



# 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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072805-04A  
Client I.D. Number: MW-20-2

Sampled: 07/27/09  
Received: 07/28/09  
Analyzed: 07/30/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	92	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	107	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	97	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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

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## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072805-05A  
Client I.D. Number: MW-20-1

Sampled: 07/27/09  
Received: 07/28/09  
Analyzed: 07/30/09

### Volatile Organics by GC/MS

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23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	89	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	108	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	101	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072805-06A  
Client I.D. Number: DUPE-5-3Q09

Sampled: 07/27/09  
Received: 07/28/09  
Analyzed: 07/30/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
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4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
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14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
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22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	95	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	105	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	98	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072805-07A  
Client I.D. Number: EB-5-7/27/09

Sampled: 07/27/09  
Received: 07/28/09  
Analyzed: 07/31/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
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3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	1.2	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
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13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
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15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
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27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	80	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	112	(70-130) %REC
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Note: Analysis conducted using EPA Method 524.2 criteria.

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Analyzed: 07/30/09

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

8/10/09

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

Report Date

Page 1 of 1



# 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:** BMI09072805

**Project:** G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pH
09072805-01A	MW-20-5	Aqueous	2
09072805-02A	MW-20-4	Aqueous	2
09072805-03A	MW-20-3	Aqueous	2
09072805-04A	MW-20-2	Aqueous	2
09072805-05A	MW-20-1	Aqueous	2
09072805-06A	DUPE-5-3Q09	Aqueous	2
09072805-07A	EB-5-7/27/09	Aqueous	2
09072805-08A	TB-5-7/27/09	Aqueous	2

8/10/09

**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:  
10-Aug-09

## QC Summary Report

Work Order:  
09072805

### Method Blank

File ID: 14	Type MBLK	Test Code: EPA Method 314.0	Batch ID: 22449	Analysis Date: 07/31/2009 13:17						
Sample ID: MB-22449	Units : µg/L	Run ID: IC_3_090731A	Prep Date: 07/31/2009							
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: 22449	Analysis Date: 07/31/2009 13:35						
Sample ID: LFB-22449	Units : µg/L	Run ID: IC_3_090731A	Prep Date: 07/31/2009							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	23.5	2	25		94	85	115			

### Sample Matrix Spike

File ID: 18	Type LFM	Test Code: EPA Method 314.0	Batch ID: 22449	Analysis Date: 07/31/2009 14:30						
Sample ID: 09073122-08ALFM	Units : µg/L	Run ID: IC_3_090731A	Prep Date: 07/31/2009							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	22.8	2	25	0	91	80	120			

### Sample Matrix Spike Duplicate

File ID: 19	Type LFMD	Test Code: EPA Method 314.0	Batch ID: 22449	Analysis Date: 07/31/2009 14:49						
Sample ID: 09073122-08ALFMD	Units : µg/L	Run ID: IC_3_090731A	Prep Date: 07/31/2009							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	23.6	2	25	0	94	80	120	22.81	3.3(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 Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
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Date:  
11-Aug-09

## QC Summary Report

Work Order:  
09072805

### Method Blank

File ID: 080809.B\093SMPL.D\	Type MBLK	Test Code: EPA Method 200.8	Batch ID: 22446K	Analysis Date: 08/10/2009 00:56						
Sample ID: MB-22446	Units : mg/L	Run ID: ICP/MS_090810A	Prep Date: 07/30/2009							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	ND	0.005								

### Laboratory Control Spike

File ID: 080809.B\094_LCS.D\	Type LCS	Test Code: EPA Method 200.8	Batch ID: 22446K	Analysis Date: 08/10/2009 01:02						
Sample ID: LCS-22446	Units : mg/L	Run ID: ICP/MS_090810A	Prep Date: 07/30/2009							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.054	0.005	0.05		108	80	120			

### Sample Matrix Spike

File ID: 080809.B\098SMPL.D\	Type MS	Test Code: EPA Method 200.8	Batch ID: 22446K	Analysis Date: 08/10/2009 01:25						
Sample ID: 09072804-01AMS	Units : mg/L	Run ID: ICP/MS_090810A	Prep Date: 07/30/2009							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0454	0.005	0.05		0 91	80	120			

### Sample Matrix Spike Duplicate

File ID: 080809.B\099SMPL.D\	Type MSD	Test Code: EPA Method 200.8	Batch ID: 22446K	Analysis Date: 08/10/2009 01:30						
Sample ID: 09072804-01AMSD	Units : mg/L	Run ID: ICP/MS_090810A	Prep Date: 07/30/2009							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.045	0.005	0.05		0 90	80	120	0.0454	0.9(20)	

### Comments:

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





# Alpha Analytical, Inc.

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Date:  
06-Aug-09

## QC Summary Report

Work Order:  
09072805

### Method Blank

Type **MBLK** Test Code: \_\_\_\_\_

File ID: **09073008.D**

Batch ID: **MS15W0730M**

Analysis Date: **07/30/2009 11:30**

Sample ID: **MBLK MS15W0730M**

Units : **µg/L**

Run ID: **MSD\_15\_090730B**

Prep Date: **07/30/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	ND	0.5								
Chloromethane	ND	1								
Vinyl chloride	ND	0.5								
Chloroethane	ND	0.5								
Bromomethane	ND	1								
Trichlorofluoromethane	ND	0.5								
1,1-Dichloroethene	ND	0.5								
Dichloromethane	ND	1								
Freon-113	ND	0.5								
trans-1,2-Dichloroethene	ND	0.5								
Methyl tert-butyl ether (MTBE)	ND	0.5								
1,1-Dichloroethane	ND	0.5								
2-Butanone (MEK)	ND	10								
cis-1,2-Dichloroethene	ND	0.5								
Bromochloromethane	ND	0.5								
Chloroform	ND	0.5								
2,2-Dichloropropane	ND	0.5								
1,2-Dichloroethane	ND	0.5								
1,1,1-Trichloroethane	ND	0.5								
1,1-Dichloropropene	ND	0.5								
Carbon tetrachloride	ND	0.5								
Benzene	ND	0.5								
Dibromomethane	ND	0.5								
1,2-Dichloropropane	ND	0.5								
Trichloroethene	ND	0.5								
Bromodichloromethane	ND	0.5								
4-Methyl-2-pentanone (MIBK)	ND	2.5								
cis-1,3-Dichloropropene	ND	0.5								
trans-1,3-Dichloropropene	ND	0.5								
1,1,2-Trichloroethane	ND	0.5								
Toluene	ND	0.5								
1,3-Dichloropropane	ND	0.5								
Dibromochloromethane	ND	0.5								
1,2-Dibromoethane (EDB)	ND	1								
Tetrachloroethene	ND	0.5								
1,1,1,2-Tetrachloroethane	ND	0.5								
Chlorobenzene	ND	0.5								
Ethylbenzene	ND	0.5								
m,p-Xylene	ND	0.5								
Bromoform	ND	0.5								
Styrene	ND	0.5								
o-Xylene	ND	0.5								
1,1,2,2-Tetrachloroethane	ND	0.5								
1,2,3-Trichloropropane	ND	1								
Isopropylbenzene	ND	0.5								
Bromobenzene	ND	0.5								
n-Propylbenzene	ND	0.5								
4-Chlorotoluene	ND	0.5								
2-Chlorotoluene	ND	0.5								
1,3,5-Trimethylbenzene	ND	0.5								
tert-Butylbenzene	ND	0.5								
1,2,4-Trimethylbenzene	ND	0.5								
sec-Butylbenzene	ND	0.5								
1,3-Dichlorobenzene	ND	0.5								
1,4-Dichlorobenzene	ND	0.5								
4-Isopropyltoluene	ND	0.5								
1,2-Dichlorobenzene	ND	0.5								
n-Butylbenzene	ND	0.5								
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5								
1,2,4-Trichlorobenzene	ND	1								
Naphthalene	ND	1								
Hexachlorobutadiene	ND	1								
1,2,3-Trichlorobenzene	ND	1								
Surr: 1,2-Dichloroethane-d4	9.16		10		92	70	130			
Surr: Toluene-d8	10.6		10		106	70	130			



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255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
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Date:  
06-Aug-09

## QC Summary Report

Work Order:  
09072805

Surr: 4-Bromofluorobenzene 10.1 10 101 70 130

### Laboratory Control Spike

Type LCS

Test Code:

File ID: 09073006.D

Batch ID: MS15W0730M

Analysis Date: 07/30/2009 10:25

Sample ID: LCS MS15W0730M

Units : µg/L

Run ID: MSD\_15\_090730B

Prep Date: 07/30/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	8.17	1	10		82	70	130			
Chloromethane	9.17	2	10		92	70	130			
Vinyl chloride	10.3	1	10		103	70	130			
Chloroethane	8.59	1	10		86	70	130			
Bromomethane	8.12	2	10		81	70	130			
Trichlorofluoromethane	10.5	1	10		105	70	130			
1,1-Dichloroethene	10.3	1	10		103	70	130			
Dichloromethane	9.87	2	10		99	70	130			
trans-1,2-Dichloroethene	11	1	10		110	70	130			
Methyl tert-butyl ether (MTBE)	10.3	0.5	10		103	70	130			
1,1-Dichloroethane	10.9	1	10		109	70	130			
cis-1,2-Dichloroethene	10.5	1	10		105	70	130			
Bromochloromethane	10.4	1	10		104	70	130			
Chloroform	10.4	1	10		104	70	130			
2,2-Dichloropropane	11.4	1	10		114	70	130			
1,2-Dichloroethane	9.6	1	10		96	70	130			
1,1,1-Trichloroethane	10.6	1	10		106	70	130			
1,1-Dichloropropene	11.1	1	10		111	70	130			
Carbon tetrachloride	10.6	1	10		106	70	130			
Benzene	10.8	0.5	10		108	70	130			
Dibromomethane	9.78	1	10		98	70	130			
1,2-Dichloropropane	11.5	1	10		115	70	130			
Trichloroethene	10.4	1	10		104	70	130			
Bromodichloromethane	9.61	1	10		96	70	130			
cis-1,3-Dichloropropene	9.7	1	10		97	70	130			
trans-1,3-Dichloropropene	9.44	1	10		94	70	130			
1,1,2-Trichloroethane	10.4	1	10		104	70	130			
Toluene	10	0.5	10		100	70	130			
1,3-Dichloropropane	10.3	1	10		103	70	130			
Dibromochloromethane	8.94	1	10		89	70	130			
1,2-Dibromoethane (EDB)	19.1	2	20		96	70	130			
Tetrachloroethene	9.82	1	10		98	70	130			
1,1,1,2-Tetrachloroethane	10	1	10		100	70	130			
Chlorobenzene	10	1	10		100	70	130			
Ethylbenzene	10.5	0.5	10		105	70	130			
m,p-Xylene	10.7	0.5	10		107	70	130			
Bromoform	7.9	1	10		79	70	130			
Styrene	7.33	1	10		73	70	130			
o-Xylene	10.7	0.5	10		107	70	130			
1,1,2,2-Tetrachloroethane	10.2	1	10		102	70	130			
1,2,3-Trichloropropane	19.5	2	20		98	70	130			
Isopropylbenzene	10.9	1	10		109	70	130			
Bromobenzene	9.73	1	10		97	70	130			
n-Propylbenzene	11	1	10		110	70	130			
4-Chlorotoluene	10.7	1	10		107	70	130			
2-Chlorotoluene	10.8	1	10		108	70	130			
1,3,5-Trimethylbenzene	10.6	1	10		106	70	130			
tert-Butylbenzene	10.4	1	10		104	70	130			
1,2,4-Trimethylbenzene	10.7	1	10		107	70	130			
sec-Butylbenzene	10.9	1	10		109	70	130			
1,3-Dichlorobenzene	10.3	1	10		103	70	130			
1,4-Dichlorobenzene	9.85	1	10		99	70	130			
4-Isopropyltoluene	10.9	1	10		109	70	130			
1,2-Dichlorobenzene	9.87	1	10		99	70	130			
n-Butylbenzene	12	1	10		120	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	46.2	3	50		92	70	130			
1,2,4-Trichlorobenzene	9.11	2	10		91	70	130			
Naphthalene	9	2	10		90	70	130			
Hexachlorobutadiene	18.9	2	20		94	70	130			
1,2,3-Trichlorobenzene	9.05	2	10		91	70	130			
Surr: 1,2-Dichloroethane-d4	9.07		10		91	70	130			
Surr: Toluene-d8	10		10		100	70	130			
Surr: 4-Bromofluorobenzene	9.79		10		98	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:  
06-Aug-09

## QC Summary Report

Work Order:  
09072805

### Sample Matrix Spike

Type **MS**

Test Code: \_\_\_\_\_

File ID: **09073009.D**

Batch ID: **MS15W0730M**

Analysis Date: **07/30/2009 11:52**

Sample ID: **09072804-01AMS**

Units : **µg/L**

Run ID: **MSD\_15\_090730B**

Prep Date: **07/30/2009**

Analyte	Result	PQL	SpkVal	SpkReVal	%REC	LCL(ME)	UCL(ME)	RPDReVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	56.5	2.5	50	0	113	13	167			
Chloromethane	52.9	10	50	0	106	28	145			
Vinyl chloride	59	2.5	50	0	118	43	134			
Chloroethane	44.7	2.5	50	0	89	39	154			
Bromomethane	42.6	10	50	0	85	19	176			
Trichlorofluoromethane	54.9	2.5	50	0	110	34	160			
1,1-Dichloroethene	50.1	2.5	50	0	100	60	130			
Dichloromethane	47.6	10	50	0	95	68	130			
trans-1,2-Dichloroethene	52.5	2.5	50	0	105	63	130			
Methyl tert-butyl ether (MTBE)	50	1.3	50	0	100	56	141			
1,1-Dichloroethane	52.2	2.5	50	0	104	61	130			
cis-1,2-Dichloroethene	51.3	2.5	50	0	103	70	130			
Bromochloromethane	50.6	2.5	50	0	101	70	130			
Chloroform	54.8	2.5	50	4.14	101	67	130			
2,2-Dichloropropane	51.1	2.5	50	0	102	30	152			
1,2-Dichloroethane	46.9	2.5	50	0	94	60	135			
1,1,1-Trichloroethane	50.4	2.5	50	0	101	59	137			
1,1-Dichloropropene	52.6	2.5	50	0	105	63	130			
Carbon tetrachloride	50.5	2.5	50	0	101	50	147			
Benzene	52	1.3	50	0	104	67	130			
Dibromomethane	48.3	2.5	50	0	97	69	133			
1,2-Dichloropropane	54.3	2.5	50	0	109	69	130			
Trichloroethene	50.2	2.5	50	0	100	69	130			
Bromodichloromethane	45.8	2.5	50	0	92	66	134			
cis-1,3-Dichloropropene	44.9	2.5	50	0	90	63	130			
trans-1,3-Dichloropropene	43.6	2.5	50	0	87	66	131			
1,1,2-Trichloroethane	50.6	2.5	50	0	101	68	130			
Toluene	48.6	1.3	50	0	97	66	130			
1,3-Dichloropropane	50.5	2.5	50	0	101	70	130			
Dibromochloromethane	43.7	2.5	50	0	87	70	130			
1,2-Dibromoethane (EDB)	93.7	10	100	0	94	70	130			
Tetrachloroethene	48	2.5	50	1.91	92	61	134			
1,1,1,2-Tetrachloroethane	48.6	2.5	50	0	97	70	130			
Chlorobenzene	48.4	2.5	50	0	97	70	130			
Ethylbenzene	49.9	1.3	50	0	99.7	68	130			
m,p-Xylene	51.5	1.3	50	0	103	64	130			
Bromoform	37.7	2.5	50	0	75	64	138			
Styrene	34.8	2.5	50	0	70	69	130			
o-Xylene	51.6	1.3	50	0	103	70	130			
1,1,2,2-Tetrachloroethane	50.4	2.5	50	0	101	65	131			
1,2,3-Trichloropropane	95.5	10	100	0	96	70	130			
Isopropylbenzene	52.1	2.5	50	0	104	64	138			
Bromobenzene	47.3	2.5	50	0	95	70	130			
n-Propylbenzene	51.5	2.5	50	0	103	66	132			
4-Chlorotoluene	51.7	2.5	50	0	103	70	130			
2-Chlorotoluene	51.3	2.5	50	0	103	70	130			
1,3,5-Trimethylbenzene	50.3	2.5	50	0	101	66	136			
tert-Butylbenzene	49.4	2.5	50	0	99	65	137			
1,2,4-Trimethylbenzene	51.1	2.5	50	0	102	65	137			
sec-Butylbenzene	51.5	2.5	50	0	103	66	134			
1,3-Dichlorobenzene	49.4	2.5	50	0	99	70	130			
1,4-Dichlorobenzene	47.1	2.5	50	0	94	70	130			
4-Isopropyltoluene	51.3	2.5	50	0	103	66	137			
1,2-Dichlorobenzene	47.7	2.5	50	0	95	70	130			
n-Butylbenzene	56.2	2.5	50	0	112	60	142			
1,2-Dibromo-3-chloropropane (DBCP)	225	15	250	0	90	67	130			
1,2,4-Trichlorobenzene	41.8	10	50	0	84	61	137			
Naphthalene	39.3	10	50	0	79	40	167			
Hexachlorobutadiene	85.5	10	100	0	86	61	130			
1,2,3-Trichlorobenzene	39.4	10	50	0	79	51	144			
Surr: 1,2-Dichloroethane-d4	44		50		88	70	130			
Surr: Toluene-d8	50.6		50		101	70	130			
Surr: 4-Bromofluorobenzene	48.7		50		97	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:  
06-Aug-09

## QC Summary Report

Work Order:  
09072805

### Sample Matrix Spike Duplicate

Type **MSD**

Test Code:

File ID: **09073010.D**

Batch ID: **MS15W0730M**

Analysis Date: **07/30/2009 12:14**

Sample ID: **09072804-01AMSD**

Units: **µg/L**

Run ID: **MSD\_15\_090730B**

Prep Date: **07/30/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	55.1	2.5	50	0	110	13	167	56.47	2.5(20)	
Chloromethane	52	10	50	0	104	28	145	52.86	1.6(20)	
Vinyl chloride	58.8	2.5	50	0	118	43	134	59.01	0.3(20)	
Chloroethane	44.6	2.5	50	0	89	39	154	44.71	0.3(20)	
Bromomethane	43.5	10	50	0	87	19	176	42.55	2.1(20)	
Trichlorofluoromethane	52.8	2.5	50	0	106	34	160	54.92	4.0(20)	
1,1-Dichloroethene	48.4	2.5	50	0	97	60	130	50.11	3.6(20)	
Dichloromethane	48.3	10	50	0	97	68	130	47.59	1.5(20)	
trans-1,2-Dichloroethene	51.5	2.5	50	0	103	63	130	52.54	2.0(20)	
Methyl tert-butyl ether (MTBE)	52.8	1.3	50	0	106	56	141	49.99	5.5(20)	
1,1-Dichloroethane	51.7	2.5	50	0	103	61	130	52.16	0.9(20)	
cis-1,2-Dichloroethene	50.7	2.5	50	0	101	70	130	51.32	1.2(20)	
Bromochloromethane	51.9	2.5	50	0	104	70	130	50.59	2.6(20)	
Chloroform	55.8	2.5	50	4.14	103	67	130	54.75	2.0(20)	
2,2-Dichloropropane	50.9	2.5	50	0	102	30	152	51.05	0.3(20)	
1,2-Dichloroethane	48.3	2.5	50	0	97	60	135	46.86	3.1(20)	
1,1,1-Trichloroethane	50.1	2.5	50	0	100	59	137	50.36	0.6(20)	
1,1-Dichloropropene	51.5	2.5	50	0	103	63	130	52.58	2.0(20)	
Carbon tetrachloride	50	2.5	50	0	100	50	147	50.51	1.0(20)	
Benzene	51.4	1.3	50	0	103	67	130	51.98	1.0(20)	
Dibromomethane	48.5	2.5	50	0	97	69	133	48.3	0.4(20)	
1,2-Dichloropropane	55.8	2.5	50	0	112	69	130	54.29	2.7(20)	
Trichloroethene	48.7	2.5	50	0	97	69	130	50.22	3.1(20)	
Bromodichloromethane	46.5	2.5	50	0	93	66	134	45.78	1.5(20)	
cis-1,3-Dichloropropene	45.7	2.5	50	0	91	63	130	44.92	1.7(20)	
trans-1,3-Dichloropropene	44.9	2.5	50	0	90	66	131	43.57	2.9(20)	
1,1,2-Trichloroethane	50	2.5	50	0	100	68	130	50.63	1.3(20)	
Toluene	46.7	1.3	50	0	93	66	130	48.62	4.0(20)	
1,3-Dichloropropane	50.7	2.5	50	0	101	70	130	50.52	0.4(20)	
Dibromochloromethane	44.7	2.5	50	0	89	70	130	43.65	2.3(20)	
1,2-Dibromoethane (EDB)	95.2	10	100	0	95	70	130	93.7	1.6(20)	
Tetrachloroethene	46	2.5	50	1.91	88	61	134	47.95	4.2(20)	
1,1,1,2-Tetrachloroethane	47.9	2.5	50	0	96	70	130	48.64	1.6(20)	
Chlorobenzene	47.4	2.5	50	0	95	70	130	48.4	2.1(20)	
Ethylbenzene	48.5	1.3	50	0	97	68	130	49.85	2.8(20)	
m,p-Xylene	49.7	1.3	50	0	99	64	130	51.49	3.6(20)	
Bromoform	39.7	2.5	50	0	79	64	138	37.73	5.0(20)	
Styrene	34.4	2.5	50	0	69	69	130	34.77	1.2(20)	
o-Xylene	50.2	1.3	50	0	100	70	130	51.58	2.6(20)	
1,1,2,2-Tetrachloroethane	51.5	2.5	50	0	103	65	131	50.35	2.2(20)	
1,2,3-Trichloropropane	98.3	10	100	0	98	70	130	95.53	2.8(20)	
Isopropylbenzene	49.9	2.5	50	0	99.8	64	138	52.09	4.3(20)	
Bromobenzene	46.9	2.5	50	0	94	70	130	47.29	0.9(20)	
n-Propylbenzene	50.5	2.5	50	0	101	66	132	51.53	2.1(20)	
4-Chlorotoluene	50.8	2.5	50	0	102	70	130	51.72	1.9(20)	
2-Chlorotoluene	49.6	2.5	50	0	99	70	130	51.3	3.4(20)	
1,3,5-Trimethylbenzene	49.1	2.5	50	0	98	66	136	50.28	2.4(20)	
tert-Butylbenzene	47.9	2.5	50	0	96	65	137	49.37	3.0(20)	
1,2,4-Trimethylbenzene	49.9	2.5	50	0	99.7	65	137	51.05	2.4(20)	
sec-Butylbenzene	49.8	2.5	50	0	99.6	66	134	51.45	3.3(20)	
1,3-Dichlorobenzene	49.7	2.5	50	0	99	70	130	49.37	0.7(20)	
1,4-Dichlorobenzene	47.3	2.5	50	0	95	70	130	47.06	0.4(20)	
4-Isopropyltoluene	49.5	2.5	50	0	99	66	137	51.25	3.5(20)	
1,2-Dichlorobenzene	48.2	2.5	50	0	96	70	130	47.72	1.0(20)	
n-Butylbenzene	55	2.5	50	0	110	60	142	56.21	2.2(20)	
1,2-Dibromo-3-chloropropane (DBCP)	234	15	250	0	94	67	130	225	4.0(20)	
1,2,4-Trichlorobenzene	43.2	10	50	0	86	61	137	41.76	3.3(20)	
Naphthalene	40.4	10	50	0	81	40	167	39.34	2.7(20)	
Hexachlorobutadiene	85.1	10	100	0	85	61	130	85.51	0.5(20)	
1,2,3-Trichlorobenzene	41.3	10	50	0	83	51	144	39.35	4.8(20)	
Surr: 1,2-Dichloroethane-d4	46.4		50		93	70	130			
Surr: Toluene-d8	49.1		50		98	70	130			
Surr: 4-Bromofluorobenzene	50.2		50		100	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:**

06-Aug-09

## QC Summary Report

**Work Order:**

09072805

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**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 : BMIS09072805**  
**Report Due By : 5:00 PM On : 11-Aug-2009**

**Client:**

Battelle Memorial Institute  
 3990 Old Town Ave  
 Suite C-205  
 San Diego, CA 92110  
 PO : 218013

**Report Attention**

David Conner	(818) 393-2808	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 **4 °C**      Samples Received **28-Jul-2009**      Date Printed **28-Jul-2009**

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

Job : G005862/JPL Groundwater Monitoring

Alpha Sample ID	Client Sample ID	Collection Matrix Date	No. of Bottles Alpha Sub	TAT	Requested Tests				Sample Remarks	
					314_W	METALS_D	VOC_TIC_W	VOC_W		
BM109072805-01A	NW-20-5	AQ 07/27/09 07:49	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM109072805-02A	NW-20-4	AQ 07/27/09 08:16	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM109072805-03A	NW-20-3	AQ 07/27/09 08:50	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM109072805-04A	NW-20-2	AQ 07/27/09 09:13	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM109072805-05A	NW-20-1	AQ 07/27/09 09:38	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM109072805-06A	DUPE-5-3Q09	AQ 07/27/09 00:00	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM109072805-07A	EB-5-7/27/09	AQ 07/27/09 09:26	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BM109072805-08A	TB-5-7/27/09	AQ 07/27/09 00:00	1	0	10			VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 3/16/09

Comments: No security seals. Frozen ice. Temp Blank #7356 received @ 4°C. Perchlorate RL of 1.0 ug/L. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).

Logged in by: Elizabeth Adcox      Signature: [Signature]      Print Name: Elizabeth Adcox      Company: Alpha Analytical, Inc.      Date/Time: 7:28:09 12/09

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 : AQC(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 GERALD TOMPKINS / BATTLE  
 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?**

AZ \_\_\_\_\_ CA  NV \_\_\_\_\_ WA \_\_\_\_\_  
 ID \_\_\_\_\_ OR \_\_\_\_\_ OTHER \_\_\_\_\_

25745

Page # 1 of 1

**Analyses Required**

Client Name <u>BATTLE / DAVID LAWRENCE</u>	PO # <u>2181013</u>	Job # <u>6005862</u>
Address <u>3990 OLD TOWN AVE, C-25</u>	Email Address <u>(614) 726-7311</u>	Fax # _____
City, State, Zip <u>SAV DIEGO, CA 92110</u>	Report Attention _____	Sample Description _____
Time Sampled	Date Sampled	Matrix* See Key Below
		Sampled by
		Lab ID Number (Use Only)
		TAT
		Field Filtered
		Total and type of containers ** See below
		Vol (524.2)
		Total (6200.8)
		Clon <sub>2</sub> (314.0)
		Required QC Level? I II III IV
		EDD / EDF? YES ___ NO ___
		Global ID # _____
		REMARKS

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	Analyses Required	REMARKS
749	7/27/09	AQ	BM	109072805-01		MW-20-5	Norm		VP/5	X	
816						MW-20-4				X	
850						MW-20-3				X	
913						MW-20-2				X	
938						MW-20-1				X	
—						DUPE - 5 - 3009				X	DUPLICATE
926						ERB - 5 - 7/29/09				X	EQUIP. BLANK
—						ORTG - 5 - 7/27/09				X	TRIP BLANK

**ADDITIONAL INSTRUCTIONS:**

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	MARKS WENDORA	Alpha	7/27/09	1230
Received by <i>[Signature]</i>	Elizabeth Adcox	Alpha	7-28-09	1209
Relinquished by				
Received by				
Relinquished by				
Received by				
Relinquished by				

\*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: 06-Aug-09

David Conner  
Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
(818) 393-2808

Suite C-205

## CASE NARRATIVE

Project: G005862/JPL Groundwater Monitoring

Work Order: BMI09072905

Cooler Temp: 4 °C

Alpha's Sample ID	Client's Sample ID	Matrix
09072905-01A	MW-4-3	Aqueous
09072905-02A	MW-4-2	Aqueous
09072905-03A	MW-4-1	Aqueous
09072905-04A	DUPE-6-3Q09	Aqueous

### Manually Integrated Analytes

Alpha's Sample ID	Test Reference	Analyte
09072905-02A	EPA Method 314.0	Perchlorate
09072905-03A	EPA Method 314.0	Perchlorate
09072905-04A	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.

*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) 736-7522 / info@alpha-analytical.com





# Alpha Analytical, Inc.

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

## ANALYTICAL REPORT

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

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/29/09

Job#: G005862/JPL Groundwater Monitoring

Perchlorate by Ion Chromatography  
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : <b>MW-4-3</b> Lab ID : BMI09072905-01A Perchlorate	ND	1.00 µg/L	07/28/09	07/31/09
Client ID : <b>MW-4-2</b> Lab ID : BMI09072905-02A Perchlorate	1.91	1.00 µg/L	07/28/09	07/31/09
Client ID : <b>MW-4-1</b> Lab ID : BMI09072905-03A Perchlorate	ND	1.00 µg/L	07/28/09	07/31/09
Client ID : <b>DUPE-6-3Q09</b> Lab ID : BMI09072905-04A Perchlorate	1.96	1.00 µg/L	07/28/09	07/31/09

ND = Not Detected

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

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

8/11/09

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  
3990 Old Town Ave  
San Diego, CA 92110

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/29/09

Job#: G005862/JPL Groundwater Monitoring

Metals by ICPMS  
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : <b>MW-4-3</b> Lab ID : BMI09072905-01A Chromium (Cr)	ND	0.0050 mg/L	07/28/09	08/10/09
Client ID : <b>MW-4-2</b> Lab ID : BMI09072905-02A Chromium (Cr)	ND	0.0050 mg/L	07/28/09	08/10/09
Client ID : <b>MW-4-1</b> Lab ID : BMI09072905-03A Chromium (Cr)	ND	0.0050 mg/L	07/28/09	08/10/09
Client ID : <b>DUPE-6-3Q09</b> Lab ID : BMI09072905-04A Chromium (Cr)	ND	0.0050 mg/L	07/28/09	08/10/09

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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

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

	Parameter	Estimated Concentration	Estimated Reporting Limit	Date Received	Date Sampled	Date Analyzed
Client ID : <b>MW-4-3</b>						
Lab ID : BMI09072905-01A	*** None Found ***	ND	2.0 µg/L	07/29/09	07/28/09	08/05/09
Client ID : <b>MW-4-2</b>						
Lab ID : BMI09072905-02A	*** None Found ***	ND	2.0 µg/L	07/29/09	07/28/09	08/05/09
Client ID : <b>MW-4-1</b>						
Lab ID : BMI09072905-03A	*** None Found ***	ND	2.0 µg/L	07/29/09	07/28/09	08/05/09
Client ID : <b>DUPE-6-3Q09</b>						
Lab ID : BMI09072905-04A	*** None Found ***	ND	2.0 µg/L	07/29/09	07/28/09	08/05/09

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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Report Date

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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072905-01A  
Client I.D. Number: MW-4-3

Sampled: 07/28/09  
Received: 07/29/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	2.5	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	0.60	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	90	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	106	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	99	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

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8/11/09

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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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072905-02A  
Client I.D. Number: MW-4-2

Sampled: 07/28/09  
Received: 07/29/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	0.56	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	89	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	110	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	94	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

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

8/11/09

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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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072905-03A  
Client I.D. Number: MW-4-1

Sampled: 07/28/09  
Received: 07/29/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	89	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	115	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	95	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
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8/11/09

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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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072905-04A  
Client I.D. Number: DUPE-6-3Q09

Sampled: 07/28/09  
Received: 07/29/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	2.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	0.70	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	88	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	113	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	98	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

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Report Date

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## VOC Sample Preservation Report

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**Work Order:** BMI09072905

**Project:** G005862/JPL Groundwater Monitoring

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Alpha's Sample ID	Client's Sample ID	Matrix	pH
09072905-01A	MW-4-3	Aqueous	2
09072905-02A	MW-4-2	Aqueous	2
09072905-03A	MW-4-1	Aqueous	2
09072905-04A	DUPE-6-3Q09	Aqueous	2

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8/11/09  

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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

Date:  
06-Aug-09

## QC Summary Report

Work Order:  
09072905

### Method Blank

Method Blank		Type	Test Code: EPA Method 314.0							
File ID: 14			Batch ID: 22449				Analysis Date: 07/31/2009 13:17			
Sample ID: MB-22449	Units : µg/L		Run ID: IC_3_090731A				Prep Date: 07/31/2009			
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

### Laboratory Fortified Blank

Laboratory Fortified Blank		Type	Test Code: EPA Method 314.0							
File ID: 15			Batch ID: 22449				Analysis Date: 07/31/2009 13:35			
Sample ID: LFB-22449	Units : µg/L		Run ID: IC_3_090731A				Prep Date: 07/31/2009			
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	23.5	2	25		94	85	115			

### Sample Matrix Spike

Sample Matrix Spike		Type	Test Code: EPA Method 314.0							
File ID: 18			Batch ID: 22449				Analysis Date: 07/31/2009 14:30			
Sample ID: 09073122-08ALFM	Units : µg/L		Run ID: IC_3_090731A				Prep Date: 07/31/2009			
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	22.8	2	25	0	91	80	120			

### Sample Matrix Spike Duplicate

Sample Matrix Spike Duplicate		Type	Test Code: EPA Method 314.0							
File ID: 19			Batch ID: 22449				Analysis Date: 07/31/2009 14:49			
Sample ID: 09073122-08ALFMD	Units : µg/L		Run ID: IC_3_090731A				Prep Date: 07/31/2009			
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	23.6	2	25	0	94	80	120	22.81	3.3(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 Analytical, Inc.

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

Date:  
12-Aug-09

## QC Summary Report

Work Order:  
09072905

### Method Blank

File ID: 080809.B\093SMPL.D\	Type MBLK	Test Code: EPA Method 200.8	Batch ID: 22446K	Analysis Date: 08/10/2009 00:56						
Sample ID: MB-22446	Units : mg/L	Run ID: ICP/MS_090810A	Prep Date: 07/30/2009							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	ND	0.005								

### Laboratory Control Spike

File ID: 080809.B\094_LCS.D\	Type LCS	Test Code: EPA Method 200.8	Batch ID: 22446K	Analysis Date: 08/10/2009 01:02						
Sample ID: LCS-22446	Units : mg/L	Run ID: ICP/MS_090810A	Prep Date: 07/30/2009							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.054	0.005	0.05		108	80	120			

### Sample Matrix Spike

File ID: 080809.B\098SMPL.D\	Type MS	Test Code: EPA Method 200.8	Batch ID: 22446K	Analysis Date: 08/10/2009 01:25						
Sample ID: 09072804-01AMS	Units : mg/L	Run ID: ICP/MS_090810A	Prep Date: 07/30/2009							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0454	0.005	0.05		0 91	80	120			

### Sample Matrix Spike Duplicate

File ID: 080809.B\099SMPL.D\	Type MSD	Test Code: EPA Method 200.8	Batch ID: 22446K	Analysis Date: 08/10/2009 01:30						
Sample ID: 09072804-01AMSD	Units : mg/L	Run ID: ICP/MS_090810A	Prep Date: 07/30/2009							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.045	0.005	0.05		0 90	80	120	0.0454	0.9(20)	

### Comments:

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



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

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Date:  
10-Aug-09

## QC Summary Report

Work Order:  
09072905

### Method Blank

File ID: 09080506.D

Type MBLK

Test Code:

Batch ID: MS15W0805M

Analysis Date: 08/05/2009 11:54

Sample ID: MBLK MS15W0805M

Units: µg/L

Run ID: MSD\_15\_090805A

Prep Date: 08/05/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	ND	0.5								
Chloromethane	ND	1								
Vinyl chloride	ND	0.5								
Chloroethane	ND	0.5								
Bromomethane	ND	1								
Trichlorofluoromethane	ND	0.5								
1,1-Dichloroethene	ND	0.5								
Dichloromethane	ND	1								
Freon-113	ND	0.5								
trans-1,2-Dichloroethene	ND	0.5								
Methyl tert-butyl ether (MTBE)	ND	0.5								
1,1-Dichloroethane	ND	0.5								
2-Butanone (MEK)	ND	10								
cis-1,2-Dichloroethene	ND	0.5								
Bromochloromethane	ND	0.5								
Chloroform	ND	0.5								
2,2-Dichloropropane	ND	0.5								
1,2-Dichloroethane	ND	0.5								
1,1,1-Trichloroethane	ND	0.5								
1,1-Dichloropropene	ND	0.5								
Carbon tetrachloride	ND	0.5								
Benzene	ND	0.5								
Dibromomethane	ND	0.5								
1,2-Dichloropropane	ND	0.5								
Trichloroethene	ND	0.5								
Bromodichloromethane	ND	0.5								
4-Methyl-2-pentanone (MIBK)	ND	2.5								
cis-1,3-Dichloropropene	ND	0.5								
trans-1,3-Dichloropropene	ND	0.5								
1,1,2-Trichloroethane	ND	0.5								
Toluene	ND	0.5								
1,3-Dichloropropane	ND	0.5								
Dibromochloromethane	ND	0.5								
1,2-Dibromoethane (EDB)	ND	1								
Tetrachloroethene	ND	0.5								
1,1,1,2-Tetrachloroethane	ND	0.5								
Chlorobenzene	ND	0.5								
Ethylbenzene	ND	0.5								
m,p-Xylene	ND	0.5								
Bromoform	ND	0.5								
Styrene	ND	0.5								
o-Xylene	ND	0.5								
1,1,2,2-Tetrachloroethane	ND	0.5								
1,2,3-Trichloropropane	ND	1								
Isopropylbenzene	ND	0.5								
Bromobenzene	ND	0.5								
n-Propylbenzene	ND	0.5								
4-Chlorotoluene	ND	0.5								
2-Chlorotoluene	ND	0.5								
1,3,5-Trimethylbenzene	ND	0.5								
tert-Butylbenzene	ND	0.5								
1,2,4-Trimethylbenzene	ND	0.5								
sec-Butylbenzene	ND	0.5								
1,3-Dichlorobenzene	ND	0.5								
1,4-Dichlorobenzene	ND	0.5								
4-Isopropyltoluene	ND	0.5								
1,2-Dichlorobenzene	ND	0.5								
n-Butylbenzene	ND	0.5								
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5								
1,2,4-Trichlorobenzene	ND	1								
Naphthalene	ND	1								
Hexachlorobutadiene	ND	1								
1,2,3-Trichlorobenzene	ND	1								
Surr: 1,2-Dichloroethane-d4	8.83		10		88	70	130			
Surr: Toluene-d8	11		10		110	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:

10-Aug-09

## QC Summary Report

Work Order:

09072905

Surr: 4-Bromofluorobenzene 9.51 10 95 70 130

### Laboratory Control Spike

Type LCS

Test Code:

File ID: 09080503.D

Batch ID: MS15W0805M

Analysis Date: 08/05/2009 10:48

Sample ID: LCS MS15W0805M

Units : µg/L

Run ID: MSD\_15\_090805A

Prep Date: 08/05/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	12.8	1	10		128	70	130			
Chloromethane	8.94	2	10		89	70	130			
Vinyl chloride	9.15	1	10		92	70	130			
Chloroethane	9.41	1	10		94	70	130			
Bromomethane	6.68	2	10		67	70(70)	130			L50
Trichlorofluoromethane	11.4	1	10		114	70	130			
1,1-Dichloroethene	10.8	1	10		108	70	130			
Dichloromethane	9.31	2	10		93	70	130			
trans-1,2-Dichloroethene	11	1	10		110	70	130			
Methyl tert-butyl ether (MTBE)	9.22	0.5	10		92	70	130			
1,1-Dichloroethane	10	1	10		100	70	130			
cis-1,2-Dichloroethene	10.4	1	10		104	70	130			
Bromochloromethane	10.3	1	10		103	70	130			
Chloroform	10	1	10		100	70	130			
2,2-Dichloropropane	11	1	10		110	70	130			
1,2-Dichloroethane	9.24	1	10		92	70	130			
1,1,1-Trichloroethane	10.9	1	10		109	70	130			
1,1-Dichloropropene	10.8	1	10		108	70	130			
Carbon tetrachloride	10.9	1	10		109	70	130			
Benzene	10	0.5	10		100	70	130			
Dibromomethane	9.58	1	10		96	70	130			
1,2-Dichloropropane	9.96	1	10		99.6	70	130			
Trichloroethene	11	1	10		110	70	130			
Bromodichloromethane	8.87	1	10		89	70	130			
cis-1,3-Dichloropropene	9.01	1	10		90	70	130			
trans-1,3-Dichloropropene	8.52	1	10		85	70	130			
1,1,2-Trichloroethane	9.81	1	10		98	70	130			
Toluene	10.1	0.5	10		101	70	130			
1,3-Dichloropropane	9.92	1	10		99	70	130			
Dibromochloromethane	9.2	1	10		92	70	130			
1,2-Dibromoethane (EDB)	19.4	2	20		97	70	130			
Tetrachloroethene	11.1	1	10		111	70	130			
1,1,1,2-Tetrachloroethane	10.3	1	10		103	70	130			
Chlorobenzene	10	1	10		100	70	130			
Ethylbenzene	10.6	0.5	10		106	70	130			
m,p-Xylene	11.1	0.5	10		111	70	130			
Bromoform	8.29	1	10		83	70	130			
Styrene	7.32	1	10		73	70	130			
o-Xylene	11	0.5	10		110	70	130			
1,1,2,2-Tetrachloroethane	9.92	1	10		99	70	130			
1,2,3-Trichloropropane	20	2	20		100	70	130			
Isopropylbenzene	10.8	1	10		108	70	130			
Bromobenzene	9.63	1	10		96	70	130			
n-Propylbenzene	10.7	1	10		107	70	130			
4-Chlorotoluene	10.6	1	10		106	70	130			
2-Chlorotoluene	10.3	1	10		103	70	130			
1,3,5-Trimethylbenzene	10.2	1	10		102	70	130			
tert-Butylbenzene	10.4	1	10		104	70	130			
1,2,4-Trimethylbenzene	10.4	1	10		104	70	130			
sec-Butylbenzene	10.8	1	10		108	70	130			
1,3-Dichlorobenzene	10.2	1	10		102	70	130			
1,4-Dichlorobenzene	9.79	1	10		98	70	130			
4-Isopropyltoluene	10.6	1	10		106	70	130			
1,2-Dichlorobenzene	9.81	1	10		98	70	130			
n-Butylbenzene	11.6	1	10		116	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	44.6	3	50		89	70	130			
1,2,4-Trichlorobenzene	9.1	2	10		91	70	130			
Naphthalene	8.44	2	10		84	70	130			
Hexachlorobutadiene	19.4	2	20		97	70	130			
1,2,3-Trichlorobenzene	8.65	2	10		87	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10		85	70	130			
Surr: Toluene-d8	10.4		10		104	70	130			
Surr: 4-Bromofluorobenzene	9.73		10		97	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:  
10-Aug-09

## QC Summary Report

Work Order:  
09072905

### Sample Matrix Spike

File ID: 09080507.D

Type MS

Test Code:

Batch ID: MS15W0805M

Analysis Date: 08/05/2009 12:17

Sample ID: 09072905-01AMS

Units: µg/L

Run ID: MSD\_15\_090805A

Prep Date: 08/05/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	50.5	2.5	50	0	101	13	167			
Chloromethane	41.3	10	50	0	83	28	145			
Vinyl chloride	53.4	2.5	50	0	107	43	134			
Chloroethane	42.6	2.5	50	0	85	39	154			
Bromomethane	37.5	10	50	0	75	19	176			
Trichlorofluoromethane	58	2.5	50	0	116	34	160			
1,1-Dichloroethene	49.5	2.5	50	0	99	60	130			
Dichloromethane	43.8	10	50	0	88	68	130			
trans-1,2-Dichloroethene	51.2	2.5	50	0	102	63	130			
Methyl tert-butyl ether (MTBE)	46.3	1.3	50	0	93	56	141			
1,1-Dichloroethane	46.6	2.5	50	0	93	61	130			
cis-1,2-Dichloroethene	48.3	2.5	50	0	97	70	130			
Bromochloromethane	51.1	2.5	50	0	102	70	130			
Chloroform	47.6	2.5	50	0	95	67	130			
2,2-Dichloropropane	50.2	2.5	50	0	100	30	152			
1,2-Dichloroethane	45.5	2.5	50	0	91	60	135			
1,1,1-Trichloroethane	51.8	2.5	50	0	104	59	137			
1,1-Dichloropropene	50.6	2.5	50	0	101	63	130			
Carbon tetrachloride	52.8	2.5	50	0	106	50	147			
Benzene	47	1.3	50	0	94	67	130			
Dibromomethane	45.6	2.5	50	0	91	69	133			
1,2-Dichloropropane	47	2.5	50	0	94	69	130			
Trichloroethene	50.6	2.5	50	0	101	69	130			
Bromodichloromethane	43.3	2.5	50	0	87	66	134			
cis-1,3-Dichloropropene	40.9	2.5	50	0	82	63	130			
trans-1,3-Dichloropropene	40.2	2.5	50	0	80	66	131			
1,1,2-Trichloroethane	47.4	2.5	50	0	95	68	130			
Toluene	47.3	1.3	50	0	95	66	130			
1,3-Dichloropropane	48.4	2.5	50	0	97	70	130			
Dibromochloromethane	45.3	2.5	50	0	91	70	130			
1,2-Dibromoethane (EDB)	92.9	10	100	0	93	70	130			
Tetrachloroethene	51.4	2.5	50	0	103	61	134			
1,1,1,2-Tetrachloroethane	50.2	2.5	50	0	100	70	130			
Chlorobenzene	47.2	2.5	50	0	94	70	130			
Ethylbenzene	50.8	1.3	50	2.45	97	68	130			
m,p-Xylene	51.3	1.3	50	0	103	64	130			
Bromoform	40.3	2.5	50	0	81	64	138			
Styrene	34.7	2.5	50	0.6	68	69	130			M2
o-Xylene	51.1	1.3	50	0	102	70	130			
1,1,2,2-Tetrachloroethane	49.7	2.5	50	0	99	65	131			
1,2,3-Trichloropropane	97.9	10	100	0	98	70	130			
Isopropylbenzene	50.2	2.5	50	0	100	64	138			
Bromobenzene	45	2.5	50	0	90	70	130			
n-Propylbenzene	50.6	2.5	50	0	101	66	132			
4-Chlorotoluene	49.4	2.5	50	0	99	70	130			
2-Chlorotoluene	48.7	2.5	50	0	97	70	130			
1,3,5-Trimethylbenzene	48.4	2.5	50	0	97	66	136			
tert-Butylbenzene	48.4	2.5	50	0	97	65	137			
1,2,4-Trimethylbenzene	48.5	2.5	50	0	97	65	137			
sec-Butylbenzene	50	2.5	50	0	99.9	66	134			
1,3-Dichlorobenzene	48	2.5	50	0	96	70	130			
1,4-Dichlorobenzene	46.7	2.5	50	0	93	70	130			
4-Isopropyltoluene	49.9	2.5	50	0	99.9	66	137			
1,2-Dichlorobenzene	47.1	2.5	50	0	94	70	130			
n-Butylbenzene	53.4	2.5	50	0	107	60	142			
1,2-Dibromo-3-chloropropane (DBCP)	212	15	250	0	85	67	130			
1,2,4-Trichlorobenzene	41.9	10	50	0	84	61	137			
Naphthalene	38.3	10	50	0	77	40	167			
Hexachlorobutadiene	92.9	10	100	0	93	61	130			
1,2,3-Trichlorobenzene	41.3	10	50	0	83	51	144			
Surr: 1,2-Dichloroethane-d4	45.1		50		90	70	130			
Surr: Toluene-d8	51.7		50		103	70	130			
Surr: 4-Bromofluorobenzene	47.8		50		96	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:  
10-Aug-09

## QC Summary Report

Work Order:  
09072905

### Sample Matrix Spike Duplicate

File ID: 09080508.D

Type MSD

Test Code:

Batch ID: MS15W0805M

Analysis Date: 08/05/2009 12:39

Sample ID: 09072905-01AMSD

Units: µg/L

Run ID: MSD\_15\_090805A

Prep Date: 08/05/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	51.1	2.5	50	0	102	13	167	50.46	1.3(20)	
Chloromethane	43.9	10	50	0	88	28	145	41.25	6.2(20)	
Vinyl chloride	54.7	2.5	50	0	109	43	134	53.4	2.5(20)	
Chloroethane	42.3	2.5	50	0	85	39	154	42.62	0.7(20)	
Bromomethane	39.1	10	50	0	78	19	176	37.49	4.2(20)	
Trichlorofluoromethane	55.8	2.5	50	0	112	34	160	58.02	4.0(20)	
1,1-Dichloroethene	46.8	2.5	50	0	94	60	130	49.5	5.6(20)	
Dichloromethane	43.6	10	50	0	87	68	130	43.8	0.4(20)	
trans-1,2-Dichloroethene	49.6	2.5	50	0	99	63	130	51.17	3.1(20)	
Methyl tert-butyl ether (MTBE)	47	1.3	50	0	94	56	141	46.28	1.5(20)	
1,1-Dichloroethane	46.1	2.5	50	0	92	61	130	46.64	1.1(20)	
cis-1,2-Dichloroethene	47.8	2.5	50	0	96	70	130	48.32	1.1(20)	
Bromochloromethane	51.2	2.5	50	0	102	70	130	51.11	0.2(20)	
Chloroform	47.1	2.5	50	0	94	67	130	47.56	1.1(20)	
2,2-Dichloropropane	48.3	2.5	50	0	97	30	152	50.2	3.9(20)	
1,2-Dichloroethane	44.9	2.5	50	0	90	60	135	45.54	1.5(20)	
1,1,1-Trichloroethane	49.3	2.5	50	0	99	59	137	51.79	4.9(20)	
1,1-Dichloropropene	48	2.5	50	0	96	63	130	50.58	5.3(20)	
Carbon tetrachloride	49.2	2.5	50	0	98	50	147	52.84	7.1(20)	
Benzene	45.9	1.3	50	0	92	67	130	47.02	2.4(20)	
Dibromomethane	46.7	2.5	50	0	93	69	133	45.55	2.5(20)	
1,2-Dichloropropane	47	2.5	50	0	94	69	130	47.03	0.0(20)	
Trichloroethene	49.1	2.5	50	0	98	69	130	50.57	3.0(20)	
Bromodichloromethane	42.9	2.5	50	0	86	66	134	43.32	1.1(20)	
cis-1,3-Dichloropropene	40.8	2.5	50	0	82	63	130	40.94	0.4(20)	
trans-1,3-Dichloropropene	42	2.5	50	0	84	66	131	40.17	4.4(20)	
1,1,2-Trichloroethane	48.4	2.5	50	0	97	68	130	47.4	2.1(20)	
Toluene	45.9	1.3	50	0	92	66	130	47.28	2.9(20)	
1,3-Dichloropropane	48.1	2.5	50	0	96	70	130	48.36	0.6(20)	
Dibromochloromethane	44.6	2.5	50	0	89	70	130	45.27	1.4(20)	
1,2-Dibromoethane (EDB)	94.7	10	100	0	95	70	130	92.91	2.0(20)	
Tetrachloroethene	49.6	2.5	50	0	99	61	134	51.39	3.7(20)	
1,1,1,2-Tetrachloroethane	48.8	2.5	50	0	98	70	130	50.22	2.9(20)	
Chlorobenzene	46.4	2.5	50	0	93	70	130	47.21	1.8(20)	
Ethylbenzene	49.6	1.3	50	2.45	94	68	130	50.76	2.3(20)	
m,p-Xylene	49.8	1.3	50	0	99.6	64	130	51.27	2.9(20)	
Bromoform	40.8	2.5	50	0	82	64	138	40.28	1.3(20)	
Styrene	34.7	2.5	50	0.6	68	69	130	34.66	0.1(20)	M2
o-Xylene	50.8	1.3	50	0	102	70	130	51.1	0.5(20)	
1,1,2,2-Tetrachloroethane	49.6	2.5	50	0	99	65	131	49.71	0.2(20)	
1,2,3-Trichloropropane	101	10	100	0	101	70	130	97.86	2.8(20)	
Isopropylbenzene	47.8	2.5	50	0	96	64	138	50.23	5.0(20)	
Bromobenzene	45.4	2.5	50	0	91	70	130	44.99	1.0(20)	
n-Propylbenzene	47.3	2.5	50	0	95	66	132	50.6	6.8(20)	
4-Chlorotoluene	48.6	2.5	50	0	97	70	130	49.4	1.7(20)	
2-Chlorotoluene	47.2	2.5	50	0	94	70	130	48.7	3.1(20)	
1,3,5-Trimethylbenzene	46.3	2.5	50	0	93	66	136	48.35	4.4(20)	
tert-Butylbenzene	46.8	2.5	50	0	94	65	137	48.4	3.3(20)	
1,2,4-Trimethylbenzene	46.6	2.5	50	0	93	65	137	48.45	3.9(20)	
sec-Butylbenzene	47.5	2.5	50	0	95	66	134	49.96	5.1(20)	
1,3-Dichlorobenzene	47.3	2.5	50	0	95	70	130	47.99	1.4(20)	
1,4-Dichlorobenzene	45.2	2.5	50	0	90	70	130	46.66	3.2(20)	
4-Isopropyltoluene	48.3	2.5	50	0	97	66	137	49.93	3.4(20)	
1,2-Dichlorobenzene	46.2	2.5	50	0	92	70	130	47.08	1.9(20)	
n-Butylbenzene	51.7	2.5	50	0	103	60	142	53.42	3.2(20)	
1,2-Dibromo-3-chloropropane (DBCP)	214	15	250	0	86	67	130	212.1	0.8(20)	
1,2,4-Trichlorobenzene	43.3	10	50	0	87	61	137	41.87	3.3(20)	
Naphthalene	39.4	10	50	0	79	40	167	38.25	2.9(20)	
Hexachlorobutadiene	90.8	10	100	0	91	61	130	92.92	2.3(20)	
1,2,3-Trichlorobenzene	41.7	10	50	0	83	51	144	41.33	0.9(20)	
Surr: 1,2-Dichloroethane-d4	44.5		50		89	70	130			
Surr: Toluene-d8	51.4		50		103	70	130			
Surr: 4-Bromofluorobenzene	47.9		50		96	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:**

10-Aug-09

## QC Summary Report

**Work Order:**

09072905

**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.

M2 = Matrix spike recovery was low, the method control sample recovery was acceptable.

**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 : BMIS09072905**  
**Report Due By : 5:00 PM On : 12-Aug-2009**

**Client:** Battelle Memorial Institute  
 3990 Old Town Ave  
 Suite C-205  
 San Diego, CA 92110  
 PO : 218013

**Report Attention**    **Phone Number**    **Email Address**  
 David Conner    (818) 393-2808    x    connerd@battelle.org  
 Betsy Cuite    (614) 424-4899    x    cuitee@battelle.org  
 Shane Walton    (614) 424-4117    x    walton@battelle.org

**Client's COC # :** 25754    **Job :** G005862/JPL Groundwater Monitoring  
**QC Level :** DS4    = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates

**EDD Required :** Yes  
**Sampled by :** Client  
**Cooler Temp**    **Samples Received**    **Date Printed**  
 4 °C    29-Jul-2009    29-Jul-2009

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_TIC_W				
BM109072905-01A	NW-4-3	AQ 07/28/09 09:53	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BM109072905-02A	NW-4-2	AQ 07/28/09 10:23	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BM109072905-03A	NW-4-1	AQ 07/28/09 10:44	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BM109072905-04A	DUPE-6-3QC09	AQ 07/28/09 00:00	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		

**Comments:** No security seals. Frozen ice. Temp Blank #5039 received @ 4°C. Perchlorate RL of 1.0 ug/L. Level IV QC. Samples should be used as the control spike sample if possible (I.E. MS/MSD).


**Logged in by:** *Elizabeth Adcox*    **Signature**    *Elizabeth Adcox*    **Print Name**    *Elizabeth Adcox*    **Company**    Alpha Analytical, Inc.    **Date/Time**    7-29-09 1342

**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) 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 GEORGE TOMPKINS / BATTLE  
 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?** 25754  
 AZ  CA  NV  WA   
 ID  OR  OTHER   
 Page # 1 of 1

Analyses Required

Client Name BATTLE / DAVID CORNER PO # 218013 Job # 6005862  
 Address 3990 OLD TOWN AVE., C-205 Email Address \_\_\_\_\_  
 City, State, Zip SAN DIEGO, CA 92110 Phone # (619) 726-7311 Fax # \_\_\_\_\_

Time Sampled	Date Sampled	Matrix* See Key Below	Sampled by	Lab ID Number (Use Only)	Office (Use Only)	Sample Description	TAT	Field Filtered	Total and type of containers ** See below	Required QC Level?	EDD / EDF? YES NO	REMARKS
953	7/28/05	AA	BMT	09072905	01	MW-4-3	Normal		1/5			
1023	7/28/05	AA	BMT	09072905	02	MW-4-2			1			
1044	7/28/05	AA	BMT	09072905	03	MW-4-1			1			
												Duplicate

**ADDITIONAL INSTRUCTIONS:**

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	KARCO MCBRIN	INSIGHT ETC	7/28/05	1230
<i>[Signature]</i>	Elizabeth Adams	Alpha	7-29-09	1342
Relinquished by				
Received by				
Relinquished by				
Received by				

\*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air \*\* L-Liter V-Vol S-Soil Jar O-Other 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: 10-Aug-09

David Conner  
Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
(818) 393-2808

Suite C-205

## CASE NARRATIVE

Project: G005862/JPL Groundwater Monitoring

Work Order: BMI09072906

Cooler Temp: 4 °C

Alpha's Sample ID	Client's Sample ID	Matrix
09072906-01A	MW-17-4	Aqueous
09072906-02A	MW-17-3	Aqueous
09072906-03A	MW-17-2	Aqueous
09072906-04A	EB-6-7/28/09	Aqueous
09072906-05A	TB-6-7/28/09	Aqueous

### Manually Integrated Analytes

<u>Alpha's Sample ID</u>	<u>Test Reference</u>	<u>Analyte</u>
09072906-02A	EPA Method 314.0	Perchlorate
09072906-03A	EPA Method 314.0	Perchlorate

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

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

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

*Roger Scholl*      *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) 736-7522 / info@alpha-analytical.com

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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  
3990 Old Town Ave  
San Diego, CA 92110

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/29/09

Job#: G005862/JPL Groundwater Monitoring

Perchlorate by Ion Chromatography  
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : <b>MW-17-4</b> Lab ID : BMI09072906-01A Perchlorate	ND	1.00 µg/L	07/28/09	08/06/09
Client ID : <b>MW-17-3</b> Lab ID : BMI09072906-02A Perchlorate	11.5	1.00 µg/L	07/28/09	08/06/09
Client ID : <b>MW-17-2</b> Lab ID : BMI09072906-03A Perchlorate	5.03	1.00 µg/L	07/28/09	08/06/09
Client ID : <b>EB-6-7/28/09</b> Lab ID : BMI09072906-04A Perchlorate	ND	1.00 µg/L	07/28/09	08/06/09

ND = Not Detected

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8/11/09

Report Date



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## ANALYTICAL REPORT

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

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/29/09

Job#: G005862/JPL Groundwater Monitoring

Metals by ICPMS  
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : <b>MW-17-4</b> Lab ID : BMI09072906-01A Chromium (Cr)	ND	0.0050 mg/L	07/28/09	08/07/09
Client ID : <b>MW-17-3</b> Lab ID : BMI09072906-02A Chromium (Cr)	ND	0.0050 mg/L	07/28/09	08/07/09
Client ID : <b>MW-17-2</b> Lab ID : BMI09072906-03A Chromium (Cr)	ND	0.0050 mg/L	07/28/09	08/07/09
Client ID : <b>EB-6-7/28/09</b> Lab ID : BMI09072906-04A Chromium (Cr)	ND	0.0050 mg/L	07/28/09	08/07/09

ND = Not Detected

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## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

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

	Parameter	Estimated Concentration	Estimated Reporting Limit	Date Received	Date Sampled	Date Analyzed
Client ID: <b>MW-17-4</b> Lab ID: BMI09072906-01A	*** None Found ***	ND	2.0 µg/L	07/29/09	07/28/09	08/05/09
Client ID: <b>MW-17-3</b> Lab ID: BMI09072906-02A	*** None Found ***	ND	2.0 µg/L	07/29/09	07/28/09	08/05/09
Client ID: <b>MW-17-2</b> Lab ID: BMI09072906-03A	*** None Found ***	ND	2.0 µg/L	07/29/09	07/28/09	08/05/09
Client ID: <b>EB-6-7/28/09</b> Lab ID: BMI09072906-04A	*** None Found ***	ND	2.0 µg/L	07/29/09	07/28/09	08/05/09
Client ID: <b>TB-6-7/28/09</b> Lab ID: BMI09072906-05A	*** None Found ***	ND	2.0 µg/L	07/29/09	07/28/09	08/05/09

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072906-01A  
Client I.D. Number: MW-17-4

Sampled: 07/28/09  
Received: 07/29/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	0.81	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	90	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	111	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	90	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072906-02A  
Client I.D. Number: MW-17-3

Sampled: 07/28/09  
Received: 07/29/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethane	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 i,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	0.65	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	88	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	110	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	95	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

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

## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072906-03A  
Client I.D. Number: MW-17-2

Sampled: 07/28/09  
Received: 07/29/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	1.2	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	90	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	115	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	94	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	1.0	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

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## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072906-04A  
Client I.D. Number: EB-6-7/28/09

Sampled: 07/28/09  
Received: 07/29/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	88	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	108	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	94	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

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

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

8/11/09

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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09072906-05A  
Client I.D. Number: TB-6-7/28/09

Sampled: 07/28/09  
Received: 07/29/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	88	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	112	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	97	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

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8/11/09

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

Report Date

Page 1 of 1



# Alpha Analytical, Inc.

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## VOC Sample Preservation Report

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**Work Order:** BMI09072906

**Project:** G005862/JPL Groundwater Monitoring

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Alpha's Sample ID	Client's Sample ID	Matrix	pH
09072906-01A	MW-17-4	Aqueous	2
09072906-02A	MW-17-3	Aqueous	2
09072906-03A	MW-17-2	Aqueous	2
09072906-04A	EB-6-7/28/09	Aqueous	2
09072906-05A	TB-6-7/28/09	Aqueous	2

---

8/11/09

**Report Date**



# Alpha Analytical, Inc.

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

Date:  
11-Aug-09

## QC Summary Report

Work Order:  
09072906

### Method Blank

File ID: 14	Type MBLK	Test Code: EPA Method 314.0	Batch ID: 22492	Analysis Date: 08/06/2009 15:38
Sample ID: MB-22492	Units : µg/L	Run ID: IC_3_090806A	Prep Date: 08/06/2009	
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: 22492	Analysis Date: 08/06/2009 15:56
Sample ID: LFB-22492	Units : µg/L	Run ID: IC_3_090806A	Prep Date: 08/06/2009	
Analyte	Result	PQL	SpkVal	SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual
Perchlorate	24.8	2	25	99 85 115

### Sample Matrix Spike

File ID: 35	Type LFM	Test Code: EPA Method 314.0	Batch ID: 22492	Analysis Date: 08/06/2009 22:04
Sample ID: 09080502-03ALFM	Units : µg/L	Run ID: IC_3_090806A	Prep Date: 08/06/2009	
Analyte	Result	PQL	SpkVal	SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual
Perchlorate	34.4	2	25	9.105 101 80 120

### Sample Matrix Spike Duplicate

File ID: 36	Type LFMD	Test Code: EPA Method 314.0	Batch ID: 22492	Analysis Date: 08/06/2009 22:22
Sample ID: 09080502-03ALFMD	Units : µg/L	Run ID: IC_3_090806A	Prep Date: 08/06/2009	
Analyte	Result	PQL	SpkVal	SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual
Perchlorate	34.7	2	25	9.105 102 80 120 34.43 0.8(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:

11-Aug-09

## QC Summary Report

Work Order:

09072906

### Method Blank

File ID: 080609.B\45MB.D\

Sample ID: MB-22445

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: 22445K

Analysis Date: 08/07/2009 09:22

Units : mg/L

Run ID: ICP/MS\_090807A

Prep Date: 07/30/2009

### Laboratory Control Spike

File ID: 080609.B\45L1.D\

Sample ID: LCS-22445

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0432	0.005	0.05		86	80	120			

Type LCS Test Code: EPA Method 200.8

Batch ID: 22445K

Analysis Date: 08/07/2009 09:46

Units : mg/L

Run ID: ICP/MS\_090807A

Prep Date: 07/30/2009

### Sample Matrix Spike

File ID: 080609.B\MS.D\

Sample ID: 09072442-08AMS

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0498	0.005	0.05		0 99.6	80	120			

Type MS Test Code: EPA Method 200.8

Batch ID: 22445K

Analysis Date: 08/07/2009 10:08

Units : mg/L

Run ID: ICP/MS\_090807A

Prep Date: 07/30/2009

### Sample Matrix Spike Duplicate

File ID: 080609.B\MSD.D\

Sample ID: 09072442-08AMSD

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0458	0.005	0.05		0 92	80	120	0.04982	8.4(20)	

Type MSD Test Code: EPA Method 200.8

Batch ID: 22445K

Analysis Date: 08/07/2009 10:14

Units : mg/L

Run ID: ICP/MS\_090807A

Prep Date: 07/30/2009

### 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-Aug-09

## QC Summary Report

Work Order:  
09072906

### Method Blank

Type **MBLK**

Test Code: \_\_\_\_\_

File ID: **09080506.D**

Batch ID: **MS15W0805M**

Analysis Date: **08/05/2009 11:54**

Sample ID: **MBLK MS15W0805M**

Units : **µg/L**

Run ID: **MSD\_15\_090805A**

Prep Date: **08/05/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	ND	0.5								
Chloromethane	ND	1								
Vinyl chloride	ND	0.5								
Chloroethane	ND	0.5								
Bromomethane	ND	1								
Trichlorofluoromethane	ND	0.5								
1,1-Dichloroethene	ND	0.5								
Dichloromethane	ND	1								
Freon-113	ND	0.5								
trans-1,2-Dichloroethene	ND	0.5								
Methyl tert-butyl ether (MTBE)	ND	0.5								
1,1-Dichloroethane	ND	0.5								
2-Butanone (MEK)	ND	10								
cis-1,2-Dichloroethene	ND	0.5								
Bromochloromethane	ND	0.5								
Chloroform	ND	0.5								
2,2-Dichloropropane	ND	0.5								
1,2-Dichloroethane	ND	0.5								
1,1,1-Trichloroethane	ND	0.5								
1,1-Dichloropropene	ND	0.5								
Carbon tetrachloride	ND	0.5								
Benzene	ND	0.5								
Dibromomethane	ND	0.5								
1,2-Dichloropropane	ND	0.5								
Trichloroethene	ND	0.5								
Bromodichloromethane	ND	0.5								
4-Methyl-2-pentanone (MIBK)	ND	2.5								
cis-1,3-Dichloropropene	ND	0.5								
trans-1,3-Dichloropropene	ND	0.5								
1,1,2-Trichloroethane	ND	0.5								
Toluene	ND	0.5								
1,3-Dichloropropane	ND	0.5								
Dibromochloromethane	ND	0.5								
1,2-Dibromoethane (EDB)	ND	1								
Tetrachloroethene	ND	0.5								
1,1,1,2-Tetrachloroethane	ND	0.5								
Chlorobenzene	ND	0.5								
Ethylbenzene	ND	0.5								
m,p-Xylene	ND	0.5								
Bromoform	ND	0.5								
Styrene	ND	0.5								
o-Xylene	ND	0.5								
1,1,1,2,2-Tetrachloroethane	ND	0.5								
1,2,3-Trichloropropane	ND	1								
Isopropylbenzene	ND	0.5								
Bromobenzene	ND	0.5								
n-Propylbenzene	ND	0.5								
4-Chlorotoluene	ND	0.5								
2-Chlorotoluene	ND	0.5								
1,3,5-Trimethylbenzene	ND	0.5								
tert-Butylbenzene	ND	0.5								
1,2,4-Trimethylbenzene	ND	0.5								
sec-Butylbenzene	ND	0.5								
1,3-Dichlorobenzene	ND	0.5								
1,4-Dichlorobenzene	ND	0.5								
4-Isopropyltoluene	ND	0.5								
1,2-Dichlorobenzene	ND	0.5								
n-Butylbenzene	ND	0.5								
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5								
1,2,4-Trichlorobenzene	ND	1								
Naphthalene	ND	1								
Hexachlorobutadiene	ND	1								
1,2,3-Trichlorobenzene	ND	1								
Surr: 1,2-Dichloroethane-d4	8.83		10		88	70	130			
Surr: Toluene-d8	11		10		110	70	130			



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Date:

10-Aug-09

## QC Summary Report

Work Order:

09072906

Surr: 4-Bromofluorobenzene 9.51 10 95 70 130

### Laboratory Control Spike

Type LCS

Test Code:

File ID: 09080503.D

Batch ID: MS15W0805M

Analysis Date: 08/05/2009 10:48

Sample ID: LCS MS15W0805M

Units : µg/L

Run ID: MSD\_15\_090805A

Prep Date: 08/05/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	12.8	1	10		128	70	130			
Chloromethane	8.94	2	10		89	70	130			
Vinyl chloride	9.15	1	10		92	70	130			
Chloroethane	9.41	1	10		94	70	130			
Bromomethane	6.68	2	10		67	70(70)	130			L50
Trichlorofluoromethane	11.4	1	10		114	70	130			
1,1-Dichloroethene	10.8	1	10		108	70	130			
Dichloromethane	9.31	2	10		93	70	130			
trans-1,2-Dichloroethene	11	1	10		110	70	130			
Methyl tert-butyl ether (MTBE)	9.22	0.5	10		92	70	130			
1,1-Dichloroethane	10	1	10		100	70	130			
cis-1,2-Dichloroethene	10.4	1	10		104	70	130			
Bromochloromethane	10.3	1	10		103	70	130			
Chloroform	10	1	10		100	70	130			
2,2-Dichloropropane	11	1	10		110	70	130			
1,2-Dichloroethane	9.24	1	10		92	70	130			
1,1,1-Trichloroethane	10.9	1	10		109	70	130			
1,1-Dichloropropene	10.8	1	10		108	70	130			
Carbon tetrachloride	10.9	1	10		109	70	130			
Benzene	10	0.5	10		100	70	130			
Dibromomethane	9.58	1	10		96	70	130			
1,2-Dichloropropane	9.96	1	10		99.6	70	130			
Trichloroethene	11	1	10		110	70	130			
Bromodichloromethane	8.87	1	10		89	70	130			
cis-1,3-Dichloropropene	9.01	1	10		90	70	130			
trans-1,3-Dichloropropene	8.52	1	10		85	70	130			
1,1,2-Trichloroethane	9.81	1	10		98	70	130			
Toluene	10.1	0.5	10		101	70	130			
1,3-Dichloropropane	9.92	1	10		99	70	130			
Dibromochloromethane	9.2	1	10		92	70	130			
1,2-Dibromoethane (EDB)	19.4	2	20		97	70	130			
Tetrachloroethene	11.1	1	10		111	70	130			
1,1,1,2-Tetrachloroethane	10.3	1	10		103	70	130			
Chlorobenzene	10	1	10		100	70	130			
Ethylbenzene	10.6	0.5	10		106	70	130			
m,p-Xylene	11.1	0.5	10		111	70	130			
Bromoform	8.29	1	10		83	70	130			
Styrene	7.32	1	10		73	70	130			
o-Xylene	11	0.5	10		110	70	130			
1,1,2,2-Tetrachloroethane	9.92	1	10		99	70	130			
1,2,3-Trichloropropane	20	2	20		100	70	130			
Isopropylbenzene	10.8	1	10		108	70	130			
Bromobenzene	9.63	1	10		96	70	130			
n-Propylbenzene	10.7	1	10		107	70	130			
4-Chlorotoluene	10.6	1	10		106	70	130			
2-Chlorotoluene	10.3	1	10		103	70	130			
1,3,5-Trimethylbenzene	10.2	1	10		102	70	130			
tert-Butylbenzene	10.4	1	10		104	70	130			
1,2,4-Trimethylbenzene	10.4	1	10		104	70	130			
sec-Butylbenzene	10.8	1	10		108	70	130			
1,3-Dichlorobenzene	10.2	1	10		102	70	130			
1,4-Dichlorobenzene	9.79	1	10		98	70	130			
4-Isopropyltoluene	10.6	1	10		106	70	130			
1,2-Dichlorobenzene	9.81	1	10		98	70	130			
n-Butylbenzene	11.6	1	10		116	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	44.6	3	50		89	70	130			
1,2,4-Trichlorobenzene	9.1	2	10		91	70	130			
Naphthalene	8.44	2	10		84	70	130			
Hexachlorobutadiene	19.4	2	20		97	70	130			
1,2,3-Trichlorobenzene	8.65	2	10		87	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10		85	70	130			
Surr: Toluene-d8	10.4		10		104	70	130			
Surr: 4-Bromofluorobenzene	9.73		10		97	70	130			



# Alpha Analytical, Inc.

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Date:  
10-Aug-09

## QC Summary Report

Work Order:  
09072906

### Sample Matrix Spike

File ID: 09080507.D

Type MS

Test Code:

Batch ID: MS15W0805M

Analysis Date: 08/05/2009 12:17

Sample ID: 09072905-01AMS

Units : µg/L

Run ID: MSD\_15\_090805A

Prep Date: 08/05/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	50.5	2.5	50	0	101	13	167			
Chloromethane	41.3	10	50	0	83	28	145			
Vinyl chloride	53.4	2.5	50	0	107	43	134			
Chloroethane	42.6	2.5	50	0	85	39	154			
Bromomethane	37.5	10	50	0	75	19	176			
Trichlorofluoromethane	58	2.5	50	0	116	34	160			
1,1-Dichloroethene	49.5	2.5	50	0	99	60	130			
Dichloromethane	43.8	10	50	0	88	68	130			
trans-1,2-Dichloroethene	51.2	2.5	50	0	102	63	130			
Methyl tert-butyl ether (MTBE)	46.3	1.3	50	0	93	56	141			
1,1-Dichloroethane	46.6	2.5	50	0	93	61	130			
cis-1,2-Dichloroethene	48.3	2.5	50	0	97	70	130			
Bromochloromethane	51.1	2.5	50	0	102	70	130			
Chloroform	47.6	2.5	50	0	95	67	130			
2,2-Dichloropropane	50.2	2.5	50	0	100	30	152			
1,2-Dichloroethane	45.5	2.5	50	0	91	60	135			
1,1,1-Trichloroethane	51.8	2.5	50	0	104	59	137			
1,1-Dichloropropene	50.6	2.5	50	0	101	63	130			
Carbon tetrachloride	52.8	2.5	50	0	106	50	147			
Benzene	47	1.3	50	0	94	67	130			
Dibromomethane	45.6	2.5	50	0	91	69	133			
1,2-Dichloropropane	47	2.5	50	0	94	69	130			
Trichloroethene	50.6	2.5	50	0	101	69	130			
Bromodichloromethane	43.3	2.5	50	0	87	66	134			
cis-1,3-Dichloropropene	40.9	2.5	50	0	82	63	130			
trans-1,3-Dichloropropene	40.2	2.5	50	0	80	66	131			
1,1,2-Trichloroethane	47.4	2.5	50	0	95	68	130			
Toluene	47.3	1.3	50	0	95	66	130			
1,3-Dichloropropane	48.4	2.5	50	0	97	70	130			
Dibromochloromethane	45.3	2.5	50	0	91	70	130			
1,2-Dibromoethane (EDB)	92.9	10	100	0	93	70	130			
Tetrachloroethene	51.4	2.5	50	0	103	61	134			
1,1,1,2-Tetrachloroethane	50.2	2.5	50	0	100	70	130			
Chlorobenzene	47.2	2.5	50	0	94	70	130			
Ethylbenzene	50.8	1.3	50	2.45	97	68	130			
m,p-Xylene	51.3	1.3	50	0	103	64	130			
Bromoform	40.3	2.5	50	0	81	64	138			
Styrene	34.7	2.5	50	0.6	68	69	130			M2
o-Xylene	51.1	1.3	50	0	102	70	130			
1,1,2,2-Tetrachloroethane	49.7	2.5	50	0	99	65	131			
1,2,3-Trichloropropane	97.9	10	100	0	98	70	130			
Isopropylbenzene	50.2	2.5	50	0	100	64	138			
Bromobenzene	45	2.5	50	0	90	70	130			
n-Propylbenzene	50.6	2.5	50	0	101	66	132			
4-Chlorotoluene	49.4	2.5	50	0	99	70	130			
2-Chlorotoluene	48.7	2.5	50	0	97	70	130			
1,3,5-Trimethylbenzene	48.4	2.5	50	0	97	66	136			
tert-Butylbenzene	48.4	2.5	50	0	97	65	137			
1,2,4-Trimethylbenzene	48.5	2.5	50	0	97	65	137			
sec-Butylbenzene	50	2.5	50	0	99.9	66	134			
1,3-Dichlorobenzene	48	2.5	50	0	96	70	130			
1,4-Dichlorobenzene	46.7	2.5	50	0	93	70	130			
4-Isopropyltoluene	49.9	2.5	50	0	99.9	66	137			
1,2-Dichlorobenzene	47.1	2.5	50	0	94	70	130			
n-Butylbenzene	53.4	2.5	50	0	107	60	142			
1,2-Dibromo-3-chloropropane (DBCP)	212	15	250	0	85	67	130			
1,2,4-Trichlorobenzene	41.9	10	50	0	84	61	137			
Naphthalene	38.3	10	50	0	77	40	167			
Hexachlorobutadiene	92.9	10	100	0	93	61	130			
1,2,3-Trichlorobenzene	41.3	10	50	0	83	51	144			
Surr: 1,2-Dichloroethane-d4	45.1		50		90	70	130			
Surr: Toluene-d8	51.7		50		103	70	130			
Surr: 4-Bromofluorobenzene	47.8		50		96	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:  
10-Aug-09

## QC Summary Report

Work Order:  
09072906

### Sample Matrix Spike Duplicate

Type **MSD**

Test Code:

File ID: **09080508.D**

Batch ID: **MS15W0805M**

Analysis Date: **08/05/2009 12:39**

Sample ID: **09072905-01AMSD**

Units: **µg/L**

Run ID: **MSD\_15\_090805A**

Prep Date: **08/05/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	51.1	2.5	50	0	102	13	167	50.46	1.3(20)	
Chloromethane	43.9	10	50	0	88	28	145	41.25	6.2(20)	
Vinyl chloride	54.7	2.5	50	0	109	43	134	53.4	2.5(20)	
Chloroethane	42.3	2.5	50	0	85	39	154	42.62	0.7(20)	
Bromomethane	39.1	10	50	0	78	19	176	37.49	4.2(20)	
Trichlorofluoromethane	55.8	2.5	50	0	112	34	160	58.02	4.0(20)	
1,1-Dichloroethene	46.8	2.5	50	0	94	60	130	49.5	5.6(20)	
Dichloromethane	43.6	10	50	0	87	68	130	43.8	0.4(20)	
trans-1,2-Dichloroethene	49.6	2.5	50	0	99	63	130	51.17	3.1(20)	
Methyl tert-butyl ether (MTBE)	47	1.3	50	0	94	56	141	46.28	1.5(20)	
1,1-Dichloroethane	46.1	2.5	50	0	92	61	130	46.64	1.1(20)	
cis-1,2-Dichloroethene	47.8	2.5	50	0	96	70	130	48.32	1.1(20)	
Bromochloromethane	51.2	2.5	50	0	102	70	130	51.11	0.2(20)	
Chloroform	47.1	2.5	50	0	94	67	130	47.56	1.1(20)	
2,2-Dichloropropane	48.3	2.5	50	0	97	30	152	50.2	3.9(20)	
1,2-Dichloroethane	44.9	2.5	50	0	90	60	135	45.54	1.5(20)	
1,1,1-Trichloroethane	49.3	2.5	50	0	99	59	137	51.79	4.9(20)	
1,1-Dichloropropene	48	2.5	50	0	96	63	130	50.58	5.3(20)	
Carbon tetrachloride	49.2	2.5	50	0	98	50	147	52.84	7.1(20)	
Benzene	45.9	1.3	50	0	92	67	130	47.02	2.4(20)	
Dibromomethane	46.7	2.5	50	0	93	69	133	45.55	2.5(20)	
1,2-Dichloropropane	47	2.5	50	0	94	69	130	47.03	0.0(20)	
Trichloroethene	49.1	2.5	50	0	98	69	130	50.57	3.0(20)	
Bromodichloromethane	42.9	2.5	50	0	86	66	134	43.32	1.1(20)	
cis-1,3-Dichloropropene	40.8	2.5	50	0	82	63	130	40.94	0.4(20)	
trans-1,3-Dichloropropene	42	2.5	50	0	84	66	131	40.17	4.4(20)	
1,1,2-Trichloroethane	48.4	2.5	50	0	97	68	130	47.4	2.1(20)	
Toluene	45.9	1.3	50	0	92	66	130	47.28	2.9(20)	
1,3-Dichloropropane	48.1	2.5	50	0	96	70	130	48.36	0.6(20)	
Dibromochloromethane	44.6	2.5	50	0	89	70	130	45.27	1.4(20)	
1,2-Dibromoethane (EDB)	94.7	10	100	0	95	70	130	92.91	2.0(20)	
Tetrachloroethene	49.6	2.5	50	0	99	61	134	51.39	3.7(20)	
1,1,1,2-Tetrachloroethane	48.8	2.5	50	0	98	70	130	50.22	2.9(20)	
Chlorobenzene	46.4	2.5	50	0	93	70	130	47.21	1.8(20)	
Ethylbenzene	49.6	1.3	50	2.45	94	68	130	50.76	2.3(20)	
m,p-Xylene	49.8	1.3	50	0	99.6	64	130	51.27	2.9(20)	
Bromoform	40.8	2.5	50	0	82	64	138	40.28	1.3(20)	
Styrene	34.7	2.5	50	0.6	68	69	130	34.66	0.1(20)	M2
o-Xylene	50.8	1.3	50	0	102	70	130	51.1	0.5(20)	
1,1,2,2-Tetrachloroethane	49.6	2.5	50	0	99	65	131	49.71	0.2(20)	
1,2,3-Trichloropropane	101	10	100	0	101	70	130	97.86	2.8(20)	
Isopropylbenzene	47.8	2.5	50	0	96	64	138	50.23	5.0(20)	
Bromobenzene	45.4	2.5	50	0	91	70	130	44.99	1.0(20)	
n-Propylbenzene	47.3	2.5	50	0	95	66	132	50.6	6.8(20)	
4-Chlorotoluene	48.6	2.5	50	0	97	70	130	49.4	1.7(20)	
2-Chlorotoluene	47.2	2.5	50	0	94	70	130	48.7	3.1(20)	
1,3,5-Trimethylbenzene	46.3	2.5	50	0	93	66	136	48.35	4.4(20)	
tert-Butylbenzene	46.8	2.5	50	0	94	65	137	48.4	3.3(20)	
1,2,4-Trimethylbenzene	46.6	2.5	50	0	93	65	137	48.45	3.9(20)	
sec-Butylbenzene	47.5	2.5	50	0	95	66	134	49.96	5.1(20)	
1,3-Dichlorobenzene	47.3	2.5	50	0	95	70	130	47.99	1.4(20)	
1,4-Dichlorobenzene	45.2	2.5	50	0	90	70	130	46.66	3.2(20)	
4-Isopropyltoluene	48.3	2.5	50	0	97	66	137	49.93	3.4(20)	
1,2-Dichlorobenzene	46.2	2.5	50	0	92	70	130	47.08	1.9(20)	
n-Butylbenzene	51.7	2.5	50	0	103	60	142	53.42	3.2(20)	
1,2-Dibromo-3-chloropropane (DBCP)	214	15	250	0	86	67	130	212.1	0.8(20)	
1,2,4-Trichlorobenzene	43.3	10	50	0	87	61	137	41.87	3.3(20)	
Naphthalene	39.4	10	50	0	79	40	167	38.25	2.9(20)	
Hexachlorobutadiene	90.8	10	100	0	91	61	130	92.92	2.3(20)	
1,2,3-Trichlorobenzene	41.7	10	50	0	83	51	144	41.33	0.9(20)	
Surr: 1,2-Dichloroethane-d4	44.5		50		89	70	130			
Surr: Toluene-d8	51.4		50		103	70	130			
Surr: 4-Bromofluorobenzene	47.9		50		96	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:**  
10-Aug-09

## QC Summary Report

**Work Order:**  
09072906

**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.

M2 = Matrix spike recovery was low, the method control sample recovery was acceptable.

**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

**CA**

**WorkOrder : BMIS09072906**  
**Report Due By : 5:00 PM On : 12-Aug-2009**

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

**Report Attention**    **Phone Number**    **Email Address**

David Conner    (818) 393-2808    x    connerd@battelle.org  
 Betsy Cutie    (614) 424-4899    x    cutiee@battelle.org  
 Shane Walton    (614) 424-4117    x    waltonsh@battelle.org

PO : 218013    Job : G005862/JPL Groundwater Monitoring

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

EDD Required : Yes  
 Sampled by : Client  
 Cooler Temp    Samples Received    Date Printed  
 4 °C    29-Jul-2009    29-Jul-2009

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_TIC_W	VOC_W	
BMIO9072906-01A	MW-17-4	AQ 07/28/09 07:38	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMIO9072906-02A	MW-17-3	AQ 07/28/09 08:05	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMIO9072906-03A	MW-17-2	AQ 07/28/09 08:35	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMIO9072906-04A	EB-6-7/28/09	AQ 07/28/09 08:22	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	
BMIO9072906-05A	TB-6-7/28/09	AQ 07/28/09 00:00	1	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria	Reno Trip Blank 3/16/09

**Comments:** No security seals. Frozen ice. Temp Blank #5039 received @ 4°C. Perchlorate RL of 1.0 ug/L. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD):.

Logged in by: Elizabeth Adcox    Signature: Elizabeth Adcox    Print Name: Elizabeth Adcox    Company: Alpha Analytical, Inc.    Date/Time: 7-29-09 1423

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:**

Name GERARD TOMPKINS / BATTLE  
 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?**  
 AZ \_\_\_\_\_ CA  NV \_\_\_\_\_ WA \_\_\_\_\_  
 ID \_\_\_\_\_ OR \_\_\_\_\_ OTHER \_\_\_\_\_

25748

Analyses Required

Page # 1 of 1

Client Name	Address	City, State, Zip	P.O. #	Job #	Phone #	Fax #	Report Attention	Sample Description	TAT	Field Filtered	Total and type of containers ** See below	REMARKS
BATTLE / DAVID COVER	3990 OLD TOWN AVE, C-205	SAV, DIEGO, CA 92110	218013	GD05862	(614) 726-7311							
73871284	AA	BNTD09072906	MW-17-4									
805			MW-17-3									
835			MW-17-2									
822			ERS-6-7/28/09									EQUIP. BLANK
			TR-6-7/28/09									TRIP BLANK

**ADDITIONAL INSTRUCTIONS:**

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	MARCUS MENDOZA	INSIGHT ETC	7/28/09	1:20
<i>[Signature]</i>	Elizabeth Adams	Alpha	7-29-09	1423
Received by				
Relinquished by				
Received by				
Relinquished by				
Received by				

\*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air \*\* L-Liter V-Voa S-Soil Jar O-Orbo T-Testar 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: 11-Aug-09

David Conner  
Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
(818) 393-2808

Suite C-205

## CASE NARRATIVE

Project: G005862/JPL Groundwater Monitoring

Work Order: BMI09073021

Cooler Temp: 4 °C

Alpha's Sample ID	Client's Sample ID	Matrix
09073021-01A	MW-23-4	Aqueous
09073021-02A	MW-23-3	Aqueous
09073021-03A	MW-23-2	Aqueous
09073021-04A	MW-23-1	Aqueous
09073021-05A	EB-7-7/29/09	Aqueous
09073021-06A	TB-7-7/29/09	Aqueous

### Manually Integrated Analytes

Alpha's Sample ID	Test Reference	Analyte
09073021-03A	EPA Method 314.0	Perchlorate
09073021-04A	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.

*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) 736-7522 / info@alpha-analytical.com

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



# Alpha 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  
3990 Old Town Ave  
San Diego, CA 92110

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/30/09

Job#: G005862/JPL Groundwater Monitoring

Perchlorate by Ion Chromatography  
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : MW-23-3 Lab ID : BMI09073021-02A Perchlorate	ND	1.00 µg/L	07/29/09	08/06/09
Client ID : MW-23-2 Lab ID : BMI09073021-03A Perchlorate	4.13	2.00 µg/L	07/29/09	08/06/09
Client ID : MW-23-1 Lab ID : BMI09073021-04A Perchlorate	2.18	1.00 µg/L	07/29/09	08/06/09
Client ID : EB-7-7/29/09 Lab ID : BMI09073021-05A Perchlorate	ND	1.00 µg/L	07/29/09	08/06/09

ND = Not Detected

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

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8/12/09

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  
3990 Old Town Ave  
San Diego, CA 92110

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/30/09

Job#: G005862/JPL Groundwater Monitoring

Metals by ICPMS  
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : MW-23-4 Lab ID : BMI09073021-01A Chromium (Cr)	ND	0.0050 mg/L	07/29/09	08/12/09
Client ID : MW-23-3 Lab ID : BMI09073021-02A Chromium (Cr)	0.0053	0.0050 mg/L	07/29/09	08/12/09
Client ID : MW-23-2 Lab ID : BMI09073021-03A Chromium (Cr)	ND	0.0050 mg/L	07/29/09	08/13/09
Client ID : MW-23-1 Lab ID : BMI09073021-04A Chromium (Cr)	ND	0.0050 mg/L	07/29/09	08/13/09
Client ID : EB-7-7/29/09 Lab ID : BMI09073021-05A Chromium (Cr)	ND	0.0050 mg/L	07/29/09	08/13/09

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) 736-7522 / info@alpha-analytical.com

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

*8/14/09*

**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

3990 Old Town Ave

San Diego, CA 92110

Job#: G005862/JPL Groundwater Monitoring

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

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

	Parameter	Estimated Concentration	Estimated Reporting Limit	Date Received	Date Sampled	Date Analyzed
Client ID : <b>MW-23-3</b>						
Lab ID : BMI09073021-02A	*** None Found ***	ND	2.0 µg/L	07/30/09	07/29/09	08/05/09
Client ID : <b>MW-23-2</b>						
Lab ID : BMI09073021-03A	*** None Found ***	ND	2.0 µg/L	07/30/09	07/29/09	08/05/09
Client ID : <b>MW-23-1</b>						
Lab ID : BMI09073021-04A	*** None Found ***	ND	2.0 µg/L	07/30/09	07/29/09	08/05/09
Client ID : <b>EB-7-7/29/09</b>						
Lab ID : BMI09073021-05A	*** None Found ***	ND	2.0 µg/L	07/30/09	07/29/09	08/05/09
Client ID : <b>TB-7-7/29/09</b>						
Lab ID : BMI09073021-06A	*** None Found ***	ND	2.0 µg/L	07/30/09	07/29/09	08/05/09

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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

8/12/09

**Report Date**

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

Page 1 of 1





# Alpha Analytical, Inc.

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## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09073021-02A  
Client I.D. Number: MW-23-3

Sampled: 07/29/09  
Received: 07/30/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	89	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	110	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	91	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
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8/12/09

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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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09073021-03A  
Client I.D. Number: MW-23-2

Sampled: 07/29/09  
Received: 07/30/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	1.3	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	91	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	111	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	94	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

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## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09073021-04A  
Client I.D. Number: MW-23-1

Sampled: 07/29/09  
Received: 07/30/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	0.53	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	2.2	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	93	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	108	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	92	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	1.0	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

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# Alpha Analytical, Inc.

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## ANALYTICAL REPORT

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

Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09073021-05A  
Client I.D. Number: EB-7-7/29/09

Sampled: 07/29/09  
Received: 07/30/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	86	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	113	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	91	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

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## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09073021-06A  
Client I.D. Number: TB-7-7/29/09

Sampled: 07/29/09  
Received: 07/30/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
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5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
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9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	88	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	112	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	95	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

Note: Bromomethane failed the method CV criteria of 70-130% @ 66.8% recovery.

ND = Not Detected

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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

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## VOC Sample Preservation Report

**Work Order:** BMI09073021

**Project:** G005862/JPL Groundwater Monitoring

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Alpha's Sample ID	Client's Sample ID	Matrix	pH
09073021-02A	MW-23-3	Aqueous	2
09073021-03A	MW-23-2	Aqueous	2
09073021-04A	MW-23-1	Aqueous	2
09073021-05A	EB-7-7/29/09	Aqueous	2
09073021-06A	TB-7-7/29/09	Aqueous	2

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**8/12/09**  
**Report Date**



# Alpha Analytical, Inc.

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

Date:  
11-Aug-09

## QC Summary Report

Work Order:  
09073021

### Method Blank

Method Blank		Type	Test Code: EPA Method 314.0							
File ID: 14		MBLK	Batch ID: 22492				Analysis Date: 08/06/2009 15:38			
Sample ID: MB-22492	Units : µg/L		Run ID: IC_3_090806A				Prep Date: 08/06/2009			
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	ND		1							

### Laboratory Fortified Blank

Laboratory Fortified Blank		Type	Test Code: EPA Method 314.0							
File ID: 15		LFB	Batch ID: 22492				Analysis Date: 08/06/2009 15:56			
Sample ID: LFB-22492	Units : µg/L		Run ID: IC_3_090806A				Prep Date: 08/06/2009			
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	24.8	2	25		99	85	115			

### Sample Matrix Spike

Sample Matrix Spike		Type	Test Code: EPA Method 314.0							
File ID: 35		LFM	Batch ID: 22492				Analysis Date: 08/06/2009 22:04			
Sample ID: 09080502-03ALFM	Units : µg/L		Run ID: IC_3_090806A				Prep Date: 08/06/2009			
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	34.4	2	25	9.105	101	80	120			

### Sample Matrix Spike Duplicate

Sample Matrix Spike Duplicate		Type	Test Code: EPA Method 314.0							
File ID: 36		LFMD	Batch ID: 22492				Analysis Date: 08/06/2009 22:22			
Sample ID: 09080502-03ALFMD	Units : µg/L		Run ID: IC_3_090806A				Prep Date: 08/06/2009			
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Perchlorate	34.7	2	25	9.105	102	80	120	34.43	0.8(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:  
14-Aug-09

## QC Summary Report

Work Order:  
09073021

### Method Blank

File ID: 081209.B\115SMPL.D\

Sample ID: MB-22456

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: **22456K**

Analysis Date: **08/12/2009 22:48**

Run ID: **ICP/MS\_090812E**

Prep Date: **08/03/2009**

### Laboratory Control Spike

File ID: 081209.B\116\_LCS.D\

Sample ID: LCS-22456

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0512	0.005	0.05		102	80	120			

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

Batch ID: **22456K**

Analysis Date: **08/12/2009 22:54**

Run ID: **ICP/MS\_090812E**

Prep Date: **08/03/2009**

### Sample Matrix Spike

File ID: 081209.B\120SMPL.D\

Sample ID: 09073103-03AMS

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.051	0.005	0.05	0	102	80	120			

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

Batch ID: **22456K**

Analysis Date: **08/12/2009 23:16**

Run ID: **ICP/MS\_090812E**

Prep Date: **08/03/2009**

### Sample Matrix Spike Duplicate

File ID: 081209.B\121SMPL.D\

Sample ID: 09073103-03AMSD

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0488	0.005	0.05	0	98	80	120	0.05098	4.4(20)	

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

Batch ID: **22456K**

Analysis Date: **08/12/2009 23:22**

Run ID: **ICP/MS\_090812E**

Prep Date: **08/03/2009**

### 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-Aug-09

## QC Summary Report

Work Order:  
09073021

### Method Blank

Type **MBLK**

Test Code: \_\_\_\_\_

File ID: **09080506.D**

Batch ID: **MS15W0805M**

Analysis Date: **08/05/2009 11:54**

Sample ID: **MBLK MS15W0805M**

Units : **µg/L**

Run ID: **MSD\_15\_090805A**

Prep Date: **08/05/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	ND	0.5								
Chloromethane	ND	1								
Vinyl chloride	ND	0.5								
Chloroethane	ND	0.5								
Bromomethane	ND	1								
Trichlorofluoromethane	ND	0.5								
1,1-Dichloroethene	ND	0.5								
Dichloromethane	ND	1								
Freon-113	ND	0.5								
trans-1,2-Dichloroethene	ND	0.5								
Methyl tert-butyl ether (MTBE)	ND	0.5								
1,1-Dichloroethane	ND	0.5								
2-Butanone (MEK)	ND	10								
cis-1,2-Dichloroethene	ND	0.5								
Bromochloromethane	ND	0.5								
Chloroform	ND	0.5								
2,2-Dichloropropane	ND	0.5								
1,2-Dichloroethane	ND	0.5								
1,1,1-Trichloroethane	ND	0.5								
1,1-Dichloropropene	ND	0.5								
Carbon tetrachloride	ND	0.5								
Benzene	ND	0.5								
Dibromomethane	ND	0.5								
1,2-Dichloropropane	ND	0.5								
Trichloroethene	ND	0.5								
Bromodichloromethane	ND	0.5								
4-Methyl-2-pentanone (MIBK)	ND	2.5								
cis-1,3-Dichloropropene	ND	0.5								
trans-1,3-Dichloropropene	ND	0.5								
1,1,2-Trichloroethane	ND	0.5								
Toluene	ND	0.5								
1,3-Dichloropropane	ND	0.5								
Dibromochloromethane	ND	0.5								
1,2-Dibromoethane (EDB)	ND	1								
Tetrachloroethene	ND	0.5								
1,1,1,2-Tetrachloroethane	ND	0.5								
Chlorobenzene	ND	0.5								
Ethylbenzene	ND	0.5								
m,p-Xylene	ND	0.5								
Bromoform	ND	0.5								
Styrene	ND	0.5								
o-Xylene	ND	0.5								
1,1,2,2-Tetrachloroethane	ND	0.5								
1,2,3-Trichloropropane	ND	1								
Isopropylbenzene	ND	0.5								
Bromobenzene	ND	0.5								
n-Propylbenzene	ND	0.5								
4-Chlorotoluene	ND	0.5								
2-Chlorotoluene	ND	0.5								
1,3,5-Trimethylbenzene	ND	0.5								
tert-Butylbenzene	ND	0.5								
1,2,4-Trimethylbenzene	ND	0.5								
sec-Butylbenzene	ND	0.5								
1,3-Dichlorobenzene	ND	0.5								
1,4-Dichlorobenzene	ND	0.5								
4-Isopropyltoluene	ND	0.5								
1,2-Dichlorobenzene	ND	0.5								
n-Butylbenzene	ND	0.5								
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5								
1,2,4-Trichlorobenzene	ND	1								
Naphthalene	ND	1								
Hexachlorobutadiene	ND	1								
1,2,3-Trichlorobenzene	ND	1								
Surr: 1,2-Dichloroethane-d4	8.83		10		88	70	130			
Surr: Toluene-d8	11		10		110	70	130			



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Date:  
10-Aug-09

## QC Summary Report

Work Order:  
09073021

Surr: 4-Bromofluorobenzene 9.51 10 95 70 130

### Laboratory Control Spike

Type LCS

Test Code:

File ID: 09080503.D

Batch ID: MS15W0805M

Analysis Date: 08/05/2009 10:48

Sample ID: LCS MS15W0805M

Units : µg/L

Run ID: MSD\_15\_090805A

Prep Date: 08/05/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	12.8	1	10		128	70	130			
Chloromethane	8.94	2	10		89	70	130			
Vinyl chloride	9.15	1	10		92	70	130			
Chloroethane	9.41	1	10		94	70	130			
Bromomethane	6.68	2	10		67	70(70)	130			L50
Trichlorofluoromethane	11.4	1	10		114	70	130			
1,1-Dichloroethene	10.8	1	10		108	70	130			
Dichloromethane	9.31	2	10		93	70	130			
trans-1,2-Dichloroethene	11	1	10		110	70	130			
Methyl tert-butyl ether (MTBE)	9.22	0.5	10		92	70	130			
1,1-Dichloroethane	10	1	10		100	70	130			
cis-1,2-Dichloroethene	10.4	1	10		104	70	130			
Bromochloromethane	10.3	1	10		103	70	130			
Chloroform	10	1	10		100	70	130			
2,2-Dichloropropane	11	1	10		110	70	130			
1,2-Dichloroethane	9.24	1	10		92	70	130			
1,1,1-Trichloroethane	10.9	1	10		109	70	130			
1,1-Dichloropropene	10.8	1	10		108	70	130			
Carbon tetrachloride	10.9	1	10		109	70	130			
Benzene	10	0.5	10		100	70	130			
Dibromomethane	9.58	1	10		96	70	130			
1,2-Dichloropropane	9.96	1	10		99.6	70	130			
Trichloroethene	11	1	10		110	70	130			
Bromodichloromethane	8.87	1	10		89	70	130			
cis-1,3-Dichloropropene	9.01	1	10		90	70	130			
trans-1,3-Dichloropropene	8.52	1	10		85	70	130			
1,1,2-Trichloroethane	9.81	1	10		98	70	130			
Toluene	10.1	0.5	10		101	70	130			
1,3-Dichloropropane	9.92	1	10		99	70	130			
Dibromochloromethane	9.2	1	10		92	70	130			
1,2-Dibromoethane (EDB)	19.4	2	20		97	70	130			
Tetrachloroethene	11.1	1	10		111	70	130			
1,1,1,2-Tetrachloroethane	10.3	1	10		103	70	130			
Chlorobenzene	10	1	10		100	70	130			
Ethylbenzene	10.6	0.5	10		106	70	130			
m,p-Xylene	11.1	0.5	10		111	70	130			
Bromoform	8.29	1	10		83	70	130			
Styrene	7.32	1	10		73	70	130			
o-Xylene	11	0.5	10		110	70	130			
1,1,2,2-Tetrachloroethane	9.92	1	10		99	70	130			
1,2,3-Trichloropropane	20	2	20		100	70	130			
Isopropylbenzene	10.8	1	10		108	70	130			
Bromobenzene	9.63	1	10		96	70	130			
n-Propylbenzene	10.7	1	10		107	70	130			
4-Chlorotoluene	10.6	1	10		106	70	130			
2-Chlorotoluene	10.3	1	10		103	70	130			
1,3,5-Trimethylbenzene	10.2	1	10		102	70	130			
tert-Butylbenzene	10.4	1	10		104	70	130			
1,2,4-Trimethylbenzene	10.4	1	10		104	70	130			
sec-Butylbenzene	10.8	1	10		108	70	130			
1,3-Dichlorobenzene	10.2	1	10		102	70	130			
1,4-Dichlorobenzene	9.79	1	10		98	70	130			
4-Isopropyltoluene	10.6	1	10		106	70	130			
1,2-Dichlorobenzene	9.81	1	10		98	70	130			
n-Butylbenzene	11.6	1	10		116	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	44.6	3	50		89	70	130			
1,2,4-Trichlorobenzene	9.1	2	10		91	70	130			
Naphthalene	8.44	2	10		84	70	130			
Hexachlorobutadiene	19.4	2	20		97	70	130			
1,2,3-Trichlorobenzene	8.65	2	10		87	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10		85	70	130			
Surr: Toluene-d8	10.4		10		104	70	130			
Surr: 4-Bromofluorobenzene	9.73		10		97	70	130			



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Date:  
10-Aug-09

## QC Summary Report

Work Order:  
09073021

### Sample Matrix Spike

File ID: 09080507.D

Type MS

Test Code:

Batch ID: MS15W0805M

Analysis Date: 08/05/2009 12:17

Sample ID: 09072905-01AMS

Units: µg/L

Run ID: MSD\_15\_090805A

Prep Date: 08/05/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	50.5	2.5	50	0	101	13	167			
Chloromethane	41.3	10	50	0	83	28	145			
Vinyl chloride	53.4	2.5	50	0	107	43	134			
Chloroethane	42.6	2.5	50	0	85	39	154			
Bromomethane	37.5	10	50	0	75	19	176			
Trichlorofluoromethane	58	2.5	50	0	116	34	160			
1,1-Dichloroethene	49.5	2.5	50	0	99	60	130			
Dichloromethane	43.8	10	50	0	88	68	130			
trans-1,2-Dichloroethene	51.2	2.5	50	0	102	63	130			
Methyl tert-butyl ether (MTBE)	46.3	1.3	50	0	93	56	141			
1,1-Dichloroethane	46.6	2.5	50	0	93	61	130			
cis-1,2-Dichloroethene	48.3	2.5	50	0	97	70	130			
Bromochloromethane	51.1	2.5	50	0	102	70	130			
Chloroform	47.6	2.5	50	0	95	67	130			
2,2-Dichloropropane	50.2	2.5	50	0	100	30	152			
1,2-Dichloroethane	45.5	2.5	50	0	91	60	135			
1,1,1-Trichloroethane	51.8	2.5	50	0	104	59	137			
1,1-Dichloropropene	50.6	2.5	50	0	101	63	130			
Carbon tetrachloride	52.8	2.5	50	0	106	50	147			
Benzene	47	1.3	50	0	94	67	130			
Dibromomethane	45.6	2.5	50	0	91	69	133			
1,2-Dichloropropane	47	2.5	50	0	94	69	130			
Trichloroethene	50.6	2.5	50	0	101	69	130			
Bromodichloromethane	43.3	2.5	50	0	87	66	134			
cis-1,3-Dichloropropene	40.9	2.5	50	0	82	63	130			
trans-1,3-Dichloropropene	40.2	2.5	50	0	80	66	131			
1,1,2-Trichloroethane	47.4	2.5	50	0	95	68	130			
Toluene	47.3	1.3	50	0	95	66	130			
1,3-Dichloropropane	48.4	2.5	50	0	97	70	130			
Dibromochloromethane	45.3	2.5	50	0	91	70	130			
1,2-Dibromoethane (EDB)	92.9	10	100	0	93	70	130			
Tetrachloroethene	51.4	2.5	50	0	103	61	134			
1,1,1,2-Tetrachloroethane	50.2	2.5	50	0	100	70	130			
Chlorobenzene	47.2	2.5	50	0	94	70	130			
Ethylbenzene	50.8	1.3	50	2.45	97	68	130			
m,p-Xylene	51.3	1.3	50	0	103	64	130			
Bromoform	40.3	2.5	50	0	81	64	138			
Styrene	34.7	2.5	50	0.6	68	69	130			M2
o-Xylene	51.1	1.3	50	0	102	70	130			
1,1,2,2-Tetrachloroethane	49.7	2.5	50	0	99	65	131			
1,2,3-Trichloropropane	97.9	10	100	0	98	70	130			
Isopropylbenzene	50.2	2.5	50	0	100	64	138			
Bromobenzene	45	2.5	50	0	90	70	130			
n-Propylbenzene	50.6	2.5	50	0	101	66	132			
4-Chlorotoluene	49.4	2.5	50	0	99	70	130			
2-Chlorotoluene	48.7	2.5	50	0	97	70	130			
1,3,5-Trimethylbenzene	48.4	2.5	50	0	97	66	136			
tert-Butylbenzene	48.4	2.5	50	0	97	65	137			
1,2,4-Trimethylbenzene	48.5	2.5	50	0	97	65	137			
sec-Butylbenzene	50	2.5	50	0	99.9	66	134			
1,3-Dichlorobenzene	48	2.5	50	0	96	70	130			
1,4-Dichlorobenzene	46.7	2.5	50	0	93	70	130			
4-Isopropyltoluene	49.9	2.5	50	0	99.9	66	137			
1,2-Dichlorobenzene	47.1	2.5	50	0	94	70	130			
n-Butylbenzene	53.4	2.5	50	0	107	60	142			
1,2-Dibromo-3-chloropropane (DBCP)	212	15	250	0	85	67	130			
1,2,4-Trichlorobenzene	41.9	10	50	0	84	61	137			
Naphthalene	38.3	10	50	0	77	40	167			
Hexachlorobutadiene	92.9	10	100	0	93	61	130			
1,2,3-Trichlorobenzene	41.3	10	50	0	83	51	144			
Surr: 1,2-Dichloroethane-d4	45.1		50		90	70	130			
Surr: Toluene-d8	51.7		50		103	70	130			
Surr: 4-Bromofluorobenzene	47.8		50		96	70	130			



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Date:  
10-Aug-09

## QC Summary Report

Work Order:  
09073021

### Sample Matrix Spike Duplicate

Type **MSD** Test Code: \_\_\_\_\_

File ID: **09080508.D**

Batch ID: **MS15W0805M**

Analysis Date: **08/05/2009 12:39**

Sample ID: **09072905-01AMSD**

Units: **µg/L**

Run ID: **MSD\_15\_090805A**

Prep Date: **08/05/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	51.1	2.5	50	0	102	13	167	50.46	1.3(20)	
Chloromethane	43.9	10	50	0	88	28	145	41.25	6.2(20)	
Vinyl chloride	54.7	2.5	50	0	109	43	134	53.4	2.5(20)	
Chloroethane	42.3	2.5	50	0	85	39	154	42.62	0.7(20)	
Bromomethane	39.1	10	50	0	78	19	176	37.49	4.2(20)	
Trichlorofluoromethane	55.8	2.5	50	0	112	34	160	58.02	4.0(20)	
1,1-Dichloroethene	46.8	2.5	50	0	94	60	130	49.5	5.6(20)	
Dichloromethane	43.6	10	50	0	87	68	130	43.8	0.4(20)	
trans-1,2-Dichloroethene	49.6	2.5	50	0	99	63	130	51.17	3.1(20)	
Methyl tert-butyl ether (MTBE)	47	1.3	50	0	94	56	141	46.28	1.5(20)	
1,1-Dichloroethane	46.1	2.5	50	0	92	61	130	46.64	1.1(20)	
cis-1,2-Dichloroethene	47.8	2.5	50	0	96	70	130	48.32	1.1(20)	
Bromochloromethane	51.2	2.5	50	0	102	70	130	51.11	0.2(20)	
Chloroform	47.1	2.5	50	0	94	67	130	47.56	1.1(20)	
2,2-Dichloropropane	48.3	2.5	50	0	97	30	152	50.2	3.9(20)	
1,2-Dichloroethane	44.9	2.5	50	0	90	60	135	45.54	1.5(20)	
1,1,1-Trichloroethane	49.3	2.5	50	0	99	59	137	51.79	4.9(20)	
1,1-Dichloropropene	48	2.5	50	0	96	63	130	50.58	5.3(20)	
Carbon tetrachloride	49.2	2.5	50	0	98	50	147	52.84	7.1(20)	
Benzene	45.9	1.3	50	0	92	67	130	47.02	2.4(20)	
Dibromomethane	46.7	2.5	50	0	93	69	133	45.55	2.5(20)	
1,2-Dichloropropane	47	2.5	50	0	94	69	130	47.03	0.0(20)	
Trichloroethene	49.1	2.5	50	0	98	69	130	50.57	3.0(20)	
Bromodichloromethane	42.9	2.5	50	0	86	66	134	43.32	1.1(20)	
cis-1,3-Dichloropropene	40.8	2.5	50	0	82	63	130	40.94	0.4(20)	
trans-1,3-Dichloropropene	42	2.5	50	0	84	66	131	40.17	4.4(20)	
1,1,2-Trichloroethane	48.4	2.5	50	0	97	68	130	47.4	2.1(20)	
Toluene	45.9	1.3	50	0	92	66	130	47.28	2.9(20)	
1,3-Dichloropropane	48.1	2.5	50	0	96	70	130	48.36	0.6(20)	
Dibromochloromethane	44.6	2.5	50	0	89	70	130	45.27	1.4(20)	
1,2-Dibromoethane (EDB)	94.7	10	100	0	95	70	130	92.91	2.0(20)	
Tetrachloroethene	49.6	2.5	50	0	99	61	134	51.39	3.7(20)	
1,1,1,2-Tetrachloroethane	48.8	2.5	50	0	98	70	130	50.22	2.9(20)	
Chlorobenzene	46.4	2.5	50	0	93	70	130	47.21	1.8(20)	
Ethylbenzene	49.6	1.3	50	2.45	94	68	130	50.76	2.3(20)	
m,p-Xylene	49.8	1.3	50	0	99.6	64	130	51.27	2.9(20)	
Bromoform	40.8	2.5	50	0	82	64	138	40.28	1.3(20)	
Styrene	34.7	2.5	50	0.6	68	69	130	34.66	0.1(20)	M2
o-Xylene	50.8	1.3	50	0	102	70	130	51.1	0.5(20)	
1,1,2,2-Tetrachloroethane	49.6	2.5	50	0	99	65	131	49.71	0.2(20)	
1,2,3-Trichloropropane	101	10	100	0	101	70	130	97.86	2.8(20)	
Isopropylbenzene	47.8	2.5	50	0	96	64	138	50.23	5.0(20)	
Bromobenzene	45.4	2.5	50	0	91	70	130	44.99	1.0(20)	
n-Propylbenzene	47.3	2.5	50	0	95	66	132	50.6	6.8(20)	
4-Chlorotoluene	48.6	2.5	50	0	97	70	130	49.4	1.7(20)	
2-Chlorotoluene	47.2	2.5	50	0	94	70	130	48.7	3.1(20)	
1,3,5-Trimethylbenzene	46.3	2.5	50	0	93	66	136	48.35	4.4(20)	
tert-Butylbenzene	46.8	2.5	50	0	94	65	137	48.4	3.3(20)	
1,2,4-Trimethylbenzene	46.6	2.5	50	0	93	65	137	48.45	3.9(20)	
sec-Butylbenzene	47.5	2.5	50	0	95	66	134	49.96	5.1(20)	
1,3-Dichlorobenzene	47.3	2.5	50	0	95	70	130	47.99	1.4(20)	
1,4-Dichlorobenzene	45.2	2.5	50	0	90	70	130	46.66	3.2(20)	
4-Isopropyltoluene	48.3	2.5	50	0	97	66	137	49.93	3.4(20)	
1,2-Dichlorobenzene	46.2	2.5	50	0	92	70	130	47.08	1.9(20)	
n-Butylbenzene	51.7	2.5	50	0	103	60	142	53.42	3.2(20)	
1,2-Dibromo-3-chloropropane (DBCP)	214	15	250	0	86	67	130	212.1	0.8(20)	
1,2,4-Trichlorobenzene	43.3	10	50	0	87	61	137	41.87	3.3(20)	
Naphthalene	39.4	10	50	0	79	40	167	38.25	2.9(20)	
Hexachlorobutadiene	90.8	10	100	0	91	61	130	92.92	2.3(20)	
1,2,3-Trichlorobenzene	41.7	10	50	0	83	51	144	41.33	0.9(20)	
Surr: 1,2-Dichloroethane-d4	44.5		50		89	70	130			
Surr: Toluene-d8	51.4		50		103	70	130			
Surr: 4-Bromofluorobenzene	47.9		50		96	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:**  
10-Aug-09

## QC Summary Report

**Work Order:**  
09073021

**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.

M2 = Matrix spike recovery was low, the method control sample recovery was acceptable.

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

Work Order : BMIS09073021  
 Report Due By : 5:00 PM On : 13-Aug-09

**Client:**

Battelle Memorial Institute  
 3990 Old Town Ave  
 Suite C-205  
 San Diego, CA 92110  
 PO : 218013

**Report Attention**

Report Attention	Phone Number	Email Address
David Conner	(818) 393-2808 x	connerd@battelle.org
Betsy Cutie	(614) 424-4899 x	cutiec@battelle.org
Shane Walton	(614) 424-4117 x	waltonsh@battelle.org

EDD Required : Yes

Sampled by : Client

Cooler Temp : 4 °C      Samples Received : 30-Jul-09      Date Printed : 30-Jul-09

Client's COC # : 25744

Job : G005862/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		TAT	Requested Tests				Sample Remarks	
			Alpha	Sub		314_W	METALS_D W	VOC_TIC_W	VOC_W		
BMIO9073021-01A	NW-23-4	AQ 07/29/09 07:34	2	0	10	Cr					MS/MSD
BMIO9073021-02A	NW-23-3	AQ 07/29/09 07:58	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BMIO9073021-03A	NW-23-2	AQ 07/29/09 08:18	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BMIO9073021-04A	NW-23-1	AQ 07/29/09 08:46	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BMIO9073021-05A	EB-7-7/29/09	AQ 07/29/09 08:32	5	0	10	Perchlorate	Cr	VOC by 524 Criteria	VOC by 524 Criteria		
BMIO9073021-06A	TB-7-7/29/09	AQ 07/29/09 00:00	1	0	10			VOC by 524 Criteria	VOC by 524 Criteria		Reno Trip Blank 3/16/09

Comments: No security seals. Frozen ice. Temp Blank #7606 received @ 4°C. Perchlorate RL of 1.0 ug/L. Level IV QC. Samples should be used as the control spike sample if possible (E.: MS/MSD).:

Signed by:	<i>K Murray</i>	<i>K Murray</i>	
Signature		Print Name	
		Company	Alpha Analytical, Inc.
		Date/Time	7/30/09 1105

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 GERALD TOMPKINS BATTLE  
 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 States?** 25744  
 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* See Key Below	Sampled by	Lab ID Number (Use Only)	Office (Use Only)	Report Attention	Sample Description	TAT	Field Filtered	Total and type of contaminants ** See below	VOC (5242)	Total G (2208)	ClO <sub>2</sub> (240)	EDD / EDF? YES _____ NO _____	Global ID # _____	REMARKS
BATTLE	3950 OLD TOWN AVE, L-105	SAV DIEGO CA 92110	218013	6005862	AA	BMI09073021-01				MW-23-4	ASWH		P/2	X	X				MS/MSD
758										MW-23-3			VP/5	X	X				
818										MW-23-2				X	X				
846										MW-23-1				X	X				
832										ER-7-7/29/09				X	X				EQUIP. BLANK
—										TR-7-7/29/09			V/1	X					TRIP BLANK

**ADDITIONAL INSTRUCTIONS:**

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	MARKS MENDOZA	EEC	7/29/09	1230
<i>[Signature]</i>	E MURPHY	AMM	7/30/09	1045
Relinquished by				
Received by				
Relinquished by				
Received by				
Relinquished by				
Received by				

\*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: 12-Aug-09

David Conner  
Eattelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
(818) 393-2808

Suite C-205

## CASE NARRATIVE

Project: G005862/JPL Groundwater Monitoring

Work Order: BMI09073102

Cooler Temp: 2 °C

Alpha's Sample ID	Client's Sample ID	Matrix
09073102-01A	MW-11-4	Aqueous
09073102-02A	MW-11-3	Aqueous
09073102-03A	MW-11-2	Aqueous
09073102-04A	MW-11-1	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.

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

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





# Alpha 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  
3990 Old Town Ave  
San Diego, CA 92110

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/31/09

Job#: G005862/JPL Groundwater Monitoring

Anions by IC  
EPA Method 300.0 / 9056

	Parameter	Concentration	Reporting Limit	Date / Time Sampled	Date / Time Analyzed
Client ID : MW-11-1	Nitrite (NO <sub>2</sub> ) - N	ND	0.25 mg/L	07/30/09 11:49	07/31/09 13:30
Lab ID : BMI09073102-04A	Nitrate (NO <sub>3</sub> ) - N	0.99	0.25 mg/L	07/30/09 11:49	07/31/09 13:30
	Phosphate, ortho - P	ND	0.25 mg/L	07/30/09 11:49	07/31/09 13:30

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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4

8/13/09

**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  
3990 Old Town Ave  
San Diego, CA 92110

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/31/09

Job#: G005862/JPL Groundwater Monitoring

Anions by IC  
EPA Method 300.0 / 9056

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : MW-11-1				
Lab ID : BMI09073102-04A Chloride	24	0.50 mg/L	07/30/09	07/31/09
Sulfate (SO4)	55	0.50 mg/L	07/30/09	07/31/09

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
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8/13/09

**Report Date**



# Alpha Analytical, Inc.

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## ANALYTICAL REPORT

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

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/31/09

Job#: G005862/JPL Groundwater Monitoring

Perchlorate by Ion Chromatography  
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID: MW-11-4 Lab ID: BMI09073102-01A Perchlorate	ND	1.00 µg/L	07/30/09	08/06/09
Client ID: MW-11-3 Lab ID: BMI09073102-02A Perchlorate	ND	1.00 µg/L	07/30/09	08/06/09
Client ID: MW-11-2 Lab ID: BMI09073102-03A Perchlorate	ND	1.00 µg/L	07/30/09	08/06/09
Client ID: MW-11-1 Lab ID: BMI09073102-04A Perchlorate	ND	1.00 µg/L	07/30/09	08/06/09

ND = Not Detected

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

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8/13/09

Report Date



# Alpha Analytical, Inc.

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## ANALYTICAL REPORT

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

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/31/09

Job#: G005862/JPL Groundwater Monitoring

Metals by ICPMS  
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : MW-11-3 Lab ID : BMI09073102-02A Chromium (Cr)	ND	0.0050 mg/L	07/30/09	08/13/09
Client ID : MW-11-2 Lab ID : BMI09073102-03A Chromium (Cr)	ND	0.0050 mg/L	07/30/09	08/13/09
Client ID : MW-11-1 Lab ID : BMI09073102-04A Chromium (Cr)	ND	0.0050 mg/L	07/30/09	08/13/09

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
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Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

8/14/09

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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

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

	Parameter	Estimated Concentration	Estimated Reporting Limit	Date Received	Date Sampled	Date Analyzed
Client ID: <b>MW-11-4</b> Lab ID: BMI09073102-01A	Sulfur dioxide	11	2.0 µg/L	07/31/09	07/30/09	08/05/09
Client ID: <b>MW-11-3</b> Lab ID: BMI09073102-02A	Sulfur dioxide	3.2	2.0 µg/L	07/31/09	07/30/09	08/05/09
Client ID: <b>MW-11-2</b> Lab ID: BMI09073102-03A	Sulfur dioxide	2.4	2.0 µg/L	07/31/09	07/30/09	08/05/09
Client ID: <b>MW-11-1</b> Lab ID: BMI09073102-04A	*** None Found ***	ND	2.0 µg/L	07/31/09	07/30/09	08/05/09

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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

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

8/13/09

**Report Date**

Page 1 of 1



# Alpha Analytical, Inc.

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## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09073102-01A  
Client I.D. Number: MW-11-4

Sampled: 07/30/09  
Received: 07/31/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	89	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	109	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	97	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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

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

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8/13/09

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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09073102-02A  
Client I.D. Number: MW-11-3

Sampled: 07/30/09  
Received: 07/31/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	87	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	111	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	92	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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8/13/09

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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09073102-03A  
Client I.D. Number: MW-11-2

Sampled: 07/30/09  
Received: 07/31/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	85	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	113	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	93	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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8/13/09

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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  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

Alpha Analytical Number: BMI09073102-04A  
Client I.D. Number: MW-11-1

Sampled: 07/30/09  
Received: 07/31/09  
Analyzed: 08/05/09

### Volatile Organics by GC/MS

Compound	Concentration	Reporting Limit	Compound	Concentration	Reporting Limit
1 Dichlorodifluoromethane	ND	0.50 µg/L	36 1,1,1,2-Tetrachloroethane	ND	0.50 µg/L
2 Chloromethane	ND	1.0 µg/L	37 Chlorobenzene	ND	0.50 µg/L
3 Vinyl chloride	ND	0.50 µg/L	38 Ethylbenzene	ND	0.50 µg/L
4 Chloroethane	ND	0.50 µg/L	39 m,p-Xylene	ND	0.50 µg/L
5 Bromomethane	ND	1.0 µg/L	40 Bromoform	ND	0.50 µg/L
6 Trichlorofluoromethane	ND	0.50 µg/L	41 Styrene	ND	0.50 µg/L
7 1,1-Dichloroethene	ND	0.50 µg/L	42 o-Xylene	ND	0.50 µg/L
8 Dichloromethane	ND	1.0 µg/L	43 1,1,2,2-Tetrachloroethane	ND	0.50 µg/L
9 Freon-113	ND	0.50 µg/L	44 1,2,3-Trichloropropane	ND	1.0 µg/L
10 trans-1,2-Dichloroethene	ND	0.50 µg/L	45 Isopropylbenzene	ND	0.50 µg/L
11 Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	46 Bromobenzene	ND	0.50 µg/L
12 1,1-Dichloroethane	ND	0.50 µg/L	47 n-Propylbenzene	ND	0.50 µg/L
13 2-Butanone (MEK)	ND	10 µg/L	48 4-Chlorotoluene	ND	0.50 µg/L
14 cis-1,2-Dichloroethene	ND	0.50 µg/L	49 2-Chlorotoluene	ND	0.50 µg/L
15 Bromochloromethane	ND	0.50 µg/L	50 1,3,5-Trimethylbenzene	ND	0.50 µg/L
16 Chloroform	ND	0.50 µg/L	51 tert-Butylbenzene	ND	0.50 µg/L
17 2,2-Dichloropropane	ND	0.50 µg/L	52 1,2,4-Trimethylbenzene	ND	0.50 µg/L
18 1,2-Dichloroethane	ND	0.50 µg/L	53 sec-Butylbenzene	ND	0.50 µg/L
19 1,1,1-Trichloroethane	ND	0.50 µg/L	54 1,3-Dichlorobenzene	ND	0.50 µg/L
20 1,1-Dichloropropene	ND	0.50 µg/L	55 1,4-Dichlorobenzene	ND	0.50 µg/L
21 Carbon tetrachloride	ND	0.50 µg/L	56 4-Isopropyltoluene	ND	0.50 µg/L
22 Benzene	ND	0.50 µg/L	57 1,2-Dichlorobenzene	ND	0.50 µg/L
23 Dibromomethane	ND	0.50 µg/L	58 n-Butylbenzene	ND	0.50 µg/L
24 1,2-Dichloropropane	ND	0.50 µg/L	59 1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5 µg/L
25 Trichloroethene	ND	0.50 µg/L	60 1,2,4-Trichlorobenzene	ND	1.0 µg/L
26 Bromodichloromethane	ND	0.50 µg/L	61 Naphthalene	ND	2.0 µg/L
27 4-Methyl-2-pentanone (MIBK)	ND	2.5 µg/L	62 Hexachlorobutadiene	ND	1.0 µg/L
28 cis-1,3-Dichloropropene	ND	0.50 µg/L	63 1,2,3-Trichlorobenzene	ND	1.0 µg/L
29 trans-1,3-Dichloropropene	ND	0.50 µg/L	64 Surr: 1,2-Dichloroethane-d4	88	(70-130) %REC
30 1,1,2-Trichloroethane	ND	0.50 µg/L	65 Surr: Toluene-d8	112	(70-130) %REC
31 Toluene	ND	0.50 µg/L	66 Surr: 4-Bromofluorobenzene	92	(70-130) %REC
32 1,3-Dichloropropane	ND	0.50 µg/L			
33 Dibromochloromethane	ND	0.50 µg/L			
34 1,2-Dibromoethane (EDB)	ND	1.0 µg/L			
35 Tetrachloroethene	ND	0.50 µg/L			

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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8/13/09

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

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## VOC Sample Preservation Report

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**Work Order:** BMI09073102

**Project:** G005862/JPL Groundwater Monitoring

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Alpha's Sample ID	Client's Sample ID	Matrix	pH
09073102-01A	MW-11-4	Aqueous	2
09073102-02A	MW-11-3	Aqueous	2
09073102-03A	MW-11-2	Aqueous	2
09073102-04A	MW-11-1	Aqueous	2

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**8/13/09**  
**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-Aug-09

## QC Summary Report

Work Order:  
09073102

### Method Blank

Type **MBLK** Test Code: **EPA Method 300.0 / 9056**

File ID: **17**

Batch ID: **22448A**

Analysis Date: **07/31/2009 12:35**

Sample ID: **MB-22448**

Units : **mg/L**

Run ID: **IC\_2\_090731A**

Prep Date: **07/31/2009**

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

### Laboratory Fortified Blank

Type **LFB** Test Code: **EPA Method 300.0 / 9056**

File ID: **18**

Batch ID: **22448A**

Analysis Date: **07/31/2009 12:53**

Sample ID: **LFB-22448**

Units : **mg/L**

Run ID: **IC\_2\_090731A**

Prep Date: **07/31/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Nitrite (NO2) - N	1.21	0.25	1.25		97	90	110			
Nitrate (NO3) - N	1.26	0.25	1.25		101	90	110			
Phosphate, ortho - P	1.98	0.25	1.25		158	90	110			L51

### Sample Matrix Spike

Type **LFM** Test Code: **EPA Method 300.0 / 9056**

File ID: **30**

Batch ID: **22448A**

Analysis Date: **07/31/2009 16:36**

Sample ID: **09073102-04ALFM**

Units : **mg/L**

Run ID: **IC\_2\_090731A**

Prep Date: **07/31/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Nitrite (NO2) - N	1.28	0.25	1.25		0 103	80	120			
Nitrate (NO3) - N	2.27	0.25	1.25	0.9932	102	80	120			
Phosphate, ortho - P	1.56	0.25	1.25		0 125	80	120			M1

### Sample Matrix Spike Duplicate

Type **LFMD** Test Code: **EPA Method 300.0 / 9056**

File ID: **31**

Batch ID: **22448A**

Analysis Date: **07/31/2009 16:54**

Sample ID: **09073102-04ALFMD**

Units : **mg/L**

Run ID: **IC\_2\_090731A**

Prep Date: **07/31/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Nitrite (NO2) - N	1.29	0.25	1.25		0 103	80	120	1.282	0.5(10)	
Nitrate (NO3) - N	2.21	0.25	1.25	0.9932	97	80	120	2.269	2.8(10)	
Phosphate, ortho - P	1.56	0.25	1.25		0 125	80	120	1.563	0.3(10)	M1

### Comments:

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

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

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.



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Date:  
13-Aug-09

## QC Summary Report

Work Order:  
09073102

### Method Blank

Type **MBLK** Test Code: **EPA Method 300.0 / 9056**

File ID: **17**

Batch ID: **22448B**

Analysis Date: **07/31/2009 12:35**

Sample ID: **MB-22448**

Units : **mg/L**

Run ID: **IC\_2\_090731A**

Prep Date: **07/31/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Sulfate (SO4)	ND	0.5								

### Laboratory Fortified Blank

Type **LFB** Test Code: **EPA Method 300.0 / 9056**

File ID: **18**

Batch ID: **22448B**

Analysis Date: **07/31/2009 12:53**

Sample ID: **LFB-22448**

Units : **mg/L**

Run ID: **IC\_2\_090731A**

Prep Date: **07/31/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Sulfate (SO4)	10.1	0.5	10		101	90	110			

### Sample Matrix Spike

Type **LFM** Test Code: **EPA Method 300.0 / 9056**

File ID: **30**

Batch ID: **22448B**

Analysis Date: **07/31/2009 16:36**

Sample ID: **09073102-04ALFM**

Units : **mg/L**

Run ID: **IC\_2\_090731A**

Prep Date: **07/31/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Sulfate (SO4)	64.3	0.5	10	55.25	90	80	120			

### Sample Matrix Spike Duplicate

Type **LFMD** Test Code: **EPA Method 300.0 / 9056**

File ID: **31**

Batch ID: **22448B**

Analysis Date: **07/31/2009 16:54**

Sample ID: **09073102-04ALFMD**

Units : **mg/L**

Run ID: **IC\_2\_090731A**

Prep Date: **07/31/2009**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Sulfate (SO4)	65.1	0.5	10	55.25	98	80	120	64.27	1.3(10)	

### Comments:

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



# Alpha Analytical, Inc.

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Date:  
13-Aug-09

## QC Summary Report

Work Order:  
09073102

### Method Blank

File ID: 17	Type <b>MBLK</b>	Test Code: <b>EPA Method 300.0 / 9056</b>	Batch ID: <b>22448C</b>	Analysis Date: <b>07/31/2009 12:35</b>						
Sample ID: <b>MB-22448</b>	Units : <b>mg/L</b>	Run ID: <b>IC_2_090731A</b>	Prep Date: <b>07/31/2009</b>							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	ND	0.5								

### Laboratory Fortified Blank

File ID: 18	Type <b>LFB</b>	Test Code: <b>EPA Method 300.0 / 9056</b>	Batch ID: <b>22448C</b>	Analysis Date: <b>07/31/2009 12:53</b>						
Sample ID: <b>LFB-22448</b>	Units : <b>mg/L</b>	Run ID: <b>IC_2_090731A</b>	Prep Date: <b>07/31/2009</b>							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	4.52	0.5	5		90	90	110			

### Sample Matrix Spike

File ID: 30	Type <b>LFM</b>	Test Code: <b>EPA Method 300.0 / 9056</b>	Batch ID: <b>22448C</b>	Analysis Date: <b>07/31/2009 16:36</b>						
Sample ID: <b>09073102-04ALFM</b>	Units : <b>mg/L</b>	Run ID: <b>IC_2_090731A</b>	Prep Date: <b>07/31/2009</b>							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	27.7	0.5	5	23.53	84	80	120			

### Sample Matrix Spike Duplicate

File ID: 31	Type <b>LFMD</b>	Test Code: <b>EPA Method 300.0 / 9056</b>	Batch ID: <b>22448C</b>	Analysis Date: <b>07/31/2009 16:54</b>						
Sample ID: <b>09073102-04ALFMD</b>	Units : <b>mg/L</b>	Run ID: <b>IC_2_090731A</b>	Prep Date: <b>07/31/2009</b>							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chloride	28	0.5	5	23.53	89	80	120	27.73	1.0(10)	

#### Comments:

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



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Date:  
12-Aug-09

## QC Summary Report

Work Order:  
09073102

### Method Blank

File ID: 14	Type MBLK	Test Code: EPA Method 314.0	Batch ID: 22492	Analysis Date: 08/06/2009 15:38
Sample ID: MB-22492	Units : µg/L	Run ID: IC_3_090806A	Prep Date: 08/06/2009	
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: 22492	Analysis Date: 08/06/2009 15:56
Sample ID: LFB-22492	Units : µg/L	Run ID: IC_3_090806A	Prep Date: 08/06/2009	
Analyte	Result	PQL	SpkVal	SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual
Perchlorate	24.8	2	25	99 85 115

### Sample Matrix Spike

File ID: 35	Type LFM	Test Code: EPA Method 314.0	Batch ID: 22492	Analysis Date: 08/06/2009 22:04
Sample ID: 09080502-03ALFM	Units : µg/L	Run ID: IC_3_090806A	Prep Date: 08/06/2009	
Analyte	Result	PQL	SpkVal	SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual
Perchlorate	34.4	2	25	9.105 101 80 120

### Sample Matrix Spike Duplicate

File ID: 36	Type LFMD	Test Code: EPA Method 314.0	Batch ID: 22492	Analysis Date: 08/06/2009 22:22
Sample ID: 09080502-03ALFMD	Units : µg/L	Run ID: IC_3_090806A	Prep Date: 08/06/2009	
Analyte	Result	PQL	SpkVal	SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(Limit) Qual
Perchlorate	34.7	2	25	9.105 102 80 120 34.43 0.8(15)

### Comments:

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Date:  
14-Aug-09

## QC Summary Report

Work Order:  
09073102

### Method Blank

File ID: 081209.B\115SMPL.D\	Type <b>MBLK</b>	Test Code: <b>EPA Method 200.8</b>	Batch ID: <b>22456K</b>	Analysis Date: <b>08/12/2009 22:48</b>						
Sample ID: <b>MB-22456</b>	Units : <b>mg/L</b>	Run ID: <b>ICP/MS_090812E</b>	Prep Date: <b>08/03/2009</b>							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	ND	0.005								

### Laboratory Control Spike

File ID: 081209.B\116_LCS.D\	Type <b>LCS</b>	Test Code: <b>EPA Method 200.8</b>	Batch ID: <b>22456K</b>	Analysis Date: <b>08/12/2009 22:54</b>						
Sample ID: <b>LCS-22456</b>	Units : <b>mg/L</b>	Run ID: <b>ICP/MS_090812E</b>	Prep Date: <b>08/03/2009</b>							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0512	0.005	0.05		102	80	120			

### Sample Matrix Spike

File ID: 081209.B\120SMPL.D\	Type <b>MS</b>	Test Code: <b>EPA Method 200.8</b>	Batch ID: <b>22456K</b>	Analysis Date: <b>08/12/2009 23:16</b>						
Sample ID: <b>09073103-03AMS</b>	Units : <b>mg/L</b>	Run ID: <b>ICP/MS_090812E</b>	Prep Date: <b>08/03/2009</b>							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.051	0.005	0.05	0	102	80	120			

### Sample Matrix Spike Duplicate

File ID: 081209.B\121SMPL.D\	Type <b>MSD</b>	Test Code: <b>EPA Method 200.8</b>	Batch ID: <b>22456K</b>	Analysis Date: <b>08/12/2009 23:22</b>						
Sample ID: <b>09073103-03AMSD</b>	Units : <b>mg/L</b>	Run ID: <b>ICP/MS_090812E</b>	Prep Date: <b>08/03/2009</b>							
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Chromium (Cr)	0.0488	0.005	0.05	0	98	80	120	0.05098	4.4(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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12-Aug-09

## QC Summary Report

Work Order:  
09073102

### Method Blank

File ID: 09073142.D

Type MBLK

Test Code:

Batch ID: MS15W0804N

Analysis Date: 08/05/2009 00:27

Sample ID: MBLK MS15W0804N

Units : µg/L

Run ID: MSD\_15\_090804C

Prep Date: 08/05/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	ND	0.5								
Chloromethane	ND	1								
Vinyl chloride	ND	0.5								
Chloroethane	ND	0.5								
Bromomethane	ND	1								
Trichlorofluoromethane	ND	0.5								
1,1-Dichloroethene	ND	0.5								
Dichloromethane	ND	1								
Freon-113	ND	0.5								
trans-1,2-Dichloroethene	ND	0.5								
Methyl tert-butyl ether (MTBE)	ND	0.5								
1,1-Dichloroethane	ND	0.5								
2-Butanone (MEK)	ND	10								
cis-1,2-Dichloroethene	ND	0.5								
Bromochloromethane	ND	0.5								
Chloroform	ND	0.5								
2,2-Dichloropropane	ND	0.5								
1,2-Dichloroethane	ND	0.5								
1,1,1-Trichloroethane	ND	0.5								
1,1-Dichloropropene	ND	0.5								
Carbon tetrachloride	ND	0.5								
Benzene	ND	0.5								
Dibromomethane	ND	0.5								
1,2-Dichloropropane	ND	0.5								
Trichloroethene	ND	0.5								
Bromodichloromethane	ND	0.5								
4-Methyl-2-pentanone (MIBK)	ND	2.5								
cis-1,3-Dichloropropene	ND	0.5								
trans-1,3-Dichloropropene	ND	0.5								
1,1,2-Trichloroethane	ND	0.5								
Toluene	ND	0.5								
1,3-Dichloropropane	ND	0.5								
Dibromochloromethane	ND	0.5								
1,2-Dibromoethane (EDB)	ND	1								
Tetrachloroethene	ND	0.5								
1,1,1,2-Tetrachloroethane	ND	0.5								
Chlorobenzene	ND	0.5								
Ethylbenzene	ND	0.5								
m,p-Xylene	ND	0.5								
Bromoform	ND	0.5								
Styrene	ND	0.5								
o-Xylene	ND	0.5								
1,1,2,2-Tetrachloroethane	ND	0.5								
1,2,3-Trichloropropane	ND	1								
Isopropylbenzene	ND	0.5								
Bromobenzene	ND	0.5								
n-Propylbenzene	ND	0.5								
4-Chlorotoluene	ND	0.5								
2-Chlorotoluene	ND	0.5								
1,3,5-Trimethylbenzene	ND	0.5								
tert-Butylbenzene	ND	0.5								
1,2,4-Trimethylbenzene	ND	0.5								
sec-Butylbenzene	ND	0.5								
1,3-Dichlorobenzene	ND	0.5								
1,4-Dichlorobenzene	ND	0.5								
4-Isopropyltoluene	ND	0.5								
1,2-Dichlorobenzene	ND	0.5								
n-Butylbenzene	ND	0.5								
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.5								
1,2,4-Trichlorobenzene	ND	1								
Naphthalene	ND	1								
Hexachlorobutadiene	ND	1								
1,2,3-Trichlorobenzene	ND	1								
Surr: 1,2-Dichloroethane-d4	8.77		10		88	70	130			
Surr: Toluene-d8	10.9		10		109	70	130			





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Date:

12-Aug-09

## QC Summary Report

Work Order:

09073102

Surr: 4-Bromofluorobenzene 9.66 10 97 70 130

### Laboratory Control Spike

Type LCS

Test Code:

File ID: 09073138.D

Batch ID: MS15W0804N

Analysis Date: 08/04/2009 22:57

Sample ID: LCS MS15W0804N

Units: µg/L

Run ID: MSD\_15\_090804C

Prep Date: 08/04/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	12.4	1	10		124	70	130			
Chloromethane	10.4	2	10		104	70	130			
Vinyl chloride	9.32	1	10		93	70	130			
Chloroethane	9.05	1	10		91	70	130			
Bromomethane	8.06	2	10		81	70	130			
Trichlorofluoromethane	10.6	1	10		106	70	130			
1,1-Dichloroethene	10.5	1	10		105	70	130			
Dichloromethane	9.71	2	10		97	70	130			
trans-1,2-Dichloroethene	10.9	1	10		109	70	130			
Methyl tert-butyl ether (MTBE)	10.1	0.5	10		101	70	130			
1,1-Dichloroethane	10.4	1	10		104	70	130			
cis-1,2-Dichloroethene	10.9	1	10		109	70	130			
Bromochloromethane	10.5	1	10		105	70	130			
Chloroform	10.4	1	10		104	70	130			
2,2-Dichloropropane	9.34	1	10		93	70	130			
1,2-Dichloroethane	9.47	1	10		95	70	130			
1,1,1-Trichloroethane	10.5	1	10		105	70	130			
1,1-Dichloropropene	10.8	1	10		108	70	130			
Carbon tetrachloride	10.2	1	10		102	70	130			
Benzene	10.4	0.5	10		104	70	130			
Dibromomethane	9.88	1	10		99	70	130			
1,2-Dichloropropane	10.9	1	10		109	70	130			
Trichloroethene	11.1	1	10		111	70	130			
Bromodichloromethane	9.22	1	10		92	70	130			
cis-1,3-Dichloropropene	9.32	1	10		93	70	130			
trans-1,3-Dichloropropene	8.48	1	10		85	70	130			
1,1,2-Trichloroethane	10.2	1	10		102	70	130			
Toluene	10.3	0.5	10		103	70	130			
1,3-Dichloropropane	10.5	1	10		105	70	130			
Dibromochloromethane	9.06	1	10		91	70	130			
1,2-Dibromoethane (EDB)	19.7	2	20		98	70	130			
Tetrachloroethene	10.8	1	10		108	70	130			
1,1,1,2-Tetrachloroethane	10.3	1	10		103	70	130			
Chlorobenzene	10.2	1	10		102	70	130			
Ethylbenzene	10.7	0.5	10		107	70	130			
m,p-Xylene	11.2	0.5	10		112	70	130			
Bromoform	8.07	1	10		81	70	130			
Styrene	7.34	1	10		73	70	130			
o-Xylene	10.9	0.5	10		109	70	130			
1,1,2,2-Tetrachloroethane	9.75	1	10		98	70	130			
1,2,3-Trichloropropane	20.2	2	20		101	70	130			
Isopropylbenzene	11.1	1	10		111	70	130			
Bromobenzene	10.1	1	10		101	70	130			
n-Propylbenzene	11	1	10		110	70	130			
4-Chlorotoluene	10.7	1	10		107	70	130			
2-Chlorotoluene	10.6	1	10		106	70	130			
1,3,5-Trimethylbenzene	10.6	1	10		106	70	130			
tert-Butylbenzene	10.6	1	10		106	70	130			
1,2,4-Trimethylbenzene	10.7	1	10		107	70	130			
sec-Butylbenzene	10.8	1	10		108	70	130			
1,3-Dichlorobenzene	10.5	1	10		105	70	130			
1,4-Dichlorobenzene	10	1	10		100	70	130			
4-Isopropyltoluene	10.8	1	10		108	70	130			
1,2-Dichlorobenzene	10.1	1	10		101	70	130			
n-Butylbenzene	11.7	1	10		117	70	130			
1,2-Dibromo-3-chloropropane (DBCP)	46.5	3	50		93	70	130			
1,2,4-Trichlorobenzene	9.37	2	10		94	70	130			
Naphthalene	8.8	2	10		88	70	130			
Hexachlorobutadiene	18.7	2	20		93	70	130			
1,2,3-Trichlorobenzene	9.15	2	10		92	70	130			
Surr: 1,2-Dichloroethane-d4	8.75		10		88	70	130			
Surr: Toluene-d8	10.3		10		103	70	130			
Surr: 4-Bromofluorobenzene	9.85		10		99	70	130			



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Date:  
12-Aug-09

## QC Summary Report

Work Order:  
09073102

### Sample Matrix Spike

File ID: 09073143.D

Type MS

Test Code:

Batch ID: MS15W0804N

Analysis Date: 08/05/2009 00:50

Sample ID: 09073103-03AMS

Units: µg/L

Run ID: MSD\_15\_090804C

Prep Date: 08/05/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	48.9	2.5	50	0	98	13	167			
Chloromethane	45.3	10	50	0	91	28	145			
Vinyl chloride	48.5	2.5	50	0	97	43	134			
Chloroethane	40.8	2.5	50	0	82	39	154			
Bromomethane	38.7	10	50	0	77	19	176			
Trichlorofluoromethane	49.9	2.5	50	0	99.8	34	160			
1,1-Dichloroethene	46.8	2.5	50	0	94	60	130			
Dichloromethane	45.5	10	50	0	91	68	130			
trans-1,2-Dichloroethene	49.9	2.5	50	0	99.8	63	130			
Methyl tert-butyl ether (MTBE)	49.5	1.3	50	0	99	56	141			
1,1-Dichloroethane	47.9	2.5	50	0	96	61	130			
cis-1,2-Dichloroethene	50.7	2.5	50	0	101	70	130			
Bromochloromethane	50.8	2.5	50	0	102	70	130			
Chloroform	47	2.5	50	0	94	67	130			
2,2-Dichloropropane	41.3	2.5	50	0	83	30	152			
1,2-Dichloroethane	44.7	2.5	50	0	89	60	135			
1,1,1-Trichloroethane	47.7	2.5	50	0	95	59	137			
1,1-Dichloropropene	49.4	2.5	50	0	99	63	130			
Carbon tetrachloride	47.7	2.5	50	0	95	50	147			
Benzene	48.1	1.3	50	0	96	67	130			
Dibromomethane	48.1	2.5	50	0	96	69	133			
1,2-Dichloropropane	49.9	2.5	50	0	99.8	69	130			
Trichloroethene	49.4	2.5	50	0	99	69	130			
Bromodichloromethane	43.4	2.5	50	0	87	66	134			
cis-1,3-Dichloropropene	41.6	2.5	50	0	83	63	130			
trans-1,3-Dichloropropene	41.3	2.5	50	0	83	66	131			
1,1,2-Trichloroethane	48.7	2.5	50	0	97	68	130			
Toluene	47.4	1.3	50	0	95	66	130			
1,3-Dichloropropane	50.5	2.5	50	0	101	70	130			
Dibromochloromethane	44.2	2.5	50	0	88	70	130			
1,2-Dibromoethane (EDB)	96.9	10	100	0	97	70	130			
Tetrachloroethene	48.3	2.5	50	0	97	61	134			
1,1,1,2-Tetrachloroethane	48.5	2.5	50	0	97	70	130			
Chlorobenzene	47.8	2.5	50	0	96	70	130			
Ethylbenzene	48.7	1.3	50	0	97	68	130			
m,p-Xylene	50.8	1.3	50	0	102	64	130			
Bromoform	40	2.5	50	0	80	64	138			
Styrene	34.7	2.5	50	0	69	69	130			
o-Xylene	51.3	1.3	50	0	103	70	130			
1,1,2,2-Tetrachloroethane	52.5	2.5	50	0	105	65	131			
1,2,3-Trichloropropane	100	10	100	0	100	70	130			
Isopropylbenzene	50.3	2.5	50	0	101	64	138			
Bromobenzene	46.8	2.5	50	0	94	70	130			
n-Propylbenzene	49.4	2.5	50	0	99	66	132			
4-Chlorotoluene	49.9	2.5	50	0	99.8	70	130			
2-Chlorotoluene	49	2.5	50	0	98	70	130			
1,3,5-Trimethylbenzene	48.3	2.5	50	0	97	66	136			
tert-Butylbenzene	48	2.5	50	0	96	65	137			
1,2,4-Trimethylbenzene	49.1	2.5	50	0	98	65	137			
sec-Butylbenzene	49.5	2.5	50	0	99	66	134			
1,3-Dichlorobenzene	49.9	2.5	50	0	99.8	70	130			
1,4-Dichlorobenzene	47.1	2.5	50	0	94	70	130			
4-Isopropyltoluene	49.3	2.5	50	0	99	66	137			
1,2-Dichlorobenzene	48.3	2.5	50	0	97	70	130			
n-Butylbenzene	53	2.5	50	0	106	60	142			
1,2-Dibromo-3-chloropropane (DBCP)	237	15	250	0	95	67	130			
1,2,4-Trichlorobenzene	43.2	10	50	0	86	61	137			
Naphthalene	40.9	10	50	0	82	40	167			
Hexachlorobutadiene	86.9	10	100	0	87	61	130			
1,2,3-Trichlorobenzene	41.8	10	50	0	84	51	144			
Surr: 1,2-Dichloroethane-d4	43.8		50		88	70	130			
Surr: Toluene-d8	51.4		50		103	70	130			
Surr: 4-Bromofluorobenzene	49.1		50		98	70	130			



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Date:

12-Aug-09

## QC Summary Report

Work Order:

09073102

### Sample Matrix Spike Duplicate

Type MSD

Test Code:

File ID: 09073144.D

Batch ID: MS15W0804N

Analysis Date: 08/05/2009 01:12

Sample ID: 09073103-03AMSD

Units: µg/L

Run ID: MSD\_15\_090804C

Prep Date: 08/05/2009

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Dichlorodifluoromethane	50.1	2.5	50	0	100	13	167	48.85	2.6(20)	
Chloromethane	48.2	10	50	0	96	28	145	45.25	6.3(20)	
Vinyl chloride	53.4	2.5	50	0	107	43	134	48.51	9.6(20)	
Chloroethane	43.3	2.5	50	0	87	39	154	40.82	5.8(20)	
Bromomethane	40.8	10	50	0	82	19	176	38.71	5.3(20)	
Trichlorofluoromethane	52.9	2.5	50	0	106	34	160	49.91	5.7(20)	
1,1-Dichloroethene	48.3	2.5	50	0	97	60	130	46.83	3.0(20)	
Dichloromethane	44.5	10	50	0	89	68	130	45.48	2.1(20)	
trans-1,2-Dichloroethene	51.1	2.5	50	0	102	63	130	49.91	2.3(20)	
Methyl tert-butyl ether (MTBE)	48.8	1.3	50	0	98	56	141	49.49	1.5(20)	
1,1-Dichloroethane	47.7	2.5	50	0	95	61	130	47.88	0.5(20)	
cis-1,2-Dichloroethene	48.6	2.5	50	0	97	70	130	50.7	4.2(20)	
Bromochloromethane	51.5	2.5	50	0	103	70	130	50.8	1.3(20)	
Chloroform	48.5	2.5	50	0	97	67	130	47	3.2(20)	
2,2-Dichloropropane	42.5	2.5	50	0	85	30	152	41.25	2.9(20)	
1,2-Dichloroethane	44.7	2.5	50	0	89	60	135	44.7	0.1(20)	
1,1,1-Trichloroethane	49.7	2.5	50	0	99	59	137	47.67	4.1(20)	
1,1-Dichloropropene	49.9	2.5	50	0	99.8	63	130	49.35	1.2(20)	
Carbon tetrachloride	48.6	2.5	50	0	97	50	147	47.7	1.9(20)	
Benzene	48.3	1.3	50	0	97	67	130	48.08	0.5(20)	
Dibromomethane	47.7	2.5	50	0	95	69	133	48.09	0.9(20)	
1,2-Dichloropropane	50.1	2.5	50	0	100	69	130	49.91	0.4(20)	
Trichloroethene	48.8	2.5	50	0	98	69	130	49.38	1.2(20)	
Bromodichloromethane	42.9	2.5	50	0	86	66	134	43.36	1.2(20)	
cis-1,3-Dichloropropene	40.5	2.5	50	0	81	63	130	41.6	2.8(20)	
trans-1,3-Dichloropropene	40.8	2.5	50	0	82	66	131	41.29	1.3(20)	
1,1,2-Trichloroethane	48.3	2.5	50	0	97	68	130	48.7	0.8(20)	
Toluene	47.1	1.3	50	0	94	66	130	47.41	0.7(20)	
1,3-Dichloropropane	49.5	2.5	50	0	99	70	130	50.49	2.1(20)	
Dibromochloromethane	44.7	2.5	50	0	89	70	130	44.22	1.0(20)	
1,2-Dibromoethane (EDB)	94.6	10	100	0	95	70	130	96.85	2.3(20)	
Tetrachloroethene	48.8	2.5	50	0	98	61	134	48.32	1.1(20)	
1,1,1,2-Tetrachloroethane	48.2	2.5	50	0	96	70	130	48.5	0.7(20)	
Chlorobenzene	47.3	2.5	50	0	95	70	130	47.78	1.0(20)	
Ethylbenzene	48.9	1.3	50	0	98	68	130	48.71	0.3(20)	
m,p-Xylene	50.7	1.3	50	0	101	64	130	50.84	0.3(20)	
Bromoform	40.3	2.5	50	0	81	64	138	39.98	0.7(20)	
Styrene	34.1	2.5	50	0	68	69	130	34.73	1.9(20)	M2
o-Xylene	51.2	1.3	50	0	102	70	130	51.3	0.2(20)	
1,1,2,2-Tetrachloroethane	50.8	2.5	50	0	102	65	131	52.52	3.3(20)	
1,2,3-Trichloropropane	98.6	10	100	0	99	70	130	100.1	1.5(20)	
Isopropylbenzene	50.8	2.5	50	0	102	64	138	50.29	1.0(20)	
Bromobenzene	46.1	2.5	50	0	92	70	130	46.75	1.3(20)	
n-Propylbenzene	51.4	2.5	50	0	103	66	132	49.39	4.1(20)	
4-Chlorotoluene	50.2	2.5	50	0	100	70	130	49.91	0.6(20)	
2-Chlorotoluene	49.6	2.5	50	0	99	70	130	48.96	1.3(20)	
1,3,5-Trimethylbenzene	49	2.5	50	0	98	66	136	48.27	1.5(20)	
tert-Butylbenzene	48.8	2.5	50	0	98	65	137	48.01	1.5(20)	
1,2,4-Trimethylbenzene	48.9	2.5	50	0	98	65	137	49.11	0.4(20)	
sec-Butylbenzene	50.7	2.5	50	0	101	66	134	49.46	2.4(20)	
1,3-Dichlorobenzene	49.4	2.5	50	0	99	70	130	49.89	0.9(20)	
1,4-Dichlorobenzene	46.4	2.5	50	0	93	70	130	47.07	1.5(20)	
4-Isopropyltoluene	50	2.5	50	0	100	66	137	49.31	1.4(20)	
1,2-Dichlorobenzene	47.8	2.5	50	0	96	70	130	48.25	0.9(20)	
n-Butylbenzene	54.7	2.5	50	0	109	60	142	53.04	3.1(20)	
1,2-Dibromo-3-chloropropane (DBCP)	238	15	250	0	95	67	130	236.5	0.8(20)	
1,2,4-Trichlorobenzene	44.3	10	50	0	89	61	137	43.24	2.5(20)	
Naphthalene	41.9	10	50	0	84	40	167	40.88	2.4(20)	
Hexachlorobutadiene	91.1	10	100	0	91	61	130	86.9	4.7(20)	
1,2,3-Trichlorobenzene	43.4	10	50	0	87	51	144	41.83	3.7(20)	
Surr: 1,2-Dichloroethane-d4	43.9		50		88	70	130			
Surr: Toluene-d8	51.8		50		104	70	130			
Surr: 4-Bromofluorobenzene	49.7		50		99	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

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**Date:**

*12-Aug-09*

## QC Summary Report

**Work Order:**

09073102

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**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.

M2 = Matrix spike recovery was low, the method control sample recovery was acceptable.

# 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 : BMIS09073102**  
**Report Due By : 5:00 PM On : 14-Aug-2009**

**Client:**  
 Battelle Memorial Institute  
 3990 Old Town Ave  
 Suite C-205  
 San Diego, CA 92110  
 PO : 218013

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

**Client's COC # :** 25753    **Job :** G005862/JPL Groundwater Monitoring  
**QC Level :** DS4    = DOD QC Required : Final Rpt, MBLK, Initial/ConCal data, LCS, MS/MSD With Surrogates  
**EDD Required :** Yes    **Cooler Temp** 2 °C    **Samples Received** 31-Jul-2009    **Date Printed** 31-Jul-2009  
**Sampled by :** Client

Alpha Sample ID	Client Sample ID	Collection Date	Matrix	No. of Bottles		Requested Tests		Sample Remarks				
				Alpha	Sub	300_q(A)_w	300_q(B)_w		300_q(C)_w	314_w	METALS_D	VOC_TIC_w
BM109073102-01A	MW-11-4	07/30/09 10:35	AQ	4	0	10		Perchlorate	VOC by 524 Criteria	VOC by 524 Criteria		
BM109073102-02A	MW-11-3	07/30/09 11:05	AQ	5	0	10		Perchlorate	VOC by 524 Criteria	VOC by 524 Criteria		
BM109073102-03A	MW-11-2	07/30/09 11:26	AQ	5	0	10		Perchlorate	VOC by 524 Criteria	VOC by 524 Criteria		Level IV QC
BM109073102-04A	MW-11-1	07/30/09 11:49	AQ	5	0	10		Perchlorate	VOC by 524 Criteria	VOC by 524 Criteria		

**Comments:** No security seals. Frozen ice. Temp Blank #7280 received @ 2°C. Perchlorate RL of 1.0 ug/L. Level IV QC. Samples should be used as the control spike sample if possible (I.E.: MS/MSD).

**Logged in by:** Elizabeth Adcox    **Signature** Elizabeth Adcox    **Print Name** Elizabeth Adcox    **Company** Alpha Analytical, Inc.    **Date/Time** 7:31:09 1222

**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 GERALD TOMPKINS / BATTELLE  
 Address 505 KING AVE  
 City, State, Zip COLUMBUS, OH 43221  
 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?**

AZ \_\_\_\_\_ CA  NV \_\_\_\_\_ WA \_\_\_\_\_  
 OR \_\_\_\_\_ OTHER \_\_\_\_\_

Page # 1 of 1

**Analyses Required**

Client Name <b>BATTELLE / DAVID CUNNEK</b>	PO # <b>218013</b>	Job # <b>6005862</b>
Address <b>3990 OLD TOWN AVE. C-125</b>	Email Address	
City, State, Zip <b>SAN DIEGO CA 92110</b>	Phone # <b>(619) 726-7311</b>	Fax #
Time Sampled	Matrix* See Key Below	Report Attention
Sampled	Lab ID Number (Use Only)	Sample Description
	TAT	Field Filled
		Total and type of containers ** See below

Time Sampled	Date	Matrix* See Key Below	Lab ID Number (Use Only)	Report Attention	Sample Description	TAT	Field Filled	Total and type of containers ** See below	Analyses Required	Global ID #	REMARKS
1035	7/3/09	AQ	BMT09073/02	01	MW-11-4			VR/5	<input checked="" type="checkbox"/> VOL (524.2) <input checked="" type="checkbox"/> TOTAL Cr (200.8) <input checked="" type="checkbox"/> Cd (314.0) <input checked="" type="checkbox"/> Cl <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , NO <sub>3</sub> <sup>-</sup> , NH <sub>4</sub> <sup>+</sup> <input checked="" type="checkbox"/> PO <sub>4</sub> <sup>3-</sup> (300.0)		
1105					MW-11-3				<input checked="" type="checkbox"/> X		
1126					MW-11-2				<input checked="" type="checkbox"/> X		LEVEL IV OK
1149					MW-11-1				<input checked="" type="checkbox"/> X		

**ADDITIONAL INSTRUCTIONS:**

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	ANNECO AGUIRRE	ALPHA	7/30/09	1300
Relinquished by				
Received by <i>[Signature]</i>	Elizabeth Flores	Alpha	7-31-09	1222
Relinquished by				
Received by				
Relinquished by				
Received by				

\*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air \*\* L-Liter V-Vol 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: 12-Aug-09

David Conner  
Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
(818) 393-2808

Suite C-205

## CASE NARRATIVE

**Project:** G005862/JPL Groundwater Monitoring

**Work Order:** BMI09073103

**Cooler Temp:** 2 °C

Alpha's Sample ID	Client's Sample ID	Matrix
09073103-01A	MW-24-4	Aqueous
09073103-02A	MW-24-3	Aqueous
09073103-03A	MW-24-2	Aqueous
09073103-04A	MW-24-1	Aqueous
09073103-05A	EB-8-7/30/09	Aqueous
09073103-06A	TB-8-7/30/09	Aqueous

### Manually Integrated Analytes

Alpha's Sample ID	Test Reference	Analyte
09073103-03A	EPA Method 314.0	Perchlorate
09073103-04A	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.

*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) 736-7522 / info@alpha-analytical.com



# Alpha Analytical, Inc.

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## ANALYTICAL REPORT

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

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/31/09

Job#: G005862/JPL Groundwater Monitoring

Anions by IC  
EPA Method 300.0 / 9056

	Parameter	Concentration	Reporting Limit	Date / Time Sampled	Date / Time Analyzed
Client ID : MW-24-1	Nitrite (NO <sub>2</sub> ) - N	ND	0.25 mg/L	07/30/09 09:24	07/31/09 17:13
Lab ID : BMI09073103-04A	Nitrate (NO <sub>3</sub> ) - N	1.0	0.25 mg/L	07/30/09 09:24	07/31/09 17:13
	Phosphate, ortho - P	ND	0.25 mg/L	07/30/09 09:24	07/31/09 17:13

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.

8/13/09

Report Date





# Alpha Analytical, Inc.

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## ANALYTICAL REPORT

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

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/31/09

Job#: G005862/JPL Groundwater Monitoring

Anions by IC  
EPA Method 300.0 / 9056

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : MW-24-1				
Lab ID : BMI09073103-04A Chloride	82	0.50 mg/L	07/30/09	07/31/09
Sulfate (SO4)	48	0.50 mg/L	07/30/09	07/31/09

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
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8/13/09

Report Date



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## ANALYTICAL REPORT

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

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/31/09

Job#: G005862/JPL Groundwater Monitoring

Perchlorate by Ion Chromatography  
EPA Method 314.0

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : <b>MW-24-3</b> Lab ID : BMI09073103-02A Perchlorate	ND	1.00 µg/L	07/30/09	08/07/09
Client ID : <b>MW-24-2</b> Lab ID : BMI09073103-03A Perchlorate	10.2	1.00 µg/L	07/30/09	08/07/09
Client ID : <b>MW-24-1</b> Lab ID : BMI09073103-04A Perchlorate	3.98	1.00 µg/L	07/30/09	08/07/09
Client ID : <b>EB-8-7/30/09</b> Lab ID : BMI09073103-05A Perchlorate	ND	1.00 µg/L	07/30/09	08/07/09

ND = Not Detected

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

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8/13/09

Report Date



# Alpha Analytical, Inc.

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## ANALYTICAL REPORT

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

Attn: David Conner  
Phone: (818) 393-2808  
Fax: (614) 458-6641  
Date Received : 07/31/09

Job#: G005862/JPL Groundwater Monitoring

Metals by ICPMS  
EPA Method 200.8

Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : MW-24-4 Lab ID : BMI09073103-01A Chromium (Cr)	ND	0.0050 mg/L	07/30/09	08/13/09
Client ID : MW-24-3 Lab ID : BMI09073103-02A Chromium (Cr)	ND	0.0050 mg/L	07/30/09	08/13/09
Client ID : MW-24-2 Lab ID : BMI09073103-03A Chromium (Cr)	ND	0.0050 mg/L	07/30/09	08/12/09
Client ID : MW-24-1 Lab ID : BMI09073103-04A Chromium (Cr)	0.0086	0.0050 mg/L	07/30/09	08/13/09
Client ID : EB-8-7/30/09 Lab ID : BMI09073103-05A Chromium (Cr)	ND	0.0050 mg/L	07/30/09	08/13/09

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
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Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

8/14/09

Report Date



# Alpha Analytical, Inc.

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## ANALYTICAL REPORT

Battelle Memorial Institute  
3990 Old Town Ave  
San Diego, CA 92110  
Job#: G005862/JPL Groundwater Monitoring

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

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

	Parameter	Estimated Concentration	Estimated Reporting Limit	Date Received	Date Sampled	Date Analyzed
Client ID: MW-24-3 Lab ID: BMI09073103-02A	Sulfur dioxide	20	2.0 µg/L	07/31/09	07/30/09	08/05/09
Client ID: MW-24-2 Lab ID: BMI09073103-03A	Sulfur dioxide	5.6	2.0 µg/L	07/31/09	07/30/09	08/05/09
Client ID: MW-24-1 Lab ID: BMI09073103-04A	Sulfur dioxide	2.4	2.0 µg/L	07/31/09	07/30/09	08/05/09
Client ID: EB-8-7/30/09 Lab ID: BMI09073103-05A	*** None Found ***	ND	2.0 µg/L	07/31/09	07/30/09	08/05/09
Client ID: TB-8-7/30/09 Lab ID: BMI09073103-06A	*** None Found ***	ND	2.0 µg/L	07/31/09	07/30/09	08/05/09

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
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8/13/09

Report Date

Page 1 of 1