	49.3	1.3	50	0	99	70	130			
1,1,2,2-Tetrachloroethane	48.4	2.5	50	0	97	67	130			
1,2,3-Trichloropropane	99.8	10	100	0	99.8	70	130			
Isopropylbenzene	48.8	2.5	50	0	98	55	138			
Bromobenzene	49.1	2.5	50	0	98	70	130			
n-Propylbenzene	48.3	2.5	50	0	97	67	133			
4-Chlorotoluene	48.9	2.5	50	0	98	70	130			
2-Chlorotoluene	48.2	2.5	50	0	96	70	130			
1,3,5-Trimethylbenzene	49	2.5	50	0	98	67	134			
tert-Butylbenzene	48.7	2.5	50	0	97	55	147			
1,2,4-Trimethylbenzene	50.1	2.5	50	0	100	65	135			
sec-Butylbenzene	48.8	2.5	50	0	98	68	135			
1,3-Dichlorobenzene	50.3	2.5	50	0	101	70	130			
1,4-Dichlorobenzene	47.4	2.5	50	0	95	70	130			
4-Isopropyltoluene	49.5	2.5	50	0	99	68	132			
1,2-Dichlorobenzene	46.5	2.5	50	0	93	70	130			
n-Butylbenzene	48.2	2.5	50	0	96	62	134			
1,2-Dibromo-3-chloropropane (DBCP)	216	15	250	0	86	64	130			
1,2,4-Trichlorobenzene	45.7	10	50	0	91	62	133			
Naphthalene	42	10	50	0	84	32	166			
Hexachlorobutadiene	96.8	10	100	0	97	63	130			
1,2,3-Trichlorobenzene	41.5	10	50	0	83	55	138			



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Date:

16-Feb-12

QC Summary Report

Work Order:

12020840

Surr: 1,2-Dichloroethane-d4	51.6	50	103	70	130
Surr: Toluene-d8	50.3	50	101	70	130
Surr: 4-Bromofluorobenzene	51.4	50	103	70	130



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Date:
16-Feb-12

QC Summary Report

Work Order:
12020840

Sample Matrix Spike Duplicate

Type: **MSD** Test Code: **EPA Method SW8260B**

File ID: **12021009.D**

Batch ID: **MS15W0210M**

Analysis Date: **02/10/2012 12:00**

Sample ID: **12020840-05AMSD**

Units: **µg/L**

Run ID: **MSD_15_120210A**

Prep Date: **02/10/2012 12:00**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	48.5	2.5	50	0	97	21	138	48.44	0.0(33)	
Chloromethane	32.5	10	50	0	65	23	144	52.17	46.6(27)	R5
Vinyl chloride	50.2	2.5	50	0	100	49	136	50.66	1.0(21)	
Chloroethane	48.3	2.5	50	0	97	21	159	51.67	6.7(40)	
Bromomethane	42.7	10	50	0	85	10	174	49.43	14.7(40)	
Trichlorofluoromethane	49.1	2.5	50	0	98	32	154	53.24	8.1(37)	
Acetone	423	50	1000	0	42	10	171	504.4	17.6(23)	
1,1-Dichloroethene	48.5	2.5	50	0	97	64	130	47.24	2.7(21)	
Dichloromethane	45.5	10	50	0	91	69	130	46.05	1.3(20)	
Freon-113	50	2.5	50	0	100	55	141	49.48	1.1(40)	
trans-1,2-Dichloroethene	49.4	2.5	50	0	99	63	130	49.19	0.4(20)	
Methyl tert-butyl ether (MTBE)	46.1	1.3	50	0	92	47	150	47.9	3.8(40)	
1,1-Dichloroethane	49.2	2.5	50	0	98	66	130	49.52	0.6(20)	
2-Butanone (MEK)	644	50	1000	0	64	23	182	685.1	6.2(22)	
cis-1,2-Dichloroethene	48.7	2.5	50	0	97	70	130	48.43	0.5(20)	
Bromochloromethane	47.3	2.5	50	0	95	70	132	50.06	5.6(20)	
Chloroform	47.4	2.5	50	0	95	70	130	47.94	1.2(20)	
2,2-Dichloropropane	46.4	2.5	50	0	93	38	154	53.21	13.7(22)	
1,2-Dichloroethane	46.7	2.5	50	0	93	65	134	48.86	4.5(20)	
1,1,1-Trichloroethane	50.8	2.5	50	0	102	65	136	52.45	3.2(20)	
1,1-Dichloropropene	51.9	2.5	50	0	104	68	132	52.17	0.4(20)	
Carbon tetrachloride	42.5	2.5	50	0	85	58	148	46.47	8.9(20)	
Benzene	48.1	1.3	50	0	96	59	138	47.89	0.5(21)	
Dibromomethane	47	2.5	50	0	94	70	130	47.95	2.0(20)	
1,2-Dichloropropane	49.1	2.5	50	0	98	70	131	49.1	0.1(20)	
Trichloroethene	49.6	2.5	50	0	99	65	144	49.28	0.6(20)	
Bromodichloromethane	45	2.5	50	0	90	50	157	45.69	1.5(20)	
4-Methyl-2-pentanone (MIBK)	112	13	125	0	89	20	182	113.4	1.7(20)	
cis-1,3-Dichloropropene	42.1	2.5	50	0	84	63	131	44.93	6.5(20)	
trans-1,3-Dichloropropene	41.1	2.5	50	0	82	65	136	44.22	7.3(20)	
1,1,2-Trichloroethane	50	2.5	50	0	100	70	131	49.73	0.5(20)	
Toluene	48.1	1.3	50	0	96	68	130	47.31	1.7(20)	
1,3-Dichloropropane	46.4	2.5	50	0	93	70	130	46.79	0.9(20)	
2-Hexanone	321	25	500	0	64	20	182	324.8	1.2(20)	
Dibromochloromethane	44.1	2.5	50	0	88	42	155	43.51	1.2(20)	
1,2-Dibromoethane (EDB)	93	5	100	0	93	70	130	93.05	0.1(20)	
Tetrachloroethene	51.3	2.5	50	0	103	65	130	50.46	1.6(20)	
1,1,1,2-Tetrachloroethane	46.8	2.5	50	0	94	70	130	46.76	0.0(20)	
Chlorobenzene	48.3	2.5	50	0	97	70	130	47.65	1.3(20)	
Ethylbenzene	49	1.3	50	0	98	68	130	48.39	1.3(20)	
m,p-Xylene	50.4	1.3	50	0	101	68	131	49.87	1.0(20)	
Bromoform	42.9	2.5	50	0	86	65	143	42.19	1.6(20)	
Styrene	41.2	2.5	50	0	82	59	153	40.95	0.6(37)	
o-Xylene	50.3	1.3	50	0	101	70	130	49.33	1.9(20)	
1,1,2,2-Tetrachloroethane	48.8	2.5	50	0	98	67	130	48.42	0.7(20)	
1,2,3-Trichloropropane	99.7	10	100	0	99.7	70	130	99.8	0.1(20)	
Isopropylbenzene	50.6	2.5	50	0	101	55	138	48.84	3.6(20)	
Bromobenzene	50.2	2.5	50	0	100	70	130	49.05	2.3(20)	
n-Propylbenzene	49.8	2.5	50	0	99.5	67	133	48.25	3.1(30)	
4-Chlorotoluene	50.4	2.5	50	0	101	70	130	48.91	3.0(20)	
2-Chlorotoluene	49.4	2.5	50	0	99	70	130	48.21	2.5(20)	
1,3,5-Trimethylbenzene	50	2.5	50	0	99.9	67	134	48.98	2.0(21)	
tert-Butylbenzene	49.6	2.5	50	0	99	55	147	48.71	1.8(20)	
1,2,4-Trimethylbenzene	51	2.5	50	0	102	65	135	50.08	1.9(25)	
sec-Butylbenzene	49.6	2.5	50	0	99	68	135	48.81	1.7(20)	
1,3-Dichlorobenzene	51.8	2.5	50	0	104	70	130	50.34	2.9(20)	
1,4-Dichlorobenzene	48.2	2.5	50	0	96	70	130	47.38	1.7(20)	
4-Isopropyltoluene	50.1	2.5	50	0	100	68	132	49.54	1.1(20)	
1,2-Dichlorobenzene	47.4	2.5	50	0	95	70	130	46.52	2.0(20)	
n-Butylbenzene	48.1	2.5	50	0	96	62	134	48.2	0.2(21)	
1,2-Dibromo-3-chloropropane (DBCP)	218	15	250	0	87	64	130	215.8	0.9(20)	
1,2,4-Trichlorobenzene	46.2	10	50	0	92	62	133	45.7	1.2(29)	
Naphthalene	44.8	10	50	0	90	32	166	41.96	6.5(40)	
Hexachlorobutadiene	97.1	10	100	0	97	63	130	96.75	0.4(21)	
1,2,3-Trichlorobenzene	44.3	10	50	0	89	55	138	41.45	6.7(36)	



Alpha Analytical, Inc.

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Date:

16-Feb-12

QC Summary Report

Work Order:

12020840

Surr: 1,2-Dichloroethane-d4	50.2	50	100	70	130
Surr: Toluene-d8	50.5	50	101	70	130
Surr: 4-Bromofluorobenzene	51.6	50	103	70	130

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.

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

Billing Information :

Page: 1 of 1

CHAIN-OF-CUSTODY RECORD

CA

Alpha Analytical, Inc.

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

WorkOrder : BMIS12020840

Report Due By : 5:00 PM On : 21-Feb-12

Client:

Battelle Memorial Institute
655 West Broadway
Suite 1420
San Diego, CA 92101

Report Attention Phone Number Email Address

David Conner (619) 726-7311 x connerd@battelle.org

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

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

EDD Required : Yes

Sampled by : Client

Cooler Temp Samples Received Date Printed

0 °C 08-Feb-12 08-Feb-12

Client's COC # : 28942 Job : 100006114/JPL Groundwater Monitoring

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

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles			314_W	METALS_D W	VOC_BMI_T IC_W	VOC_W	Requested Tests	Sample Remarks
			Alpha	Sub	TAT						
BM112020840-01A	NW-20-5	AQ 02/07/12 08:25	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BM12020840-02A	NW-20-4	AQ 02/07/12 09:15	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BM112020840-03A	NW-20-3	AQ 02/07/12 09:45	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BM12020840-04A	NW-20-2	AQ 02/07/12 10:08	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BM112020840-05A	NW-20-1	AQ 02/07/12 10:40	10	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	MS/MSD	
BM112020840-06A	EB-7-2/7/12	AQ 02/07/12 10:23	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BM112020840-07A	TB-7-2/7/12	AQ 02/07/12 00:00	1	0	9			VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 10/14/11	

Comments: Security seals intact. Frozen ice. Temp Blank #9760 received @ 0°C. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).

Signature

Print Name

Sara Coffee

Company

Alpha Analytical, Inc.

Date/Time

2/8/12 10:11

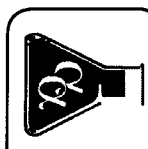
Logged in by:

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.
Matrix Type : AQAqueous) 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 BATTLE / GENARO TOMPKINS
 Address 505 KINLO AVE
 City, State, Zip COLUMBUS, OH 43201
 Phone Number _____ Fax _____



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

Samples Collected From Which States? 28942
 AZ CA NV WA
 ID OR OTHER
 Page # 1 of 1

Analyses Required

Client Name BATTLE / DAVID CORNICE Job # 00006114
 Address 3063 OLD TOWN AVE, C-205 PO # 286479
 City, State, Zip SAN DIEGO CA 92110 Email Address Conrad@battelle.org
 Phone # 619-726-1311 Fax # 619 458-6614

Report Attention DAVID CORNICE Sample Description
 TAT
 Field Filtered
 Total and type of containers ** See below

Time Sampled	Date Sampled	Matrix* See Key Below	Sampled by	Lab ID Number (Use Only)	Office (Use Only)	Report Attention	Sample Description	TAT	Field Filtered	Total and type of containers ** See below	Global ID #	REMARKS
825	2/12/12	AQ		BUT1A030840-D1A			MW-20-5			5/vary		
915	1/1/12	AQ					MW-20-4			5/vary		
945	1/1/12	AQ					MW-20-3			5/vary		
1008	1/1/12	AQ					MW-20-2			5/vary		
1040	1/1/12	AQ					MW-20-1			5/vary		
1022	1/1/12	AQ					EG-7-2/7/12			5/vary		
							TR-7-2/7/12			1/voa		

ADDITIONAL INSTRUCTIONS:

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	MARKUS NEUBERGER	ALPHA ANALYTICAL	2/7/12	1200
<i>[Signature]</i>	Anthony Stahl	ALPHA ANALYTICAL	2/7/12	1200
<i>[Signature]</i>	SARALETAE	ALPHA ANALYTICAL	2/8/12	10:08

Required QC Level?
 I II III IV
 EDD / EDF? YES NO
 Global ID # _____
 REMARKS

*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 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.



Alpha Analytical, Inc.

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

Date: 17-Feb-12

David Conner
Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
(619) 726-7311

Suite 1420

CASE NARRATIVE

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Work Order: BMI12020940 Cooler Temp: 0 °C

Alpha's Sample ID	Client's Sample ID	Matrix
12020940-01A	MW-11-4	Aqueous
12020940-02A	MW-11-3	Aqueous
12020940-03A	MW-11-2	Aqueous
12020940-04A	MW-11-1	Aqueous
12020940-05A	DUPE-2-1Q12	Aqueous
12020940-06A	EB-8-2/8/12	Aqueous
12020940-07A	TB-8-2/8/12	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.

Note : The final report format has been altered from the DOD QSM to meet client instructions.

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/09/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Anions by IC
EPA Method 300.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-11-1				
Lab ID : BM112020940-04A Chloride	23	0.50 mg/L	02/09/12 11:49	02/09/12 12:59
Date Sampled 02/08/12 09:45 Nitrite (NO2) - N	ND	0.25 mg/L	02/09/12 11:49	02/09/12 12:59
Nitrate (NO3) - N	0.93	0.25 mg/L	02/09/12 11:49	02/09/12 12:59
Phosphate, ortho - P	ND	0.50 mg/L	02/09/12 11:49	02/09/12 12:59
Sulfate (SO4)	54	0.50 mg/L	02/09/12 11:49	02/09/12 12:59

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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

2/21/12

Report Date



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/09/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Perchlorate by Ion Chromatography
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-11-4 Lab ID : BMI12020940-01A Perchlorate Date Sampled 02/08/12 08:05	ND	1.00 µg/L	02/14/12 17:57	02/15/12 00:23
Client ID: MW-11-3 Lab ID : BMI12020940-02A Perchlorate Date Sampled 02/08/12 08:30	ND	1.00 µg/L	02/14/12 17:57	02/15/12 00:42
Client ID: MW-11-2 Lab ID : BMI12020940-03A Perchlorate Date Sampled 02/08/12 08:58	ND	1.00 µg/L	02/14/12 17:57	02/15/12 01:00
Client ID: MW-11-1 Lab ID : BMI12020940-04A Perchlorate Date Sampled 02/08/12 09:45	ND	1.00 µg/L	02/14/12 17:57	02/15/12 01:19
Client ID: DUPE-2-1Q12 Lab ID : BMI12020940-05A Perchlorate Date Sampled 02/08/12 00:00	ND	1.00 µg/L	02/14/12 17:57	02/15/12 02:14
Client ID: EB-8-2/8/12 Lab ID : BMI12020940-06A Perchlorate Date Sampled 02/08/12 09:17	ND	1.00 µg/L	02/14/12 17:57	02/15/12 02:32

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/21/12

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/09/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Metals by ICPMS
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-11-3 Lab ID: BM112020940-02A Chromium (Cr) Date Sampled 02/08/12 08:30	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 17:51
Client ID: MW-11-2 Lab ID: BM112020940-03A Chromium (Cr) Date Sampled 02/08/12 08:58	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 17:57
Client ID: MW-11-1 Lab ID: BM112020940-04A Chromium (Cr) Date Sampled 02/08/12 09:45	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 18:03
Client ID: EB-8-2/8/12 Lab ID: BM112020940-06A Chromium (Cr) Date Sampled 02/08/12 09:17	ND	0.0050 mg/L	02/10/12 14:25	02/10/12 18:22

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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2/21/12

Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/09/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Special BMI TICs
EPA Method SW8260B

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed	
Client ID: MW-11-4					
Lab ID : BMI12020940-01A	Acrylonitrile	ND	10 µg/L	02/15/12 14:08	02/15/12 14:08
Date Sampled 02/08/12 08:05	Allyl chloride	ND	2.0 µg/L	02/15/12 14:08	02/15/12 14:08
	Carbon disulfide	ND	2.0 µg/L	02/15/12 14:08	02/15/12 14:08
	Chloroacetonitrile	ND	10 µg/L	02/15/12 14:08	02/15/12 14:08
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 14:08	02/15/12 14:08
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 14:08	02/15/12 14:08
	Diethyl ether	ND	2.0 µg/L	02/15/12 14:08	02/15/12 14:08
	Ethyl methacrylate	ND	10 µg/L	02/15/12 14:08	02/15/12 14:08
	Hexachloroethane	ND	10 µg/L	02/15/12 14:08	02/15/12 14:08
	Methacrylonitrile	ND	10 µg/L	02/15/12 14:08	02/15/12 14:08
	Methyl acrylate	ND	10 µg/L	02/15/12 14:08	02/15/12 14:08
	Methyl iodide	ND	2.0 µg/L	02/15/12 14:08	02/15/12 14:08
	Methyl methacrylate	ND	10 µg/L	02/15/12 14:08	02/15/12 14:08
	Nitrobenzene	ND	10 µg/L	02/15/12 14:08	02/15/12 14:08
	2-Nitropropane	ND	2.0 µg/L	02/15/12 14:08	02/15/12 14:08
	Pentachloroethane	ND	2.0 µg/L	02/15/12 14:08	02/15/12 14:08
	Propionitrile	ND	50 µg/L	02/15/12 14:08	02/15/12 14:08
	Tetrahydrofuran	ND	10 µg/L	02/15/12 14:08	02/15/12 14:08
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 14:08	02/15/12 14:08
Client ID: MW-11-3					
Lab ID : BMI12020940-02A	Acrylonitrile	ND	10 µg/L	02/15/12 14:30	02/15/12 14:30
Date Sampled 02/08/12 08:30	Allyl chloride	ND	2.0 µg/L	02/15/12 14:30	02/15/12 14:30
	Carbon disulfide	ND	2.0 µg/L	02/15/12 14:30	02/15/12 14:30
	Chloroacetonitrile	ND	10 µg/L	02/15/12 14:30	02/15/12 14:30
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 14:30	02/15/12 14:30
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 14:30	02/15/12 14:30
	Diethyl ether	ND	2.0 µg/L	02/15/12 14:30	02/15/12 14:30
	Ethyl methacrylate	ND	10 µg/L	02/15/12 14:30	02/15/12 14:30
	Hexachloroethane	ND	10 µg/L	02/15/12 14:30	02/15/12 14:30
	Methacrylonitrile	ND	10 µg/L	02/15/12 14:30	02/15/12 14:30
	Methyl acrylate	ND	10 µg/L	02/15/12 14:30	02/15/12 14:30
	Methyl iodide	ND	2.0 µg/L	02/15/12 14:30	02/15/12 14:30
	Methyl methacrylate	ND	10 µg/L	02/15/12 14:30	02/15/12 14:30
	Nitrobenzene	ND	10 µg/L	02/15/12 14:30	02/15/12 14:30
	2-Nitropropane	ND	2.0 µg/L	02/15/12 14:30	02/15/12 14:30
	Pentachloroethane	ND	2.0 µg/L	02/15/12 14:30	02/15/12 14:30
	Propionitrile	ND	50 µg/L	02/15/12 14:30	02/15/12 14:30
	Tetrahydrofuran	ND	10 µg/L	02/15/12 14:30	02/15/12 14:30
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 14:30	02/15/12 14:30



Alpha Analytical, Inc.

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Client ID: MW-11-2

Lab ID : BMI12020940-03A	Acrylonitrile	ND	10 µg/L	02/15/12 14:51	02/15/12 14:51
Date Sampled 02/08/12 08:58	Allyl chloride	ND	2.0 µg/L	02/15/12 14:51	02/15/12 14:51
	Carbon disulfide	ND	2.0 µg/L	02/15/12 14:51	02/15/12 14:51
	Chloroacetonitrile	ND	10 µg/L	02/15/12 14:51	02/15/12 14:51
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 14:51	02/15/12 14:51
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 14:51	02/15/12 14:51
	Diethyl ether	ND	2.0 µg/L	02/15/12 14:51	02/15/12 14:51
	Ethyl methacrylate	ND	10 µg/L	02/15/12 14:51	02/15/12 14:51
	Hexachloroethane	ND	10 µg/L	02/15/12 14:51	02/15/12 14:51
	Methacrylonitrile	ND	10 µg/L	02/15/12 14:51	02/15/12 14:51
	Methyl acrylate	ND	10 µg/L	02/15/12 14:51	02/15/12 14:51
	Methyl iodide	ND	2.0 µg/L	02/15/12 14:51	02/15/12 14:51
	Methyl methacrylate	ND	10 µg/L	02/15/12 14:51	02/15/12 14:51
	Nitrobenzene	ND	10 µg/L	02/15/12 14:51	02/15/12 14:51
	2-Nitropropane	ND	2.0 µg/L	02/15/12 14:51	02/15/12 14:51
	Pentachloroethane	ND	2.0 µg/L	02/15/12 14:51	02/15/12 14:51
	Propionitrile	ND	50 µg/L	02/15/12 14:51	02/15/12 14:51
	Tetrahydrofuran	ND	10 µg/L	02/15/12 14:51	02/15/12 14:51
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 14:51	02/15/12 14:51

Client ID: MW-11-1

Lab ID : BMI12020940-04A	Acrylonitrile	ND	10 µg/L	02/15/12 15:13	02/15/12 15:13
Date Sampled 02/08/12 09:45	Allyl chloride	ND	2.0 µg/L	02/15/12 15:13	02/15/12 15:13
	Carbon disulfide	ND	2.0 µg/L	02/15/12 15:13	02/15/12 15:13
	Chloroacetonitrile	ND	10 µg/L	02/15/12 15:13	02/15/12 15:13
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 15:13	02/15/12 15:13
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 15:13	02/15/12 15:13
	Diethyl ether	ND	2.0 µg/L	02/15/12 15:13	02/15/12 15:13
	Ethyl methacrylate	ND	10 µg/L	02/15/12 15:13	02/15/12 15:13
	Hexachloroethane	ND	10 µg/L	02/15/12 15:13	02/15/12 15:13
	Methacrylonitrile	ND	10 µg/L	02/15/12 15:13	02/15/12 15:13
	Methyl acrylate	ND	10 µg/L	02/15/12 15:13	02/15/12 15:13
	Methyl iodide	ND	2.0 µg/L	02/15/12 15:13	02/15/12 15:13
	Methyl methacrylate	ND	10 µg/L	02/15/12 15:13	02/15/12 15:13
	Nitrobenzene	ND	10 µg/L	02/15/12 15:13	02/15/12 15:13
	2-Nitropropane	ND	2.0 µg/L	02/15/12 15:13	02/15/12 15:13
	Pentachloroethane	ND	2.0 µg/L	02/15/12 15:13	02/15/12 15:13
	Propionitrile	ND	50 µg/L	02/15/12 15:13	02/15/12 15:13
	Tetrahydrofuran	ND	10 µg/L	02/15/12 15:13	02/15/12 15:13
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 15:13	02/15/12 15:13



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Client ID: **DUPE-2-1Q12**

Lab ID : BMII2020940-05A	Acrylonitrile	ND	10 µg/L	02/15/12 15:35	02/15/12 15:35
Date Sampled 02/08/12 00:00	Allyl chloride	ND	2.0 µg/L	02/15/12 15:35	02/15/12 15:35
	Carbon disulfide	ND	2.0 µg/L	02/15/12 15:35	02/15/12 15:35
	Chloroacetonitrile	ND	10 µg/L	02/15/12 15:35	02/15/12 15:35
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 15:35	02/15/12 15:35
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 15:35	02/15/12 15:35
	Diethyl ether	ND	2.0 µg/L	02/15/12 15:35	02/15/12 15:35
	Ethyl methacrylate	ND	10 µg/L	02/15/12 15:35	02/15/12 15:35
	Hexachloroethane	ND	10 µg/L	02/15/12 15:35	02/15/12 15:35
	Methacrylonitrile	ND	10 µg/L	02/15/12 15:35	02/15/12 15:35
	Methyl acrylate	ND	10 µg/L	02/15/12 15:35	02/15/12 15:35
	Methyl iodide	ND	2.0 µg/L	02/15/12 15:35	02/15/12 15:35
	Methyl methacrylate	ND	10 µg/L	02/15/12 15:35	02/15/12 15:35
	Nitrobenzene	ND	10 µg/L	02/15/12 15:35	02/15/12 15:35
	2-Nitropropane	ND	2.0 µg/L	02/15/12 15:35	02/15/12 15:35
	Pentachloroethane	ND	2.0 µg/L	02/15/12 15:35	02/15/12 15:35
	Propionitrile	ND	50 µg/L	02/15/12 15:35	02/15/12 15:35
	Tetrahydrofuran	ND	10 µg/L	02/15/12 15:35	02/15/12 15:35
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 15:35	02/15/12 15:35

Client ID: **EB-8-2/8/12**

Lab ID : BMII2020940-06A	Acrylonitrile	ND	10 µg/L	02/15/12 15:57	02/15/12 15:57
Date Sampled 02/08/12 09:17	Allyl chloride	ND	2.0 µg/L	02/15/12 15:57	02/15/12 15:57
	Carbon disulfide	ND	2.0 µg/L	02/15/12 15:57	02/15/12 15:57
	Chloroacetonitrile	ND	10 µg/L	02/15/12 15:57	02/15/12 15:57
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 15:57	02/15/12 15:57
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 15:57	02/15/12 15:57
	Diethyl ether	ND	2.0 µg/L	02/15/12 15:57	02/15/12 15:57
	Ethyl methacrylate	ND	10 µg/L	02/15/12 15:57	02/15/12 15:57
	Hexachloroethane	ND	10 µg/L	02/15/12 15:57	02/15/12 15:57
	Methacrylonitrile	ND	10 µg/L	02/15/12 15:57	02/15/12 15:57
	Methyl acrylate	ND	10 µg/L	02/15/12 15:57	02/15/12 15:57
	Methyl iodide	ND	2.0 µg/L	02/15/12 15:57	02/15/12 15:57
	Methyl methacrylate	ND	10 µg/L	02/15/12 15:57	02/15/12 15:57
	Nitrobenzene	ND	10 µg/L	02/15/12 15:57	02/15/12 15:57
	2-Nitropropane	ND	2.0 µg/L	02/15/12 15:57	02/15/12 15:57
	Pentachloroethane	ND	2.0 µg/L	02/15/12 15:57	02/15/12 15:57
	Propionitrile	ND	50 µg/L	02/15/12 15:57	02/15/12 15:57
	Tetrahydrofuran	ND	10 µg/L	02/15/12 15:57	02/15/12 15:57
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 15:57	02/15/12 15:57



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Client ID: **TB-8-2/8/12**

Lab ID : BMI12020940-07A	Acrylonitrile	ND	10 µg/L	02/15/12 16:18	02/15/12 16:18
Date Sampled 02/08/12 00:00	Allyl chloride	ND	2.0 µg/L	02/15/12 16:18	02/15/12 16:18
	Carbon disulfide	ND	2.0 µg/L	02/15/12 16:18	02/15/12 16:18
	Chloroacetonitrile	ND	10 µg/L	02/15/12 16:18	02/15/12 16:18
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 16:18	02/15/12 16:18
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 16:18	02/15/12 16:18
	Diethyl ether	ND	2.0 µg/L	02/15/12 16:18	02/15/12 16:18
	Ethyl methacrylate	ND	10 µg/L	02/15/12 16:18	02/15/12 16:18
	Hexachloroethane	ND	10 µg/L	02/15/12 16:18	02/15/12 16:18
	Methacrylonitrile	ND	10 µg/L	02/15/12 16:18	02/15/12 16:18
	Methyl acrylate	ND	10 µg/L	02/15/12 16:18	02/15/12 16:18
	Methyl iodide	ND	2.0 µg/L	02/15/12 16:18	02/15/12 16:18
	Methyl methacrylate	ND	10 µg/L	02/15/12 16:18	02/15/12 16:18
	Nitrobenzene	ND	10 µg/L	02/15/12 16:18	02/15/12 16:18
	2-Nitropropane	ND	2.0 µg/L	02/15/12 16:18	02/15/12 16:18
	Pentachloroethane	ND	2.0 µg/L	02/15/12 16:18	02/15/12 16:18
	Propionitrile	ND	50 µg/L	02/15/12 16:18	02/15/12 16:18
	Tetrahydrofuran	ND	10 µg/L	02/15/12 16:18	02/15/12 16:18
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 16:18	02/15/12 16:18

Information regarding the estimate of the uncertainty of measurement is available upon client request.

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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[Signature]
2/21/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020940-01A
Client I.D. Number: MW-11-4

Sampled: 02/08/12 08:05
Received: 02/09/12
Extracted: 02/15/12 14:08
Analyzed: 02/15/12 14:08

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	83	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	107	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020940-02A
Client I.D. Number: MW-11-3

Sampled: 02/08/12 08:30
Received: 02/09/12
Extracted: 02/15/12 14:30
Analyzed: 02/15/12 14:30

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	82	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	107	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020940-03A
Client I.D. Number: MW-11-2

Sampled: 02/08/12 08:58
Received: 02/09/12
Extracted: 02/15/12 14:51
Analyzed: 02/15/12 14:51

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	85	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	97	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020940-04A
Client I.D. Number: MW-11-1

Sampled: 02/08/12 09:45
Received: 02/09/12
Extracted: 02/15/12 15:13
Analyzed: 02/15/12 15:13

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	84	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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2/21/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020940-05A
Client I.D. Number: DUPE-2-1Q12

Sampled: 02/08/12 00:00
Received: 02/09/12
Extracted: 02/15/12 15:35
Analyzed: 02/15/12 15:35

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	85	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/21/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020940-06A
Client I.D. Number: EB-8-2/8/12

Sampled: 02/08/12 09:17
Received: 02/09/12
Extracted: 02/15/12 15:57
Analyzed: 02/15/12 15:57

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	86	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Page 1 of 1



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12020940-07A
Client I.D. Number: TB-8-2/8/12

Sampled: 02/08/12 00:00
Received: 02/09/12
Extracted: 02/15/12 16:18
Analyzed: 02/15/12 16:18

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	86	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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2/21/12

Report Date



Alpha Analytical, Inc.

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: BMI12020940

Job: 100006114/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12020940-01A	MW-11-4	Aqueous	2
12020940-02A	MW-11-3	Aqueous	2
12020940-03A	MW-11-2	Aqueous	2
12020940-04A	MW-11-1	Aqueous	2
12020940-05A	DUPE-2-1Q12	Aqueous	2
12020940-06A	EB-8-2/8/12	Aqueous	2
12020940-07A	TB-8-2/8/12	Aqueous	2

2/21/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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

Date:
21-Feb-12

QC Summary Report

Work Order:
12020940

Method Blank

Type: MBLK Test Code: EPA Method 300.0

File ID: 29	Units : mg/L		Run ID: IC_1_120209B	Batch ID: 28179K		Analysis Date: 02/09/2012 12:03				
Sample ID: MB-28179	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	ND	0.5								
Nitrite (NO2) - N	ND	0.25								
Nitrate (NO3) - N	ND	0.25								
Phosphate, ortho - P	ND	0.5								
Sulfate (SO4)	ND	0.5								

Laboratory Fortified Blank

Type: LFB Test Code: EPA Method 300.0

File ID: 30	Units : mg/L		Run ID: IC_1_120209B	Batch ID: 28179K		Analysis Date: 02/09/2012 12:22				
Sample ID: LFB-28179	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	51.1	0.5	50		102	90	110			
Nitrite (NO2) - N	5.65	0.25	5		113	90	110			L51
Nitrate (NO3) - N	5.44	0.25	5		109	90	110			
Phosphate, ortho - P	5.66	0.5	5		113	90	110			L51
Sulfate (SO4)	112	0.5	100		112	90	110			L51

Laboratory Fortified Blank Duplicate

Type: LFB D Test Code: EPA Method 300.0

File ID: 31	Units : mg/L		Run ID: IC_1_120209B	Batch ID: 28179K		Analysis Date: 02/09/2012 12:40				
Sample ID: LFB D-28179	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	48.7	0.5	50		97	90	110	51.06	4.8(15)	
Nitrite (NO2) - N	5.48	0.25	5		110	90	110	5.646	2.9(15)	
Nitrate (NO3) - N	5.29	0.25	5		106	90	110	5.442	2.9(15)	
Phosphate, ortho - P	5.38	0.5	5		108	90	110	5.661	5.0(15)	
Sulfate (SO4)	107	0.5	100		107	90	110	112.5	4.8(15)	

Sample Matrix Spike

Type: LFM Test Code: EPA Method 300.0

File ID: 33	Units : mg/L		Run ID: IC_1_120209B	Batch ID: 28179K		Analysis Date: 02/09/2012 13:17				
Sample ID: 12020940-04ALFM	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	267	1.3	250	22.75	98	90	110			
Nitrite (NO2) - N	28.2	0.63	25	0	113	90	110			M1
Nitrate (NO3) - N	27.1	0.63	25	0.9313	105	90	110			
Phosphate, ortho - P	29.8	1.3	25	0	119	90	110			M1
Sulfate (SO4)	591	1.3	500	53.75	107	90	110			

Sample Matrix Spike Duplicate

Type: LFMD Test Code: EPA Method 300.0

File ID: 34	Units : mg/L		Run ID: IC_1_120209B	Batch ID: 28179K		Analysis Date: 02/09/2012 13:36				
Sample ID: 12020940-04ALFMD	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	265	1.3	250	22.75	97	90	110	266.8	0.8(15)	
Nitrite (NO2) - N	27.7	0.63	25	0	111	90	110	28.18	1.7(15)	M1
Nitrate (NO3) - N	26.6	0.63	25	0.9313	103	90	110	27.06	1.9(15)	
Phosphate, ortho - P	29.5	1.3	25	0	118	90	110	29.76	1.0(15)	M1
Sulfate (SO4)	583	1.3	500	53.75	106	90	110	590.7	1.3(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.

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.

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



Alpha Analytical, Inc.

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

Date:
21-Feb-12

QC Summary Report

Work Order:
12020940

Method Blank

File ID: 46	Type: MBLK	Test Code: EPA Method 314.0	Batch ID: 28211K	Analysis Date: 02/14/2012 23:28						
Sample ID: MB-28211	Units: µg/L	Run ID: IC_3_120214B	Prep Date: 02/14/2012 17:57							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND	1								

Laboratory Fortified Blank

File ID: 47	Type: LFB	Test Code: EPA Method 314.0	Batch ID: 28211K	Analysis Date: 02/14/2012 23:47						
Sample ID: LFB-28211	Units: µg/L	Run ID: IC_3_120214B	Prep Date: 02/14/2012 17:57							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27	2	25		108	85	115			

Sample Matrix Spike

File ID: 53	Type: LFM	Test Code: EPA Method 314.0	Batch ID: 28211K	Analysis Date: 02/15/2012 01:37						
Sample ID: 12020940-04ALFM	Units: µg/L	Run ID: IC_3_120214B	Prep Date: 02/14/2012 17:57							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27	2	25	0	108	85	115			

Sample Matrix Spike Duplicate

File ID: 54	Type: LFMD	Test Code: EPA Method 314.0	Batch ID: 28211K	Analysis Date: 02/15/2012 01:55						
Sample ID: 12020940-04ALFMD	Units: µg/L	Run ID: IC_3_120214B	Prep Date: 02/14/2012 17:57							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27.6	2	25	0	110	85	115	27.01	2.1(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:
15-Feb-12

QC Summary Report

Work Order:
12020940

Method Blank

File ID: 021012.B\048_M.D\

Sample ID: MB-28189

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	ND	0.005								

Type MBLK Test Code: EPA Method 200.8

Batch ID: 28189K

Analysis Date: 02/10/2012 14:43

Run ID: ICP/MS_120210B

Prep Date: 02/10/2012 14:25

Laboratory Control Spike

File ID: 021012.B\049_M.D\

Sample ID: LCS-28189

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0503	0.005	0.05		101	80	120			

Type LCS Test Code: EPA Method 200.8

Batch ID: 28189K

Analysis Date: 02/10/2012 14:50

Run ID: ICP/MS_120210B

Prep Date: 02/10/2012 14:25

Sample Matrix Spike

File ID: 021012.B\054_M.D\

Sample ID: 12020740-01AMS

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0531	0.005	0.05	0	106	80	120			

Type MS Test Code: EPA Method 200.8

Batch ID: 28189K

Analysis Date: 02/10/2012 15:26

Run ID: ICP/MS_120210B

Prep Date: 02/10/2012 14:25

Sample Matrix Spike Duplicate

File ID: 021012.B\055_M.D\

Sample ID: 12020740-01AMSD

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0539	0.005	0.05	0	108	80	120	0.05313	1.4(20)	

Type MSD Test Code: EPA Method 200.8

Batch ID: 28189K

Analysis Date: 02/10/2012 15:32

Run ID: ICP/MS_120210B

Prep Date: 02/10/2012 14:25

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:

17-Feb-12

QC Summary Report

Work Order:

12020940

Surr: 1,2-Dichloroethane-d4	7.99	10	80	70	130
Surr: Toluene-d8	10.7	10	107	70	130
Surr: 4-Bromofluorobenzene	10	10	100	70	130



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Date:
17-Feb-12

QC Summary Report

Work Order:
12020940

Laboratory Control Spike

Type LCS

Test Code: EPA Method SW8260B

File ID: 12021503.D

Batch ID: MS15W0215M

Analysis Date: 02/15/2012 11:10

Sample ID: LCS MS15W0215M

Units : µg/L

Run ID: MSD_15_120215A

Prep Date: 02/15/2012 11:10

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	9.94	1	10		99	70	130			
Chloromethane	11.1	2	10		111	70	130			
Vinyl chloride	10.5	1	10		105	70	130			
Chloroethane	10.4	1	10		104	70	130			
Bromomethane	9.73	2	10		97	70	130			
Trichlorofluoromethane	10.3	1	10		103	70	130			
Acetone	234	10	200		117	36	171			
1,1-Dichloroethene	9.9	1	10		99	70	130			
Dichloromethane	10.1	2	10		101	70	130			
Freon-113	10.1	1	10		101	70	137			
trans-1,2-Dichloroethene	10.9	1	10		109	70	130			
Methyl tert-butyl ether (MTBE)	9.75	0.5	10		98	70	130			
1,1-Dichloroethane	10.8	1	10		108	70	130			
2-Butanone (MEK)	216	10	200		108	70	130			
cis-1,2-Dichloroethene	11.1	1	10		111	70	130			
Bromochloromethane	10.6	1	10		106	70	130			
Chloroform	9.94	1	10		99	70	130			
2,2-Dichloropropane	10.8	1	10		108	70	130			
1,2-Dichloroethane	9.68	1	10		97	70	130			
1,1,1-Trichloroethane	10.5	1	10		105	70	130			
1,1-Dichloropropene	11	1	10		110	70	130			
Carbon tetrachloride	9.23	1	10		92	70	130			
Benzene	10.7	0.5	10		107	70	130			
Dibromomethane	10.3	1	10		103	70	130			
1,2-Dichloropropane	11.4	1	10		114	70	130			
Trichloroethene	10.8	1	10		108	70	130			
Bromodichloromethane	9.51	1	10		95	70	130			
4-Methyl-2-pentanone (MIBK)	26.7	2.5	25		107	20	182			
cis-1,3-Dichloropropene	10	1	10		100	70	130			
trans-1,3-Dichloropropene	9.42	1	10		94	70	130			
1,1,2-Trichloroethane	11	1	10		110	70	130			
Toluene	10.9	0.5	10		109	70	130			
1,3-Dichloropropane	10.5	1	10		105	70	130			
2-Hexanone	113	5	100		113	20	182			
Dibromochloromethane	9.59	1	10		96	70	130			
1,2-Dibromoethane (EDB)	20.8	2	20		104	70	130			
Tetrachloroethene	11.5	1	10		115	70	130			
1,1,1,2-Tetrachloroethane	10.2	1	10		102	70	130			
Chlorobenzene	10.8	1	10		108	70	130			
Ethylbenzene	10.8	0.5	10		108	70	130			
m,p-Xylene	11.4	0.5	10		114	70	130			
Bromoform	9.08	1	10		91	70	130			
Styrene	9.34	1	10		93	70	130			
o-Xylene	11.4	0.5	10		114	70	130			
1,1,2,2-Tetrachloroethane	11.1	1	10		111	70	130			
1,2,3-Trichloropropane	21	2	20		105	70	130			
Isopropylbenzene	11	1	10		110	70	130			
Bromobenzene	10.9	1	10		109	70	130			
n-Propylbenzene	11.1	1	10		111	70	130			
4-Chlorotoluene	11.3	1	10		113	70	130			
2-Chlorotoluene	10.9	1	10		109	70	130			
1,3,5-Trimethylbenzene	10.9	1	10		109	70	130			
tert-Butylbenzene	10.7	1	10		107	70	130			
1,2,4-Trimethylbenzene	11.1	1	10		111	70	130			
sec-Butylbenzene	11	1	10		110	70	130			
1,3-Dichlorobenzene	11.3	1	10		113	70	130			
1,4-Dichlorobenzene	10.7	1	10		107	70	130			
4-Isopropyltoluene	10.9	1	10		109	70	130			
1,2-Dichlorobenzene	10.4	1	10		104	70	130			
n-Butylbenzene	10.8	1	10		108	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	45	3	50		90	67	130			
1,2,4-Trichlorobenzene	10	2	10		100	70	130			
Naphthalene	8.87	2	10		89	70	130			
Hexachlorobutadiene	20.2	2	20		101	70	130			
1,2,3-Trichlorobenzene	8.73	2	10		87	70	130			



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Date:
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QC Summary Report

Work Order:
12020940

Surr: 1,2-Dichloroethane-d4	8.47	10	85	70	130
Surr: Toluene-d8	10.4	10	104	70	130
Surr: 4-Bromofluorobenzene	10.4	10	104	70	130



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Date:
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QC Summary Report

Work Order:
12020940

Sample Matrix Spike

File ID: 12021507.D

Sample ID: 12020940-04AMS

Type MS

Test Code: EPA Method SW8260B

Batch ID: MS15W0215M

Analysis Date: 02/15/2012 12:41

Units: µg/L

Run ID: MSD_15_120215A

Prep Date: 02/15/2012 12:41

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	37.4	2.5	50	0	75	21	138			
Chloromethane	44.2	10	50	0	88	23	144			
Vinyl chloride	46.8	2.5	50	0	94	49	136			
Chloroethane	48.2	2.5	50	0	96	21	159			
Bromomethane	43.2	10	50	0	86	10	174			
Trichlorofluoromethane	49.5	2.5	50	0	99	32	154			
Acetone	481	50	1000	0	48	10	171			
1,1-Dichloroethene	46.7	2.5	50	0	93	64	130			
Dichloromethane	46.6	10	50	0	93	69	130			
Freon-113	48.2	2.5	50	0	96	55	141			
trans-1,2-Dichloroethene	50.2	2.5	50	0	100	63	130			
Methyl tert-butyl ether (MTBE)	42	1.3	50	0	84	47	150			
1,1-Dichloroethane	50.4	2.5	50	0	101	66	130			
2-Butanone (MEK)	641	50	1000	0	64	23	182			
cis-1,2-Dichloroethene	51.3	2.5	50	0	103	70	130			
Bromochloromethane	48.8	2.5	50	0	98	70	132			
Chloroform	46.3	2.5	50	1.46	90	70	130			
2,2-Dichloropropane	51.3	2.5	50	0	103	38	154			
1,2-Dichloroethane	43.4	2.5	50	0	87	65	134			
1,1,1-Trichloroethane	49.7	2.5	50	0	99	65	136			
1,1-Dichloropropene	51.8	2.5	50	0	104	68	132			
Carbon tetrachloride	44.1	2.5	50	0	88	58	148			
Benzene	50	1.3	50	0	100	59	138			
Dibromomethane	45.4	2.5	50	0	91	70	130			
1,2-Dichloropropane	51.8	2.5	50	0	104	70	131			
Trichloroethene	50.3	2.5	50	0	101	65	144			
Bromodichloromethane	43.6	2.5	50	0	87	50	157			
4-Methyl-2-pentanone (MIBK)	105	13	125	0	84	20	182			
cis-1,3-Dichloropropene	45.2	2.5	50	0	90	63	131			
trans-1,3-Dichloropropene	41.5	2.5	50	0	83	65	136			
1,1,2-Trichloroethane	47.8	2.5	50	0	96	70	131			
Toluene	51.3	1.3	50	0	103	68	130			
1,3-Dichloropropane	46.6	2.5	50	0	93	70	130			
2-Hexanone	306	25	500	0	61	20	182			
Dibromochloromethane	43.3	2.5	50	0	87	42	155			
1,2-Dibromoethane (EDB)	93.1	5	100	0	93	70	130			
Tetrachloroethene	53.8	2.5	50	0	108	65	130			
1,1,1,2-Tetrachloroethane	47.7	2.5	50	0	95	70	130			
Chlorobenzene	50.6	2.5	50	0	101	70	130			
Ethylbenzene	51.3	1.3	50	0	103	68	130			
m,p-Xylene	53.1	1.3	50	0	106	68	131			
Bromoform	40.3	2.5	50	0	81	65	143			
Styrene	43	2.5	50	0	86	59	153			
o-Xylene	52.9	1.3	50	0	106	70	130			
1,1,2,2-Tetrachloroethane	47.4	2.5	50	0	95	67	130			
1,2,3-Trichloropropane	90.9	10	100	0	91	70	130			
Isopropylbenzene	53.8	2.5	50	0	108	55	138			
Bromobenzene	51.5	2.5	50	0	103	70	130			
n-Propylbenzene	53.8	2.5	50	0	108	67	133			
4-Chlorotoluene	53.5	2.5	50	0	107	70	130			
2-Chlorotoluene	51.8	2.5	50	0	104	70	130			
1,3,5-Trimethylbenzene	52.5	2.5	50	0	105	67	134			
tert-Butylbenzene	52.4	2.5	50	0	105	55	147			
1,2,4-Trimethylbenzene	53.8	2.5	50	0	108	65	135			
sec-Butylbenzene	53.5	2.5	50	0	107	68	135			
1,3-Dichlorobenzene	53.6	2.5	50	0	107	70	130			
1,4-Dichlorobenzene	50.6	2.5	50	0	101	70	130			
4-Isopropyltoluene	53.6	2.5	50	0	107	68	132			
1,2-Dichlorobenzene	48	2.5	50	0	96	70	130			
n-Butylbenzene	52.3	2.5	50	0	105	62	134			
1,2-Dibromo-3-chloropropane (DBCP)	193	15	250	0	77	64	130			
1,2,4-Trichlorobenzene	44.4	10	50	0	89	62	133			
Naphthalene	37.2	10	50	0	74	32	166			
Hexachlorobutadiene	95.3	10	100	0	95	63	130			
1,2,3-Trichlorobenzene	36.7	10	50	0	73	55	138			



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Date:

17-Feb-12

QC Summary Report

Work Order:

12020940

Surr: 1,2-Dichloroethane-d4	44.7	50	89	70	130
Surr: Toluene-d8	52	50	104	70	130
Surr: 4-Bromofluorobenzene	52.6	50	105	70	130



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Date:
17-Feb-12

QC Summary Report

Work Order:
12020940

Sample Matrix Spike Duplicate

Type MSD Test Code: EPA Method SW8260B

File ID: 12021508.D

Batch ID: MS15W0215M

Analysis Date: 02/15/2012 13:03

Sample ID: 12020940-04AMSD

Units : µg/L

Run ID: MSD_15_120215A

Prep Date: 02/15/2012 13:03

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	36.5	2.5	50	0	73	21	138	37.42	2.6(33)	
Chloromethane	47.3	10	50	0	95	23	144	44.16	6.8(27)	
Vinyl chloride	45.2	2.5	50	0	90	49	136	46.84	3.5(21)	
Chloroethane	47.1	2.5	50	0	94	21	159	48.23	2.3(40)	
Bromomethane	43.7	10	50	0	87	10	174	43.2	1.2(40)	
Trichlorofluoromethane	48.2	2.5	50	0	96	32	154	49.5	2.6(37)	
Acetone	478	50	1000	0	48	10	171	480.9	0.6(23)	
1,1-Dichloroethene	45.9	2.5	50	0	92	64	130	46.65	1.7(21)	
Dichloromethane	46.5	10	50	0	93	69	130	46.58	0.3(20)	
Freon-113	46.9	2.5	50	0	94	55	141	48.17	2.6(40)	
trans-1,2-Dichloroethene	49.2	2.5	50	0	98	63	130	50.19	1.9(20)	
Methyl tert-butyl ether (MTBE)	42.4	1.3	50	0	85	47	150	42.03	0.8(40)	
1,1-Dichloroethane	48.9	2.5	50	0	98	66	130	50.35	2.9(20)	
2-Butanone (MEK)	643	50	1000	0	64	23	182	641.3	0.3(22)	
cis-1,2-Dichloroethene	49.9	2.5	50	0	99.8	70	130	51.29	2.7(20)	
Bromochloromethane	47.4	2.5	50	0	95	70	132	48.76	2.8(20)	
Chloroform	45.1	2.5	50	1.46	87	70	130	46.34	2.7(20)	
2,2-Dichloropropane	50.7	2.5	50	0	101	38	154	51.33	1.2(22)	
1,2-Dichloroethane	42.4	2.5	50	0	85	65	134	43.36	2.3(20)	
1,1,1-Trichloroethane	48.3	2.5	50	0	97	65	136	49.74	2.9(20)	
1,1-Dichloropropene	50.1	2.5	50	0	100	68	132	51.8	3.4(20)	
Carbon tetrachloride	43.2	2.5	50	0	86	58	148	44.05	2.0(20)	
Benzene	48.4	1.3	50	0	97	59	138	50.03	3.3(21)	
Dibromomethane	44.7	2.5	50	0	89	70	130	45.37	1.4(20)	
1,2-Dichloropropane	51	2.5	50	0	102	70	131	51.79	1.5(20)	
Trichloroethene	48.7	2.5	50	0	97	65	144	50.27	3.2(20)	
Bromodichloromethane	42.1	2.5	50	0	84	50	157	43.64	3.7(20)	
4-Methyl-2-pentanone (MIBK)	103	13	125	0	83	20	182	105.4	1.8(20)	
cis-1,3-Dichloropropene	44.2	2.5	50	0	88	63	131	45.23	2.3(20)	
trans-1,3-Dichloropropene	40.9	2.5	50	0	82	65	136	41.47	1.4(20)	
1,1,2-Trichloroethane	46.8	2.5	50	0	94	70	131	47.83	2.2(20)	
Toluene	50.1	1.3	50	0	100	68	130	51.27	2.2(20)	
1,3-Dichloropropane	46.5	2.5	50	0	93	70	130	46.64	0.3(20)	
2-Hexanone	313	25	500	0	63	20	182	306.5	2.1(20)	
Dibromochloromethane	43	2.5	50	0	86	42	155	43.34	0.7(20)	
1,2-Dibromoethane (EDB)	92.1	5	100	0	92	70	130	93.08	1.1(20)	
Tetrachloroethene	52.3	2.5	50	0	105	65	130	53.78	2.7(20)	
1,1,1,2-Tetrachloroethane	46.7	2.5	50	0	93	70	130	47.7	2.1(20)	
Chlorobenzene	49	2.5	50	0	98	70	130	50.64	3.3(20)	
Ethylbenzene	49.6	1.3	50	0	99	68	130	51.27	3.3(20)	
m,p-Xylene	51.7	1.3	50	0	103	68	131	53.11	2.7(20)	
Bromoform	40.5	2.5	50	0	81	65	143	40.3	0.5(20)	
Styrene	42.1	2.5	50	0	84	59	153	42.97	2.0(37)	
o-Xylene	51.7	1.3	50	0	103	70	130	52.92	2.4(20)	
1,1,2,2-Tetrachloroethane	47.5	2.5	50	0	95	67	130	47.37	0.2(20)	
1,2,3-Trichloropropane	91.7	10	100	0	92	70	130	90.87	0.9(20)	
Isopropylbenzene	51.6	2.5	50	0	103	55	138	53.8	4.2(20)	
Bromobenzene	49.6	2.5	50	0	99	70	130	51.53	3.9(20)	
n-Propylbenzene	51.5	2.5	50	0	103	67	133	53.78	4.4(30)	
4-Chlorotoluene	51.6	2.5	50	0	103	70	130	53.53	3.8(20)	
2-Chlorotoluene	50.4	2.5	50	0	101	70	130	51.75	2.7(20)	
1,3,5-Trimethylbenzene	50.6	2.5	50	0	101	67	134	52.47	3.7(21)	
tert-Butylbenzene	50.3	2.5	50	0	101	55	147	52.36	4.1(20)	
1,2,4-Trimethylbenzene	51.7	2.5	50	0	103	65	135	53.77	3.9(25)	
sec-Butylbenzene	51.5	2.5	50	0	103	68	135	53.54	3.8(20)	
1,3-Dichlorobenzene	52.3	2.5	50	0	105	70	130	53.59	2.4(20)	
1,4-Dichlorobenzene	49.3	2.5	50	0	99	70	130	50.62	2.6(20)	
4-Isopropyltoluene	51.3	2.5	50	0	103	68	132	53.61	4.5(20)	
1,2-Dichlorobenzene	47.4	2.5	50	0	95	70	130	47.95	1.3(20)	
n-Butylbenzene	50.8	2.5	50	0	102	62	134	52.29	3.0(21)	
1,2-Dibromo-3-chloropropane (DBCP)	198	15	250	0	79	64	130	192.6	3.0(20)	
1,2,4-Trichlorobenzene	45.6	10	50	0	91	62	133	44.39	2.7(29)	
Naphthalene	39.6	10	50	0	79	32	166	37.19	6.2(40)	
Hexachlorobutadiene	96.6	10	100	0	97	63	130	95.31	1.3(21)	
1,2,3-Trichlorobenzene	39.1	10	50	0	78	55	138	36.7	6.2(36)	



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:

17-Feb-12

QC Summary Report

Work Order:

12020940

Surr: 1,2-Dichloroethane-d4	40.6	50	81	70	130
Surr: Toluene-d8	52.8	50	106	70	130
Surr: 4-Bromofluorobenzene	52.2	50	104	70	130

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

CA

Alpha Analytical, Inc.

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

WorkOrder : BMIS12020940

Report Due By : 5:00 PM On : 22-Feb-12

Client:

Battelle Memorial Institute
655 West Broadway
Suite 1420
San Diego, CA 92101

Report Attention	Phone Number	Email Address
David Conner	(619) 726-7311 x	comment@battelle.org
Betsy Cutie	(614) 424-4899 x	cutiee@battelle.org
Shane Walton	(614) 424-4117 x	waltonss@battelle.org

EDD Required : Yes

Sampled by : Client

Cooler Temp 0 °C Samples Received 09-Feb-12

Date Printed 09-Feb-12

Client's COC # : 28949

Job : 10000614/JPL Groundwater Monitoring

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

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles Alpha Sub TAT	Requested Tests				Sample Remarks
				300_0_W	314_W	METALS_D W	VOC_BMI_T IC_W	
BM112020940-01A	MW-11-4	AQ 02/08/12 08:05	4 0 9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020940-02A	MW-11-3	AQ 02/08/12 08:30	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020940-03A	MW-11-2	AQ 02/08/12 08:58	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020940-04A	MW-11-1	AQ 02/08/12 09:45	10 0 9	Perchlorate	Cr	Cl, NO3, NO2, P, SO4	VOC by 524 Criteria	MS/MSD
BM112020940-05A	DUPE-2-1Q2	AQ 02/08/12 00:00	4 0 9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020940-06A	EB-8-2/8/12	AQ 02/08/12 09:17	5 0 9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM112020940-07A	TB-8-2/8/12	AQ 02/08/12 00:00	1 0 9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 10/14/11

Comments: Security seals intact. Frozen ice. Temp Blank #9004 received @ 0°C. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). No sample bottles provided for total Cr analysis for samples -01A & 05A.

Signature

Print Name

Company

Date/Time

Logged in by:

Denise Lapier

Sara Coffe


Alpha Analytical, Inc.

2/9/12 11:24

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. 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-Tredlar B-Brass P-Plastic OT-Other

Billing Information:
 Name BATTELLE / GERRARD TOMPKINS
 Address 505 KING AVE
 City, State, Zip COLUMBIAS, OH 43201
 Phone Number _____ Fax _____



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

Samples Collected From Which State? 28949
 AZ _____ CA NV _____ WA _____
 ID _____ OR _____ OTHER _____
 Page # 1 of 1

Client Name	Address	City, State, Zip	PO #	Job #	Email Address	Phone #	Fax #	Report Attention	Sample Description	TAT	Field Filtered	Total and type of containers ** See below	Analyses Required	Required QC Level?	EDD/EDF? YES ___ NO ___	Global ID #	REMARKS	
BATTELLE / DAVID CONNER	3940 230 TOWN AVE, C-205	SAV DUEGO CA 92115	286479	100006114	Conner@battelle.org	(619) 726-7311	(619) 458-6614	DAVID CONNER					Voc (524.2) Total (r(200.8)) C104 (314.0) C1, S0, N0, N0, N0, P0, 3(300.2)	I II III IV				
805	2/8/12	AD	BMT18000840-01A		MW-11-4			Norm				4/very	X X X X					
830					MW-11-3							5/very	X X X X					
858					MW-11-2							5/very	X X X X					
945					MW-11-1							10/very	X X X X					MSMS
1					DUP-2-1012							4/very	X X X X					Duplicate
917					EB-8-2/8/12							5/very	X X X X					Equip. Blank
					TRB-8-2/8/12							1/voa	X					TRIP BLANK

ADDITIONAL INSTRUCTIONS:

Relinquished by	Signature	Print Name	Company	Date	Time
Received by		MARCO MENDOZA	INSISTANT	2/8/12	11:00
Relinquished by		Anthony Stark	Alpha Analytical	2/15/12	11:00
Received by		SARA COFFEY	alpha analytical	2/9/12	10:55
Relinquished by					

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** L-Liter V-Voa S-Soil Jar O-Orho 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 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.



Alpha Analytical, Inc.

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

Date: 22-Feb-12

David Conner
Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
(619) 726-7311

Suite 1420

CASE NARRATIVE

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Work Order: BMI12021042

Cooler Temp: 0 °C

Alpha's Sample ID	Client's Sample ID	Matrix
12021042-01A	MW-23-4	Aqueous
12021042-02A	MW-23-3	Aqueous
12021042-03A	MW-23-2	Aqueous
12021042-04A	MW-23-1	Aqueous
12021042-05A	DUPE-3-1Q12	Aqueous
12021042-06A	EB-9-2/9/12	Aqueous
12021042-07A	TB-9-2/9/12	Aqueous

Manually Integrated Analytes

Alpha's Sample ID	Test Reference	Analyte
12021042-04A	EPA Method 314.0	Perchlorate
12021042-05A	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.

Note : The final report format has been altered from the DOD QSM to meet client instructions.

Roger Scholl

Randy Gardner

Walter Hinchman

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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 Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/10/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Perchlorate by Ion Chromatography
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-23-3 Lab ID : BMI12021042-02A Perchlorate Date Sampled 02/09/12 08:27	2.08	1.00 µg/L	02/14/12 17:57	02/15/12 02:51
Client ID: MW-23-2 Lab ID : BMI12021042-03A Perchlorate Date Sampled 02/09/12 08:54	5.28	1.00 µg/L	02/14/12 17:57	02/15/12 03:09
Client ID: MW-23-1 Lab ID : BMI12021042-04A Perchlorate Date Sampled 02/09/12 09:40	35.2	1.00 µg/L	02/14/12 17:57	02/15/12 03:27
Client ID: DUPE-3-1Q12 Lab ID : BMI12021042-05A Perchlorate Date Sampled 02/09/12 00:00	35.5	1.00 µg/L	02/14/12 17:57	02/15/12 03:46
Client ID: EB-9-2/9/12 Lab ID : BMI12021042-06A Perchlorate Date Sampled 02/09/12 09:19	ND	1.00 µg/L	02/14/12 17:57	02/15/12 04:41

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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C
2/22/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/10/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Metals by ICPMS
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-23-4 Lab ID: BMII2021042-01A Chromium (Cr) Date Sampled 02/09/12 07:58	ND	0.0050 mg/L	02/10/12 18:06	02/10/12 19:22
Client ID: MW-23-3 Lab ID: BMII2021042-02A Chromium (Cr) Date Sampled 02/09/12 08:27	ND	0.0050 mg/L	02/10/12 18:06	02/10/12 19:46
Client ID: MW-23-2 Lab ID: BMII2021042-03A Chromium (Cr) Date Sampled 02/09/12 08:54	ND	0.0050 mg/L	02/10/12 18:06	02/10/12 19:52
Client ID: MW-23-1 Lab ID: BMII2021042-04A Chromium (Cr) Date Sampled 02/09/12 09:40	ND	0.0050 mg/L	02/10/12 18:06	02/10/12 19:58
Client ID: DUPE-3-1Q12 Lab ID: BMII2021042-05A Chromium (Cr) Date Sampled 02/09/12 00:00	ND	0.0050 mg/L	02/10/12 18:06	02/10/12 20:04
Client ID: EB-9-2/9/12 Lab ID: BMII2021042-06A Chromium (Cr) Date Sampled 02/09/12 09:19	ND	0.0050 mg/L	02/10/12 18:06	02/10/12 20:10

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/22/12

Report Date



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/10/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Special BMI TICs
EPA Method SW8260B

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-23-3				
Lab ID : BMI12021042-02A	Acrylonitrile	ND	10 µg/L	02/15/12 16:40 02/15/12 16:40
Date Sampled 02/09/12 08:27	Allyl chloride	ND	2.0 µg/L	02/15/12 16:40 02/15/12 16:40
	Carbon disulfide	ND	2.0 µg/L	02/15/12 16:40 02/15/12 16:40
	Chloroacetonitrile	ND	10 µg/L	02/15/12 16:40 02/15/12 16:40
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 16:40 02/15/12 16:40
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 16:40 02/15/12 16:40
	Diethyl ether	ND	2.0 µg/L	02/15/12 16:40 02/15/12 16:40
	Ethyl methacrylate	ND	10 µg/L	02/15/12 16:40 02/15/12 16:40
	Hexachloroethane	ND	10 µg/L	02/15/12 16:40 02/15/12 16:40
	Methacrylonitrile	ND	10 µg/L	02/15/12 16:40 02/15/12 16:40
	Methyl acrylate	ND	10 µg/L	02/15/12 16:40 02/15/12 16:40
	Methyl iodide	ND	2.0 µg/L	02/15/12 16:40 02/15/12 16:40
	Methyl methacrylate	ND	10 µg/L	02/15/12 16:40 02/15/12 16:40
	Nitrobenzene	ND	10 µg/L	02/15/12 16:40 02/15/12 16:40
	2-Nitropropane	ND	2.0 µg/L	02/15/12 16:40 02/15/12 16:40
	Pentachloroethane	ND	2.0 µg/L	02/15/12 16:40 02/15/12 16:40
	Propionitrile	ND	50 µg/L	02/15/12 16:40 02/15/12 16:40
	Tetrahydrofuran	ND	10 µg/L	02/15/12 16:40 02/15/12 16:40
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 16:40 02/15/12 16:40
Client ID: MW-23-2				
Lab ID : BMI12021042-03A	Acrylonitrile	ND	10 µg/L	02/15/12 17:02 02/15/12 17:02
Date Sampled 02/09/12 08:54	Allyl chloride	ND	2.0 µg/L	02/15/12 17:02 02/15/12 17:02
	Carbon disulfide	ND	2.0 µg/L	02/15/12 17:02 02/15/12 17:02
	Chloroacetonitrile	ND	10 µg/L	02/15/12 17:02 02/15/12 17:02
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 17:02 02/15/12 17:02
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 17:02 02/15/12 17:02
	Diethyl ether	ND	2.0 µg/L	02/15/12 17:02 02/15/12 17:02
	Ethyl methacrylate	ND	10 µg/L	02/15/12 17:02 02/15/12 17:02
	Hexachloroethane	ND	10 µg/L	02/15/12 17:02 02/15/12 17:02
	Methacrylonitrile	ND	10 µg/L	02/15/12 17:02 02/15/12 17:02
	Methyl acrylate	ND	10 µg/L	02/15/12 17:02 02/15/12 17:02
	Methyl iodide	ND	2.0 µg/L	02/15/12 17:02 02/15/12 17:02
	Methyl methacrylate	ND	10 µg/L	02/15/12 17:02 02/15/12 17:02
	Nitrobenzene	ND	10 µg/L	02/15/12 17:02 02/15/12 17:02
	2-Nitropropane	ND	2.0 µg/L	02/15/12 17:02 02/15/12 17:02
	Pentachloroethane	ND	2.0 µg/L	02/15/12 17:02 02/15/12 17:02
	Propionitrile	ND	50 µg/L	02/15/12 17:02 02/15/12 17:02
	Tetrahydrofuran	ND	10 µg/L	02/15/12 17:02 02/15/12 17:02
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 17:02 02/15/12 17:02



Alpha Analytical, Inc.

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Client ID: MW-23-1

Lab ID : BM112021042-04A	Acrylonitrile	ND	10 µg/L	02/15/12 17:24	02/15/12 17:24
Date Sampled 02/09/12 09:40	Allyl chloride	ND	2.0 µg/L	02/15/12 17:24	02/15/12 17:24
	Carbon disulfide	ND	2.0 µg/L	02/15/12 17:24	02/15/12 17:24
	Chloroacetonitrile	ND	10 µg/L	02/15/12 17:24	02/15/12 17:24
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 17:24	02/15/12 17:24
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 17:24	02/15/12 17:24
	Diethyl ether	ND	2.0 µg/L	02/15/12 17:24	02/15/12 17:24
	Ethyl methacrylate	ND	10 µg/L	02/15/12 17:24	02/15/12 17:24
	Hexachloroethane	ND	10 µg/L	02/15/12 17:24	02/15/12 17:24
	Methacrylonitrile	ND	10 µg/L	02/15/12 17:24	02/15/12 17:24
	Methyl acrylate	ND	10 µg/L	02/15/12 17:24	02/15/12 17:24
	Methyl iodide	ND	2.0 µg/L	02/15/12 17:24	02/15/12 17:24
	Methyl methacrylate	ND	10 µg/L	02/15/12 17:24	02/15/12 17:24
	Nitrobenzene	ND	10 µg/L	02/15/12 17:24	02/15/12 17:24
	2-Nitropropane	ND	2.0 µg/L	02/15/12 17:24	02/15/12 17:24
	Pentachloroethane	ND	2.0 µg/L	02/15/12 17:24	02/15/12 17:24
	Propionitrile	ND	50 µg/L	02/15/12 17:24	02/15/12 17:24
	Tetrahydrofuran	ND	10 µg/L	02/15/12 17:24	02/15/12 17:24
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 17:24	02/15/12 17:24

Client ID: DUPE-3-1Q12

Lab ID : BM112021042-05A	Acrylonitrile	ND	10 µg/L	02/15/12 17:45	02/15/12 17:45
Date Sampled 02/09/12 00:00	Allyl chloride	ND	2.0 µg/L	02/15/12 17:45	02/15/12 17:45
	Carbon disulfide	ND	2.0 µg/L	02/15/12 17:45	02/15/12 17:45
	Chloroacetonitrile	ND	10 µg/L	02/15/12 17:45	02/15/12 17:45
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 17:45	02/15/12 17:45
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 17:45	02/15/12 17:45
	Diethyl ether	ND	2.0 µg/L	02/15/12 17:45	02/15/12 17:45
	Ethyl methacrylate	ND	10 µg/L	02/15/12 17:45	02/15/12 17:45
	Hexachloroethane	ND	10 µg/L	02/15/12 17:45	02/15/12 17:45
	Methacrylonitrile	ND	10 µg/L	02/15/12 17:45	02/15/12 17:45
	Methyl acrylate	ND	10 µg/L	02/15/12 17:45	02/15/12 17:45
	Methyl iodide	ND	2.0 µg/L	02/15/12 17:45	02/15/12 17:45
	Methyl methacrylate	ND	10 µg/L	02/15/12 17:45	02/15/12 17:45
	Nitrobenzene	ND	10 µg/L	02/15/12 17:45	02/15/12 17:45
	2-Nitropropane	ND	2.0 µg/L	02/15/12 17:45	02/15/12 17:45
	Pentachloroethane	ND	2.0 µg/L	02/15/12 17:45	02/15/12 17:45
	Propionitrile	ND	50 µg/L	02/15/12 17:45	02/15/12 17:45
	Tetrahydrofuran	ND	10 µg/L	02/15/12 17:45	02/15/12 17:45
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 17:45	02/15/12 17:45



Alpha Analytical, Inc.

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Client ID: **EB-9-2/9/12**

Lab ID : BMI12021042-06A	Acrylonitrile	ND	10 µg/L	02/15/12 18:07	02/15/12 18:07
Date Sampled 02/09/12 09:19	Allyl chloride	ND	2.0 µg/L	02/15/12 18:07	02/15/12 18:07
	Carbon disulfide	ND	2.0 µg/L	02/15/12 18:07	02/15/12 18:07
	Chloroacetonitrile	ND	10 µg/L	02/15/12 18:07	02/15/12 18:07
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 18:07	02/15/12 18:07
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 18:07	02/15/12 18:07
	Diethyl ether	ND	2.0 µg/L	02/15/12 18:07	02/15/12 18:07
	Ethyl methacrylate	ND	10 µg/L	02/15/12 18:07	02/15/12 18:07
	Hexachloroethane	ND	10 µg/L	02/15/12 18:07	02/15/12 18:07
	Methacrylonitrile	ND	10 µg/L	02/15/12 18:07	02/15/12 18:07
	Methyl acrylate	ND	10 µg/L	02/15/12 18:07	02/15/12 18:07
	Methyl iodide	ND	2.0 µg/L	02/15/12 18:07	02/15/12 18:07
	Methyl methacrylate	ND	10 µg/L	02/15/12 18:07	02/15/12 18:07
	Nitrobenzene	ND	10 µg/L	02/15/12 18:07	02/15/12 18:07
	2-Nitropropane	ND	2.0 µg/L	02/15/12 18:07	02/15/12 18:07
	Pentachloroethane	ND	2.0 µg/L	02/15/12 18:07	02/15/12 18:07
	Propionitrile	ND	50 µg/L	02/15/12 18:07	02/15/12 18:07
	Tetrahydrofuran	ND	10 µg/L	02/15/12 18:07	02/15/12 18:07
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 18:07	02/15/12 18:07

Client ID: **TB-9-2/9/12**

Lab ID : BMI12021042-07A	Acrylonitrile	ND	10 µg/L	02/15/12 18:29	02/15/12 18:29
Date Sampled 02/09/12 00:00	Allyl chloride	ND	2.0 µg/L	02/15/12 18:29	02/15/12 18:29
	Carbon disulfide	ND	2.0 µg/L	02/15/12 18:29	02/15/12 18:29
	Chloroacetonitrile	ND	10 µg/L	02/15/12 18:29	02/15/12 18:29
	1-Chlorobutane	ND	2.0 µg/L	02/15/12 18:29	02/15/12 18:29
	1,1-Dichloropropanone	ND	10 µg/L	02/15/12 18:29	02/15/12 18:29
	Diethyl ether	ND	2.0 µg/L	02/15/12 18:29	02/15/12 18:29
	Ethyl methacrylate	ND	10 µg/L	02/15/12 18:29	02/15/12 18:29
	Hexachloroethane	ND	10 µg/L	02/15/12 18:29	02/15/12 18:29
	Methacrylonitrile	ND	10 µg/L	02/15/12 18:29	02/15/12 18:29
	Methyl acrylate	ND	10 µg/L	02/15/12 18:29	02/15/12 18:29
	Methyl iodide	ND	2.0 µg/L	02/15/12 18:29	02/15/12 18:29
	Methyl methacrylate	ND	10 µg/L	02/15/12 18:29	02/15/12 18:29
	Nitrobenzene	ND	10 µg/L	02/15/12 18:29	02/15/12 18:29
	2-Nitropropane	ND	2.0 µg/L	02/15/12 18:29	02/15/12 18:29
	Pentachloroethane	ND	2.0 µg/L	02/15/12 18:29	02/15/12 18:29
	Propionitrile	ND	50 µg/L	02/15/12 18:29	02/15/12 18:29
	Tetrahydrofuran	ND	10 µg/L	02/15/12 18:29	02/15/12 18:29
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/15/12 18:29	02/15/12 18:29

Information regarding the estimate of the uncertainty of measurement is available upon client request.

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl

Randy Gardner

Walter Hinchman

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.

PS
2/22/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021042-02A
Client I.D. Number: MW-23-3

Sampled: 02/09/12 08:27
Received: 02/10/12
Extracted: 02/15/12 16:40
Analyzed: 02/15/12 16:40

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	86	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	104	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021042-03A
Client I.D. Number: MW-23-2

Sampled: 02/09/12 08:54
Received: 02/10/12
Extracted: 02/15/12 17:02
Analyzed: 02/15/12 17:02

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	1.4	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	88	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021042-04A
Client I.D. Number: MW-23-1

Sampled: 02/09/12 09:40
Received: 02/10/12
Extracted: 02/15/12 17:24
Analyzed: 02/15/12 17:24

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	1.5	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	86	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	107	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Report Date

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Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021042-05A
Client I.D. Number: DUPE-3-1Q12

Sampled: 02/09/12 00:00
Received: 02/10/12
Extracted: 02/15/12 17:45
Analyzed: 02/15/12 17:45

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	1.2	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	88	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/22/12

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021042-06A
Client I.D. Number: EB-9-2/9/12

Sampled: 02/09/12 09:19
Received: 02/10/12
Extracted: 02/15/12 18:07
Analyzed: 02/15/12 18:07

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	88	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	104	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/22/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021042-07A
Client I.D. Number: TB-9-2/9/12

Sampled: 02/09/12 00:00
Received: 02/10/12
Extracted: 02/15/12 18:29
Analyzed: 02/15/12 18:29

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	89	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	104	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	97	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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2/22/12

Report Date



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
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VOC Sample Preservation Report

Work Order: BMI12021042

Job: 100006114/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12021042-02A	MW-23-3	Aqueous	2
12021042-03A	MW-23-2	Aqueous	2
12021042-04A	MW-23-1	Aqueous	2
12021042-05A	DUPE-3-1Q12	Aqueous	2
12021042-06A	EB-9-2/9/12	Aqueous	2
12021042-07A	TB-9-2/9/12	Aqueous	2

2/22/12

Report Date

Page 1 of 1



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Date:
22-Feb-12

QC Summary Report

Work Order:
12021042

Method Blank

Type: MBLK Test Code: EPA Method 314.0

File ID: 46				Batch ID: 28211K				Analysis Date: 02/14/2012 23:28		
Sample ID: MB-28211	Units : µg/L			Run ID: IC_3_120214B				Prep Date: 02/14/2012 17:57		
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

Laboratory Fortified Blank

Type: LFB Test Code: EPA Method 314.0

File ID: 47				Batch ID: 28211K				Analysis Date: 02/14/2012 23:47		
Sample ID: LFB-28211	Units : µg/L			Run ID: IC_3_120214B				Prep Date: 02/14/2012 17:57		
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27	2	25		108	85	115			

Sample Matrix Spike

Type: LFM Test Code: EPA Method 314.0

File ID: 53				Batch ID: 28211K				Analysis Date: 02/15/2012 01:37		
Sample ID: 12020940-04ALFM	Units : µg/L			Run ID: IC_3_120214B				Prep Date: 02/14/2012 17:57		
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27	2	25	0	108	85	115			

Sample Matrix Spike Duplicate

Type: LFMD Test Code: EPA Method 314.0

File ID: 54				Batch ID: 28211K				Analysis Date: 02/15/2012 01:55		
Sample ID: 12020940-04ALFMD	Units : µg/L			Run ID: IC_3_120214B				Prep Date: 02/14/2012 17:57		
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27.6	2	25	0	110	85	115	27.01	2.1(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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QC Summary Report

Date:
16-Feb-12

Work Order:
12021042

Method Blank

File ID: 021012.B\083_M.D\

Sample ID: MB-28192

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	ND	0.005								

Type **MBLK** Test Code: **EPA Method 200.8**

Batch ID: 28192K

Analysis Date: 02/10/2012 18:52

Run ID: ICP/MS_120210C

Prep Date: 02/10/2012 18:06

Laboratory Control Spike

File ID: 021012.B\084_M.D\

Sample ID: LCS-28192

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.051	0.005	0.05		102	80	120			

Type **LCS** Test Code: **EPA Method 200.8**

Batch ID: 28192K

Analysis Date: 02/10/2012 18:58

Run ID: ICP/MS_120210C

Prep Date: 02/10/2012 18:06

Sample Matrix Spike

File ID: 021012.B\089_M.D\

Sample ID: 12021042-01AMS

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0543	0.005	0.05	0	109	80	120			

Type **MS** Test Code: **EPA Method 200.8**

Batch ID: 28192K

Analysis Date: 02/10/2012 19:28

Run ID: ICP/MS_120210C

Prep Date: 02/10/2012 18:06

Sample Matrix Spike Duplicate

File ID: 021012.B\090_M.D\

Sample ID: 12021042-01AMSD

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0516	0.005	0.05	0	103	80	120	0.05425	5.0(20)	

Type **MSD** Test Code: **EPA Method 200.8**

Batch ID: 28192K

Analysis Date: 02/10/2012 19:34

Run ID: ICP/MS_120210C

Prep Date: 02/10/2012 18:06

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:

17-Feb-12

QC Summary Report

Work Order:

12021042

Surr: 1,2-Dichloroethane-d4	7.99	10	80	70	130
Surr: Toluene-d8	10.7	10	107	70	130
Surr: 4-Bromofluorobenzene	10	10	100	70	130



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Date:
17-Feb-12

QC Summary Report

Work Order:
12021042

Laboratory Control Spike

Type: **LCS** Test Code: **EPA Method SW8260B**

File ID: **12021503.D**

Batch ID: **MS15W0215M**

Analysis Date: **02/15/2012 11:10**

Sample ID: **LCS MS15W0215M**

Units : **µg/L**

Run ID: **MSD_15_120215A**

Prep Date: **02/15/2012 11:10**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	9.94	1	10		99	70	130			
Chloromethane	11.1	2	10		111	70	130			
Vinyl chloride	10.5	1	10		105	70	130			
Chloroethane	10.4	1	10		104	70	130			
Bromomethane	9.73	2	10		97	70	130			
Trichlorofluoromethane	10.3	1	10		103	70	130			
Acetone	234	10	200		117	36	171			
1,1-Dichloroethene	9.9	1	10		99	70	130			
Dichloromethane	10.1	2	10		101	70	130			
Freon-113	10.1	1	10		101	70	137			
trans-1,2-Dichloroethene	10.9	1	10		109	70	130			
Methyl tert-butyl ether (MTBE)	9.75	0.5	10		98	70	130			
1,1-Dichloroethane	10.8	1	10		108	70	130			
2-Butanone (MEK)	216	10	200		108	70	130			
cis-1,2-Dichloroethene	11.1	1	10		111	70	130			
Bromochloromethane	10.6	1	10		106	70	130			
Chloroform	9.94	1	10		99	70	130			
2,2-Dichloropropane	10.8	1	10		108	70	130			
1,2-Dichloroethane	9.68	1	10		97	70	130			
1,1,1-Trichloroethane	10.5	1	10		105	70	130			
1,1-Dichloropropene	11	1	10		110	70	130			
Carbon tetrachloride	9.23	1	10		92	70	130			
Benzene	10.7	0.5	10		107	70	130			
Dibromomethane	10.3	1	10		103	70	130			
1,2-Dichloropropane	11.4	1	10		114	70	130			
Trichloroethene	10.8	1	10		108	70	130			
Bromodichloromethane	9.51	1	10		95	70	130			
4-Methyl-2-pentanone (MIBK)	26.7	2.5	25		107	20	182			
cis-1,3-Dichloropropene	10	1	10		100	70	130			
trans-1,3-Dichloropropene	9.42	1	10		94	70	130			
1,1,2-Trichloroethane	11	1	10		110	70	130			
Toluene	10.9	0.5	10		109	70	130			
1,3-Dichloropropane	10.5	1	10		105	70	130			
2-Hexanone	113	5	100		113	20	182			
Dibromochloromethane	9.59	1	10		96	70	130			
1,2-Dibromoethane (EDB)	20.8	2	20		104	70	130			
Tetrachloroethene	11.5	1	10		115	70	130			
1,1,1,2-Tetrachloroethane	10.2	1	10		102	70	130			
Chlorobenzene	10.8	1	10		108	70	130			
Ethylbenzene	10.8	0.5	10		108	70	130			
m,p-Xylene	11.4	0.5	10		114	70	130			
Bromoform	9.08	1	10		91	70	130			
Styrene	9.34	1	10		93	70	130			
o-Xylene	11.4	0.5	10		114	70	130			
1,1,2,2-Tetrachloroethane	11.1	1	10		111	70	130			
1,2,3-Trichloropropane	21	2	20		105	70	130			
Isopropylbenzene	11	1	10		110	70	130			
Bromobenzene	10.9	1	10		109	70	130			
n-Propylbenzene	11.1	1	10		111	70	130			
4-Chlorotoluene	11.3	1	10		113	70	130			
2-Chlorotoluene	10.9	1	10		109	70	130			
1,3,5-Trimethylbenzene	10.9	1	10		109	70	130			
tert-Butylbenzene	10.7	1	10		107	70	130			
1,2,4-Trimethylbenzene	11.1	1	10		111	70	130			
sec-Butylbenzene	11	1	10		110	70	130			
1,3-Dichlorobenzene	11.3	1	10		113	70	130			
1,4-Dichlorobenzene	10.7	1	10		107	70	130			
4-Isopropyltoluene	10.9	1	10		109	70	130			
1,2-Dichlorobenzene	10.4	1	10		104	70	130			
n-Butylbenzene	10.8	1	10		108	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	45	3	50		90	67	130			
1,2,4-Trichlorobenzene	10	2	10		100	70	130			
Naphthalene	8.87	2	10		89	70	130			
Hexachlorobutadiene	20.2	2	20		101	70	130			
1,2,3-Trichlorobenzene	8.73	2	10		87	70	130			



Alpha Analytical, Inc.

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Date:

17-Feb-12

QC Summary Report

Work Order:

12021042

Surr: 1,2-Dichloroethane-d4	8.47	10	85	70	130
Surr: Toluene-d8	10.4	10	104	70	130
Surr: 4-Bromofluorobenzene	10.4	10	104	70	130



Alpha Analytical, Inc.

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Date:
17-Feb-12

QC Summary Report

Work Order:
12021042

Sample Matrix Spike

File ID: 12021507.D

Sample ID: 12020940-04AMS

Type: MS

Test Code: EPA Method SW8260B

Batch ID: MS15W0215M

Analysis Date: 02/15/2012 12:41

Run ID: MSD_15_120215A

Prep Date: 02/15/2012 12:41

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	37.4	2.5	50	0	75	21	138			
Chloromethane	44.2	10	50	0	88	23	144			
Vinyl chloride	46.8	2.5	50	0	94	49	136			
Chloroethane	48.2	2.5	50	0	96	21	159			
Bromomethane	43.2	10	50	0	86	10	174			
Trichlorofluoromethane	49.5	2.5	50	0	99	32	154			
Acetone	481	50	1000	0	48	10	171			
1,1-Dichloroethene	46.7	2.5	50	0	93	64	130			
Dichloromethane	46.6	10	50	0	93	69	130			
Freon-113	48.2	2.5	50	0	96	55	141			
trans-1,2-Dichloroethene	50.2	2.5	50	0	100	63	130			
Methyl tert-butyl ether (MTBE)	42	1.3	50	0	84	47	150			
1,1-Dichloroethane	50.4	2.5	50	0	101	66	130			
2-Butanone (MEK)	641	50	1000	0	64	23	182			
cis-1,2-Dichloroethene	51.3	2.5	50	0	103	70	130			
Bromochloromethane	48.8	2.5	50	0	98	70	132			
Chloroform	46.3	2.5	50	1.46	90	70	130			
2,2-Dichloropropane	51.3	2.5	50	0	103	38	154			
1,2-Dichloroethane	43.4	2.5	50	0	87	65	134			
1,1,1-Trichloroethane	49.7	2.5	50	0	99	65	136			
1,1-Dichloropropene	51.8	2.5	50	0	104	68	132			
Carbon tetrachloride	44.1	2.5	50	0	88	58	148			
Benzene	50	1.3	50	0	100	59	138			
Dibromomethane	45.4	2.5	50	0	91	70	130			
1,2-Dichloropropane	51.8	2.5	50	0	104	70	131			
Trichloroethene	50.3	2.5	50	0	101	65	144			
Bromodichloromethane	43.6	2.5	50	0	87	50	157			
4-Methyl-2-pentanone (MIBK)	105	13	125	0	84	20	182			
cis-1,3-Dichloropropene	45.2	2.5	50	0	90	63	131			
trans-1,3-Dichloropropene	41.5	2.5	50	0	83	65	136			
1,1,2-Trichloroethane	47.8	2.5	50	0	96	70	131			
Toluene	51.3	1.3	50	0	103	68	130			
1,3-Dichloropropane	46.6	2.5	50	0	93	70	130			
2-Hexanone	306	25	500	0	61	20	182			
Dibromochloromethane	43.3	2.5	50	0	87	42	155			
1,2-Dibromoethane (EDB)	93.1	5	100	0	93	70	130			
Tetrachloroethene	53.8	2.5	50	0	108	65	130			
1,1,1,2-Tetrachloroethane	47.7	2.5	50	0	95	70	130			
Chlorobenzene	50.6	2.5	50	0	101	70	130			
Ethylbenzene	51.3	1.3	50	0	103	68	130			
m,p-Xylene	53.1	1.3	50	0	106	68	131			
Bromoform	40.3	2.5	50	0	81	65	143			
Styrene	43	2.5	50	0	86	59	153			
o-Xylene	52.9	1.3	50	0	106	70	130			
1,1,2,2-Tetrachloroethane	47.4	2.5	50	0	95	67	130			
1,2,3-Trichloropropane	90.9	10	100	0	91	70	130			
Isopropylbenzene	53.8	2.5	50	0	108	55	138			
Bromobenzene	51.5	2.5	50	0	103	70	130			
n-Propylbenzene	53.8	2.5	50	0	108	67	133			
4-Chlorotoluene	53.5	2.5	50	0	107	70	130			
2-Chlorotoluene	51.8	2.5	50	0	104	70	130			
1,3,5-Trimethylbenzene	52.5	2.5	50	0	105	67	134			
tert-Butylbenzene	52.4	2.5	50	0	105	55	147			
1,2,4-Trimethylbenzene	53.8	2.5	50	0	108	65	135			
sec-Butylbenzene	53.5	2.5	50	0	107	68	135			
1,3-Dichlorobenzene	53.6	2.5	50	0	107	70	130			
1,4-Dichlorobenzene	50.6	2.5	50	0	101	70	130			
4-Isopropyltoluene	53.6	2.5	50	0	107	68	132			
1,2-Dichlorobenzene	48	2.5	50	0	96	70	130			
n-Butylbenzene	52.3	2.5	50	0	105	62	134			
1,2-Dibromo-3-chloropropane (DBCP)	193	15	250	0	77	64	130			
1,2,4-Trichlorobenzene	44.4	10	50	0	89	62	133			
Naphthalene	37.2	10	50	0	74	32	166			
Hexachlorobutadiene	95.3	10	100	0	95	63	130			
1,2,3-Trichlorobenzene	36.7	10	50	0	73	55	138			



Alpha Analytical, Inc.

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

Date:
17-Feb-12

QC Summary Report

Work Order:
12021042

Surr: 1,2-Dichloroethane-d4	44.7	50	89	70	130
Surr: Toluene-d8	52	50	104	70	130
Surr: 4-Bromofluorobenzene	52.6	50	105	70	130



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
17-Feb-12

QC Summary Report

Work Order:
12021042

Sample Matrix Spike Duplicate

Type: **MSD** Test Code: **EPA Method SW8260B**

File ID: **12021508.D**

Batch ID: **MS15W0215M**

Analysis Date: **02/15/2012 13:03**

Sample ID: **12020940-04AMSD**

Units: **µg/L**

Run ID: **MSD_15_120215A**

Prep Date: **02/15/2012 13:03**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	36.5	2.5	50	0	73	21	138	37.42	2.6(33)	
Chloromethane	47.3	10	50	0	95	23	144	44.16	6.8(27)	
Vinyl chloride	45.2	2.5	50	0	90	49	136	46.84	3.5(21)	
Chloroethane	47.1	2.5	50	0	94	21	159	48.23	2.3(40)	
Bromomethane	43.7	10	50	0	87	10	174	43.2	1.2(40)	
Trichlorofluoromethane	48.2	2.5	50	0	96	32	154	49.5	2.6(37)	
Acetone	478	50	1000	0	48	10	171	480.9	0.6(23)	
1,1-Dichloroethene	45.9	2.5	50	0	92	64	130	46.65	1.7(21)	
Dichloromethane	46.5	10	50	0	93	69	130	46.58	0.3(20)	
Freon-113	46.9	2.5	50	0	94	55	141	48.17	2.6(40)	
trans-1,2-Dichloroethene	49.2	2.5	50	0	98	63	130	50.19	1.9(20)	
Methyl tert-butyl ether (MTBE)	42.4	1.3	50	0	85	47	150	42.03	0.8(40)	
1,1-Dichloroethane	48.9	2.5	50	0	98	66	130	50.35	2.9(20)	
2-Butanone (MEK)	643	50	1000	0	64	23	182	641.3	0.3(22)	
cis-1,2-Dichloroethene	49.9	2.5	50	0	99.8	70	130	51.29	2.7(20)	
Bromochloromethane	47.4	2.5	50	0	95	70	132	48.76	2.8(20)	
Chloroform	45.1	2.5	50	1.46	87	70	130	46.34	2.7(20)	
2,2-Dichloropropane	50.7	2.5	50	0	101	38	154	51.33	1.2(22)	
1,2-Dichloroethane	42.4	2.5	50	0	85	65	134	43.36	2.3(20)	
1,1,1-Trichloroethane	48.3	2.5	50	0	97	65	136	49.74	2.9(20)	
1,1-Dichloropropene	50.1	2.5	50	0	100	68	132	51.8	3.4(20)	
Carbon tetrachloride	43.2	2.5	50	0	86	58	148	44.05	2.0(20)	
Benzene	48.4	1.3	50	0	97	59	138	50.03	3.3(21)	
Dibromomethane	44.7	2.5	50	0	89	70	130	45.37	1.4(20)	
1,2-Dichloropropane	51	2.5	50	0	102	70	131	51.79	1.5(20)	
Trichloroethene	48.7	2.5	50	0	97	65	144	50.27	3.2(20)	
Bromodichloromethane	42.1	2.5	50	0	84	50	157	43.64	3.7(20)	
4-Methyl-2-pentanone (MIBK)	103	13	125	0	83	20	182	105.4	1.8(20)	
cis-1,3-Dichloropropene	44.2	2.5	50	0	88	63	131	45.23	2.3(20)	
trans-1,3-Dichloropropene	40.9	2.5	50	0	82	65	136	41.47	1.4(20)	
1,1,2-Trichloroethane	46.8	2.5	50	0	94	70	131	47.83	2.2(20)	
Toluene	50.1	1.3	50	0	100	68	130	51.27	2.2(20)	
1,3-Dichloropropane	46.5	2.5	50	0	93	70	130	46.64	0.3(20)	
2-Hexanone	313	25	500	0	63	20	182	306.5	2.1(20)	
Dibromochloromethane	43	2.5	50	0	86	42	155	43.34	0.7(20)	
1,2-Dibromoethane (EDB)	92.1	5	100	0	92	70	130	93.08	1.1(20)	
Tetrachloroethene	52.3	2.5	50	0	105	65	130	53.78	2.7(20)	
1,1,1,2-Tetrachloroethane	46.7	2.5	50	0	93	70	130	47.7	2.1(20)	
Chlorobenzene	49	2.5	50	0	98	70	130	50.64	3.3(20)	
Ethylbenzene	49.6	1.3	50	0	99	68	130	51.27	3.3(20)	
m,p-Xylene	51.7	1.3	50	0	103	68	131	53.11	2.7(20)	
Bromoform	40.5	2.5	50	0	81	65	143	40.3	0.5(20)	
Styrene	42.1	2.5	50	0	84	59	153	42.97	2.0(37)	
o-Xylene	51.7	1.3	50	0	103	70	130	52.92	2.4(20)	
1,1,2,2-Tetrachloroethane	47.5	2.5	50	0	95	67	130	47.37	0.2(20)	
1,2,3-Trichloropropane	91.7	10	100	0	92	70	130	90.87	0.9(20)	
Isopropylbenzene	51.6	2.5	50	0	103	55	138	53.8	4.2(20)	
Bromobenzene	49.6	2.5	50	0	99	70	130	51.53	3.9(20)	
n-Propylbenzene	51.5	2.5	50	0	103	67	133	53.78	4.4(30)	
4-Chlorotoluene	51.6	2.5	50	0	103	70	130	53.53	3.8(20)	
2-Chlorotoluene	50.4	2.5	50	0	101	70	130	51.75	2.7(20)	
1,3,5-Trimethylbenzene	50.6	2.5	50	0	101	67	134	52.47	3.7(21)	
tert-Butylbenzene	50.3	2.5	50	0	101	55	147	52.36	4.1(20)	
1,2,4-Trimethylbenzene	51.7	2.5	50	0	103	65	135	53.77	3.9(25)	
sec-Butylbenzene	51.5	2.5	50	0	103	68	135	53.54	3.8(20)	
1,3-Dichlorobenzene	52.3	2.5	50	0	105	70	130	53.59	2.4(20)	
1,4-Dichlorobenzene	49.3	2.5	50	0	99	70	130	50.62	2.6(20)	
4-Isopropyltoluene	51.3	2.5	50	0	103	68	132	53.61	4.5(20)	
1,2-Dichlorobenzene	47.4	2.5	50	0	95	70	130	47.95	1.3(20)	
n-Butylbenzene	50.8	2.5	50	0	102	62	134	52.29	3.0(21)	
1,2-Dibromo-3-chloropropane (DBCP)	198	15	250	0	79	64	130	192.6	3.0(20)	
1,2,4-Trichlorobenzene	45.6	10	50	0	91	62	133	44.39	2.7(29)	
Naphthalene	39.6	10	50	0	79	32	166	37.19	6.2(40)	
Hexachlorobutadiene	96.6	10	100	0	97	63	130	95.31	1.3(21)	
1,2,3-Trichlorobenzene	39.1	10	50	0	78	55	138	36.7	6.2(36)	



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:

17-Feb-12

QC Summary Report

Work Order:

12021042

Surr: 1,2-Dichloroethane-d4	40.6	50	81	70	130
Surr: Toluene-d8	52.8	50	106	70	130
Surr: 4-Bromofluorobenzene	52.2	50	104	70	130

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.

CHAIN-OF-CUSTODY RECORD

CA

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

WorkOrder : BMIS12021042
Report Due By : 5:00 PM On : 23-Feb-12

Client: **Battelle Memorial Institute**
 655 West Broadway
 Suite 1420
 San Diego, CA 92101
 PO : 287215
 Client's COC # : 53596

Report Attention **David Conner** Phone Number **(619) 726-7311** Email Address **connerd@battelle.org**
Betsy Cutie (614) 424-4899 x cutiee@battelle.org
Shane Walton (614) 424-4117 x walsons@battelle.org

Job : 100006114/JPL Groundwater Monitoring

QC Level : DS4 = DOD QC Required : Final Rpt, MBLK, InitalCal/Concal data, LCS, MS/MSD with Surrogates

Alpha Sample ID	Client Sample ID	Collection Date	No. of Bottles Alpha	Sub TAT	Requested Tests			Sample Remarks
					314_W	METALS_D W	VOC_BMLT IC_W	

BM112021042-01A	NW-23-4	02/09/12 07:58	1	0	9																
BM112021042-02A	NW-23-3	02/09/12 08:27	5	0	9																
BM112021042-03A	NW-23-2	02/09/12 08:54	5	0	9																
BM112021042-04A	NW-23-1	02/09/12 09:40	5	0	9																
BM112021042-05A	DUPE-3-1Q12	02/09/12 00:00	5	0	9																
BM112021042-06A	EB-9-2/9/12	02/09/12 09:19	5	0	9																
BM112021042-07A	TB-9-2/9/12	02/09/12 00:00	1	0	9																

Comments: Security seals intact. Frozen ice. Temp Blank #8964 received @ 0°C. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).

Signature	Print Name	Company	Date/Time
<i>Sara Coffee</i>	<i>Sara Coffee</i>	Alpha Analytical, Inc.	2/19/12 12:23

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.
 Matrix Type : AQA(Aqueous) AR(Air) SQ(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:
 Company Name **BATTLE**
 Attn: **GENAS TOMPKINS**
 Address **505 KING AVE**
 City, State, Zip **COLUMBIUS, OH 43201**
 Phone Number _____ Fax _____



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

Samples Collected From Which States?
 AZ _____ CA NV _____ WA _____
 ID _____ OR _____ OTHER _____
 Page # _____ of _____

53596

Consultant / Client Name		Job #		Job Name		Report Attention / Project Manager		Name:		Email:		Phone:		Mobile:	
BATTLE / DAVID CONNER		100006114		1012 SPL EN MON		DAVID CONNER		DAVID CONNER		conrad@battelle.org					
Time Sampled	Date Sampled	Matrix* See Key Below	F.O. #	Lab ID Number	Office (Use Only)	Sample Description	TAT	Field Filtered	# Containers**	Analyses Required		Data Validation Level III or IV		REMARKS	
758	2/11/12	AQ	BMT120210-01A			MW-23-4	NORM		1/soil	VOL (524.2)	TOTAL Cr (200.5)	C104 (314.0)			
827	1					MW-23-3			5/soil						
854	1					MW-23-2			1						
940	1					MW-23-1			1						
-	1					DURE-3 - 1012			1						DUPLICATE
919	1					E13 - 9 - 2/9/12			1						EQUIP. BLANK
-	1					TR-9 - 2/9/12			1/soil						TERR BLANK

ADDITIONAL INSTRUCTIONS:

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Sampled By: _____

Relinquished by: (Signature/Affiliation)	Received by: (Signature/Affiliation)	Date: 2/9/12	Time: 1130
Relinquished by: (Signature/Affiliation)	Received by: (Signature/Affiliation)	Date: 2/10/12	Time: 1221
Relinquished by: (Signature/Affiliation)	Received by: (Signature/Affiliation)	Date: _____	Time: _____

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** L-Lier V-Voa S-Soil Jar O-Orto 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 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.



Alpha Analytical, Inc.

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

Date: 24-Feb-12

David Conner
Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
(619) 726-7311

Suite 1420

CASE NARRATIVE

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Work Order: BMI12021444

Cooler Temp: 0°C

Alpha's Sample ID	Client's Sample ID	Matrix
12021444-01A	MW-22-3	Aqueous
12021444-02A	MW-22-2	Aqueous
12021444-03A	MW-22-1	Aqueous
12021444-04A	DUPE-4-1Q12	Aqueous
12021444-05A	EB-10-2/10/12	Aqueous
12021444-06A	TB-10-2/10/12	Aqueous
12021444-07A	MW-24-4	Aqueous
12021444-08A	MW-24-3	Aqueous
12021444-09A	MW-24-2	Aqueous
12021444-10A	MW-24-1	Aqueous
12021444-11A	EB-11-2/13/12	Aqueous
12021444-12A	TB-11-2/13/12	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.

Note : The final report format has been altered from the DOD QSM to meet client instructions.

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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 Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/14/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Anions by IC
EPA Method 300.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-24-1				
Lab ID : BMII2021444-10A Chloride	64	0.50 mg/L	02/14/12 13:44	02/14/12 22:49
Date Sampled 02/13/12 09:40 Nitrite (NO2) - N	ND	0.25 mg/L	02/14/12 13:44	02/14/12 22:49
Nitrate (NO3) - N	1.1	0.25 mg/L	02/14/12 13:44	02/14/12 22:49
Phosphate, ortho - P	ND	0.50 mg/L	02/14/12 13:44	02/14/12 22:49
Sulfate (SO4)	47	0.50 mg/L	02/14/12 13:44	02/14/12 22:49

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/14/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/14/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Perchlorate by Ion Chromatography
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-22-3 Lab ID: BMII2021444-01A Perchlorate Date Sampled 02/10/12 08:08	4.45	1.00 µg/L	02/14/12 17:57	02/15/12 04:59
Client ID: MW-22-2 Lab ID: BMII2021444-02A Perchlorate Date Sampled 02/10/12 08:44	3.24	1.00 µg/L	02/14/12 17:57	02/15/12 05:18
Client ID: MW-22-1 Lab ID: BMII2021444-03A Perchlorate Date Sampled 02/10/12 09:15	4.43	1.00 µg/L	02/14/12 17:57	02/15/12 05:36
Client ID: DUPE-4-1Q12 Lab ID: BMII2021444-04A Perchlorate Date Sampled 02/10/12 00:00	3.19	1.00 µg/L	02/14/12 17:57	02/15/12 05:55
Client ID: EB-10-2/10/12 Lab ID: BMII2021444-05A Perchlorate Date Sampled 02/10/12 09:06	ND	1.00 µg/L	02/14/12 17:57	02/15/12 06:13
Client ID: MW-24-3 Lab ID: BMII2021444-08A Perchlorate Date Sampled 02/13/12 08:39	ND	1.00 µg/L	02/14/12 17:57	02/15/12 06:31
Client ID: MW-24-2 Lab ID: BMII2021444-09A Perchlorate Date Sampled 02/13/12 09:02	33.3	1.00 µg/L	02/14/12 17:57	02/15/12 06:50
Client ID: MW-24-1 Lab ID: BMII2021444-10A Perchlorate Date Sampled 02/13/12 09:40	5.76	1.00 µg/L	02/14/12 17:57	02/15/12 07:08
Client ID: EB-11-2/13/12 Lab ID: BMII2021444-11A Perchlorate Date Sampled 02/13/12 09:21	ND	1.00 µg/L	02/14/12 17:57	02/15/12 07:27



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Information regarding the estimate of the uncertainty of measurement is available upon client request.

This replaces the report originally signed 2/24/12, due to a change in the sampling date for -01A through -06A, due to lab error.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

3/27/12

Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/14/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Metals by ICPMS EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-22-3 Lab ID: BMI12021444-01A Chromium (Cr) Date Sampled 02/10/12 08:08	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 11:09
Client ID: MW-22-2 Lab ID: BMI12021444-02A Chromium (Cr) Date Sampled 02/10/12 08:44	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 11:15
Client ID: MW-22-1 Lab ID: BMI12021444-03A Chromium (Cr) Date Sampled 02/10/12 09:15	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 11:21
Client ID: DUPE-4-1Q12 Lab ID: BMI12021444-04A Chromium (Cr) Date Sampled 02/10/12 00:00	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 11:27
Client ID: EB-10-2/10/12 Lab ID: BMI12021444-05A Chromium (Cr) Date Sampled 02/10/12 09:06	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 11:33
Client ID: MW-24-4 Lab ID: BMI12021444-07A Chromium (Cr) Date Sampled 02/13/12 08:12	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 11:39
Client ID: MW-24-3 Lab ID: BMI12021444-08A Chromium (Cr) Date Sampled 02/13/12 08:39	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 11:45
Client ID: MW-24-2 Lab ID: BMI12021444-09A Chromium (Cr) Date Sampled 02/13/12 09:02	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 11:51
Client ID: MW-24-1 Lab ID: BMI12021444-10A Chromium (Cr) Date Sampled 02/13/12 09:40	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 10:45
Client ID: EB-11-2/13/12 Lab ID: BMI12021444-11A Chromium (Cr) Date Sampled 02/13/12 09:21	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 11:57



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Information regarding the estimate of the uncertainty of measurement is available upon client request.

This replaces the report originally signed 2/24/12, due to a change in the sampling date for -01A through -06A, due to lab error.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

PS

3/27/12

Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/14/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Special BMI TICs EPA Method SW8260B

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed	
Client ID: MW-22-3					
Lab ID: BMI12021444-01A	Acrylonitrile	ND	10 µg/L	02/16/12 14:43	02/16/12 14:43
Date Sampled 02/10/12 08:08	Allyl chloride	ND	2.0 µg/L	02/16/12 14:43	02/16/12 14:43
	Carbon disulfide	ND	2.0 µg/L	02/16/12 14:43	02/16/12 14:43
	Chloroacetonitrile	ND	10 µg/L	02/16/12 14:43	02/16/12 14:43
	1-Chlorobutane	ND	2.0 µg/L	02/16/12 14:43	02/16/12 14:43
	1,1-Dichloropropanone	ND	10 µg/L	02/16/12 14:43	02/16/12 14:43
	Diethyl ether	ND	2.0 µg/L	02/16/12 14:43	02/16/12 14:43
	Ethyl methacrylate	ND	10 µg/L	02/16/12 14:43	02/16/12 14:43
	Hexachloroethane	ND	10 µg/L	02/16/12 14:43	02/16/12 14:43
	Methacrylonitrile	ND	10 µg/L	02/16/12 14:43	02/16/12 14:43
	Methyl acrylate	ND	10 µg/L	02/16/12 14:43	02/16/12 14:43
	Methyl iodide	ND	2.0 µg/L	02/16/12 14:43	02/16/12 14:43
	Methyl methacrylate	ND	10 µg/L	02/16/12 14:43	02/16/12 14:43
	Nitrobenzene	ND	10 µg/L	02/16/12 14:43	02/16/12 14:43
	2-Nitropropane	ND	2.0 µg/L	02/16/12 14:43	02/16/12 14:43
	Pentachloroethane	ND	2.0 µg/L	02/16/12 14:43	02/16/12 14:43
	Propionitrile	ND	50 µg/L	02/16/12 14:43	02/16/12 14:43
	Tetrahydrofuran	ND	10 µg/L	02/16/12 14:43	02/16/12 14:43
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/16/12 14:43	02/16/12 14:43
Client ID: MW-22-2					
Lab ID: BMI12021444-02A	Acrylonitrile	ND	10 µg/L	02/16/12 15:04	02/16/12 15:04
Date Sampled 02/10/12 08:44	Allyl chloride	ND	2.0 µg/L	02/16/12 15:04	02/16/12 15:04
	Carbon disulfide	ND	2.0 µg/L	02/16/12 15:04	02/16/12 15:04
	Chloroacetonitrile	ND	10 µg/L	02/16/12 15:04	02/16/12 15:04
	1-Chlorobutane	ND	2.0 µg/L	02/16/12 15:04	02/16/12 15:04
	1,1-Dichloropropanone	ND	10 µg/L	02/16/12 15:04	02/16/12 15:04
	Diethyl ether	ND	2.0 µg/L	02/16/12 15:04	02/16/12 15:04
	Ethyl methacrylate	ND	10 µg/L	02/16/12 15:04	02/16/12 15:04
	Hexachloroethane	ND	10 µg/L	02/16/12 15:04	02/16/12 15:04
	Methacrylonitrile	ND	10 µg/L	02/16/12 15:04	02/16/12 15:04
	Methyl acrylate	ND	10 µg/L	02/16/12 15:04	02/16/12 15:04
	Methyl iodide	ND	2.0 µg/L	02/16/12 15:04	02/16/12 15:04
	Methyl methacrylate	ND	10 µg/L	02/16/12 15:04	02/16/12 15:04
	Nitrobenzene	ND	10 µg/L	02/16/12 15:04	02/16/12 15:04
	2-Nitropropane	ND	2.0 µg/L	02/16/12 15:04	02/16/12 15:04
	Pentachloroethane	ND	2.0 µg/L	02/16/12 15:04	02/16/12 15:04
	Propionitrile	ND	50 µg/L	02/16/12 15:04	02/16/12 15:04
	Tetrahydrofuran	ND	10 µg/L	02/16/12 15:04	02/16/12 15:04
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/16/12 15:04	02/16/12 15:04



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Client ID: MW-22-1

Lab ID : BMI12021444-03A	Acrylonitrile	ND	10 µg/L	02/16/12 15:26	02/16/12 15:26
Date Sampled 02/10/12 09:15	Allyl chloride	ND	2.0 µg/L	02/16/12 15:26	02/16/12 15:26
	Carbon disulfide	ND	2.0 µg/L	02/16/12 15:26	02/16/12 15:26
	Chloroacetonitrile	ND	10 µg/L	02/16/12 15:26	02/16/12 15:26
	1-Chlorobutane	ND	2.0 µg/L	02/16/12 15:26	02/16/12 15:26
	1,1-Dichloropropanone	ND	10 µg/L	02/16/12 15:26	02/16/12 15:26
	Diethyl ether	ND	2.0 µg/L	02/16/12 15:26	02/16/12 15:26
	Ethyl methacrylate	ND	10 µg/L	02/16/12 15:26	02/16/12 15:26
	Hexachloroethane	ND	10 µg/L	02/16/12 15:26	02/16/12 15:26
	Methacrylonitrile	ND	10 µg/L	02/16/12 15:26	02/16/12 15:26
	Methyl acrylate	ND	10 µg/L	02/16/12 15:26	02/16/12 15:26
	Methyl iodide	ND	2.0 µg/L	02/16/12 15:26	02/16/12 15:26
	Methyl methacrylate	ND	10 µg/L	02/16/12 15:26	02/16/12 15:26
	Nitrobenzene	ND	10 µg/L	02/16/12 15:26	02/16/12 15:26
	2-Nitropropane	ND	2.0 µg/L	02/16/12 15:26	02/16/12 15:26
	Pentachloroethane	ND	2.0 µg/L	02/16/12 15:26	02/16/12 15:26
	Propionitrile	ND	50 µg/L	02/16/12 15:26	02/16/12 15:26
	Tetrahydrofuran	ND	10 µg/L	02/16/12 15:26	02/16/12 15:26
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/16/12 15:26	02/16/12 15:26

Client ID: DUPE-4-1Q12

Lab ID : BMI12021444-04A	Acrylonitrile	ND	10 µg/L	02/16/12 15:48	02/16/12 15:48
Date Sampled 02/10/12 00:00	Allyl chloride	ND	2.0 µg/L	02/16/12 15:48	02/16/12 15:48
	Carbon disulfide	ND	2.0 µg/L	02/16/12 15:48	02/16/12 15:48
	Chloroacetonitrile	ND	10 µg/L	02/16/12 15:48	02/16/12 15:48
	1-Chlorobutane	ND	2.0 µg/L	02/16/12 15:48	02/16/12 15:48
	1,1-Dichloropropanone	ND	10 µg/L	02/16/12 15:48	02/16/12 15:48
	Diethyl ether	ND	2.0 µg/L	02/16/12 15:48	02/16/12 15:48
	Ethyl methacrylate	ND	10 µg/L	02/16/12 15:48	02/16/12 15:48
	Hexachloroethane	ND	10 µg/L	02/16/12 15:48	02/16/12 15:48
	Methacrylonitrile	ND	10 µg/L	02/16/12 15:48	02/16/12 15:48
	Methyl acrylate	ND	10 µg/L	02/16/12 15:48	02/16/12 15:48
	Methyl iodide	ND	2.0 µg/L	02/16/12 15:48	02/16/12 15:48
	Methyl methacrylate	ND	10 µg/L	02/16/12 15:48	02/16/12 15:48
	Nitrobenzene	ND	10 µg/L	02/16/12 15:48	02/16/12 15:48
	2-Nitropropane	ND	2.0 µg/L	02/16/12 15:48	02/16/12 15:48
	Pentachloroethane	ND	2.0 µg/L	02/16/12 15:48	02/16/12 15:48
	Propionitrile	ND	50 µg/L	02/16/12 15:48	02/16/12 15:48
	Tetrahydrofuran	ND	10 µg/L	02/16/12 15:48	02/16/12 15:48
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/16/12 15:48	02/16/12 15:48

Client ID: EB-10-2/10/12

Lab ID : BMI12021444-05A	Acrylonitrile	ND	10 µg/L	02/16/12 16:09	02/16/12 16:09
Date Sampled 02/10/12 09:06	Allyl chloride	ND	2.0 µg/L	02/16/12 16:09	02/16/12 16:09
	Carbon disulfide	ND	2.0 µg/L	02/16/12 16:09	02/16/12 16:09
	Chloroacetonitrile	ND	10 µg/L	02/16/12 16:09	02/16/12 16:09
	1-Chlorobutane	ND	2.0 µg/L	02/16/12 16:09	02/16/12 16:09
	1,1-Dichloropropanone	ND	10 µg/L	02/16/12 16:09	02/16/12 16:09
	Diethyl ether	ND	2.0 µg/L	02/16/12 16:09	02/16/12 16:09
	Ethyl methacrylate	ND	10 µg/L	02/16/12 16:09	02/16/12 16:09
	Hexachloroethane	ND	10 µg/L	02/16/12 16:09	02/16/12 16:09
	Methacrylonitrile	ND	10 µg/L	02/16/12 16:09	02/16/12 16:09
	Methyl acrylate	ND	10 µg/L	02/16/12 16:09	02/16/12 16:09
	Methyl iodide	ND	2.0 µg/L	02/16/12 16:09	02/16/12 16:09
	Methyl methacrylate	ND	10 µg/L	02/16/12 16:09	02/16/12 16:09
	Nitrobenzene	ND	10 µg/L	02/16/12 16:09	02/16/12 16:09
	2-Nitropropane	ND	2.0 µg/L	02/16/12 16:09	02/16/12 16:09
	Pentachloroethane	ND	2.0 µg/L	02/16/12 16:09	02/16/12 16:09
	Propionitrile	ND	50 µg/L	02/16/12 16:09	02/16/12 16:09
	Tetrahydrofuran	ND	10 µg/L	02/16/12 16:09	02/16/12 16:09
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/16/12 16:09	02/16/12 16:09



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Client ID: TB-10-2/10/12

Lab ID : BMI12021444-06A	Acrylonitrile	ND	10 µg/L	02/16/12 16:31	02/16/12 16:31
Date Sampled 02/10/12 00:00	Allyl chloride	ND	2.0 µg/L	02/16/12 16:31	02/16/12 16:31
	Carbon disulfide	ND	2.0 µg/L	02/16/12 16:31	02/16/12 16:31
	Chloroacetonitrile	ND	10 µg/L	02/16/12 16:31	02/16/12 16:31
	1-Chlorobutane	ND	2.0 µg/L	02/16/12 16:31	02/16/12 16:31
	1,1-Dichloropropanone	ND	10 µg/L	02/16/12 16:31	02/16/12 16:31
	Diethyl ether	ND	2.0 µg/L	02/16/12 16:31	02/16/12 16:31
	Ethyl methacrylate	ND	10 µg/L	02/16/12 16:31	02/16/12 16:31
	Hexachloroethane	ND	10 µg/L	02/16/12 16:31	02/16/12 16:31
	Methacrylonitrile	ND	10 µg/L	02/16/12 16:31	02/16/12 16:31
	Methyl acrylate	ND	10 µg/L	02/16/12 16:31	02/16/12 16:31
	Methyl iodide	ND	2.0 µg/L	02/16/12 16:31	02/16/12 16:31
	Methyl methacrylate	ND	10 µg/L	02/16/12 16:31	02/16/12 16:31
	Nitrobenzene	ND	10 µg/L	02/16/12 16:31	02/16/12 16:31
	2-Nitropropane	ND	2.0 µg/L	02/16/12 16:31	02/16/12 16:31
	Pentachloroethane	ND	2.0 µg/L	02/16/12 16:31	02/16/12 16:31
	Propionitrile	ND	50 µg/L	02/16/12 16:31	02/16/12 16:31
	Tetrahydrofuran	ND	10 µg/L	02/16/12 16:31	02/16/12 16:31
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/16/12 16:31	02/16/12 16:31

Client ID: MW-24-3

Lab ID : BMI12021444-08A	Acrylonitrile	ND	10 µg/L	02/16/12 16:53	02/16/12 16:53
Date Sampled 02/13/12 08:39	Allyl chloride	ND	2.0 µg/L	02/16/12 16:53	02/16/12 16:53
	Carbon disulfide	ND	2.0 µg/L	02/16/12 16:53	02/16/12 16:53
	Chloroacetonitrile	ND	10 µg/L	02/16/12 16:53	02/16/12 16:53
	1-Chlorobutane	ND	2.0 µg/L	02/16/12 16:53	02/16/12 16:53
	1,1-Dichloropropanone	ND	10 µg/L	02/16/12 16:53	02/16/12 16:53
	Diethyl ether	ND	2.0 µg/L	02/16/12 16:53	02/16/12 16:53
	Ethyl methacrylate	ND	10 µg/L	02/16/12 16:53	02/16/12 16:53
	Hexachloroethane	ND	10 µg/L	02/16/12 16:53	02/16/12 16:53
	Methacrylonitrile	ND	10 µg/L	02/16/12 16:53	02/16/12 16:53
	Methyl acrylate	ND	10 µg/L	02/16/12 16:53	02/16/12 16:53
	Methyl iodide	ND	2.0 µg/L	02/16/12 16:53	02/16/12 16:53
	Methyl methacrylate	ND	10 µg/L	02/16/12 16:53	02/16/12 16:53
	Nitrobenzene	ND	10 µg/L	02/16/12 16:53	02/16/12 16:53
	2-Nitropropane	ND	2.0 µg/L	02/16/12 16:53	02/16/12 16:53
	Pentachloroethane	ND	2.0 µg/L	02/16/12 16:53	02/16/12 16:53
	Propionitrile	ND	50 µg/L	02/16/12 16:53	02/16/12 16:53
	Tetrahydrofuran	ND	10 µg/L	02/16/12 16:53	02/16/12 16:53
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/16/12 16:53	02/16/12 16:53

Client ID: MW-24-2

Lab ID : BMI12021444-09A	Acrylonitrile	ND	10 µg/L	02/16/12 17:15	02/16/12 17:15
Date Sampled 02/13/12 09:02	Allyl chloride	ND	2.0 µg/L	02/16/12 17:15	02/16/12 17:15
	Carbon disulfide	ND	2.0 µg/L	02/16/12 17:15	02/16/12 17:15
	Chloroacetonitrile	ND	10 µg/L	02/16/12 17:15	02/16/12 17:15
	1-Chlorobutane	ND	2.0 µg/L	02/16/12 17:15	02/16/12 17:15
	1,1-Dichloropropanone	ND	10 µg/L	02/16/12 17:15	02/16/12 17:15
	Diethyl ether	ND	2.0 µg/L	02/16/12 17:15	02/16/12 17:15
	Ethyl methacrylate	ND	10 µg/L	02/16/12 17:15	02/16/12 17:15
	Hexachloroethane	ND	10 µg/L	02/16/12 17:15	02/16/12 17:15
	Methacrylonitrile	ND	10 µg/L	02/16/12 17:15	02/16/12 17:15
	Methyl acrylate	ND	10 µg/L	02/16/12 17:15	02/16/12 17:15
	Methyl iodide	ND	2.0 µg/L	02/16/12 17:15	02/16/12 17:15
	Methyl methacrylate	ND	10 µg/L	02/16/12 17:15	02/16/12 17:15
	Nitrobenzene	ND	10 µg/L	02/16/12 17:15	02/16/12 17:15
	2-Nitropropane	ND	2.0 µg/L	02/16/12 17:15	02/16/12 17:15
	Pentachloroethane	ND	2.0 µg/L	02/16/12 17:15	02/16/12 17:15
	Propionitrile	ND	50 µg/L	02/16/12 17:15	02/16/12 17:15
	Tetrahydrofuran	ND	10 µg/L	02/16/12 17:15	02/16/12 17:15
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/16/12 17:15	02/16/12 17:15



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Client ID: **MW-24-1**

Lab ID : BMI12021444-10A	Acrylonitrile	ND	10 µg/L	02/16/12 17:36	02/16/12 17:36
Date Sampled 02/13/12 09:40	Allyl chloride	ND	2.0 µg/L	02/16/12 17:36	02/16/12 17:36
	Carbon disulfide	ND	2.0 µg/L	02/16/12 17:36	02/16/12 17:36
	Chloroacetonitrile	ND	10 µg/L	02/16/12 17:36	02/16/12 17:36
	1-Chlorobutane	ND	2.0 µg/L	02/16/12 17:36	02/16/12 17:36
	1,1-Dichloropropanone	ND	10 µg/L	02/16/12 17:36	02/16/12 17:36
	Diethyl ether	ND	2.0 µg/L	02/16/12 17:36	02/16/12 17:36
	Ethyl methacrylate	ND	10 µg/L	02/16/12 17:36	02/16/12 17:36
	Hexachloroethane	ND	10 µg/L	02/16/12 17:36	02/16/12 17:36
	Methacrylonitrile	ND	10 µg/L	02/16/12 17:36	02/16/12 17:36
	Methyl acrylate	ND	10 µg/L	02/16/12 17:36	02/16/12 17:36
	Methyl iodide	ND	2.0 µg/L	02/16/12 17:36	02/16/12 17:36
	Methyl methacrylate	ND	10 µg/L	02/16/12 17:36	02/16/12 17:36
	Nitrobenzene	ND	10 µg/L	02/16/12 17:36	02/16/12 17:36
	2-Nitropropane	ND	2.0 µg/L	02/16/12 17:36	02/16/12 17:36
	Pentachloroethane	ND	2.0 µg/L	02/16/12 17:36	02/16/12 17:36
	Propionitrile	ND	50 µg/L	02/16/12 17:36	02/16/12 17:36
	Tetrahydrofuran	ND	10 µg/L	02/16/12 17:36	02/16/12 17:36
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/16/12 17:36	02/16/12 17:36

Client ID: **EB-11-2/13/12**

Lab ID : BMI12021444-11A	Acrylonitrile	ND	10 µg/L	02/16/12 17:58	02/16/12 17:58
Date Sampled 02/13/12 09:21	Allyl chloride	ND	2.0 µg/L	02/16/12 17:58	02/16/12 17:58
	Carbon disulfide	ND	2.0 µg/L	02/16/12 17:58	02/16/12 17:58
	Chloroacetonitrile	ND	10 µg/L	02/16/12 17:58	02/16/12 17:58
	1-Chlorobutane	ND	2.0 µg/L	02/16/12 17:58	02/16/12 17:58
	1,1-Dichloropropanone	ND	10 µg/L	02/16/12 17:58	02/16/12 17:58
	Diethyl ether	ND	2.0 µg/L	02/16/12 17:58	02/16/12 17:58
	Ethyl methacrylate	ND	10 µg/L	02/16/12 17:58	02/16/12 17:58
	Hexachloroethane	ND	10 µg/L	02/16/12 17:58	02/16/12 17:58
	Methacrylonitrile	ND	10 µg/L	02/16/12 17:58	02/16/12 17:58
	Methyl acrylate	ND	10 µg/L	02/16/12 17:58	02/16/12 17:58
	Methyl iodide	ND	2.0 µg/L	02/16/12 17:58	02/16/12 17:58
	Methyl methacrylate	ND	10 µg/L	02/16/12 17:58	02/16/12 17:58
	Nitrobenzene	ND	10 µg/L	02/16/12 17:58	02/16/12 17:58
	2-Nitropropane	ND	2.0 µg/L	02/16/12 17:58	02/16/12 17:58
	Pentachloroethane	ND	2.0 µg/L	02/16/12 17:58	02/16/12 17:58
	Propionitrile	ND	50 µg/L	02/16/12 17:58	02/16/12 17:58
	Tetrahydrofuran	ND	10 µg/L	02/16/12 17:58	02/16/12 17:58
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/16/12 17:58	02/16/12 17:58

Client ID: **TB-11-2/13/12**

Lab ID : BMI12021444-12A	Acrylonitrile	ND	10 µg/L	02/16/12 18:19	02/16/12 18:19
Date Sampled 02/13/12 00:00	Allyl chloride	ND	2.0 µg/L	02/16/12 18:19	02/16/12 18:19
	Carbon disulfide	ND	2.0 µg/L	02/16/12 18:19	02/16/12 18:19
	Chloroacetonitrile	ND	10 µg/L	02/16/12 18:19	02/16/12 18:19
	1-Chlorobutane	ND	2.0 µg/L	02/16/12 18:19	02/16/12 18:19
	1,1-Dichloropropanone	ND	10 µg/L	02/16/12 18:19	02/16/12 18:19
	Diethyl ether	ND	2.0 µg/L	02/16/12 18:19	02/16/12 18:19
	Ethyl methacrylate	ND	10 µg/L	02/16/12 18:19	02/16/12 18:19
	Hexachloroethane	ND	10 µg/L	02/16/12 18:19	02/16/12 18:19
	Methacrylonitrile	ND	10 µg/L	02/16/12 18:19	02/16/12 18:19
	Methyl acrylate	ND	10 µg/L	02/16/12 18:19	02/16/12 18:19
	Methyl iodide	ND	2.0 µg/L	02/16/12 18:19	02/16/12 18:19
	Methyl methacrylate	ND	10 µg/L	02/16/12 18:19	02/16/12 18:19
	Nitrobenzene	ND	10 µg/L	02/16/12 18:19	02/16/12 18:19
	2-Nitropropane	ND	2.0 µg/L	02/16/12 18:19	02/16/12 18:19
	Pentachloroethane	ND	2.0 µg/L	02/16/12 18:19	02/16/12 18:19
	Propionitrile	ND	50 µg/L	02/16/12 18:19	02/16/12 18:19
	Tetrahydrofuran	ND	10 µg/L	02/16/12 18:19	02/16/12 18:19
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/16/12 18:19	02/16/12 18:19



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Information regarding the estimate of the uncertainty of measurement is available upon client request.

Note: Analysis conducted using EPA Method 524.2 criteria.

This replaces the report originally signed 2/24/12, due to a change in the sampling date for -01A through -06A, due to lab error.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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

3/27/12

Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute

655 West Broadway

San Diego, CA 92101

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner

Phone: (619) 726-7311

Fax: (614) 458-6641

Alpha Analytical Number: BMI12021444-01A

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

Sampled: 02/10/12 08:08

Received: 02/14/12

Extracted: 02/16/12 14:43

Analyzed: 02/16/12 14:43

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	83	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	107	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	97	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

This replaces the report originally signed 2/24/12, due to a change in the sampling date for -01A through -06A, due to lab error.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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3/27/12

Report Date



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021444-02A
Client I.D. Number: MW-22-2

Sampled: 02/10/12 08:44
Received: 02/14/12
Extracted: 02/16/12 15:04
Analyzed: 02/16/12 15:04

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	Q 1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	86	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

This replaces the report originally signed 2/24/12, due to a change in the sampling date for -01A through -06A, due to lab error.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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3/27/12

Report Date



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021444-03A
Client I.D. Number: MW-22-1

Sampled: 02/10/12 09:15
Received: 02/14/12
Extracted: 02/16/12 15:26
Analyzed: 02/16/12 15:26

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	1.6	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	0.54	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	85	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	97	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

This replaces the report originally signed 2/24/12, due to a change in the sampling date for -01A through -06A, due to lab error.

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ND = Not Detected

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3/27/12

Report Date



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021444-04A
Client I.D. Number: DUPE-4-1Q12

Sampled: 02/10/12 00:00
Received: 02/14/12
Extracted: 02/16/12 15:48
Analyzed: 02/16/12 15:48

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethane	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethane	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethane	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethane	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethane	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	87	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	104	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	96	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

This replaces the report originally signed 2/24/12, due to a change in the sampling date for -01A through -06A, due to lab error.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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3/27/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021444-05A
Client I.D. Number: EB-10-2/10/12

Sampled: 02/10/12 09:06
Received: 02/14/12
Extracted: 02/16/12 16:09
Analyzed: 02/16/12 16:09

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	87	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

This replaces the report originally signed 2/24/12, due to a change in the sampling date for -01A through -06A, due to lab error.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*
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YAG
3/27/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021444-06A
Client I.D. Number: TB-10-2/10/12

Sampled: 02/10/12 00:00
Received: 02/14/12
Extracted: 02/16/12 16:31
Analyzed: 02/16/12 16:31

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	88	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

This replaces the report originally signed 2/24/12, due to a change in the sampling date for -01A through -06A, due to lab error.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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3/27/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021444-08A
Client I.D. Number: MW-24-3

Sampled: 02/13/12 08:39
Received: 02/14/12
Extracted: 02/16/12 16:53
Analyzed: 02/16/12 16:53

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	Q 1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	88	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	97	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/24/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021444-09A
Client I.D. Number: MW-24-2

Sampled: 02/13/12 09:02
Received: 02/14/12
Extracted: 02/16/12 17:15
Analyzed: 02/16/12 17:15

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	Q 1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	0.97	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	88	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
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2/24/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021444-10A
Client I.D. Number: MW-24-1

Sampled: 02/13/12 09:40
Received: 02/14/12
Extracted: 02/16/12 17:36
Analyzed: 02/16/12 17:36

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	Q 1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	2.4	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	87	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	104	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	100	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/24/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021444-11A
Client I.D. Number: EB-11-2/13/12

Sampled: 02/13/12 09:21
Received: 02/14/12
Extracted: 02/16/12 17:58
Analyzed: 02/16/12 17:58

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	88	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	107	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/24/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021444-12A
Client I.D. Number: TB-11-2/13/12

Sampled: 02/13/12 00:00
Received: 02/14/12
Extracted: 02/16/12 18:19
Analyzed: 02/16/12 18:19

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	87	(70-130) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	103	(70-130) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	99	(70-130) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/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.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/24/12

Report Date



Alpha Analytical, Inc.

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: BMI12021444

Job: 100006114/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12021444-01A	MW-22-3	Aqueous	2
12021444-02A	MW-22-2	Aqueous	2
12021444-03A	MW-22-1	Aqueous	2
12021444-04A	DUPE-4-1Q12	Aqueous	2
12021444-05A	EB-10-2/10/12	Aqueous	2
12021444-06A	TB-10-2/10/12	Aqueous	2
12021444-08A	MW-24-3	Aqueous	2
12021444-09A	MW-24-2	Aqueous	2
12021444-10A	MW-24-1	Aqueous	2
12021444-11A	EB-11-2/13/12	Aqueous	2
12021444-12A	TB-11-2/13/12	Aqueous	2

2/24/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
21-Feb-12

QC Summary Report

Work Order:
12021444

Method Blank

Type: **MBLK** Test Code: **EPA Method 300.0**

File ID: **25**

Batch ID: **28209K**

Analysis Date: **02/14/2012 14:25**

Sample ID: **MB-28209**

Units : **mg/L**

Run ID: **IC_1_120214B**

Prep Date: **02/14/2012 13:44**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	ND	0.5								
Nitrite (NO2) - N	ND	0.25								
Nitrate (NO3) - N	ND	0.25								
Phosphate, ortho - P	ND	0.5								
Sulfate (SO4)	ND	0.5								

Laboratory Fortified Blank

Type: **LFB** Test Code: **EPA Method 300.0**

File ID: **26**

Batch ID: **28209K**

Analysis Date: **02/14/2012 14:44**

Sample ID: **LFB-28209**

Units : **mg/L**

Run ID: **IC_1_120214B**

Prep Date: **02/14/2012 13:44**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	51.5	0.5	50		103	90	110			
Nitrite (NO2) - N	5.48	0.25	5		110	90	110			
Nitrate (NO3) - N	5.3	0.25	5		106	90	110			
Phosphate, ortho - P	5.18	0.5	5		104	90	110			
Sulfate (SO4)	103	0.5	100		103	90	110			

Sample Matrix Spike

Type: **LFM** Test Code: **EPA Method 300.0**

File ID: **32**

Batch ID: **28209K**

Analysis Date: **02/14/2012 23:07**

Sample ID: **12021444-10ALFM**

Units : **mg/L**

Run ID: **IC_1_120214B**

Prep Date: **02/14/2012 13:44**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	305	1.3	250	63.78	96	90	110			
Nitrite (NO2) - N	27.3	0.63	25	0	109	90	110			
Nitrate (NO3) - N	26.3	0.63	25	1.081	101	90	110			
Phosphate, ortho - P	26.7	1.3	25	0	107	90	110			
Sulfate (SO4)	538	1.3	500	46.64	98	90	110			

Sample Matrix Spike Duplicate

Type: **LFMD** Test Code: **EPA Method 300.0**

File ID: **72**

Batch ID: **28209K**

Analysis Date: **02/15/2012 11:46**

Sample ID: **12021444-10ALFMD**

Units : **mg/L**

Run ID: **IC_1_120214B**

Prep Date: **02/14/2012 13:44**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	316	1.3	250	63.78	101	90	110	304.9	3.4(15)	
Nitrite (NO2) - N	27.2	0.63	25	0	109	90	110	27.34	0.7(15)	
Nitrate (NO3) - N	27.7	0.63	25	1.081	107	90	110	26.31	5.3(15)	
Phosphate, ortho - P	38.1	1.3	25	0	152	90	110	26.67	35.2(15)	M1 R5
Sulfate (SO4)	558	1.3	500	46.64	102	90	110	538.2	3.5(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.

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

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

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



Alpha Analytical, Inc.

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

Date:
24-Feb-12

QC Summary Report

Work Order:
12021444

Method Blank

Type: MBLK Test Code: EPA Method 314.0

File ID: 46

Batch ID: 28211K

Analysis Date: 02/14/2012 23:28

Sample ID: MB-28211

Units : µg/L

Run ID: IC_3_120214B

Prep Date: 02/14/2012 17:57

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

Laboratory Fortified Blank

Type: LFB Test Code: EPA Method 314.0

File ID: 47

Batch ID: 28211K

Analysis Date: 02/14/2012 23:47

Sample ID: LFB-28211

Units : µg/L

Run ID: IC_3_120214B

Prep Date: 02/14/2012 17:57

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27	2	25		108	85	115			

Sample Matrix Spike

Type: LFM Test Code: EPA Method 314.0

File ID: 53

Batch ID: 28211K

Analysis Date: 02/15/2012 01:37

Sample ID: 12020940-04ALFM

Units : µg/L

Run ID: IC_3_120214B

Prep Date: 02/14/2012 17:57

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27	2	25	0	108	85	115			

Sample Matrix Spike Duplicate

Type: LFMD Test Code: EPA Method 314.0

File ID: 54

Batch ID: 28211K

Analysis Date: 02/15/2012 01:55

Sample ID: 12020940-04ALFMD

Units : µg/L

Run ID: IC_3_120214B

Prep Date: 02/14/2012 17:57

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27.6	2	25	0	110	85	115	27.01	2.1(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.



Alpha Analytical, Inc.

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QC Summary Report

Date:
24-Feb-12

Work Order:
12021444

Method Blank

Type: MBLK Test Code: EPA Method 200.8

File ID: 021512.B\088_M1.D\

Batch ID: 28225K

Analysis Date: 02/16/2012 10:15

Sample ID: MB-28225

Units : mg/L

Run ID: ICP/MS_120216A

Prep Date: 02/15/2012 16:00

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: 021512.B\088_M2.D\

Batch ID: 28225K

Analysis Date: 02/16/2012 10:21

Sample ID: LCS-28225

Units : mg/L

Run ID: ICP/MS_120216A

Prep Date: 02/15/2012 16:00

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0541	0.005	0.05		108	80	120			

Sample Matrix Spike

Type: MS Test Code: EPA Method 200.8

File ID: 021512.B\093_M.D\

Batch ID: 28225K

Analysis Date: 02/16/2012 10:51

Sample ID: 12021444-10AMS

Units : mg/L

Run ID: ICP/MS_120216A

Prep Date: 02/15/2012 16:00

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0595	0.005	0.05	0	119	80	120			

Sample Matrix Spike Duplicate

Type: MSD Test Code: EPA Method 200.8

File ID: 021512.B\094_M.D\

Batch ID: 28225K

Analysis Date: 02/16/2012 10:57

Sample ID: 12021444-10AMSD

Units : mg/L

Run ID: ICP/MS_120216A

Prep Date: 02/15/2012 16:00

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0593	0.005	0.05	0	119	80	120	0.0595	0.3(20)	

Comments:

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



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Date:

24-Feb-12

QC Summary Report

Work Order:

12021444

Surr: 1,2-Dichloroethane-d4	7.67	10	77	70	130
Surr: Toluene-d8	10.9	10	109	70	130
Surr: 4-Bromofluorobenzene	10.2	10	102	70	130



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Date:
24-Feb-12

QC Summary Report

Work Order:
12021444

Laboratory Control Spike

Type: LCS Test Code: EPA Method SW8260B

File ID: 12021603.D

Batch ID: MS15W0216M

Analysis Date: 02/16/2012 10:58

Sample ID: LCS MS15W0216M

Units : µg/L

Run ID: MSD_15_120216B

Prep Date: 02/16/2012 10:58

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	8.9	1	10		89	70	130			
Chloromethane	8.93	2	10		89	70	130			
Vinyl chloride	9.46	1	10		95	70	130			
Chloroethane	9.66	1	10		97	70	130			
Bromomethane	6.73	2	10		67	70(70)	130			L50
Trichlorofluoromethane	9.48	1	10		95	70	130			
Acetone	207	10	200		104	36	171			
1,1-Dichloroethene	9.31	1	10		93	70	130			
Dichloromethane	9.38	2	10		94	70	130			
Freon-113	9.33	1	10		93	70	137			
trans-1,2-Dichloroethene	10.1	1	10		101	70	130			
Methyl tert-butyl ether (MTBE)	8.93	0.5	10		89	70	130			
1,1-Dichloroethane	10	1	10		100	70	130			
2-Butanone (MEK)	193	10	200		97	70	130			
cis-1,2-Dichloroethene	10.4	1	10		104	70	130			
Bromochloromethane	10	1	10		100	70	130			
Chloroform	9.4	1	10		94	70	130			
2,2-Dichloropropane	10	1	10		100	70	130			
1,2-Dichloroethane	9.13	1	10		91	70	130			
1,1,1-Trichloroethane	10	1	10		100	70	130			
1,1-Dichloropropene	10.2	1	10		102	70	130			
Carbon tetrachloride	8.96	1	10		90	70	130			
Benzene	9.9	0.5	10		99	70	130			
Dibromomethane	9.51	1	10		95	70	130			
1,2-Dichloropropane	10.5	1	10		105	70	130			
Trichloroethene	10	1	10		100	70	130			
Bromodichloromethane	9.2	1	10		92	70	130			
4-Methyl-2-pentanone (MIBK)	24.1	2.5	25		97	20	182			
cis-1,3-Dichloropropene	9.33	1	10		93	70	130			
trans-1,3-Dichloropropene	8.83	1	10		88	70	130			
1,1,2-Trichloroethane	10.1	1	10		101	70	130			
Toluene	10.2	0.5	10		102	70	130			
1,3-Dichloropropane	9.62	1	10		96	70	130			
2-Hexanone	102	5	100		102	20	182			
Dibromochloromethane	9.28	1	10		93	70	130			
1,2-Dibromoethane (EDB)	19.3	2	20		97	70	130			
Tetrachloroethene	10.6	1	10		106	70	130			
1,1,1,2-Tetrachloroethane	9.71	1	10		97	70	130			
Chlorobenzene	9.99	1	10		99.9	70	130			
Ethylbenzene	10.2	0.5	10		102	70	130			
m,p-Xylene	10.6	0.5	10		106	70	130			
Bromoform	8.81	1	10		88	70	130			
Styrene	8.67	1	10		87	70	130			
o-Xylene	10.6	0.5	10		106	70	130			
1,1,2,2-Tetrachloroethane	10.2	1	10		102	70	130			
1,2,3-Trichloropropane	19.6	2	20		98	70	130			
Isopropylbenzene	10.6	1	10		106	70	130			
Bromobenzene	10.4	1	10		104	70	130			
n-Propylbenzene	10.5	1	10		105	70	130			
4-Chlorotoluene	10.5	1	10		105	70	130			
2-Chlorotoluene	10.2	1	10		102	70	130			
1,3,5-Trimethylbenzene	10.4	1	10		104	70	130			
tert-Butylbenzene	10.3	1	10		103	70	130			
1,2,4-Trimethylbenzene	10.6	1	10		106	70	130			
sec-Butylbenzene	10.4	1	10		104	70	130			
1,3-Dichlorobenzene	10.8	1	10		108	70	130			
1,4-Dichlorobenzene	10.1	1	10		101	70	130			
4-Isopropyltoluene	10.4	1	10		104	70	130			
1,2-Dichlorobenzene	9.81	1	10		98	70	130			
n-Butylbenzene	10.1	1	10		101	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	43	3	50		86	67	130			
1,2,4-Trichlorobenzene	9.24	2	10		92	70	130			
Naphthalene	8.31	2	10		83	70	130			
Hexachlorobutadiene	19.1	2	20		96	70	130			
1,2,3-Trichlorobenzene	8.38	2	10		84	70	130			



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Date:

24-Feb-12

QC Summary Report

Work Order:

12021444

Surr: 1,2-Dichloroethane-d4	9.22	10	92	70	130
Surr: Toluene-d8	10.4	10	104	70	130
Surr: 4-Bromofluorobenzene	10.4	10	104	70	130



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Date:
24-Feb-12

QC Summary Report

Work Order:
12021444

Sample Matrix Spike

Type: MS

Test Code: EPA Method SW8260B

File ID: 12021607.D

Batch ID: MS15W0216M

Analysis Date: 02/16/2012 13:16

Sample ID: 12021444-10AMS

Units : µg/L

Run ID: MSD_15_120216B

Prep Date: 02/16/2012 13:16

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	39.1	2.5	50	0	78	21	138			
Chloromethane	39	10	50	0	78	23	144			
Vinyl chloride	42.5	2.5	50	0	85	49	136			
Chloroethane	43.9	2.5	50	0	88	21	159			
Bromomethane	32.1	10	50	0	64	10	174			
Trichlorofluoromethane	45.6	2.5	50	0	91	32	154			
Acetone	462	50	1000	0	46	10	171			
1,1-Dichloroethene	41.6	2.5	50	0	83	64	130			
Dichloromethane	42	10	50	0	84	69	130			
Freon-113	43	2.5	50	0	86	55	141			
trans-1,2-Dichloroethene	45.5	2.5	50	0	91	63	130			
Methyl tert-butyl ether (MTBE)	40.5	1.3	50	0	81	47	150			
1,1-Dichloroethane	44.9	2.5	50	0	90	66	130			
2-Butanone (MEK)	623	50	1000	0	62	23	182			
cis-1,2-Dichloroethene	44.5	2.5	50	0	89	70	130			
Bromochloromethane	45.9	2.5	50	0	92	70	132			
Chloroform	43.9	2.5	50	2.39	83	70	130			
2,2-Dichloropropane	44.7	2.5	50	0	89	38	154			
1,2-Dichloroethane	40.8	2.5	50	0	82	65	134			
1,1,1-Trichloroethane	44.4	2.5	50	0	89	65	136			
1,1-Dichloropropene	45.9	2.5	50	0	92	68	132			
Carbon tetrachloride	40	2.5	50	0	80	58	148			
Benzene	44.6	1.3	50	0	89	59	138			
Dibromomethane	42.7	2.5	50	0	85	70	130			
1,2-Dichloropropane	46.7	2.5	50	0	93	70	131			
Trichloroethene	44	2.5	50	0	88	65	144			
Bromodichloromethane	40.5	2.5	50	0	81	50	157			
4-Methyl-2-pentanone (MIBK)	99.7	13	125	0	80	20	182			
cis-1,3-Dichloropropene	40.6	2.5	50	0	81	63	131			
trans-1,3-Dichloropropene	38.1	2.5	50	0	76	65	136			
1,1,2-Trichloroethane	43.6	2.5	50	0	87	70	131			
Toluene	46	1.3	50	0	92	68	130			
1,3-Dichloropropane	44	2.5	50	0	88	70	130			
2-Hexanone	304	25	500	0	61	20	182			
Dibromochloromethane	41.8	2.5	50	0	84	42	155			
1,2-Dibromoethane (EDB)	86.7	5	100	0	87	70	130			
Tetrachloroethene	48.2	2.5	50	0	96	65	130			
1,1,1,2-Tetrachloroethane	44	2.5	50	0	88	70	130			
Chlorobenzene	45.2	2.5	50	0	90	70	130			
Ethylbenzene	45.7	1.3	50	0	91	68	130			
m,p-Xylene	47.5	1.3	50	0	95	68	131			
Bromoform	39.6	2.5	50	0	79	65	143			
Styrene	38.9	2.5	50	0	78	59	153			
o-Xylene	47.6	1.3	50	0	95	70	130			
1,1,2,2-Tetrachloroethane	45.7	2.5	50	0	91	67	130			
1,2,3-Trichloropropane	88.1	10	100	0	88	70	130			
Isopropylbenzene	46.7	2.5	50	0	93	55	138			
Bromobenzene	45.9	2.5	50	0	92	70	130			
n-Propylbenzene	46.5	2.5	50	0	93	67	133			
4-Chlorotoluene	46.8	2.5	50	0	94	70	130			
2-Chlorotoluene	45.8	2.5	50	0	92	70	130			
1,3,5-Trimethylbenzene	46	2.5	50	0	92	67	134			
tert-Butylbenzene	45.8	2.5	50	0	92	55	147			
1,2,4-Trimethylbenzene	47	2.5	50	0	94	65	135			
sec-Butylbenzene	46.4	2.5	50	0	93	68	135			
1,3-Dichlorobenzene	48.1	2.5	50	0	96	70	130			
1,4-Dichlorobenzene	45.1	2.5	50	0	90	70	130			
4-Isopropyltoluene	46.6	2.5	50	0	93	68	132			
1,2-Dichlorobenzene	43.7	2.5	50	0	87	70	130			
n-Butylbenzene	45.6	2.5	50	0	91	62	134			
1,2-Dibromo-3-chloropropane (DBCP)	195	15	250	0	78	64	130			
1,2,4-Trichlorobenzene	41.8	10	50	0	84	62	133			
Naphthalene	37.3	10	50	0	75	32	166			
Hexachlorobutadiene	84.9	10	100	0	85	63	130			
1,2,3-Trichlorobenzene	36.2	10	50	0	72	55	138			



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Date:

24-Feb-12

QC Summary Report

Work Order:

12021444

Surr: 1,2-Dichloroethane-d4	45.2	50	90	70	130
Surr: Toluene-d8	52.1	50	104	70	130
Surr: 4-Bromofluorobenzene	51.6	50	103	70	130



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Date:
24-Feb-12

QC Summary Report

Work Order:
12021444

Sample Matrix Spike Duplicate
File ID: 12021608.D

Type: MSD Test Code: EPA Method SW8260B

Batch ID: MS15W0216M

Analysis Date: 02/16/2012 13:38

Sample ID: 12021444-10AMSD

Units: µg/L

Run ID: MSD_15_120216B

Prep Date: 02/16/2012 13:38

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	46.8	2.5	50	0	94	21	138	39.05	18.0(33)	
Chloromethane	49.8	10	50	0	99.7	23	144	39.04	24.3(27)	
Vinyl chloride	50.7	2.5	50	0	101	49	136	42.51	17.6(21)	
Chloroethane	51.6	2.5	50	0	103	21	159	43.88	16.1(40)	
Bromomethane	43.6	10	50	0	87	10	174	32.07	30.5(40)	
Trichlorofluoromethane	53.9	2.5	50	0	108	32	154	45.64	16.6(37)	
Acetone	557	50	1000	0	56	10	171	462.3	18.6(23)	
1,1-Dichloroethene	50.1	2.5	50	0	100	64	130	41.64	18.4(21)	
Dichloromethane	51	10	50	0	102	69	130	42.03	19.3(20)	
Freon-113	51.4	2.5	50	0	103	55	141	42.98	17.8(40)	
trans-1,2-Dichloroethene	54	2.5	50	0	108	63	130	45.48	17.0(20)	
Methyl tert-butyl ether (MTBE)	48.4	1.3	50	0	97	47	150	40.5	17.7(40)	
1,1-Dichloroethane	53.9	2.5	50	0	108	66	130	44.93	18.2(20)	
2-Butanone (MEK)	735	50	1000	0	73	23	182	622.8	16.5(22)	
cis-1,2-Dichloroethene	55.6	2.5	50	0	111	70	130	44.49	22.2(20)	R5
Bromochloromethane	53.9	2.5	50	0	108	70	132	45.88	16.0(20)	
Chloroform	52.9	2.5	50	2.39	101	70	130	43.88	18.7(20)	
2,2-Dichloropropane	54.2	2.5	50	0	108	38	154	44.69	19.2(22)	
1,2-Dichloroethane	48.2	2.5	50	0	96	65	134	40.79	16.7(20)	
1,1,1-Trichloroethane	53.2	2.5	50	0	106	65	136	44.44	18.0(20)	
1,1-Dichloropropene	54.9	2.5	50	0	110	68	132	45.9	17.9(20)	
Carbon tetrachloride	48.6	2.5	50	0	97	58	148	40.01	19.4(20)	
Benzene	53.4	1.3	50	0	107	59	138	44.55	18.1(21)	
Dibromomethane	50.8	2.5	50	0	102	70	130	42.69	17.3(20)	
1,2-Dichloropropane	56.7	2.5	50	0	113	70	131	46.68	19.4(20)	
Trichloroethene	53.3	2.5	50	0	107	65	144	44.03	19.0(20)	
Bromodichloromethane	48.5	2.5	50	0	97	50	157	40.53	17.9(20)	
4-Methyl-2-pentanone (MIBK)	120	13	125	0	96	20	182	99.74	18.4(20)	
cis-1,3-Dichloropropene	49.1	2.5	50	0	98	63	131	40.59	18.9(20)	
trans-1,3-Dichloropropene	46.1	2.5	50	0	92	65	136	38.08	19.1(20)	
1,1,2-Trichloroethane	53.1	2.5	50	0	106	70	131	43.62	19.6(20)	
Toluene	54.6	1.3	50	0	109	68	130	46.01	17.0(20)	
1,3-Dichloropropane	52.1	2.5	50	0	104	70	130	43.95	17.0(20)	
2-Hexanone	361	25	500	0	72	20	182	304.4	17.0(20)	
Dibromochloromethane	49.9	2.5	50	0	99.7	42	155	41.8	17.6(20)	
1,2-Dibromoethane (EDB)	103	5	100	0	103	70	130	86.7	17.6(20)	
Tetrachloroethene	56.9	2.5	50	0	114	65	130	48.16	16.6(20)	
1,1,1,2-Tetrachloroethane	52.2	2.5	50	0	104	70	130	43.98	17.1(20)	
Chlorobenzene	53.8	2.5	50	0	108	70	130	45.22	17.2(20)	
Ethylbenzene	54.5	1.3	50	0	109	68	130	45.66	17.6(20)	
m,p-Xylene	56.8	1.3	50	0	114	68	131	47.49	17.8(20)	
Bromoform	47.4	2.5	50	0	95	65	143	39.55	18.1(20)	
Styrene	46.3	2.5	50	0	93	59	153	38.91	17.4(37)	
o-Xylene	56.9	1.3	50	0	114	70	130	47.59	17.9(20)	
1,1,2,2-Tetrachloroethane	54.6	2.5	50	0	109	67	130	45.7	17.7(20)	
1,2,3-Trichloropropane	104	10	100	0	104	70	130	88.1	16.8(20)	
Isopropylbenzene	55.3	2.5	50	0	111	55	138	46.7	16.9(20)	
Bromobenzene	54.7	2.5	50	0	109	70	130	45.85	17.6(20)	
n-Propylbenzene	54.9	2.5	50	0	110	67	133	46.48	16.5(30)	
4-Chlorotoluene	55.6	2.5	50	0	111	70	130	46.83	17.2(20)	
2-Chlorotoluene	54.3	2.5	50	0	109	70	130	45.83	16.8(20)	
1,3,5-Trimethylbenzene	54.4	2.5	50	0	109	67	134	46.03	16.6(21)	
tert-Butylbenzene	54.5	2.5	50	0	109	55	147	45.76	17.4(20)	
1,2,4-Trimethylbenzene	55.6	2.5	50	0	111	65	135	47.01	16.7(25)	
sec-Butylbenzene	54.9	2.5	50	0	110	68	135	46.4	16.7(20)	
1,3-Dichlorobenzene	57.7	2.5	50	0	115	70	130	48.08	18.2(20)	
1,4-Dichlorobenzene	53.5	2.5	50	0	107	70	130	45.05	17.2(20)	
4-Isopropyltoluene	55.3	2.5	50	0	111	68	132	46.62	17.1(20)	
1,2-Dichlorobenzene	52.1	2.5	50	0	104	70	130	43.7	17.6(20)	
n-Butylbenzene	54.4	2.5	50	0	109	62	134	45.55	17.8(21)	
1,2-Dibromo-3-chloropropane (DBCP)	234	15	250	0	94	64	130	194.5	18.5(20)	
1,2,4-Trichlorobenzene	50.3	10	50	0	101	62	133	41.76	18.5(29)	
Naphthalene	44.2	10	50	0	88	32	166	37.33	16.9(40)	
Hexachlorobutadiene	105	10	100	0	105	63	130	84.88	20.9(21)	
1,2,3-Trichlorobenzene	44.1	10	50	0	88	55	138	36.15	19.9(36)	



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:

24-Feb-12

QC Summary Report

Work Order:

12021444

Surr: 1,2-Dichloroethane-d4	42	50	84	70	130
Surr: Toluene-d8	52.5	50	105	70	130
Surr: 4-Bromofluorobenzene	51.1	50	102	70	130

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.

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

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

AMENDED CA

Page: 1 of 2

WorkOrder : BMIS12021444

Report Due By : 5:00 PM On : 27-Feb-12

Client: Battelle Memorial Institute
655 West Broadway
Suite 1420
San Diego, CA 92101

Report Attention: David Conner
Phone Number: (619) 726-7311 x
Email Address: dconner@battelle.org
Betsy Cutie (614) 424-4899 x
cutiee@battelle.org
Shane Walton (614) 424-4117 x
waltonsh@battelle.org

EDD Required : No

Sampled by : Client

Client's COC # : 53597, 53595

Job : 100006114/JPL Groundwater Monitoring

Cooler Temp 0 °C

Samples Received 14-Feb-12

Date Printed 27-Mar-12

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

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles Alpha Sub	TAT	Requested Tests				Sample Remarks	
					300_0_W	314_W	METALS_D W	VOC_BMI_T IC_W		VOC_W
BMI12021444-01A	MW-22-3	AQ 02/10/12 08:08	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	Level IV QC
BMI12021444-02A	MW-22-2	AQ 02/10/12 08:44	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12021444-03A	MW-22-1	AQ 02/10/12 09:15	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12021444-04A	DUPE-4-1Q12	AQ 02/10/12 00:00	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12021444-05A	EB-10-2/10/12	AQ 02/10/12 09:06	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12021444-06A	TB-10-2/10/12	AQ 02/10/12 00:00	1	0	9		Cr	VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 1/9/12
BMI12021444-07A	MW-24-4	AQ 02/13/12 08:12	1	0	9		Cr			
BMI12021444-08A	MW-24-3	AQ 02/13/12 08:39	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	Level IV QC
BMI12021444-09A	MW-24-2	AQ 02/13/12 09:02	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12021444-10A	MW-24-1	AQ 02/13/12 09:40	10	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	MS/MSD

Comments: Security seals intact. Frozen ice. Temp Blank #8842 received @ 0°C. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). Amended 3/27/12 @ 11:55 to correct sampling date for samples 01A-06A, due to login error. SC :

Signature	Print Name	Company	Date/Time
<i>Sara Coffee</i>	Sara Coffee	Alpha Analytical, Inc.	3/27/12 11:57

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. 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-Tradlar B-Brass P-Plastic OT-Other

CHAIN-OF-CUSTODY RECORD

AMENDED

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

CA

WorkOrder : BMIS12021444
 Report Due By : 5:00 PM On : 27-Feb-12

Client: Battelle Memorial Institute
 655 West Broadway
 Suite 1420
 San Diego, CA 92101
 PO : 287215

Report Attention Phone Number Email Address
 David Conner (619) 726-7311 x connerd@battelle.org
 Betsy Cutie (614) 424-4899 x cutiee@battelle.org
 Shame Walton (614) 424-4117 x walton@battelle.org

EDD Required : No

Sampled by : Client

Client's COC # : 53597, 53595 Job : 100006114/JPL Groundwater Monitoring

Cooler Temp 0 °C Samples Received 14-Feb-12 Date Printed 27-Mar-12

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

Alpha Sample ID	Client Sample ID	Collection Date	No. of Bottles Alpha Sub TAT	Requested Tests			Sample Remarks	
				300_0_W	314_W	METALS_D W		VOC_BMI_T IC_W
BMI12021444-11A	EB-11-2/13/12	AQ 02/13/12 09:21	5 0 9	Pentachlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMI12021444-12A	TB-11-2/13/12	AQ 02/13/12 00:00	1 0 9			VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 1/9/12

Comments: Security seals intact. Frozen ice. Temp Blank #83842 received @ 0°C. Samples should be used as the control spike sample if possible (I.E. MS/MSD). Amended 3/27/12 @ 11:55 to correct sampling date for samples 01 A-06A, due to login error. SC:

Logged in by: Shame Walton Shame Walton Alpha Analytical, Inc. 3/27/12 11:57

Signature: _____ Print Name: _____ Company: _____ Date/Time: _____

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. 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-Orho T-Tedlar B-Brass P-Plastic OT-Other

Billing Information :

CHAIN-OF-CUSTODY RECORD

CA

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

WorkOrder : BMIS12021444
Report Due By : 5:00 PM On : 27-Feb-12

Client: Battelle Memorial Institute
 655 West Broadway
 Suite 1420
 San Diego, CA 92101
 PO : 287215

Report Attention Phone Number Email Address
 David Conner (619) 726-7311 x connerd@battelle.org
 Betsy Cutie (614) 424-4899 x cutiee@battelle.org
 Shane Walton (614) 424-4117 x waltonsa@battelle.org

EDD Required : Yes
 Sampled by : Client
 Cooler Temp 0 °C Samples Received 14-Feb-12 Date Printed 14-Feb-12

Client's COC # : 53597, 53595 Job : 100006114/JPL Groundwater Monitoring
 QC Level : DS4 = DOD QC Required : Final Rpt. MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates

Alpha Sample ID	Client Sample ID	Collection Date	No. of Bottles			Requested Tests				Sample Remarks
			Alpha	Sub	TAT	300_0_W	314_W	METALS_D W	VOC_BMI_T IC_W	
BMII2021444-11A	EB-11-2/13/12	AQ 02/13/12 09:21	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMII2021444-12A	TB-11-2/13/12	AQ 02/13/12 00:00	1	0	9			VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 1/9/12

Comments: Security seals intact. Frozen ice. Temp Blank #8842 received @ 0°C. Samples should be used as the control spike sample if possible (L.E.: MS/MSD) :

Logged in by: *Donna Laffee* *Sara Laffee*
 Signature _____ Print Name _____
 Company Alpha Analytical, Inc. Date/Time 2/14/12 11:02

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.
 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:

Company Name BATTLELLE
 Attn: CEMILIO TOMPKINS
 Address 505 KINGS AVE
 City, State, Zip COLUMBUS, OH 43201
 Phone Number _____ Fax _____



Samples Collected From Which State?
 AZ _____ CA NV _____ WA _____
 ID _____ OR _____ OTHER _____
 Page # 1 of 1

53597

Analyses Required

Data Validation
 Level: III or IV

Consultant / Client Name BATTLELLE / DAVID CORNER Job # 100006114 Job Name 1012 JPL Env Mon
 Address 3943 OLD TOWN AVE, C-25
 City, State, Zip SAN DIEGO CA 92110
 P.O. # 286479 Lab ID Number (Use Only) _____
 Matrix* See Key Below
 Name: DAVID CORNER Report Attention / Project Manager
 Email: cornard@battlelle.com
 Phone: _____ Mobile: _____

Time Sampled	Date Sampled	Matrix* See Key Below	P.O. #	Lab ID Number (Use Only)	Office (Only)	Sample Description	TAT	Field Filtered	# Containers**	ED0 / EDF? YES ___ NO ___	Global ID #	REMARKS
808	2/13/12	AQ		BMT1001444-01A		MW-22-3	Amn		5/Vary			LEVEL IV OC
844	1			FOR-03A		MW-22-2						
915	1			-03A		MW-22-1						
-	1			LAB-04A		DURC-4-1012						DUPLICATE
906	1			-05A		EB-10-2/10/12						EDUP. RETAIN
-	1			USF-06A		TR-10-2/10/12			1/USA			TAIP RETAIN
ONLY												

ADDITIONAL INSTRUCTIONS:

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Sampled By: _____

Relinquished by: (Signature/Affiliation)	Received by: (Signature/Affiliation)	Date:	Time:
<u>[Signature]</u>	<u>[Signature]</u>	2/13/12	1126
<u>[Signature]</u>	<u>[Signature]</u>	2/14/12	10:56

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** - L-Liter V-Voa S-Soil Jar O-Orho T-Tecler 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 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.

Billing Information:

Company Name BATTLE
 Attn: GENARO TAMPKINS
 Address 505 KING AVE
 City, State, Zip COLUMBUS, OH 43221
 Phone Number _____ Fax _____



53595
 Samples Collected From Which State?
 AZ CA NV WA
 ID OR OTHER
 Page # 1 of 1

Consultant / Client Name BATTLE / DAVID CONNER
 Address 3950 OLD TOWN AVE, C-205
 City, State, Zip SAN DIEGO CA 92110
 P.O. # 286479
 Lab ID Number (Use Only) _____

Job # 100006114 Job Name 1012 JPL CIV HWY
 Name: DAVID CONNER Report Attention / Project Manager
 Email: connerd@battle.com
 Phone: _____ Mobile: (619) 726-7311

Time Sampled	Date Sampled	Matrix* See Key Below	PO #	Lab ID Number (Use Only)	Office (Use Only)	Sample Description	TAT	Field Filtered	# Containers**	Analyses Required	EDU / EDF? YES ___ NO ___	Global ID #	REMARKS
812	2/14/12	AQ			-07A	MW-24-4	hour		1 / only	VOC (5242)			LEVEL TR 2C
839	1				-08A	MW-24-3			5 / vary	TOTAL Cr (2100)			
902	1				-09A	MW-24-2			5 / vary	CL04 (3140)			
940	1				-10A	MW-24-1			10 / vary	Cl, SO ₄ , NO ₃ , NO ₂			AS LMS
921	1					LAB 11A			5 / vary				EQUIP. BLANK
-	1					USE -10A			1 / vary				TEMP ISBLANK
													ONLY

ADDITIONAL INSTRUCTIONS:

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Sampled By: _____

Relinquished by: (Signature/Affiliation)	Received by: (Signature/Affiliation)	Date:	Time:
<u>[Signature]</u>	<u>[Signature]</u>	2/13/12	1100
<u>[Signature]</u>	<u>[Signature]</u>	2/14/12	10:56

*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 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.



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 27-Feb-12

David Conner
Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
(619) 726-7311

Suite 1420

CASE NARRATIVE

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Work Order: BMI12021540 Cooler Temp: 1 °C

Alpha's Sample ID	Client's Sample ID	Matrix
12021540-01A	MW-25-5	Aqueous
12021540-02A	MW-25-4	Aqueous
12021540-03A	MW-25-3	Aqueous
12021540-04A	MW-25-2	Aqueous
12021540-05A	MW-25-1	Aqueous
12021540-06A	SB-1-2/14/12	Aqueous
12021540-07A	EB-12-2/14/12	Aqueous
12021540-08A	MW-26-2	Aqueous
12021540-09A	MW-26-1	Aqueous
12021540-10A	TB-12-2/14/12	Aqueous

Manually Integrated Analytes

Alpha's Sample ID	Test Reference	Analyte
12021540-01A	EPA Method 314.0	Perchlorate
12021540-04A	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.

Note : The final report format has been altered from the DOD QSM to meet client instructions.

Roger Scholl

Randy Gardner

Walter Hinchman

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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 Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/15/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Perchlorate by Ion Chromatography EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-25-5 Lab ID: BM112021540-01A Perchlorate Date Sampled 02/14/12 08:23	54.8	1.00 µg/L	02/19/12 15:39	02/19/12 22:07
Client ID: MW-25-4 Lab ID: BM112021540-02A Perchlorate Date Sampled 02/14/12 08:50	9.78	1.00 µg/L	02/19/12 15:39	02/19/12 22:25
Client ID: MW-25-3 Lab ID: BM112021540-03A Perchlorate Date Sampled 02/14/12 09:17	11.3	1.00 µg/L	02/19/12 15:39	02/19/12 22:44
Client ID: MW-25-2 Lab ID: BM112021540-04A Perchlorate Date Sampled 02/14/12 09:41	16.8	1.00 µg/L	02/19/12 15:39	02/19/12 23:02
Client ID: MW-25-1 Lab ID: BM112021540-05A Perchlorate Date Sampled 02/14/12 10:10	11.6	1.00 µg/L	02/19/12 15:39	02/19/12 23:21
Client ID: SB-1-2/14/12 Lab ID: BM112021540-06A Perchlorate Date Sampled 02/14/12 09:04	ND	1.00 µg/L	02/19/12 15:39	02/19/12 23:39
Client ID: EB-12-2/14/12 Lab ID: BM112021540-07A Perchlorate Date Sampled 02/14/12 09:55	ND	1.00 µg/L	02/19/12 15:39	02/19/12 23:57
Client ID: MW-26-2 Lab ID: BM112021540-08A Perchlorate Date Sampled 02/14/12 11:08	ND	1.00 µg/L	02/19/12 15:39	02/20/12 00:16
Client ID: MW-26-1 Lab ID: BM112021540-09A Perchlorate Date Sampled 02/14/12 11:28	3.90	1.00 µg/L	02/19/12 15:39	02/20/12 00:34



Alpha Analytical, Inc.

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Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/27/12

Report Date



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/15/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Metals by ICPMS
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-25-5 Lab ID : BMI12021540-01A Chromium (Cr) Date Sampled 02/14/12 08:23	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 12:27
Client ID: MW-25-4 Lab ID : BMI12021540-02A Chromium (Cr) Date Sampled 02/14/12 08:50	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 12:34
Client ID: MW-25-3 Lab ID : BMI12021540-03A Chromium (Cr) Date Sampled 02/14/12 09:17	0.0051	0.0050 mg/L	02/15/12 16:00	02/16/12 12:40
Client ID: MW-25-2 Lab ID : BMI12021540-04A Chromium (Cr) Date Sampled 02/14/12 09:41	0.0050	0.0050 mg/L	02/15/12 16:00	02/16/12 12:46
Client ID: MW-25-1 Lab ID : BMI12021540-05A Chromium (Cr) Date Sampled 02/14/12 10:10	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 12:52
Client ID: SB-1-2/14/12 Lab ID : BMI12021540-06A Chromium (Cr) Date Sampled 02/14/12 09:04	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 12:58
Client ID: EB-12-2/14/12 Lab ID : BMI12021540-07A Chromium (Cr) Date Sampled 02/14/12 09:55	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 13:04
Client ID: MW-26-2 Lab ID : BMI12021540-08A Chromium (Cr) Date Sampled 02/14/12 11:08	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 13:10
Client ID: MW-26-1 Lab ID : BMI12021540-09A Chromium (Cr) Date Sampled 02/14/12 11:28	ND	0.0050 mg/L	02/15/12 16:00	02/16/12 13:16



Alpha Analytical, Inc.

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Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

C
2/27/12

Report Date



Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/15/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Special BMI TICs
EPA Method SW8260B

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed	
Client ID: MW-25-5					
Lab ID : BM112021540-01A	Acrylonitrile	ND	10 µg/L	02/20/12 13:42	02/20/12 13:42
Date Sampled 02/14/12 08:23	Allyl chloride	ND	2.0 µg/L	02/20/12 13:42	02/20/12 13:42
	Carbon disulfide	ND	2.0 µg/L	02/20/12 13:42	02/20/12 13:42
	Chloroacetonitrile	ND	10 µg/L	02/20/12 13:42	02/20/12 13:42
	1-Chlorobutane	ND	2.0 µg/L	02/20/12 13:42	02/20/12 13:42
	1,1-Dichloropropanone	ND	10 µg/L	02/20/12 13:42	02/20/12 13:42
	Diethyl ether	ND	2.0 µg/L	02/20/12 13:42	02/20/12 13:42
	Ethyl methacrylate	ND	10 µg/L	02/20/12 13:42	02/20/12 13:42
	Hexachloroethane	ND	10 µg/L	02/20/12 13:42	02/20/12 13:42
	Methacrylonitrile	ND	10 µg/L	02/20/12 13:42	02/20/12 13:42
	Methyl acrylate	ND	10 µg/L	02/20/12 13:42	02/20/12 13:42
	Methyl iodide	ND	2.0 µg/L	02/20/12 13:42	02/20/12 13:42
	Methyl methacrylate	ND	10 µg/L	02/20/12 13:42	02/20/12 13:42
	Nitrobenzene	ND	10 µg/L	02/20/12 13:42	02/20/12 13:42
	2-Nitropropane	ND	2.0 µg/L	02/20/12 13:42	02/20/12 13:42
	Pentachloroethane	ND	2.0 µg/L	02/20/12 13:42	02/20/12 13:42
	Propionitrile	ND	50 µg/L	02/20/12 13:42	02/20/12 13:42
	Tetrahydrofuran	ND	10 µg/L	02/20/12 13:42	02/20/12 13:42
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/20/12 13:42	02/20/12 13:42
Client ID: MW-25-4					
Lab ID : BM112021540-02A	Acrylonitrile	ND	10 µg/L	02/20/12 14:04	02/20/12 14:04
Date Sampled 02/14/12 08:50	Allyl chloride	ND	2.0 µg/L	02/20/12 14:04	02/20/12 14:04
	Carbon disulfide	ND	2.0 µg/L	02/20/12 14:04	02/20/12 14:04
	Chloroacetonitrile	ND	10 µg/L	02/20/12 14:04	02/20/12 14:04
	1-Chlorobutane	ND	2.0 µg/L	02/20/12 14:04	02/20/12 14:04
	1,1-Dichloropropanone	ND	10 µg/L	02/20/12 14:04	02/20/12 14:04
	Diethyl ether	ND	2.0 µg/L	02/20/12 14:04	02/20/12 14:04
	Ethyl methacrylate	ND	10 µg/L	02/20/12 14:04	02/20/12 14:04
	Hexachloroethane	ND	10 µg/L	02/20/12 14:04	02/20/12 14:04
	Methacrylonitrile	ND	10 µg/L	02/20/12 14:04	02/20/12 14:04
	Methyl acrylate	ND	10 µg/L	02/20/12 14:04	02/20/12 14:04
	Methyl iodide	ND	2.0 µg/L	02/20/12 14:04	02/20/12 14:04
	Methyl methacrylate	ND	10 µg/L	02/20/12 14:04	02/20/12 14:04
	Nitrobenzene	ND	10 µg/L	02/20/12 14:04	02/20/12 14:04
	2-Nitropropane	ND	2.0 µg/L	02/20/12 14:04	02/20/12 14:04
	Pentachloroethane	ND	2.0 µg/L	02/20/12 14:04	02/20/12 14:04
	Propionitrile	ND	50 µg/L	02/20/12 14:04	02/20/12 14:04
	Tetrahydrofuran	ND	10 µg/L	02/20/12 14:04	02/20/12 14:04
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/20/12 14:04	02/20/12 14:04



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Client ID: MW-25-3

Lab ID : BM112021540-03A	Acrylonitrile	ND	10 µg/L	02/20/12 14:26	02/20/12 14:26
Date Sampled 02/14/12 09:17	Allyl chloride	ND	2.0 µg/L	02/20/12 14:26	02/20/12 14:26
	Carbon disulfide	ND	2.0 µg/L	02/20/12 14:26	02/20/12 14:26
	Chloroacetonitrile	ND	10 µg/L	02/20/12 14:26	02/20/12 14:26
	1-Chlorobutane	ND	2.0 µg/L	02/20/12 14:26	02/20/12 14:26
	1,1-Dichloropropanone	ND	10 µg/L	02/20/12 14:26	02/20/12 14:26
	Diethyl ether	ND	2.0 µg/L	02/20/12 14:26	02/20/12 14:26
	Ethyl methacrylate	ND	10 µg/L	02/20/12 14:26	02/20/12 14:26
	Hexachloroethane	ND	10 µg/L	02/20/12 14:26	02/20/12 14:26
	Methacrylonitrile	ND	10 µg/L	02/20/12 14:26	02/20/12 14:26
	Methyl acrylate	ND	10 µg/L	02/20/12 14:26	02/20/12 14:26
	Methyl iodide	ND	2.0 µg/L	02/20/12 14:26	02/20/12 14:26
	Methyl methacrylate	ND	10 µg/L	02/20/12 14:26	02/20/12 14:26
	Nitrobenzene	ND	10 µg/L	02/20/12 14:26	02/20/12 14:26
	2-Nitropropane	ND	2.0 µg/L	02/20/12 14:26	02/20/12 14:26
	Pentachloroethane	ND	2.0 µg/L	02/20/12 14:26	02/20/12 14:26
	Propionitrile	ND	50 µg/L	02/20/12 14:26	02/20/12 14:26
	Tetrahydrofuran	ND	10 µg/L	02/20/12 14:26	02/20/12 14:26
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/20/12 14:26	02/20/12 14:26

Client ID: MW-25-2

Lab ID : BM112021540-04A	Acrylonitrile	ND	10 µg/L	02/20/12 14:47	02/20/12 14:47
Date Sampled 02/14/12 09:41	Allyl chloride	ND	2.0 µg/L	02/20/12 14:47	02/20/12 14:47
	Carbon disulfide	ND	2.0 µg/L	02/20/12 14:47	02/20/12 14:47
	Chloroacetonitrile	ND	10 µg/L	02/20/12 14:47	02/20/12 14:47
	1-Chlorobutane	ND	2.0 µg/L	02/20/12 14:47	02/20/12 14:47
	1,1-Dichloropropanone	ND	10 µg/L	02/20/12 14:47	02/20/12 14:47
	Diethyl ether	ND	2.0 µg/L	02/20/12 14:47	02/20/12 14:47
	Ethyl methacrylate	ND	10 µg/L	02/20/12 14:47	02/20/12 14:47
	Hexachloroethane	ND	10 µg/L	02/20/12 14:47	02/20/12 14:47
	Methacrylonitrile	ND	10 µg/L	02/20/12 14:47	02/20/12 14:47
	Methyl acrylate	ND	10 µg/L	02/20/12 14:47	02/20/12 14:47
	Methyl iodide	ND	2.0 µg/L	02/20/12 14:47	02/20/12 14:47
	Methyl methacrylate	ND	10 µg/L	02/20/12 14:47	02/20/12 14:47
	Nitrobenzene	ND	10 µg/L	02/20/12 14:47	02/20/12 14:47
	2-Nitropropane	ND	2.0 µg/L	02/20/12 14:47	02/20/12 14:47
	Pentachloroethane	ND	2.0 µg/L	02/20/12 14:47	02/20/12 14:47
	Propionitrile	ND	50 µg/L	02/20/12 14:47	02/20/12 14:47
	Tetrahydrofuran	ND	10 µg/L	02/20/12 14:47	02/20/12 14:47
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/20/12 14:47	02/20/12 14:47



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Client ID: MW-25-1

Lab ID : BMI12021540-05A	Acrylonitrile	ND	10 µg/L	02/20/12 15:09	02/20/12 15:09
Date Sampled 02/14/12 10:10	Allyl chloride	ND	2.0 µg/L	02/20/12 15:09	02/20/12 15:09
	Carbon disulfide	ND	2.0 µg/L	02/20/12 15:09	02/20/12 15:09
	Chloroacetonitrile	ND	10 µg/L	02/20/12 15:09	02/20/12 15:09
	1-Chlorobutane	ND	2.0 µg/L	02/20/12 15:09	02/20/12 15:09
	1,1-Dichloropropanone	ND	10 µg/L	02/20/12 15:09	02/20/12 15:09
	Diethyl ether	ND	2.0 µg/L	02/20/12 15:09	02/20/12 15:09
	Ethyl methacrylate	ND	10 µg/L	02/20/12 15:09	02/20/12 15:09
	Hexachloroethane	ND	10 µg/L	02/20/12 15:09	02/20/12 15:09
	Methacrylonitrile	ND	10 µg/L	02/20/12 15:09	02/20/12 15:09
	Methyl acrylate	ND	10 µg/L	02/20/12 15:09	02/20/12 15:09
	Methyl iodide	ND	2.0 µg/L	02/20/12 15:09	02/20/12 15:09
	Methyl methacrylate	ND	10 µg/L	02/20/12 15:09	02/20/12 15:09
	Nitrobenzene	ND	10 µg/L	02/20/12 15:09	02/20/12 15:09
	2-Nitropropane	ND	2.0 µg/L	02/20/12 15:09	02/20/12 15:09
	Pentachloroethane	ND	2.0 µg/L	02/20/12 15:09	02/20/12 15:09
	Propionitrile	ND	50 µg/L	02/20/12 15:09	02/20/12 15:09
	Tetrahydrofuran	ND	10 µg/L	02/20/12 15:09	02/20/12 15:09
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/20/12 15:09	02/20/12 15:09

Client ID: SB-1-2/14/12

Lab ID : BMI12021540-06A	Acrylonitrile	ND	10 µg/L	02/20/12 15:31	02/20/12 15:31
Date Sampled 02/14/12 09:04	Allyl chloride	ND	2.0 µg/L	02/20/12 15:31	02/20/12 15:31
	Carbon disulfide	ND	2.0 µg/L	02/20/12 15:31	02/20/12 15:31
	Chloroacetonitrile	ND	10 µg/L	02/20/12 15:31	02/20/12 15:31
	1-Chlorobutane	ND	2.0 µg/L	02/20/12 15:31	02/20/12 15:31
	1,1-Dichloropropanone	ND	10 µg/L	02/20/12 15:31	02/20/12 15:31
	Diethyl ether	ND	2.0 µg/L	02/20/12 15:31	02/20/12 15:31
	Ethyl methacrylate	ND	10 µg/L	02/20/12 15:31	02/20/12 15:31
	Hexachloroethane	ND	10 µg/L	02/20/12 15:31	02/20/12 15:31
	Methacrylonitrile	ND	10 µg/L	02/20/12 15:31	02/20/12 15:31
	Methyl acrylate	ND	10 µg/L	02/20/12 15:31	02/20/12 15:31
	Methyl iodide	ND	2.0 µg/L	02/20/12 15:31	02/20/12 15:31
	Methyl methacrylate	ND	10 µg/L	02/20/12 15:31	02/20/12 15:31
	Nitrobenzene	ND	10 µg/L	02/20/12 15:31	02/20/12 15:31
	2-Nitropropane	ND	2.0 µg/L	02/20/12 15:31	02/20/12 15:31
	Pentachloroethane	ND	2.0 µg/L	02/20/12 15:31	02/20/12 15:31
	Propionitrile	ND	50 µg/L	02/20/12 15:31	02/20/12 15:31
	Tetrahydrofuran	ND	10 µg/L	02/20/12 15:31	02/20/12 15:31
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/20/12 15:31	02/20/12 15:31



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Client ID: **EB-12-2/14/12**

Lab ID : BMII2021540-07A	Acrylonitrile	ND	10 µg/L	02/20/12 15:53	02/20/12 15:53
Date Sampled 02/14/12 09:55	Allyl chloride	ND	2.0 µg/L	02/20/12 15:53	02/20/12 15:53
	Carbon disulfide	ND	2.0 µg/L	02/20/12 15:53	02/20/12 15:53
	Chloroacetonitrile	ND	10 µg/L	02/20/12 15:53	02/20/12 15:53
	1-Chlorobutane	ND	2.0 µg/L	02/20/12 15:53	02/20/12 15:53
	1,1-Dichloropropanone	ND	10 µg/L	02/20/12 15:53	02/20/12 15:53
	Diethyl ether	ND	2.0 µg/L	02/20/12 15:53	02/20/12 15:53
	Ethyl methacrylate	ND	10 µg/L	02/20/12 15:53	02/20/12 15:53
	Hexachloroethane	ND	10 µg/L	02/20/12 15:53	02/20/12 15:53
	Methacrylonitrile	ND	10 µg/L	02/20/12 15:53	02/20/12 15:53
	Methyl acrylate	ND	10 µg/L	02/20/12 15:53	02/20/12 15:53
	Methyl iodide	ND	2.0 µg/L	02/20/12 15:53	02/20/12 15:53
	Methyl methacrylate	ND	10 µg/L	02/20/12 15:53	02/20/12 15:53
	Nitrobenzene	ND	10 µg/L	02/20/12 15:53	02/20/12 15:53
	2-Nitropropane	ND	2.0 µg/L	02/20/12 15:53	02/20/12 15:53
	Pentachloroethane	ND	2.0 µg/L	02/20/12 15:53	02/20/12 15:53
	Propionitrile	ND	50 µg/L	02/20/12 15:53	02/20/12 15:53
	Tetrahydrofuran	ND	10 µg/L	02/20/12 15:53	02/20/12 15:53
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/20/12 15:53	02/20/12 15:53

Client ID: **MW-26-2**

Lab ID : BMII2021540-08A	Acrylonitrile	ND	10 µg/L	02/23/12 13:37	02/23/12 13:37
Date Sampled 02/14/12 11:08	Allyl chloride	ND	2.0 µg/L	02/23/12 13:37	02/23/12 13:37
	Carbon disulfide	ND	2.0 µg/L	02/23/12 13:37	02/23/12 13:37
	Chloroacetonitrile	ND	10 µg/L	02/23/12 13:37	02/23/12 13:37
	1-Chlorobutane	ND	2.0 µg/L	02/23/12 13:37	02/23/12 13:37
	1,1-Dichloropropanone	ND	10 µg/L	02/23/12 13:37	02/23/12 13:37
	Diethyl ether	ND	2.0 µg/L	02/23/12 13:37	02/23/12 13:37
	Ethyl methacrylate	ND	10 µg/L	02/23/12 13:37	02/23/12 13:37
	Hexachloroethane	ND	10 µg/L	02/23/12 13:37	02/23/12 13:37
	Methacrylonitrile	ND	10 µg/L	02/23/12 13:37	02/23/12 13:37
	Methyl acrylate	ND	10 µg/L	02/23/12 13:37	02/23/12 13:37
	Methyl iodide	ND	2.0 µg/L	02/23/12 13:37	02/23/12 13:37
	Methyl methacrylate	ND	10 µg/L	02/23/12 13:37	02/23/12 13:37
	Nitrobenzene	ND	10 µg/L	02/23/12 13:37	02/23/12 13:37
	2-Nitropropane	ND	2.0 µg/L	02/23/12 13:37	02/23/12 13:37
	Pentachloroethane	ND	2.0 µg/L	02/23/12 13:37	02/23/12 13:37
	Propionitrile	ND	50 µg/L	02/23/12 13:37	02/23/12 13:37
	Tetrahydrofuran	ND	10 µg/L	02/23/12 13:37	02/23/12 13:37
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/23/12 13:37	02/23/12 13:37



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Client ID: MW-26-1

Lab ID : BMII2021540-09A	Acrylonitrile	ND	10 µg/L	02/21/12 13:11	02/21/12 13:11
Date Sampled 02/14/12 11:28	Allyl chloride	ND	2.0 µg/L	02/21/12 13:11	02/21/12 13:11
	Carbon disulfide	ND	2.0 µg/L	02/21/12 13:11	02/21/12 13:11
	Chloroacetonitrile	ND	10 µg/L	02/21/12 13:11	02/21/12 13:11
	1-Chlorobutane	ND	2.0 µg/L	02/21/12 13:11	02/21/12 13:11
	1,1-Dichloropropanone	ND	10 µg/L	02/21/12 13:11	02/21/12 13:11
	Diethyl ether	ND	2.0 µg/L	02/21/12 13:11	02/21/12 13:11
	Ethyl methacrylate	ND	10 µg/L	02/21/12 13:11	02/21/12 13:11
	Hexachloroethane	ND	10 µg/L	02/21/12 13:11	02/21/12 13:11
	Methacrylonitrile	ND	10 µg/L	02/21/12 13:11	02/21/12 13:11
	Methyl acrylate	ND	10 µg/L	02/21/12 13:11	02/21/12 13:11
	Methyl iodide	ND	2.0 µg/L	02/21/12 13:11	02/21/12 13:11
	Methyl methacrylate	ND	10 µg/L	02/21/12 13:11	02/21/12 13:11
	Nitrobenzene	ND	10 µg/L	02/21/12 13:11	02/21/12 13:11
	2-Nitropropane	ND	2.0 µg/L	02/21/12 13:11	02/21/12 13:11
	Pentachloroethane	ND	2.0 µg/L	02/21/12 13:11	02/21/12 13:11
	Propionitrile	ND	50 µg/L	02/21/12 13:11	02/21/12 13:11
	Tetrahydrofuran	ND	10 µg/L	02/21/12 13:11	02/21/12 13:11
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/21/12 13:11	02/21/12 13:11

Client ID: TB-12-2/14/12

Lab ID : BMII2021540-10A	Acrylonitrile	ND	10 µg/L	02/21/12 13:32	02/21/12 13:32
Date Sampled 02/14/12 00:00	Allyl chloride	ND	2.0 µg/L	02/21/12 13:32	02/21/12 13:32
	Carbon disulfide	ND	2.0 µg/L	02/21/12 13:32	02/21/12 13:32
	Chloroacetonitrile	ND	10 µg/L	02/21/12 13:32	02/21/12 13:32
	1-Chlorobutane	ND	2.0 µg/L	02/21/12 13:32	02/21/12 13:32
	1,1-Dichloropropanone	ND	10 µg/L	02/21/12 13:32	02/21/12 13:32
	Diethyl ether	ND	2.0 µg/L	02/21/12 13:32	02/21/12 13:32
	Ethyl methacrylate	ND	10 µg/L	02/21/12 13:32	02/21/12 13:32
	Hexachloroethane	ND	10 µg/L	02/21/12 13:32	02/21/12 13:32
	Methacrylonitrile	ND	10 µg/L	02/21/12 13:32	02/21/12 13:32
	Methyl acrylate	ND	10 µg/L	02/21/12 13:32	02/21/12 13:32
	Methyl iodide	ND	2.0 µg/L	02/21/12 13:32	02/21/12 13:32
	Methyl methacrylate	ND	10 µg/L	02/21/12 13:32	02/21/12 13:32
	Nitrobenzene	ND	10 µg/L	02/21/12 13:32	02/21/12 13:32
	2-Nitropropane	ND	2.0 µg/L	02/21/12 13:32	02/21/12 13:32
	Pentachloroethane	ND	2.0 µg/L	02/21/12 13:32	02/21/12 13:32
	Propionitrile	ND	50 µg/L	02/21/12 13:32	02/21/12 13:32
	Tetrahydrofuran	ND	10 µg/L	02/21/12 13:32	02/21/12 13:32
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/21/12 13:32	02/21/12 13:32

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/27/12

Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021540-01A
Client I.D. Number: MW-25-5

Sampled: 02/14/12 08:23
Received: 02/15/12
Extracted: 02/20/12 13:42
Analyzed: 02/20/12 13:42

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	82	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021540-02A
Client I.D. Number: MW-25-4

Sampled: 02/14/12 08:50
Received: 02/15/12
Extracted: 02/20/12 14:04
Analyzed: 02/20/12 14:04

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	82	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	96	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021540-03A
Client I.D. Number: MW-25-3

Sampled: 02/14/12 09:17
Received: 02/15/12
Extracted: 02/20/12 14:26
Analyzed: 02/20/12 14:26

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	83	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	96	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021540-04A
Client I.D. Number: MW-25-2

Sampled: 02/14/12 09:41
Received: 02/15/12
Extracted: 02/20/12 14:47
Analyzed: 02/20/12 14:47

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	84	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	95	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl

Randy Gardner

Walter Hinchman

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

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021540-05A
Client I.D. Number: MW-25-1

Sampled: 02/14/12 10:10
Received: 02/15/12
Extracted: 02/20/12 15:09
Analyzed: 02/20/12 15:09

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	5.3	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	84	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	96	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Report Date

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021540-06A
Client I.D. Number: SB-1-2/14/12

Sampled: 02/14/12 09:04
Received: 02/15/12
Extracted: 02/20/12 15:31
Analyzed: 02/20/12 15:31

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	83	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	93	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl

Randy Gardner

Walter Hinchman

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

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Report Date

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021540-07A
Client I.D. Number: EB-12-2/14/12

Sampled: 02/14/12 09:55
Received: 02/15/12
Extracted: 02/20/12 15:53
Analyzed: 02/20/12 15:53

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	79	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	96	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021540-08A
Client I.D. Number: MW-26-2

Sampled: 02/14/12 11:08
Received: 02/15/12
Extracted: 02/23/12 13:37
Analyzed: 02/23/12 13:37

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	85	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	107	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	96	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021540-09A
Client I.D. Number: MW-26-1

Sampled: 02/14/12 11:28
Received: 02/15/12
Extracted: 02/21/12 13:11
Analyzed: 02/21/12 13:11

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	1.0	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	80	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	107	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	97	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021540-10A
Client I.D. Number: TB-12-2/14/12

Sampled: 02/14/12 00:00
Received: 02/15/12
Extracted: 02/21/12 13:32
Analyzed: 02/21/12 13:32

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	83	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	96	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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.

2/27/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

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Date:
22-Feb-12

QC Summary Report

Work Order:
12021540

Method Blank

File ID: 14	Type MBLK	Test Code: EPA Method 314.0								
Sample ID: MB-28242	Units : µg/L	Batch ID: 28242	Run ID: IC_3_120219B	Analysis Date: 02/19/2012 16:36						
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

Laboratory Fortified Blank

File ID: 15	Type LFB	Test Code: EPA Method 314.0								
Sample ID: LFB-28242	Units : µg/L	Batch ID: 28242	Run ID: IC_3_120219B	Analysis Date: 02/19/2012 16:54						
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27.4	2	25		110	85	115			

Sample Matrix Spike

File ID: 26	Type LFM	Test Code: EPA Method 314.0								
Sample ID: 12021640-04ALFM	Units : µg/L	Batch ID: 28242	Run ID: IC_3_120219B	Analysis Date: 02/19/2012 20:17						
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	37.4	2	25	9.282	113	80	120			

Sample Matrix Spike Duplicate

File ID: 27	Type LFMD	Test Code: EPA Method 314.0								
Sample ID: 12021640-04ALFMD	Units : µg/L	Batch ID: 28242	Run ID: IC_3_120219B	Analysis Date: 02/19/2012 20:35						
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	37.9	2	25	9.282	114	80	120	37.43	1.2(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.



Alpha Analytical, Inc.

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Date:
27-Feb-12

QC Summary Report

Work Order:
12021540

Method Blank

File ID: 021512.B\088_M1.D\

Sample ID: MB-28225

Analyte

Chromium (Cr)

Type: MBLK Test Code: EPA Method 200.8

Batch ID: 28225K

Analysis Date: 02/16/2012 10:15

Units : mg/L

Run ID: ICP/MS_120216A

Prep Date: 02/15/2012 16:00

Result

PQL

SpkVal

SpkRefVal

%REC

LCL(ME)

UCL(ME)

RPDRefVal

%RPD(Limit)

Qual

ND 0.005

Laboratory Control Spike

File ID: 021512.B\088_M2.D\

Sample ID: LCS-28225

Analyte

Chromium (Cr)

Type: LCS Test Code: EPA Method 200.8

Batch ID: 28225K

Analysis Date: 02/16/2012 10:21

Units : mg/L

Run ID: ICP/MS_120216A

Prep Date: 02/15/2012 16:00

Result

PQL

SpkVal

SpkRefVal

%REC

LCL(ME)

UCL(ME)

RPDRefVal

%RPD(Limit)

Qual

0.0541 0.005 0.05 108 80 120

Sample Matrix Spike

File ID: 021512.B\093_M.D\

Sample ID: 12021444-10AMS

Analyte

Chromium (Cr)

Type: MS Test Code: EPA Method 200.8

Batch ID: 28225K

Analysis Date: 02/16/2012 10:51

Units : mg/L

Run ID: ICP/MS_120216A

Prep Date: 02/15/2012 16:00

Result

PQL

SpkVal

SpkRefVal

%REC

LCL(ME)

UCL(ME)

RPDRefVal

%RPD(Limit)

Qual

0.0595 0.005 0.05 0 119 80 120

Sample Matrix Spike Duplicate

File ID: 021512.B\094_M.D\

Sample ID: 12021444-10AMSD

Analyte

Chromium (Cr)

Type: MSD Test Code: EPA Method 200.8

Batch ID: 28225K

Analysis Date: 02/16/2012 10:57

Units : mg/L

Run ID: ICP/MS_120216A

Prep Date: 02/15/2012 16:00

Result

PQL

SpkVal

SpkRefVal

%REC

LCL(ME)

UCL(ME)

RPDRefVal

%RPD(Limit)

Qual

0.0593 0.005 0.05 0 119 80 120 0.0595 0.3(20)

Comments:

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



Alpha Analytical, Inc.

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Date:
21-Feb-12

QC Summary Report

Work Order:
12021444

Laboratory Control Spike

Type LCS Test Code: EPA Method 200.8

File ID: 021512.B\088_M2.D\

Batch ID: 28225K

Analysis Date: 02/16/2012 10:21

Sample ID: LCS-28225

Units : mg/L

Run ID: ICP/MS_120216A

Prep Date: 02/15/2012 16:00

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Lithium (Li)	0.0521	0.005	0.05		104	80	120			
Beryllium (Be)	0.0541	0.001	0.05		108	80	120			
Boron (B)	0.0449	0.1	0.05		90	80	120			
Sodium (Na)	5.32	0.5	5		106	80	120			
Magnesium (Mg)	5.41	0.5	5		108	80	120			
Aluminum (Al)	0.587	0.05	0.5		117	80	120			
Silica (SiO2)	5.71	1	5		114	80	120			
Potassium (K)	5.57	0.5	5		111	80	120			
Calcium (Ca)	5.56	0.5	5		111	80	120			
Titanium (Ti)	0.052	0.005	0.05		104	80	120			
Vanadium (V)	0.0501	0.003	0.05		100	80	120			
Chromium (Cr)	0.0541	0.005	0.05		108	80	120			
Manganese (Mn)	0.0522	0.005	0.05		104	80	120			
Iron (Fe)	4.77	0.3	5		95	80	120			
Cobalt (Co)	0.0517	0.005	0.05		103	80	120			
Nickel (Ni)	0.052	0.01	0.05		104	80	120			
Copper (Cu)	0.0509	0.01	0.05		102	80	120			
Zinc (Zn)	0.0549	0.05	0.05		110	80	120			
Gallium (Ga)	0.0528	0.005	0.05		106	80	120			
Arsenic (As)	0.0524	0.002	0.05		105	80	120			
Selenium (Se)	0.0502	0.005	0.05		100	80	120			
Strontium (Sr)	0.517	0.02	0.5		103	80	120			
Molybdenum (Mo)	0.0544	0.005	0.05		109	80	120			
Silver (Ag)	0.0507	0.005	0.05		101	80	120			
Cadmium (Cd)	0.0518	0.001	0.05		104	80	120			
Tin (Sn)	0.0506	0.005	0.05		101	80	120			
Antimony (Sb)	0.0543	0.005	0.05		109	80	120			
Barium (Ba)	0.0524	0.005	0.05		105	80	120			
Mercury (Hg)	0.00102	0.0002	0.001		102	80	120			
Thallium (Tl)	0.0493	0.001	0.05		99	80	120			
Lead (Pb)	0.0524	0.005	0.05		105	80	120			



Alpha Analytical, Inc.

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Date:
21-Feb-12

QC Summary Report

Work Order:
12021444

Laboratory Control Spike Duplicate

Type **LCSD** Test Code: **EPA Method 200.8**

File ID: **021512.B\089_M.D**

Batch ID: **28225K**

Analysis Date: **02/16/2012 10:27**

Sample ID: **LCSD-28225**

Units: **mg/L**

Run ID: **ICP/MS_120216A**

Prep Date: **02/15/2012 16:00**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Lithium (Li)	0.0502	0.005	0.05		100	80	120	0.0521	3.7(20)	
Beryllium (Be)	0.0514	0.001	0.05		103	80	120	0.05409	5.0(20)	
Boron (B)	0.0442	0.1	0.05		88	80	120	0.04486	1.6(20)	
Sodium (Na)	5.38	0.5	5		108	80	120	5.324	1.0(20)	
Magnesium (Mg)	5.42	0.5	5		108	80	120	5.407	0.2(20)	
Aluminum (Al)	0.552	0.05	0.5		110	80	120	0.5872	6.1(20)	
Silica (SiO2)	5.74	1	5		115	80	120	5.707	0.5(20)	
Potassium (K)	5.63	0.5	5		113	80	120	5.572	1.1(20)	
Calcium (Ca)	5.65	0.5	5		113	80	120	5.561	1.5(20)	
Titanium (Ti)	0.0506	0.005	0.05		101	80	120	0.05203	2.8(20)	
Vanadium (V)	0.0488	0.003	0.05		98	80	120	0.05014	2.8(20)	
Chromium (Cr)	0.052	0.005	0.05		104	80	120	0.05412	4.0(20)	
Manganese (Mn)	0.0498	0.005	0.05		99.5	80	120	0.05223	4.8(20)	
Iron (Fe)	4.84	0.3	5		97	80	120	4.773	1.4(20)	
Cobalt (Co)	0.0495	0.005	0.05		99	80	120	0.05174	4.5(20)	
Nickel (Ni)	0.0494	0.01	0.05		99	80	120	0.052	5.2(20)	
Copper (Cu)	0.049	0.01	0.05		98	80	120	0.05092	3.8(20)	
Zinc (Zn)	0.0534	0.05	0.05		107	80	120	0.05488	2.8(20)	
Gallium (Ga)	0.0509	0.005	0.05		102	80	120	0.05279	3.7(20)	
Arsenic (As)	0.0508	0.002	0.05		102	80	120	0.05238	3.0(20)	
Selenium (Se)	0.0488	0.005	0.05		98	80	120	0.05015	2.7(20)	
Strontium (Sr)	0.501	0.02	0.5		100	80	120	0.517	3.2(20)	
Molybdenum (Mo)	0.0532	0.005	0.05		106	80	120	0.05437	2.3(20)	
Silver (Ag)	0.0504	0.005	0.05		101	80	120	0.05066	0.6(20)	
Cadmium (Cd)	0.0507	0.001	0.05		101	80	120	0.05177	2.1(20)	
Tin (Sn)	0.0495	0.005	0.05		99	80	120	0.0506	2.2(20)	
Antimony (Sb)	0.0526	0.005	0.05		105	80	120	0.05431	3.3(20)	
Barium (Ba)	0.0511	0.005	0.05		102	80	120	0.05242	2.6(20)	
Mercury (Hg)	0.00102	0.0002	0.001		102	80	120	0.001023	0.5(20)	
Thallium (Tl)	0.0488	0.001	0.05		98	80	120	0.04926	0.9(20)	
Lead (Pb)	0.0512	0.005	0.05		102	80	120	0.05241	2.4(20)	



Alpha Analytical, Inc.

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Date:
21-Feb-12

QC Summary Report

Work Order:
12021444

Sample Matrix Spike

Type MS

Test Code: EPA Method 200.8

File ID: 021512.B\093_M.D\

Batch ID: 28225K

Analysis Date: 02/16/2012 10:51

Sample ID: 12021444-10AMS

Units: mg/L

Run ID: ICP/MS_120216A

Prep Date: 02/15/2012 16:00

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Lithium (Li)	0.0545	0.005	0.05	0	109	80	120			
Beryllium (Be)	0.0523	0.002	0.05	0	105	80	120			
Boron (B)	0.108	0.1	0.05	0	217	80	120			M1
Sodium (Na)	39.4	0.5	5	34.36	100	80	120			
Magnesium (Mg)	26.8	0.5	5	21.25	110	80	120			
Aluminum (Al)	0.534	0.05	0.5	0	107	80	120			
Silica (SiO2)	38.3	10	5	33.14	102	80	120			
Potassium (K)	9.83	0.5	5	4.086	115	80	120			
Calcium (Ca)	74.2	0.5	5	69.07	102	80	120			
Titanium (Ti)	0.0511	0.005	0.05	0	102	80	120			
Vanadium (V)	0.0486	0.004	0.05	0	97	80	120			
Chromium (Cr)	0.0595	0.005	0.05	0	119	80	120			
Manganese (Mn)	0.057	0.005	0.05	0	114	80	120			
Iron (Fe)	5.47	0.3	5	0.4981	99	80	120			
Cobalt (Co)	0.0517	0.005	0.05	0	103	80	120			
Nickel (Ni)	0.0517	0.01	0.05	0	103	80	120			
Copper (Cu)	0.0543	0.01	0.05	0	109	80	120			
Zinc (Zn)	0.0666	0.05	0.05	0	133	80	120			M1
Gallium (Ga)	0.0518	0.005	0.05	0	104	80	120			
Arsenic (As)	0.052	0.002	0.05	0	104	80	120			
Selenium (Se)	0.0498	0.005	0.05	0	99.6	80	120			
Strontium (Sr)	0.957	0.02	0.5	0.4528	101	80	120			
Molybdenum (Mo)	0.0568	0.005	0.05	0.005698	102	80	120			
Silver (Ag)	0.0475	0.005	0.05	0	95	80	120			
Cadmium (Cd)	0.0483	0.002	0.05	0	97	80	120			
Tin (Sn)	0.0479	0.005	0.05	0	96	80	120			
Antimony (Sb)	0.0506	0.005	0.05	0	101	80	120			
Barium (Ba)	0.129	0.005	0.05	0.07698	104	80	120			
Mercury (Hg)	0.00103	0.0004	0.001	0.0002497	78	80	120			M2
Thallium (Tl)	0.0477	0.002	0.05	0	95	80	120			
Lead (Pb)	0.0491	0.005	0.05	0	98	80	120			



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Date:
21-Feb-12

QC Summary Report

Work Order:
12021444

Sample Matrix Spike Duplicate

Type MSD Test Code: EPA Method 200.8

File ID: 021512.B\094_M.D\

Batch ID: 28225K

Analysis Date: 02/16/2012 10:57

Sample ID: 12021444-10AMSD

Units: mg/L

Run ID: ICP/MS_120216A

Prep Date: 02/15/2012 16:00

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Lithium (Li)	0.0537	0.005	0.05	0	107	80	120	0.05454	1.6(20)	
Beryllium (Be)	0.05	0.002	0.05	0	99.9	80	120	0.05231	4.6(20)	
Boron (B)	0.108	0.1	0.05	0	216	80	120	0.1084	0.5(20)	M1
Sodium (Na)	39.5	0.5	5	34.36	102	80	120	39.38	0.3(20)	
Magnesium (Mg)	26.6	0.5	5	21.25	107	80	120	26.76	0.6(20)	
Aluminum (Al)	0.533	0.05	0.5	0	107	80	120	0.5338	0.1(20)	
Silica (SiO2)	38.4	10	5	33.14	104	80	120	38.25	0.3(20)	
Potassium (K)	9.86	0.5	5	4.086	115	80	120	9.829	0.3(20)	
Calcium (Ca)	74.2	0.5	5	69.07	103	80	120	74.16	0.1(20)	
Titanium (Ti)	0.0523	0.005	0.05	0	105	80	120	0.05112	2.3(20)	
Vanadium (V)	0.0506	0.004	0.05	0	101	80	120	0.04863	4.1(20)	
Chromium (Cr)	0.0593	0.005	0.05	0	119	80	120	0.0595	0.3(20)	
Manganese (Mn)	0.0571	0.005	0.05	0	114	80	120	0.05695	0.2(20)	
Iron (Fe)	5.5	0.3	5	4.981	99.9	80	120	5.465	0.5(20)	
Cobalt (Co)	0.0523	0.005	0.05	0	105	80	120	0.05172	1.0(20)	
Nickel (Ni)	0.0528	0.01	0.05	0	106	80	120	0.05165	2.1(20)	
Copper (Cu)	0.0519	0.01	0.05	0	104	80	120	0.0543	4.6(20)	
Zinc (Zn)	0.0663	0.05	0.05	0	133	80	120	0.06662	0.4(20)	M1
Gallium (Ga)	0.0516	0.005	0.05	0	103	80	120	0.05181	0.5(20)	
Arsenic (As)	0.0516	0.002	0.05	0	103	80	120	0.052	0.8(20)	
Selenium (Se)	0.0488	0.005	0.05	0	98	80	120	0.04978	2.0(20)	
Strontium (Sr)	0.944	0.02	0.5	0.4528	98	80	120	0.9572	1.4(20)	
Molybdenum (Mo)	0.0561	0.005	0.05	0.005698	101	80	120	0.05678	1.1(20)	
Silver (Ag)	0.0464	0.005	0.05	0	93	80	120	0.04747	2.3(20)	
Cadmium (Cd)	0.0484	0.002	0.05	0	97	80	120	0.0483	0.1(20)	
Tin (Sn)	0.0472	0.005	0.05	0	94	80	120	0.04794	1.5(20)	
Antimony (Sb)	0.0507	0.005	0.05	0	101	80	120	0.05055	0.3(20)	
Barium (Ba)	0.131	0.005	0.05	0.07698	107	80	120	0.1291	1.1(20)	
Mercury (Hg)	0.000968	0.0004	0.001	0.0002497	72	80	120	0.00103	6.2(20)	M2
Thallium (Tl)	0.0477	0.002	0.05	0	95	80	120	0.04771	0.0(20)	
Lead (Pb)	0.0495	0.005	0.05	0	99	80	120	0.04913	0.8(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.

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.

M2 = Matrix spike recovery was low, the method control sample recovery was acceptable.

QA/QC *mu* 2/21/12



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:

24-Feb-12

QC Summary Report

Work Order:

12021540

Surr: 1,2-Dichloroethane-d4	8.17	10	82	70	130
Surr: Toluene-d8	10.7	10	107	70	130
Surr: 4-Bromofluorobenzene	9.61	10	96	70	130



Alpha Analytical, Inc.

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Date:
24-Feb-12

QC Summary Report

Work Order:
12021540

Laboratory Control Spike

Type **LCS** Test Code: **EPA Method SW8260B**

File ID: **12022008.D**

Batch ID: **MS15W0220M**

Analysis Date: **02/20/2012 11:57**

Sample ID: **LCS MS15W0220M**

Units : **µg/L**

Run ID: **MSD_15_120220B**

Prep Date: **02/20/2012 11:57**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	7.69	1	10		77	70	130			
Chloromethane	9.2	2	10		92	70	130			
Vinyl chloride	8.53	1	10		85	70	130			
Chloroethane	8.38	1	10		84	70	130			
Bromomethane	7.31	2	10		73	70	130			
Trichlorofluoromethane	8.29	1	10		83	70	130			
Acetone	248	10	200		124	36	171			
1,1-Dichloroethene	8.44	1	10		84	70	130			
Dichloromethane	8.96	2	10		90	70	130			
Freon-113	8.34	1	10		83	70	137			
trans-1,2-Dichloroethene	9.47	1	10		95	70	130			
Methyl tert-butyl ether (MTBE)	8.84	0.5	10		88	70	130			
1,1-Dichloroethane	9.29	1	10		93	70	130			
2-Butanone (MEK)	210	10	200		105	70	130			
cis-1,2-Dichloroethene	9.7	1	10		97	70	130			
Bromochloromethane	9.6	1	10		96	70	130			
Chloroform	8.39	1	10		84	70	130			
2,2-Dichloropropane	8.89	1	10		89	70	130			
1,2-Dichloroethane	8.29	1	10		83	70	130			
1,1,1-Trichloroethane	8.66	1	10		87	70	130			
1,1-Dichloropropene	9.26	1	10		93	70	130			
Carbon tetrachloride	7.72	1	10		77	70	130			
Benzene	9.38	0.5	10		94	70	130			
Dibromomethane	9.34	1	10		93	70	130			
1,2-Dichloropropane	10.3	1	10		103	70	130			
Trichloroethene	9.24	1	10		92	70	130			
Bromodichloromethane	8.45	1	10		85	70	130			
4-Methyl-2-pentanone (MIBK)	25.8	2.5	25		103	20	182			
cis-1,3-Dichloropropene	8.92	1	10		89	70	130			
trans-1,3-Dichloropropene	8.48	1	10		85	70	130			
1,1,2-Trichloroethane	9.96	1	10		99.6	70	130			
Toluene	9.59	0.5	10		96	70	130			
1,3-Dichloropropane	9.65	1	10		97	70	130			
2-Hexanone	113	5	100		113	20	182			
Dibromochloromethane	8.94	1	10		89	70	130			
1,2-Dibromoethane (EDB)	19.1	2	20		96	70	130			
Tetrachloroethene	9.77	1	10		98	70	130			
1,1,1,2-Tetrachloroethane	8.97	1	10		90	70	130			
Chlorobenzene	9.36	1	10		94	70	130			
Ethylbenzene	9.3	0.5	10		93	70	130			
m,p-Xylene	9.86	0.5	10		99	70	130			
Bromoform	8.54	1	10		85	70	130			
Styrene	8.28	1	10		83	70	130			
o-Xylene	9.92	0.5	10		99	70	130			
1,1,2,2-Tetrachloroethane	10.4	1	10		104	70	130			
1,2,3-Trichloropropane	19	2	20		95	70	130			
Isopropylbenzene	9.34	1	10		93	70	130			
Bromobenzene	9.44	1	10		94	70	130			
n-Propylbenzene	9.38	1	10		94	70	130			
4-Chlorotoluene	9.44	1	10		94	70	130			
2-Chlorotoluene	9.21	1	10		92	70	130			
1,3,5-Trimethylbenzene	9.08	1	10		91	70	130			
tert-Butylbenzene	9.06	1	10		91	70	130			
1,2,4-Trimethylbenzene	9.41	1	10		94	70	130			
sec-Butylbenzene	9.29	1	10		93	70	130			
1,3-Dichlorobenzene	9.76	1	10		98	70	130			
1,4-Dichlorobenzene	9.29	1	10		93	70	130			
4-Isopropyltoluene	9.27	1	10		93	70	130			
1,2-Dichlorobenzene	9.04	1	10		90	70	130			
n-Butylbenzene	9.16	1	10		92	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	43.6	3	50		87	67	130			
1,2,4-Trichlorobenzene	9.31	2	10		93	70	130			
Naphthalene	9.7	2	10		97	70	130			
Hexachlorobutadiene	17.8	2	20		89	70	130			
1,2,3-Trichlorobenzene	8.86	2	10		89	70	130			



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
24-Feb-12

QC Summary Report

Work Order:
12021540

Surr: 1,2-Dichloroethane-d4	9	10	90	70	130
Surr: Toluene-d8	10.5	10	105	70	130
Surr: 4-Bromofluorobenzene	10.2	10	102	70	130



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Date:

24-Feb-12

QC Summary Report

Work Order:

12021540

Sample Matrix Spike

File ID: 12022009.D

Sample ID: 12021640-04AMS

Type MS

Test Code: EPA Method SW8260B

Batch ID: MS15W0220M

Analysis Date: 02/20/2012 12:37

Units : µg/L

Run ID: MSD_15_120220B

Prep Date: 02/20/2012 12:37

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	35.7	2.5	50	0	71	21	138			
Chloromethane	45.5	10	50	0	91	23	144			
Vinyl chloride	41.7	2.5	50	0	83	49	136			
Chloroethane	41.9	2.5	50	0	84	21	159			
Bromomethane	38.4	10	50	0	77	10	174			
Trichlorofluoromethane	42.2	2.5	50	0	84	32	154			
Acetone	458	50	1000	0	46	10	171			
1,1-Dichloroethene	43	2.5	50	0	86	64	130			
Dichloromethane	43.1	10	50	0	86	69	130			
Freon-113	43.9	2.5	50	0	88	55	141			
trans-1,2-Dichloroethene	46.7	2.5	50	0	93	63	130			
Methyl tert-butyl ether (MTBE)	36.2	1.3	50	0	72	47	150			
1,1-Dichloroethane	45.7	2.5	50	0	91	66	130			
2-Butanone (MEK)	574	50	1000	0	57	23	182			
cis-1,2-Dichloroethene	47.4	2.5	50	0	95	70	130			
Bromochloromethane	42.3	2.5	50	0	85	70	132			
Chloroform	40.6	2.5	50	0	81	70	130			
2,2-Dichloropropane	43.7	2.5	50	0	87	38	154			
1,2-Dichloroethane	36	2.5	50	0	72	65	134			
1,1,1-Trichloroethane	43.1	2.5	50	0	86	65	136			
1,1-Dichloropropene	45.8	2.5	50	0	92	68	132			
Carbon tetrachloride	39.3	2.5	50	0	79	58	148			
Benzene	46.1	1.3	50	0	92	59	138			
Dibromomethane	39.5	2.5	50	0	79	70	130			
1,2-Dichloropropane	48	2.5	50	0	96	70	131			
Trichloroethene	45.1	2.5	50	0	90	65	144			
Bromodichloromethane	38.4	2.5	50	0	77	50	157			
4-Methyl-2-pentanone (MIBK)	93.7	13	125	0	75	20	182			
cis-1,3-Dichloropropene	39.2	2.5	50	0	78	63	131			
trans-1,3-Dichloropropene	35.4	2.5	50	0	71	65	136			
1,1,2-Trichloroethane	41.9	2.5	50	0	84	70	131			
Toluene	48.8	1.3	50	0	98	68	130			
1,3-Dichloropropane	42.7	2.5	50	0	85	70	130			
2-Hexanone	291	25	500	0	58	20	182			
Dibromochloromethane	39.8	2.5	50	0	80	42	155			
1,2-Dibromoethane (EDB)	84.7	5	100	0	85	70	130			
Tetrachloroethene	50.4	2.5	50	0	101	65	130			
1,1,1,2-Tetrachloroethane	43.4	2.5	50	0	87	70	130			
Chlorobenzene	46.2	2.5	50	0	92	70	130			
Ethylbenzene	47.5	1.3	50	0	95	68	130			
m,p-Xylene	50.1	1.3	50	0	100	68	131			
Bromoform	37.8	2.5	50	0	76	65	143			
Styrene	40	2.5	50	0	80	59	153			
o-Xylene	49.7	1.3	50	0	99	70	130			
1,1,2,2-Tetrachloroethane	44.9	2.5	50	0	90	67	130			
1,2,3-Trichloropropane	81.8	10	100	0	82	70	130			
Isopropylbenzene	50.1	2.5	50	0	100	55	138			
Bromobenzene	47.4	2.5	50	0	95	70	130			
n-Propylbenzene	50.4	2.5	50	0	101	67	133			
4-Chlorotoluene	49.8	2.5	50	0	100	70	130			
2-Chlorotoluene	48.5	2.5	50	0	97	70	130			
1,3,5-Trimethylbenzene	48.4	2.5	50	0	97	67	134			
tert-Butylbenzene	48.4	2.5	50	0	97	55	147			
1,2,4-Trimethylbenzene	49.2	2.5	50	0	98	65	135			
sec-Butylbenzene	49.3	2.5	50	0	99	68	135			
1,3-Dichlorobenzene	50.1	2.5	50	0	100	70	130			
1,4-Dichlorobenzene	46.5	2.5	50	0	93	70	130			
4-Isopropyltoluene	49	2.5	50	0	98	68	132			
1,2-Dichlorobenzene	44.2	2.5	50	0	88	70	130			
n-Butylbenzene	48.4	2.5	50	0	97	62	134			
1,2-Dibromo-3-chloropropane (DBCP)	185	15	250	0	74	64	130			
1,2,4-Trichlorobenzene	43.6	10	50	0	87	62	133			
Naphthalene	42.7	10	50	0	85	32	166			
Hexachlorobutadiene	87.3	10	100	0	87	63	130			
1,2,3-Trichlorobenzene	40.7	10	50	0	81	55	138			



Alpha Analytical, Inc.

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Date:

24-Feb-12

QC Summary Report

Work Order:

12021540

Surr: 1,2-Dichloroethane-d4	41	50	82	70	130
Surr: Toluene-d8	54	50	108	70	130
Surr: 4-Bromofluorobenzene	52.7	50	105	70	130



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Date:
24-Feb-12

QC Summary Report

Work Order:
12021540

Sample Matrix Spike Duplicate

Type **MSD** Test Code: **EPA Method SW8260B**

File ID: **12022010.D**

Batch ID: **MS15W0220M**

Analysis Date: **02/20/2012 12:59**

Sample ID: **12021640-04AMSD**

Units : **µg/L**

Run ID: **MSD_15_120220B**

Prep Date: **02/20/2012 12:59**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	39.1	2.5	50	0	78	21	138	35.66	9.2(33)	
Chloromethane	49.8	10	50	0	99.6	23	144	45.49	9.1(27)	
Vinyl chloride	46.8	2.5	50	0	94	49	136	41.67	11.6(21)	
Chloroethane	45.6	2.5	50	0	91	21	159	41.91	8.4(40)	
Bromomethane	41.6	10	50	0	83	10	174	38.44	8.0(40)	
Trichlorofluoromethane	46.5	2.5	50	0	93	32	154	42.21	9.7(37)	
Acetone	600	50	1000	0	60	10	171	458.5	26.8(23)	R5
1,1-Dichloroethene	47.8	2.5	50	0	96	64	130	43	10.5(21)	
Dichloromethane	49.5	10	50	0	99	69	130	43.07	13.9(20)	
Freon-113	48.1	2.5	50	0	96	55	141	43.89	9.2(40)	
trans-1,2-Dichloroethene	52.5	2.5	50	0	105	63	130	46.67	11.7(20)	
Methyl tert-butyl ether (MTBE)	48	1.3	50	0	96	47	150	36.19	28.1(40)	
1,1-Dichloroethane	51.2	2.5	50	0	102	66	130	45.74	11.2(20)	
2-Butanone (MEK)	763	50	1000	0	76	23	182	574	28.3(22)	R5
cis-1,2-Dichloroethene	53.9	2.5	50	0	108	70	130	47.39	12.8(20)	
Bromochloromethane	53.3	2.5	50	0	107	70	132	42.27	23.1(20)	R5
Chloroform	45.8	2.5	50	0	92	70	130	40.62	11.9(20)	
2,2-Dichloropropane	49.1	2.5	50	0	98	38	154	43.73	11.7(22)	
1,2-Dichloroethane	44.7	2.5	50	0	89	65	134	35.96	21.7(20)	R5
1,1,1-Trichloroethane	48.2	2.5	50	0	96	65	136	43.13	11.2(20)	
1,1-Dichloropropene	51.5	2.5	50	0	103	68	132	45.83	11.7(20)	
Carbon tetrachloride	43.4	2.5	50	0	87	58	148	39.29	9.8(20)	
Benzene	51.9	1.3	50	0	104	59	138	46.14	11.8(21)	
Dibromomethane	50.4	2.5	50	0	101	70	130	39.52	24.2(20)	R5
1,2-Dichloropropane	57	2.5	50	0	114	70	131	48.01	17.2(20)	
Trichloroethene	50.4	2.5	50	0	101	65	144	45.09	11.1(20)	
Bromodichloromethane	46.4	2.5	50	0	93	50	157	38.44	18.7(20)	
4-Methyl-2-pentanone (MIBK)	127	13	125	0	102	20	182	93.73	30.4(20)	R5
cis-1,3-Dichloropropene	47.7	2.5	50	0	95	63	131	39.15	19.8(20)	
trans-1,3-Dichloropropene	45.4	2.5	50	0	91	65	136	35.41	24.7(20)	R5
1,1,2-Trichloroethane	54.1	2.5	50	0	108	70	131	41.93	25.3(20)	R5
Toluene	53.6	1.3	50	0	107	68	130	48.75	9.5(20)	
1,3-Dichloropropane	52.9	2.5	50	0	106	70	130	42.68	21.4(20)	R5
2-Hexanone	390	25	500	0	78	20	182	291.5	28.8(20)	R5
Dibromochloromethane	49.2	2.5	50	0	98	42	155	39.77	21.2(20)	R5
1,2-Dibromoethane (EDB)	104	5	100	0	104	70	130	84.68	20.9(20)	R5
Tetrachloroethene	55	2.5	50	0	110	65	130	50.4	8.8(20)	
1,1,1,2-Tetrachloroethane	49.9	2.5	50	0	99.8	70	130	43.37	14.0(20)	
Chlorobenzene	52.2	2.5	50	0	104	70	130	46.19	12.3(20)	
Ethylbenzene	52	1.3	50	0	104	68	130	47.49	9.1(20)	
m,p-Xylene	55.2	1.3	50	0	110	68	131	50.05	9.7(20)	
Bromoform	47.8	2.5	50	0	96	65	143	37.84	23.3(20)	R5
Styrene	45.8	2.5	50	0	92	59	153	40.01	13.6(37)	
o-Xylene	55.4	1.3	50	0	111	70	130	49.65	11.0(20)	
1,1,2,2-Tetrachloroethane	57.6	2.5	50	0	115	67	130	44.91	24.7(20)	R5
1,2,3-Trichloropropane	105	10	100	0	105	70	130	81.75	24.6(20)	R5
Isopropylbenzene	52	2.5	50	0	104	55	138	50.13	3.7(20)	
Bromobenzene	52.1	2.5	50	0	104	70	130	47.43	9.3(20)	
n-Propylbenzene	52.5	2.5	50	0	105	67	133	50.38	4.1(30)	
4-Chlorotoluene	53.5	2.5	50	0	107	70	130	49.75	7.3(20)	
2-Chlorotoluene	51	2.5	50	0	102	70	130	48.45	5.2(20)	
1,3,5-Trimethylbenzene	50.4	2.5	50	0	101	67	134	48.38	4.1(21)	
tert-Butylbenzene	51.2	2.5	50	0	102	55	147	48.36	5.7(20)	
1,2,4-Trimethylbenzene	52.3	2.5	50	0	105	65	135	49.19	6.2(25)	
sec-Butylbenzene	51.9	2.5	50	0	104	68	135	49.33	5.1(20)	
1,3-Dichlorobenzene	54.6	2.5	50	0	109	70	130	50.14	8.6(20)	
1,4-Dichlorobenzene	52	2.5	50	0	104	70	130	46.53	11.1(20)	
4-Isopropyltoluene	51.7	2.5	50	0	103	68	132	49.03	5.4(20)	
1,2-Dichlorobenzene	50.6	2.5	50	0	101	70	130	44.2	13.4(20)	
n-Butylbenzene	51.7	2.5	50	0	103	62	134	48.37	6.7(21)	
1,2-Dibromo-3-chloropropane (DBCP)	236	15	250	0	95	64	130	185.5	24.2(20)	R5
1,2,4-Trichlorobenzene	50.9	10	50	0	102	62	133	43.58	15.6(29)	



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Date:
24-Feb-12

QC Summary Report

Work Order:
12021540

Naphthalene	52.6	10	50	0	105	32	166	42.73	20.7(40)
Hexachlorobutadiene	99.6	10	100	0	99.6	63	130	87.28	13.1(21)
1,2,3-Trichlorobenzene	49.5	10	50	0	99	55	138	40.69	19.5(36)
Surr: 1,2-Dichloroethane-d4	44.2		50		88	70	130		
Surr: Toluene-d8	53.3		50		107	70	130		
Surr: 4-Bromofluorobenzene	51.1		50		102	70	130		

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.

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

CHAIN-OF-CUSTODY RECORD

CA

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

WorkOrder : BMIS12021540
Report Due By : 5:00 PM On : 28-Feb-12

Client:
 Battelle Memorial Institute
 665 West Broadway
 Suite 1420
 San Diego, CA 92101
 PO : 287215

Report Attention Phone Number **Email Address**
 David Conner (619) 726-7311 x connerd@battelle.org
 Betsy Cutie (614) 424-4899 x cutiee@battelle.org
 Shane Walton (614) 424-4117 x waltonsa@battelle.org

EDD Required : Yes
Sampled by : Client

Client's COC # : 53594 **Job :** 100006114/JPL Groundwater Monitoring

Cooler Temp 1°C **Samples Received** 15-Feb-12 **Date Printed** 15-Feb-12

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

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles			Requested Tests			Sample Remarks
			Alpha	Sub	TAT	314_W	METALS_D W	VOC_BMI_T IC_W	
BM112021540-01A	NW-25-5	02/14/12 08:23	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	
BM112021540-02A	NW-25-4	02/14/12 08:50	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	Level IV QC
BM112021540-03A	NW-25-3	02/14/12 09:17	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	
BM112021540-04A	NW-25-2	02/14/12 09:41	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	
BM112021540-05A	NW-25-1	02/14/12 10:10	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	
BM112021540-06A	SB-1-2/14/12	02/14/12 09:04	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	
BM112021540-07A	EB-12-2/14/12	02/14/12 09:55	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	
BM112021540-08A	NW-26-2	02/14/12 11:08	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	
BM112021540-09A	NW-26-1	02/14/12 11:28	5	0	9	Perchlorate	Cr	VOC by 524 Criteria	
BM112021540-10A	TB-12-2/14/12	02/14/12 00:00	1	0	9	Perchlorate	Cr	VOC by 524 Criteria	Reno Trip Blank 1/9/12

Comments: Security seals intact. Frozen ice. Temp Blank #8529 received @ 1°C. Samples should be used as the control spike sample if possible (I.E. MS/MSD). Level IV QC on sample -02A. :

Signature	<i>Arena Caplee</i>	Print Name	<i>Sara Lotfee</i>	Company	<i>Alpha Analytical, Inc.</i>	Date/Time	<i>2/15/12 10:01</i>
------------------	---------------------	-------------------	--------------------	----------------	-------------------------------	------------------	----------------------

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. 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:

Company Name BATTLE
 Attn: GETALY TOMPKINS
 Address 505 KING AVE
 City, State, Zip COLLETSVILLE, OH 43201
 Phone Number _____ Fax _____



Samples Collected From Which State?
 AZ _____ CA NV _____ WA _____
 ID _____ OR _____ OTHER _____
 Page # _____ of _____

53594

Consultant/Client Name DAVID CONNER Job # 100006114 Job Name 1012 3L GW MUD
 Address 3990 017 TOWN AVE, C-255 Report Attention / Project Manager DAVID CONNER
 City, State, Zip CA 92110 Name: DAVID CONNER Email: connerd@battelle.org Mobile: (619) 226-7811

Time Sampled	Date Sampled	Matrix* See Key Below	PO#	Lab ID Number	Office (Use Only)	Sample Description	TAT	Field Filled	# Containers**	Analyses Required	EDO / EDF? YES ___ NO ___	Global ID #	REMARKS
823	2/14/12	AQ	BMT1AD01540-D1A			MW-25-5	ASPM		5/ways	VOC (5242)			Level III or
850	1					MW-25-4				TOTAL Cr (20.8)			
917	1					MW-25-3				(104 - 314.5)			
941	1					MW-25-2							
1010	1					MW-25-1							
934	1					SB-1-2/14/12							Source Blank
935	1					EB-12-2/14/12							
1108	1					MW-26-2							
1178	1					MW-26-1							
	1					TB-12-2/14/12				1/voa			TRIP BLANK

ADDITIONAL INSTRUCTIONS:

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Sampled By: _____

Relinquished by: (Signature/Affiliation) <u>[Signature]</u>	Received by: (Signature/Affiliation) <u>[Signature]</u>	Date: <u>2/15/12</u>	Time: <u>1230</u>
Relinquished by: (Signature/Affiliation) <u>[Signature]</u>	Received by: (Signature/Affiliation) <u>[Signature]</u>	Date: <u>2/15/12</u>	Time: <u>9:37</u>
Relinquished by: (Signature/Affiliation) <u>[Signature]</u>	Received by: (Signature/Affiliation) <u>[Signature]</u>	Date: _____	Time: _____

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air ** L-Lier 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 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.



Alpha Analytical, Inc.

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

Date: 22-Feb-12

David Conner
Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
(619) 726-7311

Suite 1420

CASE NARRATIVE

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Work Order: BMI12021640 Cooler Temp: 0°C

Alpha's Sample ID	Client's Sample ID	Matrix
12021640-01A	MW-12-5	Aqueous
12021640-02A	MW-12-4	Aqueous
12021640-03A	MW-12-3	Aqueous
12021640-04A	MW-12-2	Aqueous
12021640-05A	MW-12-1	Aqueous
12021640-06A	EB-13-2/15/12	Aqueous
12021640-07A	TB-13-2/15/12	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.

Note : The final report format has been altered from the DOD QSM to meet client instructions.

Roger Scholl *Randy Gardner* *Walter Hinchman*

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/16/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Perchlorate by Ion Chromatography
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-12-5 Lab ID : BMI12021640-01A Perchlorate Date Sampled 02/15/12 08:16	3.07	1.00 µg/L	02/19/12 15:39	02/19/12 19:03
Client ID: MW-12-4 Lab ID : BMI12021640-02A Perchlorate Date Sampled 02/15/12 08:39	5.19	1.00 µg/L	02/19/12 15:39	02/19/12 19:21
Client ID: MW-12-3 Lab ID : BMI12021640-03A Perchlorate Date Sampled 02/15/12 09:03	5.50	1.00 µg/L	02/19/12 15:39	02/19/12 19:40
Client ID: MW-12-2 Lab ID : BMI12021640-04A Perchlorate Date Sampled 02/15/12 09:34	9.28	1.00 µg/L	02/19/12 15:39	02/19/12 19:58
Client ID: MW-12-1 Lab ID : BMI12021640-05A Perchlorate Date Sampled 02/15/12 09:57	ND	1.00 µg/L	02/19/12 15:39	02/19/12 20:53
Client ID: EB-13-2/15/12 Lab ID : BMI12021640-06A Perchlorate Date Sampled 02/15/12 09:50	ND	1.00 µg/L	02/19/12 15:39	02/19/12 21:49

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/28/12

Report Date



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Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/16/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Metals by ICPMS
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: MW-12-3 Lab ID: BMI12021640-03A Chromium (Cr) Date Sampled 02/15/12 09:03	ND	0.0050 mg/L	02/16/12 10:11	02/17/12 19:30
Client ID: MW-12-2 Lab ID: BMI12021640-04A Chromium (Cr) Date Sampled 02/15/12 09:34	ND	0.0050 mg/L	02/16/12 10:11	02/17/12 19:05
Client ID: MW-12-1 Lab ID: BMI12021640-05A Chromium (Cr) Date Sampled 02/15/12 09:57	ND	0.0050 mg/L	02/16/12 10:11	02/17/12 19:36
Client ID: EB-13-2/15/12 Lab ID: BMI12021640-06A Chromium (Cr) Date Sampled 02/15/12 09:50	ND	0.0050 mg/L	02/16/12 10:11	02/17/12 17:42

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

Roger Scholl *Randy Gardner* *Walter Hinchman*

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Report Date



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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641
Date Received : 02/16/12

Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Special BMI TICs
EPA Method SW8260B

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed	
Client ID: MW-12-5					
Lab ID: BM12021640-01A	Acrylonitrile	ND	10 µg/L	02/21/12 13:54	02/21/12 13:54
Date Sampled 02/15/12 08:16	Allyl chloride	ND	2.0 µg/L	02/21/12 13:54	02/21/12 13:54
	Carbon disulfide	ND	2.0 µg/L	02/21/12 13:54	02/21/12 13:54
	Chloroacetonitrile	ND	10 µg/L	02/21/12 13:54	02/21/12 13:54
	1-Chlorobutane	ND	2.0 µg/L	02/21/12 13:54	02/21/12 13:54
	1,1-Dichloropropanone	ND	10 µg/L	02/21/12 13:54	02/21/12 13:54
	Diethyl ether	ND	2.0 µg/L	02/21/12 13:54	02/21/12 13:54
	Ethyl methacrylate	ND	10 µg/L	02/21/12 13:54	02/21/12 13:54
	Hexachloroethane	ND	10 µg/L	02/21/12 13:54	02/21/12 13:54
	Methacrylonitrile	ND	10 µg/L	02/21/12 13:54	02/21/12 13:54
	Methyl acrylate	ND	10 µg/L	02/21/12 13:54	02/21/12 13:54
	Methyl iodide	ND	2.0 µg/L	02/21/12 13:54	02/21/12 13:54
	Methyl methacrylate	ND	10 µg/L	02/21/12 13:54	02/21/12 13:54
	Nitrobenzene	ND	10 µg/L	02/21/12 13:54	02/21/12 13:54
	2-Nitropropane	ND	2.0 µg/L	02/21/12 13:54	02/21/12 13:54
	Pentachloroethane	ND	2.0 µg/L	02/21/12 13:54	02/21/12 13:54
	Propionitrile	ND	50 µg/L	02/21/12 13:54	02/21/12 13:54
	Tetrahydrofuran	ND	10 µg/L	02/21/12 13:54	02/21/12 13:54
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/21/12 13:54	02/21/12 13:54
Client ID: MW-12-4					
Lab ID: BM12021640-02A	Acrylonitrile	ND	10 µg/L	02/21/12 14:16	02/21/12 14:16
Date Sampled 02/15/12 08:39	Allyl chloride	ND	2.0 µg/L	02/21/12 14:16	02/21/12 14:16
	Carbon disulfide	ND	2.0 µg/L	02/21/12 14:16	02/21/12 14:16
	Chloroacetonitrile	ND	10 µg/L	02/21/12 14:16	02/21/12 14:16
	1-Chlorobutane	ND	2.0 µg/L	02/21/12 14:16	02/21/12 14:16
	1,1-Dichloropropanone	ND	10 µg/L	02/21/12 14:16	02/21/12 14:16
	Diethyl ether	ND	2.0 µg/L	02/21/12 14:16	02/21/12 14:16
	Ethyl methacrylate	ND	10 µg/L	02/21/12 14:16	02/21/12 14:16
	Hexachloroethane	ND	10 µg/L	02/21/12 14:16	02/21/12 14:16
	Methacrylonitrile	ND	10 µg/L	02/21/12 14:16	02/21/12 14:16
	Methyl acrylate	ND	10 µg/L	02/21/12 14:16	02/21/12 14:16
	Methyl iodide	ND	2.0 µg/L	02/21/12 14:16	02/21/12 14:16
	Methyl methacrylate	ND	10 µg/L	02/21/12 14:16	02/21/12 14:16
	Nitrobenzene	ND	10 µg/L	02/21/12 14:16	02/21/12 14:16
	2-Nitropropane	ND	2.0 µg/L	02/21/12 14:16	02/21/12 14:16
	Pentachloroethane	ND	2.0 µg/L	02/21/12 14:16	02/21/12 14:16
	Propionitrile	ND	50 µg/L	02/21/12 14:16	02/21/12 14:16
	Tetrahydrofuran	ND	10 µg/L	02/21/12 14:16	02/21/12 14:16
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/21/12 14:16	02/21/12 14:16



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Client ID: MW-12-3

Lab ID : BMII2021640-03A	Acrylonitrile	ND	10 µg/L	02/21/12 14:37	02/21/12 14:37
Date Sampled 02/15/12 09:03	Allyl chloride	ND	2.0 µg/L	02/21/12 14:37	02/21/12 14:37
	Carbon disulfide	ND	2.0 µg/L	02/21/12 14:37	02/21/12 14:37
	Chloroacetonitrile	ND	10 µg/L	02/21/12 14:37	02/21/12 14:37
	1-Chlorobutane	ND	2.0 µg/L	02/21/12 14:37	02/21/12 14:37
	1,1-Dichloropropanone	ND	10 µg/L	02/21/12 14:37	02/21/12 14:37
	Diethyl ether	ND	2.0 µg/L	02/21/12 14:37	02/21/12 14:37
	Ethyl methacrylate	ND	10 µg/L	02/21/12 14:37	02/21/12 14:37
	Hexachloroethane	ND	10 µg/L	02/21/12 14:37	02/21/12 14:37
	Methacrylonitrile	ND	10 µg/L	02/21/12 14:37	02/21/12 14:37
	Methyl acrylate	ND	10 µg/L	02/21/12 14:37	02/21/12 14:37
	Methyl iodide	ND	2.0 µg/L	02/21/12 14:37	02/21/12 14:37
	Methyl methacrylate	ND	10 µg/L	02/21/12 14:37	02/21/12 14:37
	Nitrobenzene	ND	10 µg/L	02/21/12 14:37	02/21/12 14:37
	2-Nitropropane	ND	2.0 µg/L	02/21/12 14:37	02/21/12 14:37
	Pentachloroethane	ND	2.0 µg/L	02/21/12 14:37	02/21/12 14:37
	Propionitrile	ND	50 µg/L	02/21/12 14:37	02/21/12 14:37
	Tetrahydrofuran	ND	10 µg/L	02/21/12 14:37	02/21/12 14:37
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/21/12 14:37	02/21/12 14:37

Client ID: MW-12-2

Lab ID : BMII2021640-04A	Acrylonitrile	ND	10 µg/L	02/21/12 14:59	02/21/12 14:59
Date Sampled 02/15/12 09:34	Allyl chloride	ND	2.0 µg/L	02/21/12 14:59	02/21/12 14:59
	Carbon disulfide	ND	2.0 µg/L	02/21/12 14:59	02/21/12 14:59
	Chloroacetonitrile	ND	10 µg/L	02/21/12 14:59	02/21/12 14:59
	1-Chlorobutane	ND	2.0 µg/L	02/21/12 14:59	02/21/12 14:59
	1,1-Dichloropropanone	ND	10 µg/L	02/21/12 14:59	02/21/12 14:59
	Diethyl ether	ND	2.0 µg/L	02/21/12 14:59	02/21/12 14:59
	Ethyl methacrylate	ND	10 µg/L	02/21/12 14:59	02/21/12 14:59
	Hexachloroethane	ND	10 µg/L	02/21/12 14:59	02/21/12 14:59
	Methacrylonitrile	ND	10 µg/L	02/21/12 14:59	02/21/12 14:59
	Methyl acrylate	ND	10 µg/L	02/21/12 14:59	02/21/12 14:59
	Methyl iodide	ND	2.0 µg/L	02/21/12 14:59	02/21/12 14:59
	Methyl methacrylate	ND	10 µg/L	02/21/12 14:59	02/21/12 14:59
	Nitrobenzene	ND	10 µg/L	02/21/12 14:59	02/21/12 14:59
	2-Nitropropane	ND	2.0 µg/L	02/21/12 14:59	02/21/12 14:59
	Pentachloroethane	ND	2.0 µg/L	02/21/12 14:59	02/21/12 14:59
	Propionitrile	ND	50 µg/L	02/21/12 14:59	02/21/12 14:59
	Tetrahydrofuran	ND	10 µg/L	02/21/12 14:59	02/21/12 14:59
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/21/12 14:59	02/21/12 14:59



Alpha Analytical, Inc.

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Client ID: MW-12-1

Lab ID : BM112021640-05A	Acrylonitrile	ND	10 µg/L	02/21/12 15:21	02/21/12 15:21
Date Sampled 02/15/12 09:57	Allyl chloride	ND	2.0 µg/L	02/21/12 15:21	02/21/12 15:21
	Carbon disulfide	ND	2.0 µg/L	02/21/12 15:21	02/21/12 15:21
	Chloroacetonitrile	ND	10 µg/L	02/21/12 15:21	02/21/12 15:21
	1-Chlorobutane	ND	2.0 µg/L	02/21/12 15:21	02/21/12 15:21
	1,1-Dichloropropanone	ND	10 µg/L	02/21/12 15:21	02/21/12 15:21
	Diethyl ether	ND	2.0 µg/L	02/21/12 15:21	02/21/12 15:21
	Ethyl methacrylate	ND	10 µg/L	02/21/12 15:21	02/21/12 15:21
	Hexachloroethane	ND	10 µg/L	02/21/12 15:21	02/21/12 15:21
	Methacrylonitrile	ND	10 µg/L	02/21/12 15:21	02/21/12 15:21
	Methyl acrylate	ND	10 µg/L	02/21/12 15:21	02/21/12 15:21
	Methyl iodide	ND	2.0 µg/L	02/21/12 15:21	02/21/12 15:21
	Methyl methacrylate	ND	10 µg/L	02/21/12 15:21	02/21/12 15:21
	Nitrobenzene	ND	10 µg/L	02/21/12 15:21	02/21/12 15:21
	2-Nitropropane	ND	2.0 µg/L	02/21/12 15:21	02/21/12 15:21
	Pentachloroethane	ND	2.0 µg/L	02/21/12 15:21	02/21/12 15:21
	Propionitrile	ND	50 µg/L	02/21/12 15:21	02/21/12 15:21
	Tetrahydrofuran	ND	10 µg/L	02/21/12 15:21	02/21/12 15:21
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/21/12 15:21	02/21/12 15:21

Client ID: EB-13-2/15/12

Lab ID : BM112021640-06A	Acrylonitrile	ND	10 µg/L	02/21/12 15:42	02/21/12 15:42
Date Sampled 02/15/12 09:50	Allyl chloride	ND	2.0 µg/L	02/21/12 15:42	02/21/12 15:42
	Carbon disulfide	ND	2.0 µg/L	02/21/12 15:42	02/21/12 15:42
	Chloroacetonitrile	ND	10 µg/L	02/21/12 15:42	02/21/12 15:42
	1-Chlorobutane	ND	2.0 µg/L	02/21/12 15:42	02/21/12 15:42
	1,1-Dichloropropanone	ND	10 µg/L	02/21/12 15:42	02/21/12 15:42
	Diethyl ether	ND	2.0 µg/L	02/21/12 15:42	02/21/12 15:42
	Ethyl methacrylate	ND	10 µg/L	02/21/12 15:42	02/21/12 15:42
	Hexachloroethane	ND	10 µg/L	02/21/12 15:42	02/21/12 15:42
	Methacrylonitrile	ND	10 µg/L	02/21/12 15:42	02/21/12 15:42
	Methyl acrylate	ND	10 µg/L	02/21/12 15:42	02/21/12 15:42
	Methyl iodide	ND	2.0 µg/L	02/21/12 15:42	02/21/12 15:42
	Methyl methacrylate	ND	10 µg/L	02/21/12 15:42	02/21/12 15:42
	Nitrobenzene	ND	10 µg/L	02/21/12 15:42	02/21/12 15:42
	2-Nitropropane	ND	2.0 µg/L	02/21/12 15:42	02/21/12 15:42
	Pentachloroethane	ND	2.0 µg/L	02/21/12 15:42	02/21/12 15:42
	Propionitrile	ND	50 µg/L	02/21/12 15:42	02/21/12 15:42
	Tetrahydrofuran	ND	10 µg/L	02/21/12 15:42	02/21/12 15:42
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/21/12 15:42	02/21/12 15:42



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Client ID: TB-13-2/15/12

Lab ID : BMI12021640-07A	Acrylonitrile	ND	10 µg/L	02/21/12 16:04	02/21/12 16:04
Date Sampled 02/15/12 08:00	Allyl chloride	ND	2.0 µg/L	02/21/12 16:04	02/21/12 16:04
	Carbon disulfide	ND	2.0 µg/L	02/21/12 16:04	02/21/12 16:04
	Chloroacetonitrile	ND	10 µg/L	02/21/12 16:04	02/21/12 16:04
	1-Chlorobutane	ND	2.0 µg/L	02/21/12 16:04	02/21/12 16:04
	1,1-Dichloropropanone	ND	10 µg/L	02/21/12 16:04	02/21/12 16:04
	Diethyl ether	ND	2.0 µg/L	02/21/12 16:04	02/21/12 16:04
	Ethyl methacrylate	ND	10 µg/L	02/21/12 16:04	02/21/12 16:04
	Hexachloroethane	ND	10 µg/L	02/21/12 16:04	02/21/12 16:04
	Methacrylonitrile	ND	10 µg/L	02/21/12 16:04	02/21/12 16:04
	Methyl acrylate	ND	10 µg/L	02/21/12 16:04	02/21/12 16:04
	Methyl iodide	ND	2.0 µg/L	02/21/12 16:04	02/21/12 16:04
	Methyl methacrylate	ND	10 µg/L	02/21/12 16:04	02/21/12 16:04
	Nitrobenzene	ND	10 µg/L	02/21/12 16:04	02/21/12 16:04
	2-Nitropropane	ND	2.0 µg/L	02/21/12 16:04	02/21/12 16:04
	Pentachloroethane	ND	2.0 µg/L	02/21/12 16:04	02/21/12 16:04
	Propionitrile	ND	50 µg/L	02/21/12 16:04	02/21/12 16:04
	Tetrahydrofuran	ND	10 µg/L	02/21/12 16:04	02/21/12 16:04
	trans-1,4-Dichloro-2-butene	ND	2.5 µg/L	02/21/12 16:04	02/21/12 16:04

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/28/12

Report Date



Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021640-01A
Client I.D. Number: MW-12-5

Sampled: 02/15/12 08:16
Received: 02/16/12
Extracted: 02/21/12 13:54
Analyzed: 02/21/12 13:54

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	0.71	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	82	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021640-02A
Client I.D. Number: MW-12-4

Sampled: 02/15/12 08:39
Received: 02/16/12
Extracted: 02/21/12 14:16
Analyzed: 02/21/12 14:16

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	0.58	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	1.2	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	83	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	107	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021640-03A
Client I.D. Number: MW-12-3

Sampled: 02/15/12 09:03
Received: 02/16/12
Extracted: 02/21/12 14:37
Analyzed: 02/21/12 14:37

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	0.50	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	1.3	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	84	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	95	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021640-04A
Client I.D. Number: MW-12-2

Sampled: 02/15/12 09:34
Received: 02/16/12
Extracted: 02/21/12 14:59
Analyzed: 02/21/12 14:59

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	83	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	106	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	98	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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Alpha Analytical, Inc.

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ANALYTICAL REPORT

Battelle Memorial Institute
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021640-05A
Client I.D. Number: MW-12-1

Sampled: 02/15/12 09:57
Received: 02/16/12
Extracted: 02/21/12 15:21
Analyzed: 02/21/12 15:21

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	85	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	95	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

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) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

Statement of Data Authenticity: Alpha Analytical, Inc. attests that the data reported has not been altered in any way.

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2/28/12

Report Date

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Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021640-06A
Client I.D. Number: EB-13-2/15/12

Sampled: 02/15/12 09:50
Received: 02/16/12
Extracted: 02/21/12 15:42
Analyzed: 02/21/12 15:42

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	86	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	105	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	97	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/28/12

Report Date

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Alpha Analytical, Inc.

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
655 West Broadway
San Diego, CA 92101
Job: 100006114/JPL Groundwater Monitoring : (No DOD Detailed Site Information)

Attn: David Conner
Phone: (619) 726-7311
Fax: (614) 458-6641

Alpha Analytical Number: BMI12021640-07A
Client I.D. Number: TB-13-2/15/12

Sampled: 02/15/12 08:00
Received: 02/16/12
Extracted: 02/21/12 16:04
Analyzed: 02/21/12 16:04

Volatile Organics by GC/MS EPA Method SW8260B

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,2-Dibromoethane (EDB)	ND	1.0 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Tetrachloroethene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 Chlorobenzene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Ethylbenzene	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 m,p-Xylene	ND	0.50 µg/L
7 Acetone	ND	10 µg/L	42 Bromoform	ND	0.50 µg/L
8 1,1-Dichloroethene	ND	0.50 µg/L	43 Styrene	ND	0.50 µg/L
9 Dichloromethane	ND	1.0 µg/L	44 o-Xylene	ND	0.50 µg/L
10 Freon-113	ND	0.50 µg/L	45 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
11 trans-1,2-Dichloroethene	ND	0.50 µg/L	46 1,2,3-Trichloropropane	ND	1.0 µg/L
12 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	47 Isopropylbenzene	ND	0.50 µg/L
13 1,1-Dichloroethane	ND	0.50 µg/L	48 Bromobenzene	ND	0.50 µg/L
14 2-Butanone (MEK)	ND	10 µg/L	49 n-Propylbenzene	ND	0.50 µg/L
15 cis-1,2-Dichloroethene	ND	0.50 µg/L	50 4-Chlorotoluene	ND	0.50 µg/L
16 Bromochloromethane	ND	0.50 µg/L	51 2-Chlorotoluene	ND	0.50 µg/L
17 Chloroform	ND	0.50 µg/L	52 1,3,5-Trimethylbenzene	ND	0.50 µg/L
18 2,2-Dichloropropane	ND	0.50 µg/L	53 tert-Butylbenzene	ND	0.50 µg/L
19 1,2-Dichloroethane	ND	0.50 µg/L	54 1,2,4-Trimethylbenzene	ND	0.50 µg/L
20 1,1,1-Trichloroethane	ND	0.50 µg/L	55 sec-Butylbenzene	ND	0.50 µg/L
21 1,1-Dichloropropene	ND	0.50 µg/L	56 1,3-Dichlorobenzene	ND	0.50 µg/L
22 Carbon tetrachloride	ND	0.50 µg/L	57 1,4-Dichlorobenzene	ND	0.50 µg/L
23 Benzene	ND	0.50 µg/L	58 4-Isopropyltoluene	ND	0.50 µg/L
24 Dibromomethane	ND	0.50 µg/L	59 1,2-Dichlorobenzene	ND	0.50 µg/L
25 1,2-Dichloropropane	ND	0.50 µg/L	60 n-Butylbenzene	ND	0.50 µg/L
26 Trichloroethene	ND	0.50 µg/L	61 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
27 Bromodichloromethane	ND	0.50 µg/L	62 1,2,4-Trichlorobenzene	ND	1.0 µg/L
28 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	63 Naphthalene	ND	1.0 µg/L
29 cis-1,3-Dichloropropene	ND	0.50 µg/L	64 Hexachlorobutadiene	ND	1.0 µg/L
30 trans-1,3-Dichloropropene	ND	0.50 µg/L	65 1,2,3-Trichlorobenzene	ND	1.0 µg/L
31 1,1,2-Trichloroethane	ND	0.50 µg/L	66 Surr: 1,2-Dichloroethane-d4	87	(70-120) %REC
32 Toluene	ND	0.50 µg/L	67 Surr: Toluene-d8	104	(85-120) %REC
33 1,3-Dichloropropane	ND	0.50 µg/L	68 Surr: 4-Bromofluorobenzene	94	(75-120) %REC
34 2-Hexanone	ND	5.0 µg/L			
35 Dibromochloromethane	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Information regarding the estimate of the uncertainty of measurement is available upon client request.

ND = Not Detected

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2/28/12

Report Date

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Alpha Analytical, Inc.

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: BMI12021640

Job: 100006114/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12021640-01A	MW-12-5	Aqueous	2
12021640-02A	MW-12-4	Aqueous	2
12021640-03A	MW-12-3	Aqueous	2
12021640-04A	MW-12-2	Aqueous	2
12021640-05A	MW-12-1	Aqueous	2
12021640-06A	EB-13-2/15/12	Aqueous	2
12021640-07A	TB-13-2/15/12	Aqueous	2

2/28/12

Report Date

Page 1 of 1



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
22-Feb-12

QC Summary Report

Work Order:
12021640

Method Blank

File ID: 14	Type MBLK	Test Code: EPA Method 314.0	Batch ID: 28242K	Analysis Date: 02/19/2012 16:36						
Sample ID: MB-28242	Units : µg/L	Run ID: IC_3_120219A	Prep Date: 02/19/2012 15:39							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

Laboratory Fortified Blank

File ID: 15	Type LFB	Test Code: EPA Method 314.0	Batch ID: 28242K	Analysis Date: 02/19/2012 16:54						
Sample ID: LFB-28242	Units : µg/L	Run ID: IC_3_120219A	Prep Date: 02/19/2012 15:39							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	27.4	2	25		110	85	115			

Sample Matrix Spike

File ID: 26	Type LFM	Test Code: EPA Method 314.0	Batch ID: 28242K	Analysis Date: 02/19/2012 20:17						
Sample ID: 12021640-04ALFM	Units : µg/L	Run ID: IC_3_120219A	Prep Date: 02/19/2012 15:39							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	37.4	2	25	9.282	113	85	115			

Sample Matrix Spike Duplicate

File ID: 27	Type LFMD	Test Code: EPA Method 314.0	Batch ID: 28242K	Analysis Date: 02/19/2012 20:35						
Sample ID: 12021640-04ALFMD	Units : µg/L	Run ID: IC_3_120219A	Prep Date: 02/19/2012 15:39							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	37.9	2	25	9.282	114	85	115	37.43	1.2(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.



Alpha Analytical, Inc.

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Date:
21-Feb-12

QC Summary Report

Work Order:
12021640

Method Blank

Type: **MBLK** Test Code: **EPA Method 200.8**

File ID: 021712.B\018_M.D\

Batch ID: 28227K

Analysis Date: 02/17/2012 18:35

Sample ID: MB-28227

Units : mg/L

Run ID: ICP/MS_120217A

Prep Date: 02/16/2012 10:11

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: 021712.B\019_M.D\

Batch ID: 28227K

Analysis Date: 02/17/2012 18:42

Sample ID: LCS-28227

Units : mg/L

Run ID: ICP/MS_120217A

Prep Date: 02/16/2012 10:11

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0511	0.005	0.05		102	80	120			

Sample Matrix Spike

Type: **MS** Test Code: **EPA Method 200.8**

File ID: 021712.B\024_M.D\

Batch ID: 28227K

Analysis Date: 02/17/2012 19:11

Sample ID: 12021640-04AMS

Units : mg/L

Run ID: ICP/MS_120217A

Prep Date: 02/16/2012 10:11

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0494	0.005	0.05		0 99	80	120			

Sample Matrix Spike Duplicate

Type: **MSD** Test Code: **EPA Method 200.8**

File ID: 021712.B\025_M.D\

Batch ID: 28227K

Analysis Date: 02/17/2012 19:18

Sample ID: 12021640-04AMSD

Units : mg/L

Run ID: ICP/MS_120217A

Prep Date: 02/16/2012 10:11

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0516	0.005	0.05		0 103	80	120	0.04942	4.3(20)	

Comments:

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



Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:

28-Feb-12

QC Summary Report

Work Order:

12021640

Surr: 1,2-Dichloroethane-d4	8.01	10	80	70	130
Surr: Toluene-d8	10.7	10	107	70	130
Surr: 4-Bromofluorobenzene	9.82	10	98	70	130



Alpha Analytical, Inc.

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QC Summary Report

Date:
28-Feb-12

Work Order:
12021640

Laboratory Control Spike

Type: LCS Test Code: EPA Method SW8260B

File ID: 12022104.D

Batch ID: MS15W0221M

Analysis Date: 02/21/2012 09:34

Sample ID: LCS MS15W0221M

Units: µg/L

Run ID: MSD_15_120221B

Prep Date: 02/21/2012 09:34

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	8.6	1	10		86	70	130			
Chloromethane	8.36	2	10		84	70	130			
Vinyl chloride	10.2	1	10		102	70	130			
Chloroethane	10.3	1	10		103	70	130			
Bromomethane	8.51	2	10		85	70	130			
Trichlorofluoromethane	9.41	1	10		94	70	130			
Acetone	222	10	200		111	36	171			
1,1-Dichloroethene	10.4	1	10		104	70	130			
Dichloromethane	10.2	2	10		102	70	130			
Freon-113	10.2	1	10		102	70	137			
trans-1,2-Dichloroethene	10.8	1	10		108	70	130			
Methyl tert-butyl ether (MTBE)	9.47	0.5	10		95	70	130			
1,1-Dichloroethane	10.4	1	10		104	70	130			
2-Butanone (MEK)	205	10	200		102	70	130			
cis-1,2-Dichloroethene	11.2	1	10		112	70	130			
Bromochloromethane	10.7	1	10		107	70	130			
Chloroform	9.86	1	10		99	70	130			
2,2-Dichloropropane	10.4	1	10		104	70	130			
1,2-Dichloroethane	9.09	1	10		91	70	130			
1,1,1-Trichloroethane	10.3	1	10		103	70	130			
1,1-Dichloropropene	10.7	1	10		107	70	130			
Carbon tetrachloride	9.22	1	10		92	70	130			
Benzene	10.6	0.5	10		106	70	130			
Dibromomethane	10.2	1	10		102	70	130			
1,2-Dichloropropane	11.3	1	10		113	70	130			
Trichloroethene	10.9	1	10		109	70	130			
Bromodichloromethane	9.73	1	10		97	70	130			
4-Methyl-2-pentanone (MIBK)	24.9	2.5	25		99.6	20	182			
cis-1,3-Dichloropropene	10	1	10		100	70	130			
trans-1,3-Dichloropropene	9.35	1	10		94	70	130			
1,1,2-Trichloroethane	10.9	1	10		109	70	130			
Toluene	11.3	0.5	10		113	70	130			
1,3-Dichloropropane	10.6	1	10		106	70	130			
2-Hexanone	108	5	100		108	20	182			
Dibromochloromethane	10.2	1	10		102	70	130			
1,2-Dibromoethane (EDB)	21.4	2	20		107	70	130			
Tetrachloroethene	11.6	1	10		116	70	130			
1,1,1,2-Tetrachloroethane	10.7	1	10		107	70	130			
Chlorobenzene	11.3	1	10		113	70	130			
Ethylbenzene	11.2	0.5	10		112	70	130			
m,p-Xylene	11.7	0.5	10		117	70	130			
Bromoform	9.81	1	10		98	70	130			
Styrene	9.67	1	10		97	70	130			
o-Xylene	11.9	0.5	10		119	70	130			
1,1,2,2-Tetrachloroethane	11.4	1	10		114	70	130			
1,2,3-Trichloropropane	21.3	2	20		106	70	130			
Isopropylbenzene	11.3	1	10		113	70	130			
Bromobenzene	11	1	10		110	70	130			
n-Propylbenzene	11.4	1	10		114	70	130			
4-Chlorotoluene	11.5	1	10		115	70	130			
2-Chlorotoluene	11.2	1	10		112	70	130			
1,3,5-Trimethylbenzene	11.1	1	10		111	70	130			
tert-Butylbenzene	11.1	1	10		111	70	130			
1,2,4-Trimethylbenzene	11.4	1	10		114	70	130			
sec-Butylbenzene	11.2	1	10		112	70	130			
1,3-Dichlorobenzene	11.6	1	10		116	70	130			
1,4-Dichlorobenzene	10.9	1	10		109	70	130			
4-Isopropyltoluene	11.3	1	10		113	70	130			
1,2-Dichlorobenzene	10.6	1	10		106	70	130			
n-Butylbenzene	11	1	10		110	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	46.5	3	50		93	67	130			
1,2,4-Trichlorobenzene	10.4	2	10		104	70	130			
Naphthalene	10.1	2	10		101	70	130			
Hexachlorobutadiene	20.9	2	20		105	70	130			
1,2,3-Trichlorobenzene	10.1	2	10		101	70	130			



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:

28-Feb-12

QC Summary Report

Work Order:

12021640

Surr: 1,2-Dichloroethane-d4	8.52	10	85	70	130
Surr: Toluene-d8	10.6	10	106	70	130
Surr: 4-Bromofluorobenzene	10.3	10	103	70	130



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
28-Feb-12

QC Summary Report

Work Order:
12021640

Sample Matrix Spike

File ID: 12022108.D

Type: MS

Test Code: EPA Method SW8260B

Sample ID: 12021640-01AMS

Batch ID: MS15W0221M

Analysis Date: 02/21/2012 11:22

Units: µg/L

Run ID: MSD_15_120221B

Prep Date: 02/21/2012 11:22

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	42	2.5	50	0	84	21	138			
Chloromethane	35.9	10	50	0	72	23	144			
Vinyl chloride	51.9	2.5	50	0	104	49	136			
Chloroethane	48	2.5	50	0	96	21	159			
Bromomethane	28.5	10	50	0	57	10	174			
Trichlorofluoromethane	46.3	2.5	50	0	93	32	154			
Acetone	511	50	1000	0	51	10	171			
1,1-Dichloroethene	47.5	2.5	50	0	95	64	130			
Dichloromethane	45.7	10	50	0	91	69	130			
Freon-113	46.9	2.5	50	0	94	55	141			
trans-1,2-Dichloroethene	49	2.5	50	0	98	63	130			
Methyl tert-butyl ether (MTBE)	42.1	1.3	50	0	84	47	150			
1,1-Dichloroethane	46.2	2.5	50	0	92	66	130			
2-Butanone (MEK)	647	50	1000	0	65	23	182			
cis-1,2-Dichloroethene	49.1	2.5	50	0	98	70	130			
Bromochloromethane	46.9	2.5	50	0	94	70	132			
Chloroform	42.9	2.5	50	0	86	70	130			
2,2-Dichloropropane	46.8	2.5	50	0	94	38	154			
1,2-Dichloroethane	39.2	2.5	50	0	78	65	134			
1,1,1-Trichloroethane	44.8	2.5	50	0	90	65	136			
1,1-Dichloropropene	47.5	2.5	50	0	95	68	132			
Carbon tetrachloride	41.1	2.5	50	0.71	81	58	148			
Benzene	46.7	1.3	50	0	93	59	138			
Dibromomethane	44	2.5	50	0	88	70	130			
1,2-Dichloropropane	48	2.5	50	0	96	70	131			
Trichloroethene	46.6	2.5	50	0	93	65	144			
Bromodichloromethane	41	2.5	50	0	82	50	157			
4-Methyl-2-pentanone (MIBK)	98.5	13	125	0	79	20	182			
cis-1,3-Dichloropropene	42.2	2.5	50	0	84	63	131			
trans-1,3-Dichloropropene	39.1	2.5	50	0	78	65	136			
1,1,2-Trichloroethane	45.7	2.5	50	0	91	70	131			
Toluene	48.8	1.3	50	0	98	68	130			
1,3-Dichloropropane	46	2.5	50	0	92	70	130			
2-Hexanone	305	25	500	0	61	20	182			
Dibromochloromethane	43.9	2.5	50	0	88	42	155			
1,2-Dibromoethane (EDB)	92	5	100	0	92	70	130			
Tetrachloroethene	50.5	2.5	50	0	101	65	130			
1,1,1,2-Tetrachloroethane	45.3	2.5	50	0	91	70	130			
Chlorobenzene	47.9	2.5	50	0	96	70	130			
Ethylbenzene	47.9	1.3	50	0	96	68	130			
m,p-Xylene	50.1	1.3	50	0	100	68	131			
Bromoform	42.1	2.5	50	0	84	65	143			
Styrene	41.5	2.5	50	0	83	59	153			
o-Xylene	50.1	1.3	50	0	100	70	130			
1,1,2,2-Tetrachloroethane	49.3	2.5	50	0	99	67	130			
1,2,3-Trichloropropane	93.3	10	100	0	93	70	130			
Isopropylbenzene	48.5	2.5	50	0	97	55	138			
Bromobenzene	47.9	2.5	50	0	96	70	130			
n-Propylbenzene	49.2	2.5	50	0	98	67	133			
4-Chlorotoluene	49.2	2.5	50	0	98	70	130			
2-Chlorotoluene	48.2	2.5	50	0	96	70	130			
1,3,5-Trimethylbenzene	47.8	2.5	50	0	96	67	134			
tert-Butylbenzene	47.6	2.5	50	0	95	55	147			
1,2,4-Trimethylbenzene	49.1	2.5	50	0	98	65	135			
sec-Butylbenzene	48.5	2.5	50	0	97	68	135			
1,3-Dichlorobenzene	50.3	2.5	50	0	101	70	130			
1,4-Dichlorobenzene	47	2.5	50	0	94	70	130			
4-Isopropyltoluene	48.7	2.5	50	0	97	68	132			
1,2-Dichlorobenzene	46.3	2.5	50	0	93	70	130			
n-Butylbenzene	48.1	2.5	50	0	96	62	134			
1,2-Dibromo-3-chloropropane (DBCP)	208	15	250	0	83	64	130			
1,2,4-Trichlorobenzene	49.4	10	50	0	99	62	133			
Naphthalene	50.1	10	50	0	100	32	166			
Hexachlorobutadiene	97.4	10	100	0	97	63	130			
1,2,3-Trichlorobenzene	49.6	10	50	0	99	55	138			



Alpha Analytical, Inc.

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Date:

28-Feb-12

QC Summary Report

Work Order:

12021640

Surr: 1,2-Dichloroethane-d4	42.6	50	85	70	130
Surr: Toluene-d8	53.2	50	106	70	130
Surr: 4-Bromofluorobenzene	51.1	50	102	70	130



Alpha Analytical, Inc.

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Date:
28-Feb-12

QC Summary Report

Work Order:
12021640

Sample Matrix Spike Duplicate

Type: MSD Test Code: EPA Method SW8260B

File ID: 12022109.D

Batch ID: MS15W0221M

Analysis Date: 02/21/2012 11:44

Sample ID: 12021640-01AMSD

Units: µg/L

Run ID: MSD_15_120221B

Prep Date: 02/21/2012 11:44

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	39.5	2.5	50	0	79	21	138	42.03	6.1(33)	
Chloromethane	38.3	10	50	0	77	23	144	35.94	6.3(27)	
Vinyl chloride	46.4	2.5	50	0	93	49	136	51.91	11.1(21)	
Chloroethane	45.1	2.5	50	0	90	21	159	48.04	6.3(40)	
Bromomethane	38.8	10	50	0	78	10	174	28.48	30.8(40)	
Trichlorofluoromethane	43.1	2.5	50	0	86	32	154	46.34	7.3(37)	
Acetone	509	50	1000	0	51	10	171	511.1	0.5(23)	
1,1-Dichloroethene	45	2.5	50	0	90	64	130	47.45	5.3(21)	
Dichloromethane	44.7	10	50	0	89	69	130	45.71	2.2(20)	
Freon-113	45.3	2.5	50	0	91	55	141	46.93	3.6(40)	
trans-1,2-Dichloroethene	47.4	2.5	50	0	95	63	130	49.01	3.3(20)	
Methyl tert-butyl ether (MTBE)	43	1.3	50	0	86	47	150	42.08	2.1(40)	
1,1-Dichloroethane	45.1	2.5	50	0	90	66	130	46.15	2.4(20)	
2-Butanone (MEK)	667	50	1000	0	67	23	182	647.3	3.0(22)	
cis-1,2-Dichloroethene	48.1	2.5	50	0	96	70	130	49.1	2.1(20)	
Bromochloromethane	47	2.5	50	0	94	70	132	46.93	0.0(20)	
Chloroform	41.4	2.5	50	0	83	70	130	42.9	3.6(20)	
2,2-Dichloropropane	44.8	2.5	50	0	90	38	154	46.83	4.4(22)	
1,2-Dichloroethane	38.6	2.5	50	0	77	65	134	39.18	1.4(20)	
1,1,1-Trichloroethane	43.6	2.5	50	0	87	65	136	44.75	2.7(20)	
1,1-Dichloropropene	45.8	2.5	50	0	92	68	132	47.45	3.5(20)	
Carbon tetrachloride	40.1	2.5	50	0.71	79	58	148	41.11	2.6(20)	
Benzene	45.8	1.3	50	0	92	59	138	46.73	1.9(21)	
Dibromomethane	43.9	2.5	50	0	88	70	130	43.98	0.2(20)	
1,2-Dichloropropane	47.5	2.5	50	0	95	70	131	47.96	0.9(20)	
Trichloroethene	45.8	2.5	50	0	92	65	144	46.55	1.6(20)	
Bromodichloromethane	40.7	2.5	50	0	81	50	157	40.97	0.6(20)	
4-Methyl-2-pentanone (MIBK)	103	13	125	0	83	20	182	98.52	4.9(20)	
cis-1,3-Dichloropropene	42.3	2.5	50	0	85	63	131	42.18	0.2(20)	
trans-1,3-Dichloropropene	40.1	2.5	50	0	80	65	136	39.1	2.6(20)	
1,1,2-Trichloroethane	47.1	2.5	50	0	94	70	131	45.73	2.9(20)	
Toluene	47.9	1.3	50	0	96	68	130	48.79	1.8(20)	
1,3-Dichloropropane	46.6	2.5	50	0	93	70	130	46	1.4(20)	
2-Hexanone	319	25	500	0	64	20	182	304.6	4.5(20)	
Dibromochloromethane	44	2.5	50	0	88	42	155	43.85	0.3(20)	
1,2-Dibromoethane (EDB)	94.3	5	100	0	94	70	130	91.97	2.5(20)	
Tetrachloroethene	48.9	2.5	50	0	98	65	130	50.5	3.3(20)	
1,1,1,2-Tetrachloroethane	45.2	2.5	50	0	90	70	130	45.31	0.2(20)	
Chlorobenzene	47.8	2.5	50	0	96	70	130	47.93	0.2(20)	
Ethylbenzene	47.3	1.3	50	0	95	68	130	47.86	1.2(20)	
m,p-Xylene	49.7	1.3	50	0	99	68	131	50.11	0.9(20)	
Bromoform	42.8	2.5	50	0	86	65	143	42.13	1.5(20)	
Styrene	41.1	2.5	50	0	82	59	153	41.49	0.9(37)	
o-Xylene	49.8	1.3	50	0	99.6	70	130	50.12	0.6(20)	
1,1,2,2-Tetrachloroethane	51.6	2.5	50	0	103	67	130	49.27	4.5(20)	
1,2,3-Trichloropropane	95.5	10	100	0	95	70	130	93.27	2.4(20)	
Isopropylbenzene	47.8	2.5	50	0	96	55	138	48.49	1.4(20)	
Bromobenzene	47.8	2.5	50	0	96	70	130	47.92	0.2(20)	
n-Propylbenzene	48.3	2.5	50	0	97	67	133	49.15	1.7(30)	
4-Chlorotoluene	48.8	2.5	50	0	98	70	130	49.22	0.8(20)	
2-Chlorotoluene	47.8	2.5	50	0	96	70	130	48.22	0.9(20)	
1,3,5-Trimethylbenzene	47.1	2.5	50	0	94	67	134	47.83	1.5(21)	
tert-Butylbenzene	46.8	2.5	50	0	94	55	147	47.57	1.6(20)	
1,2,4-Trimethylbenzene	48.5	2.5	50	0	97	65	135	49.05	1.1(25)	
sec-Butylbenzene	48.1	2.5	50	0	96	68	135	48.54	1.0(20)	
1,3-Dichlorobenzene	49.6	2.5	50	0	99	70	130	50.3	1.3(20)	
1,4-Dichlorobenzene	46.9	2.5	50	0	94	70	130	47.01	0.2(20)	
4-Isopropyltoluene	47.6	2.5	50	0	95	68	132	48.71	2.4(20)	
1,2-Dichlorobenzene	46	2.5	50	0	92	70	130	46.34	0.7(20)	
n-Butylbenzene	47.4	2.5	50	0	95	62	134	48.14	1.6(21)	
1,2-Dibromo-3-chloropropane (DBCP)	214	15	250	0	86	64	130	207.7	3.0(20)	
1,2,4-Trichlorobenzene	47.6	10	50	0	95	62	133	49.41	3.8(29)	
Naphthalene	49.4	10	50	0	99	32	166	50.11	1.5(40)	
Hexachlorobutadiene	93	10	100	0	93	63	130	97.43	4.7(21)	
1,2,3-Trichlorobenzene	46.5	10	50	0	93	55	138	49.62	6.5(36)	



Alpha Analytical, Inc.

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Date:

28-Feb-12

QC Summary Report

Work Order:

12021640

Surr: 1,2-Dichloroethane-d4	42.4	50	85	70	130
Surr: Toluene-d8	53.3	50	107	70	130
Surr: 4-Bromofluorobenzene	51.6	50	103	70	130

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

CA

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

WorkOrder : BMIS12021640
Report Due By : 5:00 PM On : 29-Feb-12

Client: Battelle Memorial Institute
 655 West Broadway
 Suite 1420
 San Diego, CA 92101

Report Attention Phone Number Email Address
 David Conner (619) 726-7311 x connerd@battelle.org
 Betsy Cuite (614) 424-4899 x cuitec@battelle.org
 Shane Walton (614) 424-4117 x waltonsh@battelle.org

EDD Required : Yes

Sampled by : Client

PO : 287215
 Client's COC # : 28884
 QC Level : DS4 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD with Surrogates

Job : 100006114/JPL Groundwater Monitoring
 Cooler Temp 0 °C Samples Received 16-Feb-12 Date Printed 16-Feb-12

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles			314_W	METALS_D W	VOC_BMI_T	VOC_W	Requested Tests	Sample Remarks
			Alpha	Sub	TAT						
BM12021640-01A	MW-12-5	AQ 02/15/12 08:16	4	0	9	Perchlorate	VOC by 524 Criteria	VOC by 524 Criteria		Level IV QC	
BM12021640-02A	MW-12-4	AQ 02/15/12 08:39	4	0	9	Perchlorate	VOC by 524 Criteria	VOC by 524 Criteria			
BM12021640-03A	MW-12-3	AQ 02/15/12 09:03	5	0	9	Perchlorate	VOC by 524 Criteria	VOC by 524 Criteria			
BM12021640-04A	MW-12-2	AQ 02/15/12 09:34	10	0	9	Perchlorate	VOC by 524 Criteria	VOC by 524 Criteria		MS/MSD	
BM12021640-05A	MW-12-1	AQ 02/15/12 09:57	5	0	9	Perchlorate	VOC by 524 Criteria	VOC by 524 Criteria			
BM12021640-06A	EB-13-2/15/12	AQ 02/15/12 09:50	5	0	9	Perchlorate	VOC by 524 Criteria	VOC by 524 Criteria			
BM12021640-07A	TB-13-2/15/12	AQ 02/15/12 08:00	1	0	9	Perchlorate	VOC by 524 Criteria	VOC by 524 Criteria		Reno Trip Blank 1/9/12	

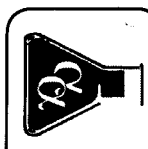
Comments: Security seals intact. Frozen ice. Temp Blank #9105 received @ 0°C. Samples should be used as the control spike sample if possible (I.E.: MS/MSD). Level IV QC on sample -01A.

Logged in by: Shane Walton Signature Shane Walton Print Name Shane Walton Company Alpha Analytical, Inc. Date/Time 2/16/12 10:08

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. 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 BATTLE / GERALD TOMPKINS
 Address 505 KINE AVE
 City, State, Zip COLUMBUS, OH 43201
 Phone Number _____ Fax _____



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

Samples Collected From Which State? 28884
 AZ CA NV WA
 ID OR OTHER
 Page # 1 of 1

Analyses Required

Required QC Level? I II III IV

EDD/EDF? YES NO

Global ID # _____
 REMARKS _____

Client Name	Address	City, State, Zip	PO #	Job #	Email Address	Phone #	Fax #	Sample Description	TAT	Field Filtered	Total and type of containers ** See below	Analysis	REMARKS
BATTLE / DAVID	COLUMBUS	CA 92118	286479	100006114	connected @ battle.org	(619) 726-7311	(619) 458-6614	MW-12-5			4/ways	X	LEVEL IV DC
0836	3/15/12	AQ	BMT10A011040-D1A					MW-12-4			4/ways	X	
0835			DATA					MW-12-3			5/ways	X	
0834			DATA					MW-12-2			10/ways	X	M/S/ASD
0837			DATA					MW-12-1			5/ways	X	
0850			DATA					ERB-13 - 2/15/12			5/ways	X	EDD. 13.0000
0800	3/15/12	AQ	DATA					FR-13 - 2/15/12			1 way	X	TRIP BLANK

ADDITIONAL INSTRUCTIONS:

Signature	Print Name	Company	Date	Time
	Chase Burson	INSIGHT REC, INC	2/15/12	1:20
	Anthony	Alpha Analytical	2/15/12	12:00
	Sara Coffee	Alpha Analytical	2/16/12	10:00

*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 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.

CAS

LABORATORY REPORT

February 8, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on January 30, 2012. For your reference, these analyses have been assigned our service request number P1200337.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 5:07 pm, Feb 08, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200337

CASE NARRATIVE

The samples were received intact under chain of custody on January 30, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114

Service Request: P1200337

Date Received: 1/30/2012
 Time Received: 13:51

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-21-5	P1200337-001	Water	1/30/2012	09:28	X
MW-21-4	P1200337-002	Water	1/30/2012	09:50	X
MW-21-3	P1200337-003	Water	1/30/2012	10:09	X
MW-21-2	P1200337-004	Water	1/30/2012	10:40	X
MW-21-1	P1200337-005	Water	1/30/2012	11:20	X
DUPE-1-1Q12	P1200337-006	Water	1/30/2012	00:00	X
EB-1-1/30/12	P1200337-007	Water	1/30/2012	11:01	X
SB-1-1/30/12	P1200337-008	Water	1/30/2012	11:12	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



Columbia Analytical Services, Inc.
 2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Water & Soil - Chain of Custody Record & Analytical Service Request

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P1200337
 CAS Contact: _____

Company Name & Address (Reporting Information)

BATELLE
 3940 OLD TOWN AVE, L-205
 SAN DIEGO, CA 92110

Project Name

1012 TPL & WWS

Project Number

100006114

PO. # / Billing Information

385651
 BATELLE / CONRAD TOMPKINS
 505 KING AVE
 COLLETON, CA 92728

Project Manager

DAVID

CONNELL

Phone

(619) 726-7311

Fax

(619) 458-6614

Email Address for Result Reporting

Connell@battelle.org

Sampler (Print & Sign)

[Signature]

Client Sample ID

MW-21-5

Laboratory ID Number

1

Date Collected

1/30/12

Time Collected

0928

Matrix

AQ

Number of Containers

1

Volatile Organics GC/MS
 624 8260B Oxygenates TPH Gas
 TPH Gas 8015B
 BTEX 8021B MTBE 8021B
 TPH Diesel 8015B (Subcontracted)
 TPH Diesel Low Level 8015B (Subcontracted)
 TPH FC 8015M (Subcontracted)

Semi-Volatile Organics GC/MS
 625 8270C (Subcontracted)

(7196)

Preservative Code

Analysis Method and/or Analytes

Preservative Key

- 0 None
- 1 HCL
- 2 HNO3
- 3 H2SO4
- 4 NaOH
- 5 Zn Acetate
- 6 Asc Acid
- 7 Other

Remarks

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers	Analysis Method and/or Analytes	Preservative Code	Remarks
MW-21-5	1	1/30/12	0928	AQ	1			
MW-21-4	2	1/30/12	0950		1			
MW-21-3	3	1/30/12	1009		1			
MW-21-2	4	1/30/12	1040		1			
MW-21-1	5	1/30/12	1120		2			Analysis/Level OK
DUP-1-1012	6	1/30/12			1			DUP-1-1012
EB-1-1/30/12	7	1/30/12	1101		1			Equip. is used
SB-1-1/30/12	8	1/30/12	1112		1			

Report Tier Levels - please select

Tier I - (Results/Default if not specified) _____
 Tier II - (Results + QC) _____

Tier III - (Data Validation Package) 10% Surcharge _____
 Tier V - (client specified) _____

MRL required Yes / No _____
 MDL / POL / J required Yes / No _____

EDD required Yes / No _____
 Type: _____

Project Requirements (MRLs, GAPP)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
<i>[Signature]</i>	1/30/12	151	<i>[Signature]</i>	1/30/12	1351
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
<i>[Signature]</i>	1/30/12	151	<i>[Signature]</i>	1/30/12	1351

Cooler / Blank / Ice / No Ice _____
 Temperature: 3 °C

Chain of Custody Report

Now part of the ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200337

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200337-001.01	7196A	1/30/12	1440	SMO / MZAMORA	
		1/30/12	1441	P-37 / MZAMORA	
		1/30/12	1650	In Lab / EIBARRA	
		1/30/12	1818	P-37 / EIBARRA	
P1200337-002.01	7196A	1/30/12	1440	SMO / MZAMORA	
		1/30/12	1441	P-37 / MZAMORA	
		1/30/12	1650	In Lab / EIBARRA	
		1/30/12	1818	P-37 / EIBARRA	
P1200337-003.01	7196A	1/30/12	1440	SMO / MZAMORA	
		1/30/12	1441	P-37 / MZAMORA	
		1/30/12	1650	In Lab / EIBARRA	
		1/30/12	1818	P-37 / EIBARRA	
P1200337-004.01	7196A	1/30/12	1440	SMO / MZAMORA	
		1/30/12	1441	P-37 / MZAMORA	
		1/30/12	1651	In Lab / EIBARRA	
		1/30/12	1819	P-37 / EIBARRA	
P1200337-005.01	7196A	1/30/12	1440	SMO / MZAMORA	
		1/30/12	1441	P-37 / MZAMORA	
		1/30/12	1651	In Lab / EIBARRA	
		1/30/12	1818	P-37 / EIBARRA	
P1200337-005.02		1/30/12	1440	SMO / MZAMORA	
		1/30/12	1441	P-37 / MZAMORA	
		1/30/12	1651	In Lab / EIBARRA	
		1/30/12	1819	P-37 / EIBARRA	
P1200337-006.01	7196A	1/30/12	1440	SMO / MZAMORA	
		1/30/12	1441	P-37 / MZAMORA	
		1/30/12	1651	In Lab / EIBARRA	
		1/30/12	1819	P-37 / EIBARRA	
P1200337-007.01	7196A				

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200337

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
		1/30/12	1440	SMO / MZAMORA	
		1/30/12	1441	P-37 / MZAMORA	
		1/30/12	1651	In Lab / EIBARRA	
		1/30/12	1818	P-37 / EIBARRA	
P1200337-008.01	7196A				
		1/30/12	1440	SMO / MZAMORA	
		1/30/12	1441	P-37 / MZAMORA	
		1/30/12	1651	In Lab / EIBARRA	
		1/30/12	1818	P-37 / EIBARRA	

Sample Acceptance Check Form

Client: Battelle Work order: P1200337
 Project: 1Q12 JPL GW Mon / 100006114
 Sample(s) received on: 1/30/12 Date opened: 1/30/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Wet Ice | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200337-001.01	125mL Plastic NP					
P1200337-002.01	125mL Plastic NP					
P1200337-003.01	125mL Plastic NP					
P1200337-004.01	125mL Plastic NP					
P1200337-005.01	125mL Plastic NP					
P1200337-005.02	125mL Plastic NP					
P1200337-006.01	125mL Plastic NP					
P1200337-007.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200337
 Date Collected : 01/30/12
 Date Received : 01/30/12

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-21-5	P1200337-001	0.010	0.003	1	NA	01/30/12 16:55	ND	
MW-21-4	P1200337-002	0.010	0.003	1	NA	01/30/12 16:55	ND	
MW-21-3	P1200337-003	0.010	0.003	1	NA	01/30/12 16:55	ND	
MW-21-2	P1200337-004	0.010	0.003	1	NA	01/30/12 16:55	ND	
MW-21-1	P1200337-005	0.010	0.003	1	NA	01/30/12 16:55	ND	
DUPE-1-1Q12	P1200337-006	0.010	0.003	1	NA	01/30/12 16:55	ND	
EB-1-1/30/12	P1200337-007	0.010	0.003	1	NA	01/30/12 16:55	ND	
SB-1-1/30/12	P1200337-008	0.010	0.003	1	NA	01/30/12 16:55	ND	
Method Blank	P1200337-MB	0.010	0.003	1	NA	01/30/12 16:55	ND	

Approved By Kanu Rya Date : 2/6/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200337
Date Analyzed: 01/30/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By: Kanu Rya Date: 2/6/12
ICCBMDL/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200337
Date Analyzed: 01/30/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0501	100	90-110
CCV1	0.0500	0.0484	97	90-110
CCV2	0.0500	0.0484	97	90-110

Approved By: Karen Rya Date: 2/6/12
CCV1A/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200337
Date Collected : NA
Date Received : NA
Date Extracted : NA
Date Analyzed : 01/30/12

Laboratory Control Sample Summary
Inorganic Parameters

Sample Name : Laboratory Control Sample
Lab Code : P1200337-LCS
Test Notes :

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0406	102	90-110	

Approved By Kanu Rya Date : 2/6/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200337
Date Collected : 01/30/12
Date Received : 01/30/12
Date Extracted : NA
Date Analyzed : 01/30/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-21-1
Lab Code : P1200337-005MS
Test Notes :

P1200337-005DMS

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0484	0.0501	97	100	73-119	3	

Approved By Kanu Rya Date : 2/6/12

pH Run Log

EE 11/30/12

Service Request #(s): P12 00337 ~~008~~; P12 00338

Time: 14:45

Sample	VWR lot #	Exp.	Slope	Prep.Run #
pH 2 Buffer	S24-05201101	12/10/12	98.92	—
pH 4 Buffer	S24-05201102	9/30/12		Run#
pH 7 Buffer	S24-10211101	7/20/13		—
pH 10 Buffer	S24-10241103	2/28/13		—

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # in column labeled #)

Sample	#	pH	Temp. °C	Sample	#	pH	Temp. °C
pH 2.000	3	1.991	21.0	space not used			
pH 4.000		4.012	22.1				
pH 7.000		7.002	22.4				
pH 10.000		9.996	22.5				
Ref#: <small>pH 7.38 E-8/100</small> S24-10241102		7.387 ^{100%}	22.6				
DI		2.021	22.0				
P1200337-1.01		2.086	11.3				
↓ -1.02		2.119	11.5				
↓ -1.03		2.144	12.0				
↓ -1.04		2.351	13.1				
↓ -1.05		2.164	13.0				
pH 2.000		2.010	22.2				
P1200337-1.06		2.084	14.9				
↓ 1.07		2.028	14.7				
↓ 1.08		1.999	15.6				
P120038-1.01		2.154	15.8				
pH 2.000		2.023	22.0				

pH Adjustments: **7196A**: Diluted/Conc H₂SO₄ EMD 49284 EXP: 11/20/14

7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 1/30/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: EE
Reviewer: KR

Date: 1/30/12
Date: 1/31/12



Method EPA 7196A

Service Request#(s): P1200337; P1200338

Run#: 278551

Stock#: 524-08291102 TV=100PPM Exp 2/24/12

Prep Run#:

ICV/CCV#: 524-10151001 TV=100PPM Exp 3/20/12

Conc. H₂SO₄ Lot#: EMD 49284 exp 11/20/11

Coloring Reagent Ref#: 524-01231201 exp 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.999987014
Absorbance @ 540 nm	0.000	0.011	0.058	0.116	

Sample #	Sample Vol.(mL)	Dilution	pH	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	ICB	10mL	✓	0.000	0.000	0.000	0.000229	EF 1/30/12 0.000229 40.003
2	ICV 0.05 PPM		✓	0.000	0.058	0.058	0.0501	100%
3	MB		✓	0.000	0.001	0.001	0.00109	<0.003
4	LCS 0.04 PPM		✓	0.000	0.047 0.040 EF 1/30/12	0.047	0.0406	102%
5	P1200337 - 1.01		✓	0.001	0.003	0.002	0.00195	<0.003
6	-1.01 vs 0.03 PPM		✓	0.001	0.038	0.037	0.0320	107%
7	-2.01 -1.02		✓	0.002	0.003	0.001	0.00109	<0.003
8	-3.01 -1.03	EF 2/2/12	✓	0.001	0.003	0.002	0.00195	<0.003
9	-4.01 -1.04		✓	0.001	0.002	0.001	0.00109	<0.003
10	-5.01 -1.05		✓	0.006	0.006	0.000	0.000229	<0.003
11	-5.01 -1.05 MS 0.05 PPM		✓	0.006	0.062	0.056	0.0484	47% 40% RPD 2/2/12
12	-5.01 -1.05 MSD 0.05 PPM		✓	0.006	0.064	0.058	0.0501	100%
13	CCV 1 0.05 PPM		✓	0.000	0.056	0.056	0.0484	97%
14	CCB 1		✓	0.000	0.000	0.000	0.000229	<0.003
15	P1200337 -6.01 -1.06		✓	0.001	0.001	0.000	0.000229	<0.003
16	-6.01 -1.06 vs 0.03 PPM		✓	0.001	0.038	0.037	0.0320	107%
17	-7.01 -1.07		✓	0.000	0.001	0.001	0.00109	<0.003

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.250 ml of 524-10151001 @ 1:10 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of _____ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of _____ @ 1:10 ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: EI
Analyzed By: EI
Reviewed By: KR

Date/Time: 1/30/12 16:40
Date/Time: 1/30/12 16:55
Date: 1/31/12



Method EPA 7196A

Service Request#(s): P1200337, P1200338
 Stock#: S24-08291102 TV=10ppm Exp 2/14/12
 ICV/CCV#: S24-16151001 TV=100ppm Exp 5/20/12

Run#: 278451
 Prep Run#:
 Conc. H₂SO₄ Lot#: EMD 49284 exp 11/20/14
 Coloring Reagent Ref#: S24-01231201 exp 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.999987016
Absorbance @ 540 nm	0.000	0.011	0.058	0.116	

Sample #	Sample Vol.(mL)	Dilution	pH ✓	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1 P1200337 -1.08	10mL	—	✓	0.000	0.001	0.001	0.00109	<0.003
2 P1200338 -1.01	↓	—	✓	0.001	0.003	0.002	0.00195 0.0510	<0.003 EJ 102% RPD
3 -1.01 MS 0.05ppm	↓	—	✓	0.001	0.060	0.059	0.0510	102% RPD
4 -1.01 MSD 0.05ppm	↓	—	✓	0.001	0.060	0.059	0.0510	102% RPD
5 CCV 2 0.05 ppm	↓	—	✓	0.000	0.056	0.056	0.0484	97%
6 CCB 2	↓	—	✓	0.000	0.000	0.000	0.000229	<0.003
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								

Space Not Used

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.250 ml of S24-16151001 @ 1:10 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of S24-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of ↓ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of ↓ @ 1:10 ↑ 10 ml of sample (T.V.= 0.05 ppm)

Comments:

Prepared By: EJ
 Analyzed By: EJ
 Reviewed By: KL

Date/Time: 1/30/12 @ 16:40
 Date/Time: 1/30/12 @ 16:55
 Date: 1/31/12

Dr)

10/6/10
SW

524-10061001 25133ppb Stock for O3

0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
10146598 ; Exp: 8/11/12 up to 500 ml w/ DI Water.

EXP: 10/20/10

10/6/10
SW

524-10061002 25133ppb ION/COV for O3

0.05 ml Pyridine-4-carboxaldehyde TCI
(ICI INC ; Exp: 8/10/12) up to 500 ml w/ DI Water.

EXP: 10/20/10

10/6/10
SW

524-10061003 MBTH Soln

0.5000 g MBTH (Aldrich 54696EK ; Exp: 8/7/14) up to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 44284; EXP 11/20/10

EXP: 10/7/10

10/15/10
SW

524-10151001 Cr6+ ION/COV Stock

Purchased 100ppm Cr6+
Ricca Chemical Co Cat No 2095-16
500ml Plastic

LOT # 1010177
EXP: 3/20/12

10/15/10
SW

524-10151002 500ppm NO2 Stock

Purchased
RCA Chemical Co Cat No: 5444-5-4
LOT # 1010271 120ml amber glass

EXP: 4/20/11

5.00

2/21/11 524-0221101 1:1 H₂SO₄
 JG 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ADDED SLOWLY TO 250ml DI. COOL
 COMPLETELY
 EXP: 2/21/12

2/21/11 524-0221102 Cr6+ Coloring Reagent
 JG 0.2500g 1,5-diphenylcarbohydrazide (EMD LOT 47103721;
 EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
 LOT #471540; EXP: 9/24/12).
 EXP: 3/31/11

2/28/11 524-0228101 0.1N H₂SO₄
 JG 5.6ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
 w/ DI H₂O
 EXP: 2/28/12

2/28/11 524-0228102 1001^{mg} Cr6+
 JG Purchased
 Inorganic Ventures CGCR(6)1-1
 125ml Clear Glass
 LOT# D2-CR03040
 EXP: 3/1/2012

5/19/11
JL

S24-05191103

IC02 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT BAKER EM 305641 exp: 6/19/16) in 100 mL Methanol (B&J AD806 exp: 5/13/16). Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H2SO4 (EMD 49284 exp: 11/20/14). Bring up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JL

S24-05201101

pH 2.000 BUFFER

Purchased

BDH CAT. No. BDH 5010-500 mL

LOT # 1101225

EXP: 12/2012

7/20/11
JL

S24-05201102

pH 4.000 BUFFER

Purchased

JT Baker CAT # 5057-01 500 mL

LOT # J36503

EXP: 9/30/12

7/20/11
JL

S24-05201103

pH 7.38 BUFFER

Purchased

BDH CAT # BDH5058-500 mL

LOT # 1103301

EX: 3/2013

8/24/11 S24-08241101 Sulfanilamide Soln
 Ja 5.00g Sulfanilamide (JT Baker; lot# J32618;
 EXP: 1/6/16) DISSOLVED IN 50ml Conc HCl
 (EMD 49260; EXP: 2/7/16) ↑ 500ml w/ DI H₂O
 EXP: 8/24/12

8/24/11 S24-08241102 NEDA Soln
 Ja 0.2500g N-1-Naphthylethylenediamine dihydrochloride
 (JT BAKER H22587; EXP: 10/19/14) ↑ 250ml w/ DI
 H₂O.
 EXP: 2/24/12

8/29/11 S24-08291101 0.1N H₂SO₄
 Ja 5.6ml Conc H₂SO₄ (EMD 49984; EXP: 11/20/14)
 ↑ 2L w/ DI H₂O
 EXP: 8/29/12

8/29/11 S24-08291102 10ppm Cr6+ Std
 Ja 1.0ml S24-02281102 (1000ppm Cr6+; EXP: 3/1/12)
 ↑ 100ml w/ DI H₂O
 EXP: 2/28/12

9/6/11 S24-09061101 Cr6+ Coloring Reagent
 Ja 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker J05641;
 EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD 47154D
 EXP: 9/24/12).
 EXP: 10/6/11

Reviewed And Approved By:
 Initial: KE Date: 9/12/11

10/17/11 S24-10171102 1000PPM NH3
0.3141g NH4Cl (END 49198931; EXP: 10/19/14) ↑ 100ml
10/ S24-10171101 (0.1NH2SO4 EXP: 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 ILO2 Eluent
100 ml of S24-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1L w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
Purchased
BDH Cat No: BDH 5046-500ml
LOT # 1107491
EXP: 7/2013

10/24/11 S24-10241101 PH 4.000 Buffer
Purchased
JT Baker Cat No: 5657-01 500ml
LOT # K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
Purchased
BDH Cat No BDH 6058-500ml
LOT # 1109034
EXP: 8/2013

10/24/11
Sw
524-10241103 PH 10.020 Buffer
Purchased
JT Baker Cat no: 5655-01
Lot # K07507
EXP: 2/28/13

10/25/11
Sw
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475 mL
Lot # PW1 PIN 207475-A01
EXP: 10/25/12

10/25/11
Sw
524-10251102 A,B,C,D,E PH Filling Soln
Purchased
Thermo Scientific Orion 810007 5 pack 60 mL
Lot: PS1
EXP: 10/25/12

11/1/11
Sw
524-11011101 IC02 Eluent
100 ml 524-09201103 (10x conc eluent. EXP:
9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
EXP: 11/15/11

11/1/11
Sw
524-11011102 IC02 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD JT BAKER JO5641
exp: 6/15/15) in 100 mL Methanol (B&J AE 932 exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD 44784 exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas. EXP: 11/6/14

1/23/12 S24-01231201 Cr6+ Coloring Reagent

0.2500g 1,5-Diphenylcarbohydrazide (JT Baker

LOT J05641) ↑ 50ml w/ Acetone (EMD LOT 47154

EXP: 9/24/12

EXP: 2/23/12

L1
JAM
3C08
1.00

or)

5.00

LABORATORY REPORT

February 8, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: JPL-GW-1Q12 / 100006114

Dear David:

Enclosed are the results of the sample submitted to our laboratory on January 30, 2012. For your reference, this analysis has been assigned our service request number P1200338.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 5:14 pm, Feb 08, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: JPL-GW-1Q12 / 100006114

CAS Project No: P1200338

CASE NARRATIVE

The sample was received intact under chain of custody on January 30, 2012 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: JPL-GW-1Q12 / 100006114
 Date Received: 1/30/2012
 Time Received: 13:51

Service Request: P1200338

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-7	P1200338-001	Water	1/30/2012	09:47	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Chain of Custody Report

Now part of the  **ALS Group**

Client: Battelle
Project: JPL-GW-1Q12/100006114

Service Request: P1200338

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200338-001.01	7196A	1/30/12	1451	SMO / MZAMORA	
		1/30/12	1451	P-37 / MZAMORA	
		1/30/12	1651	In Lab / EIBARRA	
		1/30/12	1818	P-37 / EIBARRA	

Sample Acceptance Check Form

Client: Battelle Work order: P1200338

Project: JPL-GW-1Q12 / 100006114

Sample(s) received on: 1/30/12 Date opened: 1/30/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Wet Ice | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200338-001.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL-GW-1Q12
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200338
Date Collected : 01/30/12
Date Received : 01/30/12

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-7	P1200338-001	0.010	0.003	1	NA	01/30/12 16:55	ND	
Method Blank	P1200338-MB	0.010	0.003	1	NA	01/30/12 16:55	ND	

Approved By Kanu Rya Date : 2/6/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: JPL-GW-1Q12 / 100006114

Service Request: P1200338
Date Analyzed: 01/30/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By: Kam Rya Date: 2/6/12
ICCBMDL/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: JPL-GW-1Q12 / 100006114

Service Request: P1200338
Date Analyzed: 01/30/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0501	100	90-110
CCV1	0.0500	0.0484	97	90-110
CCV2	0.0500	0.0484	97	90-110

Approved By: Karen Rya Date: 2/6/12
CCV1A/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
 Project Name : JPL-GW-1Q12
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200338
 Date Collected : NA
 Date Received : NA
 Date Extracted : NA
 Date Analyzed : 01/30/12

Laboratory Control Sample Summary
 Inorganic Parameters

Sample Name : Laboratory Control Sample
 Lab Code : P1200338-LCS
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0406	102	90-110	

Approved By Karen Rya Date : 2/6/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : JPL-GW-1Q12
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200338
Date Collected : NA
Date Received : NA
Date Extracted : NA
Date Analyzed : 01/30/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : Batch QC
Lab Code : P1200337-005MS
Test Notes :

P1200337-005DMS

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0484	0.0501	97	100	73-119	3	

Approved By

Kam Rya

Date :

2/6/12

pH Run Log

EE 11/30/12

Service Request #(s): P12 00337 ~~008~~; P12 00338

Time: 14:45

Sample	VWR lot #	Exp.	Slope	Prep.Run #
pH 2 Buffer	S24-05201101	12/10/12	98.92	—
pH 4 Buffer	S24-05201102	9/30/12		Run#
pH 7 Buffer	S24-10211101	7/20/13		—
pH 10 Buffer	S24-10241103	2/28/13		—

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # in column labeled #)

Sample	#	pH	Temp. °C	Sample	#	pH	Temp. °C
pH 2.000	3	1.991	21.0	space not used			
pH 4.000		4.012	22.1				
pH 7.000		7.002	22.4				
pH 10.000		9.996	22.5				
Ref#: <small>pH 7.38 E-8/100</small> S24-10241102		7.387 ^{100%}	22.6				
DI		2.021	22.0				
P1200337-1.01		2.086	11.3				
↓ -1.02		2.119	11.5				
↓ -1.03		2.144	12.0				
↓ -1.04		2.351	13.1				
↓ -1.05		2.164	13.0				
pH 2.000		2.010	22.2				
P1200337-1.06		2.084	14.9				
↓ 1.07		2.028	14.7				
↓ 1.08		1.999	15.6				
P120038-1.01		2.154	15.8				
pH 2.000		2.023	22.0				

pH Adjustments: **7196A**: Diluted/Conc H₂SO₄ EMD 49284 EXP: 11/20/14

7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 1/30/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: EE
Reviewer: KR

Date: 1/30/12
Date: 1/31/12



Method EPA 7196A

Service Request#(s): P1200337; P1200338
 Stock#: 524-08291102 TV=100PPM Exp 2/24/12
 ICV/CCV#: 524-10151001 TV=100PPM Exp 3/20/12

Run#: 278551
 Prep Run#: _____
 Conc. H₂SO₄ Lot#: EMD 49284 exp 11/20/11
 Coloring Reagent Ref#: 524-01231201 exp 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.999987014
Absorbance @ 540 nm	0.000	0.011	0.058	0.116	

Sample #	Sample Vol.(mL)	Dilution	pH ✓	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	ICB	10mL	✓	0.000	0.000	0.000	0.000229	0.000229 ^{EF 1/30/12} 0.000229 _{0.003}
2	ICV 0.05 PPM		✓	0.000	0.058	0.058	0.0501	100%
3	MB		✓	0.000	0.001	0.001	0.00109	<0.003
4	LCS 0.04 PPM		✓	0.000	0.040 ^{0.047 EF 1/30/12} 0.047	0.047	0.0406	102%
5	P1200337 - 1.01		✓	0.001	0.003	0.002	0.00195	<0.003
6	-1.01 vs 0.03 PPM		✓	0.001	0.038	0.037	0.0320	107%
7	-2.01 -1.02		✓	0.002	0.003	0.001	0.00109	<0.003
8	-3.01 -1.03	EF 2/2/12	✓	0.001	0.003	0.002	0.00195	<0.003
9	-4.01 -1.04		✓	0.001	0.002	0.001	0.00109	<0.003
10	-5.01 -1.05		✓	0.006	0.006	0.000	0.000229	<0.003
11	-5.01 -1.05 MS 0.05 PPM		✓	0.006	0.062	0.056	0.0484	47% ³ 47% _{RPD 4/2/12}
12	-5.01 -1.05 MSD 0.05 PPM		✓	0.006	0.064	0.058	0.0501	100%
13	CCV 1 0.05 PPM		✓	0.000	0.056	0.056	0.0484	97%
14	CCB 1		✓	0.000	0.000	0.000	0.000229	<0.003
15	P1200337 -6.01 -1.06		✓	0.001	0.001	0.000	0.000229	<0.003
16	-6.01 -1.06 vs 0.03 PPM		✓	0.001	0.038	0.037	0.0320	107%
17	-7.01 -1.07		✓	0.000	0.001	0.001	0.00109	<0.003

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.250 ml of 524-10151001 @ 1:10 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of _____ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of _____ @ 1:10 ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: ET
 Analyzed By: ET
 Reviewed By: KR

Date/Time: 1/30/12 16:40
 Date/Time: 1/30/12 16:55
 Date: 1/31/12



Method EPA 7196A

Service Request#(s): P1200337, P1200338
 Stock#: S24-08291102 TV=10ppm Exp 2/14/12
 ICV/CCV#: S24-16151001 TV=100ppm Exp 5/20/12

Run#: 278451
 Prep Run#:
 Conc. H₂SO₄ Lot#: EMD 49284 exp 11/20/14
 Coloring Reagent Ref#: S24-01231201 exp 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.99987016
Absorbance @ 540 nm	0.000	0.011	0.058	0.116	

Sample #	Sample Vol.(mL)	Dilution	pH ✓	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1 P1200337 -1.08	10mL	—	✓	0.000	0.001	0.001	0.00109	<0.003
2 P1200338 -1.01	↓	—	✓	0.001	0.003	0.002	0.00195 0.0510	<0.003 EJ 102% RPD
3 -1.01 MS 0.05ppm	↓	—	✓	0.001	0.060	0.059	0.0510	102% RPD
4 -1.01 MSD 0.05ppm	↓	—	✓	0.001	0.060	0.059	0.0510	102% RPD
5 CCV 2 0.05 ppm	↓	—	✓	0.000	0.056	0.056	0.0484	97%
6 CCB 2	↓	—	✓	0.000	0.000	0.000	0.000229	<0.003
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								

Space Not Used

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.250 ml of S24-16151001 @ 1:10 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of S24-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of ↓ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of ↓ @ 1:10 ↑ 10 ml of sample (T.V.= 0.05 ppm)

Comments:

Prepared By: EJ
 Analyzed By: EJ
 Reviewed By: KL

Date/Time: 1/30/12 @ 16:40
 Date/Time: 1/30/12 @ 16:55
 Date: 1/31/12

Dr)

10/6/10
SW

524-10061001 25133ppb Stock for O3

0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
10146598 ; Exp: 8/11/12 up to 500 ml w/ DI Water.

EXP: 10/20/10

10/6/10
SW

524-10061002 25133ppb ION/COV for O3

0.05 ml Pyridine-4-carboxaldehyde TCI
(ICI INC ; Exp: 8/10/12) up to 500 ml w/ DI Water.

EXP: 10/20/10

10/6/10
SW

524-10061003 MBTH Soln

0.5000 g MBTH (Aldrich 54696EK ; Exp: 8/7/14) up to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 44284; EXP 11/20/10

EXP: 10/7/10

10/15/10
SW

524-10151001 Cr6+ ION/COV Stock

Purchased 100ppm Cr6+
Ricca Chemical Co Cut No 2095-16
500ml Plastic

LOT # 1010177
EXP: 3/20/12

10/15/10
SW

524-10151002 500ppm NO2 Stock

Purchased
RCA Chemical Co Cut No: 5444-5-4
LOT # 1010271 120ml amber glass

EXP: 4/20/11

5.00

2/21/11
 Jw
524-0221101 1:1 H₂SO₄
 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ADDED SLOWLY TO 250ml DI. COOL
 COMPLETELY
 EXP: 2/21/12

2/21/11
 Jw
524-0221102 Cr6+ Coloring Reagent
 0.2500g 1,5-diphenylcarbohydrazide (EMD LOT 47103721;
 EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
 LOT #471540; EXP: 9/24/12).
 EXP: 3/31/11

2/28/11
 Jw
524-0228101 0.1N H₂SO₄
 5.6ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
 w/ DI H₂O
 EXP: 2/28/12

2/28/11
 Jw
524-0228102 1001^{mg/L} Cr6+
 Purchased
 Inorganic Ventures CGCR(6)1-1
 125ml Clear Glass
 LOT# D2-CR03040
 EXP: 3/1/2012

5/19/11
JL

524-05191103

IC02 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT BAKER EM 305641 exp: 6/19/16) in 100 mL Methanol (B&J AD806 exp: 5/13/16). Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H2SO4 (EMD 49284 exp: 11/20/14). Bring up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JL

524-05201101

pH 2.000 BUFFER

Purchased

BDH CAT. No. BDH 5010-500 mL

LOT # 1101225

EXP: 12/2012

7/20/11
JL

524-05201102

pH 4.000 BUFFER

Purchased

JT Baker CAT # 5057-01 500 mL

LOT # J36503

EXP: 9/30/12

7/20/11
JL

524-05201103

pH 7.38 BUFFER

Purchased

BDH CAT # BDH5058-500 mL

LOT # 1103301

EX: 3/2013

8/24/11 S24-08241101 Sulfanilamide Soln
 Ja 5.00g Sulfanilamide (JT Baker; lot# J32618;
 EXP: 1/6/16) DISSOLVED IN 50ml Conc HCl
 (EMD 49260; EXP: 2/7/16) ↑ 500ml w/ DI H₂O
 EXP: 8/24/12

8/24/11 S24-08241102 NEDA Soln
 Ja 0.2500g N-1-Naphthylethylenediamine dihydrochloride
 (JT BAKER H22587; EXP: 10/19/14) ↑ 250ml w/ DI
 H₂O.
 EXP: 2/24/12

8/29/11 S24-08291101 0.1N H₂SO₄
 Ja 5.6ml Conc H₂SO₄ (EMD 49984; EXP: 11/20/14)
 ↑ 2L w/ DI H₂O
 EXP: 8/29/12

8/29/11 S24-08291102 10ppm Cr6+ Std
 Ja 1.0ml S24-02281102 (1000ppm Cr6+; EXP: 3/1/12)
 ↑ 100ml w/ DI H₂O
 EXP: 2/28/12

9/6/11 S24-09061101 Cr6+ Coloring Reagent
 Ja 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker J05641;
 EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD 47154D
 EXP: 9/24/12).
 EXP: 10/6/11

Reviewed And Approved By:
 Initial: KE Date: 9/1/11

10/17/11 S24-10171102 1000PPM NH3
0.3141g NH4Cl (END 49198931; EXP: 10/19/14) ↑ 100ml
10/ S24-10171101 (0.1M NH2SO4 EXP: 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 IL02 Eluent
100 ml of S24-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1L w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
Purchased
BDH Cat No: BDH 5046-500ml
LOT # 1107491
EXP: 7/2013

10/24/11 S24-10241101 PH 4.000 Buffer
Purchased
JT Baker Cat No: 5657-01 500ml
LOT # K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
Purchased
BDH Cat No BDH 6058-500ml
LOT # 1109034
EXP: 8/2013

10/24/11
Sw
524-10241103 PH 10.020 Buffer
Purchased
JT Baker Cat no: 5655-01
Lot # K07507
EXP: 2/28/13

10/25/11
Sw
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475 mL
Lot # PW1 PIN 207475-A01
EXP: 10/25/12

10/25/11
Sw
524-10251102 A,B,C,D,E PH Filling Soln
Purchased
Thermo Scientific Orion 810007 5 pack 60 mL
Lot: PS1
EXP: 10/25/12

11/1/11
Sw
524-11011101 IC02 Eluent
100 mL 524-09201103 (10x conc eluent. EXP:
9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
EXP: 11/15/11

11/1/11
Sw
524-11011102 IC02 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD JT BAKER JO5641
exp: 6/15/15) in 100 mL Methanol (B&J AE 932 exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD 44784 exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas. EXP: 11/6/14

1/23/12 S24-01231201 Cr6+ Coloring Reagent

0.2500g 1,5-Diphenylcarbohydrazide (JT Baker

LOT J05641) ↑ 50ml w/ Acetone (EMD LOT 47154

EXP: 9/24/12

EXP: 2/23/12

L1
JAM
3C08
1.00

or)

5.00

LABORATORY REPORT

February 13, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Your CAS report number P1200361 has been revised for the samples submitted to our laboratory on January 31, 2012. The data has been revised to correct the sample ID for P1200361-004. The amended pages have been indicated by the "Revised Page" footer located at the bottom right of the page.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 4:43 pm, Feb 14, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200361

CASE NARRATIVE

The samples were received intact under chain of custody on January 31, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114
 Date Received: 1/31/2012
 Time Received: 15:52

Service Request: P1200361

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-14-3	P1200361-001	Water	1/31/2012	09:26	X
MW-14-2	P1200361-002	Water	1/31/2012	09:55	X
MW-14-1	P1200361-003	Water	1/31/2012	10:20	X
EB-2-1/31/12	P1200361-004	Water	1/31/2012	10:08	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



Columbia Analytical Services
An Employee - Owned Company

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Water & Soil - Chain of Custody Record & Analytical Service Request

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. 9200361
CAS Contact:

Company Name & Address (Reporting Information)
BATTLE
 3990 OLD TOWN AVE, C-205
 SAN DIEGO, CA 92110

Project Name
1012 JPL Cu Mw

Analysis Method and/or Analytes

Preservative Code

Project Number
10000 6114

P.O. # / Billing Information
285 651

Project Manager
DAVID CONNER

Phone
(619) 726-7311

Fax
(619) 458-6614

Email Address for Result Reporting
connerd@battle.org

Sampler (Print & Sign)
David Conner

Client Sample ID

Laboratory ID Number

Date Collected

Time Collected

Matrix

Number of Containers

Volatile Organics GC/MS
 624 8260B Oxygenates TPH Gas
 TPH Gas 8015B
 BTEX 8021B MTBE 8021B
 TPH Diesel 8015B (Subcontracted)
 TPH Diesel Low Level 8015B (Subcontracted)
 TPH FC 8015M (Subcontracted)
 Semi-Volatile Organics GC/MS
 625 8270C (Subcontracted)

Remarks

Preservative Key
 0 None
 1 HCL
 2 HNO3
 3 H2SO4
 4 NaOH
 5 Zn Acetate
 6 Asc Acid
 7 Other

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers	Analysis Method and/or Analytes	Preservative Code	Remarks
MW-14-3	①	1/31/12	0926	AQ	2	(9612) IA		As above
MW-14-2	②	1/31/12	0955		1			
MW-14-1	③	1/31/12	1020		1			
ES-2 - 1	④	1/31/12	1008		1			Equip. Blank

Report Tier Levels - please select

Tier I - (Results/Default if not specified) _____

Tier II - (Results) _____

Tier III - (Date Validation Package) 10% Surcharge _____

MRL required Yes / No
 MDL / PCL / J required Yes / No

EDD required Yes / No
 Type: _____

Project Requirements (MRLs, QAPP)

Reinforced by: (Signature) _____ Date: 1/31/12 Time: 1500

Reinforced by: (Signature) _____ Date: 1/31/12 Time: 1500

Reinforced by: (Signature) _____ Date: 1/31/12 Time: 1500

Cooler Blank / Ice / No Ice

Temperature 3 °C

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200361

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200361-001.01	7196A	1/31/12	1555	SMO / MZAMORA	
		1/31/12	1555	P-37 / MZAMORA	
		1/31/12	1616	In Lab / EIBARRA	
		1/31/12	1842	P-37 / EIBARRA	
P1200361-001.02		1/31/12	1555	SMO / MZAMORA	
		1/31/12	1555	P-37 / MZAMORA	
		1/31/12	1616	In Lab / EIBARRA	
		1/31/12	1841	P-37 / EIBARRA	
P1200361-002.01	7196A	1/31/12	1555	SMO / MZAMORA	
		1/31/12	1555	P-37 / MZAMORA	
		1/31/12	1616	In Lab / EIBARRA	
		1/31/12	1841	P-37 / EIBARRA	
P1200361-003.01	7196A	1/31/12	1555	SMO / MZAMORA	
		1/31/12	1555	P-37 / MZAMORA	
		1/31/12	1617	In Lab / EIBARRA	
		1/31/12	1842	P-37 / EIBARRA	
P1200361-004.01	7196A	1/31/12	1555	SMO / MZAMORA	
		1/31/12	1555	P-37 / MZAMORA	
		1/31/12	1617	In Lab / EIBARRA	
		1/31/12	1842	P-37 / EIBARRA	

Sample Acceptance Check Form

Client: Battelle Work order: P1200361

Project: 1Q12 JPL GW Mon / 100006114

Sample(s) received on: 1/31/12 Date opened: 1/31/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | Yes | No | N/A |
|----|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | Wet Ice | |
| 9 | Was a trip blank received? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10 | Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 | Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 | Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200361-001.01	125mL Plastic NP					
P1200361-001.02	125mL Plastic NP					
P1200361-002.01	125mL Plastic NP					
P1200361-003.01	125mL Plastic NP					
P1200361-004.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200361
Date Collected : 01/31/12
Date Received : 01/31/12

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-14-3	P1200361-001	0.010	0.003	1	NA	01/31/12 17:51	ND	
MW-14-2	P1200361-002	0.010	0.003	1	NA	01/31/12 17:51	ND	
MW-14-1	P1200361-003	0.010	0.003	1	NA	01/31/12 17:51	ND	
EB-2-1/31/12	P1200361-004	0.010	0.003	1	NA	01/31/12 17:51	ND	
Method Blank	P1200361-MB	0.010	0.003	1	NA	01/31/12 17:51	ND	

Approved By

Karu Rya

Date :

2/14/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200361
Date Analyzed: 01/31/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By: Karen Rye Date: 2/6/12
ICCBMDL/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200361
Date Analyzed: 01/31/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0496	99	90-110
CCV1	0.0500	0.0496	99	90-110
CCV2	0.0500	0.0496	99	90-110

Approved By: Karen Ryan Date: 2/6/12
CCV1A/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200361
Date Collected : NA
Date Received : NA
Date Extracted : NA
Date Analyzed : 01/31/12

Laboratory Control Sample Summary
Inorganic Parameters

Sample Name : Laboratory Control Sample
Lab Code : P1200361-LCS
Test Notes :

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0402	101	90-110	

Approved By Kanu Rya Date : 2/6/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200361
Date Collected : 01/31/12
Date Received : 01/31/12
Date Extracted : NA
Date Analyzed : 01/31/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-14-3 Units : mg/L (ppm)
 Lab Code : P1200361-001MS P1200361-001DMS Basis : NA
 Test Notes :

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0488	0.0505	98	101	73-119	3	

Approved By *Kanu Rya* Date : *2/6/12*

pH Run Log

Service Request #(s): P1200361 ; P1200362

Time: 1405

Sample	VWR lot #	Exp.
pH 2 Buffer	S24-05201101	12/2012
pH 4 Buffer	S24-05701102	9/30/12
pH 7 Buffer	S24-10211101	7/2013
pH 10 Buffer	S24-10241103	2/28/13

Slope	Prep.Run #
98.8%	
	Run#

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # In column labeled #)

Sample	#	pH	Temp. °C	Sample	#	pH	Temp. °C
pH 2.000	3	1.998	21.6	P1200362-5.01	3	2.129	13.3
pH 4.000		4.004	21.9	P1200362-6.01		2.110	13.9
pH 7.000		7.007	21.9	pH 2.000		2.035	21.9
pH 10.000		10.011	21.9	P1200362-7.01		2.128	14.5
Ref#: ^{pH 7.38 Exp 8/2013} S24-10241102		7.389 ^{100%}	22.2	pH 2.000	↓	2.030	21.9
DI		2.016	21.4				
pH 2.000		1.991	21.8				
16:30							
pH 2.000		2.016	21.9				
P1200361-1.01		2.022	11.2				
↓ -2.01		2.190	12.4				
↓ -3.01		2.151	12.1				
↓ -4.01		2.038	11.6				
^{-1.01 Exp 1/30/12} P1200362-5.01		2.078	13.3				
-2.01		2.113	13.6				
-3.01		2.124	13.3				
-4.01	↓	2.087	13.8				

pH Adjustments: **7196A:** Diluted/Conc H₂SO₄ EMD 44284 EXP: 11/20/14

7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 1/30/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: EJ
Reviewer: KR

Date: 1/31/12
Date: 2/1/12



Method EPA 7196A

Service Request#(s): P1200361 ; P1200362
 Stock#: S24-08291102 TV=10PPM Exp 2/24/12
 ICV/CCV#: S24-10151001 TV=100PPM Exp 3/2012

Run#: 278552
 Prep Run#: _____
 Conc. H₂SO₄ Lot#: EMD 49284 exp 11/27/14
 Coloring Reagent Ref#: S24-01231201 exp 2/13/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.999902928
Absorbance @ 540 nm	0	0.010	0.057	0.116	

Sample #	Sample Vol.(mL)	Dilution	pH ✓	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	ICB	10 mL	✓	0.000	0.000	0.000	0.000768	LO.003
2	ICV 0.05 PPM		✓	0.000	0.057	0.057	0.0496	99%
3	MB		✓	0.000	0.000	0.000	0.000768	LO.003
4	LCS 0.04 PPM		✓	0.000	0.046	0.046	0.0402	101%
5	P1200361-1.01		✓	0.000	0.002	0.002	0.00248	LO.003
6	-1.01 MS 0.05 PPM		✓	0.000	0.056	0.056	0.0488	98% } 3% RPD
7	-1.01 MSD 0.05 PPM		✓	0.000	0.058	0.058	0.0505	101% }
8	2.01 -1.02		✓	0.000	0.002	0.002	0.00248	LO.003
9	2.01 -1.02 VS 0.03 PPM	ET	✓	0.000	0.036	0.036	0.0316	105%
10	-3.01 -1.03	1/31/12	✓	0.001	0.002	0.001	0.00163	LO.003
11	-4.01 -1.04		✓	0.000	0.000	0.000	0.000768	LO.003
12	P1200362 - 1.01 -1.05		✓	0.000	0.001	0.001	0.00163	LO.003
13	CCV 1 0.05 PPM		✓	0.000	0.057	0.057	0.0496	99%
14	CCB 1		✓	0.000	0.000	0.000	0.000768	LO.003
15	P1200362 - 2.01		✓	0.000	0.001	0.001	0.00163	LO.003
16	-2.01 VS 0.03 PPM		✓	0.000	0.035	0.035	0.0308	102%
17	-3.01		✓	0.000	0.007	0.007	0.00677	

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.250 ml of S24-10151001 @ 1.15 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of S24-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of ↓ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of ↓ @ 1.12 ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: ET
 Analyzed By: ET
 Reviewed By: RE

Date/Time: 1/31/12 @ 1736
 Date/Time: 1/31/12 @ 1751
 Date: 2/1/12

Dr)

10/6/10
SW

524-10061001 25133ppb stock for 03

0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
10146598 ;Exp: 8/11/12 up to 500 ml w/ DI
Water.

EXP: 10/20/10

10/6/10
SW

524-10061002 25133ppb ION/COV for 03

0.05 ml Pyridine-4-carboxaldehyde TCI
(IC9INC ;Exp: 8/10/12) up to 500 ml w/ DI
Water.

EXP: 10/20/10

10/6/10
SW

524-10061003 MBTH Soln

0.5000 g MBTH (Aldrich 54696EK ;Exp: 8/7/14) up
to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 44284; EXP 11/20/10

EXP: 10/7/10

10/15/10
SW

524-10151001 Cr6+ ION/COV Stock

Purchased 100ppm Cr6+
Ricca Chemical Co Cut No 2095-16
500ml Plastic

LOT # 1010177
EXP: 3/20/12

10/15/10
SW

524-10151002 500ppm NO₂ Stock

Purchased
Ricca Chemical Co Cut No: 5444-5-4
LOT # 1010271 120ml amber glass

EXP: 4/20/11

5.00

2/21/11 524-02211101 1:1 H₂SO₄
 JZ 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ADDED SLOWLY TO 250ml DI. COOL
 COMPLETELY
 EXP: 2/21/12

2/21/11 524-02211102 Cr6+ Coloring Reagent
 JZ 0.2500g 1,5-diphenylcarbohydrazide (EMD lot 47103721;
 EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
 lot #471540; EXP: 9/24/12).
 EXP: 3/31/11

2/28/11 524-02281101 0.1N H₂SO₄
 JZ 5.6 ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
 w/ DI H₂O
 EXP: 2/28/12

2/28/11 524-02281102 1001 mg/L Cr6+
 JZ purchased
 Inorganic Ventures CGCR(6)1-1
 125 mL Clear Glass
 LOT# D2-CR03040
 EXP: 3/1/2012

5/19/11
JL

524-05191103 ICO2 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT BAKER ^{EM} J305041 exp: 6/19/16) in 100 mL Methanol (B&J AD806 exp: 5/13/16). Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H2SO4 (EMD 49284 exp: 11/20/14). Bring up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JL

524-05201101 PH 2.000 BUFFER
Purchased

BDH CAT. No. BDH 5010-500 mL
LOT # 1101225
EXP: 12/2012

8/20/11
JL

524-05201102 PH 4.000 BUFFER
Purchased

JT Baker CAT # 5657-01 500 mL
LOT # J36503
EXP: 9/30/12

8/22/11
JL

524-05201103 pH 7.38 BUFFER
Purchased

BDH CAT # BDH5058-500 mL
LOT # 1103301
EX: 3/2013

8/24/11 S24-08241101 Sulfanilamide Soln
 Ja 5.00g Sulfanilamide (JT Baker; Lot# J32618;
 EXP: 1/6/16) DISSOLVED IN 50ml Conc HCl
 (EMD 49260; EXP: 2/7/16) ↑ 500ml w/ DI H₂O
 EXP: 8/24/12

8/24/11 S24-08241102 NEDA Soln
 Ja 0.2500g N-1-Naphthylethylenediamine dihydrochloride
 (JT BAKER H22587; EXP: 10/19/14) ↑ 250ml w/ DI
 H₂O.
 EXP: 2/24/12

8/29/11 S24-08291101 0.1N H₂SO₄
 Ja 5.6ml Conc H₂SO₄ (EMD 49984; EXP: 11/20/14)
 ↑ 2L w/ DI H₂O
 EXP: 8/29/12

8/29/11 S24-08291102 10PPM Cr6+ Std
 Ja 1.0ml S24-02281102 (1000PPM Cr6+; EXP: 3/1/12)
 ↑ 100ml w/ DI H₂O
 EXP: 2/28/12

9/6/11 S24-09061101 Cr6+ Coloring Reagent
 Ja 0.2500g 1,5-Dimethylcarbohydrazide (JT Baker J05641;
 EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD 47154D
 EXP: 9/24/12).
 EXP: 10/6/11

Reviewed And Approved By:
 Initial: ke Date: 9/2/11

10/17/11 S24-10171102 1000PPM NH3
JW 0.3141 g NH4Cl (END 49198931; EXP: 10/19/14) ↑ 100ml
10/ S24-10171101 (0.1M NH2SO4 EXP: 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 ILO2 Eluent
JW 100 ml of S24-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1L w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
JW Purchased
BDH Cat No: BDH 5046-500ml
LOT # 1107491
EXP: 7/20/13

10/24/11 S24-10241101 PH 4.000 Buffer
JW Purchased
JT Baker Cat No: 5657-01 500ml
LOT # K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
JW Purchased
BDH Cat No BDH 6058-500ml
LOT # 1109034
EXP: 8/20/13

10/24/11
Sw
524-10241103 pH 10.000 Buffer
Purchased
JT Baker Cat no: 5655-01
Lot # K07507
EXP: 2/28/13

10/25/11
Sw
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475 mL
Lot # PW1 P/N 207475-A01
EXP: 10/25/12

10/25/11
Sw
524-10251102 A,B,C,D,E PH Filling Sol'n
Purchased
Thermo Scientific Orion 810007 5 pack 60 mL
Lot: PS1
EXP: 10/25/12

11/1/11
Sw
524-11011101 IC02 Eluent
100 ml 524-09201103 (10x conc eluent. EXP:
9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
EXP: 11/15/11

11/1/11
Sw
524-11011102 IC02 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD JT BAKER JO 5641
exp: 6/15/15) in 100 mL Methanol (B&J DE 932 exp: 10/12/16
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD 44284 exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas. exp: 11/6/11

1/23/12 S24-01231201 Cr6+ Coloring Reagent

0.2500g 1,5-Diphenylcarbohydrazide J.T. Baker

LOT J05646) T 50ml w/ Acetone (EMD LOT 47154)

EXP: 9/24/12

EXP: 2/23/12

L1
DAM
3C08
1.00

or)

5.00

LABORATORY REPORT

February 9, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: JPL-GW-1Q12 / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on January 31, 2012. For your reference, these analyses have been assigned our service request number P1200362.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 11:58 am, Feb 09, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: JPL-GW-1Q12 / 100006114

CAS Project No: P1200362

CASE NARRATIVE

The samples were received intact under chain of custody on January 31, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: JPL-GW-1Q12 / 100006114

Service Request: P1200362

Date Received: 1/31/2012
 Time Received: 15:52

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-6	P1200362-001	Water	1/31/2012	08:45	X
DUPE-5-1Q12	P1200362-002	Water	1/31/2012	08:45	X
MW-13	P1200362-003	Water	1/31/2012	10:43	X
DUPE-6-1Q12	P1200362-004	Water	1/31/2012	10:43	X
MW-16	P1200362-005	Water	1/31/2012	13:18	X
DUPE-7-1Q12	P1200362-006	Water	1/31/2012	13:18	X
MW-15	P1200362-007	Water	1/31/2012	14:47	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



Water & Soil - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. **P1205362**
 CAS Contact:

Company Name & Address (Reporting Information)
Battelle
 505 Kings Ave
 Columbus OH 43201

Project Name
SPL-6W-1812

Analysis Method and/or Analytes

Project Manager
David Conner

Project Number
100006114

Preservative Key
 0 None
 1 HCL
 2 HNO3
 3 H2SO4
 4 NaOH
 5 Zn Acetate
 6 Asc Acid
 7 Other

Phone **614 726-7311** Fax **614 458-6641**

P.O. # / Billing Information
285651/Battelle
505 Kings Ave
Columbus OH 43201

Email Address for Result Reporting
connerd@battelle.org

Sampler (Print & Sign)
David Conner / David A

Remarks

Client Sample ID

Volatile Organics GC/MS
 624 8260B Oxygenates TPH Gas
 TPH Gas 8015B
 BTEX 8021B MTBE 8021B
 TPH Diesel 8015B (Subcontracted)
 TPH Diesel Low Level 8015B (Subcontracted)
 TPH FC 8015M (Subcontracted)

Semi-Volatile Organics GC/MS
 625 8270C (Subcontracted)
Hexavalent Cr 7196

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers	Analysis Method and/or Analytes	Preservative Code
MW-6	①	1-31-12	0845	AR	1P		
DUPE-5-1812	②	1-31-12	0845	AR	1P		
MW-13	③	1-31-12	1043	AR	1P		
DUPE-6-1812	④	1-31-12	1043	AR	1P		
MW-16	⑤	1-31-12	1318	AR	1P		
DUPE-7-1812	⑥	1-31-12	1318	AR	1P		
MW-15	⑦	1-31-12	1447	AR	1P		

Report Tier Levels - please select

Tier I - (Results/Default if not specified) _____
 Tier II - (Results + QC) _____
 Tier III - (Data Validation Package) 10% Surcharge
 Tier V - (client specified) _____

MRL required Yes / No _____
 MDL / POL / J required Yes / No _____
 EDD required Yes / No _____

Project Requirements (MRLs, GAPP)

Relinquished by: (Signature) **David A** Date: **1/30/12** Time: **15:06**
 Relinquished by: (Signature) **David A** Date: **1/30/12** Time: **15:52**
 Relinquished by: (Signature) **David A** Date: **1/30/12** Time: **15:06**
 Relinquished by: (Signature) **David A** Date: **1/30/12** Time: **15:52**

Cooler Blank Ice / No Ice **water**
 Temperature **3** °C

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: JPL-GW-1Q12/100006114

Service Request: P1200362

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200362-001.01	7196A	1/31/12	1605	SMO / MZAMORA	
		1/31/12	1605	P-37 / MZAMORA	
		1/31/12	1617	In Lab / EIBARRA	
		1/31/12	1842	P-37 / EIBARRA	
P1200362-002.01	7196A	1/31/12	1605	SMO / MZAMORA	
		1/31/12	1605	P-37 / MZAMORA	
		1/31/12	1617	In Lab / EIBARRA	
		1/31/12	1841	P-37 / EIBARRA	
P1200362-003.01	7196A	1/31/12	1605	SMO / MZAMORA	
		1/31/12	1605	P-37 / MZAMORA	
		1/31/12	1617	In Lab / EIBARRA	
		1/31/12	1841	P-37 / EIBARRA	
P1200362-004.01	7196A	1/31/12	1605	SMO / MZAMORA	
		1/31/12	1605	P-37 / MZAMORA	
		1/31/12	1616	In Lab / EIBARRA	
		1/31/12	1842	P-37 / EIBARRA	
P1200362-005.01	7196A	1/31/12	1605	SMO / MZAMORA	
		1/31/12	1605	P-37 / MZAMORA	
		1/31/12	1617	In Lab / EIBARRA	
		1/31/12	1842	P-37 / EIBARRA	
P1200362-006.01	7196A	1/31/12	1605	SMO / MZAMORA	
		1/31/12	1605	P-37 / MZAMORA	
		1/31/12	1617	In Lab / EIBARRA	
		1/31/12	1841	P-37 / EIBARRA	
P1200362-007.01	7196A	1/31/12	1605	SMO / MZAMORA	
		1/31/12	1605	P-37 / MZAMORA	
		1/31/12	1617	In Lab / EIBARRA	
		1/31/12	1841	P-37 / EIBARRA	

Sample Acceptance Check Form

Client: Battelle Work order: P1200362
 Project: JPL-GW-1Q12 / 100006114
 Sample(s) received on: 1/31/12 Date opened: 1/31/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Wet Ice | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200362-001.01	125mL Plastic NP					
P1200362-002.01	125mL Plastic NP					
P1200362-003.01	125mL Plastic NP					
P1200362-004.01	125mL Plastic NP					
P1200362-005.01	125mL Plastic NP					
P1200362-006.01	125mL Plastic NP					
P1200362-007.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL-GW-1Q12
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200362
Date Collected : 01/31/12
Date Received : 01/31/12

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-6	P1200362-001	0.010	0.003	1	NA	01/31/12 17:51	ND	
DUPE-5-1Q12	P1200362-002	0.010	0.003	1	NA	01/31/12 17:51	ND	
MW-13	P1200362-003	0.010	0.003	1	NA	01/31/12 17:51	0.007	J
DUPE-6-1Q12	P1200362-004	0.010	0.003	1	NA	01/31/12 17:51	0.008	J
MW-16	P1200362-005	0.010	0.003	1	NA	01/31/12 17:51	ND	
DUPE-7-1Q12	P1200362-006	0.010	0.003	1	NA	01/31/12 17:51	ND	
MW-15	P1200362-007	0.010	0.003	1	NA	01/31/12 17:51	ND	
Method Blank	P1200362-MB	0.010	0.003	1	NA	01/31/12 17:51	ND	

J Estimated concentration. The result is less than the PQL but greater than the MDL.

Approved By Karu Rya Date : 2/6/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: JPL-GW-1Q12 / 100006114

Service Request: P1200362
Date Analyzed: 01/31/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By: _____

Karen Ryan

Date: _____

2/6/12

ICCBMDL/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: JPL-GW-1Q12 / 100006114

Service Request: P1200362
Date Analyzed: 01/31/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0496	99	90-110
CCV1	0.0500	0.0496	99	90-110
CCV2	0.0500	0.0496	99	90-110

Approved By: Kane Ryan Date: 2/6/12
CCV1A/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : JPL-GW-1Q12
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200362
Date Collected : NA
Date Received : NA
Date Extracted : NA
Date Analyzed : 01/31/12

Laboratory Control Sample Summary
 Inorganic Parameters

Sample Name : Laboratory Control Sample
Lab Code : P1200362-LCS
Test Notes :

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Chromium, Hexavalent	None	7196A	0.0400	0.0402	101	90-110	

Approved By *Kanu Rya* Date : *2/6/12*

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : JPL-GW-1Q12
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200362
Date Collected : 01/31/12
Date Received : 01/31/12
Date Extracted : NA
Date Analyzed : 01/31/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-13 Units : mg/L (ppm)
 Lab Code : P1200362-003MS P1200362-003DMS Basis : NA
 Test Notes :

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	0.0067	0.0539	0.0565	94	100	73-119	5	J

J Estimated concentration. The result is less than the PQL but greater than the MDL.

Approved By *Kanu Ryan* Date : 2/6/12

pH Run Log

Service Request #(s): P1200361 ; P1200362

Time: 1405

Sample	VWR lot #	Exp.
pH 2 Buffer	S24-05201101	12/2012
pH 4 Buffer	S24-05701102	9/30/12
pH 7 Buffer	S24-10211101	7/2013
pH 10 Buffer	S24-10241103	2/28/13

Slope	Prep.Run #
98.8%	
	Run#

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # In column labeled #)

Sample	#	pH	Temp. °C	Sample	#	pH	Temp. °C
pH 2.000	3	1.998	21.6	P1200362-5.01	3	2.129	13.3
pH 4.000		4.004	21.9	P1200362-6.01		2.110	13.9
pH 7.000		7.007	21.9	pH 2.000		2.035	21.9
pH 10.000		10.011	21.9	P1200362-7.01		2.128	14.5
Ref#: ^{pH 7.38 Exp 8/2013} S24-10241102		7.389 ^{100%}	22.2	pH 2.000	↓	2.030	21.9
DI		2.016	21.4				
pH 2.000		1.991	21.8				
16:30							
pH 2.000		2.016	21.9				
P1200361-1.01		2.022	11.2				
-2.01		2.190	12.4				
-3.01		2.151	12.1				
↓ -4.01		2.038	11.6				
^{-1.01 Exp 1/30/12} P1200362-5.01		2.078	13.3				
-2.01		2.113	13.6				
-3.01		2.124	13.3				
-4.01	↓	2.087	13.8				

pH Adjustments: **7196A:** Diluted/Conc H₂SO₄ EMD 44284 EXP: 11/20/14

7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 1/30/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: EI
Reviewer: KR

Date: 1/31/12
Date: 2/1/12



Method EPA 7196A

Service Request#(s): P1200361 ; P1200362
 Stock#: S24-08291102 TV=10PPM Exp 2/24/12
 ICV/CCV#: S24-10151001 TV=100PPM Exp 3/2012

Run#: 278552
 Prep Run#: _____
 Conc. H₂SO₄ Lot#: EMD 49284 exp 11/27/14
 Coloring Reagent Ref#: S24-01231201 exp 2/13/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.999902928
Absorbance @ 540 nm	0	0.010	0.057	0.116	

Sample #	Sample Vol.(mL)	Dilution	pH ✓	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	ICB	10 mL	✓	0.000	0.000	0.000	0.000768	LO.003
2	ICV 0.05 PPM		✓	0.000	0.057	0.057	0.0496	99%
3	MB		✓	0.000	0.000	0.000	0.000768	LO.003
4	LCS 0.04 PPM		✓	0.000	0.046	0.046	0.0402	101%
5	P1200361-1.01		✓	0.000	0.002	0.002	0.00248	LO.003
6	-1.01 MS 0.05 PPM		✓	0.000	0.056	0.056	0.0488	98% } 3% RPD
7	-1.01 MSD 0.05 PPM		✓	0.000	0.058	0.058	0.0505	101% }
8	2.01 -1.02		✓	0.000	0.002	0.002	0.00248	LO.003
9	2.01 -1.02 VS 0.03 PPM	ET	✓	0.000	0.036	0.036	0.0316	105%
10	-3.01 -1.03	1/31/12	✓	0.001	0.002	0.001	0.00163	LO.003
11	-4.01 -1.04		✓	0.000	0.000	0.000	0.000768	LO.003
12	P1200362 - 1.01 -1.05		✓	0.000	0.001	0.001	0.00163	LO.003
13	CCV 1 0.05 PPM		✓	0.000	0.057	0.057	0.0496	99%
14	CCB 1		✓	0.000	0.000	0.000	0.000768	LO.003
15	P1200362 - 2.01		✓	0.000	0.001	0.001	0.00163	LO.003
16	-2.01 VS 0.03 PPM		✓	0.000	0.035	0.035	0.0308	102%
17	-3.01		✓	0.000	0.007	0.007	0.00677	

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.250 ml of S24-10151001 @ 1.15 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of S24-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of ↓ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of ↓ @ 1.12 ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: ET
 Analyzed By: ET
 Reviewed By: RE

Date/Time: 1/31/12 @ 1736
 Date/Time: 1/31/12 @ 1751
 Date: 2/1/12

Method EPA 7196A

Service Request#(s): P1200362; P1200301
 Stock#: S24-08291102 TV=10PPM Exp 2/24/12
 ICV/CCV#: S24-10151001 TV=100PPM Exp 3/20/12

Run#: 278552
 Prep Run#: _____
 Conc. H₂SO₄ Lot#: EMD 49284 exp 11/30/14
 Coloring Reagent Ref#: S24-01231701 exp 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.999902928
Absorbance @ 540 nm	0.000	0.010	0.057	0.116	

Sample #	Sample Vol.(mL)	Dilution	pH ✓	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	P1200362 - 3.01 MS 0.05 PPM	10mL	✓	0.000	0.062	0.062	0.0539	98% } 57% RPD
2	- 3.01 MSD 0.05 PPM		✓	0.000	0.065	0.065	0.0565	99% } 57% RPD
3	- 4.01		✓	0.000	0.008	0.008	0.00763	
4	- 5.01		✓	0.001	0.002	0.001	0.00163	<0.003
5	- 6.01		✓	0.001	0.003	0.002	0.00248	<0.003
6	- 7.01		✓	0.001	0.003	0.002	0.00248	<0.003
7	CCV 2 0.05 PPM		✓	0.000	0.057	0.057	0.0496	99%
8	CCB 2		✓	0.000	0.000	0.000	0.000768	<0.003
9								
10								
11								
12								
13								
14								
15								
16								
17								

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.250 ml of S24-10151001 @ 1:10 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of S24-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of _____ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of _____ @ 1:10 ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: ED
 Analyzed By: ED
 Reviewed By: KR

Date/Time: 1/31/12 @ 1736
 Date/Time: 1/31/12 @ 1751
 Date: 2/1/12

Dr)

10/6/10
SW

524-10061001 25133ppb stock for 03

0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
10146598 ; Exp: 8/11/12 up to 500 ml w/ DI
Water.

EXP: 10/20/10

10/6/10
SW

524-10061002 25133ppb ION/COV for 03

0.05 ml Pyridine-4-carboxaldehyde TCI
(IC9INC ; Exp: 8/10/12) up to 500 ml w/ DI
Water.

EXP: 10/20/10

10/6/10
SW

524-10061003 MBTH Soln

0.5000 g MBTH (Aldrich 54696EK ; Exp: 8/7/14) up
to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 44284; EXP 11/20/10

EXP: 10/7/10

10/15/10
SW

524-10151001 Cr6+ ION/COV Stock

Purchased 100ppm Cr6+
Ricca Chemical Co Cut No 2095-16
500ml Plastic

LOT # 1010177
EXP: 3/20/12

10/15/10
SW

524-10151002 500ppm NO₂ Stock

Purchased
Ricca Chemical Co Cut No: 5444-5-4
LOT # 1010271 120ml amber glass

EXP: 4/20/11

5.00

2/21/11 524-02211101 1:1 H₂SO₄
 JZ 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ADDED SLOWLY TO 250ml DI. COOL
 COMPLETELY
 EXP: 2/21/12

2/21/11 524-02211102 Cr6+ Coloring Reagent
 JZ 0.2500g 1,5-diphenylcarbohydrazide (EMD lot 47103721;
 EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
 lot #471540; EXP: 9/24/12).
 EXP: 3/31/11

2/28/11 524-02281101 0.1N H₂SO₄
 JZ 5.6 ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
 w/ DI H₂O
 EXP: 2/28/12

2/28/11 524-02281102 1001 mg/L Cr6+
 JZ purchased
 Inorganic Ventures CGCR(6)1-1
 125 mL Clear Glass
 LOT# D2-CR03040
 EXP: 3/1/2012

5/19/11
JL

524-05191103 ICO2 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT BAKER ^{EM} J305041 exp: 6/19/16) in 100 mL Methanol (B&J AD806 exp: 5/13/16). Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H2SO4 (EMD 49284 exp: 11/20/14). Bring up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JL

524-05201101 PH 2.000 BUFFER
Purchased

BDH CAT. No. BDH 5010-500 mL
LOT# 1101225
EXP: 12/2012

6/20/11
JL

524-05201102 PH 4.000 BUFFER
Purchased

JT Baker CAT# 5657-01 500 mL
LOT# J36503
EXP: 9/30/12

2/2/11
JL

524-05201103 pH 7.38 BUFFER
Purchased

BDH CAT# BDH5058-500 mL
LOT# 1103301
EX: 3/2013

8/24/11 S24-08241101 Sulfanilamide Soln
 Ja 5.00g Sulfanilamide (JT Baker; Lot# J32618;
 EXP: 1/6/16) DISSOLVED IN 50ml Conc HCl
 (EMD 49260; EXP: 2/7/16) ↑ 500ml w/ DI H₂O
 EXP: 8/24/12

8/24/11 S24-08241102 NEDA Soln
 Ja 0.2500g N-1-Naphthylethylenediamine dihydrochloride
 (JT BAKER H22587; EXP: 10/19/14) ↑ 250ml w/ DI
 H₂O.
 EXP: 2/24/12

8/29/11 S24-08291101 0.1N H₂SO₄
 Ja 5.6ml Conc H₂SO₄ (EMD 49984; EXP: 11/20/14)
 ↑ 2L w/ DI H₂O
 EXP: 8/29/12

8/29/11 S24-08291102 10PPM Cr6+ Std
 Ja 1.0ml S24-02281102 (1000PPM Cr6+; EXP: 3/1/12)
 ↑ 100ml w/ DI H₂O
 EXP: 2/28/12

9/6/11 S24-09061101 Cr6+ Coloring Reagent
 Ja 0.2500g 1,5-Dimethylcarbohydrazide (JT Baker J05641;
 EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD 47154D
 EXP: 9/24/12).
 EXP: 10/6/11

Reviewed And Approved By:
 Initial: ke Date: 9/2/11

10/17/11 S24-10171102 1000PPM NH3
JW 0.3141 g NH4Cl (END 49198931; EXP: 10/19/14) ↑ 100ml
10/ S24-10171101 (0.1M NH2SO4 EXP: 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 ILO2 Eluent
JW 100 ml of S24-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1L w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
JW Purchased
BDH Cat No: BDH 5046-500ml
LOT # 1107491
EXP: 7/20/13

10/24/11 S24-10241101 PH 4.000 Buffer
JW Purchased
JT Baker Cat No: 5657-01 500ml
LOT # K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
JW Purchased
BDH Cat No BDH 6058-500ml
LOT # 1109034
EXP: 8/20/13

10/24/11
Sw
524-10241103 PH 10.000 Buffer
Purchased
JT Baker Cat no: 5655-01
Lot # K07507
EXP: 2/28/13

10/25/11
Sw
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475 mL
Lot # PW1 P/N 207475-A01
EXP: 10/25/12

10/25/11
Sw
524-10251102 A,B,C,D,E PH Filling Sol'n
Purchased
Thermo Scientific Orion 810007 5 pack 60 mL
Lot: PS1
EXP: 10/25/12

11/1/11
Sw
524-11011101 IC02 Eluent
100 ml 524-09201103 (10x conc eluent. EXP:
9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
EXP: 11/15/11

11/1/11
Sw
524-11011102 IC02 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD JT BAKER JO 5641
exp: 6/15/15) in 100 mL Methanol (B&J DE 932 exp: 10/12/16
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD 44284 exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas. exp: 11/6/11

1/23/12 S24-01231201 Cr6+ Coloring Reagent

0.2500g 1,5-Diphenylcarbohydrazide J.T. Baker

LOT J05646) T 50ml w/ Acetone (EMD LOT 47154)

EXP: 9/24/12

EXP: 2/23/12

L1
DAM
3C08
1.00

or)

5.00

LABORATORY REPORT

February 14, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 1, 2012. For your reference, these analyses have been assigned our service request number P1200385.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 4:56 pm, Feb 14, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200385

CASE NARRATIVE

The samples were received intact under chain of custody on February 1, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

Cr6

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114
 Date Received: 2/1/2012
 Time Received: 15:56

Service Request: P1200385

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-18-4	P1200385-001	Water	2/1/2012	09:15	X
MW-18-3	P1200385-002	Water	2/1/2012	10:12	X
MW-18-2	P1200385-003	Water	2/1/2012	10:40	X
EB-3-2/1/12	P1200385-004	Water	2/1/2012	10:29	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Water & Soil - Chain of Custody Record & Analytical Service Request

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. **P1200385**
CAS Contact:

Company Name & Address (Reporting Information)
BATTLE
 3990 OLD TOWN AVE., C-205
 SAN DIEGO, CA 92110

Project Name
1612 JPL GW MON

Analysis Method and/or Analytes

Project Manager
DAVID CONNER

Project Number
100006114

Preservative Code

Phone
(619) 726-7311

P.O. # / Billing Information
285651
BATTLE/GRAND TERRAINS
505 KANE AVE
COLUMBIUS OH 43201

Preservative Key
 0 None
 1 HCL
 2 HNO3
 3 H2SO4
 4 NaOH
 5 Zn Acetate
 6 Asc Acid
 7 Other

Email Address for Result Reporting
conner@battle.org

Sampler Part Number
Class 3000

Remarks

Client Sample ID

Volatile Organics GC/MS
 624 8260B Oxygenates TPH Gas
 TPH Gas 8015B
 BTEX 8021B MTBE 8021B
 TPH Diesel 8015B (Subcontracted)
 TPH Diesel Low Level 8015B (Subcontracted)
 TPH FC 8015M (Subcontracted)
 Semi-Volatile Organics GC/MS
 625 8270C (Subcontracted)

Remarks

Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers	Analysis Method and/or Analytes	Preservative Code	Temperature
MW-18-4	2/1/12	0955	Air	1			
MW-18-3	10/12			1			
MW-18-2	10/40			1			
ER-3 - 2/1/12	2/1/12	1029		1			EVID. BLANK

Report Tier Levels - please select
 Tier I - (Results/Default if not specified) _____ Tier III - (Date Validation Package) 10% Surcharge _____
 Tier II - (Results/QC) _____ Tier V - (client specified) _____
 MRL required Yes / No _____ EDD required Yes / No _____
 MDL / PQL / J required Yes / No _____ Type: _____

Requisitioned by: (Signature) *[Signature]* Date: 2/1/12 Time: 5:56
 Requisitioned by: (Signature) *[Signature]* Date: 2/1/12 Time: 1:57
 Requisitioned by: (Signature) *[Signature]* Date: 2/1/12 Time: 1:57
 Cooler Blank / Ice / No Ice *[Signature]*
 Temperature 30°C

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200385

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200385-001.01	7196A	2/1/12	1604	SMO / MZAMORA	
		2/1/12	1604	P-37 / MZAMORA	
		2/1/12	1622	In Lab / EIBARRA	
		2/2/12	0848	P-37 / EIBARRA	
		2/3/12	0916	P-Disposed / RMARTENIES	
P1200385-002.01	7196A	2/1/12	1604	SMO / MZAMORA	
		2/1/12	1604	P-37 / MZAMORA	
		2/1/12	1622	In Lab / EIBARRA	
		2/2/12	0849	P-37 / EIBARRA	
		2/3/12	0916	P-Disposed / RMARTENIES	
P1200385-003.01	7196A	2/1/12	1604	SMO / MZAMORA	
		2/1/12	1604	P-37 / MZAMORA	
		2/1/12	1622	In Lab / EIBARRA	
		2/2/12	0849	P-37 / EIBARRA	
		2/3/12	0916	P-Disposed / RMARTENIES	
P1200385-004.01	7196A	2/1/12	1604	SMO / MZAMORA	
		2/1/12	1604	P-37 / MZAMORA	
		2/1/12	1622	In Lab / EIBARRA	
		2/2/12	0849	P-37 / EIBARRA	
		2/3/12	0916	P-Disposed / RMARTENIES	

Sample Acceptance Check Form

Client: Battelle Work order: P1200385

Project: 1Q12 JPL GW Mon / 100006114

Sample(s) received on: 2/1/12 Date opened: 2/1/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|----|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | Wet Ice | | | |
| 9 | Was a trip blank received? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10 | Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 | Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 | Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200385-001.01	125mL Plastic NP					
P1200385-002.01	125mL Plastic NP					
P1200385-003.01	125mL Plastic NP					
P1200385-004.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200385
Date Collected : 02/01/12
Date Received : 02/01/12

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-18-4	P1200385-001	0.010	0.003	1	NA	02/01/12 17:46	ND	
MW-18-3	P1200385-002	0.010	0.003	1	NA	02/01/12 17:46	ND	
MW-18-2	P1200385-003	0.010	0.003	1	NA	02/01/12 17:46	ND	
EB-3-2/1/12	P1200385-004	0.010	0.003	1	NA	02/01/12 17:46	ND	
Method Blank	P1200385-MB	0.010	0.003	1	NA	02/01/12 17:46	ND	

Approved By

Kam Rya

Date :

2/6/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200385
Date Analyzed: 02/01/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By: Karen Ryan Date: 2/6/12
ICCBMDL/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200385
Date Analyzed: 02/01/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0510	102	90-110
CCV1	0.0500	0.0519	104	90-110
CCV2	0.0500	0.0510	102	90-110

Approved By: Karen Rya Date: 2/6/12
CCV1A/120594

QA/QC Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200385
 Date Collected : NA
 Date Received : NA
 Date Extracted : NA
 Date Analyzed : 02/01/12

Laboratory Control Sample Summary
 Inorganic Parameters

Sample Name : Laboratory Control Sample
 Lab Code : P1200385-LCS
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0413	103	90-110	

Approved By Karu Rya Date : 2/1/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200385
 Date Collected : 02/01/12
 Date Received : 02/01/12
 Date Extracted : NA
 Date Analyzed : 02/01/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-18-4 Units : mg/L (ppm)
 Lab Code : P1200385-001MS P1200385-001DMS Basis : NA
 Test Notes :

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0510	0.0510	102	102	73-119	<1	

Approved By Kam Rya Date : 2/6/12

pH Run Log

Service Request #(s): P1200385 ; P1200386

Time: 15 25

Sample	VWR lot #	Exp.
pH 2 Buffer	S24-05201101	12/2012
pH 4 Buffer	S24-05201102	9/30/12
pH 7 Buffer	S24-10211101	7/2013
pH 10 Buffer	S24-10241103	2/28/13

Slope	Prep.Run #
99.0%	—
	Run#
	—

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # In column labeled #)

Sample	#	pH	Temp. °C
pH 2.000	3	2.010	22.2
pH 4.000		4.006	22.3
pH 7.000		7.007	22.3
pH 10.000		10.001	22.6
Ref#: ^{pH 7.38 Exp 3/13} S24-10241102		7.389	22.6
DI		2.032	21.9
pH 2.000		2.003	22.3
1630			
pH 2.000		2.009	22.4
P1200385-1.01		2.153	12.0
↓ -2.01		2.077	11.9
↓ -3.01		2.090	11.5
↓ -4.01		1.946	12.7
P1200386-1.01		2.078	12.9
↓ 2.01		2.146	13.7
↓ 3.01		2.165	13.9
pH 2.000		2.032	22.1

Sample	#	pH	Temp. °C
SPACE NOT USED			
(Remaining rows are crossed out with a diagonal line)			

pH Adjustments: **7196A**: Diluted/Conc H₂SO₄ EMD 49284 EXP: 11/20/14

7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 1/30/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: RI
Reviewer: [Signature]

Date: 2/1/12
Date: 2/2/12



Method EPA 7196A

Service Request#(s): P1200385 ; P1200386
 Stock#: 524-08291102 TU=10 PPM Exp 2/14/12
 ICV/CCV#: 524-10151001 TV=100 PPM Exp 3/10/12

Run#: 278524
 Prep Run#: ✓
 Conc. H₂SO₄ Lot#: EMD 49284 exp 11/20/14
 Coloring Reagent Ref#: 524-01231201 exp 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.99988165
Absorbance @ 540 nm	0	0.011	0.058	0.113	

Sample #	Sample Vol.(mL)	Dilution	pH	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	ICB	10ml	✓	0.000	0.000	0.000	-0.000128	LO.003
2	ICV 0.05 PPM		✓	0.000	0.058	0.058	0.0510	102%
3	MB		✓	0.000	0.000	0.000	-0.000128	LO.003
4	LCS 0.04 PPM		✓	0.000	0.047	0.047	0.0413	103%
5	P1200385-1.01		✓	0.000	0.002	0.002	0.00164	LO.003
6	-1.01 MS 0.05 PPM		✓	0.000	0.058	0.058	0.0510	102% } RPD
7	-1.01 MSD 0.05 PPM		✓	0.000	0.058	0.058	0.0510	102% } RPD
8	-2.01		✓	0.001	0.004	0.003	0.00252	LO.003
9	-2.01 vs 0.03 PPM		✓	0.001	0.038	0.037	0.0325	108%
10	-3.01		✓	0.001	0.003	0.002	0.00164	LO.003
11	-4.01		✓	0.000	0.003	0.003	0.00252	LO.003
12	P1200386 -1.01		✓	0.000	0.003	0.003	0.00252	LO.003
13	CCV 1 0.05 PPM		✓	0.000	0.059	0.059	0.0519	104%
14	CCB 1		✓	0.000	0.001	0.001	0.000754	LO.003
15	P1200386 -1.01 MS 0.05 PPM		✓	0.000	0.059	0.059	0.0519	104% } RPD
16	-1.01 MSD 0.05 PPM		✓	0.000	0.060	0.058	0.0528	106% } RPD
17	-2.01		✓	0.000	0.002	0.002	0.00164	LO.003

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.250 ml of 524-10151001 @ 1.10 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of _____ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of _____ @ 1.10 ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: ET
 Analyzed By: ET
 Reviewed By: [Signature]

Date/Time: 2/1/12 @ 1731
 Date/Time: 2/1/12 @ 1746
 Date: 2/2/12

Method EPA 7196A

Service Request#(s): P1200385 ; P1200386

Run#: 278971

Stock#: S24-08291102 TV=10 PPM Exp 2/24/12

Prep Run#:

ICV/CCV#: S24-10151001 TV=100 PPM Exp 3/20/12

Conc. H₂SO₄ Lot#: FMD 49284 exp 11/20/14

Coloring Reagent Ref#: S24-01231201 exp 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.99988165
Absorbance @ 540 nm	0	0.011	0.058	0.113	

Sample #	Sample Vol.(mL)	Dilution	pH ✓	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	P1200386 - 2.01 vs 0.05 ppm	10mL	✓	0.000	0.036	0.036	0.0316	105%
2	↓ - 3.01	↓	✓	0.001	0.004	0.003	0.00252	<0.003
3	CCV 2 0.05 ppm	↓	✓	0.000	0.058	0.058	0.0510	107%
4	CCB 2	↓	✓	0.000	0.000	0.000	-0.000128	<0.003
5								
6								
7								
8								
9	SPACE NOT USED							
10								
11								
12								
13								
14								
15								
16								
17								

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.250 ml of S24-10151001 @ 1.10 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of S24-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of ↓ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of ↓ @ 1.10 ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: ET
 Analyzed By: ET
 Reviewed By: [Signature]

Date/Time: 2/1/12 @ 1731
 Date/Time: 2/1/12 @ 1746
 Date: 2/2/12

or)

10/6/10
SA

524-10061001 25133 ppb Stock for O3

0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
10146598 ; Exp: 8/11/12 up to 500 ml w/ DI Water.

EXP: 10/20/10

10/6/10
SA

524-10061002 25133 ppb ION/COV for O3

0.05 ml Pyridine-4-carboxaldehyde TCI
(IC91N3) ; Exp: 8/10/12 up to 500 ml w/ DI Water.

EXP: 10/20/10

10/6/10
SA

524-10061003 MBTH Soln

0.5000 g MBTH (Aldrich 54646EK ; Exp: 8/7/14) up to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 44284; EXP 11/20/10

EXP: 10/7/10

10/15/10
SA

524-10151001 Cr6+ ION/COV Stock

Purchased 100 ppm Cr6+
RCCA Chemical Co Cat No 2095-16
500ml Plastic

LOT # 1010177
EXP: 3/20/12

10/15/10
SA

524-10151002 500PPM NO2 Stock

Purchased
RCCA Chemical Co Cat No: 5444.5-4
LOT # 1010271 120ml amber glass

EXP: 4/20/11

5.00

2/21/11 524-02211101 1:1 H₂SO₄
 Sol 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ADDED SLOWLY TO 250ml DI. COOL
 COMPLETELY
 EXP: 2/21/12

2/21/11 524-02211102 Cr6+ Coloring Reagent
 Sol 0.2500g 1,5-naphthylcarbonylhydrazide (EMD Lot 47103721;
 EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
 Lot # 471540; EXP: 9/24/12).
 EXP: 3/21/11

2/28/11 524-02281101 0.1N H₂SO₄
 Sol 5.6ml Conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
 w/ DI H₂O
 EXP: 2/28/12

2/28/11 524-02281102 1001 mg/L Cr6+
 Sol Purchased
 Inorganic Ventures CGCR(6)1-1
 125ml Clear Glass
 Lot# D2-CR03040
 EXP: 3/1/2012

5/19/11
JL

524-05991103 ICD2 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT Baker ^{JT Baker} EM 305041 exp: 6/15/15) in 100 mL Methanol (B&J AD806 exp: 5/17/16). Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H2SO4 (EMD 44284 exp: 11/20/14). Bring up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JL

524-05201101 PH 2.000 BUFFER
purchased

BDH CAT. No. BDH 5010-500 mL
LOT# 1101225
EXP: 12/2012

8/20/11
JL

524-05201102 PH 4.000 BUFFER
purchased

JT Baker CAT# 5657-01 500mL
LOT# J36503
EXP: 9/30/12

12/2/11
JL

524-05201103 pH 7.38 BUFFER
purchased

BDH CAT# BDH5058-500mL
LOT# 1103361
EXP: 3/2013

8/24/11 S24-08241101 Sulfanilamide Soln
Ja 5.00g Sulfanilamide (JT Baker; Lot # J32618;
EXP: 1/6/16) DISSOLVED IN 50ml Conc HCl
(EMD 49260; EXP: 2/7/16) ↑ 500ml w/ DI H₂O
EXP: 8/24/12

8/24/11 S24-08241102 NEDA Soln
Ja 0.2500g N-1-Naphthylethylenediamine dihydrochloride
(JT BAKER H22587; EXP: 10/19/14) ↑ 250ml w/ DI
H₂O.
EXP: 2/24/12

8/29/11 S24-08291101 0.1N H₂SO₄
Ja 5.6ml Conc H₂SO₄ (EMD 49984; EXP: 11/20/14)
↑ 2L w/ DI H₂O
EXP: 8/29/12

8/29/11 S24-08291102 10PPM Cr6+ Std
Ja 1.0ml S24-02281102 (1000PPM Cr6+; EXP: 3/1/12)
↑ 100ml w/ DI H₂O
EXP: 2/28/12

9/6/11 S24-09061101 Cr6+ Coloring Reagent
Ja 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker J05641;
EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD 47154D
EXP: 9/24/12).
EXP: 10/6/11

Reviewed And Approved By:
Initial: KE Date: 9/2/11

10/17/11 S24-10171102 1000PPM NH3
JW 0.3141 g NH4Cl (END 4919893, EXP: 10/19/14) ↑ 100ml
10/ S24-10171101 (0.1M NH2SH4 EXP: 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 IL02 Eluent
JW 100 ml of S24-09201103 (10x conc Eluent, EXP: 9/20/12)
↑ 1L w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
JW Purchased
BDH Cat No: BDH5046 - 500ml
LOT # 1107491
EXP: 7/2013

10/24/11 S24-10241101 PH 4.000 Buffer
JW Purchased
JT Baker Cat No: 5657-01 500ml
LOT # K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
JW Purchased
BDH Cat No: BDH6058 - 500ml
LOT # 1109034
EXP: 8/2013

10/24/11
Sv
524-10241103 PH 10.000 Buffer
Purchased
JT Baker Cat no: 5655-01
Lot # K07507
Exp: 2/28/13

10/25/11
Sv
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 951211 475 mL
Lot # PW1 P/N 207475-A01
Exp: 10/25/12

10/25/11
Sv
524-10251102 A, B, C, D, E PH Filling Soln
Purchased
Thermo Scientific Orion 810007 5 pack 60 mL
Lot: PS1
Exp: 10/25/12

11/1/11
Sv
524-11011101 IC02 Eluent
100 mL 524-09201103 (10x conc eluent. Exp:
9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
Exp: 11/15/11

11/1/11
Sv
524-11011102 IC02 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EM JT BAKER JO5641
exp: 6/15/15) in 100 mL Methanol (B&J DE 932 exp: 10/12/16
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD 44284 exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas.

Exp: 11/6/14

1/23/12 S24-01231201 Cr6+ Coloring Reagent

0.2500g 1,5-Diphenylcarbohydrazide (JT Baker

LOT J05641) T 50ml w/ Acetone (EMD lot 47154

EXP: 9/24/12

EXP: 2/23/12

11
JAM
3C08
1.00

or)

5.00

LABORATORY REPORT

February 14, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: JPL-GW-2Q12 / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 1, 2012. For your reference, these analyses have been assigned our service request number P1200386.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 5:03 pm, Feb 14, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: JPL-GW-2Q12 / 100006114

CAS Project No: P1200386

CASE NARRATIVE

The samples were received intact under chain of custody on February 1, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: JPL-GW-2Q12 / 100006114

Service Request: P1200386

Date Received: 2/1/2012
 Time Received: 15:56

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-8	P1200386-001	Water	2/1/2012	09:00	X
MW-5	P1200386-002	Water	2/1/2012	10:54	X
MW-10	P1200386-003	Water	2/1/2012	13:43	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Water & Soil - Chain of Custody Record & Analytical Service Request

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P12003586
 CAS Contact: _____

Company Name & Address (Reporting Information)
Battelle
 505 Kings Ave
 Columbus OH 43201

Project Name: SP1-6W-2011
 Project Number: 100006114

Project Manager: David Conner
 P.O. # / Billing Information: 285651 / Battelle
505 Kings Ave

Phone: 619 726-7311 Fax: 614 458-6641
 Email Address for Result Reporting: connerd@battelle.org
 Sampler (Print & Sign): David Conner / David &

Client Sample ID: MW-8 Laboratory ID Number: 1 Date Collected: 2-1-12 Time Collected: 0900 Matrix: AA Number of Containers: 1P

MW-5 Laboratory ID Number: 2 Date Collected: 2-1-12 Time Collected: 1054 Matrix: AA Number of Containers: 1P

MW-10 Laboratory ID Number: 3 Date Collected: 2-1-12 Time Collected: 1343 Matrix: AA Number of Containers: 1P

Analysis Method and/or Analytes	Preservative Code	
	Code	Code
Volatile Organics GC/MS 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/> TPH Gas 8015B <input type="checkbox"/> BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/> TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted) TPH FC <input type="checkbox"/> 8015M (Subcontracted)		
Semi-Volatile Organics GC/MS 625 <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)		
<u>Hexavalent Cr 7196</u>	<u>0</u>	<u>0</u>

Project Requirements (MRLs, QAPP)
 Tier I - (Results/Default if not specified) _____
 Tier II - (Results + QC) _____
 Tier III - (Data Validation Package) 10% Surcharge
 Tier V - (client specified) _____

MRL required Yes / No _____
 MDL / PCL / J required Yes / No _____
 EDD required Yes / No _____
 Type: _____

Project Requirements (MRLs, QAPP)
 Cooler Blank / Ice / No Ice
 Temperature 3 °C

Report Tier Levels - please select

Relinquished by: (Signature) [Signature] Date: 2/1/12 Time: 1430 Received by: (Signature) [Signature] Date: 2/1/12 Time: 1512

Relinquished by: (Signature) [Signature] Date: 2/1/12 Time: 1556 Received by: (Signature) [Signature] Date: 2/1/12 Time: 1556

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: JPL-GW-2Q12/100006114

Service Request: P1200386

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200386-001.01	7196A	2/1/12	1612	SMO / MZAMORA	
		2/1/12	1612	P-37 / MZAMORA	
		2/1/12	1622	In Lab / EIBARRA	
		2/2/12	0849	P-37 / EIBARRA	
		2/3/12	0916	P-Disposed / RMARTENIES	
P1200386-002.01	7196A	2/1/12	1612	SMO / MZAMORA	
		2/1/12	1612	P-37 / MZAMORA	
		2/1/12	1622	In Lab / EIBARRA	
		2/2/12	0849	P-37 / EIBARRA	
		2/3/12	0916	P-Disposed / RMARTENIES	
P1200386-003.01	7196A	2/1/12	1612	SMO / MZAMORA	
		2/1/12	1612	P-37 / MZAMORA	
		2/1/12	1622	In Lab / EIBARRA	
		2/2/12	0849	P-37 / EIBARRA	
		2/3/12	0916	P-Disposed / RMARTENIES	

Sample Acceptance Check Form

Client: Battelle Work order: P1200386
 Project: JPL-GW-2Q12 / 100006114
 Sample(s) received on: 2/1/12 Date opened: 2/1/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|----|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | Wet Ice | | | |
| 9 | Was a trip blank received? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10 | Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 | Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 | Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200386-001.01	125mL Plastic NP					
P1200386-002.01	125mL Plastic NP					
P1200386-003.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

Analytical Report

Client : Battelle
 Project Name : JPL-GW-2Q12
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200386
 Date Collected : 02/01/12
 Date Received : 02/01/12

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-8	P1200386-001	0.01	0.003	1	NA	02/01/12 17:46	ND	
MW-5	P1200386-002	0.01	0.003	1	NA	02/01/12 17:46	ND	
MW-10	P1200386-003	0.01	0.003	1	NA	02/01/12 17:46	ND	
Method Blank	P1200386-MB	0.01	0.003	1	NA	02/01/12 17:46	ND	

Approved By Kam Rya Date : 2/6/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: JPL-GW-1Q12 / 100006114

Service Request: P1200386
Date Analyzed: 02/01/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By: _____

Kanu Rya

Date: _____

2/6/12

ICCBMDL120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: JPL-GW-1Q12 / 100006114

Service Request: P1200386
Date Analyzed: 02/01/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0510	102	90-110
CCV1	0.0500	0.0519	104	90-110
CCV2	0.0500	0.0510	102	90-110

Approved By: Kanu Rya Date: 2/6/12
CCV1A/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : JPL-GW-2Q12
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200386
Date Collected : NA
Date Received : NA
Date Extracted : NA
Date Analyzed : 02/01/12

Laboratory Control Sample Summary
Inorganic Parameters

Sample Name : Laboratory Control Sample
Lab Code : P1200386-LCS
Test Notes :

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0413	103	90-110	

Approved By Karu Rya Date : 2/1/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : JPL-GW-2Q12
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200386
Date Collected : 02/01/12
Date Received : 02/01/12
Date Extracted : NA
Date Analyzed : 02/01/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-8
Lab Code : P1200386-001MS
Test Notes :

P1200386-001DMS

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.01	0.0500	0.0500	ND	0.0519	0.0528	104	106	73-119	2	

Approved By Kam Rya Date : 2/6/12

pH Run Log

Service Request #(s): P1200385 ; P1200386

Time: 15 25

Sample	VWR lot #	Exp.
pH 2 Buffer	S24-05201101	12/2012
pH 4 Buffer	S24-05201102	9/30/12
pH 7 Buffer	S24-10211101	7/2013
pH 10 Buffer	S24-10241103	2/28/13

Slope	Prep.Run #
99.0%	—
	Run#
	—

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # In column labeled #)

Sample	#	pH	Temp. °C
pH 2.000	3	2.010	22.2
pH 4.000		4.006	22.3
pH 7.000		7.007	22.3
pH 10.000		10.001	22.6
Ref#: ^{pH 7.38 Exp 3/13} S24-10241102		7.389	22.6
DI		2.032	21.9
pH 2.000		2.003	22.3
1630			
pH 2.000		2.009	22.4
P1200385-1.01		2.153	12.0
↓ -2.01		2.077	11.9
↓ -3.01		2.090	11.5
↓ -4.01		1.946	12.7
P1200386-1.01		2.078	12.9
↓ 2.01		2.146	13.7
↓ 3.01		2.165	13.9
pH 2.000		2.032	22.1

Sample	#	pH	Temp. °C
SPACE NOT USED			

pH Adjustments: **7196A**: Diluted/Conc H₂SO₄ EMD 49284 EXP: 11/20/14

7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 1/30/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: RI
Reviewer: [Signature]

Date: 2/1/12
Date: 2/2/12

Method EPA 7196A

Service Request#(s): P1200385 ; P1200386
 Stock#: 524-08291102 TU=10 PPM Exp 2/14/12
 ICV/CCV#: 524-10151001 TV=100 PPM Exp 3/10/12

Run#: 278524
 Prep Run#: ✓
 Conc. H₂SO₄ Lot#: EMD 49284 exp 11/20/14
 Coloring Reagent Ref#: 524-01231201 exp 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.99988165
Absorbance @ 540 nm	0	0.011	0.058	0.113	

Sample #	Sample Vol.(mL)	Dilution	pH ✓	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	ICB	10ml	✓	0.000	0.000	0.000	-0.000128	LO.003
2	ICV 0.05 PPM		✓	0.000	0.058	0.058	0.0510	102%
3	MB		✓	0.000	0.000	0.000	-0.000128	LO.003
4	LCS 0.04 PPM		✓	0.000	0.047	0.047	0.0413	103%
5	P1200385-1.01		✓	0.000	0.002	0.002	0.00164	LO.003
6	-1.01 MS 0.05 PPM		✓	0.000	0.058	0.058	0.0510	102% } RPD
7	-1.01 MSD 0.05 PPM		✓	0.000	0.058	0.058	0.0510	102% } RPD
8	-2.01		✓	0.001	0.004	0.003	0.00252	LO.003
9	-2.01 vs 0.03 PPM		✓	0.001	0.038	0.037	0.0325	108%
10	-3.01		✓	0.001	0.003	0.002	0.00164	LO.003
11	-4.01		✓	0.000	0.003	0.003	0.00252	LO.003
12	P1200386 -1.01		✓	0.000	0.003	0.003	0.00252	LO.003
13	CCV 1 0.05 PPM		✓	0.000	0.059	0.059	0.0519	104%
14	CCB 1		✓	0.000	0.001	0.001	0.000754	LO.003
15	P1200386 -1.01 MS 0.05 PPM		✓	0.000	0.059	0.059	0.0519	104% } RPD
16	-1.01 MSD 0.05 PPM		✓	0.000	0.060	0.058	0.0528	106% } RPD
17	-2.01		✓	0.000	0.002	0.002	0.00164	LO.003

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.250 ml of 524-10151001 @ 1.10 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of _____ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of _____ @ 1.10 ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: ET
 Analyzed By: ET
 Reviewed By: [Signature]

Date/Time: 2/1/12 @ 1731
 Date/Time: 2/1/12 @ 1746
 Date: 2/2/12

Method EPA 7196A

Service Request#(s): P1200385 ; P1200386

Run#: 278971

Stock#: S24-08291102 TV=10 PPM Exp 2/24/12

Prep Run#:

ICV/CCV#: S24-10151001 TV=100 PPM Exp 3/20/12

Conc. H₂SO₄ Lot#: FMD 49284 exp 11/20/14

Coloring Reagent Ref#: S24-01231201 exp 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.99988165
Absorbance @ 540 nm	0	0.011	0.058	0.113	

Sample #	Sample Vol.(mL)	Dilution	pH ✓	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	P1200386 - 2.01 vs 0.05 ppm	10mL	✓	0.000	0.036	0.036	0.0316	105%
2	↓ - 3.01	↓	✓	0.001	0.004	0.003	0.00252	< 0.003
3	CCV 2 0.05 ppm	↓	✓	0.000	0.058	0.058	0.0510	102%
4	CCB 2	↓	✓	0.000	0.000	0.000	-0.000128	< 0.003
5								
6								
7								
8								
9	SPACE NOT USED							
10								
11								
12								
13								
14								
15								
16								
17								

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.250 ml of S24-10151001 @ 1.10 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of S24-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of ↓ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of ↓ @ 1.10 ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: ET
 Analyzed By: ET
 Reviewed By: [Signature]

Date/Time: 2/1/12 @ 1731
 Date/Time: 2/1/12 @ 1746
 Date: 2/2/12

or)

10/6/10
SA

524-10061001 25133 ppb Stock for O3

0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
10146598 ;Exp: 8/11/12 up to 500 ml w/ DI Water.

EXP: 10/20/10

10/6/10
SA

524-10061002 25133 ppb ION/COV for O3

0.05 ml Pyridine-4-carboxaldehyde TCI
(IC91N3) ;Exp: 8/10/12 up to 500 ml w/ DI Water.

EXP: 10/20/10

10/6/10
SA

524-10061003 MBTH Soln

0.5000 g MBTH (Aldrich 54646EK ;Exp: 8/7/14) up to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 44284; EXP 11/20/10

EXP: 10/7/10

10/15/10
SA

524-10151001 Cr6+ ION/COV Stock

Purchased 100ppm Cr6+
RCCA Chemical Co Cat No 2095-16
500ml Plastic

LOT # 1010177
EXP: 3/20/12

10/15/10
SA

524-10151002 500ppm NO2 Stock

Purchased
RCCA Chemical Co Cat No: 5444.5-4
LOT # 1010271 120ml amber glass

EXP: 4/20/11

5.00

2/21/11 524-02211101 1:1 H₂SO₄
 Sol 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ADDED SLOWLY TO 250ml DI. COOL
 COMPLETELY
 EXP: 2/21/12

2/21/11 524-02211102 Cr6+ Coloring Reagent
 Sol 0.2500g 1,5-naphthylcarbonylhydrazide (EMD Lot 47103721;
 EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
 Lot # 471540; EXP: 9/24/12).
 EXP: 3/21/11

2/28/11 524-02281101 0.1N H₂SO₄
 Sol 5.6ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
 w/ DI H₂O
 EXP: 2/28/12

2/28/11 524-02281102 1001 mg/L Cr6+
 Sol purchased
 Inorganic Ventures CGCR(6)1-1
 125ml Clear Glass
 Lot# D2-CR03040
 EXP: 3/1/2012

5/19/11
JL

524-05991103

IC02 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT Baker ^{JT Baker} EM 305041 exp: 6/15/15) in 100 mL Methanol (B&J AD806 exp: 5/17/16). Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H2SO4 (EMD 44284 exp: 11/20/14). Bring up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JL

524-05201101

pH 2.000 BUFFER

Purchased

BDH CAT. No. BDH 5010-500 mL

LOT# 1101225

EXP: 12/2012

8/20/11
JL

524-05201102

pH 4.000 BUFFER

Purchased

JT Baker CAT# 5657-01 500mL

LOT# J36503

EXP: 9/30/12

10/22/11
JL

524-05201103

pH 7.38 BUFFER

Purchased

BDH CAT# BDH5058-500mL

LOT# 1103361

EXP: 3/2013

8/24/11 S24-08241101 Sulfanilamide Soln
Ja 5.00g Sulfanilamide (JT Baker; Lot # J32618;
EXP: 1/6/16) DISSOLVED IN 50ml Conc HCl
(EMD 49260; EXP: 2/7/16) ↑ 500ml w/ DI H₂O
EXP: 8/24/12

8/24/11 S24-08241102 NEDA Soln
Ja 0.2500g N-1-Naphthylethylenediamine dihydrochloride
(JT BAKER H22587; EXP: 10/19/14) ↑ 250ml w/ DI
H₂O.
EXP: 2/24/12

8/29/11 S24-08291101 0.1N H₂SO₄
Ja 5.6ml Conc H₂SO₄ (EMD 49984; EXP: 11/20/14)
↑ 2L w/ DI H₂O
EXP: 8/29/12

8/29/11 S24-08291102 10PPM Cr6+ Std
Ja 1.0ml S24-02281102 (1000PPM Cr6+; EXP: 3/1/12)
↑ 100ml w/ DI H₂O
EXP: 2/28/12

9/6/11 S24-09061101 Cr6+ Coloring Reagent
Ja 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker J05641;
EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD 47154D
EXP: 9/24/12).
EXP: 10/6/11

Reviewed And Approved By:

Initial: KE Date: 9/21/11

10/17/11 S24-10171102 1000PPM NH3
JW 0.3141 g NH4Cl (END 4919893, EXP: 10/19/14) ↑ 100ml
10/ S24-10171101 (0.1M NH2SH4 EXP: 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 ILO2 Eluent
JW 100 ml of S24-09201103 (10x conc Eluent, EXP: 9/20/12)
↑ 1L w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
JW Purchased
BDH Cat No: BDH5046-500ml
LOT# 1107491
EXP: 7/2013

10/24/11 S24-10241101 PH 4.000 Buffer
JW Purchased
JT Baker Cat No: 5657-01 500ml
LOT# K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
JW Purchased
BDH Cat No: BDH6058-500ml
LOT# 1109034
EXP: 8/2013

10/24/11
Sv
524-10241103 PH 10.000 Buffer
Purchased
JT Baker Cat no: 5655-01
Lot # K07507
Exp: 2/28/13

10/25/11
Sv
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475 mL
Lot # PW1 P/N 207475-A01
Exp: 10/25/12

10/25/11
Sv
524-10251102 A, B, C, D, E PH Filling Soln
Purchased
Thermo Scientific Orion 810007 5 pack 60 mL
Lot: PS1
Exp: 10/25/12

11/1/11
Sv
524-11011101 IC02 Eluent
100 mL 524-09201103 (10x conc eluent. Exp:
9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
Exp: 11/15/11

11/1/11
Sv
524-11011102 IC02 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EM JT BAKER JO5641
exp: 6/15/15) in 100 mL Methanol (B&J DE 932 exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD 44284 exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas.

Exp: 11/6/14

1/23/12 S24-01231201 Cr6+ Coloring Reagent

0.2500g 1,5-Diphenylcarbohydrazide (JT Baker

LOT J05641) T 50ml w/ Acetone (EMD lot 47154

EXP: 9/24/12

EXP: 2/23/12

11
JAM
3C08
1.00

or)

5.00

LABORATORY REPORT

February 15, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 2, 2012. For your reference, these analyses have been assigned our service request number P1200395.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200395

CASE NARRATIVE

The samples were received intact under chain of custody on February 2, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114
 Date Received: 2/2/2012
 Time Received: 13:30

Service Request: P1200395

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-17-4	P1200395-001	Water	2/2/2012	09:01	X
MW-17-3	P1200395-002	Water	2/2/2012	09:35	X
MW-17-2	P1200395-003	Water	2/2/2012	10:25	X
EB-4-2/2/12	P1200395-004	Water	2/2/2012	10:15	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



2655 Park Center Drive, Suite A
 Simi Valley, California 91365
 Phone (805) 526-7161
 Fax (805) 526-7270

Water & Soil - Chain of Custody Record & Analytical Service Request

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P1200395
 CAS Contact:

Company Name & Address (Reporting Information)				Project Name		Project Number		Analysis Method and/or Analytes		Preservative Code		Preservative Key			
BATTLE 3990 OLD TOWN AVE., C-205 SAN DIEGO, CA 92115				1012 JPL CW MW		10000 6114						0 None 1 HCL 2 HNO3 3 H2SO4 4 NaOH 5 Zn Acetate 6 Asc Acid 7 Other			
Project Manager DAVID CONNER Phone (619) 726-7311 Fax (619) 458-6614 Email Address for Result Reporting: <u>Conner.D@battle.com</u>				PO # / Billing Information 285651 BATTLE / CONNER TOWNHOMES 505 KING AVE CARLSBAD CA 92001											
Client Sample ID MW-17-4 MW-17-3 MW-17-2 EB-4 - 2 / 2/12				Laboratory ID Number D 3 3 4		Date Collected 2/2/12 1025 1025 2/2/12		Time Collected 0901 1025 1015		Matrix AQ ↓ ↓ ↓		Number of Containers 1 1 1 1			
Volatile Organics GC/MS 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/>				TPH Gas 8015B <input type="checkbox"/> BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/>				TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted)				TPH FC <input type="checkbox"/> 8015M (Subcontracted)			
Semi-Volatile Organics GC/MS 625 <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)				C ₆ VI (7196)											
Remarks EQUIP. BLANK LEAK II GC															

Report Tier Levels - please select

Tier I - (Results/Default if not specified) _____ Tier III - (Data Validation Package) 10% Surcharge _____
 Tier II - (Results + QC) _____ Tier V - (Client specified) _____

MRL required Yes / No _____ MDL / PQL / J required Yes / No _____
 EDD required Yes / No _____ Type: _____

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature) [Signature] Date: 2/2/12 Time: 1200
 Relinquished by: (Signature) [Signature] Date: 2/2/12 Time: 1330
 Relinquished by: (Signature) [Signature] Date: _____ Time: _____
 Relinquished by: (Signature) [Signature] Date: _____ Time: _____

Cooler / Blank / Ice / No Ice Blank Ice
 Temperature 3 °C

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200395

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200395-001.01	7196A	2/2/12	1351	SMO / MZAMORA	
		2/2/12	1351	P-37 / MZAMORA	
		2/2/12	1403	In Lab / EIBARRA	
		2/2/12	1558	P-37 / EIBARRA	
		2/3/12	0917	P-Disposed / RMARTENIES	
P1200395-002.01	7196A	2/2/12	1351	SMO / MZAMORA	
		2/2/12	1351	P-37 / MZAMORA	
		2/2/12	1403	In Lab / EIBARRA	
		2/2/12	1558	P-37 / EIBARRA	
		2/3/12	0917	P-Disposed / RMARTENIES	
P1200395-003.01	7196A	2/2/12	1351	SMO / MZAMORA	
		2/2/12	1351	P-37 / MZAMORA	
		2/2/12	1403	In Lab / EIBARRA	
		2/2/12	1558	P-37 / EIBARRA	
		2/3/12	0917	P-Disposed / RMARTENIES	
P1200395-004.01	7196A	2/2/12	1351	SMO / MZAMORA	
		2/2/12	1351	P-37 / MZAMORA	
		2/2/12	1403	In Lab / EIBARRA	
		2/2/12	1558	P-37 / EIBARRA	
		2/3/12	0917	P-Disposed / RMARTENIES	

Sample Acceptance Check Form

Client: Battelle Work order: P1200395
 Project: 1Q12 JPL GW Mon / 100006114
 Sample(s) received on: 2/2/12 Date opened: 2/2/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Wet Ice | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ | | | <input checked="" type="checkbox"/> |
| Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ | | | <input checked="" type="checkbox"/> |
| Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200395-001.01	125mL Plastic NP					
P1200395-002.01	125mL Plastic NP					
P1200395-003.01	125mL Plastic NP					
P1200395-004.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

Analytical Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200395
 Date Collected : 02/02/12
 Date Received : 02/02/12

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-17-4	P1200395-001	0.010	0.003	1	NA	02/02/12 15:20	ND	
MW-17-3	P1200395-002	0.010	0.003	1	NA	02/02/12 15:20	ND	
MW-17-2	P1200395-003	0.010	0.003	1	NA	02/02/12 15:20	ND	
EB-4-2/2/12	P1200395-004	0.010	0.003	1	NA	02/02/12 15:20	ND	
Method Blank	P1200395-MB	0.010	0.003	1	NA	02/02/12 15:20	ND	

Approved By *Kam Rye* Date : 2/6/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200395
Date Analyzed: 02/02/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND

Approved By: Karen Rya
ICCBMDL/120594

Date: 2/6/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200395
Date Analyzed: 02/02/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0491	98	90-110
CCV1	0.0500	0.0499	100	90-110

Approved By:
CCV1A/120594

Kanu Rya

Date:

2/6/12

QA/QC Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200395
 Date Collected : NA
 Date Received : NA
 Date Extracted : NA
 Date Analyzed : 02/02/12

Laboratory Control Sample Summary
 Inorganic Parameters

Sample Name : Laboratory Control Sample
 Lab Code : P1200395-LCS
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0396	99	90-110	

Approved By Karu Rya Date : 2/10/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200395
Date Collected : 02/02/12
Date Received : 02/02/12
Date Extracted : NA
Date Analyzed : 02/02/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-17-4 Units : mg/L (ppm)
 Lab Code : P1200395-001MS P1200395-001DMS Basis : NA
 Test Notes :

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0482	0.0499	96	100	73-119	3	

Approved By *Kanu Rya* Date : 2/16/12

pH Run Log

Service Request #(s): P1200395

Time: 1247

Sample	VWR lot #	Exp.
pH 2 Buffer	524-05201101	12/2012
pH 4 Buffer	524-05201102	9/30/12
pH 7 Buffer	524-10211101	7/2013
pH 10 Buffer	524-10241103	2/28/13

Slope	Prep.Run #
} 98.5%	—
	Run#
	—

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # In column labeled #)

Sample	#	pH	Temp. °C	Sample	#	pH	Temp. °C
pH 2.000	3	1.991	21.8°				
pH 4.000	↓	3.991	21.9°				
pH 7.000	↓	6.995	21.9°				
pH 10.000	↓	9.998	22.2°				
Ref#: <u>7199 Exp: 8/2013</u> <u>524-10241102</u>	3	7.388	22.2°			SPACE NOT USED	
DI		2.038	21.3°				
pH 2.000	↓	1.990	21.8°				
TIME: 1405	DI						
pH 2.000	3	2.001	22.2				
P1200395-031.01	↓	2.140	9.2				
- 2.01	↓	2.152	9.8				
- 3.01	↓	2.121	10.8				
↓ - 4.01	↓	1.994	11.3				
pH 2.000	↓	2.035	21.9				

pH Adjustments: **7196A:** Diluted/Conc H₂SO₄ QMD 49284 EXP: 11/20/14

7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 1/30/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: SK / EF
Reviewer: PR

Date: 2/2/12
Date: 2/12/12

Method EPA 7196A

Service Request#(s): P1200395
 Stock#: 524-0824102 T.V.=100PPM EXP: 2/29/12
 ICV/CCV#: 524-10151001 T.V.=100PPM EXP: 3/30/12

Run#: 278635
 Prep Run#: _____
 Conc. H₂SO₄ Lot#: EMD 49384 EXP: 11/30/14
 Coloring Reagent Ref#: 524-01231201 EXP: 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.99944181
Absorbance @ 540 nm	0	0.012	0.058	0.116	

EE 2/2/12

Sample #	Sample Vol.(mL)	Dilution	pH ✓	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1 ICB	10mL	-	✓	0.000	0.000	0.000	-0.000153	20.003
2 ICV 0.05 ppm		-	✓	0.000	0.057	0.057	0.0491	98%
3 MB		-	✓	0.000	0.000	0.000	0.000153	20.005
4 LCS 0.04 ppm		-	✓	0.000	0.046	0.046	0.0376	99%
5 P1200395 - 1.01		-	✓	0.001	0.001	0.000	-0.000153	20.003
6 - 1.01 MS ppm		-	✓	0.001	0.057	0.056	0.0482	98% RPD
7 - 1.01 MSD ppm		-	✓	0.001	0.058	0.058	0.0499	100% 37
8 - 2.01		-	✓	0.002	0.003	0.001	0.000710	20.003
9 - 2.01 VS ppm		-	✓	0.002	0.036	0.034	0.0292	97%
10 - 3.01		-	✓	0.000	0.002	0.002	0.00157	20.003
11 - 4.01		-	✓	0.000	0.000	0.000	-0.000153	20.005
12 CCV 1 0.05 ppm		-	✓	0.000	0.058	0.058	0.0499	100%
13 CCB 1		-	✓	0.000	0.000	0.000	-0.000153	20.005
14								
15							SPACE NOT USED	
16								
17								

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.25 ml of 524-10151001 @ 1:10 ↑ 50 ml of pH adjusted DI WATER (T.V.=0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-0824102 ↑ 10 ml of pH adjusted sample (T.V.=0.05 ppm)

LCS spiked with 0.2 ml of 524-0824102 ↑ 50 ml of pH adjusted DI Water (T.V.=0.04 ppm)

Verification Standard Spiked 0.3 ml of ↓ @ 1:10 ↑ 10 ml of sample (T.V.=0.05 ppm)

Comments:

Prepared By: EE
 Analyzed By: EE
 Reviewed By: [Signature]

Date/Time: 2/2/12 @ 1505
 Date/Time: 2/2/12 @ 1520
 Date: 2/2/12

10/6/10
SA

524-10061001 25133ppb Stock for O3

0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
10146598 ; Exp: 8/11/12 up to 500 ml w/ DI Water.

EXP: 10/20/10

10/6/10
SA

524-10061002 25133ppb ION/COV for O3

0.05 ml Pyridine-4-carboxaldehyde TEI
(IC9INE ; Exp: 8/10/12) up to 500 ml w/ DI Water.

EXP: 10/20/10

10/6/10
SA

524-10061003 MBTH 50/17

0.5000 g MBTH (Aldrich 54666EK ; Exp: 8/7/14) up to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 49254; EXP 11/20

EXP: 10/7/10

10/15/10
SA

524-10151001 Cr6+ ION/COV Stock

Purchased Ricca Chemical Co Cut No 2095-16
500ml Plastic

LOT # 1010177
EXP: 3/20/12

10/15/10
SA

524-10151002 500PPM NO2 Stock

Purchased Ricca Chemical Co Cut No: 5444-5-4
LOT # 1010271
120ml amber glass

EXP: 4/20/11

5.00

2/21/11 524-0221101 1:1 H₂SO₄
 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ADDED SLOWLY TO 250ml DI. COOL
 COMPLETELY
 EXP: 2/21/12

2/21/11 524-0221102 Cr6+ Coloring Reagent
 0.2500g 1,5-diphenylcarbohydrazide (EMD lot 4710372);
 EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
 LOT #471540; EXP: 9/30/12).
 EXP: 3/31/11

2/28/11 524-0228101 0.1N H₂SO₄
 5.6 ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
 w/ DI H₂O
 EXP: 2/28/12

2/28/11 524-0228102 1001^{mg/L} Cr6+
 purchased
 Inorganic Ventures CGCR(6)1-1
 125ml Clear Glass
 LOT# D2-CR03040
 EXP: 3/1/2012

5/19/11
JL

524-05191103 IC02 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT Baker ^{JT Baker} Lot # 305641 exp: 6/15/16) in 100 mL Methanol (B&J #0806 exp: 5/17/16). Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H2SO4 (EMD #4284 exp: 11/20/17). Bring up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JL

524-05201101 PH 2.000 BUFFER
purchased

BDH CAT. No. BDH 5010-500 mL
LOT # 1101225
EXP: 12/2012

8/20/11
JL

524-05201102 PH 4.000 BUFFER
purchased

JT Baker CAT # 5657-01 500 mL
LOT # J36503
EXP: 9/30/12

8/22/11
JL

524-05201103 pH 7.38 BUFFER
purchased

BDH CAT # BDH5058-500 mL
LOT # 1103361
EX: 3/2013

8/24/11 S24-08241101 Sulfanilamide Soln
 Ja 5.00g Sulfanilamide (JT Baker; Lot# J32618;
 EXP: 1/6/16) DISSOLVED IN 50ml Conc HCl
 (EMD 49260 EXP: 2/7/16) ↑ 500ml w/ DI H₂O
 EXP: 8/24/12

8/24/11 S24-08241102 NEDA Soln
 Ja 0.2500g N-1-Naphthylethylenediamine dihydrochloride
 (JT BAKER H22587, EXP: 10/19/14) ↑ 250ml w/ DI
 H₂O.
 EXP: 2/24/12

8/29/11 S24-08291101 0.1N H₂SO₄
 Ja 5.6ml Conc H₂SO₄ (EMD 49984; EXP: 11/20/14)
 ↑ 2L w/ DI H₂O
 EXP: 8/29/12

8/29/11 S24-08291102 10PPM Cr6+ Std
 Ja 1.0ml S24-02281102 (1000PPM Cr6+; EXP: 3/1/12)
 ↑ 100ml w/ DI H₂O
 EXP: 3/28/12

9/6/11 S24-09061101 Cr6+ Coloring Reagent
 Ja 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker J05641;
 EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD 47154D
 EXP: 9/24/12).
 EXP: 10/6/11

Reviewed And Approved By:
 Initial: ke Date: 9/24/11

10/17/11 524-10171102 1000PPM NH3
0.3141 g NH4Cl (EMD 49198931; EXP: 10/19/14) ↑ 100ml
w/ 524-10171101 (0.1M NH2SO4 EXP: 10/17/12)
EXP: 4/17/12

10/17/11 524-10171103 ILO2 Eluent
100 ml of 524-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1/2 w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 524-10211101 PH 7.000 Buffer
Purchased
BDH Cat No: BDH5046-500ml
LOT# 1107491
EXP: 7/20/13

10/24/11 524-10241101 PH 4.000 Buffer
Purchased
JT Baker Cat No: 5657-01 500ml
LOT# K04505
EXP: 2/28/13

10/24/11 524-10241102 PH 7.38 Buffer
Purchased
BDH Cat No BDH5058-500ml
LOT# 1109034
EXP: 8/20/13

10/24/11
Sv
524-10241103 PH 10.000 Buffer
Purchased
JT Baker Cat no: 5655-01
LOT # K07507
EXP: 2/28/13

10/25/11
Sv
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 951211 475 mL
LOT # PW1 P/N 207475-A01
EXP: 10/25/12

10/25/11
Sv
524-10251102 A, B, C, D, E PH Filling Sol'n
Purchased
Thermo Scientific Orion 810007 5 pack/bottle
LOT: PS1
EXP: 10/25/12

11/1/11
Sv
524-11011101 ICO2 Eluent
100 ml 524-09201103 (10x conc eluent. exp:
9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
EXP: 11/15/11

11/1/11
Sv
524-11011102 ICO2 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD JT BAKER JO5641
exp: 11/15/11) in 100 mL Methanol (B&J DE 932 exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD 44254 exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas. EXP: 11/6/11

1/23/12 S24-01231201 Cr6+ Coloring Reagent

0.2500g 1,5-Diphenylcarbohydrazide JT Baker

LOT J05641) T 50ml w/ Acetone (EMD LOT 47154
EXP 6/15/11)

EXP: 9/24/12

EXP: 2/23/12

L1
JAM
3C08
1.00

or)

5.00

LABORATORY REPORT

February 17, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 6, 2012. For your reference, these analyses have been assigned our service request number P1200435.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 4:30 pm, Feb 17, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200435

CASE NARRATIVE

The samples were received intact under chain of custody on February 6, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114
 Date Received: 2/6/2012
 Time Received: 14:52

Service Request: P1200435

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-4-3	P1200435-001	Water	2/6/2012	09:30	X
MW-4-2	P1200435-002	Water	2/6/2012	10:04	X
MW-4-1	P1200435-003	Water	2/6/2012	10:40	X
EB-6-2/6/12	P1200435-004	Water	2/6/2012	10:33	X
MW-3-4	P1200435-005	Water	2/6/2012	11:41	X
MW-3-3	P1200435-006	Water	2/6/2012	12:05	X
MW-3-2	P1200435-007	Water	2/6/2012	12:30	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



Columbia Analytical Services
 2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Water & Soil - Chain of Custody Record & Analytical Service Request

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P12002435
 CAS Contact:

Company Name & Address (Reporting Information)
 BATELUE
 3990 ONE TOWN AVE, C-1255
 SAN DIEGO, CA 92110

Project Name
 1012 JOLIN NW

Project Number
 100006114

Project Manager
 DAVID CANNER

Phone
 (619) 726-7311

Fax
 (619) 455-6814

P.O. # / Billing Information
 285651
 BATELUE LEGARD TOWN
 535 LEGARD AVE

Email Address for Result Reporting
 Conced@battalues.com

Sampler (Print & Sign)
 CHASSIS BATELUE

Client Sample ID
 MW-4-3
 MW-4-2
 MW-4-1
 EB-6-2 1/6/12

Laboratory ID Number
 1
 2
 3

Date Collected
 2/6/12
 2/6/12
 2/6/12
 2/6/12

Time Collected
 0930
 1004
 1040
 1033

Matrix
 A0
 A0
 A0
 A0

Number of Containers
 2
 1
 1
 1

Analysis Method and/or Analytes	Preservative Code	
	Code	Time
Volatile Organics GC/MS 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/> TPH Gas 8015B <input type="checkbox"/> BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/> TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted) TPH FC <input type="checkbox"/> 8015M (Subcontracted)		
Semi-Volatile Organics GC/MS 625 <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)		
Cr VI (-196)	0	

Remarks
 MS/MS
 FOUR BLANKS

Preservative Key
 0 None
 1 HCL
 2 HNO3
 3 H2SO4
 4 NaOH
 5 Zn Acetate
 6 Asc Acid
 7 Other

Project Requirements (MRLs, CAPP)
 MRL required Yes / No
 MDL / PQL / J required Yes / No
 EDD required Yes / No
 Type: _____

Project Temperature (MRLs, CAPP)
 Cooler (Blank / No Ice) 30 °C
 Temperature _____ °C

Report Tier Levels - please select

Tier I - (Results default if not specified) _____
 Tier II - (Results & QC) _____
 Tier III - (Data Validation Package) 10% Surcharge _____
 Tier V - (client specified) _____

Relinquished by (Signature)
 [Signature]

Received by (Signature)
 [Signature]

Date
 2/6/12

Time
 1452

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200435

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200435-001.01	7196A	2/6/12	1503	SMO / MZAMORA	
		2/6/12	1504	P-37 / MZAMORA	
		2/6/12	1523	In Lab / SANDERSON	
		2/6/12	1704	P-37 / SANDERSON	
P1200435-001.02		2/6/12	1504	SMO / MZAMORA	
		2/6/12	1504	P-37 / MZAMORA	
		2/6/12	1523	In Lab / SANDERSON	
		2/6/12	1704	P-37 / SANDERSON	
P1200435-002.01	7196A	2/6/12	1503	SMO / MZAMORA	
		2/6/12	1504	P-37 / MZAMORA	
		2/6/12	1523	In Lab / SANDERSON	
		2/6/12	1704	P-37 / SANDERSON	
P1200435-003.01	7196A	2/6/12	1503	SMO / MZAMORA	
		2/6/12	1504	P-37 / MZAMORA	
		2/6/12	1523	In Lab / SANDERSON	
		2/6/12	1704	P-37 / SANDERSON	
P1200435-004.01	7196A	2/6/12	1503	SMO / MZAMORA	
		2/6/12	1504	P-37 / MZAMORA	
		2/6/12	1523	In Lab / SANDERSON	
		2/6/12	1704	P-37 / SANDERSON	
P1200435-005.01	7196A	2/6/12	1503	SMO / MZAMORA	
		2/6/12	1504	P-37 / MZAMORA	
		2/6/12	1523	In Lab / SANDERSON	
		2/6/12	1704	P-37 / SANDERSON	
P1200435-006.01	7196A	2/6/12	1503	SMO / MZAMORA	
		2/6/12	1504	P-37 / MZAMORA	
		2/6/12	1523	In Lab / SANDERSON	
		2/6/12	1704	P-37 / SANDERSON	
P1200435-007.01	7196A				

Chain of Custody ReportNow part of the  **ALS Group****Client:** Battelle
Project: 1Q12 JPL GW Mon/100006114**Service Request:** P1200435

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
		2/6/12	1503	SMO / MZAMORA	
		2/6/12	1504	P-37 / MZAMORA	
		2/6/12	1523	In Lab / SANDERSON	
		2/6/12	1704	P-37 / SANDERSON	

Sample Acceptance Check Form

Client: Battelle Work order: P1200435
 Project: 1Q12 JPL GW Mon / 100006114
 Sample(s) received on: 2/6/12 Date opened: 2/6/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | Yes | No | N/A |
|----|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | Wet Ice | | | |
| 9 | Was a trip blank received? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10 | Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 | Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 | Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200435-001.01	125mL Plastic NP					
P1200435-001.02	125mL Plastic NP					
P1200435-002.01	125mL Plastic NP					
P1200435-003.01	125mL Plastic NP					
P1200435-004.01	125mL Plastic NP					
P1200435-005.01	125mL Plastic NP					
P1200435-006.01	125mL Plastic NP					
P1200435-007.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200435
Date Collected : 02/06/12
Date Received : 02/06/12

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-4-3	P1200435-001	0.010	0.003	1	NA	02/06/12 16:17	ND	
MW-4-2	P1200435-002	0.010	0.003	1	NA	02/06/12 16:17	ND	
MW-4-1	P1200435-003	0.010	0.003	1	NA	02/06/12 16:17	ND	
EB-6-2/6/12	P1200435-004	0.010	0.003	1	NA	02/06/12 16:17	ND	
MW-3-4	P1200435-005	0.010	0.003	1	NA	02/06/12 16:17	ND	
MW-3-3	P1200435-006	0.010	0.003	1	NA	02/06/12 16:17	ND	
MW-3-2	P1200435-007	0.010	0.003	1	NA	02/06/12 16:17	ND	
Method Blank	P1200435-MB	0.010	0.003	1	NA	02/06/12 16:17	ND	

Approved By Kam Rya Date : 2/8/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200435
Date Analyzed: 02/06/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By: _____

Karu Rya

Date: _____

2/8/12

ICCBMDL120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: IQ12 JPL GW Mon / 100006114

Service Request: P1200435
Date Analyzed: 02/06/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0504	101	90-110
CCV1	0.0500	0.0504	101	90-110
CCV2	0.0500	0.0504	101	90-110

Approved By: _____
CCV1A/120594

Karu Rya

Date: 2/8/12

QA/QC Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200435
 Date Collected : NA
 Date Received : NA
 Date Extracted : NA
 Date Analyzed : 02/06/12

Laboratory Control Sample Summary
 Inorganic Parameters

Sample Name : Laboratory Control Sample
 Lab Code : P1200435-LCS
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0380	95	90-110	

Approved By Kam Rya Date : 2/6/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200435
Date Collected : 02/06/12
Date Received : 02/06/12
Date Extracted : NA
Date Analyzed : 02/06/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-4-3 Units : mg/L (ppm)
 Lab Code : P1200435-001MS P1200435-001DMS Basis : NA
 Test Notes :

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0451	0.0451	90	90	73-119	<1	

Approved By *Kanu Rya* Date : *2/8/12*

pH Run Log

Service Request #(s): P1200435

Time: 1034

Sample	VWR lot #	Exp.	Slope	Prep.Run #
pH 2 Buffer	524-05201101	12/20/12	} 98.9%	—
pH 4 Buffer	524-05201102	9/30/12		Run#
pH 7 Buffer	524-10211101	7/20/13		—
pH 10 Buffer	524-10241103	2/28/13		—

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # In column labeled #)

Sample	#	pH	Temp. °C	Sample	#	pH	Temp. °C
pH 2.000	3	1.993	21.6°	Spanned out with 524-10241103			
pH 4.000	↓	4.065	21.9°				
pH 7.000	↓	7.007	22.0°				
pH 10.000	↓	9.995	22.2°				
REF: 524-10241102		7.362	22.3°				
DI	↓	2.094	20.9°				
pH 2.000	↓	1.991	21.6°				
TIME: 1545							
pH 2.000	3	1.996	22.4°				
P1200435-1.01	↓	1.859	14.6°				
-2.01	↓	1.922	14.1°				
-3.01	↓	2.054	14.5°				
-4.01	↓	1.891	13.6°				
-5.01	↓	1.870	14.4°				
-6.01	↓	2.108	14.5°				
↓ -7.01	↓	1.932	14.9°				
pH 2.000	↓	1.977	22.0°				

pH Adjustments: 7196A: Diluted/Conc H₂SO₄ EMD 49284 EXP: 11/20/14

7199A: Diluted NaOH EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 2/6/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: Jr

Date: 2/6/12

Reviewer: KL

Date: 2/4/12

Method EPA 7196A

Service Request#(s): P1200435

Run#: 278993

Stock#: 524-08291102 T.V.=100PPM EXP: 2/29/12

Prep Run#:

ICV/CCV#: 524-10151001 T.V.=100PPM EXP: 3/20/12

Conc. H₂SO₄ Lot#: EMD 49284 EXP: 11/20/14

Coloring Reagent Ref#: 524-0123/201 EXP: 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.99998123
Absorbance @ 540 nm	0.000	0.011	0.057	0.113	

Sample #	Sample Vol.(mL)	Dilution	pH	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R /RPD
1 ICB	10ml	-	✓	0.000	0.000	0.000	0.000356	10.00%
ICV 0.05 mg/L		-	✓	0.000	0.057	0.057	0.0504	101%
2 MF		-	✓	0.000	0.000	0.000	0.000356	10.00%
3 LCS 0.04 mg/L		-	✓	0.000	0.043	0.043	0.0380	95%
4 P1200435-1.01		-	✓	0.000	0.000	0.000	0.000356	10.00%
5 -1.01 MS 0.05 mg/L		-	✓	0.000	0.051	0.051	0.0451	90%
-1.01 MSD		-	✓	0.000	0.051	0.051	0.0451	90%
6 -2.01		-	✓	0.003	0.003	0.000	0.000356	10.00%
7 -2.01 VS 0.03 mg/L		-	✓	0.003	0.034	0.031	0.0274	91%
8 -3.01		-	✓	0.000	0.000	0.000	0.000356	10.00%
9 -4.01		-	✓	0.000	0.000	0.000		
10 ✓ -5.01		-	✓	0.003	0.003	0.000		
11 MVI 0.05 mg/L		-	✓	0.000	0.057	0.057	0.0504	101%
12 CUB1		-	✓	0.000	0.000	0.000	0.000356	10.00%
13 P1200435-6.01		-	✓	0.000	0.000	0.000		
14 ↓ -7.01		-	✓	0.000	0.000	0.000		
15 CUV2 0.05 mg/L		-	✓	0.050	0.057	0.057	0.0504	101%
16 CUBD		-	✓	0.000	0.000	0.000	0.000356	10.00%
17								

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.25 ml of 524-08291102 ^{@ Fe} ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of ↓ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of ↓ (R Fe) ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: [Signature]

Date/Time: 2/6/12 @ 1602

Analyzed By: [Signature]

Date/Time: 2/6/12 @ 1617

Reviewed By: [Signature]

Date: 2/10/12

or)

10/16/10
SW

524-10061001 25133 ppb Stock for O3

0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
10146598 ; Exp: 8/11/12 up to 500 ml w/ DI
Water.

EXP: 10/20/10

10/16/10
SW

524-10061002 25133 ppb ION/CON for O3

0.05 ml Pyridine-4-carboxaldehyde TCI
(ICG INC ; Exp: 8/10/12) up to 500 ml w/ DI
Water.

EXP: 10/20/10

10/16/10
SW

524-10061003 MBTH Soln

0.5000 g MBTH (Aldrich 54646EK ; Exp: 8/7/14) up
to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 49284; EXP 11/20/10

EXP: 10/7/10

10/15/10
SW

524-10151001 Cr6+ ION/CON Stock
Purchased 100 ppm Cr6+
Ricca Chemical Co Cut No 2095-16
500ml Plastic

LOT # 1010177
EXP: 3/20/12

10/15/10
SW

524-10151002 500 ppm NO2 Stock

Purchased
Ricca Chemical Co Cut No: 5444.5-4
LOT # 1010271
120ml amber glass

EXP: 4/20/11

5.00

2/21/11 524-0221101 1:1 H₂SO₄
 Jw 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ADDED SLOWLY TO 250ml DI. COOL
 COMPLETELY
 EXP: 2/21/12

2/21/11 524-0221102 Arct Coloring Reagent
 Jw 0.2500g 1,5-diphenylcarbohydrazide (EMD Lot 47103721;
 EXP: 4/30/13) ↑ 50 ml w/ Acetone (EMD
 Lot # 471540; EXP: 9/24/12).
 EXP: 3/31/11

2/28/11 524-0228101 0.1N H₂SO₄
 Jw 5.6 ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
 w/ DI H₂O
 EXP: 2/28/12

2/28/11 524-0228102 1001^{mg}/L Arct
 Jw purchased
 Inorganic Ventures CGCR(6)1-1
 125ml Clear Glass
 Lot# D2-CR03040
 EXP: 3/1/2012

5/19/11
Jr

S24-0591103 ICO2 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT BAKER EM 305641 exp: 6/15/16) in 100 mL Methanol (B&J #0806 exp: 5/17/16). Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H2SO4 (EMD 44284 exp: 11/20/17). Bring up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
Jr

S24-05201101 pH 2.000 BUFFER
Purchased

BDH CAT. No. BDH 5010-500 mL
LOT # 1101225
EXP: 12/2012

8/20/11
Jr

S24-05201102 pH 4.000 BUFFER
Purchased

JT Baker CAT # 5657-01 500 mL
LOT # J36503
EXP: 9/30/12

8/22/11
Jr

S24-05201103 pH 7.38 BUFFER
Purchased

BDH CAT # BDH5058-500 mL
LOT # 1103361
EX: 3/2013

8/24/11 S24-08241101 Sulfanilamide Soln
 Ja 5.00g Sulfanilamide (JT Baker; Lot# J32618;
 EXP: 1/6/16) DISSOLVED IN 50ml Conc HCl
 (EMD 49260; EXP: 2/7/16) ↑ 500ml w/ DI H₂O
 EXP: 8/24/12

8/24/11 S24-08241102 NEDA Soln
 Ja 0.2500g N-1-Naphthylethylenediamine dihydrochloride
 (JT BAKER H22587; EXP: 10/19/14) ↑ 250ml w/ DI
 H₂O.
 EXP: 2/24/12

8/29/11 S24-08291101 0.1N H₂SO₄
 Ja 5.6ml Conc H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ↑ 2L w/ DI H₂O
 EXP: 8/29/12

8/29/11 S24-08291102 10PPM Cr6+ Std
 Ja 1.0ml S24-02281102 (1000PPM Cr6+; EXP: 3/1/12)
 ↑ 100ml w/ DI H₂O
 EXP: 2/28/12

9/6/11 S24-09061101 Cr6+ Coloring Reagent
 Ja 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker J55641;
 EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD 47154D
 EXP: 9/24/12).
 EXP: 10/6/11

Reviewed And Approved By:
 Initial: KE Date: 9/21/11

10/17/11 S24-10171102 1000PPM NH3
JL 0.3141 g NH4Cl (EMD 49198931; EXP: 10/19/14) ↑ 100ml
10/ S24-10171101 (0.1M NH2SO4 EXP: 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 ILO2 Eluent
JL 100 ml of S24-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1/2 w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
JL Purchased
BDH Cat No: BDH5046 - 500ml
LOT # 1107491
EXP: 7/20/13

10/24/11 S24-10241101 PH 4.000 Buffer
JL Purchased
JT Baker Cat No: 5657-01 500ml
LOT # K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
JL Purchased
BDH Cat No BDH5058 - 500ml
LOT # 1109034
EXP: 8/20/13

10/24/11
SA
524-10241103 PH 10.020 Buffer
Purchased
JT Baker Cat no: 5655-01
Lot # K07507
Exp: 2/28/13

10/25/11
SA
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475 mL
Lot # PNI P/N 207475-A01
Exp: 10/25/12

10/25/11
SA
524-10251102 A,B,C,D,E PH Filling Soln
Purchased
Thermo Scientific Orion 810007 5 pack 60 mL
Lot: PS1
Exp: 10/25/12

11/1/11
SA
524-11011101 IC02 Eluent
100 ml 524-09201103 (10x conc eluent. Exp:
9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
Exp: 11/15/11

11/1/11
SA
524-11011102 IC02 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD JT BAKER JO5641
exp: 6/15/15) in 100 mL Methanol (B&J DE 932 exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD 442854 exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas.

Exp: 11/6/14

1/23/12 S24-01231201 Carlot Coloring Reagent
 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker
 LOT J05646) T 50ml w/ Acetone (EMD lot 47154
 EXP: 9/24/12
 EXP: 2/23/12

L1
 DAM
 SC08
 1.00

or)

5.00

LABORATORY REPORT

February 17, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 7, 2012. For your reference, these analyses have been assigned our service request number P1200448.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 4:33 pm, Feb 17, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200448

CASE NARRATIVE

The samples were received intact under chain of custody on February 7, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114

Service Request: P1200448

Date Received: 2/7/2012
 Time Received: 12:41

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-20-5	P1200448-001	Water	2/7/2012	08:25	X
MW-20-4	P1200448-002	Water	2/7/2012	09:15	X
MW-20-3	P1200448-003	Water	2/7/2012	09:45	X
MW-20-2	P1200448-004	Water	2/7/2012	10:08	X
MW-20-1	P1200448-005	Water	2/7/2012	10:40	X
EB-7-2/7/12	P1200448-006	Water	2/7/2012	10:23	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



An Employee - Owned Company

Water & Soil - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. 91202445
 CAS Contact: _____

Company Name & Address (Reporting Information)
BATTELLE
3990 OGDEN TOWN AVE, C-205
SAN DIEGO, CA 92110

Project Name
1012 SPL GW MW

Project Number
100006114

Project Manager
DAVID CONNER

PO # / Billing Information
285 651
BATTELLE / OGDEN TOWNSHIP
505 KANG AVE
COLUMBIAS, OH 43201

Preservative Key
 0 None
 1 HCL
 2 HNO3
 3 H2SO4
 4 NaOH
 5 Zn Acetate
 6 Asc Acid
 7 Other

Phone (619) 726-7311 Fax (619) 458-6614

Volatile Organics GC/MS
 624 8260B Oxygenates TPH Gas
 TPH Gas 8015B
 BTEX 8021B MTBE 8021B
 TPH Diesel 8015B (Subcontracted)
 TPH Diesel Low Level 8015B (Subcontracted)
 TPH FC 8015M (Subcontracted)

Remarks
CV VI (-116)

Email Address for Result Reporting
connerd@battelle.com

Sampler (Print & Sign)

Remarks

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers	Analysis Method and/or Analytes		Preservative Code	CAS Project No.	CAS Contact
						Volatile Organics GC/MS	Semi-Volatile Organics GC/MS			
MW-20-5	①	2/7/12	825	AQ	1	<input type="checkbox"/>	<input type="checkbox"/>			
MW-20-4	②	1	915			<input type="checkbox"/>	<input type="checkbox"/>			
MW-20-3	③	1	945			<input type="checkbox"/>	<input type="checkbox"/>			
MW-20-2	④	1	1008			<input type="checkbox"/>	<input type="checkbox"/>			
MW-20-1	⑤	1	1040			<input type="checkbox"/>	<input type="checkbox"/>			
EB-7-2/7/12	⑥	1	1023			<input type="checkbox"/>	<input type="checkbox"/>			

Report Tier Levels - please select

Tier I - (Results/Default if not specified) _____ Tier III - (Data Validation Packages) 10% Surcharge _____

Tier II - (Results + QC) _____ Tier V - (client specified) _____

MRL required Yes / No _____ EDD required Yes / No _____

MDL / PQL / J required Yes / No _____ Type: _____

Project Requirements (MRLs, QAPP)

Reinquired by: (Signature) _____ Date: 2/7/12 Time: 11:56

Reinquired by: (Signature) _____ Date: 2/7/12 Time: 12:41

Reinquired by: (Signature) _____ Date: _____ Time: _____

Received by: (Signature) _____ Date: 2/7/12 Time: 11:56

Received by: (Signature) _____ Date: 2/7/12 Time: 12:41

Received by: (Signature) _____ Date: _____ Time: _____

Cooler / Blank / Ice / No Ice _____

Temperature: 3 °C

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200448

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200448-001.01	7196A	2/7/12	1322	SMO / MZAMORA	
		2/7/12	1323	P-37 / MZAMORA	
		2/7/12	1458	In Lab / SANDERSON	
		2/7/12	1606	P-37 / SANDERSON	
P1200448-002.01	7196A	2/7/12	1322	SMO / MZAMORA	
		2/7/12	1323	P-37 / MZAMORA	
		2/7/12	1458	In Lab / SANDERSON	
		2/7/12	1606	P-37 / SANDERSON	
P1200448-003.01	7196A	2/7/12	1322	SMO / MZAMORA	
		2/7/12	1323	P-37 / MZAMORA	
		2/7/12	1458	In Lab / SANDERSON	
		2/7/12	1606	P-37 / SANDERSON	
P1200448-004.01	7196A	2/7/12	1322	SMO / MZAMORA	
		2/7/12	1323	P-37 / MZAMORA	
		2/7/12	1458	In Lab / SANDERSON	
		2/7/12	1606	P-37 / SANDERSON	
P1200448-005.01	7196A	2/7/12	1322	SMO / MZAMORA	
		2/7/12	1323	P-37 / MZAMORA	
		2/7/12	1458	In Lab / SANDERSON	
		2/7/12	1606	P-37 / SANDERSON	
P1200448-005.02		2/7/12	1323	SMO / MZAMORA	
		2/7/12	1323	P-37 / MZAMORA	
		2/7/12	1458	In Lab / SANDERSON	
		2/7/12	1606	P-37 / SANDERSON	
P1200448-006.01	7196A	2/7/12	1322	SMO / MZAMORA	
		2/7/12	1323	P-37 / MZAMORA	
		2/7/12	1458	In Lab / SANDERSON	
		2/7/12	1606	P-37 / SANDERSON	

Sample Acceptance Check Form

Client: Battelle Work order: P1200448
 Project: 1Q12 JPL GW Mon / 100006114
 Sample(s) received on: 2/7/12 Date opened: 2/7/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Wet Ice | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200448-001.01	125mL Plastic NP					
P1200448-002.01	125mL Plastic NP					
P1200448-003.01	125mL Plastic NP					
P1200448-004.01	125mL Plastic NP					
P1200448-005.01	125mL Plastic NP					
P1200448-005.02	125mL Plastic NP					
P1200448-006.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200448
Date Collected : 02/07/12
Date Received : 02/07/12

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-20-5	P1200448-001	0.010	0.003	1	NA	02/07/12 15:48	ND	
MW-20-4	P1200448-002	0.010	0.003	1	NA	02/07/12 15:48	ND	
MW-20-3	P1200448-003	0.010	0.003	1	NA	02/07/12 15:48	ND	
MW-20-2	P1200448-004	0.010	0.003	1	NA	02/07/12 15:48	ND	
MW-20-1	P1200448-005	0.010	0.003	1	NA	02/07/12 15:48	ND	
EB-7-2/7/12	P1200448-006	0.010	0.003	1	NA	02/07/12 15:48	ND	
Method Blank	P1200448-MB	0.010	0.003	1	NA	02/07/12 15:48	ND	

Approved By Kanu Rya Date : 2/8/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200448
Date Analyzed: 02/07/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By: Kam Rya Date: 2/8/12
ICCBMDL/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200448
Date Analyzed: 02/07/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0505	101	90-110
CCV1	0.0500	0.0523	105	90-110
CCV2	0.0500	0.0523	105	90-110

Approved By: _____

Karu Rya

Date: _____

2/8/12

CCV1A/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200448
Date Collected : NA
Date Received : NA
Date Extracted : NA
Date Analyzed : 02/07/12

Laboratory Control Sample Summary
Inorganic Parameters

Sample Name : Laboratory Control Sample
Lab Code : P1200448-LCS
Test Notes :

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0400	100	90-110	

Approved By Karen Rya Date : 2/8/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200448
Date Collected : 02/07/12
Date Received : 02/07/12
Date Extracted : NA
Date Analyzed : 02/07/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-20-1 Units : mg/L (ppm)
Lab Code : P1200448-005MS P1200448-005DMS Basis : NA
Test Notes :

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0461	0.0461	92	92	73-119	<1	

Approved By Karen Rya Date : 2/8/12

pH Run Log

Service Request #(s): P1200448

Time: 1500

Sample	VWR lot #	Exp.
pH 2 Buffer	524-05201101	2/2012
pH 4 Buffer	524-05201102	9/30/12
pH 7 Buffer	524-10211101	7/30/13
pH 10 Buffer	524-10241103	2/28/13

Slope	Prep.Run #
} 98.6%	—
	Run#
	—

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # In column labeled #)

Sample	#	pH	Temp. °C	Sample	#	pH	Temp. °C
pH 2.000	<u>3</u>	<u>2.009</u>	<u>23.3°</u>				
pH 4.000		<u>4.011</u>	<u>23.0°</u>				
pH 7.000		<u>7.009</u>	<u>23.0°</u>				
pH 10.000		<u>9.998</u>	<u>23.3°</u>				
Ref#: <u>524-10241102</u>		<u>7.403</u>	<u>23.2°</u>				
DI		<u>1.951</u>	<u>22.1°</u>				
<u>P1200448-1.01</u>		<u>1.955</u>	<u>17.2°</u>				
<u>-2.01</u>		<u>1.864</u>	<u>18.2°</u>				
<u>-3.01</u>		<u>2.032</u>	<u>18.2°</u>				
<u>-4.01</u>		<u>1.867</u>	<u>18.4°</u>				
<u>✓ -5.01</u>		<u>2.070</u>	<u>18.8°</u>				
pH 2.000		<u>1.993</u>	<u>22.5°</u>				
<u>P1200448-6.01</u>		<u>2.034</u>	<u>19.2°</u>				
pH 2.000	<u>✓</u>	<u>1.991</u>	<u>22.5°</u>				

Space not used

pH Adjustments: **7196A:** Diluted/Conc H₂SO₄ OMD 49284 EXP: 11/20/14

7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 2/6/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: [Signature]

Date: 2/7/12

Reviewer: [Signature]

Date: 2/7/12

Method EPA 7196A

Service Request#(s): P1200448
 Stock#: 524-08291102 T.V.=10 PPM EXP: 2/29/12
 ICV/CCV#: 524-10151001 T.V.=100 PPM EXP: 3/30/12

Run#: 279139
 Prep Run#: _____
 Conc. H₂SO₄ Lot#: EMD 49284 EXP: 11/20/14
 Coloring Reagent Ref#: 524-0123120 EXP: 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.99955864
Absorbance @ 540 nm	0.000	0.012	0.058	0.114	

Sample #	Sample Vol.(mL)	Dilution	pH	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R /RPD
1	ICB	10mL	—	✓	0.000	0.000	-0.000397	10.003
2	ICV 0.05 mg/L	—	—	✓	0.000	0.058	0.0505	101%
3	MB	—	—	✓	0.000	0.001	0.000482	10.003
4	LCS 0.04 mg/L	—	—	✓	0.000	0.046	0.04	100%
5	P1200448-1.01	—	—	✓	0.001	0.003	0.00136	10.003
6	—1.01 vs 2.03 mg/L	—	—	✓	0.001	0.032	0.0268	89%
7	—2.01	—	—	✓	0.001	0.002	0.000482	10.003
8	—3.01	—	—	✓	0.006	0.008	0.00136	10.003
9	—4.01	—	—	✓	0.000	0.001	0.000482	10.003
10	—5.01	—	—	✓	0.000	0.003	0.00224	10.003
11	—5.01 MS 0.05 mg/L	—	—	✓	0.000	0.053	0.0461	92% 7.41
12	—5.01 MSD	—	—	✓	0.000	0.053	0.0461	92% 5 RPD
13	CCV1	—	—	✓	0.000	0.060	0.0523	105%
14	CCB1	—	—	✓	0.000	0.000	-0.000397	10.003
15	P1200448-6.01	—	—	✓	0.000	0.000	-0.000397	10.003
16	CCV2 0.05 mg/L	—	—	✓	0.000	0.060	0.0523	105%
17	CCB2	—	—	✓	0.000	0.000	-0.000397	10.003

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.25 ml of 52410151001 @ 10 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-08241102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of — ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of — @ 10 ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: [Signature]
 Analyzed By: [Signature]
 Reviewed By: [Signature]

Date/Time: 2/7/12 @ 1533
 Date/Time: 2/7/12 @ 1548
 Date: 2/8/12

or)

10/16/10
SW

524-10061001 25133 ppb Stock for O3

0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
10146598 ; Exp: 8/11/12 up to 500 ml w/ DI
Water.

EXP: 10/20/10

10/16/10
SW

524-10061002 25133 ppb ION/COV for O3

0.05 ml Pyridine-4-carboxaldehyde TCI
(ICFINE) ; Exp: 8/10/12 up to 500 ml w/ DI
Water.

EXP: 10/20/10

10/16/10
SW

524-10061003 MBTH Soln

0.5000 g MBTH (Aldrich 54696EK ; Exp: 8/7/14) up
to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 49284; EXP 11/20

EXP: 10/7/10

10/15/10
SW

524-10151001 Cr6+ ION/COV Stock
Purchased 100ppm Cr6+
Ricca Chemical Co Cut No 2095-16
500ml Plastic

LOT # 1010177
EXP: 3/20/12

10/15/10
SW

524-10151002 500ppm NO2 Stock

Purchased
Ricca Chemical Co Cut No: 5444-54
LOT # 1010271
120ml amber glass

EXP: 4/20/11

5.00

2/21/11 524-0221101 1:1 H₂SO₄
 JZ 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ADDED SLOWLY TO 250ml DI. COOL
 COMPLETELY
 EXP: 2/21/12

2/21/11 524-0221102 Crbt Coloring Reagent
 JZ 0.2500g 1,5-naphenylcarbonylhydrazide (EMD Lot 47103721;
 EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
 Lot #471540; EXP: 9/24/12).
 EXP: 3/31/11

2/28/11 524-0228101 0.1N H₂SO₄
 JZ 5.6ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
 w/ DI H₂O
 EXP: 2/28/12

2/28/11 524-0228102 1001^{mg}/L Crbt
 JZ Purchased
 Inorganic Ventures CGCR(6)1-1
 125ml Clear Glass
 Lot# D2-CR03040
 EXP: 3/1/2012

5/19/11
JR

524-05191103 IC02 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT Baker ^{JT Baker} ~~EMD~~ ³⁰⁵⁶⁴¹ AD806 exp: 5/13/10) in 100 mL Methanol (B&J AD806 exp: 5/13/10). Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H2SO4 (EMD 44184 exp: 11/20/14). Bring up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JR

524-05201101 pH 2.000 BUFFER

Purchased
BDH CAT. No. BDH 5010-500 mL
LOT# 1101225
EXP: 12/2012

8/20/11
JR

524-05201102 pH 4.000 BUFFER

Purchased
JT Baker CAT # 5657-01 500 mL
LOT# J36503
EXP: 9/30/12

8/20/11
JR

524-05201103 pH 7.38 BUFFER

Purchased
BDH CAT # BDH5058-500 mL
LOT# 1103361
EXP: 3/2013

8/24/11 S24-08241101 Sulfanilamide Soln
 Ja 5.00g Sulfanilamide (JT Baker; Lot# J32618;
 EXP: 1/6/16) DISSOLVED IN 50ml Conc HCl
 (EMD 49260; EXP: 2/7/16) ↑ 500ml w/ DI H₂O
 EXP: 8/24/12

8/24/11 S24-08241102 NEDA Soln
 Ja 0.2500g N-1-Naphthylethylenediamine dihydrochloride
 (JT BAKER H22587; EXP: 10/19/14) ↑ 250ml w/ DI
 H₂O.
 EXP: 2/24/12

8/29/11 S24-08291101 0.1N H₂SO₄
 Ja 5.6ml Conc H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ↑ 2L w/ DI H₂O
 EXP: 8/29/12

8/29/11 S24-08291102 10PPM Cr6+ Std
 Ja 1.0ml S24-02281102 (1000PPM Cr6+; EXP: 3/1/12)
 ↑ 100ml w/ DI H₂O
 EXP: 2/28/12

9/6/11 S24-09061101 Cr6+ Coloring Reagent
 Ja 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker J05641;
 EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD 47154D
 EXP: 9/24/12).
 EXP: 10/6/11

Reviewed And Approved By:
 Initial: KE Date: 9/2/11

10/17/11 524-10171102 1000PPM NH3
0.3141 g NH4Cl (END 49198931; EXP: 10/19/14) ↑ 100ml
10/ 524-10171101 (0.1M H2SO4 EXP: 10/17/12)
EXP: 4/17/12

10/17/11 524-10171103 ILO2 Eluent
100 ml of 524-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1/2 w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 524-10211101 PH 7.000 Buffer
Purchased
BDH Cat No: BDH5046-500ml
LOT# 1107491
EXP: 7/20/13

10/24/11 524-10241101 PH 4.000 Buffer
Purchased
JT Baker Cat No: 5657-01 500ml
LOT# K04505
EXP: 2/28/13

10/24/11 524-10241102 PH 7.38 Buffer
Purchased
BDH Cat No BDH6058-500ml
LOT# 1109034
EXP: 8/20/13

10/24/11
SA
524-10241103 PH 10.000 Buffer
Purchased
JT Baker Cat no: 5655-01
Lot # K07507
Exp: 2/28/13

10/25/11
SA
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475 mL
Lot # P11 P/N 207475-A01
Exp: 10/25/12

10/25/11
SA
524-10251102 A,B,C,D,E PH Filling Soln
Purchased
Thermo Scientific Orion 810007 5 pack 60 mL
Lot: P51
Exp: 10/25/12

11/1/11
SA
524-11011101 IC02 Eluent
100 ml 524-09201103 (10x conc eluent. exp:
9/20/12) ↑ 1 L w/ DI H₂O DEGASSED
Exp: 11/15/11

11/1/11
SA
524-11011102 IC02 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD JT BAKER J05641
exp: 6/15/15) in 100 mL Methanol (B&J AC 932 exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD 44284 exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas.

Exp: 11/6/11

1/23/12 S24-01231201 Cr lot Coloring Reagent

0.2500g 1,5-Diphenylcarbohydrazide JT Baker

lot J05641) ↑ 50ml w/ Acetone (DMD lot 47154)

EXP: 9/24/12

EXP: 2/23/12

L1
JAM
3C08
1.00

or)

5.00

LABORATORY REPORT

February 17, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 8, 2012. For your reference, these analyses have been assigned our service request number P1200460.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 4:40 pm, Feb 17, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200460

CASE NARRATIVE

The samples were received intact under chain of custody on February 8, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114
 Date Received: 2/8/2012
 Time Received: 11:44

Service Request: P1200460

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-11-3	P1200460-001	Water	2/8/2012	08:30	X
MW-11-2	P1200460-002	Water	2/8/2012	08:58	X
MW-11-1	P1200460-003	Water	2/8/2012	09:45	X
EB-8-2/8/12	P1200460-004	Water	2/8/2012	09:17	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200460

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200460-001.01	7196A	2/8/12	1157	SMO / MZAMORA	
		2/8/12	1158	P-37 / MZAMORA	
		2/8/12	1211	In Lab / SANDERSON	
		2/9/12	1140	P-37 / SANDERSON	
P1200460-002.01	7196A	2/8/12	1157	SMO / MZAMORA	
		2/8/12	1158	P-37 / MZAMORA	
		2/8/12	1211	In Lab / SANDERSON	
		2/9/12	1140	P-37 / SANDERSON	
P1200460-003.01	7196A	2/8/12	1157	SMO / MZAMORA	
		2/8/12	1158	P-37 / MZAMORA	
		2/8/12	1211	In Lab / SANDERSON	
		2/9/12	1140	P-37 / SANDERSON	
P1200460-003.02		2/8/12	1157	SMO / MZAMORA	
		2/8/12	1158	P-37 / MZAMORA	
		2/8/12	1211	In Lab / SANDERSON	
		2/9/12	1140	P-37 / SANDERSON	
P1200460-004.01	7196A	2/8/12	1157	SMO / MZAMORA	
		2/8/12	1158	P-37 / MZAMORA	
		2/8/12	1211	In Lab / SANDERSON	
		2/9/12	1140	P-37 / SANDERSON	

Sample Acceptance Check Form

Client: Battelle Work order: P1200460
 Project: 1Q12 JPL GW Mon / 100006114
 Sample(s) received on: 2/8/12 Date opened: 2/8/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | Wet Ice |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200460-001.01	125mL Plastic NP					
P1200460-002.01	125mL Plastic NP					
P1200460-003.01	125mL Plastic NP					
P1200460-003.02	125mL Plastic NP					
P1200460-004.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

Analytical Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200460
 Date Collected : 02/08/12
 Date Received : 02/08/12

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-11-3	P1200460-001	0.010	0.003	1	NA	02/08/12 14:40	ND	
MW-11-2	P1200460-002	0.010	0.003	1	NA	02/08/12 14:40	ND	
MW-11-1	P1200460-003	0.010	0.003	1	NA	02/08/12 14:40	ND	
EB-8-2/8/12	P1200460-004	0.010	0.003	1	NA	02/08/12 14:40	ND	
Method Blank	P1200460-MB	0.010	0.003	1	NA	02/08/12 14:40	ND	

Approved By

Kam Rya

Date :

2/9/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200460
Date Analyzed: 02/08/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND

Approved By: Karen Rya Date: 2/9/12
ICCBMDL/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200460
Date Analyzed: 02/08/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0490	98	90-110
CCV1	0.0500	0.0490	98	90-110

Approved By: Karu Rya Date: 2/9/12
CCV1A/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200460
 Date Collected : NA
 Date Received : NA
 Date Extracted : NA
 Date Analyzed : 02/08/12

Laboratory Control Sample Summary
 Inorganic Parameters

Sample Name : Laboratory Control Sample
 Lab Code : P1200460-LCS
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0404	101	90-110	

Approved By Karu Rya Date : 2/9/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200460
Date Collected : 02/08/12
Date Received : 02/08/12
Date Extracted : NA
Date Analyzed : 02/08/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-11-1 Units : mg/L (ppm)
 Lab Code : P1200460-003MS P1200460-003DMS Basis : NA
 Test Notes :

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0439	0.0439	88	88	73-119	<1	

Approved By Kam Rya Date : 2/9/12



Method EPA 7196A

Service Request#(s): P1200460 Run#: 279287
 Stock#: 524-08291102 T.V.=100ppm EXP: 2/29/12 Prep Run#: _____
 ICV/CCV#: 524-10151001 T.V.=100ppm EXP: 3/20/12 Conc. H₂SO₄ Lot#: EMD 49284 EXP: 11/20/14
 Coloring Reagent Ref#: 524-01231201 EXP: 2/23/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.999888/10
Absorbance @ 540 nm	0.000	0.012	0.057	0.117	

Sample #	Sample Vol.(mL)	Dilution	pH	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	ICB	10m	0.000 ✓	0.000	0.000	0.000	0.000124	10.003
2	ICV 0.05 mg/L	0.000	0.000 ✓	0.000	0.057	0.057	0.0490	98%
3	MS	0.000	0.000 ✓	0.000	0.000	0.000	0.000124	10.003
4	LCS 0.04 mg/L	0.000	0.000 ✓	0.000	0.047	0.047	0.0404	101%
5	P1200460-1.01	—	0.000 ✓	0.000	0.000	0.000	0.000124	10.003
6	— -1.01 VS 0.02 mg/L	—	0.000 ✓	0.000	0.030	0.030	0.0259	86% 2/8/12
7	— -2.01	—	0.001 ✓	0.001	0.001	0.000	0.000124	10.003
8	— -3.01	—	0.001 ✓	0.001	0.001	0.000	0.000124	10.003
9	— -3.01/MS 0.05 mg/L	—	0.001 ✓	0.001	0.052	0.051	0.0439	88% 2/8/12
10	— -3.01/MSD	—	0.001 ✓	0.001	0.052	0.051	0.0439	88% 2/8/12
11	— -4.01	—	0.000 ✓	0.000	0.000	0.000	0.000124	10.003
12	CCV1 0.05 mg/L	0.000	0.000 ✓	0.000	0.057	0.057	0.0490	98%
13	CCB1	0.000	0.000 ✓	0.000	0.000	0.000	0.000124	10.003
14								
15								
16								
17								

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.25 ml of 524-10151001 @ 10 ↑ 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-08291102 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of _____ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of _____ @ 10 ↑ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: _____
 Analyzed By: _____
 Reviewed By: _____

Date/Time: 2/8/12 @ 1425
 Date/Time: 2/8/12 @ 1440
 Date: 2/8/12

10/16/10
SW

524-10061001 25133ppb Stock for O3

0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
10140598 ; Exp: 8/11/12 up to 500 ml w/ DI Water.

EXP: 10/20/10

10/16/10
SW

524-10061002 25133ppb ION/COV for O3

0.05 ml Pyridine-4-carboxaldehyde TCI
(ION/COV) ; Exp: 8/10/12 up to 500 ml w/ DI Water.

EXP: 10/20/10

10/16/10
SW

524-10061003 MBTH Soln

0.5000 g MBTH (Aldrich 54696EK ; Exp: 8/7/14) up to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 49284; EXP 11/20/10

EXP: 10/7/10

10/15/10
SW

524-10151001 Cr6+ ION/COV Stock
Purchased 100ppm Cr6+

Ricca Chemical Co Cut No 2095-16
500ml Plastic
LOT # 1010177
EXP: 3/20/12

10/15/10
SW

524-10151002 500ppm NO2 Stock

Purchased
RCCA Chemical Co Cut No: 5444.5-4
LOT # 1010271 120ml amber glass

EXP: 4/20/11

5.00

2/21/11
 JZ
524-0221101 1:1 H₂SO₄
 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ADDED SLOWLY TO 250ml DI. COOL
 COMPLETELY
 EXP: 2/21/12

2/21/11
 JZ
524-0221102 Cr6+ Coloring Reagent
 0.2500g 4,5-diphenylcarbohydrazide (EMD Lot 4710372L;
 EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
 Lot #47154D; EXP: 9/24/12).
 EXP: 3/21/11

2/28/11
 JZ
524-0228101 0.1N H₂SO₄
 5.6 ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
 w/ DI H₂O
 EXP: 2/28/12

2/28/11
 JZ
524-0228102 1001 mg/L Cr6+
 Purchased
 Inorganic Ventures CGCR(6)1-1
 125ml Clear Glass
 Lot# D2-CR03040
 EXP: 3/1/2012

5/19/11
JL

524-05191103

ICOD PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT Baker AD806 exp: 5/17/16)
exp: 6/15/16) in 100 mL Methanol (B&J AD806 exp: 5/17/16).
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H2SO4 (EMD 49184 exp: 11/20/17). Bring
up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JL

524-05201101

pH 2.000 BUFFER

Purchased

BDH CAT. No. BDH 5010-500 mL

LOT # 1101225

EXP: 12/2012

7/20/11
JL

524-05201102

pH 4.000 BUFFER

Purchased

JT Baker CAT # 5657-01 500 mL

LOT # J36503

EXP: 9/30/13

7/20/11
JL

524-05201103

pH 7.38 BUFFER

Purchased

BDH CAT # BDH5058-500 mL

LOT # 1103361

EX: 3/2013

8/24/11 S24-08241101 Sulfanilamide Soln
 J 5.00g Sulfanilamide (JT Baker; lot # J32618;
 EXP: 1/6/16) DISSOLVED IN 50ml Conc HCl
 (EMD 49260; EXP: 2/7/16) ↑ 500ml w/ DI H₂O
 EXP: 8/24/12

8/24/11 S24-08241102 NEDA Soln
 J 0.2500g N-1-Naphthylethylenediamine dihydrochloride
 (JT BAKER H22587; EXP: 10/19/14) ↑ 250ml w/ DI
 H₂O.
 EXP: 2/24/12

8/29/11 S24-08291101 0.1N H₂SO₄
 J 5.6ml Conc H₂SO₄ (EMD 49984; EXP: 11/20/14)
 ↑ 2L w/ DI H₂O
 EXP: 8/29/12

8/29/11 S24-08291102 10ppm Cr⁶⁺ Std
 J 1.0ml S24-02281102 (1000ppm Cr⁶⁺; EXP: 3/1/12)
 ↑ 100ml w/ DI H₂O
 EXP: 2/28/12

9/6/11 S24-09061101 Cr⁶⁺ Coloring Reagent
 J 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker J05641;
 EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD 47154D
 EXP: 9/24/12).
 EXP: 10/6/11

Reviewed And Approved By:
 Initial: KE Date: 9/1/11

10/17/11 S24-10171102 1000PPM NH3
0.3141g NH4Cl (END 4919893, EXP: 10/19/14) ↑ 100ml
w/ S24-10171101 (0.1NH2S24 EXP: 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 ILO2 Eluent
100 ml of S24-09201103 (10x conc Eluent, EXP: 9/20/12)
↑ 1L w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
Purchased
BDH Cat No: BDH5046-500mL
LOT # 1107491
EXP: 7/20/13

10/24/11 S24-10241101 PH 4.000 Buffer
Purchased
JT Baker Cat No: 5657-01 500mL
LOT # K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
Purchased
BDH Cat No BDH6058-500mL
LOT # 1109034
EXP: 8/20/13

10/24/11
Sv
524-10241103 PH 10.020 Buffer
Purchased
JT Baker Cat no: 5655-01
Lot # K07507
Exp: 2/28/13

10/25/11
Sv
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475mL
Lot # PW1 P/N 207475-A01
Exp: 10/25/12

10/25/11
Sv
524-10251102 A,B,C,D,E PH Filling Soln
Purchased
Thermo Scientific Orion 810007 5 pack 60mL
Lot: PS1
Exp: 10/25/12

11/1/11
Sv
524-11011101 IC02 Eluent
100ml 524-09201103 (10x conc eluent. Exp:
9/20/12) ↑ 1L w/ DI H₂O. DEGASSED
Exp: 11/15/11

11/1/11
Sv
524-11011102 IC02 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD ^{JT BAKER} JO5641
exp: 6/15/15) in 100 mL Methanol (B&J ^{DE 932} exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD ⁴⁹²⁵⁴ exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas.

Exp: 11/6/11

1/23/12 S24-01231201 Cr6+ Coloring Reagent

[Handwritten signature]

0.2500g 1,5-Diphenylcarbohydrazide J.T. Baker

LOT J05646) T 50ml w/ Acetone (EMD LOT 47154
EXP: 6/15/15)

EXP: 9/24/12

EXP: 2/23/12

L1
JAM
3C08
1.00

or)

5.00

LABORATORY REPORT

February 20, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 9, 2012. For your reference, these analyses have been assigned our service request number P1200473.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 3:50 pm, Feb 20, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200473

CASE NARRATIVE

The samples were received intact under chain of custody on February 9, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114
 Date Received: 2/9/2012
 Time Received: 11:47

Service Request: P1200473

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-23-4	P1200473-001	Water	2/9/2012	07:58	X
MW-23-3	P1200473-002	Water	2/9/2012	08:27	X
MW-23-2	P1200473-003	Water	2/9/2012	08:54	X
MW-23-1	P1200473-004	Water	2/9/2012	09:40	X
DUPE-3-1Q12	P1200473-005	Water	2/9/2012	00:00	X
EB-9-2/9/12	P1200473-006	Water	2/9/2012	09:19	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



Columbia Analytical Services
 2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Water & Soil - Chain of Custody Record & Analytical Service Request

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P12002473
 CAS Contact:

Company Name & Address (Reporting Information)		Project Name		Project Number		P.O. # / Billing Information		Analysis Method and/or Analytes		Preservative Code		Preservative Key			
BATTLE 3940 Old Town Ave, c-205 San Diego, CA 92110		1012 JPL Env Mon		100006114		355651 BATTLE / GENCO TRUCKS 505 KIMB AVE COLLETON, CA 92231		Volatile Organics GC/MS 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/> TPH Gas 8015B <input type="checkbox"/> BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/> TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted) TPH FC <input type="checkbox"/> 8015M (Subcontracted) Semi-Volatile Organics GC/MS 625 <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)		0		G VI (266)		0 1 None 2 HCL 3 HNO3 4 H2SO4 5 NaOH 6 Zn Acetate 7 Asc Acid Other	
Project Manager: DAVID CONNER Phone: (619) 726-7311 Fax: (619) 458-6614 Email Address for Result Reporting: <u>connerd@battle.org</u>		Sampler (Print & Sign)		Laboratory ID Number		Date Collected		Time Collected		Matrix		Number of Containers			
Client Sample ID		MW-23-4		①		2/9/12		758		AQ		1			
MW-23-3		②		827											
MW-23-2		③		854											
MW-23-1		④		943											
DURE-3-1012		⑤		-											
EB-9-2/9/12		⑥		919											

Report Tier Levels - please select
 Tier I - (Results/Default if not specified)
 Tier II - (Results + QC)
 Tier III - (Data Validation Package) 10% Surcharge
 Tier V - (Client specified)
 MFL required Yes / No
 MDL / PQL / J required Yes / No
 EDD required Yes / No
 Type:

Relinquished by: (Signature) Date: 2/9/12 Time: 106
 Relinquished by: (Signature) Date: 2/9/12 Time: 147
 Relinquished by: (Signature) Date: 2/9/12 Time: 147

Project Requirements (MFLs, QAPP)
 Cooler Blank / Ice / No Ice Wet Ice
 Temperature 3 °C

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200473

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200473-001.01	7196A	2/9/12	1152	SMO / MZAMORA	
		2/9/12	1152	P-37 / MZAMORA	
		2/9/12	1310	In Lab / SANDERSON	
		2/10/12	1349	P-37 / SANDERSON	
P1200473-002.01	7196A	2/9/12	1152	SMO / MZAMORA	
		2/9/12	1152	P-37 / MZAMORA	
		2/9/12	1309	In Lab / SANDERSON	
		2/10/12	1349	P-37 / SANDERSON	
P1200473-003.01	7196A	2/9/12	1152	SMO / MZAMORA	
		2/9/12	1152	P-37 / MZAMORA	
		2/9/12	1309	In Lab / SANDERSON	
		2/10/12	1349	P-37 / SANDERSON	
P1200473-004.01	7196A	2/9/12	1152	SMO / MZAMORA	
		2/9/12	1152	P-37 / MZAMORA	
		2/9/12	1310	In Lab / SANDERSON	
		2/10/12	1349	P-37 / SANDERSON	
P1200473-005.01	7196A	2/9/12	1152	SMO / MZAMORA	
		2/9/12	1152	P-37 / MZAMORA	
		2/9/12	1309	In Lab / SANDERSON	
		2/10/12	1349	P-37 / SANDERSON	
P1200473-006.01	7196A	2/9/12	1152	SMO / MZAMORA	
		2/9/12	1152	P-37 / MZAMORA	
		2/9/12	1310	In Lab / SANDERSON	
		2/10/12	1349	P-37 / SANDERSON	

Analytical Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200473
 Date Collected : 02/09/12
 Date Received : 02/09/12

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-23-4	P1200473-001	0.010	0.003	1	NA	02/09/12 15:15	ND	
MW-23-3	P1200473-002	0.010	0.003	1	NA	02/09/12 15:15	ND	
MW-23-2	P1200473-003	0.010	0.003	1	NA	02/09/12 15:15	ND	
MW-23-1	P1200473-004	0.010	0.003	1	NA	02/09/12 15:15	ND	
DUPE-3-1Q12	P1200473-005	0.010	0.003	1	NA	02/09/12 15:15	ND	
EB-9-2/9/12	P1200473-006	0.010	0.003	1	NA	02/09/12 15:15	ND	
Method Blank	P1200473-MB	0.010	0.003	1	NA	02/09/12 15:15	ND	

Approved By Karen Ryan Date : 2/10/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200473
Date Analyzed: 02/09/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By: _____

Karen Rya

Date: _____

2/10/12

ICCBMDL120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200473
Date Analyzed: 02/09/12

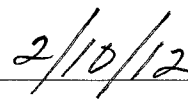
Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0525	105	90-110
CCV1	0.0500	0.0517	103	90-110
CCV2	0.0500	0.0517	103	90-110

Approved By:



Date:



CCV1A/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200473
Date Collected : NA
Date Received : NA
Date Extracted : NA
Date Analyzed : 02/09/12

Laboratory Control Sample Summary
Inorganic Parameters

Sample Name : Laboratory Control Sample
Lab Code : P1200473-LCS
Test Notes :

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0411	103	90-110	

Approved By Kanu Rya Date : 2/10/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200473
 Date Collected : 02/09/12
 Date Received : 02/09/12
 Date Extracted : NA
 Date Analyzed : 02/09/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-23-4 Units : mg/L (ppm)
 Lab Code : P1200473-001MS P1200473-001DMS Basis : NA
 Test Notes :

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0499	0.0508	100	102	73-119	2	

Approved By

Kanu Rya

Date :

2/10/12

pH Run Log

Service Request #(s): P1200473

Time: 1008

Sample	VWR lot #	Exp.
pH 2 Buffer	524-05201101	12/30/12
pH 4 Buffer	524-05201102	9/30/12
pH 7 Buffer	524-10211101	7/30/13
pH 10 Buffer	524-10241103	2/28/13

Slope	Prep.Run #
} 98.2%	—
	Run#
	—

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # in column labeled #)

Sample	#	pH	Temp. °C
pH 2.000	3	1.998	22.0°
pH 4.000	T	3.986	22.3°
pH 7.000	T	6.993	22.3°
pH 10.000	T	9.988	22.5°
Ref#: ^{TV# 7199 EXP: 8/2013} 524-10241103		7.377	22.6°
DI		1.946	21.0°
pH 2.000	↓	1.991	22.0°
TIME: 1420		82	
pH 2.000	3	2.005	22.7°
P1200473-1.01	T	2.197	19.0°
↓ -2.01	T	1.883	19.0°
↓ -3.01	T	2.018	19.2°
↓ -4.01	T	1.893	19.6°
↓ -5.01	T	1.856	19.7°
↓ -6.01	T	1.888	20.1°
pH 2.000	↓	1.998	22.5°

Sample	#	pH	Temp. °C
<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <p>Not used</p> </div> <div style="text-align: center;"> <p>used</p> </div> </div>			

pH Adjustments: 7196A: Diluted/Conc H₂SO₄ EMD 49284 EXP: 11/20/14

7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 2/6/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: [Signature]
Reviewer: [Signature]

Date: 2/9/12
Date: 2/9/12



Method EPA 7196A

Service Request#(s): P1200473 Run#: 279469
 Stock#: 524-02081201 T.V.=100PPM EXP: 3/1/12 Prep Run#:
 ICV/CCV#: 524-10151001 T.V.=100PPM EXP: 3/2012 Conc. H₂SO₄ Lot#: EMD 49284 EXP: 11/20/14
 Coloring Reagent Ref#: 524-02081202 EXP: 3/9/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.999986419
Absorbance @ 540 nm	0.000	0.010	0.051	0.104	
Retained:	0.000	0.012	0.057	0.114	

Sample #	Sample Vol.(mL)	Dilution	pH	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	ICB	10ml	-	✓ 0.000	0.000	0.000	-0.000234	10.003
2	ICV 0.05 mg/L		-	✓ 0.000	0.060	0.060	0.0525	105%
3	MB		-	✓ 0.000	0.001	0.001	0.000645	10.003
4	LCS 0.04 mg/L		-	✓ 0.000	0.047	0.047	0.0411	103%
5	P1200473-1.01		-	✓ 0.002	0.002	0.000	-0.000234	10.003
6	-1.01 MS 0.05 mg/L		-	✓ 0.002	0.059	0.057	0.0499	100% 2%
7	-1.01 MSD		-	✓ 0.002	0.060	0.058	0.0508	102% 5%
8	-2.01		-	✓ 0.001	0.004	0.003	0.00240	10.003
9	-2.01 VS 0.05 mg/L		-	✓ 0.001	0.037	0.036	0.0314	105%
10	-3.01		-	✓ 0.001	0.002	0.001	0.000645	10.003
11	-4.01		-	✓ 0.006	0.006	0.000	-0.000234	10.003
12	-5.01		-	✓ 0.004	0.005	0.001	0.000645	10.002
13	CCV1 0.05 mg/L		-	✓ 0.000	0.059	0.059	0.0517	103%
14	CCB1		-	✓ 0.000	0.000	0.000	-0.000234	10.003
15	P1200473-6.01		-	✓ 0.000	0.000	0.000		
16	CCV2 0.05 mg/L		-	✓ 0.000	0.059	0.059	0.0517	103%
17	CCB2		-	✓ 0.000	0.000	0.000	-0.000234	10.003

pH Requirement: Method 7196A (2 ± 0.5) 7 Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.25 ml of 524-10151001 @ 10 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-02081201 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of _____ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of _____ @ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: [Signature]
 Analyzed By: [Signature]
 Reviewed By: [Signature]

Date/Time: 2/9/12 @ 1500
 Date/Time: 2/9/12 @ 1515
 Date: 2/9/12

Dr)

10/6/10 524-10061001 25133ppb Stock for O3

0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
10146598 ;Exp: 8/11/12 up to 500 ml w/ DI
Water.

EXP: 10/20/10

10/6/10 524-10061002 25133ppb ION/CON for O3

0.05 ml Pyridine-4-carboxaldehyde TEI
(IC:INC ;Exp: 8/10/12) up to 500 ml w/ DI
Water.

EXP: 10/20/10

10/6/10 524-10061003 MBTH S/17

0.5000 g MBTH (Aldrich 54646EK ;Exp: 8/7/14) up
to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 44284; EXP 11/20

EXP: 10/7/10

10/15/10 524-10151001 Cr6+ ION/CON Stock

Purchased
Ricca Chemical Co Cut No 2095-16
500ml Plastic

LOT # 1010177
EXP: 3/20/12

10/15/10 524-10151002 500PPM NO2 Stock

Purchased
Ricca Chemical Co Cut No: 5444-5-4
LOT # 1010271
120ml amber glass

EXP: 4/20/11

5.00

2/21/11 524-0221101 1:1 H₂SO₄
Sol 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
ADDED SLOWLY TO 250ml DI. COOL
COMPLETELY
EXP: 2/21/12

2/21/11 524-0221102 Cr6+ Coloring Reagent
Sol 0.2500g 1,5-naphthylcarbonylhydrazide (EMD LOT 4710372)
EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
LOT # 471540; EXP: 9/30/12).
EXP: 3/31/11

2/28/11 524-0228101 0.1N H₂SO₄
Sol 5.6 ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
w/ DI H₂O
EXP: 2/28/12

2/28/11 524-0228102 1001 mg/L Cr6+
Sol Purchased
Inorganic Ventures CGCR (6)1-1
125 mL CLEAR GLASS
LOT# D2-CR03040
EXP: 3/1/2012

5/19/11
JR

524-0591103

IC02 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT BAKER EM 305041 exp: 6/15/15) in 100 mL Methanol (B&J AD806 exp: 5/17/16). Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H2SO4 (EMD 44284 exp: 1/20/14). Bring up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JR

524-05201101

pH 2.000 BUFFER

Purchased

BDH CAT. No. BDH 5010-500 mL

LOT # 1101225

EXP: 12/2012

8/20/11
JR

524-05201102

pH 4.000 BUFFER

Purchased

JT Baker CAT # 5657-01 500mL

LOT # J36503

EXP: 9/30/12

12/11
JR

524-05201103

pH 7.38 BUFFER

Purchased

BDH CAT # BDH5058-500mL

LOT # 1103301

EX: 3/2013

10/17/11 S24-10171102 1000PPM NH3
0.3141g NH4Cl (END 49198931; EXP: 10/19/14) ↑ 100ml
10/ S24-10171101 (0.1NH2SO4 EXP: 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 ILO2 Eluent
100 ml of S24-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1L W/DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
Purchased
BDH Cat No: BDH5046-500mL
LOT # 1107491
EXP: 7/2013

10/24/11 S24-10241101 PH 4.000 Buffer
Purchased
JT Baker Cat No: 5657-01 500ml
LOT # K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
Purchased
BDH Cat No: BDH6058-500ml
LOT # 1109034
EXP: 8/2013

10/24/11
Jr
524-10241103 PH 10.020 Buffer
Purchased
JT Baker Cat no: 5655-01
LOT # K07507
EXP: 2/28/13

10/25/11
Jr
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475mL
LOT # PW1 PIN 207475-A01
EXP: 10/25/12

10/25/11
Jr
524-10251102 A,B,C,D,E PH Filling Soln
Purchased
Thermo Scientific Orion 810007 5 pack/bottle
LOT: PS1
EXP: 10/25/12

11/1/11
Jr
524-11011101 ICO2 Eluent
100 ml 524-09201103 (10x conc eluent. EXP:
9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
EXP: 11/15/11

11/1/11
Jr
524-11011102 ICO2 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD JT BAKER JOSEK41
exp: 6/15/15) in 100 mL Methanol (B&J AE 932 exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD 149254 exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas.

exp: 11/6/11

1/23/12 S24-01231201 Cr⁶⁺ Coloring Reagent
 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker
 Lot J05641) ↑ 50ml w/ Acetone (EMD Lot 47154
 EXP: 9/24/12
 EXP: 2/23/12

2/3/12 S24-02031201 Cobalt II Chloride Sol'n
 2 ml Conc HCl (EMD 49260; EXP: 2/7/16) in
 100 ml DI H₂O + 4.5g CoCl₂·6H₂O (Spectrum
 XJ0990; EXP: 1/6/16) ↑ 200 ml w/ DI H₂O
 EXP: 2/13/13

2/8/12 S24-02081201 10PPM Cr⁶⁺ STD
 1.0 ml S24-02081102 (1000PPM Cr⁶⁺; EXP: 3/1/12)
 ↑ 100 ml w/ DI H₂O
 EXP: 3/1/12

2/8/12 S24-02081202 Cr⁶⁺ Coloring Reagent
 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker
 Lot J05641; EXP: 6/15/15) ↑ 50ml w/ Acetone
 (EMD Lot 47154; EXP: 9/24/12.)
 EXP: 3/9/12

LABORATORY REPORT

February 20, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 10, 2012. For your reference, these analyses have been assigned our service request number P1200493.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 3:58 pm, Feb 20, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200493

CASE NARRATIVE

The samples were received intact under chain of custody on February 10, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114
 Date Received: 2/10/2012
 Time Received: 13:34

Service Request: P1200493

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-22-3	P1200493-001	Water	2/10/2012	08:08	X
MW-22-2	P1200493-002	Water	2/10/2012	08:44	X
MW-22-1	P1200493-003	Water	2/10/2012	09:15	X
DUPE-4-1Q12	P1200493-004	Water	2/10/2012	00:00	X
EB-10-2/10/12	P1200493-005	Water	2/10/2012	09:06	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



Columbia Analytical Services
An Employee - Owned Company

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Water & Soil - Chain of Custody Record & Analytical Service Request

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. R1205493
 CAS Contact:

Company Name & Address (Reporting Information)		Project Name		Project Number		P.O. # / Billing Information		Analysis Method and/or Analytes		Preservative Code		Preservative Key	
BATTLE 3940 OLD TOWN AVE, L-255 SAN DIEGO, CA 92115		1012 JPL CIV MUN		100006114		285651		<input type="checkbox"/> Volatile Organics GC/MS <input type="checkbox"/> TPH Gas 8015B <input type="checkbox"/> BTEX 8021B <input type="checkbox"/> TPH Diesel 8015B (Subcontracted) <input type="checkbox"/> TPH Diesel Low Level 8015B (Subcontracted) <input type="checkbox"/> TPH FC 8015M (Subcontracted) <input type="checkbox"/> Semi-Volatile Organics GC/MS <input type="checkbox"/> 8270C (Subcontracted)		<input type="checkbox"/> 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas		<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7	
Project Manager: DAVID CONNER Phone: (619) 726-7311 Fax: (619) 455-6614 Email Address for Result Reporting: <u>Conner@battle.org</u>		Sampler (Print & Sign)		P.O. # / Billing Information: BATTLE / GERALD TORRES 505 KING AVE COLUMBUS, OH 43201		<input type="checkbox"/> 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas		<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7		<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7		<input type="checkbox"/> None <input type="checkbox"/> HCL <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> Zn Acetate <input type="checkbox"/> Asc Acid <input type="checkbox"/> Other	
Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers	Remarks		Temperature		Project Requirements (MRLs, QAPP)			
MW-22-3	①	2/10/12	808	AQ	1	LEVEL III USE		30°C		Cooler/Blank/Ice/No Ice			
MW-22-2	②	2/10/12	844	AQ	1	DUPLICATE		30°C		Cooler/Blank/Ice/No Ice			
MW-22-1	③	2/10/12	915	AQ	1	DUPLICATE		30°C		Cooler/Blank/Ice/No Ice			
DOPE-4-1012	④	2/10/12	906	AQ	1	DUPLICATE		30°C		Cooler/Blank/Ice/No Ice			
ERB-10-2/10/12	⑤	2/10/12	906	AQ	1	DUPLICATE		30°C		Cooler/Blank/Ice/No Ice			

Report Tier Levels - please select
 Tier I - (Results/Default if not specified) _____ Tier III - (Data Validation Package) 10% Surcharge _____
 Tier II - (Results + QC) _____ Tier V - (client specified) _____
 MRL required Yes / No _____ EDD required Yes / No _____
 MDL / PQL / J required Yes / No _____ Type: _____

Relinquished by: (Signature) _____ Date: 2/10/12 Time: 1334
 Relinquished by: (Signature) _____ Date: 2/10/12 Time: 1334
 Relinquished by: (Signature) _____ Date: 2/10/12 Time: 1334

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200493

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200493-001.01	7196A	2/10/12	1338	SMO / MZAMORA	
		2/10/12	1339	P-37 / MZAMORA	
		2/10/12	1549	In Lab / SANDERSON	
		2/10/12	1645	P-37 / SANDERSON	
P1200493-002.01	7196A	2/10/12	1338	SMO / MZAMORA	
		2/10/12	1339	P-37 / MZAMORA	
		2/10/12	1549	In Lab / SANDERSON	
		2/10/12	1645	P-37 / SANDERSON	
P1200493-003.01	7196A	2/10/12	1338	SMO / MZAMORA	
		2/10/12	1339	P-37 / MZAMORA	
		2/10/12	1549	In Lab / SANDERSON	
		2/10/12	1645	P-37 / SANDERSON	
P1200493-004.01	7196A	2/10/12	1338	SMO / MZAMORA	
		2/10/12	1339	P-37 / MZAMORA	
		2/10/12	1549	In Lab / SANDERSON	
		2/10/12	1645	P-37 / SANDERSON	
P1200493-005.01	7196A	2/10/12	1338	SMO / MZAMORA	
		2/10/12	1339	P-37 / MZAMORA	
		2/10/12	1549	In Lab / SANDERSON	
		2/10/12	1645	P-37 / SANDERSON	

Sample Acceptance Check Form

Client: Battelle Work order: P1200493
 Project: 1Q12 JPL GW Mon / 100006114
 Sample(s) received on: 2/10/12 Date opened: 2/10/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Wet Ice | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200493-001.01	125mL Plastic NP					
P1200493-002.01	125mL Plastic NP					
P1200493-003.01	125mL Plastic NP					
P1200493-004.01	125mL Plastic NP					
P1200493-005.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200493
Date Collected : 02/10/12
Date Received : 02/10/12

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-22-3	P1200493-001	0.010	0.003	1	NA	02/10/12 16:35	ND	
MW-22-2	P1200493-002	0.010	0.003	1	NA	02/10/12 16:35	ND	
MW-22-1	P1200493-003	0.010	0.003	1	NA	02/10/12 16:35	ND	
DUPE-4-1Q12	P1200493-004	0.010	0.003	1	NA	02/10/12 16:35	ND	
EB-10-2/10/12	P1200493-005	0.010	0.003	1	NA	02/10/12 16:35	ND	
Method Blank	P1200493-MB	0.010	0.003	1	NA	02/10/12 16:35	ND	

Approved By *Kam Rya* Date : 2/13/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200493
Date Analyzed: 02/10/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND

Approved By: Karen Rya Date: 2/13/12
ICCBMDL/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200493
Date Analyzed: 02/10/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0494	99	90-110
CCV1	0.0500	0.0494	99	90-110

Approved By: _____

Kane Ryan

Date: _____

2/13/12

CCV1A/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200493
Date Collected : NA
Date Received : NA
Date Extracted : NA
Date Analyzed : 02/10/12

Laboratory Control Sample Summary
Inorganic Parameters

Sample Name : Laboratory Control Sample
Lab Code : P1200493-LCS
Test Notes :

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0407	102	90-110	

Approved By Karu Ryan Date : 2/13/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200493
 Date Collected : 02/10/12
 Date Received : 02/10/12
 Date Extracted : NA
 Date Analyzed : 02/10/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-22-3 Units : mg/L (ppm)
 Lab Code : P1200493-001MS P1200493-001DMS Basis : NA
 Test Notes :

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0424	0.0424	85	85	73-119	<1	

Approved By Karen Rya Date : 2/13/12

pH Run Log

Service Request #(s): P1200493

Time: 1550

Sample	VWR lot #	Exp.	Slope	Prep.Run #
pH 2 Buffer	524-05201101	12/2012	} 98.0%	—
pH 4 Buffer	524-05201102	9/30/12		Run#
pH 7 Buffer	524-10241101	7/1/2013		—
pH 10 Buffer	524-10241103	2/28/13		—

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # In column labeled #)

Sample	#	pH	Temp. °C	Sample	#	pH	Temp. °C
pH 2.000	3	2.000	23.0°	 <p>Spec not used</p> 			
pH 4.000	—	4.008	23.3°				
pH 7.000		7.007	23.4°				
pH 10.000		9.998	23.5°				
Ref#: 7196A EXP: 9/1/13 524-10241102		7.406	23.6°				
DI		2.081	23.1°				
P1200493-1.01		1.878	19.5°				
-2.01		1.898	19.1°				
-3.01		1.887	19.1°				
-4.01		1.929	19.7°				
-5.01		1.818	19.5°				
pH 2.000	↓	2.007	22.9°				

pH Adjustments: 7196A: Diluted/Conc H₂SO₄ END 49284 EXP: 11/20/14
 7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 2/6/12

Note: ATC probe used, therefore, temperature correction calculation is not necessary.

Analyst: SP
 Reviewer: AK

Date: 2/10/12
 Date: 2/11/12

Method EPA 7196A

Service Request#(s):

P1200493

Run#:

791630

Stock#:

524-02081201 T.V.=100PPM EXP: 3/1/12

Prep Run#:

-

ICV/CCV#:

524-10151001 T.V.=100PPM EXP: 3/2012

Conc. H₂SO₄ Lot#:

EMD 44284 EXP: 11/20/14

Coloring Reagent Ref#:

524-02081202 EXP: 3/9/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.99988580
Absorbance @ 540 nm	0.000	0.013	0.057	0.115	

Sample #	Sample Vol.(mL)	Dilution	pH	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1 ICB	10ml	-	✓	0.000	0.000	0.000	-0.000501	10.00%
2 ICV 0.05 mg/L	-	-	✓	0.000	0.057	0.057	0.0494	99%
3 MB	-	-	✓	0.000	0.001	0.001	0.000374	10.00%
4 LCS 0.04 mg/L	-	-	✓	0.000	0.047	0.047	0.0407	102%
5 P1200493-1.01	-	-	✓	0.002	0.003	0.001	0.000374	10.00%
6 -1.01 MS 0.05 mg/L	-	-	✓	0.002	0.051	0.049	0.0424	85% 74%
7 -1.01 MSD	-	-	✓	0.002	0.051	0.049	0.0424	85% 5 PA
8 -2.01	-	-	✓	0.000	0.000	0.000	-0.000501	10.00%
9 -2.01 V 0.03 mg/L	-	-	✓	0.000	0.032	0.032	0.0275	92%
10 -3.01	-	-	✓	0.000	0.000	0.000	-0.000501	10.00%
11 -4.01	-	-	✓	0.000	0.000	0.000	-	-
12 -5.01	-	-	✓	0.000	0.000	0.000	-	-
13 CCV 0.05 mg/L	-	-	✓	0.000	0.057	0.057	0.0494	99%
14 CCV	-	-	✓	0.000	0.070	0.000	-0.000501	10.00%
15								
16								
17								

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.25 ml of 524-10151001 @ 10 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-02081201 @ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of _____ @ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of _____ @ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: _____

Date/Time: 2/10/12 @ 16:20

Analyzed By: _____

Date/Time: 2/19/12 @ 16:35

Reviewed By: _____

Date: 2/11/12

or)

10/6/10 524-10061001 25133ppb Stock for O3
 0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
 10140598 ;Exp: 8/11/12 up to 500 ml w/ DI
 Water.

EXP: 10/20/10

10/6/10 524-10061002 25133ppb ION/COV for O3
 0.05 ml Pyridine-4-carboxaldehyde TCI
 (IC?INC) ;Exp: 8/10/12 up to 500 ml w/ DI
 Water.

EXP: 10/20/10

10/6/10 524-10061003 MBTH Soln
 0.5000 g MBTH (Aldrich 54646EK ;Exp: 8/7/14) up
 to 100 ml w/ DI Water: Plus 0.5 ml Conc. H₂SO₄ EMD 44284; EXP 11/20

EXP: 10/7/10

10/15/10 524-10151001 Cr6+ ION/COV Stock
 Purchased 100ppm Cr6+
 RICCA Chemical Co Cat No 2095-16
 500ml Plastic
 LOT # 1010177
 EXP: 3/20/13

10/15/10 524-10151002 500ppm NO2 Stock
 Purchased
 RICCA Chemical Co Cat No: 5444-54
 LOT # 1010271 120ml amber glass
 EXP: 4/20/11

5.00

54
2/21/11 524-0221101 1:1 H₂SO₄
Sol 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
ADDED SLOWLY TO 250ml DI. COOL
COMPLETELY
EXP: 2/21/12

2/21/11 524-0221102 Cr6+ Coloring Reagent
Sol 0.2500g 1,5-diphenylcarbohydrazide (EMD Lot 4710372)
EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
Lot # 471540; EXP: 9/24/12).
EXP: 3/31/11

2/28/11 524-0228101 0.1N H₂SO₄
Sol 5.6 ml Conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
w/ DI H₂O
EXP: 2/28/12

2/28/11 524-0228102 1001 mg/L Cr6+
Sol purchased
Inorganic Ventures CGCR(6)1-1
125 mL Clear Glass
Lot# D2-CR03040
EXP: 3/1/2012

5/19/11
JL

524-05191103

IC02 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD ^{JT BAKER} ~~J365041~~ AD806 exp: 5/13/16)
exp: 6/15/16) in 100 mL Methanol (B&J AD806 exp: 5/13/16).
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H2SO4 (EMD ⁴⁹¹⁸⁴ exp: 11/20/14). Bring
up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JL

524-05201101

pH 2.000 BUFFER

purchased

BDH CAT. No. BDH 5010-500 mL

LOT # 1101225

EXP: 12/2012

8/20/11
JL

524-05201102

pH 4.000 BUFFER

purchased

JT Baker CAT # 5657-01

500 mL

LOT # J36503

EXP: 9/30/12

8/22/11
JL

524-05201103

pH 7.38 BUFFER

purchased

BDH CAT # BDH5058-500 mL

LOT # 1103301

EXP: 3/2013

10/17/11 524-10171102 1000PPM NH3
0.3141 g NH4Cl (END 4919893, EXP: 10/19/14) ↑ 100ml
10/17/11 524-10171101 (0.1M NH2SO4 EXP. 10/17/12)
EXP: 4/17/12

10/17/11 524-10171103 ILO2 Eluent
100 ml of 524-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1L w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 524-10211101 PH 7.000 Buffer
Purchased
BDH Cat No: BDH5046-500mL
LOT # 1107491
EXP: 7/20/13

10/24/11 524-10241101 PH 4.000 Buffer
Purchased
JT Baker Cat No: 5657-01 500ml
LOT # K04505
EXP: 2/28/13

10/24/11 524-10241102 PH 7.38 Buffer
Purchased
BDH Cat No BDH5058-500ml
LOT # 1109034
EXP: 8/20/13

10/24/11
Sv
524-10241103 PH 10.000 Buffer
Purchased
JT Baker Cat no: 5655-01
LOT # K07507
EXP: 2/28/13

10/25/11
Sv
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475 mL
LOT # PW1 PIN 207475-A01
EXP: 10/25/12

10/25/11
Sv
524-10251102 A,B,C,D,E PH Filling Sol'n
Purchased
Thermo Scientific Orion 810007 5 pack 60 mL
LOT: PS1
EXP: 10/25/12

11/1/11
Sv
524-11011101 IC02 Eluent
100 mL 524-09201103 (10x conc eluent. exp. 9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
EXP: 11/15/11

11/1/11
Sv
524-11011102 IC02 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD ^{JT BAKER} J05K41 exp: 6/15/15) in 100 mL Methanol (B&J ^{DE 932} exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H₂SO₄ (EMD ⁴⁴²⁵⁰⁴ exp: 11/20/14). Bring up to volume w/ DI H₂O; mix and degas.
EXP: 11/6/11

1/23/12 S24-01231201 Cr⁶⁺ Coloring Reagent
 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker
 Lot J05641) ↑ 50ml w/ Acetone (EMD Lot 47154
 EXP: 6/15/15)
 EXP: 9/24/12
 EXP: 2/23/12

2) 2/3/12 S24-02031201 Cobalt II Chloride Sol'n
 2 ml Conc HCl (EMD 49260; EXP: 2/7/16) in
 100ml DI H₂O + 4.5g CoCl₂·6H₂O (Spectrum
 XJ0990; EXP: 1/6/16) ↑ 200ml w/ DI H₂O
 EXP: 2/13/13

2/8/12 S24-02081201 10PPM Cr⁶⁺ STD
 1.0ml S24-0208102 (1000PPM Cr⁶⁺; EXP: 3/1/12)
 ↑ 100ml w/ DI H₂O
 EXP: 3/1/12

2/8/12 S24-02081202 Cr⁶⁺ Coloring Reagent
 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker
 Lot J05641; EXP: 6/15/15) ↑ 50ml w/ Acetone
 (EMD Lot 47154; EXP: 9/24/12.)
 EXP: 3/9/12

LABORATORY REPORT

February 21, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 13, 2012. For your reference, these analyses have been assigned our service request number P1200522.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 1:03 pm, Feb 21, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200522

CASE NARRATIVE

The samples were received intact under chain of custody on February 13, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114
 Date Received: 2/13/2012
 Time Received: 14:17

Service Request: P1200522

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-24-4	P1200522-001	Water	2/13/2012	08:12	X
MW-24-3	P1200522-002	Water	2/13/2012	08:39	X
MW-24-2	P1200522-003	Water	2/13/2012	09:02	X
MW-24-1	P1200522-004	Water	2/13/2012	09:40	X
EB-11-2/13/12	P1200522-005	Water	2/13/2012	09:21	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



Columbia Analytical Services
 An Employee - Owned Company
 2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Water & Soil - Chain of Custody Record & Analytical Service Request

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P1200512
 CAS Contact:

Company Name & Address (Reporting Information) BATTLE 3490 Old Town Ave, C-205 San Diego, CA 92110				Project Name <u>1012 JPL GW Mon</u>		Project Number <u>10000 6114</u>		P.O. # / Billing Information <u>25651</u>		Analysis Method and/or Analytes		Preservative Code		CAS Project No. <u>P1200512</u>	
Project Manager <u>DAVID CORNIE</u>				Sampler (Print & Sign) <u>BATTLE/Cornie Turnaround</u>		Email Address for Result Reporting <u>(619) 726-7311 (619) 458-6614</u>		Matrix <u>Soil King Ave Columbus, OH 43261</u>		Number of Containers <u>1</u>		Volatile Organics GC/MS 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/>		Preservative Key	
Client Sample ID				Laboratory ID Number		Date Collected		Time Collected		Matrix		TPH Gas 8015B <input type="checkbox"/>		0	
<u>MW-24-4</u>				<u>1</u>		<u>2/13/12</u>		<u>812</u>		<u>AQ</u>		<input type="checkbox"/>		<u>1</u>	
<u>MW-24-3</u>				<u>2</u>		<u>839</u>		<u>902</u>		<u>1</u>		<input type="checkbox"/>		<u>X</u>	
<u>MW-24-2</u>				<u>3</u>		<u>940</u>		<u>940</u>		<u>1</u>		<input type="checkbox"/>		<u>X</u>	
<u>MW-24-1</u>				<u>4</u>		<u>940</u>		<u>940</u>		<u>2</u>		<input type="checkbox"/>		<u>X</u>	
<u>EB-11-2/13/12</u>				<u>5</u>		<u>921</u>		<u>921</u>		<u>1</u>		<input type="checkbox"/>		<u>X</u>	
Report Tier Levels - please select				Tier I - (Results/Default if not specified)		Tier II - (Results + QC)		Tier III - (Data Validation Package) 10% Surcharge		Tier V - (Client specified)		MPL required Yes / No		EDD required Yes / No	
Relinquished by: (Signature)				Date		Time		Received by: (Signature)		Date		Time		Project Requirements (MRLs, GAPP)	
<u>[Signature]</u>				<u>2/13/12</u>		<u>11:50</u>		<u>[Signature]</u>		<u>2/13/12</u>		<u>1:50</u>		Cooler / Blank / Ice / No Ice	
Relinquished by: (Signature)				Date		Time		Received by: (Signature)		Date		Time		Temperature <u>30</u> °C	
<u>[Signature]</u>				<u>2/13/12</u>		<u>14:17</u>		<u>[Signature]</u>		<u>2/13/12</u>		<u>14:17</u>		<u>30</u> °C	

- 0 None
- 1 HCL
- 2 HNO3
- 3 H2SO4
- 4 NaOH
- 5 Zn Acetate
- 6 Asc Acid
- 7 Other

Remarks

Chain of Custody Report

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200522

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200522-001.01	7196A	2/13/12	1435	SMO / MZAMORA	
		2/13/12	1439	P-37 / MZAMORA	
		2/13/12	1441	In Lab / SANDERSON	
		2/13/12	1544	P-37 / SANDERSON	
P1200522-002.01	7196A	2/13/12	1435	SMO / MZAMORA	
		2/13/12	1439	P-37 / MZAMORA	
		2/13/12	1441	In Lab / SANDERSON	
		2/13/12	1544	P-37 / SANDERSON	
P1200522-003.01	7196A	2/13/12	1435	SMO / MZAMORA	
		2/13/12	1439	P-37 / MZAMORA	
		2/13/12	1441	In Lab / SANDERSON	
		2/13/12	1544	P-37 / SANDERSON	
P1200522-004.01	7196A	2/13/12	1435	SMO / MZAMORA	
		2/13/12	1439	P-37 / MZAMORA	
		2/13/12	1441	In Lab / SANDERSON	
		2/13/12	1544	P-37 / SANDERSON	
P1200522-004.02		2/13/12	1435	SMO / MZAMORA	
		2/13/12	1439	P-37 / MZAMORA	
		2/13/12	1441	In Lab / SANDERSON	
		2/13/12	1544	P-37 / SANDERSON	
P1200522-005.01	7196A	2/13/12	1435	SMO / MZAMORA	
		2/13/12	1439	P-37 / MZAMORA	
		2/13/12	1441	In Lab / SANDERSON	
		2/13/12	1544	P-37 / SANDERSON	

Sample Acceptance Check Form

Client: Battelle Work order: P1200522
 Project: 1Q12 JPL GW Mon / 100006114
 Sample(s) received on: 2/13/12 Date opened: 2/13/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | Wet Ice |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 Were custody seals on outside of cooler/Box?
Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container?
Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200522-001.01	125mL Plastic NP					
P1200522-002.01	125mL Plastic NP					
P1200522-003.01	125mL Plastic NP					
P1200522-004.01	125mL Plastic NP					
P1200522-004.02	125mL Plastic NP					
P1200522-005.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200522
Date Collected : 02/13/12
Date Received : 02/13/12

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-24-4	P1200522-001	0.010	0.003	1	NA	02/13/12 15:30	ND	
MW-24-3	P1200522-002	0.010	0.003	1	NA	02/13/12 15:30	ND	
MW-24-2	P1200522-003	0.010	0.003	1	NA	02/13/12 15:30	ND	
MW-24-1	P1200522-004	0.010	0.003	1	NA	02/13/12 15:30	ND	
EB-11-2/13/12	P1200522-005	0.010	0.003	1	NA	02/13/12 15:30	ND	
Method Blank	P1200522-MB	0.010	0.003	1	NA	02/13/12 15:30	ND	

Approved By Kam Rya Date : 2/14/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200522
Date Analyzed: 02/13/12

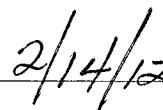
Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND

Approved By:



Date:



ICCBMDL/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200522
Date Analyzed: 02/13/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0498	100	90-110
CCV1	0.0500	0.0498	100	90-110

Approved By: Karen Rya Date: 2/14/12
CCV1A/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200522
Date Collected : NA
Date Received : NA
Date Extracted : NA
Date Analyzed : 02/13/12

Laboratory Control Sample Summary
Inorganic Parameters

Sample Name : Laboratory Control Sample
Lab Code : P1200522-LCS
Test Notes :

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0420	105	90-110	

Approved By Kanu Rya Date: 2/14/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200522
Date Collected : 02/13/12
Date Received : 02/13/12
Date Extracted : NA
Date Analyzed : 02/13/12

Matrix Spike/Duplicate Matrix Spike Summary

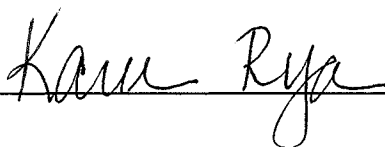
Sample Name : MW-24-1
Lab Code : P1200522-004MS
Test Notes :

P1200522-004DMS

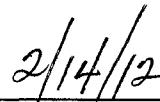
Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0454	0.0454	91	91	73-119	<1	

Approved By



Date :



pH Run Log

Service Request #(s): 11200522

Time: 0725

Sample	VWR lot #	Exp.
pH 2 Buffer	524-10241101	12/28/12
pH 4 Buffer	524-10241101	2/28/13
pH 7 Buffer	524-10211101	3/20/13
pH 10 Buffer	524-10241103	2/28/13

Slope	Prep.Run #
} 98.3%	—
	Run#
	—

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # In column labeled #)

Sample	#	pH	Temp. °C	Sample	#	pH	Temp. °C
pH 2.000	3	2.003	21.2°				
pH 4.000	T	3.998	21.5°				
pH 7.000		7.002	21.5°				
pH 10.000		9.998	21.9°				
Ref#: <u>912018</u> <u>524-10241102</u>		7.395	21.6°				
DI		2.062	21.0°				
pH 2.000	✓	2.002	21.4°				
TIME: 1500							
pH 2.000	3	2.017	22.2°				
<u>11200522-10</u>	T	1.931	11.9°				
-2.01		2.004	11.9°				
-3.01		1.855	11.7°				
-4.01		1.875	11.8°				
-5.01		1.907	12.8°				
pH 2.000	✓	2.029	21.8°				

pH Adjustments: 7196A: Diluted/Conc H₂SO₄ 112014 EXP: 11/20/14

7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 2/13/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: [Signature]

Date: 2/13/12

Reviewer: [Signature]

Date: 2/14/12



Method EPA 7196A

Service Request#(s): P1200520
 Stock#: S24-0208/201 T.V.=10ppm EXP: 3/1/12
 ICV/CCV#: S24-1015/001 T.V.=10ppm EXP: 3/20/12

Run#: 274786
 Prep Run#: _____
 Conc. H₂SO₄ Lot#: EMD 49284
 Coloring Reagent Ref#: S24-0208/202 EXP: 3/9/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	
Absorbance @ 540 nm	0.000	0.013	0.058	0.116	0.9992812

Sample #	Sample Vol.(mL)	Dilution	pH	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	ICB	10ml	-	✓ 0.000	0.001	0.001	0.000329	10.003
2	ICV 0.05 ^{mg/L}	-	-	✓ 0.000	0.058	0.058	0.0498	100%
3	MB	-	-	✓ 0.000	0.001	0.001	0.000329	10.003
4	LCS 0.04 ^{mg/L}	-	-	✓ 0.000	0.049	0.049	0.0420	105%
5	P1200527 - 1.01	-	-	✓ 0.008	0.011	0.003	0.00206	10.003
6	- 1.01/MS 0.03 ^{mg/L}	-	-	✓ 0.008	0.039	0.031	0.0263	88%
7	- 2.01	-	-	✓ 0.003	0.003	0.000	0.000538	10.003
8	- 3.01	-	-	✓ 0.000	0.004	0.004	0.00293	10.003
9	- 4.01	-	-	✓ 0.001	0.003	0.002	0.00170	10.003
10	- 4.01 MS 0.05 ^{mg/L}	-	-	✓ 0.001	0.054	0.053	0.0454	91% 74%
11	- 4.01 MS(D)	-	-	✓ 0.001	0.054	0.053	0.0454	91% 54%
12	✓ - 5.01	-	-	✓ 0.000	0.000	0.000	0.000538	10.003
13	CCV 0.05 ^{mg/L}	-	-	✓ 0.000	0.058	0.058	0.0498	100%
14	CCV	-	-	✓ 0.000	0.000	0.000	0.000538	10.003
15								
16								
17								

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.25 ml of S24-1015/001 @ 10 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of S24-0208/201 ↑ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of _____ ↑ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of _____ @ 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: [Signature]
 Analyzed By: [Signature]
 Reviewed By: [Signature]

Date/Time: 2/13/12 @ 15:15
 Date/Time: 2/13/12 @ 15:30
 Date: 2/14/12

Dr)

10/6/10 524-10061001 25133ppb stock for O3
 0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
 10146598 :Exp: 8/11/12) up to 500 ml w/ DI
 Water.

EXP: 10/20/10

10/6/10 524-10061002 25133ppb ION/CON for O3
 0.05 ml Pyridine-4-carboxaldehyde TCI
 (IC9INC :Exp: 8/10/12) up to 500 ml w/ DI
 Water.

EXP: 10/20/10

10/6/10 524-10061003 MBTH 5/17
 0.5000 g MBTH (Aldrich 54696EK :Exp: 8/7/14) up
 to 100 ml w/ DI Water: Plus 0.5 ml Conc. H₂SO₄ EMD 49284; EXP 11/20

EXP: 10/7/10

10/15/10 524-10151001 Cr6+ ION/CON Stock
 Purchased 100ppm Cr6+
 Ricca Chemical Co Cat No 2095-16
 500ml Plastic
 LOT # 1010177
 EXP: 3/20/12

10/15/10 524-10151002 500ppm NO₂ Stock
 Purchased
 Ricca Chemical Co Cat No: 5444-5-4
 LOT # 1010271 120ml amber glass
 EXP: 4/20/11

2/21/11 524-0221101 1:1 H₂SO₄
Sol 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
ADDED SLOWLY TO 250ml DI. Cool
COMPLETELY
EXP: 2/21/12

2/21/11 524-0221102 Cr6+ Coloring Reagent
Sol 0.2500g 1,5-naphthylcarbonylhydrazide (EMD LOT 4710372)
EXP: 4/30/13) ↑ 50 ml w/ Acetone (EMD
LOT # 471540; EXP: 9/24/12).
EXP: 3/21/11

2/28/11 524-0228101 0.1N H₂SO₄
Sol 5.6 ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
w/ DI H₂O
EXP: 2/28/12

2/28/11 524-0228102 1001 mg/L Cr6+
Sol Purchased
Inorganic Ventures CGCR(6)1-1
125 mL Clear Glass
LOT# D2-CR03040
EXP: 3/1/2012

5/19/11
JR

524-05191103 IC02 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (JT Baker ^{JT Baker} ~~EM~~ ^{J35641}
exp: 6/15/15) in 100 mL Methanol (B&J AD806 exp: 5/13/16).
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H2SO4 (EMD ⁴⁹²⁸⁴ exp: 11/20/14). Bring
up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JR

524-05201101 pH 2.000 BUFFER

Purchased
BDH CAT. No. BDH 5010-500 mL
LOT # 1101225
EXP: 12/2012

8/20/11
JR

524-05201102 pH 4.000 BUFFER

Purchased
JT Baker CAT # 5657-01 500mL
LOT # J36503
EXP: 9/30/12

12/1/11
JR

524-05201103 pH 7.38 BUFFER

Purchased
BDH CAT # BDH5058-500mL
LOT # 1103301
EX: 3/2013

10/17/11 S24-10171102 1000PPM NH3
0.3141g NH4Cl (EMD 4919893,; EXP: 10/19/14) ↑ 100ml
10/ S24-10171101 (0.1M NH2SO4 EXP. 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 IL02 Eluent
100 ml of S24-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1/2 w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
Purchased
BDH Cat No: BDH5046-500mL
LOT # 1107491
EXP: 7/2013

10/24/11 S24-10241101 PH 4.000 Buffer
Purchased
JT Baker Cat No: 5657-01 500ml
LOT # K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
Purchased
BDH Cat No BDH6058-500ml
LOT # 1109034
EXP: 8/2013

10/24/11
Sw
524-10241103 PH 10.000 Buffer
Purchased
JT Baker Cat no: 5655-01
Lot # K07507
Exp: 2/28/13

10/25/11
Sw
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475 mL
Lot # PW1 P/N 207475-A01
Exp: 10/25/12

10/25/11
Sw
524-10251102 A, B, C, D, E PH Filling Sol'n
Purchased
Thermo Scientific Orion 810007 .5 pack/bottle
Lot: PS1
Exp: 10/25/12

11/1/11
Sw
524-11011101 ICO2 Eluent
100 ml 524-09201103 (10x conc eluent. exp: 9/20/12) ↑ 1 L w/ DI H2O. DEGASSED
Exp: 11/15/11

11/1/11
Sw
524-11011102 ICO2 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD JT BAKER 305641 exp: 6/15/15) in 100 mL Methanol (B&J DE 932 exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water + 5.6 mL conc. H2SO4 (EMD 447354 exp: 11/20/14). Bring up to volume w/ DI H2O; mix and degas.
Exp: 11/6/14

1/23/12 S24-01231201 Cr⁶⁺ Coloring Reagent
0.2500g 1,5-Diphenylcarbohydrazide (JT Baker
LOT J05641; EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD LOT 47154
EXP: 9/24/12)
EXP: 2/23/12

2/3/12 S24-02031201 Cobalt-II Chloride Sol'n
2 ml Conc HCl (EMD 49260; EXP: 2/7/16) in
100 ml DI H₂O + 4.5g CoCl₂·6H₂O (Spectrum
XJ0990; EXP: 1/6/16) ↑ 200 ml w/ DI H₂O
EXP: 2/13/13

2/8/12 S24-02081201 10PPM Cr⁶⁺ STD
1.0 ml S24-02081102 (1000PPM Cr⁶⁺; EXP: 3/1/12)
↑ 100 ml w/ DI H₂O
EXP: 3/1/12

2/8/12 S24-02081202 Cr⁶⁺ Coloring Reagent
0.2500g 1,5-Diphenylcarbohydrazide (JT Baker
LOT J05641; EXP: 6/15/15) ↑ 50ml w/ Acetone
(EMD LOT 47154; EXP: 9/24/12.)
EXP: 3/9/12

LABORATORY REPORT

February 21, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 14, 2012. For your reference, these analyses have been assigned our service request number P1200541.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 1:13 pm, Feb 21, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200541

CASE NARRATIVE

The samples were received intact under chain of custody on February 14, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114

Service Request: P1200541

Date Received: 2/14/2012
 Time Received: 13:27

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-25-5	P1200541-001	Water	2/14/2012	08:23	X
MW-25-4	P1200541-002	Water	2/14/2012	08:50	X
MW-25-3	P1200541-003	Water	2/14/2012	09:17	X
MW-25-2	P1200541-004	Water	2/14/2012	09:41	X
MW-25-1	P1200541-005	Water	2/14/2012	10:10	X
SB-1-2/14/12	P1200541-006	Water	2/14/2012	09:04	X
EB-12-2/14/12	P1200541-007	Water	2/14/2012	09:55	X
MW-26-2	P1200541-008	Water	2/14/2012	11:08	X
MW-26-1	P1200541-009	Water	2/14/2012	11:28	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Chain of Custody Report

Now part of the ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200541

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200541-001.01	7196A	2/14/12	1338	SMO / MZAMORA	
		2/14/12	1338	P-37 / MZAMORA	
		2/14/12	1444	In Lab / SANDERSON	
		2/14/12	1557	P-37 / SANDERSON	
P1200541-002.01	7196A	2/14/12	1338	SMO / MZAMORA	
		2/14/12	1338	P-37 / MZAMORA	
		2/14/12	1444	In Lab / SANDERSON	
		2/14/12	1557	P-37 / SANDERSON	
P1200541-003.01	7196A	2/14/12	1338	SMO / MZAMORA	
		2/14/12	1338	P-37 / MZAMORA	
		2/14/12	1444	In Lab / SANDERSON	
		2/14/12	1557	P-37 / SANDERSON	
P1200541-004.01	7196A	2/14/12	1338	SMO / MZAMORA	
		2/14/12	1338	P-37 / MZAMORA	
		2/14/12	1444	In Lab / SANDERSON	
		2/14/12	1557	P-37 / SANDERSON	
P1200541-005.01	7196A	2/14/12	1338	SMO / MZAMORA	
		2/14/12	1338	P-37 / MZAMORA	
		2/14/12	1444	In Lab / SANDERSON	
		2/14/12	1557	P-37 / SANDERSON	
P1200541-006.01	7196A	2/14/12	1338	SMO / MZAMORA	
		2/14/12	1338	P-37 / MZAMORA	
		2/14/12	1444	In Lab / SANDERSON	
		2/14/12	1557	P-37 / SANDERSON	
P1200541-007.01	7196A	2/14/12	1338	SMO / MZAMORA	
		2/14/12	1338	P-37 / MZAMORA	
		2/14/12	1444	In Lab / SANDERSON	
		2/14/12	1557	P-37 / SANDERSON	
P1200541-008.01	7196A	2/14/12	1338	SMO / MZAMORA	
		2/14/12	1338	P-37 / MZAMORA	
		2/14/12	1444	In Lab / SANDERSON	
		2/14/12	1557	P-37 / SANDERSON	

Chain of Custody Report

Now part of the  ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200541

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
	7196A	2/14/12	1338	SMO / MZAMORA	
		2/14/12	1338	P-37 / MZAMORA	
		2/14/12	1444	In Lab / SANDERSON	
		2/14/12	1557	P-37 / SANDERSON	
P1200541-009.01	7196A	2/14/12	1338	SMO / MZAMORA	
		2/14/12	1338	P-37 / MZAMORA	
		2/14/12	1444	In Lab / SANDERSON	
		2/14/12	1557	P-37 / SANDERSON	

Sample Acceptance Check Form

Client: Battelle Work order: P1200541

Project: 1Q12 JPL GW Mon / 100006114

Sample(s) received on: 2/14/12 Date opened: 2/14/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature: 4° C Blank Temperature: ° C | | | |
| Gel Packs | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200541-001.01	125mL Plastic NP					
P1200541-002.01	125mL Plastic NP					
P1200541-003.01	125mL Plastic NP					
P1200541-004.01	125mL Plastic NP					
P1200541-005.01	125mL Plastic NP					
P1200541-006.01	125mL Plastic NP					
P1200541-007.01	125mL Plastic NP					
P1200541-008.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200541
 Date Collected : 02/14/12
 Date Received : 02/14/12

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-25-5	P1200541-001	0.010	0.003	1	NA	02/14/12 15:30	ND	
MW-25-4	P1200541-002	0.010	0.003	1	NA	02/14/12 15:30	ND	
MW-25-3	P1200541-003	0.010	0.003	1	NA	02/14/12 15:30	ND	
MW-25-2	P1200541-004	0.010	0.003	1	NA	02/14/12 15:30	ND	
MW-25-1	P1200541-005	0.010	0.003	1	NA	02/14/12 15:30	ND	
SB-1-2/14/12	P1200541-006	0.010	0.003	1	NA	02/14/12 15:30	ND	
EB-12-2/14/12	P1200541-007	0.010	0.003	1	NA	02/14/12 15:30	ND	
MW-26-2	P1200541-008	0.010	0.003	1	NA	02/14/12 15:30	ND	
MW-26-1	P1200541-009	0.010	0.003	1	NA	02/14/12 15:30	ND	
Method Blank	P1200541-MB	0.010	0.003	1	NA	02/14/12 15:30	ND	

Approved By Karen Rya Date : 2/14/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200541
Date Analyzed: 02/14/12

Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND
CCB2	0.010	0.003	ND

Approved By: Karen Rya Date: 2/14/12
ICCBMDL/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200541
Date Analyzed: 02/14/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0499	100	90-110
CCV1	0.0500	0.0508	102	90-110
CCV2	0.0500	0.0508	102	90-110

Approved By
CCV1A/120594

Kam Rya

Date:

2/14/12

QA/QC Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200541
 Date Collected : NA
 Date Received : NA
 Date Extracted : NA
 Date Analyzed : 02/14/12

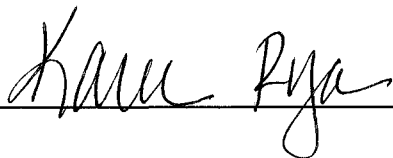
Laboratory Control Sample Summary
 Inorganic Parameters

Sample Name : Laboratory Control Sample
 Lab Code : P1200541-LCS
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Chromium, Hexavalent	None	7196A	0.0400	0.0367	92	90-110	

Approved By



Date :

2/14/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200541
Date Collected : 02/14/12
Date Received : 02/14/12
Date Extracted : NA
Date Analyzed : 02/14/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-25-5 Units : mg/L (ppm)
 Lab Code : P1200541-001MS P1200541-001DMS Basis : NA
 Test Notes :

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0455	0.0455	91	91	73-119	<1	

Approved By Karen Rya Date : 2/14/12

pH Run Log

Service Request #(s): 71200541

Time: 0950

Sample	VWR lot #	Exp.
pH 2 Buffer	524-05201101	12/2012
pH 4 Buffer	524-10241101	2/28/13
pH 7 Buffer	524-10211101	7/2013
pH 10 Buffer	524-10241103	2/28/13

Slope	Prep.Run #
} 98.7%	—
	Run#
	—

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # In column labeled #)

Sample	#	pH	Temp. °C
pH 2.000	3	1.995	20.7°
pH 4.000	↓	3.990	20.9°
pH 7.000	↓	7.002	20.8°
pH 10.000	↓	10.001	20.9°
Ref#: ^{T.V. = 7.38 EXP: 08/013} 524-10241102	↓	7.388	21.0°
DI	↓	2.083	19.7°
pH 2.000	↓	1.991	20.8°
TIME: 1452	↓		
pH 2.000	3	2.010	21.8°
71200541-1.01	↓	2.067	16.4°
— 2.01	↓	2.004	16.2°
— 3.01	↓	1.874	15.2°
— 4.01	↓	1.872	16.0°
— 5.01	↓	1.855	17.2°
— 6.01	↓	1.857	16.9°
— 7.01	↓	1.765	16.3°
√ -8.01	√	1.770	16.8°

Sample	#	pH	Temp. °C
71200541-9.01	3	1.992	17.4°
pH 2.000	↓	2.028	21.7°
Area not used			

pH Adjustments: 7196A: Diluted/Conc H₂SO₄ END 49284 EXP: 11/20/14

7199A: Diluted NaOH _____ EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt:vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 2/13/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: [Signature]

Date: 2/14/12

Reviewer: [Signature]

Date: 2/14/12

Service Request#(s): P1200541
 Stock#: 524-02081201 T.V.=100PPM EXP: 3/1/12
 ICV/CCV#: 524-10151001 T.V.=100PPM EXP: 3/20/12

Run#: 279959
 Prep Run#: _____
 Conc. H₂SO₄ Lot#: EMD 49284 EXP: 11/20/14
 Coloring Reagent Ref#: 524-02081202 EXP: 3/9/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.999986419
Absorbance @ 540 nm	0.000	0.012	0.057	0.114	

Sample #	Sample Vol.(mL)	Dilution	pH	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	ICB	10ml	-	✓ 0.000	0.000	0.000	-0.000234	<0.003
2	ICV 0.05 mg/L	-	-	✓ 0.000	0.057	0.057	0.0499	100%
3	MB	-	-	✓ 0.000	0.000	0.000	-0.000234	<0.003
4	LCS 0.04 mg/L	-	-	✓ 0.000	0.042	0.042	0.0367	92%
5	P1200541-1.01	-	-	✓ 0.000	0.000	0.000	-0.000234	<0.003
6	-1.01 MS 0.05 mg/L	-	-	✓ 0.000	0.052	0.052	0.0455	91% } 21%
7	-1.01 MSD	-	-	✓ 0.000	0.052	0.052	0.0455	91% } RPD
8	-2.01	-	-	✓ 0.003	0.003	0.000	-0.000234	<0.003
9	-2.01 VS 0.03 mg/L	-	-	✓ 0.003	0.035	0.032	0.0279	93%
10	-3.01	-	-	✓ 0.003	0.003	0.000	-0.000234	<0.003
11	-4.01	-	-	✓ 0.002	0.004	0.002	0.00152	<0.003
12	-5.01	-	-	✓ 0.003	0.004	0.001	0.000645	<0.003
13	CCV1 0.05 mg/L	-	-	✓ 0.000	0.058	0.058	0.0508	100% } 21%
14	CCB1	-	-	✓ 0.000	0.000	0.000	-0.000234	<0.003
15	P1200541-6.01	-	-	✓ 0.001	0.001	0.001	0.000645	<0.003
16	-7.01	-	-	✓ 0.000	0.000	0.000	-0.000234	<0.003
17	-8.01	-	-	✓ 0.002	0.003	0.001	0.000645	<0.003

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.25 ml of 524-1015101 @ 100 ppm + 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-02081201 + 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of _____ + 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of _____ @ 100 ppm + 10 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: [Signature]
 Analyzed By: [Signature]
 Reviewed By: [Signature]

Date/Time: 2/14/12 @ 15:15
 Date/Time: 2/14/12 @ 15:30
 Date: 2/14/12

Service Request#(s): P1200541

Run#: 279959

page 206 2

Stock#: 524-02081201 T.V.=100PPM EXP: 3/1/12

Prep Run#:

ICV/CCV#: 524-10151001 T.V.=100PPM EXP: 3/20/12

Conc. H₂SO₄ Lot#: MD 4984 EXP: 11/20/14

Coloring Reagent Ref#: 524-02081207 EXP: 3/9/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	
Absorbance @ 540 nm					

Sample #	Sample Vol.(mL)	Dilution	pH	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1	<u>P1200541-9.01</u>	<u>10ml</u>	<u>-</u>	<u>✓ 0.007</u>	<u>0.003</u>	<u>0.001</u>	<u>0.000645</u>	<u>10.003</u>
2	<u>CCV2 0.05 mg/L</u>	<u>↓</u>	<u>-</u>	<u>✓ 0.000</u>	<u>0.058</u>	<u>0.058</u>	<u>0.0508</u>	<u>102%</u>
3	<u>CCV2</u>	<u>↓</u>	<u>-</u>	<u>✓ 0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000234</u>	<u>10.003</u>
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								

Space not used

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.25 ml of 524-10151001 @ 10 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-02081201 @ 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of ↓ @ 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of ↓ @ 70 ml of sample (T.V.= 0.03 ppm)

Comments:

Prepared By: [Signature]
 Analyzed By: [Signature]
 Reviewed By: [Signature]

Date/Time: 2/14/12 @ 1515
 Date/Time: 2/14/12 @ 1530
 Date: 2/14/12

Dr)

10/6/10 524-10061001 25133 ppb Stock for 03
 0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
 10146598 ;Exp: 8/11/12 up to 500 ml w/ DI
 Water.
 EXP: 10/20/10

10/6/10 524-10061002 25133 ppb ION/CON for 03
 0.05 ml Pyridine-4-carboxaldehyde TCI
 (IC₂INC ;Exp: 8/10/12) up to 500 ml w/ DI
 Water.
 EXP: 10/20/10

10/6/10 524-10061003 MBTH Soln
 0.5000 g MBTH (Aldrich 54646K ;Exp: 8/7/14) up
 to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 49284; EXP 11/20
 EXP: 10/7/10

10/15/10 524-10151001 Cr6+ ION/CON Stock
 Purchased 100ppm Cr6+
 RICCA Chemical Co Cat No 2095-16
 500ml Plastic
 LOT# 1010177
 EXP: 3/20/12

10/15/10 524-10151002 500ppm NO₂ Stock
 Purchased
 RICCA Chemical Co Cat No: 5444-5-4
 LOT# 1010271 120ml amber glass
 EXP: 4/20/11

54
2/21/11 524-0221101 1:1 H₂SO₄
JW 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
ADDED SLOWLY TO 250ml DI. Cool
COMPLETELY
EXP: 2/21/12

2/21/11 524-0221102 Cr6+ Coloring Reagent
JW 0.2500g 1,5-naphenylcarbonylhydrazide (EMD lot 4710372,
EXP: 4/30/13) ↑ 50 ml w/ Acetone (EMD
lot # 471540; EXP: 9/24/12).
EXP: 3/31/11

2/28/11 524-0228101 0.1N H₂SO₄
JW 5.6ml Conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
w/ DI H₂O
EXP: 2/28/12

2/28/11 524-0228102 1001 mg/L Cr6+
JW Purchased
Inorganic Ventures CGCR(6)1-1
125 mL Clear Glass
Lot# D2-CR03040
EXP: 3/1/2012

5/19/11
Jr

S24-05191103

IC02 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EM ^{JT BAKER} J365041
exp: 6/15/16) in 100 mL Methanol (B&J AD806 exp: 5/13/16).
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H2SO4 (EMD 44284 exp: 11/20/14). Bring
up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
Jr

S24-05201101

pH 2.000 BUFFER

Purchased

BDH CAT. No. BDH 5010-500 mL
LOT# 1101225
EXP: 12/2012

7/20/11
Jr

S24-05201102

pH 4.000 BUFFER

Purchased

JT Baker CAT# 5657-01 500 mL
LOT# J36503
EXP: 9/30/12

7/20/11
Jr

S24-05201103

pH 7.38 BUFFER

Purchased

BDH CAT# BDH5058-500 mL
LOT# 1103361
EX: 3/2013

10/17/11 S24-10171102 1000PPM NH3
0.3141 g NH4Cl (EMD 49198931; EXP: 10/19/14) ↑ 100ml
10/ S24-10171101 (0.1M NH2SO4 EXP. 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 IOD⁻ Eluent
100 ml of S24-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1/2 w/ DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
Purchased
BDH Cat No: BDH5046-500mL
LOT # 1107491
EXP: 7/2013

10/24/11 S24-10241101 PH 4.000 Buffer
Purchased
JT Baker Cat No: 5657-01 500mL
LOT # K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
Purchased
BDH Cat No: BDH6058-500mL
LOT # 1109034
EXP: 8/2013

10/24/11
Sr
524-10241103 PH 10.000 Buffer
Purchased
JT Baker Cat no: 5655-01
LOT # K07507
EXP: 2/28/13

10/25/11
Sr
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475 mL
LOT # PW1 P/N 207475-A01
EXP: 10/25/12

10/25/11
Sr
524-10251102 A, B, C, D, E PH Filling Soln
Purchased
Thermo Scientific Orion 810007 5 pack (6 mL)
LOT: PS1
EXP: 10/25/12

11/1/11
Sr
524-11011101 ICO2 Eluent
100 ml 524-09201103 (10x conc eluent. exp:
9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
EXP: 11/15/11

11/1/11
Sr
524-11011102 ICO2 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD JT BAKER JO5841
exp: 6/15/15) in 100 mL Methanol (B&J DE 932 exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD 44754 exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas.
exp: 11/6/11

1/23/12 S24-01231201 Cr⁶⁺ Coloring Reagent
 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker
 Lot J05641) ↑ 50ml w/ Acetone (EMD Lot 47154
 EXP: 6/15/15)
 EXP: 9/24/12
 EXP: 2/23/12

2/3/12 S24-02031201 Cobalt-II Chloride Sol'n
 2 ml Conc HCl (EMD 49260; EXP: 2/7/16) in
 100ml DI H₂O + 4.5g CoCl₂·6H₂O (Spectrum
 XJ0990; EXP: 1/6/16) ↑ 200ml w/ DI H₂O
 EXP: 2/13/13

2/8/12 S24-02081201 10PPM Cr⁶⁺ STD
 1.0ml S24-02081102 (1000PPM Cr⁶⁺; EXP: 3/1/12)
 ↑ 100ml w/ DI H₂O
 EXP: 3/1/12

2/8/12 S24-02081202 Cr⁶⁺ Coloring Reagent
 0.2500g 1,5-Diphenylcarbohydrazide (JT Baker
 Lot J05641; EXP: 6/15/15) ↑ 50ml w/ Acetone
 (EMD Lot 47154; EXP: 9/24/12.)
 EXP: 3/9/12

LABORATORY REPORT

February 21, 2012

David Conner
Battelle
4800 Oak Grove Dr. M/S 180-801
Pasadena, CA 91109

RE: 1Q12 JPL GW Mon / 100006114

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 15, 2012. For your reference, these analyses have been assigned our service request number P1200569.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 362188; Washington State Department of Ecology, ELAP Lab ID: C946, State of Utah Department of Health, NELAP Certificate No. CA015272011-1; Los Angeles Department of Building and Safety, Approval No: TA00001. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Digitally Signed By Sue Anderson at 1:20 pm, Feb 21, 2012

Sue Anderson
Project Manager

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

CAS Project No: P1200569

CASE NARRATIVE

The samples were received intact under chain of custody on February 15, 2012 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

DETAIL SUMMARY REPORT

Client: Battelle
 Project ID: 1Q12 JPL GW Mon / 100006114
 Date Received: 2/15/2012
 Time Received: 12:11

Service Request: P1200569

7196A - Cr6

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	
MW-12-3	P1200569-001	Water	2/15/2012	09:03	X
MW-12-2	P1200569-002	Water	2/15/2012	09:34	X
MW-12-1	P1200569-003	Water	2/15/2012	09:57	X
EB-13-2/15/12	P1200569-004	Water	2/15/2012	09:50	X

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Water & Soil - Chain of Custody Record & Analytical Service Request

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P1200569

Company Name & Address (Reporting Information)
BATELLE
 3990 OLD TOWN AVE., C-205
 SAN DIEGO, CA 92110

Project Name
1612 TPL GW MW

CAS Contact:

Project Number
100006114

Analysis Method and/or Analytes

Preservative Code

PO.# / Billing Information
255651
BATELLE / GROUND TOWN
505 KING AVE
COLUMBUS, OH 43201

Project Manager
DAVID CONNER

Preservative Key

Phone
(619) 726-7311

0 None
 1 HCL
 2 HNO3
 3 H2SO4
 4 NaOH
 5 Zn Acetate
 6 Asc Acid
 7 Other

Fax
(619) 458-6614

Remarks

Email Address for Result Reporting
connerd@batelle.org

Client Sample ID

Volatile Organics GC/MS
 624 8260B Oxygenates TPH Gas

Laboratory ID Number

TPH Gas 8015B
 BTEX 8021B MTBE 8021B

Date Collected

TPH Diesel 8015B (Subcontracted)
 TPH Diesel Low Level 8015B (Subcontracted)

Time Collected

TPH FC 8015M (Subcontracted)

Matrix

Semi-Volatile Organics GC/MS
 625 8270C (Subcontracted)

Number of Containers

(9612) IV J

Remarks

MSLMSD

Refrigerated by: (Signature)

EQAP BLOW

Date

2/15/12 0950

Time

1

Received by: (Signature)

1

Date

2/15/12

Time

0957

Received by: (Signature)

2

Date

2/15/12

Time

0934

Received by: (Signature)

3

Date

2/15/12

Time

0903

Received by: (Signature)

1

Date

2/15/12

Time

0934

Received by: (Signature)

1

Date

2/15/12

Time

0950

Project Requirements (MRLs, GAPP)
 Cooler / Blank / Ice / No Ice Blank
 Temperature 3 °C

Report Tier Levels - please select
 Tier I - (Results/Default if not specified) _____
 Tier II - (Results + QC) _____
 Tier III - (Data Validation Package) 10% Surcharge _____
 Tier V - (client specified) _____

Refrigerated by: (Signature)
 Requisitioned by: (Signature)
 Relinquished by: (Signature)

Date: _____
 Time: _____

Received by: (Signature)
 Date: _____
 Time: _____

Received by: (Signature)
 Date: _____
 Time: _____

Received by: (Signature)
 Date: _____
 Time: _____

Received by: (Signature)
 Date: _____
 Time: _____

Received by: (Signature)
 Date: _____
 Time: _____

Received by: (Signature)
 Date: _____
 Time: _____

Received by: (Signature)
 Date: _____
 Time: _____

Chain of Custody Report

Now part of the ALS Group

Client: Battelle
Project: 1Q12 JPL GW Mon/100006114

Service Request: P1200569

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P1200569-001.01	7196A	2/15/12	1253	SMO / MZAMORA	
		2/15/12	1253	P-37 / MZAMORA	
		2/15/12	1327	In Lab / SANDERSON	
		2/15/12	1657	P-37 / SANDERSON	
P1200569-002.01	7196A	2/15/12	1253	SMO / MZAMORA	
		2/15/12	1253	P-37 / MZAMORA	
		2/15/12	1326	In Lab / SANDERSON	
		2/15/12	1657	P-37 / SANDERSON	
P1200569-002.02		2/15/12	1253	SMO / MZAMORA	
		2/15/12	1253	P-37 / MZAMORA	
		2/15/12	1326	In Lab / SANDERSON	
		2/15/12	1657	P-37 / SANDERSON	
P1200569-003.01	7196A	2/15/12	1253	SMO / MZAMORA	
		2/15/12	1253	P-37 / MZAMORA	
		2/15/12	1326	In Lab / SANDERSON	
		2/15/12	1657	P-37 / SANDERSON	
P1200569-004.01	7196A	2/15/12	1253	SMO / MZAMORA	
		2/15/12	1253	P-37 / MZAMORA	
		2/15/12	1327	In Lab / SANDERSON	
		2/15/12	1657	P-37 / SANDERSON	

Sample Acceptance Check Form

Client: Battelle Work order: P1200569
 Project: 1Q12 JPL GW Mon / 100006114
 Sample(s) received on: 2/15/12 Date opened: 2/15/12 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | Yes | No | N/A |
|----|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature: ° C Blank Temperature: 3° C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Wet Ice |
| 9 | Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 | Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 | Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 | Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1200569-001.01	125mL Plastic NP					
P1200569-002.01	125mL Plastic NP					
P1200569-002.02	125mL Plastic NP					
P1200569-003.01	125mL Plastic NP					
P1200569-004.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

Analytical Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200569
 Date Collected : 02/15/12
 Date Received : 02/15/12

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-12-3	P1200569-001	0.010	0.003	1	NA	02/15/12 16:40	ND	
MW-12-2	P1200569-002	0.010	0.003	1	NA	02/15/12 16:40	ND	
MW-12-1	P1200569-003	0.010	0.003	1	NA	02/15/12 16:40	ND	
EB-13-2/15/12	P1200569-004	0.010	0.003	1	NA	02/15/12 16:40	ND	
Method Blank	P1200569-MB	0.010	0.003	1	NA	02/15/12 16:40	ND	

Approved By Kanu Rya Date : 2/16/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200569
Date Analyzed: 02/15/12

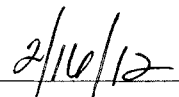
Title: Initial and Continuing Calibration Blank (ICB and CCB) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	PQL	MDL	Result
ICB	0.010	0.003	ND
CCB1	0.010	0.003	ND

Approved By:



Date:



ICCBMDL120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Battelle
Project: 1Q12 JPL GW Mon / 100006114

Service Request: P1200569
Date Analyzed: 02/15/12

Title: Initial and Continuing Calibration Verification (ICV and CCV) Summary
Analyte: Chromium, Hexavalent
Method: 7196A
Units: mg/L (ppm)

Sample Name	True Value	Result	Percent Recovery	Acceptance Criteria
ICV	0.0500	0.0481	96	90-110
CCV1	0.0500	0.0490	98	90-110

Approved By: Karen Rye Date: 2/16/12
CCV1A/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
Project Name : 1Q12 JPL GW Mon
Project Number : 100006114
Sample Matrix : WATER

Service Request : P1200569
Date Collected : NA
Date Received : NA
Date Extracted : NA
Date Analyzed : 02/15/12

Laboratory Control Sample Summary
Inorganic Parameters

Sample Name : Laboratory Control Sample
Lab Code : P1200569-LCS
Test Notes :

Units : mg/L (ppm)
Basis : NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Chromium, Hexavalent	None	7196A	0.0400	0.0411	103	90-110	

Approved By Kane Rye Date : 2/16/12

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client : Battelle
 Project Name : 1Q12 JPL GW Mon
 Project Number : 100006114
 Sample Matrix : WATER

Service Request : P1200569
 Date Collected : 02/15/12
 Date Received : 02/15/12
 Date Extracted : NA
 Date Analyzed : 02/15/12

Matrix Spike/Duplicate Matrix Spike Summary

Sample Name : MW-12-2 Units : mg/L (ppm)
 Lab Code : P1200569-002MS P1200569-002DMS Basis : NA
 Test Notes :

Analyte	Prep Method	Analysis Method	PQL	Spike Level		Sample Result	Spike Result		Spike Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Chromium, Hexavalent	None	7196A	0.010	0.0500	0.0500	ND	0.0455	0.0464	91	93	73-119	2	

Approved By Kanu Rya Date : 2/14/12

pH Run Log

Service Request #(s): P1200569

Time: 0910

Sample	VWR lot #	Exp.
pH 2 Buffer	524-05201101	12/2012
pH 4 Buffer	524-10241101	2/28/13
pH 7 Buffer	524-10211101	7/2013
pH 10 Buffer	524-10241103	2/28/13

Slope	Prep.Run #
} 98.1%	
	Run#

pH in liquid: (1) 9040B pH in solid: (2) 9045C (Note method number in column labeled # below)

pH adjustment:(3) 7196A,(4) 7199 (Note method # In column labeled #)

Sample	#	pH	Temp. °C
pH 2.000	3	1.995	21.0°
pH 4.000	↓	3.990	21.3°
pH 7.000	↓	6.986	21.5°
pH 10.000	↓	9.998	22.4°
REF: 7.38 EXP 8/2013 524-10241102	↓	7.373	21.4°
DI	↓	1.967	20.3°
pH 2.000	↓	1.992	21.1°
TIME: 1610			
pH 2.000	3	2.008	21.6°
P1200569-1.01	↓	1.997	20.1°
-2.01	↓	2.091	19.9°
-3.01	↓	1.933	20.8°
-4.01	↓	1.917	20.1°
pH 2.000	↓	2.014	21.5°

Sample	#	pH	Temp. °C
<div style="font-size: 4em; opacity: 0.5;">/</div> <p style="font-size: 2em; margin-top: 20px;">space not used</p>			

pH Adjustments: **7196A:** Diluted/Conc H₂SO₄ (AMD) 44284 EXP: 11/20/14
 7199A: Diluted NaOH EXP: _____

Comments: _____

* Soil or Solid prep: 1:1(wt.vol) with DI water: ** Samples received past recommended hold time.

Date buffers and filling solution changed: 2/13/12

Note: ATC probe used; therefore, temperature correction calculation is not necessary.

Analyst: _____
 Reviewer: [Signature]

Date: 2/15/12
 Date: 2/16/12

Method EPA 7196A

Service Request#(s): P1200569

Run#: 280178

Stock#: 524-02081201 T.V.=100ppm EXP: 3/1/12

Prep Run#: _____

ICV/CCV#: 524-10151001 T.V.=100ppm EXP: 3/20/12

Conc. H₂SO₄ Lot#: EMD 49284 EXP: 11/20/14

Coloring Reagent Ref#: 524-02081202 EXP: 3/9/12

Working Curve:

Prep Dilution	NA	0.05/50	0.25/50	0.5/50	Corr. Coeff.
Concentration mg/L	0.00	0.01	0.05	0.1	0.999986444
Absorbance @ 540 nm	0.000	0.012	0.057	0.114	

Sample #	Sample Vol.(mL)	Dilution	pH	Bkg.	Absorbance @ 540nm	Corrected Abs. (minus bkg.)	Results - mg/L	QA/QC - %R / RPD
1 ICB	10ml	-	✓	0.000	0.000	0.000	-0.000234	10.003
2 ICB 0.05 mg/L	T	-	✓	0.000	0.055	0.055	0.0481	96%
3 MB	T	-	✓	0.000	0.000	0.000	-0.000234	10.003
4 LCS 0.04 mg/L	T	-	✓	0.000	0.047	0.047	0.0411	103%
5 P1200569-1.01	T	-	✓	0.000	0.003	0.003	0.00240	10.003
6 -1.01 / 50.03 mg/L	T	-	✓	0.000	0.030	0.030	0.0261	87%
7 -2.01	T	-	✓	0.001	0.003	0.002	0.00152	10.003
8 -2.01MS 0.05 mg/L	T	-	✓	0.001	0.053	0.052	0.0455	91% 7.2
9 -2.01MSD T	T	-	✓	0.001	0.054	0.053	0.0464	93% 5.8
10 -2.01	T	-	✓	0.004	0.007	0.003	0.00240	10.003
11 -4.01	T	-	✓	0.000	0.000	0.000	-0.000234	10.003
12 CWI 0.05 mg/L	T	-	✓	0.000	0.056	0.056	0.0490	98%
13 CIBI	T	-	✓	0.000	0.000	0.000	-0.000234	10.003
14								
15								
16								
17								

pH Requirement: Method 7196A (2 ± 0.5) * Samples filtered prior to pH adjustment

ICV/CCV spiked with 0.25 ml of 524-10151001 + 50 ml of pH adjusted DI WATER (T.V.= 0.05 ppm)

MS/MSD spiked with 0.05 ml of 524-02081201 + 10 ml of pH adjusted sample (T.V.= 0.05 ppm)

LCS spiked with 0.2 ml of _____ + 50 ml of pH adjusted DI Water (T.V.= 0.04 ppm)

Verification Standard Spiked 0.3 ml of _____ @ 10 + 10 ml of sample (T.V.= 0.05 ppm)

Comments:

Prepared By: _____
 Analyzed By: _____
 Reviewed By: _____

Date/Time: 2/15/12 @ 1625
 Date/Time: 2/15/12 @ 1640
 Date: 2/16/12

Dr)

10/6/10 524-10061001 25133 ppb Stock for O3
 0.05 ml Pyridine-4-carboxaldehyde Alfa Aesar
 10146598 ; Exp: 8/11/12 up to 500 ml w/ DI
 Water.
 EXP: 10/20/10

10/6/10 524-10061002 25133 ppb ION/CON for O3
 0.05 ml Pyridine-4-carboxaldehyde TEI
 (ICFINE ; Exp: 8/10/12) up to 500 ml w/ DI
 Water.
 EXP: 10/20/10

10/6/10 524-10061003 MBTH Soln
 0.5000 g MBTH (Aldrich 54696EK ; Exp: 8/7/14) up
 to 100 ml w/ DI Water. Plus 0.5 ml Conc. H₂SO₄ EMD 49284; EXP 11/20
 EXP: 10/7/10

10/15/10 524-10151001 Cr6+ ION/CON Stock
 Purchased 100ppm Cr6+
 Ricca Chemical Co Cut No 2095-16
 500ml Plastic
 LOT # 1010177
 EXP: 3/20/12

10/15/10 524-10151002 500ppm NO2 Stock
 Purchased
 Ricca Chemical Co Cut No: 5444-5-4
 LOT # 1010271 120ml amber glass
 EXP: 4/20/11

5.00

2/21/11 524-0221101 1:1 H₂SO₄
 Jc 250ml H₂SO₄ (EMD 49284; EXP: 11/20/14)
 ADDED SLOWLY TO 250ml DI. COOL
 COMPLETELY
 EXP: 2/21/12

2/21/11 524-0221102 Arct Coloring Reagent
 Jc 0.2500g 4,5-diphenylcarbonylhydrazide (EMD lot 47103721;
 EXP: 1/30/13) ↑ 50 ml w/ Acetone (EMD
 LOT # 471540; EXP: 9/24/12).
 EXP: 3/21/11

2/28/11 524-0228101 0.1N H₂SO₄
 Jc 5.6ml conc H₂SO₄ (EMD 49284 EXP: 11/20/14) ↑ 2L
 w/ DI H₂O
 EXP: 2/28/12

2/28/11 524-0228102 1001^{ms} Arct
 Jc purchased
 Inorganic Ventures CGCR(6)1-1
 125ml Clear Glass
 LOT# D2-CR03040
 EXP: 3/1/2012

5/19/11
JL

524-05191103 IC02 PCR

Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD ^{JT BAKER} ~~305041~~ ~~AD806~~ exp: 5/17/10) in 100 mL Methanol (B&J exp: 6/15/10) + 5.6 mL conc. H2SO4 (EMD ~~44284~~ exp: 11/20/09). Bring up to volume w/ DI H2O; mix and degas.

EXP: 5/24/11

7/20/11
JL

524-05201101 pH 2.00 BUFFER
purchased

BDH CAT. No. BDH 5010-500 mL
LOT # 1101225
EXP: 12/2012

8/20/11
JL

524-05201102 pH 4.00 BUFFER
purchased

JT Baker CAT # 5657-01 500 mL
LOT # J36503
EXP: 9/30/12

8/22/11
JL

524-05201103 pH 7.38 BUFFER
purchased

BDH CAT # BDH5058-500 mL
LOT # 1103361
EXP: 3/2013

10/17/11 S24-10171102 1000PPM NH3
0.3141 g NH4Cl (END 49198931; EXP: 10/19/14) ↑ 100ml
10/ S24-10171101 (0.1NH2SO4 EXP. 10/17/12)
EXP: 4/17/12

10/17/11 S24-10171103 ILO2 Eluent
100 ml of S24-09201103 (10x conc Eluent; EXP: 9/20/12)
↑ 1/2 W/DI. DEGASSED.
EXP: 10/31/11

10/21/11 S24-10211101 PH 7.000 Buffer
Purchased
BDH Cat No: BDH5046-500mL
LOT # 1107491
EXP: 7/2013

10/24/11 S24-10241101 PH 4.000 Buffer
Purchased
JT Baker Cat No: 5657-01 500ml
LOT # K04505
EXP: 2/28/13

10/24/11 S24-10241102 PH 7.38 Buffer
Purchased
BDH Cat No BDH5058-500ml
LOT # 1109034
EXP: 8/2013

10/24/11
Sv
524-10241103 PH 10.000 Buffer
Purchased
JT Baker Cat no: 5655-01
Lot # K07507
EXP: 2/28/13

10/25/11
Sv
524-10251101 PH ADJUSTING ISA
Purchased
Thermo Scientific Orion 9512/1 475 mL
Lot # PW1 PIN 207475-A01
EXP: 10/25/12

10/25/11
Sv
524-10251102 A,B,C,D,E PH Filling Soln
Purchased
Thermo Scientific Orion 810007 5 pack bottles
Lot: PS1
EXP: 10/25/12

11/1/11
Sv
524-11011101 IC02 Eluent
100 ml 524-09201103 (10x conc eluent. EXP:
9/20/12) ↑ 1 L w/ DI H₂O. DEGASSED
EXP: 11/15/11

11/1/11
Sv
524-11011102 IC02 PCR
Dissolve 0.5g 1,5-Diphenylcarbohydrazide (EMD ^{JT BAKER} JO5641
exp: 6/15/19) in 100 mL Methanol (B&J ^{AE 932} exp: 10/12/16)
Add to 1 L volumetric flask containing 500 mL DI water +
5.6 mL conc. H₂SO₄ (EMD ⁴⁴²⁸⁴ exp: 11/20/14). Bring
up to volume w/ DI H₂O; mix and degas. EXP: 11/6/14

1/23/12 S24-01231201 Cr⁶⁺ Coloring Reagent
0.2500g 1,5-Diphenylcarbohydrazide (JT Baker
LOT J05641; EXP: 6/15/15) ↑ 50ml w/ Acetone (EMD LOT 47154
EXP: 9/24/12)
EXP: 2/23/12

2/3/12 S24-02031201 Cobalt II Chloride Sol'n
2 ml Conc HCl (EMD 49260; EXP: 2/7/16) in
100 ml DI H₂O + 4.5g CoCl₂·6H₂O (Spectrum
XJ0990; EXP: 1/6/16) ↑ 200 ml w/ DI H₂O
EXP: 2/13/13

2/8/12 S24-02081201 10PPM Cr⁶⁺ STD
1.0 ml S24-02081102 (1000PPM Cr⁶⁺; EXP: 3/1/12)
↑ 100 ml w/ DI H₂O
EXP: 3/1/12

2/8/12 S24-02081202 Cr⁶⁺ Coloring Reagent
0.2500g 1,5-Diphenylcarbohydrazide (JT Baker
LOT J05641; EXP: 6/15/15) ↑ 50 ml w/ Acetone
(EMD LOT 47154; EXP: 9/24/12.)
EXP: 3/9/12