# Water & Soil - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A Simi Valley, California 93065 Phone (805) 526-7161 Fax (805) 526-7270 Columbia Analytical Services NC

Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

	í—	7-		W. Parriet Laboratory				*********			· T	т—			P	т	<del>-,</del>		<del></del> -	<del></del>	***************************************		7	· · · · ·	7		<del></del>	<del></del>				ļ	
CAS Project No.	CAS Contact:	Preservative Key	0 None	1 HCL 2 HN03	3 H2SO4		5 Zn Acetate	6 Asc Acid	7 Other		Remarks				Lan Buen Buch BUNK														 Project Requirements (MRLs, QAPP)			Cooler / Blank / Ice / No Ice	Temperature 20°
CA	S					·········						-	-	$\perp$	$\vdash$	_	+	-	-	$\dashv$			-	_	-	╁	+	-	Pro		9	Š	Ten.
s Days (Surcharges) please circle 4 Day (35%) 5 Day (25%) 10 Day - Standard	Si																												EDD required Yes / No		2/10/01 Timp: 1 . 3	25/22 Time 25	a: Time:
cle ay - S	nalyte	ode						<del>01114-1144</del>		**************************************		1	<u> </u>	I	_		$\dagger$	T	+	$\dashv$		***************************************		<del> </del>	$\vdash$	<del> </del>	+	$\dagger$	aquired				Z Z Z
lse cir ) 10 E	d/or A	rative (																		$\top$						1	1	†	EDD re	Type:			
s) plea / (25%	od an	Preservative Code	0	·			0	) <u> </u>	SI	91) v	NDWI	X																1			٩		
<b>harge</b> 5 Day	Analysis Method and/or Analytes		0	<del></del>			<del>-</del>	(3	-5)  }/	<u> </u>	71 2	X	1-	-			-	<del> </del>	1	_	$\dashv$				-	-	-	+	-	s / No		3	
(Surc (35%)	nalysi		$\dashv$		***************************************	*****	(bet	itrac	noodi	<u></u>	ZZ8 □ 9Z9		<u>×</u>		Ł			_	-	+	$\dashv$					_	-	-	- 2	quired Yes / No	3	3	
s Days 4 Day	¥		1			q)			*********		TPH FC	$\vdash$	<del> </del>	-	-		<del> </del>	T	$\dagger$	+	-					-	+-	$\dagger$	sed Yes	2	3	7	)
<b>sines</b> 50%)				(scted)	ntno	gnpc (eq)	ntracı (S	15B	lu2)   08 le		ləcəiQ HqT ləcəiQ HqT								T	1		-				<b>†</b>	1	†	MRL regulired Yes / No	MDL / PQ	1	對	
e in Busines 3 Day (50%)					יופס ר	יום			8E 8	□ 89 FC	TPH Gas 8021																		MRI			(eun	(an
d Time 75%) (		Ų	5		7		~~~				Volatile Org	<u> </u>	<u> </u>	_			-	<u> </u>	+	+	$\dashv$						-	-		7		(Signature)	(September 1)
Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day			MON. MACH		***************************************	P.O. # / Billing Information	TOWN KINS	,			Number of Containers	7		_	-														Surcharge		Heceived W	Received by: (Signature)	for nonnear s
<b>Requested Tu</b> 1 Day (100%)	ame		(F)	Jaguer	07786070	ling Informa	CTALS	KING AVE		n)	Matrix	3	-		-					A CHARLES AND A									Tier III - (Data Validation Package) 10% Surcharge		10 M	Time: / C	<u>.</u>
	Project Name		775	Froject Number	25.5	P.O. # / Bi	されなど	100	) )	Sampler (Print & Sign)	Time Collected	833	1033			**************************************													ita Validation	r specified)	02/20/	No Series	Dare.
526-7161 3-7270	mation)	1205		_						Sampler	Date Collected	5/20/0			-										-				Tier III - (Da	Herv-(clie	A Partie of the same of the sa		
Phone (805) 526-7161 Fax (805) 526-7270	Reporting Infor	1 NIR	) , TVT ,	× 92110		F	-1/-	Fax		orting	Laboratory ID Number	E	9	)										d-market An	-								
Att Employee - Owned Company	Company Name & Address (Reporting Information)	<b>BATELIA</b>	1390 017 taxx ru, 7 rs,	SpN DIEGO, CA 92110			AVID CONN	Phone	1182-726-7311	Email Address for Result Reporting	Client Sample JD	MW-13	カーカ	/	101 / - 92	·											TO AND THE PROPERTY OF THE PRO		Report Tier Levels - please select Tier I - (Results/Default if not specified) Tier II - (Boouts - Oct.)	Reling (Shoot of Street of	Relinguistance (Stonatorio)	Retification by (Stanature)	5.1.1

### Columbia Analytical Services, Inc. Chain of Custody Report

Client:

Battelle

**Project:** 

JPL GW Mon 2Q09/G486090

Service Request: P0901719

Bottle ID	Tests	Date	Time	Sample Location / User	Disposed On
P0901719-001.01					***************************************
		5/20/09	1315	SMO / MZAMORA	
		5/20/09	1316	SUBBED / MZAMORA	
		5/22/09	1052	K-Delilah-73 / BTOBIN	
		5/25/09	1237	In Lab / PMULHERIN	
		5/25/09	1238	K-Delilah-73 / PMULHERIN	
P0901719-001.02			· · · · · · · · · · · · · · · · · · ·		
	521				
		5/20/09	1315	SMO / MZAMORA	
		5/20/09	1316	SUBBED / MZAMORA	
		5/22/09	1052	K-Delilah-73 / BTOBIN	
		5/25/09	1237	In Lab / PMULHERIN	
		5/25/09	1742	K-Delilah-73 / PMULHERIN	
P0901719-001.03					
	7196A				
		5/20/09	1315	SMO / MZAMORA	
		5/20/09	1317	P-37 / MZAMORA	
		5/20/09	1405	In Lab / SANDERSON	
		5/20/09	1631	P-37 / SANDERSON	
P0901719-001.04			**************************************		
	8270C SIM				
		5/20/09	1315	SMO / MZAMORA	
		5/20/09	1316	P-16 / MZAMORA	
P0901719-002.01					
	7196A				
		5/20/09	1315	SMO / MZAMORA	
		5/20/09	1317	P-37 / MZAMORA	
		5/20/09	1405	In Lab / SANDERSON	
		5/20/09	1631	P-37 / SANDERSON	

### Columbia Analytical Services, Inc. Sample Acceptance Check Form

	Battelle			*		Work order:	P0901719			
		1 2Q09 / G486090		TANAN TA						
- '	s) received on			_	Date opened		by:	MZAN		
		Il samples received by CAS							indicatio	n of
compliance of	or nonconformity	. Thermal preservation and	d pH will only be	evaluated either	at the request of	the client and/or as re	equired by the meth		No	NI/A
1	Were cample	containers properly	marked with o	Gont cample II	D)?			<u>Yes</u>	No	N/A
	-	supplied by CAS?	marked with c	nem sample n	U;					
	. ,	containers arrive in go	and condition?					X		
	_	•						$\boxtimes$		
		of-custody provided?						$\boxtimes$		
		n-of-custody properly	•					$\boxtimes$		
	-	ontainer labels and/o		• •	pers?			$\boxtimes$		
	=	volume received adeq	•	sis?				$\boxtimes$		
	-	within specified holding	-					X		
9		emperature (thermal	preservation) (		-			$\boxtimes$		
		Cooler Temperature		°C Blank	Temperature	3	_°C			
.10	_	ank received?						$\times$		
	=	supplied by CAS:				***************************************	anne.			
11	•	seals on outside of co	ooler/Box?						$\boxtimes$	
	Location of	` *					Sealing Lid?			$\times$
	Were signat	ure and date included	?							$\times$
	Were seals i	ntact?								X
,	Were custody	seals on outside of sa	mple containe	r?					$\boxtimes$	
	Location of	seal(s)?	**************************************		***************************************		_Sealing Lid?			$\times$
	Were signat	ure and date included	?							X
	Were seals i	ntact?								$\times$
12	Do containers	have appropriate pre	servation, acc	ording to met	hod/SOP or (	Client specified in	formation?	$\boxtimes$		
	Is there a clie	nt indication that the s	submitted sam	ples are pH p	preserved?					$\times$
	Were <b>VOA</b> v	ials checked for prese	nce/absence o	f air bubbles?						$\times$
	Does the clie	nt/method/SOP requir	e that the analy	st check the	sample pH an	d if necessary al	ter it?			$\times$
	Tubes:	Are the tubes cap			1 1	and the same of th				$\boxtimes$
		Do they contain n	•							$\boxtimes$
14	Badges:	Are the badges p		1 and intact?						$\boxtimes$
1, .	Duages:	Are dual bed bads			ly canned and	Lintact?				$\boxtimes$
							1			
Lab S	ample ID	Container	Required	Received	Adjusted	VOA Headspace			Market Committee	
G-04-1-20-1-20-1-20-1-20-1-20-1-20-1-20-1		Description	pH *	рН	pН	(Presence/Absence)	C	ommen	ts	
P0901719-	Marie	1000ml AG NP		***************************************						
P0901719-		1000ml AG NP								
P0901719- P0901719-		125mL Plastic NP		-				·····		
P0901719-		500mL AG NP 125mL Plastic NP								
		I as and I amout INI								
Explain an	y discrepancies	: (include lab sample ID	numbers):		<u> </u>	-				
		, , , , , , , , , , , , , , , , , , , ,	,.					<del></del>	<del></del>	

### **DIVIDER SHEET**

### ANALYTICAL DATA FOR

1,4-Dioxane

**ANALYSIS** 

RESULTS OF ANALYSIS Page 1 of 1

Client:

Battelle

Client Project ID: JPL GW Mon 2Q09 / G486090

CAS Project ID: P0901719

1,4-Dioxane

Test Code:

EPA 8270C SIM Modified

Instrument ID:

HP5971A/HP5890 II/MS1

Analyst: Matrix:

Test Notes:

MW-13

Method Blank

Hani Cherazaie

Water

Date(s) Collected: 5/20/09

Date Received: 5/20/09

Date Extracted: 5/26/09

Date Analyzed: 5/27/09 Final Extract Volume:

 $1.0 \, \text{ml(s)}$ 

MDL

Client Sample ID CAS Sample ID Dilution

Volume Factor 1.0 1.0

Liter(s) 0.10

Sample

Result  $\mu g/L$ 2.2

MRL  $\mu g/L$ 

Data Qualifier

 $\mu g/L$ 0.50 0.21 0.10 ND 0.50 0.21

P090526-MB ND = Compound was analyzed for, but not detected above the laboratory detection limit.

P0901719-001

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

### **DIVIDER SHEET**

### ANALYTICAL DATA FOR

**Hexavalent Chromium** 

**ANALYSIS** 

### Analytical Report

Client:

Battelle

Project Name:

JPL GW Mon 2Q09

Project Number: G486090

Sample Matrix:

WATER

Service Request: P0901719

Date Collected: 05/20/09

Date Received: 05/20/09

Chromium, Hexavalent

Prep Method:

None

Analysis Method: 7196A

Test Notes:

Units: mg/L (ppm)

Basis: NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-13	P0901719-001	0.010	0.003	1	NA	05/20/09 15:35	0.028	
MW-8	P0901719-002	0.010	0.003	1	NA	05/20/09 15:35	ND	
Method Blank	P0901719-MB	0.010	0.003	. 1	NA	05/20/09 15:35	ND	

Approved By 05/26/09 KUH Date:

## DIVIDER SHEET CAS-KELSO REPORT



June 8, 2009

Analytical Report for Service Request No: P0901719

Sue Anderson Columbia Analytical Services 2655 Park Center Drive Suite A Simi Valley, CA 93065-6209

RE: JPL GW Mon 2Q09/G486090

Dear Sue:

Enclosed are the results of the samples submitted to our laboratory on May 20, 2009. For your reference, these analyses have been assigned our service request number P0901719.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3280. You may also contact me via Email at LKennedy@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Les Kennedy Project Chemist

LK/Ib

Page 1 of OS

### Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

### Inorganic Data Qualifiers

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

### Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- \* The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

### Organic Data Qualifiers

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tematively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case parrative

### Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product,

### Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	•
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	







Client:

Battelle

Project:

JPL GW Mon 2Q09 / G486090

Service Request No.: Date Received:

P0901719 5/20/09

Sample Matrix:

Water

### CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

### Sample Receipt

One water sample received for analysis at Columbia Analytical Services, Simi Valley laboratory on 5/19/09 was forwarded and received in the Kelso laboratory on 5/21/09 in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

### Nitrosamines by EPA Method 521

No anomalics associated with the analysis of this batch were observed.

	Approved by		276211	C 17 1 1 1 V 1
--	-------------	--	--------	----------------

## Intra-Network Chain of Custody 2655 Park Center Drive, Suite A • Simi Valley, CA 93065 • 805-326-7161 • FAX 805-326-7270

Project Number: Project Name: G486090 JPL GW Mon 2Q09

Company: Project Manager: David Conner Battelle

P0901719-001

MW-13

Client Sample ID

# of Cont. Water Matrix 5/20/09 Date Sample 0833 Time Received 5/20/09 KELSO Send To Nitrosamines 521 Ш

POGOTIC

Test Comments

Nitrosamines - 521

P0901719-001

NDMA

### Folder Comments:

Note: EDF files for client's internal data base;LogCode is BAT, do not have Global ID EDD & pdf of report sent to Betsy Cutie (cutiee@battelle.org) via file share site https://fx.battelle.org. For EDF unique spike ids (ex: P0701XXX01MS or SD).

T.				-			Special Instructions/Comments	
	Requested Report Date: 06/07/09	Requested FAX Date:	STANDARD	2 3 4 5	PLEASE CIRCLE WORK DAYS	RUSH (Surcharges Apply)	Turnaround Requirements	
	EDD Y	PQL/MDL/J Y	IV. Data Validation Report with Raw Data	III. Results + QC and Calibration Summaries	II Results + QC Summaries	I. Results Only	Report Requirements	
		Bill to		P0901719	#Od	<del>Andron Levic</del>	Invoice Information	

Relinquished By.

1300

Received By

STANDY 145 AITHUMBER

Page i

Columbia Analytical Services, Inc.  Cooler Receipt and Preservation Form	PC	Je	المسيد
Since Maller	1 - 10	<b>.</b>	
	1/1	7	
Received: 5/77/09 Opened: 5/72/09 By: 4:			
1. Samples were received via? US Mail Fed Ex UPS DHL GH GS PDX Couri	er He	and Del	ivered
2. Samples were received in: (circle) Cooler Box Envelope Other		NA	
3. Were <u>custody seals</u> on coolers? NA Y N If yes, how many and where?			
If present, were custody seals intact? Y N If present, were they signed and dated?		Y	N
4. Is shipper's air-bill filed? If not, record air-bill number: 1278905 X 1343634360	NA	Y	N
5. Temperature of cooler(s) upon receipt (°C):			
Temperature Blank (°C):		***************************************	
Thermometer ID:			<del>-</del>
6. If applicable, list Chain of Custody Numbers:			<b></b>
7. Packing material used. Inserts Baggies Bubble Wrap Gel Packs Wet Ice, Sleeves Other		***************************************	····
8. Were custody papers properly filled out (ink, signed, etc.)?	NA	(A)	И
9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below.	NA	(A)	N
10. Were all sample labels complete (i.e analysis, preservation, etc.)?	NA	8	N
11. Did all sample labels and tags agree with custody papers? Indicate in the table below	NA	0	N
12. Were appropriate bottles/containers and volumes received for the tests indicated?	NA	(K)	N
13. Were the pH-preserved bottles tested* received at the appropriate pH? Indicate in the table below	A R	Y	N
14. Were VOA vials received without headspace? Indicate in the table below.	ATA	Y	N
15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?	X	Y	N
16. Was C12/Res negative?	NA	Y	N
	<u> </u>		
Sample ID on Bottle Sample ID on COC Sample ID on Bottle Sam	ple ID on	coc	
		~~~	
		<del></del>	
Bottle:Count Out of Head- Volume Reagent	Lot		
Sample ID Bottle Type Temp space Broke pH Reagent added Number	n lr	vitials	Time
Dues not include all pH preserved sample aliquots received. See sample receiving SOP (SMO-GEN).			
dditional Notes, Discrepancies, & Resolutions:			

### Organic Analysis: Nitrosamines by EPA 521

Summary Package

Sample and QC Results

Client: Project:

Battelle

JPL GW Mon 2Q09/G486090

Service Request:

P0901719

Cover Page - Organic Analysis Data Package Nitrosamines by EPA 521

Date Date Sample Name Lab Code Collected Received MW-13 P0901719-001 05/20/2009 05/20/2009

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

SuperSet Reference:

Cover Page - Organic

Page 1 of

Analytical Results

Client:

Battelle

Project:

JPL GW Mon 2Q09/G486090

Sample Matrix:

Water

Service Request: P0901719

Date Collected: 05/20/2009

**Date Received:** 05/20/2009

Nitrosamines by EPA 521

Sample Name:

MW-13

Lab Code:

P0901719-001

Units: ng/L Basis: NA

**Extraction Method:** 

Analyte Name

**METHOD** 

Level: Low

Analysis Method:

521

Result Q

MRL

Dilution **Factor** 

Date Extracted

Date Analyzed Extraction

N-Nitrosodimethylamine

ND U

2.0

MDL 0.54

05/25/09

05/26/09

Lot KWG0904404

Note

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	75	70-130	05/26/09	Acceptable

Comments:

Printed: 06/04/2009 11:46:09 u:\Stealth\Crystal.rpt\Formim rpt

Merged

Form 1A - Organic

SuperSet Reference:

Page RR102493

of



### CAS SR #P0901702

### **Table of Contents**

Cover Letter	1
Case Narrative.	2
Sample Cross-Reference	3
Acronym List	4
Chain of Custody	5
Internal Chain of Custody	6
Sample Acceptance Check Form	7
1,4-Dioxane Analytical Data	8-13
1,4-Dioxane Raw Data	14-61
Hexavalent Chromium Analytical Data	62-67
Hexavalent Chromium Raw Data	68-78
CAS - Kelso Data Package	79-17



### LABORATORY REPORT

June 10, 2009

David Conner Battelle 3990 Old Town Ave., Suite C-205 San Diego, CA 92110

**RE: JPL GW Mon 2Q09 / G486090** 

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 19, 2009. One of the samples was sent out for partial analysis to our Kelso facility. Please find their report attached. For your reference, these analyses have been assigned our service request number P0901702.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-08-TX. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Inders

Respectfully submitted,

Columbia Analytical Services, Inc.

Sue Anderson Project Manager

Page 1 of \_*172* 



Client:

Battelle

CAS Project No:

P0901702

Project:

JPL GW Mon 2Q09 / G486090

### **CASE NARRATIVE**

The samples were received intact under chain of custody on May 19, 2009 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

### 1,4-Dioxane by EPA Method 8270C SIM Modified

No anomalies were encountered during this analysis.

### Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client:

Battelle

**Project:** 

Printed 5/19/09 14:43

JPL GW Mon 2Q09/G486090

Service Request: P0901702

### SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	<u>DATE</u>	<u>TIME</u>
P0901702-001	MW-7	5/19/09	09:41
P0901702-002	MW-16	5/19/09	11:47

### Columbia Analytical Services, Inc.

### Acronyms

CA LUFT California DHS LUFT Method

ASTM American Society for Testing and Materials
BTEX Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number Chemical Abstract Service Registry Number

CFC Chlorofluorocarbon

CRDL Contract Required Detection Limit
DLCS Duplicate Laboratory Control Sample

DMS Duplicate Matrix Spike
DOH or DHS Department of Health Services
EPA U.S. Environmental Protection Agency

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

ICIon ChromatographyICBInitial Calibration BlankICVInitial Calibration VerificationLCSLaboratory Control SampleLUFTLeaking Underground Fuel Tank

MModified MethodMDLMethod Detection LimitMRLMethod Reporting Limit

MS Matrix Spike

MTBE Methyl tert - Butyl Ether

NA Not Applicable NC Not Calculated

ND None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)

NTU Nephelometric Turbidity Units

ppb Parts Per Billionppm Parts Per Million

PQL Practical Quantitation Limit
QA/QC Quality Assurance/Quality Control
RCRA Resource Conservation and Recovery Act

RPD Relative Percent Difference SIM Selected Ion Monitoring

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.
SW Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846,

Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.

TDS Total Dissolved Solids
TPH Total Petroleum Hydrocarbons
TSS Total Suspended Solids

TTLC Total Threshold Limit Concentration

VOA Volatile Organic Analyte(s)
VOC Volatile Organic Compound(s)

### **Qualifiers**

U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

J The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.

**B** Analyte detected in the method blank above MRL (PQL).

E Estimated; result based on response which exceeded the instrument calibration range.

N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.

**D** The reported result is from a dilution.

X See case narrative.

## lequest Page / of /

# Water & Soil - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A Simi Valley, California 93065 Phone (805) 526-7161 Fax (805) 526-7270

Columbia Analytical Services™

An Employee - Owned Company

CAS Project No. Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

Zn Acetate Asc Acid Project Requirements (MRLs, QAPP) H2S04 Preservative Key HN03 NaOH Other Remarks Cooler / Blank / Ice / No Ice Temperature 200 CAS Contact Times S Time: EDD required Yes / No Type: Analysis Method and/or Analytes Preservative Code AMOV X 0 T8 × MRL required Yes / No MDL /PQL / J required Yes / No 0 X TPH FC 🗆 8015M (Subcontracted) TPH Diesel 8015B 

Cubcontracted) TPH Gas 8015B □
BTEX 8021B □
BTEX 8021B □ Received by: (Signature) Received by: (Signature) Received by: (Signature) Volatile Organics GC/MS
624 ☐ 8260B ☐ Oxygenates ☐ TPH Gas ☐ Number of Containers ATTN: GERBLO TOMPININS 505 OLD TOWN AVE SPL GW. MON. 2009 Tier III - (Data Validation Package) 10% Surcharge COLUMBUS, OH 4320 Ì P.O. # / Billing Information 857/9/09 Timp230 Matrix 0429090 Time: Time: Project Number Project Name Sampler (Print & Sign) Time Collected Tier V - (client specified) 1460 177/ Date Collected 8 3990 OLD TOWN AVE, C-205 Company Name & Address (Reporting Information) Laboratory ID Number CONNER Email Address for Result Reporting Tier I - (Results/Default if not specified) SAN DIEGO, CA Report Tier Levels - please select 1182-724-7311 Fier II - (Results + QG) Relinquister by: (Signature) Relinquished by: (Signature) Relinquished by: (Signatur DAVID Project Manager Client Sample ID N.V. エラー

### Columbia Analytical Services, Inc. Chain of Custody Report

**Client:** 

Battelle

**Project:** 

JPL GW Mon 2Q09/G486090

Service Request: P0901702

<b>Bottle ID</b>	Tests	Date	Time	Sample Location / User	Disposed On
P0901702-001.01					
	7196A				
	•	5/19/09	1400	SMO / MZAMORA	
		5/19/09	1401	P-37 / MZAMORA	
		5/19/09	1426	In Lab / SANDERSON	
		5/19/09	1713	P-37 / SANDERSON	
P0901702-002.01					
		5/19/09	1400	SMO / MZAMORA	
		5/19/09	1401	SUBBED / MZAMORA	
		5/20/09	1233	K-HERK-A3 / AJUELL	
		5/25/09	1238	In Lab / PMULHERIN	
		5/25/09	1743	K-HERK-A3 / PMULHERIN	
P0901702-002.02					
	521				
		5/19/09	1400	SMO / MZAMORA	
		5/19/09	1401	SUBBED / MZAMORA	
		5/20/09	1233	K-HERK-A3 / AJUELL	
		5/25/09	1237	In Lab / PMULHERIN	
		5/25/09	1743	K-HERK-A3 / PMULHERIN	
P0901702-002.03					
	7196A				
		5/19/09	1400	SMO / MZAMORA	
		5/19/09	1401	P-37 / MZAMORA	
		5/19/09	1426	In Lab / SANDERSON	
		5/19/09	1713	P-37 / SANDERSON	
P0901702-002.04					
	8270C SIM				
		5/19/09	1400	SMO / MZAMORA	
		5/19/09	1401	P-16 / MZAMORA	

### Columbia Analytical Services, Inc. Sample Acceptance Check Form

	Battelle		Sump		-	Work order:	P0901702			
		2Q09 / G486090			······································					
• `	s) received on:			-	Date opened:		<del></del> '	MZAN	***************************************	
		Il samples received by CAS		-	~	-			indication	n of
compliance	or nonconformity	. Thermal preservation and	pH will only be	evaluated either a	t the request of the	he client and/or as re	quired by the meth	od/SOP. <u>Yes</u>	<u>No</u>	<u>N/A</u>
1	Were sample	containers properly n	narked with cl	lient sample ID	?			$\times$		
2	Container(s)	supplied by CAS?						X		
3	Did sample containers arrive in good condition?									
4	Was a chain-	of-custody provided?						$\times$		
5	Was the chair	n-of-custody properly	completed?					$\times$		
6	Did sample c	ontainer labels and/or	tags agree w	ith custody par	ers?			$\boxtimes$		
7	Was sample v	volume received adequ	ate for analys	sis?				$\times$		
8	Are samples v	within specified holdin	g times?					$\times$		
9	_	emperature (thermal p	-	of cooler at rec	eipt adhered	to?		X		
		Cooler Temperature	,		Γemperature	2	°C			
10		ank received?		•	•		_		$\times$	
	-	supplied by CAS:					_			
11	Were custody	seals on outside of co	oler/Box?						$\times$	
	Location of	seal(s)?					_Sealing Lid?			X
	Were signat	ture and date included?								$\times$
	Were seals i	ntact?								$\times$
	Were custody	seals on outside of sar	nple containe	r?					$\boxtimes$	
	Location of	seal(s)?					Sealing Lid?			$\times$
	Were signat	ure and date included?					_			$\times$
	Were seals i									$\boxtimes$
12	Do containers	have appropriate pres	servation, acc	cording to metl	nod/SOP or C	lient specified in	formation?	X		
	Is there a clie	nt indication that the s	ubmitted sam	ples are <b>pH</b> p	reserved?					X
	Were <b>VOA</b> v	ials checked for presen	nce/absence o	f air bubbles?						X
	Does the clie	nt/method/SOP require	that the analy	vst check the s	ample pH and	1 if necessary alt	ter it?			$\times$
13	Tubes:	Are the tubes cap								X
		Do they contain m	oisture?							$\boxtimes$
14	Badges:	Are the badges pr		d and intact?						$\boxtimes$
11	Duages.	Are dual bed badg			y capped and	intact?				$\boxtimes$
Tab C	Sample ID	Container	Required	Received	Adjusted	VOA Headspace	Donata	. / n	ervation	
DHU S	запри по	Description	pH *	pH	pH	(Presence/Absence)		ommer		
P0901702	-001.01	125mL Plastic NP								
P0901702	-002.01	1000ml AG NP								
P0901702		1000ml AG NP								
P0901702		125mL Plastic NP								
P0901702	-002.04	500mL AG NP		-						
Explain at	ny discrenancies	: (include lab sample ID	numbers).							

### **DIVIDER SHEET**

### ANALYTICAL DATA FOR

1,4 – Dioxane

**ANALYSIS** 

RESULTS OF ANALYSIS Page 1 of 1

**Client:** 

**Battelle** 

Client Project ID: JPL GW Mon 2Q09 / G486090

CAS Project ID: P0901702

Date(s) Collected: 5/19/09

Date Received: 5/19/09

Date Extracted: 5/20/09

1,4-Dioxane

Test Code:

EPA 8270C SIM Modified

Instrument ID:

HP5971A/HP5890 II/MS1

Analyst: Matrix:

Water

Hani Cherazaie

Date Analyzed: 5/21/09 Final Extract Volume:

Test Notes:

1.0 ml(s)

			Sample				
Client Sample ID	CAS Sample ID	Dilution	Volume	Result	MRL	MDL	Data
		Factor	Liter(s)	$\mu g/L$	μg/L	μg/L	Qualifier
MW-16	P0901702-002	1.0	0.10	1.1	0.50	0.21	
Method Blank	P090520-MB	1.0	0.10	ND	0.50	0.21	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

### **DIVIDER SHEET**

### ANALYTICAL DATA FOR

**Hexavalent Chromium** 

**ANALYSIS** 

Analytical Report

Client:

Battelle

**Project Name:** 

JPL GW Mon 2Q09

Project Number: G486090

Sample Matrix: WATER Service Request: P0901702

Date Collected: 05/19/09

Date Received: 05/19/09

Chromium, Hexavalent

Prep Method:

None

Analysis Method: 7196A

Test Notes:

Units: mg/L (ppm)

Basis: NA

				Dilution	Date	Date/Time		Result
Sample Name	Lab Code	PQL	MDL	Factor	Extracted	Analyzed	Result	Notes
MW-7	P0901702-001	0.010	0.003	1	NA	05/19/09 15:10	0.013	
MW-16	P0901702-002	0.010	0.003	1	NA	05/19/09 15:10	0.025	
Method Blank	P0901702-MB	0.010	0.003	1	NA	05/19/09 15:10	ND	

laun 05/26/09 Approved By Date:

## DIVIDER SHEET CAS-KELSO REPORT



June 8, 2009

Analytical Report for Service Request No: P0901702

Sue Anderson Columbia Analytical Services 2655 Park Center Drive Suite A Simi Valley, CA 93065-6209

RE: JPL GW Mon 2Q09/G486090

Dear Sue:

Enclosed are the results of the samples submitted to our laboratory on May 19, 2009. For your reference, these analyses have been assigned our service request number P0901702.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3280. You may also contact me via Email at LKennedy@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Les Kennedy Project Chemist

LK/lb

Page 1 of 93

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

### Inorganic Data Qualifiers

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result,
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

### Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- \* The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

### Organic Data Qualifiers

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

### Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard
- The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution patiern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

### Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	: _







Client:

Battelle

Project: Sample Matrix:

JPL GW Mon 2Q09 / G486090 Water

Service Request No.:

P0901702

Date Received:

5/19/09

### **CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

### Sample Receipt

One water sample received for analysis at Columbia Analytical Services, Simi Valley laboratory on 5/19/09 was forwarded and received in the Kelso laboratory on 5/20/09 in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

### **Nitrosamines by EPA Method 521**

No anomalies associated with the analysis of this batch were observed.

Approved by	L	(	 a		U	lo	1	i 0 :	7		

84

# Intra-Network Chain of Custody 2655 Park Center Drive, Suite A • Simi Valley, CA 93065 • 805 • 526-7161 • FAX 805 • 526-7270

CAS Contact:

Sue Anderson

85

Project Number: Project Name: JPL GW Mon 2Q09

Project Manager: David Conner

Company:

P0901702-002

Lab Code

MW-16	Client	Battelle
.6	Client Sample ID	utelle
7	# of Cont.	
Water	Matrix	
5/19/09	Date Time	Sample
1147	Time	
5/19/09 1147 5/19/09	Received	
KELSO	Send To	
I		Nitrosamines 521

Test Comments

Nitrosamines - 521

P0901702-002

NDMA

6

### Folder Comments:

Note: EDF files for client's internal data base;LogCode is BAT, do not have Global ID. EDD & pdf of report sent to Betsy Cutie (cutiee@battelle.org) via file share site https://fx.battelle.org. For EDF unique spike ids (ex: P0701XXX01MS or SD).

Special Instructions/Comments	Turnaround Requirements	Report Requirements	Invoice Information
	RUSH (Surcharges Apply)	I. Results Only	
	PLEASE CIRCLE WORK DAYS	II. Results + QC Summaries	PO#
	2 3 4 5	III. Results + QC and Calibration Summaries	P0901702
	STANDARD	V. Data Validation Report with Raw Data	
<u></u>	Requested FAX Date:	PQL/MDL/J Y	Bill to
	Requested Report Date: 06/06/09	EDD <u>Y</u>	
			Paramo Province and the second

Relinquished By

Received By: Aug 10 505/00 1000 (25) Airbill Number.

Page )

Cooler Receipt and Preservation Form

PC	L_	K
	L	K_

Cli	ient / Project: Cas - Simi Valky Service Request 1809 61702						
Re	ceived: 5-20-09 Opened: 5-20-09 By: Brad						
1. 2. 3.	Samples were received via? US Mail Fed Ex UPS DHL GH GS PDX Courier Hand Delivered  Samples were received in: (circle) Cooler Box Envelope Other						
4.	If present, were custody seals intact? Y N If present, were they signed and dated? Y N Is shipper's air-bill filed? If not, record air-bill number: 12 7890541340272(048 NA Ø N						
<ul><li>5.</li><li>6.</li></ul>	Temperature of cooler(s) upon receipt (°C):  Temperature Blank (°C):  N/A  Thermometer ID:  If applicable, list Chain of Custody Numbers:						
7.	Packing material used. Inserts Baggies Bubble Wrap Gel Packs Wet Ice Sleeves Other						
8.	Were custody papers properly filled out (ink, signed, etc.)?  NA  NA  NA  NA  NA  NA  NA  NA  NA  N						
9.	Did all bottles arrive in good condition (unbroken)? Indicate in the table below.  NA  N						
10.	Till E						
11.	Did all sample labels and tags agree with custody papers? Indicate in the table below  NA  N  NA  N  NA  N  N  N  N  N  N  N						
12. 13.	Were appropriate bottles/containers and volumes received for the tests indicated?  NA  N  Were the pH-preserved bottles tested* received at the appropriate pH? Indicate in the table below  NA  Y  N						
14.							
15.	Were VOA vials received without headspace? Indicate in the table below.  Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?  Y  N						
	Was C12/Res negative?						
	Sample ID on Bottle Sample ID on COC Sample ID on Bottle Sample ID on COC						
	Bottle Count Out of Head-Sample ID Bottle Type Temp space Broke pH Reagent added Number Initials Time						
i							
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							
*Doe Add	es not include all pH preserved sample aliquots received. See sample receiving SOP (SMO-GEN).  itional Notes, Discrepancies, & Resolutions:						

### Organic Analysis: <a href="Nitrosamines by EPA 521">Nitrosamines by EPA 521</a>

Summary Package

Sample and QC Results

### COLUMBIA ANALYTICAL SERVICES, INC.

Client:

Battelle

Project:

JPL GW Mon 2Q09/G486090

**Service Request:** 

P0901702

### Cover Page - Organic Analysis Data Package Nitrosamines by EPA 521

Sample Name	Lab Code	Date Collected	Date Received
MW-16MS	KWG0904404-1	05/19/2009	05/19/2009
MW-16DMS	KWG0904404-2	05/19/2009	05/19/2009
MW-16	P0901702-002	05/19/2009	05/19/2009

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: hom & Database Name: horec

Date: 45/09 Title: Supervisor

### COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

Battelle

Project:

JPL GW Mon 2Q09/G486090

Service Request: P0901702 Date Collected: 05/19/2009

**Date Received:** 05/19/2009

Sample Matrix:

Water

Nitrosamines by EPA 521

Sample Name: Lab Code:

MW-16

P0901702-002

Units: ng/L Basis: NA

**Extraction Method:** 

**METHOD** 

**Analysis Method:** 

521

Level: Low

Dilution Date Date

Extraction

**Analyte Name** N-Nitrosodimethylamine

N-Nitrosodimethylamine-d6

Result Q 0.70 J

**MRL** 2.0

MDL 0.54

**Factor** Extracted 05/25/09

Analyzed 05/26/09

Lot

KWG0904404

Note

Surrogate Name

%Rec 75

Control Limits 70-130

Date Analyzed 05/26/09

Note

Acceptable

Comments:

Printed: 06/04/2009 10:58:22

u:\Stealth\Crystal.rpt\Form1m.rpt

Merged

Form 1A - Organic

Page

1 of

SuperSet Reference: RR102485



### CAS SR #P0901679

### **Table of Contents**

Cover Letter	
Case Narrative	2
Sample Cross-Reference	
Acronym List	4
Chain of Custody	
Internal Chain of Custody	
Sample Acceptance Check Form	7
Hexavalent Chromium Analytical Data	8-13
Hexavalent Chromium Raw Data	14-24



### LABORATORY REPORT

May 26, 2009

David Conner Battelle 3990 Old Town Ave., Suite C-205 San Diego, CA 92110

RE: JPL GW Mon 2Q09 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 18, 2009. For your reference, these analyses have been assigned our service request number P0901679.

All analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains All pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-08-TX. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.

The Onderte

Sue Anderson Project Manager

Page



Client: Project:

Battelle

JPL GW Mon 2Q09 / G486090

CAS Project No:

P0901679

### CASE NARRATIVE

The samples were received intact under chain of custody on May 18, 2009 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle

Service Request: P0901679 JPL GW Mon 2Q09/G486090 Project:

### SAMPLE CROSS-REFERENCE

<u>SA</u>	MPLE#	CLIENT SAMPLE ID	<u>DATE</u>	<u>TIME</u>
P09	901679-001	MW-26-2	5/18/09	08:55
P09	901679-002	MW-26-1	5/18/09	09:32
P09	901679-003	EB-15-05/18/09	5/18/09	09:18

### Columbia Analytical Services, Inc.

### Acronyms

CA LUFT California DHS LUFT Method

ASTM American Society for Testing and Materials
BTEX Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number Chemical Abstract Service Registry Number

CFC Chlorofluorocarbon

CRDL Contract Required Detection Limit
DLCS Duplicate Laboratory Control Sample

DMS Duplicate Matrix Spike

DOH or DHS Department of Health Services

EPA U.S. Environmental Protection Agency

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

ICIon ChromatographyICBInitial Calibration BlankICVInitial Calibration VerificationLCSLaboratory Control SampleLUFTLeaking Underground Fuel Tank

MModified MethodMDLMethod Detection LimitMRLMethod Reporting Limit

MS Matrix Spike

MTBE Methyl tert -Butyl Ether

NA Not Applicable
NC Not Calculated

ND None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)

NTU Nephelometric Turbidity Units

ppb Parts Per Billionppm Parts Per Million

PQL Practical Quantitation Limit

QA/QC Quality Assurance/Quality Control

RCRA Resource Conservation and Recovery Act

RPD Relative Percent Difference SIM Selected Ion Monitoring

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.
SW Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846,

Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.

TDS Total Dissolved Solids
TPH Total Petroleum Hydrocarbons
TSS Total Suspended Solids

TTLC Total Threshold Limit Concentration

VOA Volatile Organic Analyte(s)
VOC Volatile Organic Compound(s)

### **Qualifiers**

U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

J The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.

B Analyte detected in the method blank above MRL (PQL).

E Estimated; result based on response which exceeded the instrument calibration range.

N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.

**D** The reported result is from a dilution.

X See case narrative.

## Page \_\_\_ of \_\_

# Water & Soil - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A

Simi Valley, California 93065 Phone (805) 526-7161 Fax (805) 526-7270

Services Inc.

Columbia Analytical

Zn Acetate GAMIPMENT BLANK **Asc Acid** Project Requirements (MRLs, QAPP) H2S04 Preservative Key NaOH HN03 Other 되 Remarks Cooler / Blank / Ice / No Ice Temperature 30C CAS Project No. က CAS Contact C Slighuil Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard EDD required Yes / No Type: Analysis Method and/or Analytes Preservative Code 0 0 ( No / No / × X MRL regolfied Yes/No Semi-Volatile Organics GC/MS S25 \(\text{S2}\) 8270C \(\text{C}\) (Subcontracted) LbH EC 🗆 8012M (2npcoutsscted) TPH Diesel 8015B □ (Subcontracted) Received by: (Signature) Volatile Organics □ 80658 □ 126 Oxygenates TPH Gas 🗆 Number of Containers ATTN: CERALD TOMPISINS STOFT KING AVE. 2007 Tier III - (Data Validation Package) 10% Surcharge Sampler (Print & Sign) de 214319/Bartelle JPL CM. MON. Matrix 069849 Project Number Project Name Date Time Collected Collected 855 Tier V - (client specified) 1860 8160 8 Company Name & Address (Reporting Information) 3990 OLD TOWN AVE. C-205 10 Laboratory ID Number 5AN DIEGO, CA 92110 Email Address for Result Reporting Fier 1 - (Results/Default if not specified) DAVID CONNET Report Tier Levels - please select 8 B Relinduing by: (Signetture) 116-726-7311 An Employee - Owned Company Rélinquished by: (Signature) Relinquished by: (Signature) Tier IV- (Results + QC) BATTELLE EB-15-05 Project Manager Client Sample ID AV-26-Mw-26-

### Columbia Analytical Services, Inc. Chain of Custody Report

Client:

Battelle

Project:

JPL GW Mon 2Q09/G486090

Service Request: P0901679

<b>Bottle ID</b>	Tests	Date	Time	Sample Location / User	Disposed On
P0901679-001.01					
	7196A				
		5/18/09	1132	SMO / MZAMORA	
		5/18/09	1132	P-37 / MZAMORA	
		5/18/09	1138	In Lab / SANDERSON	
		5/18/09	1434	P-37 / SANDERSON	
P0901679-002.01					
	7196A				
		5/18/09	1132	SMO / MZAMORA	
		5/18/09	1132	P-37 / MZAMORA	
		5/18/09	1138	In Lab / SANDERSON	
		5/18/09	1434	P-37 / SANDERSON	
P0901679-003.01					
	7196A				
		5/18/09	1132	SMO / MZAMORA	
		5/18/09	1132	P-37 / MZAMORA	
		5/18/09	1138	In Lab / SANDERSON	
		5/18/09	1434	P-37 / SANDERSON	

### Columbia Analytical Services, Inc. Sample Acceptance Check Form

	Battelle				_	Work order:	P0901679			
	Contract disease and a second	n 2Q09 / G486090								
- '	s) received on			•	Date opened:		by:	MZAN		
		Il samples received by CAS			-	=			indicatio	n of
compliance	or nonconformity	. Thermal preservation and	pH will only be	evaluated either a	t the request of t	he chent and/or as re	equired by the meth	od/SOP.  Yes	<u>No</u>	<u>N/A</u>
1	Were sample	containers properly	marked with cl	ient sample II	<b>)</b> ?			$\boxtimes$		
2		supplied by CAS?		•				$\times$		
3	Did sample c	ontainers arrive in go	ood condition?					$\times$		
4	Was a chain-	of-custody provided?						$\times$		
5	Was the chair	n-of-custody properly	completed?					$\times$		
6	Did sample c	ontainer labels and/o	r tags agree wi	th custody pap	pers?			$\times$		
7	Was sample	volume received adeq	uate for analys	is?				$\times$		
8	Are samples v	within specified holding	ng times?					$\times$		
9	Was proper to	emperature (thermal	preservation) o	of cooler at rec	eipt adhered	to?		X		
	(	Cooler Temperature		°C Blank	Temperature	3	_°C			
10	Was a trip bl	ank received?							$\times$	
	Trip blank s	supplied by CAS:								
11	Were custody	y seals on outside of co	ooler/Box?						$\times$	
	Location of	seal(s)?					_Sealing Lid?			$\times$
	~	ture and date included	?							$\boxtimes$
	Were seals									X
	-	seals on outside of sa	mple container	r?					$\boxtimes$	
	Location of		_	· · · · · · · · · · · · · · · · · · ·			_Sealing Lid?			$\boxtimes$
	_	ture and date included	?							$\boxtimes$
1.0	Were seals i				L - 1/00D 0	N:4	. C 1: 0			$\boxtimes$
12		have appropriate <b>pre</b>		-		ment specified if	normation?	$\boxtimes$		
		ent indication that the	7		reservea?					$\boxtimes$
		rials checked for prese								$\boxtimes$
		nt/method/SOP requir	•		ample pH and	d if necessary al	ter it?			X
13	Tubes:	Are the tubes cap	_	<i>:</i>						$\boxtimes$
		Do they contain r								$\boxtimes$
14	Badges:	Are the badges p								$\boxtimes$
		Are dual bed bad	ges separated a	ind individuali	i de la composición	intact?				×
Lab S	Sample ID	Container	Required	Received	Adjusted	VOA Headspace			ervation	ı
		Description	рН *	pН	pH	(Presence/Absence)	•	?ommei	its	
P0901679		125mL Plastic NP								
P0901679 P0901679		125mL Plastic NP								
1 02010/9	-005.01	125mL Plastic NP								
itany vy ar	AND THE RESIDENCE OF THE PARTY									
Explain ar	ny discrepancies	s: (include lab sample ID	numbers):							

05/18/09 12:36 PM

### **DIVIDER SHEET**

### ANALYTICAL DATA FOR

**Hexavalent Chromium** 

**ANALYSIS** 



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: 05/07/09

Job#: G005862/JPL Groundwater Monitoring

Metals by ICPMS EPA Method 200.8

		Parameter	Concentration	Reporting	Date	Date
				Limit	Sampled	Analyzed
Client ID:	MW-17-5					
Lab ID:	BMI09050740-01A	Sodium (Na)	62	0.50 mg/L	05/05/09	05/08/09
		Magnesium (Mg)	2.5	0.50 mg/L	05/05/09	05/08/09
		Potassium (K)	1.2	0.50 mg/L	05/05/09	05/08/09
		Calcium (Ca)	13	0.50 mg/L	05/05/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/05/09	05/08/09
		Iron (Fe)	1.6	0.10 mg/L	05/05/09	05/08/09
		Arsenic (As)	0.0073	0.0020 mg/L	05/05/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/05/09	05/08/09
Client ID:	MW-17-4					
Lab ID:	BMI09050740-02A	Sodium (Na)	53	0.50 mg/L	05/05/09	05/08/09
		Magnesium (Mg)	4.5	0.50 mg/L	05/05/09	05/08/09
		Potassium (K)	1.7	0.50 mg/L	05/05/09	05/08/09
		Calcium (Ca)	18	0.50 mg/L	05/05/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/05/09	05/08/09
		Iron (Fe)	ND	0.10 mg/L	05/05/09	05/08/09
		Arsenic (As)	ND	0.0020 mg/L	05/05/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/05/09	05/08/09
Client ID:	MW-17-3					
Lab ID:	BMI09050740-03A	Sodium (Na)	28	0.50 mg/L	05/05/09	05/08/09
		Magnesium (Mg)	33	0.50 mg/L	05/05/09	05/08/09
		Potassium (K)	2.9	0.50 mg/L	05/05/09	05/08/09
		Calcium (Ca)	84	0.50 mg/L	05/05/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/05/09	05/08/09
		Iron (Fe)	1.2	0.10 mg/L	05/05/09	05/08/09
		Arsenic (As)	ND	0.0020 mg/L	05/05/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/05/09	05/08/09
Client ID:	MW-17-2					
Lab ID:	BMI09050740-04A	Sodium (Na)	31	0.50 mg/L	05/05/09	05/08/09
		Magnesium (Mg)	41	0.50 mg/L	05/05/09	05/08/09
		Potassium (K)	4.5	0.50 mg/L	05/05/09	05/08/09
		Calcium (Ca)	120	0.50 mg/L	05/05/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/05/09	05/08/09
		Iron (Fe)	0.71	0.10 mg/L	05/05/09	05/08/09
		Arsenic (As)	ND	0.0020 mg/L	05/05/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/05/09	05/08/09



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

Client ID:	MW-17-1					
Lab ID:	BMI09050740-05A	Sodium (Na)	18	0.50 mg/L	05/05/09	05/08/09
		Magnesium (Mg)	16	0.50 mg/L	05/05/09	05/08/09
		Potassium (K)	2.7	0.50 mg/L	05/05/09	05/08/09
		Calcium (Ca)	52	0.50 mg/L	05/05/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/05/09	05/08/09
		Iron (Fe)	0.48	0.10 mg/L	05/05/09	05/08/09
		Arsenic (As)	ND	0.0020 mg/L	05/05/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/05/09	05/08/09
Client ID:	EB-08-5/05/09					
Lab ID:	BMI09050740-06A	Sodium (Na)	ND	0.50 mg/L	05/05/09	05/08/09
		Magnesium (Mg)	ND	0.50 mg/L	05/05/09	05/08/09
		Potassium (K)	ND	0.50 mg/L	05/05/09	05/08/09
		Calcium (Ca)	ND	0.50 mg/L	05/05/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/05/09	05/08/09
		Iron (Fe)	ND	0.10 mg/L	05/05/09	05/08/09
		Arsenic (As)	ND	0.0020 mg/L	05/05/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/05/09	05/08/09

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.

5/19/09 **Report Date** 



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

### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave San Diego, CA 92110 Attn: David Conner Phone: (818) 393-280

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

Date Received: 05/07/09

Job#: G005862/JPL Groundwater Monitoring

pH (Range 1.7 to 12.4) EPA Method 150.2 / SM4500HB / SW9040C

	Parameter	Concentration	Reporting Limit	Date / Time Sampled	Date / Time Analyzed
Client ID: MW-17-5	рН	8.5	1.7 pH Units	05/05/09 08:40	05/07/09 10:48
Lab ID: BMI09050740-01A	pH - Temperature	17	1.0 °C	05/05/09 08:40	05/07/09 10:48
Client ID: MW-17-4	рН	8.4	1.7 pH Units	05/05/09 09:18	05/07/09 10:52
Lab ID: BMI09050740-02A	pH - Temperature	17	1.0 °C	05/05/09 09:18	05/07/09 10:52
Client ID: MW-17-3	pН	7.8	1.7 pH Units	05/05/09 11:07	05/07/09 10:54
Lab ID: BMI09050740-03A	pH - Temperature	17	1.0 °C	05/05/09 11:07	05/07/09 10:54
Client ID: MW-17-2	pН	7.7	1.7 pH Units	05/05/09 11:41	05/07/09 10:55
Lab ID: BMI09050740-04A	pH - Temperature	17	1.0 °C	05/05/09 11:41	05/07/09 10:55
Client ID: MW-17-1	рН	7.6	1.7 pH Units	05/05/09 12:13	05/07/09 10:58
Lab ID: BMI09050740-05A	pH - Temperature	17	1.0 °C	05/05/09 12:13	05/07/09 10:58
Client ID : EB-08-5/05/09	рН	6.2	1.7 pH Units	05/05/09 11:30	05/07/09 11:00
Lab ID: BMI09050740-06A	pH - Temperature	17	1.0 °C	05/05/09 11:30	05/07/09 11:00

The EPA has established an analytical holding time of 15 minutes for this method as documented in the Methods Update Rule, Federal Register, Vol 72, No 47, March 2007. This holding time will always be exceeded, unless samples are analyzed in the field.

The laboratory performed this analysis in the shortest practical holding time after sample receipt.

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.

5/19/09

Report Date



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

### ANALYTICAL REPORT

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

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

Date Received: 05/07/09

Job#:

G005862/JPL Groundwater Monitoring

### Total Dissolved Solids (TDS)

### SM2540C

		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : Lab ID :	MW-17-5 BMI09050740-01A	Solids, Total Dissolved (TDS)	160	10 mg/L	05/05/09	05/12/09
Client ID: Lab ID:	MW-17-4 BMI09050740-02A	Solids, Total Dissolved (TDS)	160	10 mg/L	05/05/09	05/12/09
Client ID: Lab ID:	MW-17-3 BMI09050740-03A	Solids, Total Dissolved (TDS)	400	10 mg/L	05/05/09	05/11/09
Client ID : Lab ID :	<b>MW-17-2</b> BMI09050740-04A	Solids, Total Dissolved (TDS)	570	10 mg/L	05/05/09	05/11/09
Client ID: Lab ID:	MW-17-1 BMI09050740-05A	Solids, Total Dissolved (TDS)	220	10 mg/L	05/05/09	05/11/09
Client ID: Lab ID:	<b>EB-08-5/05/09</b> BMI09050740-06A	Solids, Total Dissolved (TDS)	ND	10 mg/L	05/05/09	05/11/09

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.

**Report Date** 



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

### **ANALYTICAL REPORT**

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

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

(614) 458-6641

Job#: G005862/JPL Groundwater Monitoring

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

		Parameter	Estimated	Estimated Reporting	Date	Date	Date
			Concentration	Limit	Received	Sampled	Analyzed
Client ID : Lab ID :	<b>MW-17-5</b> BMI09050740-01A	*** None Found ***	ND	2.0 μg/L	05/07/09	05/05/09	05/11/09
Client ID : Lab ID :	<b>MW-17-4</b> BMI09050740-02A	*** None Found ***	ND	2.0 μg/L	05/07/09	05/05/09	05/11/09
Client ID: Lab ID:	<b>MW-17-3</b> BMI09050740-03A	* * * None Found * * *	ND	2.0 μg/L	05/07/09	05/05/09	05/11/09
Client ID : Lab ID :	<b>MW-17-2</b> BMI09050740-04A	* * * None Found * * *	ND	2.0 μg/L	05/07/09	05/05/09	05/11/09
Client ID: Lab ID:	<b>MW-17-1</b> BMI09050740-05A	Sulfur dioxide	15	2.0 μg/L	05/07/09	05/05/09	05/11/09
Client ID: Lab ID:	<b>EB-08-5/05/09</b> BMI09050740-06A	Acetone	11	10 μg/L	05/07/09	05/05/09	05/11/09
		Tertiary Butyl Alcohol (TBA) 2-Methyl-1-propene	29 2.7	10 μg/L 2.0 μg/L	05/07/09 05/07/09	05/05/09 05/05/09	05/11/09 05/11/09

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

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

5/19/09

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.

Report Date



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

### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

Attn: Phone:

David Conner (818) 393-2808

San Diego, CA 92110 G005862/JPL Groundwater Monitoring Fax:

(614) 458-6641

Alpha Analytical Number: BMI09050740-01A

Sampled: 05/05/09

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

Received: 05/07/09

Analyzed: 05/11/09

### Volatile Organics by GC/MS

1         Dichlorodifluoromethane         ND         0.50 μg/L         36 1,1,1,2-Tetrachloroethane         ND           2         Chloromethane         ND         1.0 μg/L         37 Chlorobenzene         ND           3         Vinyl chloride         ND         0.50 μg/L         38 Ethylbenzene         ND           4         Chloroethane         ND         0.50 μg/L         39 m,p-Xylene         ND           5         Bromomethane         ND         1.0 μg/L         40 Bromoform         ND           6         Trichlorofluoromethane         ND         0.50 μg/L         41 Styrene         ND           7         1,1-Dichloroethene         ND         0.50 μg/L         42 o-Xylene         ND           8         Dichloromethane         ND         1.0 μg/L         43 1,1,2,2-Tetrachloroethane         ND           9         Freon-113         ND         0.50 μg/L         44 1,2,3-Trichloropropane         ND           10         trans-1,2-Dichloroethene         ND         0.50 μg/L         45 Isopropylbenzene         ND           11         Methyl tert-butyl ether (MTBE)         ND         0.50 μg/L         46 Bromobenzene         ND           12         1,1-Dichloroethane         ND         0.50 μg/L <th></th> <th></th>		
2         Chloromethane         ND         1.0         µg/L         37         Chlorobenzene         ND           3         Vinyl chloride         ND         0.50         µg/L         38         Ethylbenzene         ND           4         Chloroethane         ND         0.50         µg/L         39         m,p-Xylene         ND           5         Bromomethane         ND         1.0         µg/L         40         Bromoform         ND           6         Trichlorofluoromethane         ND         0.50         µg/L         41         Styrene         ND           7         1,1-Dichloroethene         ND         0.50         µg/L         42         o-Xylene         ND           8         Dichloromethane         ND         1.0         µg/L         43         1,1,2,2-Tetrachloroethane         ND           9         Freon-113         ND         0.50         µg/L         44         1,2,3-Trichloropropane         ND           10         trans-1,2-Dichloroethene         ND         0.50         µg/L         45         Isopropylbenzene         ND           11         Methyl tert-butyl ether (MTBE)         ND         0.50         µg/L         46         Bromobenze	0.50	μg/L
3         Vinyl chloride         ND         0.50 µg/L         38         Ethylbenzene         ND           4         Chloroethane         ND         0.50 µg/L         39 m,p-Xylene         ND           5         Bromomethane         ND         1.0 µg/L         40         Bromoform         ND           6         Trichlorofluoromethane         ND         0.50 µg/L         41         Styrene         ND           7         1,1-Dichloroethene         ND         0.50 µg/L         42 o-Xylene         ND           8         Dichloromethane         ND         1.0 µg/L         43 1,1,2,2-Tetrachloroethane         ND           9         Freon-113         ND         0.50 µg/L         44 1,2,3-Trichloropropane         ND           10         trans-1,2-Dichloroethene         ND         0.50 µg/L         45 Isopropylbenzene         ND           11         Methyl tert-butyl ether (MTBE)         ND         0.50 µg/L         46 Bromobenzene         ND	0.50	μg/L
4         Chloroethane         ND         0.50 μg/L         39 m,p-Xylene         ND           5         Bromomethane         ND         1.0 μg/L         40 Bromoform         ND           6         Trichlorofluoromethane         ND         0.50 μg/L         41 Styrene         ND           7         1,1-Dichloroethene         ND         0.50 μg/L         42 o-Xylene         ND           8         Dichloromethane         ND         1.0 μg/L         43 1,1,2,2-Tetrachloroethane         ND           9         Freon-113         ND         0.50 μg/L         44 1,2,3-Trichloropropane         ND           10         trans-1,2-Dichloroethene         ND         0.50 μg/L         45 Isopropylbenzene         ND           11         Methyl tert-butyl ether (MTBE)         ND         0.50 μg/L         46 Bromobenzene         ND	0.50	μg/L
5         Bromomethane         ND         1.0         µg/L         40         Bromoform         ND           6         Trichlorofluoromethane         ND         0.50         µg/L         41         Styrene         ND           7         1,1-Dichloroethene         ND         0.50         µg/L         42         o-Xylene         ND           8         Dichloromethane         ND         1.0         µg/L         43         1,1,2,2-Tetrachloroethane         ND           9         Freon-113         ND         0.50         µg/L         44         1,2,3-Trichloropropane         ND           10         trans-1,2-Dichloroethene         ND         0.50         µg/L         45         Isopropylbenzene         ND           11         Methyl tert-butyl ether (MTBE)         ND         0.50         µg/L         46         Bromobenzene         ND	0.50	μg/L
6         Trichlorofluoromethane         ND         0.50 µg/L         41 Styrene         ND           7         1,1-Dichloroethene         ND         0.50 µg/L         42 o-Xylene         ND           8         Dichloromethane         ND         1.0 µg/L         43 1,1,2,2-Tetrachloroethane         ND           9         Freon-113         ND         0.50 µg/L         44 1,2,3-Trichloropropane         ND           10         trans-1,2-Dichloroethene         ND         0.50 µg/L         45 Isopropylbenzene         ND           11         Methyl tert-butyl ether (MTBE)         ND         0.50 µg/L         46 Bromobenzene         ND	0.50	μg/L
7         1,1-Dichloroethene         ND         0.50 µg/L         42 o-Xylene         ND           8         Dichloromethane         ND         1.0 µg/L         43 1,1,2,2-Tetrachloroethane         ND           9         Freon-113         ND         0.50 µg/L         44 1,2,3-Trichloropropane         ND           10         trans-1,2-Dichloroethene         ND         0.50 µg/L         45 Isopropylbenzene         ND           11         Methyl tert-butyl ether (MTBE)         ND         0.50 µg/L         46 Bromobenzene         ND	0.50	μg/L
8         Dichloromethane         ND         1.0 µg/L         43 1,1,2,2-Tetrachloroethane         ND           9         Freon-113         ND         0.50 µg/L         44 1,2,3-Trichloropropane         ND           10         trans-1,2-Dichloroethene         ND         0.50 µg/L         45 Isopropylbenzene         ND           11         Methyl tert-butyl ether (MTBE)         ND         0.50 µg/L         46 Bromobenzene         ND	0.50	μg/L
9         Freon-113         ND         0.50 µg/L         44 1,2,3-Trichloropropane         ND           10         trans-1,2-Dichloroethene         ND         0.50 µg/L         45 Isopropylbenzene         ND           11         Methyl tert-butyl ether (MTBE)         ND         0.50 µg/L         46 Bromobenzene         ND	0.50	μg/L
10 trans-1,2-Dichloroethene         ND         0.50 μg/L         45 Isopropylbenzene         ND           11 Methyl tert-butyl ether (MTBE)         ND         0.50 μg/L         46 Bromobenzene         ND	1.0	μg/L
11 Methyl tert-butyl ether (MTBE) ND 0.50 µg/L 46 Bromobenzene ND	0.50	μg/L
·- · · · · · · · · · · · · · · · · · ·	0.50	μg/L
	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-Buty/benzene 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	1.0	μg/L
27 4-Methyl-2-pentanone (MIBK) ND 2.5 µg/L 62 Hexachlorobutadiene ND	1.0	μg/L
28 cis-1,3-Dichloropropene ND 0.50 µg/L 63 1,2,3-Trichlorobenzene ND	1.0	μg/L
	(70-130)	%REC
30 1,1,2-Trichloroethane ND 0.50 µg/L 65 Surr: Toluene-d8 98	(70-130)	%REC
31 Toluene ND 0.50 µg/L 66 Surr: 4-Bromofluorobenzene 98	(70-130)	%REC
32 1,3-Dichloropropane ND 0.50 µg/L	( )	
33 Dibromochloromethane ND 0.50 µg/L		

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

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

μg/L

1.0

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.

5/19/09

**Report Date** 



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

### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Job#: G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050740-02A

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

Attn: David Conner

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

x. (014) 436-0041

Sampled: 05/05/09 Received: 05/07/09

Analyzed: 05/11/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	µg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	µg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	0.58	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	µg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	116	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	97	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	97	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl Kandy Saulan

ND

Dalter Horikour

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

μg/L

μg/L

5/19/09

Report Date



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

### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Job#: G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050740-03A

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

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

Fax: (614) 458-6641

Sampled: 05/05/09

Received: 05/07/09 Analyzed: 05/11/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	µg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	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 (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	0.50	0.50	µg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	115	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	96	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	96	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L				, ,	

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

33 Dibromochloromethane

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulmer

ND

ND

ND

Walter Hirkory

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

μg/L

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.

5/19/09

Report Date



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

### **ANALYTICAL REPORT**

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

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

Job#: G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050740-04A Sampled: 05/05/09

Client I.D. Number: MW-17-2 Received: 05/07/09 Analyzed: 05/11/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	1.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	µg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	0.74	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	114	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	99	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	101	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Saulner

ND

Walter Arriban

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@aipha-analytical.com

1.0

µg/L

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.

5/19/09 Report Date



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

### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Job#: G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050740-05A

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

Attn: David Conner

Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 05/05/09

Received: 05/07/09 Analyzed: 05/11/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	 μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xvlene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	µg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	µg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	µg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	µg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MiBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	µg/L	64	Surr: 1,2-Dichloroethane-d4	116	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	98	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	99	(70-130)	%RE0
32	1,3-Dichloropropane	ND	0.50	μg/L			'	, ,	
33	Dibromochloromethane	ND	0.50	ua/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

ND

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

μg/L

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.

5/19/09

**Report Date** Page 1 of 1



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

### **ANALYTICAL REPORT**

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

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050740-06A Client I.D. Number: EB-08-5/05/09

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

Sampled: 05/05/09 Received: 05/07/09 Analyzed: 05/11/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m.p-Xvlene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xvlene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.50	µg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	µg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	µg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	102	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	98	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	99	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L	_		ı	, , , , , ,	
33	Dibromochloromethane	ND	0.50	μg/L					
				, 0					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

ND

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

μg/L

1.0

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.

5/19/09

**Report Date** 



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: BMI09050740 Project: G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	рН
09050740-01A	MW-17-5	Aqueous	2
09050740-02A	MW-17-4	Aqueous	2
09050740-03A	MW-17-3	Aqueous	2
09050740-04A	MW-17-2	Aqueous	2
09050740-05A	MW-17-1	Aqueous	2
09050740-06A	EB-08-5/05/09	Aqueous	2

5/19/09 Report Date

### Billing Information:

# CHAIN-OF-CUSTODY RECORD

# Alpha Analytical, Inc.

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

**Report Due By: 5:00 PM On: 20-May-09** 

WorkOrder: BMIS09050740

Page: 1 of

Report Attention David Conner Phone Number (818) 393-2808 connerd@battelle.org **EMail Address** 

cutiee@batelle.org waltons@battelle.org EDD Required: Yes Sampled by: Client

Cooler Temp

4°C Samples Received 07-May-09 07-May-09 Date Printed

Client's COC #: 25547 Job : G005862/JPL Groundwater Monitoring

PO: 218013

San Diego, CA 92110

**Betsy Cutie** Shane Walton

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

Suite C-205 3990 Old Town Ave Client:

**Battelle Memorial Institute** 

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

Sample ID BMI09050740-07A BMI09050740-04A MW-17-2 BMI09050740-03A MW-17-3 BMI09050740-01A MW-17-5 BMI09050740-06A BMI09050740-05A BMI09050740-02A MW-17-4 EB-08-5/05/09 TB-08-5/05/09 MW-17-1 Sample ID Client Matrix Date å ð Ą B å AQ 05/05/09 08:40 å 05/05/09 09:18 05/05/09 05/05/09 11:30 05/05/09 12:13 05/05/09 11:41 05/05/09 11:07 Collection No. of Bottles Alpha Sub **†** Ç S G S Ç 0 0 0 0 0 0 0 ΤAΤ 9 9 ဖ ဖ 9 9 9 NO2, NO3, SO4, CL 300\_0(A)\_ W NO2, NO3, SO4, CL NO2, NO3, SO4, CL NO2, NO3, NO2, NO3, NO2, NO3, SO4, CL SO4, CL SO4, CL NO2, NO3, NO2, NO3, NO2, NO3, SO4, CL SO4, CL SO4, CL NO2, NO3, SO4, CL NO2, NO3, SO4, CL NO2, NO3, SO4, CL 300\_0(B)\_ 300\_0(C)\_ W NO2, NO3, SO4, CL Perchlorate Alk (Bicarb, Carb, Total) Perchlorate Alk (Bicarb, Carb, Total) Perchlorate Perchlorate Perchlorate Perchlorate Alk (Bicarb, Carb, Total) Requested Tests 314\_W Alk (Bicarb, Carb, Total) Alk (Bicarb, Carb, Total) Alk (Bicarb, Carb, Total) ALKALINIT METALS\_D
Y\_W W Cr, Pb, As, Na, K, Ca, Mg, Fe Cr, Pb, As, Na, K, Ca, Mg, Fe Cr, Pb, As, Na, K, Ca, Cr, Pb, As, Na, K, Ca, Mg, Fe Cr, Pb, As, Na, K, Ca, Mg, Fe Cr, Pb, As, Na, K, Ca, Mg, Fe PH\_W ÞΗ PΗ pΗ PΗ ÞΉ PΗ TDS TDS TDS TDS TDS TDS TDS Reno Trip Blank 3/16/09 Sample Remarks MS/MSD

Comments: be used as the control spike sample if possible (I.E.: MS/MSD).: Logged in as 9 day TAT due to delayed cooler. Samples -01A & -02A received outside of holding time for NO2 & NO3 on an unpres sample, left msg for client regarding analysis No security seals, Temp Blank # 7570 received @ 8 ° Celcius as cooler was delayed one day by Fedex, but Frozen ice remained in cooler. Perchlorate RL of 1.0 ug/L. Level IV QC. Samples should

Logged in by:	
Jatricia Eduasa	Signature
Latricia Ednosa	Print Name
Alpha Analytical, Inc.	Company
5/7/09 9:39	Date/Time

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

### Billing Information:

# CHAIN-OF-CUSTODY RECORD

# Alpha Analytical, Inc.

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

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

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

Client:

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

WorkOrder: BMIS09050740

Page: 2012

**Report Due By: 5:00 PM On: 20-May-09** 

EDD Required: Yes

Sampled by: Client Cooler Temp Samples Received

07-May-09 07-May-09 Date Printed

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

Client's COC #: 25547

Job :

G005862/JPL Groundwater Monitoring

PO: 218013

and the state of t									Requested Tests	
Alpha Sample ID	Client Sample ID	Matr	Collection Matrix Date	No. of Alpha	No. of Bottles Alpha Sub	TAT	VOC_TIC_	VOC_W		Sample Remarks
BMI09050740-01A	MW-17-5	AQ	05/05/09 08:40	On	0	9	VOC by 524 Criteria	VOC by 524 VOC by 524 Criteria Criteria		
BMI09050740-02A	MW-17-4	AQ	05/05/09 09:18	10	0	9	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria		MS/MSD
BMI09050740-03A	MW-17-3	ΑQ	05/05/09 11:07	Ŋ	0	9	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria		
BMI09050740-04A	MW-17-2	AQ	05/05/09 11:41	თ	0	9	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria		
BMI09050740-05A	MW-17-1	AQ	05/05/09 12:13	Οī	0	9	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria		
BMI09050740-06A	EB-08-5/05/09	AQ	05/05/09 11:30	51	0	9	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria		
BMI09050740-07A	TB-08-5/05/09	ΑQ	05/05/09 00:00	_	0	9	VOC by 524 VOC by 524 Criteria Criteria	VOC by 524 Criteria		Reno Trip Blank 3/16/09

Comments: Logged in by: No security seals. Temp Blank # 7570 received @ 8° Celcius as cooler was delayed one day by Fedex, but Frozen ice remained in cooler. 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 as 9 day TAT due to delayed cooler. Samples -01A & -02A received outside of holding time for NO2 & NO3 on an unpres sample, left msg for client regarding analysis. Signatur Educasa **Print Name** DSON D Alpha Analytical, Inc. Company 5/1/09 9:39 Date/Time

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

Billing Information:	Alph	Alpha Analytical Inc	nples Collected From W	state? 25547
AUE	3	Suite 21 5778	ID OR OTHER	Page #of
City, State, Zip CoLUMBUS, off 4320 Phone Number Fax		Fax (775) 355-0406	Analyses Required	
Client Name  DAUND CANNET  Address	P.O. # 2/8013	Job# 600 5862	2) 88 /6, 27 (0) 6, 20)	) [6]
Address RD RD TOWN AVE, C-205	dress		24. 1200 3.14. 17. 200 3.14. 17. 200 0.00	/ ' " (fii) IV
DECO CA	Phone # 6/9-726-731/	Fax #	HEY ( PHON	EDD / EDF? YES NO
Matrix* Sampled by	Report Attention	Total and type of	CS / LONG ON MASS /	Global ID #
Sampled Sampled Below Lab ID Number (Use Only)	Sample Description	TAT Filtered ** See below	1 Post Sec. C. (4:310)	REMARKS
840750 10 BM109050740-01	MW-17-5		× × × × ×	
EQ-	4-17-4	ò	× × × ×	µ5/145D
107 -03			$\times \times \times \times \times \times$	
141	MW-17-		^ X X X X	
1213 -05	5 MW-17-1			
1130 -06	0 83-08-5/05/09	7	× × × ×	GBUIPHENT BANK
-0.	7-13-08-5/05/09	2 >	×	TRIP BLAMS
ADDITIONAL INSTRUCTIONS:				Assessment of the control of the con
Signature	Print Name		Company	Date Time
Relinquished by	CHASE BLOGA	WS/15M	7/05/	67/09 1330
Received by Katuring Edono	Latricia Edu	wsa Ap	na	4/09 9:39
Received by				
Relinquished by	The contract of the contract o	The state of the s		
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	ste OT - Other AR - Air **. re reported unless other arrangements are m	**: L-Liter V-Voa S-Soil Jar made. Hazardous samples will be retu	O-Orbo T-Tedlar B-Brass rned to client or disposed of at client expe	P-Plastic OT-Other onse. The report for the analysis
or the above samples is applicable only to mose samples received by the laboratory with this coc. The llability of the laboratory is limited to the amount paid for the report.	sies received by the laboratory with this coc.	The liability of the laboratory is limited	d to the amount paid for the report.	



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

**Date:** 18-May-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:

BMI09050701

Cooler Temp:

4 °C

Alpha's Sample ID	Client's Sample ID	Matrix
09050701-01A	MW-20-5	Aqueous
09050701-02A	MW-20-4	Aqueous
09050701-03A	MW-20-3	Aqueous
09050701-04A	MW-20-2	Aqueous
09050701-05A	MW-20-1	Aqueous
09050701-06A	DUPE-05-2Q09	Aqueous
09050701-07A	DUPE-06-2Q09	Aqueous
09050701-08A	EB-09-05/06/09	Aqueous
09050701-09A	TB-09-05/06/09	Aqueous

### **Manually Integrated Analytes**

Alpha's Sample ID

Test Reference

<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 Scholl

Kandy Sadmer

Walter Hinkow



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: 05/07/09

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-20-5	Nitrite (NO2) - N	ND	0.25 mg/L	05/06/09 08:25	05/07/09 13:24
Lab ID: BMI09050701-01A	Nitrate (NO3) - N	ND	0.25 mg/L	05/06/09 08:25	05/07/09 13:24
Client ID: MW-20-4	Nitrite (NO2) - N	ND	0.25 mg/L	05/06/09 09:04	05/07/09 13:43
Lab ID: BMI09050701-02A	Nitrate (NO3) - N	ND	0.25 mg/L	05/06/09 09:04	05/07/09 13:43
Client ID: MW-20-3	Nitrite (NO2) - N	ND	0.25 mg/L	05/06/09 10:05	05/07/09 14:01
Lab ID: BMI09050701-03A	Nitrate (NO3) - N	ND	0.25 mg/L	05/06/09 10:05	05/07/09 14:01
Client ID: MW-20-2	Nitrite (NO2) - N	ND	0.25 mg/L	05/06/09 11:04	05/07/09 14:20
Lab ID: BMI09050701-04A	Nitrate (NO3) - N	3.4	0.25 mg/L	05/06/09 11:04	05/07/09 14:20
Client ID: MW-20-1	Nitrite (NO2) - N	ND	0.25 mg/L	05/06/09 11:34	05/07/09 16:11
Lab ID: BMI09050701-05A	Nitrate (NO3) - N	2.0	0.25 mg/L	05/06/09 11:34	05/07/09 16:11
Client ID: DUPE-05-2Q09	Nitrite (NO2) - N	ND	0.25 mg/L	05/06/09 00:00	05/07/09 16:29
Lab ID: BMI09050701-06A	Nitrate (NO3) - N	ND	0.25 mg/L	05/06/09 00:00	05/07/09 16:29
Client ID: DUPE-06-2Q09	Nitrite (NO2) - N	ND	0.25 mg/L	05/06/09 00:00	05/07/09 16:48
Lab ID: BMI09050701-07A	Nitrate (NO3) - N	ND	0.25 mg/L	05/06/09 00:00	05/07/09 16:48
Client ID : EB-09-05/06/09	Nitrite (NO2) - N	ND	0.25 mg/L	05/06/09 11:20	05/07/09 17:06
Lab ID: BMI09050701-08A	Nitrate (NO3) - N	ND	0.25 mg/L	05/06/09 11:20	05/07/09 17:06

ND = Not Detected

Roger Scholl Kandy Saulur

Walter Hinkow

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.

5/20/09 Report Date



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

### **ANALYTICAL REPORT**

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

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

Fax: (614) 458-6641

Date Received: 05/07/09

Job#: G005862/JPL Groundwater Monitoring

Anions by IC EPA Method 300.0 / 9056

		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID:	MW-20-5					
Lab ID:	BMI09050701-01A	Chloride	9.3	0.50 mg/L	05/06/09	05/07/09
		Sulfate (SO4)	4.2	0.50 mg/L	05/06/09	05/07/09
Client ID:	MW-20-4					
Lab ID:	BMI09050701-02A	Chloride	11	0.50 mg/L	05/06/09	05/07/09
		Sulfate (SO4)	16	0.50 mg/L	05/06/09	05/07/09
Client ID:	MW-20-3			J		
Lab ID :	BMI09050701-03A	Chloride	41	0.50 //	05/06/00	05/07/00
	200000000000000000000000000000000000000	Sulfate (SO4)	41 11	0.50 mg/L 0.50 mg/L	05/06/09 05/06/09	05/07/09 05/07/09
~··		(341)	11	0.50 Hig/L	03/00/09	03/07/09
Client ID:	MW-20-2					
Lab ID:	BMI09050701-04A	Chloride	28	0.50 mg/L	05/06/09	05/07/09
		Sulfate (SO4)	42	0.50 mg/L	05/06/09	05/07/09
Client ID:	MW-20-1					
Lab ID:	BMI09050701-05A	Chloride	16	0.50 mg/L	05/06/09	05/07/09
		Sulfate (SO4)	56	0.50 mg/L	05/06/09	05/07/09
Client ID:	DUPE-05-2009					
Lab ID:	BMI09050701-06A	Chloride	11	0.50 mg/I	05/06/00	05/07/00
		Sulfate (SO4)	16	0.50 mg/L 0.50 mg/L	05/06/09 05/06/09	05/07/09 05/07/09
Client ID:	DUDE AC ACCO		10	0.50 lig/L	03/00/09	03/07/09
	DUPE-06-2Q09					
Lab ID:	BMI09050701-07A	Chloride	41	0.50 mg/L	05/06/09	05/07/09
		Sulfate (SO4)	12	0.50 mg/L	05/06/09	05/07/09
Client ID:	EB-09-05/06/09					
Lab ID:	BMI09050701-08A	Chloride	ND	0.50 mg/L	05/06/09	05/07/09
		Sulfate (SO4)	ND	0.50 mg/L	05/06/09	05/07/09
				-		

ND = Not Detected

Roger Scholl Kandy Saulur

Walter Hirihan

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

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

5/20/09 Report Date



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

### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Job#: G005862/JPL Groundwater Monitoring

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: Lab ID:	<b>MW-20-5</b> BMI09050701-01A	Sulfur dioxide	49	2.0 μg/L	05/07/09	05/06/09	05/12/09
Client ID: Lab ID:	<b>MW-20-4</b> BMI09050701-02A	Sulfur dioxide	56	2.0 μg/L	05/07/09	05/06/09	05/12/09
Client ID: Lab ID:	<b>MW-20-3</b> BMI09050701-03A	Sulfur dioxide	35	2.0 μ <b>g</b> /L	05/07/09	05/06/09	05/12/09
Client ID : Lab ID :	<b>MW-20-2</b> BMI09050701-04A	Sulfur dioxide	24	2.0 μg/L	05/07/09	05/06/09	05/12/09
Client ID: Lab ID:	MW-20-1 BMI09050701-05A	Sulfur dioxide	20	2.0 μg/L	05/07/09	05/06/09	05/12/09
Client ID : Lab ID :	<b>DUPE-05-2Q09</b> BMI09050701-06A	Sulfur dioxide	44	2.0 μg/L	05/07/09	05/06/09	05/12/09
Client ID: Lab ID:	<b>DUPE-06-2Q09</b> BMI09050701-07A	Sulfur dioxide	31	2.0 μg/L	05/07/09	05/06/09	05/12/09
Client ID: Lab ID:	EB-09-05/06/09 BMI09050701-08A	*** None Found ***	ND	2.0 μg/L	05/07/09	05/06/09	05/12/09
Client ID : Lab ID :	<b>TB-09-05/06/09</b> BMI09050701-09A	*** None Found ***	ND	2.0 μg/L	05/07/09	05/06/09	05/12/09

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

oger Scholl Kandy Saulner

Walter Hinkow

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.

5/20/09 Report Date



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

### **ANALYTICAL REPORT**

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

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

Fax: (614) 458-6641

Date Received: 05/07/09

Job#:

G005862/JPL Groundwater Monitoring

### Perchlorate by Ion Chromatography

### EPA Method 314.0

		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID: Lab ID:	MW-20-5 BMI09050701-01A	Perchlorate	ND	1.00 μg/L	05/06/09	05/07/09
Client ID: Lab ID:	<b>MW-20-4</b> BMI09050701-02A	Perchlorate	ND	1.00 µg/L	05/06/09	05/07/09
Client ID: Lab ID:	MW-20-3 BMI09050701-03A	Perchlorate	ND	1.00 µg/L	05/06/09	05/07/09
Client ID: Lab ID:	MW-20-2 BMI09050701-04A	Perchlorate	ND	1.00 μg/L	05/06/09	05/07/09
Client ID : Lab ID :	MW-20-1 BMI09050701-05A	Perchlorate	ND	1.00 μg/L	05/06/09	05/07/09
Lab ID:		Perchlorate	ND	1.00 µg/L	05/06/09	05/07/09
Client ID: Lab ID:	<b>DUPE-06-2Q09</b> BMI09050701-07A	Perchlorate	ND	1.00 µg/L	05/06/09	05/07/09
Client ID: Lab ID:	<b>EB-09-05/06/09</b> BMI09050701-08A	Perchlorate	ND	1.00 μg/L	05/06/09	05/07/09

ND = Not Detected

Roger Scholl Kandy Santur Walte

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

5/Ž0/09 Report Date



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

### **ANALYTICAL REPORT**

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

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

Date Received: 05/07/09

Job#: G005862/JPL Groundwater Monitoring

Alkalinity

SM2320B

		Parameter	Concentration	Reporting	Date	Date
				Limit	Sampled	Analyzed
Client ID:	MW-20-5					
Lab ID:	BMI09050701-01A	Alkalinity, Bicarbonate (As CaCO3)	70	10 mg/L	05/06/09	05/11/09
		Alkalinity, Carbonate (As CaCO3)	59	10 mg/L	05/06/09	05/11/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	130	10 mg/L	05/06/09	05/11/09
Client ID:	MW-20-4					
Lab ID:	BMI09050701-02A	Alkalinity, Bicarbonate (As CaCO3)	100	10 mg/L	05/06/09	05/11/09
		Alkalinity, Carbonate (As CaCO3)	45	10 mg/L	05/06/09	05/11/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	150	10 mg/L	05/06/09	05/11/09
Client ID:	MW-20-3					
Lab ID:	BMI09050701-03A	Alkalinity, Bicarbonate (As CaCO3)	110	10 mg/L	05/06/09	05/11/09
		Alkalinity, Carbonate (As CaCO3)	35	10 mg/L	05/06/09	05/11/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	140	10 mg/L	05/06/09	05/11/09
Client ID:	MW-20-2					
Lab ID:	BMI09050701-04A	Alkalinity, Bicarbonate (As CaCO3)	150	10 mg/L	05/06/09	05/11/09
		Alkalinity, Carbonate (As CaCO3)	ND ·	10 mg/L	05/06/09	05/11/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	150	10 mg/L	05/06/09	05/11/09
Client ID:	MW-20-1					
Lab ID:	BMI09050701-05A	Alkalinity, Bicarbonate (As CaCO3)	170	10 mg/L	05/06/09	05/11/09
		Alkalinity, Carbonate (As CaCO3)	ND	10 mg/L	05/06/09	05/11/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	170	10 mg/L	05/06/09	05/11/09
Client ID:	DUPE-05-2Q09					
Lab ID:	BMI09050701-06A	Alkalinity, Bicarbonate (As CaCO3)	98	10 mg/L	05/06/09	05/11/09
		Alkalinity, Carbonate (As CaCO3)	36	10 mg/L	05/06/09	05/11/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	130	10 mg/L	05/06/09	05/11/09
Client ID:	DUPE-06-2Q09					
Lab ID:	BMI09050701-07A	Alkalinity, Bicarbonate (As CaCO3)	120	10 mg/L	05/06/09	05/11/09
		Alkalinity, Carbonate (As CaCO3)	23	10 mg/L	05/06/09	05/11/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	150	10 mg/L	05/06/09	05/11/09
Client ID:	EB-09-05/06/09					
Lab ID:	BMI09050701-08A	Alkalinity, Bicarbonate (As CaCO3)	ND	10 mg/L	05/06/09	05/11/09
		Alkalinity, Carbonate (As CaCO3)	ND	10 mg/L	05/06/09	05/11/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	ND	10 mg/L	05/06/09	05/11/09



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: 05/07/09

Job#: G005862/JPL Groundwater Monitoring

Metals by ICPMS EPA Method 200.8

		Parameter	Concentration	Reporting	Date	Date
				Limit	Sampled	Analyzed
Client ID:	MW-20-5					
Lab ID:	BMI09050701-01A	Sodium (Na)	60	0.50 mg/L	05/06/09	05/08/09
		Magnesium (Mg)	1.4	0.50 mg/L	05/06/09	05/08/09
		Potassium (K)	1.4	0.50 mg/L	05/06/09	05/08/09
		Calcium (Ca)	5.3	0.50 mg/L	05/06/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/06/09	05/08/09
		Iron (Fe)	ND	0.30 mg/L	05/06/09	05/08/09
		Arsenic (As)	ND	0.0050 mg/L	05/06/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/06/09	05/08/09
Client ID:	MW-20-4					
Lab ID:	BMI09050701-02A	Sodium (Na)	64	0.50 mg/L	05/06/09	05/08/09
		Magnesium (Mg)	3.9	0.50 mg/L	05/06/09	05/08/09
		Potassium (K)	0.91	0.50 mg/L	05/06/09	05/08/09
		Calcium (Ca)	11	0.50 mg/L	05/06/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/06/09	05/08/09
		Iron (Fe)	ND	0.30 mg/L	05/06/09	05/08/09
		Arsenic (As)	ND	0.0050 mg/L	05/06/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/06/09	05/08/09
Client ID:	MW-20-3					
Lab ID:	BMI09050701-03A	Sodium (Na)	61	0.50 mg/L	05/06/09	05/08/09
		Magnesium (Mg)	13	0.50 mg/L	05/06/09	05/08/09
		Potassium (K)	2.4	0.50 mg/L	05/06/09	05/08/09
		Calcium (Ca)	16	0.50 mg/L	05/06/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/06/09	05/08/09
		Iron (Fe)	ND	0.30 mg/L	05/06/09	05/08/09
		Arsenic (As)	ND	0.0050 mg/L	05/06/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/06/09	05/08/09
Client ID:	MW-20-2					
Lab ID:	BMI09050701-04A	Sodium (Na)	19	0.50 mg/L	05/06/09	05/08/09
		Magnesium (Mg)	22	0.50 mg/L	05/06/09	05/08/09
		Potassium (K)	2.8	0.50 mg/L	05/06/09	05/08/09
		Calcium (Ca)	54	0.50 mg/L	05/06/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/06/09	05/08/09
		Iron (Fe)	ND	0.30 mg/L	05/06/09	05/08/09
		Arsenic (As)	ND	0.0050 mg/L	05/06/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/06/09	05/08/09



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

Client ID:	MW-20-1					
Lab ID:	BMI09050701-05A	Sodium (Na)	18	0.50 mg/L	05/06/09	05/08/09
		Magnesium (Mg)	19	0.50 mg/L	05/06/09	05/08/09
		Potassium (K)	2.8	0.50 mg/L	05/06/09	05/08/09
		Calcium (Ca)	62	0.50 mg/L	05/06/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/06/09	05/08/09
		Iron (Fe)	0.34	0.30 mg/L	05/06/09	05/08/09
		Arsenic (As)	ND	0.0050  mg/L	05/06/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/06/09	05/08/09
Client ID:	DUPE-05-2Q09					
Lab ID:	BMI09050701-06A	Sodium (Na)	59	0.50 mg/L	05/06/09	05/08/09
		Magnesium (Mg)	3.6	0.50 mg/L	05/06/09	05/08/09
		Potassium (K)	0.89	0.50 mg/L	05/06/09	05/08/09
		Calcium (Ca)	10	0.50 mg/L	05/06/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/06/09	05/08/09
		Iron (Fe)	ND	0.30 mg/L	05/06/09	05/08/09
		Arsenic (As)	ND	0.0050 mg/L	05/06/09	05/08/09
		Lead (Pb)	ND	0.0050  mg/L	05/06/09	05/08/09
Client ID:	DUPE-06-2Q09					
Lab ID:	BMI09050701-07A	Sodium (Na)	60	0.50 mg/L	05/06/09	05/08/09
		Magnesium (Mg)	12	0.50 mg/L	05/06/09	05/08/09
		Potassium (K)	2.4	0.50 mg/L	05/06/09	05/08/09
		Calcium (Ca)	15	0.50 mg/L	05/06/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/06/09	05/08/09
		Iron (Fe)	ND	0.30 mg/L	05/06/09	05/08/09
		Arsenic (As)	ND ,	0.0050 mg/L	05/06/09	05/08/09
		Lead (Pb)	ND	0.0050  mg/L	05/06/09	05/08/09
Client ID:	EB-09-05/06/09					
Lab ID:	BMI09050701-08A	Sodium (Na)	ND	0.50 mg/L	05/06/09	05/08/09
		Magnesium (Mg)	ND	0.50 mg/L	05/06/09	05/08/09
		Potassium (K)	ND	0.50 mg/L	05/06/09	05/08/09
		Calcium (Ca)	ND	0.50 mg/L	05/06/09	05/08/09
		Chromium (Cr)	ND	0.0050 mg/L	05/06/09	05/08/09
		Iron (Fe)	ND	0.30 mg/L	05/06/09	05/08/09
		Arsenic (As)	ND	0.0050 mg/L	05/06/09	05/08/09
		Lead (Pb)	ND	0.0050 mg/L	05/06/09	05/08/09

ND = Not Detected

Roger Scholl Kandy Soulin Walter Hindrey

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.



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: 05/07/09

Job#:

G005862/JPL Groundwater Monitoring

pH (Range 1.7 to 12.4) EPA Method 150.2 / SM4500HB / SW9040C

	Parameter	Concentration	Reporting Limit	Date / Time Sampled	Date / Time Analyzed
Client ID: MW-20-5	рН	9.1	1.7 pH Units	05/06/09 08:25	05/07/09 11:33
Lab ID: BMI09050701-01A	pH - Temperature	19	1.0 °C	05/06/09 08:25	05/07/09 11:33
Client ID: MW-20-4	рН	9.0	1.7 pH Units	05/06/09 09:04	05/07/09 11:21
Lab ID: BMI09050701-02A	pH - Temperature	18	1.0 °C	05/06/09 09:04	05/07/09 11:21
Client ID: MW-20-3	рН	8.9	1.7 pH Units	05/06/09 10:05	05/07/09 11:24
Lab ID: BMI09050701-03A	pH - Temperature	18	1.0 °C	05/06/09 10:05	05/07/09 11:24
Client ID: MW-20-2	рН	8.1	1.7 pH Units	05/06/09 11:04	05/07/09 11:29
Lab ID: BMI09050701-04A	pH - Temperature	19	1.0 °C	05/06/09 11:04	05/07/09 11:29
Client ID: MW-20-1	pН	7.7	1.7 pH Units	05/06/09 11:34	05/07/09 11:38
Lab ID: BMI09050701-05A	pH - Temperature	17	1.0 °C	05/06/09 11:34	05/07/09 11:38
Client ID: DUPE-05-2Q09	рН	9.0	1.7 pH Units	05/06/09 00:00	05/07/09 11:41
Lab ID: BMI09050701-06A	pH - Temperature	17	1.0 °C	05/06/09 00:00	05/07/09 11:41
Client ID: DUPE-06-2Q09	рН	8.8	1.7 pH Units	05/06/09 00:00	05/07/09 11:45
Lab ID: BMI09050701-07A	pH - Temperature	17	1.0 °C	05/06/09 00:00	05/07/09 11:45
Client ID: EB-09-05/06/09	рН	6.2	1.7 pH Units	05/06/09 11:20	05/07/09 11:48
Lab ID: BMI09050701-08A	pH - Temperature	20	1.0 °C	05/06/09 11:20	05/07/09 11:48

The EPA has established an analytical holding time of 15 minutes for this method as documented in the Methods Update Rule, Federal Register, Vol 72, No 47, March 2007. This holding time will always be exceeded, unless samples are analyzed in the field.

The laboratory performed this analysis in the shortest practical holding time after sample receipt.

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.

5/20/09 Report Date



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

### ANALYTICAL REPORT

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

**David Conner** Attn:

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

Date Received: 05/07/09

G005862/JPL Groundwater Monitoring Job#:

### Total Dissolved Solids (TDS)

### SM2540C

		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID: Lab ID:	<b>MW-20-5</b> BMI09050701-01A	Solids, Total Dissolved (TDS)	170	10 mg/L	05/06/09	05/11/09
Client ID: Lab ID:	<b>MW-20-4</b> BMI09050701-02A	Solids, Total Dissolved (TDS)	190	10 mg/L	05/06/09	05/11/09
Client ID : Lab ID :	<b>MW-20-3</b> BMI09050701-03A	Solids, Total Dissolved (TDS)	220	10 mg/L	05/06/09	05/11/09
Client ID: Lab ID:	<b>MW-20-2</b> BMI09050701-04A	Solids, Total Dissolved (TDS)	290	10 mg/L	05/06/09	05/11/09
Client ID: Lab ID:	MW-20-1 BMI09050701-05A	Solids, Total Dissolved (TDS)	280	10 mg/L	05/06/09	05/11/09
Client ID: Lab ID:	<b>DUPE-05-2Q09</b> BMI09050701-06A	Solids, Total Dissolved (TDS)	210	10 mg/L	05/06/09	05/11/09
Client ID: Lab ID:	<b>DUPE-06-2Q09</b> BMI09050701-07A	Solids, Total Dissolved (TDS)	210	10 mg/L	05/06/09	05/11/09
Client ID: Lab ID:	<b>EB-09-05/06/09</b> BMI09050701-08A	Solids, Total Dissolved (TDS)	ND	10 mg/L	05/06/09	05/11/09

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.



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

### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job#:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050701-01A

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

Attn:

David Conner (818) 393-2808

Phone: Fax:

(614) 458-6641

Sampled: 05/06/09

Received: 05/07/09

Analyzed: 05/12/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1.1.1.2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	* 1.0	μg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	µg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	. ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	µg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	µg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	112	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	µg/L	65	Surr: Toluene-d8	97	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	97	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L			,	. ,	
33	Dibromochloromethane	ND	0.50	µa/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

\*Note: Bromomethane failed the Method CV criteria of 70-130% @ 68% recovery.

ND

ND = Not Detected

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl

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

1.0

μg/L

µg/L

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.

5/20/09

Report Date



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

### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job#: G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050701-02A

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

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

(614) 458-6641

Sampled: 05/06/09 Received: 05/07/09

Analyzed: 05/12/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	µg/L
5	Bromomethane	ND	* 1.0	μg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	µg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochioromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	µg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	µg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	; ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	µg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	µg/L	64	Surr: 1,2-Dichloroethane-d4	115	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	97	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

33 Dibromochloromethane

Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

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

0.50

1.0

μg/L

μg/L

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.

5/20/09

**Report Date** 

<sup>\*</sup>Note: Bromomethane failed the Method CV criteria of 70-130% @ 68% recovery.



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

### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Job#:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050701-03A

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

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

(614) 458-6641 Fax:

Sampled: 05/06/09 Received: 05/07/09

Analyzed: 05/12/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	, ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	1.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	* 1.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xvlene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	µg/L
16	Chloroform	ND	0.50	µg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.50	µg/L	52	1,2,4-Trimethylbenzene	ND	0.50	µg/L
18	1,2-Dichloroethane	ND	0.50	µg/L	53	sec-Butylbenzene	ND	0.50	µg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	µg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	µg/L
25	Trichloroethene	ND	0.50	µg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	111	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	µg/L	65	Surr: Toluene-d8	98	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	94	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	ug/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

\*Note: Bromomethane failed the Method CV criteria of 70-130% @ 68% recovery.

ND = Not Detected

33 Dibromochloromethane

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

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

0.50

μg/L

μg/L

µg/L

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.

5/20/09

Report Date



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

### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job#:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050701-04A

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

Attn:

David Conner Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 05/06/09

Received: 05/07/09

Analyzed: 05/12/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	µg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	µg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	µg/L
5	Bromomethane	ND	* 1.0	µg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	µg/L
7	1,1-Dichloroethene	ND	0.50	µg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	µg/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	µg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	. ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	µg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.50	µg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	µg/L
19	1,1,1-Trichloroethane	! ND	0.50	µg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	, ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	, ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	µg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyl-2-pentanone (MiBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	113	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	97	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L				, ,	
33	Dibromochloromethane	ND	0.50	μg/L					
		1							

Note: Analysis conducted using EPA Method 524.2 criteria.

\*Note: Bromomethane failed the Method CV criteria of 70-130% @ 68% recovery.

ND

ND = Not Detected

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl

Kandy Saulner

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

μg/L

µg/L

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

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

**Report Date** 



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

### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job#:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050701-05A

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

Attn:

David Conner Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 05/06/09

Received: 05/07/09

Analyzed: 05/12/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
2	Chloromethane	ND	1.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	µg/L	39	m,p-Xylene	ND	0.50	µg/L
5	Bromomethane	ND	* 1.0	μg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	į ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	µg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND	0.50	µg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC		2.5	µg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	115	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	98	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	92	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					
0.4	4.0 Dibasassathana (EDD)	1							

Note: Analysis conducted using EPA Method 524.2 criteria.

\*Note: Bromomethane failed the Method CV criteria of 70-130% @ 68% recovery.

ND

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

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

μg/L

μg/L

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

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

5/20/09

**Report Date** 



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

### ANALYTICAL REPORT

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job#: G005

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050701-06A

Client I.D. Number: DUPE-05-2Q09

Attn:

David Conner (818) 393-2808

Phone: Fax:

(614) 458-6641

\_\_\_\_\_

Sampled: 05/06/09 Received: 05/07/09

Analyzed: 05/12/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting I	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	* 1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	: ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	µg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	µg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	µg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	µg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	µg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	, ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	µg/L	64	Surr: 1,2-Dichloroethane-d4	116	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	97	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	93	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	µg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

Kandy Saulner

Walter Hirkon

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

1.0

0.50

μg/L

μg/L

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.

5/20/09

<sup>\*</sup>Note: Bromomethane failed the Method CV criteria of 70-130% @ 68% recovery.



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

### **ANALYTICAL REPORT**

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

Job#: G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050701-07A

Client I.D. Number: DUPE-06-2Q09

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

Sampled: 05/06/09 Received: 05/07/09 Analyzed: 05/12/09

Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μ <b>g/L</b>
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 ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) : ND	2.5	µg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	µg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	; ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	µg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	115	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	96	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	94	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	µg/L					
33	Dibromochloromethane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

\*Note: Bromomethane failed the Method CV criteria of 70-130% @ 68% recovery.

ND = Not Detected

1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl Kandy Saulur

ND

Walter Hirihon

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

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

µg/L

µg/L

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

5/20/09

Report Date



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

### **ANALYTICAL REPORT**

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

Job#:

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050701-08A

Client I.D. Number: EB-09-05/06/09

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

(614) 458-6641

Sampled: 05/06/09 Received: 05/07/09

Analyzed: 05/12/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	µg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	µg/L
5	Bromomethane	ND	* 1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	µg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	µg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	µg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	µg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCl	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	µg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	µg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	107	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	µg/L	65	Surr: Toluene-d8	98	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromoflüorobenzene	98	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	µg/L					
33	Dibromochloromethane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

\*Note: Bromomethane failed the Method CV criteria of 70-130% @ 68% recovery.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

ND

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

μg/L

μg/L

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.

5/20/09

Report Date Page 1 of 1



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

### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

bb#: G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050701-09A

Client I.D. Number: TB-09-05/06/09

Attn: David Conner

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

Sampled: 05/06/09

Received: 05/07/09 Analyzed: 05/12/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	· ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	* 1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	: ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	µg/L	56	4-isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	µg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	µg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	103	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	µg/L	65	Surr: Toluene-d8	99	(70-130)	%REC
31	Toluene	ND	0.50	µg/L	66	Surr: 4-Bromofluorobenzene	97	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	µg/L			•	. ,	
33	Dibromochloromethane	ND	0.50	µg/L					
				F 9 -					

Note: Analysis conducted using EPA Method 524.2 criteria.

\*Note: Bromomethane failed the Method CV criteria of 70-130% @ 68% recovery.

ND = Not Detected

1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl Kandy Saulner

ND

Walter Hinkow

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

µg/L

μg/L

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

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

5/20/09 Report Date



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: BMI09050701 Project: G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	pН
09050701-01A	MW-20-5	Aqueous	2
09050701-02A	MW-20-4	Aqueous	2
09050701-03A	MW-20-3	Aqueous	2
09050701-04A	MW-20-2	Aqueous	2
09050701-05A	MW-20-1	Aqueous	2
09050701-06A	DUPE-05-2Q09	Aqueous	2
09050701-07A	DUPE-06-2Q09	Aqueous	2
09050701-08A	EB-09-05/06/09	Aqueous	2
09050701-09A	TB-09-05/06/09	Aqueous	2

### Billing Information:

# CHAIN-OF-CUSTODY RECORD

## Alpha Analytical, Inc.

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

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

Client:

Battelle Memorial Institute

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

EDD Required: Yes

Report Due By: 5:00 PM On: 21-May-2009

WorkOrder: BMIS09050701

Page: 1 of 1

Sampled by: Client

Cooler Temp

Samples Received 07-May-2009 07-May-2009 Date Printed

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

G005862/JPL Groundwater Monitoring

Client's COC #: 25544

San Diego, CA 92110

Suite C-205 3990 Old Town Ave

BMI09050701-09A TB-09-05/06/09 BMI09050701-08A EB-09-05/06/09 BMI09050701-06A BMI09050701-07A BMI09050701-01A MW-20-5 BMI09050701-05A MW-20-1 BMI09050701-04A MW-20-2 BMI09050701-03A MW-20-3 BMI09050701-02A MW-20-4 Sample ID DUPE-05-2Q09 DUPE-06-2Q09 Sample ID Client AQ 05/06/09 11:34 å ğ Š Š Š Š Matrix Date å AQ 05/06/09 08:25 05/06/09 09:04 05/06/09 05/06/09 10:05 05/06/09 05/06/09 05/06/09 11:20 05/06/09 Collection No. of Bottles Alpha Sub S S G Çī G Çī G 0 0 0 0 0 0 0 0 0 Į 6 5 5 6 5 6 5 6 6 NO2, NO3, SO4, CI NO2, NO3, NO2, NO3, NO2, NO3, Perchlorate Alk (Bicarb, SO4, CI SO4, CI Carb, Total) NO2, NO3, SO4, CI NO2, NO3, NO2, NO3, NO2, NO3, SO4, Cl SO4, Cl SO4, Cl NO2, NO3, NO2, NO3, NO2, NO3, SO4, CI SO4, CI SO4, CI 300\_0(A)\_W 300\_0(B)\_W 300\_0(C)\_W NO2, NO3, NO2, NO3, NO2, NO3, Perchlorate Alk (Bicarb, Cr, Pb, As, SO4, Cl SO4, Cl Carb, Total) Na, K, Ca, NO2, NO3, NO2, NO3, NO2, NO3, SO4, CI SO4, CI SO4, CI NO2, NO3, NO2, NO3, SO4, CI SO4, CI NO2, NO3, Perchlorate Alk (Bicarb, SO4, Cl Carb, Total) Perchlorate Alk (Bicarb, Carb, Total) Perchlorate Perchlorate Perchlorate Alk (Bicarb, Cr, Pb, As, Ca, Total) Na, K, Ca, Mg, Fe Perchlorate 314\_W ALKALINIT METALS\_D
Y\_W W Requested Tests Alk (Bicarb, Carb, Total) Alk (Bicarb, Carb, Total) Alk (Bicarb, Carb, Total) Cr, Pb, As, Na, K, Ca, Cr, Pb, As, Na, K, Ca, Mg, Fe Cr, Pb, As, Na, K, Ca, PH ₩ pН ΡH pН pН ΡH ΡH PΗ pΗ TDS SQL TDS TDS ZUT TDS TDS TDS TDS Reno Trip Blank 3/16/09 Sample Remarks Level IV QC.

Comments: No security seals. Frozen ice. Temp Blank #7684 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: Lalcox Klizabeth HdCox Alpha Analytical, Inc. Company 5-7-09 10:01 Date/Time

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

### Billing Information:

# CHAIN-OF-CUSTODY RECORD

## Alpha Analytical, Inc.

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

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

Client:

Battelle Memorial Institute

San Diego, CA 92110

Suite C-205 3990 Old Town Ave

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

Page: 2012

Report Due By: 5:00 PM On: 21-May-2009 WorkOrder: BMIS09050701

EDD Required: Yes

Sampled by: Client

Cooler Temp Samples Received

QC Level: DS4 Client's COC #: 25544 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates Job: G005862/JPL Groundwater Monitoring 07-May-2009 07-May-2009 Date Printed

BMI09050701-09A BMI09050701-08A BMI09050701-07A DUPE-06-2Q09 Sample ID BMI09050701-06A DUPE-05-2Q09 BMI09050701-05A MW-20-1 BMI09050701-04A MW-20-2 BMI09050701-03A | MW-20-3 BMI09050701-02A MW-20-4 BMI09050701-01A EB-09-05/06/09 TB-09-05/06/09 MW-20-5 Client Sample ID AQ 05/06/09 08:25 ģ Š Š ģ Š Ş Matrix Date Š Š 05/06/09 00:00 05/06/09 00:00 05/06/09 11:20 05/06/09 00:00 05/06/09 11:34 05/06/09 11:04 05/06/09 10:05 05/06/09 09:04 Collection No. of Bottles Alpha Sub Çī Ç G S Ç S Ç Ç 0 0 0 0 0 0 0 0 TAT 6 6 5 6 5 5 5 5 6 VOC by 524 VOC by 524 Criteria Criteria VOC by 524 VOC by 524 Criteria Criteria VOC by 524 | VOC by 524 Criteria | Criteria VOC by 524 VOC by 524 Criteria Criteria VOC by 524 VOC by 524 Criteria Criteria VOC by 524 VOC by 524 Criteria Criteria VOC by 524 | VOC by 524 Criteria | Criteria VOC by 524 VOC by 524 Criteria Criteria VOC by 524 VOC by 524 Criteria Criteria VOC\_TIC\_ VOC\_W Requested Tests Reno Trip Blank 3/16/09 Sample Remarks Level IV QC.

Comments:

No security seals. Frozen ice. Temp Blank #7684 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).

<u>v</u>	Logged in by: (Lya-	
	buth (Volcux	Signature
	Elizabeth Fldcox	Print Name
	Alpha Analytical, Inc. 5-7-09	Company
	5-7-09 10:01	Date/Time

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

Billing Information:						シガスへ
GERALD TOX		Alpha Analytical, Inc 255 Glendale Avenue, Suite 2:		mples Collected	rom Which State?	
City, State, Zip Cocumbus, off 43 20/ Phone Number Fax	(CX)	Sparks, Nevada 89431-5778 Phone (775) 355-1044 Fax (775) 355-0406	778	OF OF		Page # of /
OVID CANDETL	PO.# 2/80/3	Job# /	6727			
DWN AVE, C-205	EMail Address		1007	4.2 (b) (R)	<u> </u>	Hequired CC Level?
io, CA 92110	Phone # 619-726-7311	Fax#		57/20 (20/3/4)	@. G	
Matrix* Sampled by See Key	Report Attention		의	2 10 10 10 10 10 10 10 10 10 10 10 10 10	705	EDD/EDF/TESNO
Sampled	Sample Description	TAT File	_	VOCALANDA COLONIA	Global ID 4	BEMARKS
76/09 10 DM T09050701-01	Mw-20-5		×	XXXX	3	C. S. T.
, Q2	MW-20-4				8	KC VCL +b
.03	MW-20-3			×		
-04	MW-20-2			×		
.8.	1-01			×		
	DUPE-05-2009			×	<i>אק</i> מע	DUPLICATE
	- 2009			- - ×	JANPLICATE	JCATE
68	05/05		×	X X X	Earl)	Ear PHENT BLANK
- ()	12-10-10-109		×		TRIP	TRIP BLANK
ADDITIONAL INSTRUCTIONS:					 	
Signature	Print Name		Co	Company	Date	Time
Received by	CHASE Brok.	C12001	129/21	H	5/08/01	1300
Relinquished by	Lizabeth Hacox	X 		lpha	5-7-09	10:01
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 laboratory with this core. The liability of the laboratory with this core.	OT - Other AR - Air orted unless other arrangements serived by the laboratory with this	**: L-Liter V-Voa are made. Hazardous sa	S-Soil Jar C	O-Orbo T-Tedlar ed to client or disposed of	B-Brass P-Plastic at client expense. The r	OT-Other report for the analysis
1 0000 00000000000000000000000000000000	COLLACA DA DIGIGIO A MILLIONA			\$5.5 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		

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.



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

Date: 10-May-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:

BMI09050102

**Cooler Temp:** 

4 °€

Alpha's Sample ID	Client's Sample ID	Matrix
09050102-01A	MW-18-5	Aqueous
09050102-02A	MW-18-4	Aqueous
09050102-03A	MW-18-3	Aqueous
09050102-04A	MW-18-2	Aqueous
09050102-05A	MW-18-1	Aqueous
09050102-06A	EB-07-4/30/09	Aqueous
09050102-07A	TB-07-4/30/09	Aqueous

### **Manually Integrated Analytes**

Alpha's Sample ID	Test Reference	Analyte
09050102-02A	EPA Method 314.0	Perchlorate
09050102-03A	EPA Method 314.0	Perchlorate
09050102-06A	EPA Method 300.0 / 9056	Nitrate (NO3) - N
09050102-06A	EPA Method 300.0 / 9056	Sulfate (SO4)

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

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

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

Roger Scholl

Kandy Saulner

Walter Airihm



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: 05/01/09

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-18-5	Nitrite (NO2) - N	ND	0.25 mg/L	04/30/09 09:07	05/01/09 12:39
Lab ID: BMI09050102-01A	Nitrate (NO3) - N	ND	0.25 mg/L	04/30/09 09:07	05/01/09 12:39
Client ID: MW-18-4	Nitrite (NO2) - N	ND	0.25 mg/L	04/30/09 09:49	05/01/09 12:58
Lab ID: BMI09050102-02A	Nitrate (NO3) - N	1.6	0.25 mg/L	04/30/09 09:49	05/01/09 12:58
Client ID: MW-18-3	Nitrite (NO2) - N	ND	0.25 mg/L	04/30/09 10:13	05/01/09 13:16
Lab ID: BMI09050102-03A	Nitrate (NO3) - N	1.9	0.25 mg/L	04/30/09 10:13	05/01/09 13:16
Client ID: MW-18-2	Nitrite (NO2) - N	ND	0.25 mg/L	04/30/09 11:32	05/01/09 13:35
Lab ID: BMI09050102-04A	Nitrate (NO3) - N	1.5	0.25 mg/L	04/30/09 11:32	05/01/09 13:35
Client ID: MW-18-1	Nitrite (NO2) - N	ND	0.25 mg/L	04/30/09 12:25	05/01/09 13:53
Lab ID: BMI09050102-05A	Nitrate (NO3) - N	0.62	0.25 mg/L	04/30/09 12:25	05/01/09 13:53
Client ID: EB-07-4/30/09	Nitrite (NO2) - N	ND	0.25 mg/L	04/30/09 12:09	05/01/09 14:12
Lab ID: BMI09050102-06A	Nitrate (NO3) - N	ND	0.25 mg/L	04/30/09 12:09	05/01/09 14:12

ND = Not Detected

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.

5/4/09



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 (614) 458-6641 Fax:

Date Received: 05/01/09

Job#: G005862/JPL Groundwater Monitoring

Anions by IC

EPA Method 300.0 / 9056

		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID:	MW-18-5					
Lab ID:	BMI09050102-01A	Chloride	12	0.50 mg/L	04/30/09	05/01/09
		Sulfate (SO4)	5.7	0.50 mg/L	04/30/09	05/01/09
Client ID:	MW-18-4					
Lab ID:	BMI09050102-02A	Chloride	16	0.50 mg/L	04/30/09	05/01/09
		Sulfate (SO4)	30	0.50 mg/L	04/30/09	05/01/09
Client ID:	MW-18-3					
Lab ID:	BMI09050102-03A	Chloride	20	0.50 mg/L	04/30/09	05/01/09
		Sulfate (SO4)	40	0.50 mg/L	04/30/09	05/01/09
Client ID:	MW-18-2					
Lab ID:	BMI09050102-04A	Chloride	15	0.50 mg/L	04/30/09	05/01/09
		Sulfate (SO4)	46	0.50 mg/L	04/30/09	05/01/09
Client ID:	MW-18-1					
Lab ID:	BMI09050102-05A	Chloride	9.4	0.50 mg/L	04/30/09	05/01/09
		Sulfate (SO4)	41	0.50 mg/L	04/30/09	05/01/09
Client ID:	EB-07-4/30/09					
Lab ID:	BMI09050102-06A	Chloride	ND	0.50 mg/L	04/30/09	05/01/09
		Sulfate (SO4)	ND	0.50 mg/L	04/30/09	05/01/09

ND = Not Detected

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

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.



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: 05/01/09

Job#: G005862/JPL Groundwater Monitoring

### Perchlorate by Ion Chromatography

EPA Method 314.0

		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID: Lab ID:	MW-18-5 BMI09050102-01A	Perchlorate	ND	1.00 μg/L	04/30/09	05/05/09
Client ID: Lab ID:	<b>MW-18-4</b> BMI09050102-02A	Perchlorate	45.7	1.00 µg/L	04/30/09	05/05/09
Client ID: Lab ID:	MW-18-3 BMI09050102-03A	Perchlorate	55.9	1.00 μg/L	04/30/09	05/05/09
Client ID: Lab ID:	MW-18-2 BMI09050102-04A	Perchlorate	ND	1.00 µg/L	04/30/09	05/05/09
Client ID: Lab ID:	MW-18-1 BMI09050102-05A	Perchlorate	ND	1.00 μg/L	04/30/09	05/05/09
Client ID : Lab ID :	<b>EB-07-4/30/09</b> BMI09050102-06A	Perchlorate	ND	1.00 μg/L	04/30/09	05/05/09

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.

5/14/09



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: 05/01/09

Job#:

G005862/JPL Groundwater Monitoring

Alkalinity

SM2320B

		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID:	MW-18-5					
Lab ID:	BMI09050102-01A	Alkalinity, Bicarbonate (As CaCO3)	120	10 mg/L	04/30/09	05/05/09
		Alkalinity, Carbonate (As CaCO3)	20	10 mg/L	04/30/09	05/05/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	150	10 mg/L	04/30/09	05/05/09
Client ID:	MW-18-4					
Lab ID:	BMI09050102-02A	Alkalinity, Bicarbonate (As CaCO3)	170	10 mg/L	04/30/09	05/05/09
		Alkalinity, Carbonate (As CaCO3)	ND	10 mg/L	04/30/09	05/05/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	170	10 mg/L	04/30/09	05/05/09
Client ID:	MW-18-3					
Lab ID:	BMI09050102-03A	Alkalinity, Bicarbonate (As CaCO3)	200	10 mg/L	04/30/09	05/05/09
		Alkalinity, Carbonate (As CaCO3)	ND	10 mg/L	04/30/09	05/05/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	200	10 mg/L	04/30/09	05/05/09
Client ID:	MW-18-2					
Lab ID:	BMI09050102-04A	Alkalinity, Bicarbonate (As CaCO3)	210	10 mg/L	04/30/09	05/05/09
		Alkalinity, Carbonate (As CaCO3)	ND	10 mg/L	04/30/09	05/05/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	210	10 mg/L	04/30/09	05/05/09
Client ID:	MW-18-1					
Lab ID:	BMI09050102-05A	Alkalinity, Bicarbonate (As CaCO3)	140	10 mg/L	04/30/09	05/05/09
		Alkalinity, Carbonate (As CaCO3)	ND	10 mg/L	04/30/09	05/05/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	140	10 mg/L	04/30/09	05/05/09
Client ID:	EB-07-4/30/09					
Lab ID:	BMI09050102-06A	Alkalinity, Bicarbonate (As CaCO3)	ND	10 mg/L	04/30/09	05/05/09
		Alkalinity, Carbonate (As CaCO3)	ND	10 mg/L	04/30/09	05/05/09
		Alkalinity, Total (As CaCO3 at pH 4.5)	ND	10 mg/L	04/30/09	05/05/09

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.



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: 05/01/09

Job#:

G005862/JPL Groundwater Monitoring

Metals by ICPMS EPA Method 200.8

		Parameter	Concentration	Reporting	Date	Date
				Limit	Sampled	Analyzed
Client ID:	MW-18-5					
Lab ID:	BMI09050102-01A	Sodium (Na)	47	0.50 mg/L	04/30/09	05/06/09
		Magnesium (Mg)	4.1	0.50 mg/L	04/30/09	05/06/09
		Potassium (K)	1.3	0.50 mg/L	04/30/09	05/06/09
		Calcium (Ca)	12	0.50 mg/L	04/30/09	05/06/09
		Chromium (Cr)	ND	0.0050 mg/L	04/30/09	05/06/09
		Iron (Fe)	0.21	0.10 mg/L	04/30/09	05/06/09
		Arsenic (As)	ND	0.0020 mg/L	04/30/09	05/06/09
		Lead (Pb)	ND	0.0050  mg/L	04/30/09	05/06/09
Client ID:	MW-18-4					
Lab ID:	BMI09050102-02A	Sodium (Na)	31	0.50 mg/L	04/30/09	05/06/09
		Magnesium (Mg)	14	0.50 mg/L	04/30/09	05/06/09
		Potassium (K)	1.8	0.50 mg/L	04/30/09	05/06/09
		Calcium (Ca)	43	0.50 mg/L	04/30/09	05/06/09
		Chromium (Cr)	ND	0.0050 mg/L	04/30/09	05/06/09
		Iron (Fe)	0.51	0.10 mg/L	04/30/09	05/06/09
		Arsenic (As)	ND	0.0020 mg/L	04/30/09	05/06/09
		Lead (Pb)	ND	0.0050  mg/L	04/30/09	05/06/09
Client ID:	MW-18-3					
Lab ID:	BMI09050102-03A	Sodium (Na)	21	0.50 mg/L	04/30/09	05/06/09
		Magnesium (Mg)	17	0.50 mg/L	04/30/09	05/06/09
		Potassium (K)	2.7	0.50 mg/L	04/30/09	05/06/09
		Calcium (Ca)	65	0.50 mg/L	04/30/09	05/06/09
		Chromium (Cr)	ND	0.0050 mg/L	04/30/09	05/06/09
•		Iron (Fe)	0.53	0.10 mg/L	04/30/09	05/06/09
		Arsenic (As)	ND	0.0020  mg/L	04/30/09	05/06/09
		Lead (Pb)	ND	0.0050 mg/L	04/30/09	05/06/09
Client ID:	MW-18-2					
Lab ID:	BMI09050102-04A	Sodium (Na)	19	0.50 mg/L	04/30/09	05/06/09
		Magnesium (Mg)	19	0.50 mg/L	04/30/09	05/06/09
		Potassium (K)	2.5	0.50 mg/L	04/30/09	05/06/09
		Calcium (Ca)	63	0.50 mg/L	04/30/09	05/06/09
		Chromium (Cr)	ND	0.0050 mg/L	04/30/09	05/06/09
		lron (Fe)	0.40	0.10 mg/L	04/30/09	05/06/09
		Arsenic (As)	ND	0.0020  mg/L	04/30/09	05/06/09
		Lead (Pb)	ND	0.0050 mg/L	04/30/09	05/06/09



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

Client ID:	MW-18-1					
Lab ID:	BMI09050102-05A	Sodium (Na)	16	0.50 mg/L	04/30/09	05/06/09
		Magnesium (Mg)	13	0.50 mg/L	04/30/09	05/06/09
		Potassium (K)	2.3	0.50 mg/L	04/30/09	05/06/09
		Calcium (Ca)	45	0.50 mg/L	04/30/09	05/06/09
		Chromium (Cr)	ND	0.0050 mg/L	04/30/09	05/06/09
		Iron (Fe)	0.62	0.10 mg/L	04/30/09	05/06/09
		Arsenic (As)	ND	0.0020 mg/L	04/30/09	05/06/09
		Lead (Pb)	ND	0.0050  mg/L	04/30/09	05/06/09
Client ID:	EB-07-4/30/09					
Lab ID:	BMI09050102-06A	Sodium (Na)	ND	0.50 mg/L	04/30/09	05/06/09
		Magnesium (Mg)	ND	0.50 mg/L	04/30/09	05/06/09
		Potassium (K)	ND	0.50 mg/L	04/30/09	05/06/09
		Calcium (Ca)	ND	0.50 mg/L	04/30/09	05/06/09
		Chromium (Cr)	ND	0.0050 mg/L	04/30/09	05/06/09
		Iron (Fe)	ND	0.10 mg/L	04/30/09	05/06/09
		Arsenic (As)	ND	0.0020 mg/L	04/30/09	05/06/09
		Lead (Pb)	ND	0.0050 mg/L	04/30/09	05/06/09

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

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



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

### ANALYTICAL REPORT

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

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

Date Received: 05/01/09

Job#: G005862/JPL Groundwater Monitoring

> pH (Range 1.7 to 12.4) EPA Method 150.2 / SM4500HB / SW9040C

	Parameter	Concentration	Reporting Limit	Date / Time Sampled	Date / Time Analyzed
Client ID: MW-18-5	рН	8.7	1.7 pH Units	04/30/09 09:07	05/01/09 14:07
Lab ID: BMI09050102-01A	pH - Temperature	20	1.0 °C	04/30/09 09:07	05/01/09 14:07
Client ID: MW-18-4	рН	8.0	1.7 pH Units	04/30/09 09:49	05/01/09 14:13
Lab ID: BMl09050102-02A	pH - Temperature	19	1.0 °C	04/30/09 09:49	05/01/09 14:13
Client ID: MW-18-3	рН	7.8	1.7 pH Units	04/30/09 10:13	05/01/09 14:16
Lab ID: BMI09050102-03A	pH - Temperature	19	1.0 °C	04/30/09 10:13	05/01/09 14:16
Client ID: MW-18-2	рН	7.8	1.7 pH Units	04/30/09 11:32	05/01/09 14:18
Lab ID: BMI09050102-04A	pH - Temperature	19	1.0 °C	04/30/09 11:32	05/01/09 14:18
Client ID: MW-18-1	рН	7.1	1.7 pH Units	04/30/09 12:25	05/01/09 14:22
Lab ID: BMI09050102-05A	pH - Temperature	19	1.0 °C	04/30/09 12:25	05/01/09 14:22
Client ID : EB-07-4/30/09	рН	7.1	1.7 pH Units	04/30/09 12:09	05/01/09 14:25
Lab ID: BMI09050102-06A	pH - Temperature	20	1.0 °C	04/30/09 12:09	05/01/09 14:25

The EPA has established an analytical holding time of 15 minutes for this method as documented in the Methods Update Rule, Federal Register, Vol 72, No 47, March 2007. This holding time will always be exceeded, unless samples are analyzed in the field.

The laboratory performed this analysis in the shortest practical holding time after sample receipt.

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@aipha-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.

5/14/09



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

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

San Diego, CA 92110

Fax: (614) 458-6641

Date Received: 05/01/09

Job#:

G005862/JPL Groundwater Monitoring

### Total Dissolved Solids (TDS)

### SM2540C

,		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : Lab ID :	<b>MW-18-5</b> BMI09050102-01A	Solids, Total Dissolved (TDS)	190	10 mg/L	04/30/09	05/07/09
Client ID: Lab ID:	MW-18-4 BMI09050102-02A	Solids, Total Dissolved (TDS)	250	10 mg/L	04/30/09	05/07/09
Client ID: Lab ID:	MW-18-3 BMI09050102-03A	Solids, Total Dissolved (TDS)	260	10 mg/L	04/30/09	05/07/09
Client ID: Lab ID:	MW-18-2 BMI09050102-04A	Solids, Total Dissolved (TDS)	300	10 mg/L	04/30/09	05/07/09
Client ID: Lab ID:	MW-18-1 BMI09050102-05A	Solids, Total Dissolved (TDS)	230	10 mg/L	04/30/09	05/07/09
Client ID: Lab ID:	<b>EB-07-4/30/09</b> BM109050102-06A	Solids, Total Dissolved (TDS)	ND	10 mg/L	04/30/09	05/07/09

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.



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

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

Attn: David Conner

San Diego, CA 92110

Job#: G005862/JPL Groundwater Monitoring

Tentatively Identified Compounds - Volatile Organics by GC/MS

		Parameter	Estimated Concentration	Estimated Reporting Limit	Date Received	Date Sampled	Date Analyzed
Client ID : Lab ID :	<b>MW-18-5</b> BMI09050102-01A	Sulfur dioxide	15	2.0 μg/L	05/01/09	04/30/09	05/11/09
Client ID: Lab ID:	<b>MW-18-4</b> BMI09050102-02A	Sulfur dioxide	8.7	2.0 μg/L	05/01/09	04/30/09	05/11/09
Client ID : Lab ID :	<b>MW-18-3</b> BMI09050102-03A	Sulfur dioxide	5.9	2.0 μg/L	05/01/09	04/30/09	05/11/09
Client ID : Lab ID :	<b>MW-18-2</b> BMI09050102-04A	Sulfur dioxide	2.1	2.0 μg/L	05/01/09	04/30/09	05/11/09
Client ID: Lab ID:	<b>MW-18-1</b> BMI09050102-05A	*** None Found ***	ND	2.0 μg/L	05/01/09	04/30/09	05/11/09
Client ID : Lab ID :	EB-07-4/30/09 BMI09050102-06A	*** None Found ***	ND	2.0 μg/L	05/01/09	04/30/09	05/11/09
Client ID: Lab ID:	<b>TB-07-4/30/09</b> BMI09050102-07A	*** None Found ***	ND	2.0 μg/L	05/01/09	04/30/09	05/11/09

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl

Kandy Saulner

Walter Hinchman Quality Assurance Office

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

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

5/14/09 Report Date



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

### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050102-01A Client I.D. Number: MW-18-5 Attn: David Conner Phone: (818) 393-2808

Fax: (614) 458-6641

Sampled: 04/30/09

Received: 05/01/09 Analyzed: 05/11/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	imit
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	µg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	µg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	105	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	95	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					
~ 4	4 0 D" (FDD)								

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy

ND

ND

Walter Herekown

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

1.0

μg/L

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.

5/14/09

Report Date



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

### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Job#: G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050102-02A

Client I.D. Number: MW-18-4

David Conner Attn:

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

Sampled: 04/30/09

Received: 05/01/09 Analyzed: 05/11/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	µg/L
3	Vinyl chloride	ND	0.50	µg/L	38	Ethylbenzene	ND	0.50	µg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	µg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	µg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	2.4	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	µg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	10	0.50	μg/L	56	4-isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	1.1	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	105	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND	0.50	µg/L	66	Surr: 4-Bromofluorobenzene	96	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	l ND	0.50	ца/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl

ND

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

0.50

μg/L

μg/L

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.

5/14/09

Report Date



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

### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050102-03A Client I.D. Number: MW-18-3

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

Fax: (614) 458-6641

Sampled: 04/30/09

Received: 05/01/09 Analyzed: 05/11/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	µg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND	0.50	µg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	2.4	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	15	0.50	μg/L	56	4-Isopropyitoluene	ND	0.50	µg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	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	1.0	μg/L
27	4-Methyl-2-pentanone (MiBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	107	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	98	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	97	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachioroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandy Soulin

ND

Walter Acrilmon

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

1.0

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.

5/14/09 Report Date



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

### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050102-04A

Client I.D. Number: MW-18-2

David Conner Attn:

Phone: (818) 393-2808 Fax:

(614) 458-6641

Sampled: 04/30/09

Received: 05/01/09 Analyzed: 05/11/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	µg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	µg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC		2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	110	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	97	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					
		1 .							

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl

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

μg/L

μg/L

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.

5/14/09

**Report Date** 



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

### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050102-05A Client I.D. Number: MW-18-1

David Conner Attn:

Phone: (818) 393-2808

(614) 458-6641 Fax:

Sampled: 04/30/09

Received: 05/01/09 Analyzed: 05/11/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	µg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	μg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	µg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	µg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P) ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	110	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	95	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					
	( O D)								

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

ND

ND

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

1.0

0.50

μg/L

μg/L

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.

5/14/09

Report Date



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

### **ANALYTICAL REPORT**

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Job#: G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050102-06A Client I.D. Number: EB-07-4/30/09

Attn: David Conner

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

Sampled: 04/30/09

Received: 05/01/09 Analyzed: 05/11/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	1.0	μg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	1.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	μg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xylene	ND	0.50	μg/L
8	Dichloromethane	ND	1.0	μg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	1.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	µg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	µg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	μg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	µg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	µg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	µg/L	56	4-Isopropyltoluene	ND	0.50	μg/L
22	Benzene	ND	0.50	μg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBC	P)   ND	2.5	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	1.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	1.0	μg/L
27	4-Methyl-2-pentanone (MiBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	1.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	1.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	98	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	97	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L					
33	Dibromochloromethane	ND	0.50	μg/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

34 1,2-Dibromoethane (EDB)

Roger Scholl Kandys

ND

Walter Hirihun

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

1.0

μg/L

μg/L

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.

5/14/09 Report Date



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

### **ANALYTICAL REPORT**

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

Client I.D. Number: TB-07-4/30/09

David Conner Phone: (818) 393-2808

Fax:

Attn:

(614) 458-6641

G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09050102-07A

Sampled: 04/30/09 Received: 05/01/09

Analyzed: 05/11/09

Volatile Organics by GC/MS

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

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

35 Tetrachloroethene

1,2-Dibromoethane (EDB)

Roger Scholl

ND

ND

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

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

1.0

μg/L

μg/L

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.

5/14/09

Report Date



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: BMI09050102 Project: G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	рН	
09050102-01A	MW-18-5	Aqueous	2	
09050102-02A	MW-18-4	Aqueous	2	
09050102-03A	MW-18-3	Aqueous	2	
09050102-04A	MW-18-2	Aqueous	2	
09050102-05A	MW-18-1	Aqueous	2	
09050102-06A	EB-07-4/30/09	Aqueous	2	
09050102-07A	TB-07-4/30/09	Aqueous	2	

5/14/09 Report Date

### Billing Information:

# CHAIN-OF-CUSTODY RECORD

## Alpha Analytical, Inc.

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

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

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

PO: 218013

San Diego, CA 92110

Suite C-205 3990 Old Town Ave Client:

Battelle Memorial Institute

EDD Required: No

Report Due By: 5:00 PM On: 15-May-2009

WorkOrder: BMIS09050102

Page: 1 of 2

Sampled by: Client

Cooler Temp

Samples Received 01-May-2009 Date Printed

BMI09050102-07A TB-07-4/30/09 Sample ID Client's COC #: BMI09050102-06A EB-07-4/30/09 BMI09050102-05A MW-18-1 BMI09050102-02A MW-18-4 BMI09050102-01A MW-18-5 BMI09050102-04A MW-18-2 BMI09050102-03A MW-18-3 QC Level: DS4 25546 Client Sample ID DOD QC Required: Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates . go Ą Š å Š å Matrix Date Ş AQ 04/30/09 09:07 04/30/09 12:25 04/30/09 11:32 04/30/09 04/30/09 09:49 04/30/09 12:09 04/30/09 10:13 G005862/JPL Groundwater Monitoring Collection No. of Bottles Alpha Sub S 5 6 6 Ç 0 0 0 0 0 0 TAT 10 6 5 6 6 6 5 300\_0(A)\_W300\_0(B)\_W300\_0(C)\_W 314\_W ALKALINIT METALS\_D NO2, NO3, NO2, NO3, NO2, NO3, Perchiorate Alk (Bicarb, SO4, CI SO4, CI Carb, Total) NO2, NO3, NO2, NO3, NO2, NO3, SO4, CI SO4, CI SO4, CI NO2, NO3, NO2, NO3, NO2, NO3, SO4, CI SO4, CI SO4, CI NO2, NO3, NO2, NO3, NO2, NO3, Perchlorate SO4, CI SO4, CI SO4, CI NO2, NO3, NO2, NO3, NO2, NO3, Perchlorate SO4, CI SO4, CI SO4, CI NO2, NO3, NO2, NO3, NO2, NO3, Perchlorate SO4, CI SO4, CI SO4, CI Perchlorate Alk (Bicarb, Carb, Total) Perchlorate Alk (Bicarb, Carb, Total) Requested Tests Alk (Bicarb, Carb, Total) Alk (Bicarb, Carb, Total) Alk (Bicarb, Carb, Total) Cr, Pb, As, Na, K, Ca, Mg, Fe Cr, Pb, As, Na, K, Ca, Cr, Pb, As, Na, K, Ca, Mg, Fe Cr, Pb, As, Na, K, Ca, Mg, Fe Cr, Pb, As, Na, K, Ca, Mg, Fe Cr, Pb, As, Na, K, Ca, PH\_W ΡH PΗ μď Ħ μq ÞН TDS SGI TDS DS TDS TDS TDS Reno Trip Blank 3/16/09 Sample Remarks MS/MSD MS/MSD 01-May-2009

Logged in by: ( Kdcox Klizabuth **Print Name** HdCox Alpha Analytical, Inc. Company 5-1-9 Date/Time 9:49

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 (I.E.: MS/MSD).

Comments:

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

### Billing Information:

# CHAIN-OF-CUSTODY RECORD

## Alpha Analytical, Inc.

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

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

Client:

Battelle Memorial Institute

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

WorkOrder: BMIS09050102

Page: 2 of 2

Report Due By: 5:00 PM On: 15-May-2009

EDD Required: No

Sampled by: Client

Cooler Temp

Samples Received 01-May-2009 01-May-2009 Date Printed

QC Level: DS4 Client's COC #: 25546 = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates Job: G005862/JPL Groundwater Monitoring PO: 218013

San Diego, CA 92110

**Betsy Cutie** 

(614) 424-4899 x

cutiee@batelle.org

Suite C-205 3990 Old Town Ave

BMI09050102-07A TB-07-4/30/09 BMI09050102-06A EB-07-4/30/09 BMI09050102-05A MW-18-1 Sample ID BMI09050102-04A MW-18-2 BMI09050102-03A MW-18-3 BMI09050102-01A MW-18-5 BMI09050102-02A MW-18-4 Client Sample ID Ş å Ş å Š å Matrix Date ğ 04/30/09 09:07 04/30/09 04/30/09 00:00 04/30/09 10:13 04/30/09 12:09 04/30/09 12:25 04/30/09 11:32 Collection No. of Bottles Alpha Sub 5 6 G G S 0 0 0 0 0 0 TAT 6 6 6 6 6 6 5 VOC by 524 VOC by 524 Criteria Criteria VOC\_TIC\_ VOC\_W VOC by 524 VOC by 524 Criteria Criteria VOC by 524 VOC by 524 Criteria Criteria VOC by 524 VOC by 524 Criteria Criteria Requested Tests Reno Trip Blank 3/16/09 Sample Remarks MS/MSD MS/MSD

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 (I.E.: MS/MSD).

Logged in by: Conabith Olcux	Signature
Elizabuth Flow	Print Name
Alpha Analytical, Inc.	Company
5.1.09 9:49	Date/Time

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

Name COPINED TOMPAINS	Alpha Analytical, Inc. 255 Glendale Avenue, Suite 21 Sparks Nevada 80431-5778	22	nples Collected From W  CA NV OR OTHER	WA Page # 1 of 1
le, Zip COLUMBUS	Phone (775) 355-1044 Fax (775) 355-0406		Analyses Required	
AUTO CONNER	500) # dor	862	(K, 7)	Required QC Level?
C-205			140 30.	- II III IV
Elo, CA 9210	726-7311 Fax#	,	12 (15 fe) (15 fe) (15 fe) (15 fe)	EDD / EDF? YES NO
Matrix* Sampled by Report Atten			Mg / by	Global ID #
Below Lab ID Number (Use Only)	Sample Description TAT Filtered	** See below	5 5 8 5 / C / 15 30	REMARKS
107 456 AQ BMI07050102-01 MW-18-5		×	X	
02 mm-18-4		/0 X	XXX	MS/MSD
1013 -03 MW-18-3		×	×	
7-81-MW 10.		10 7	<	M5/M5D
1-81-My 50.		Y	× × ×	
1-10-83-10.	4 /30/09	×	X X X	GRUNTMENT BLANK
X 1 1 -07773-07- 5	1,30/09	<i>4</i>		TRIP BLANK
ADDITIONAL INSTRUCTIONS:				
Signature	Print Name	00	Company	Date Time
Relinquished by CH+S	C BMG-DDN 1	NSIGHT		4/30/09 1330
Received by Consolid Buth Edicar Klizabe	th Adcox		lpha	5/1/09 9.49
Received by				
Relinquished by				
Received by				
*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other	AR - Air **: L-Liter V-Voa	S-Soil Jar C	O-Orbo T-Tedlar B-Brass	s P-Plastic OT-Other

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

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



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

Date: 09-Jun-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:

BMI09052802

**Cooler Temp:** 

4°C

Alpha's Sample ID	Client's Sample ID	Matrix
09052802-01A	MW-1	Aqueous
09052802-02A	MW-9	Aqueous
09052802-03A	TB-20-05/27/09	Aqueous

### **Manually Integrated Analytes**

Alpha's Sample ID Test Reference Analyte

NONE

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

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

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

Roger Scholl

Kandy Saulner

Walter Hirihour



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 (614) 458-6641 Fax:

Date Received: 05/28/09

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-1	Nitrite (NO2) - N	ND	0.25 mg/L	05/27/09 08:45	05/28/09 23:15
Lab ID: BMI09052802-01A	Nitrate (NO3) - N	0.79	0.25 mg/L	05/27/09 08:45	05/28/09 23:15
Client ID: MW-9	Nitrite (NO2) - N	ND	0.25 mg/L	05/27/09 10:13	05/28/09 17:04
Lab ID: BMI09052802-02A	Nitrate (NO3) - N	1.2	0.25 mg/L	05/27/09 10:13	05/28/09 17:04

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.

**Report Date** 



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

### **ANALYTICAL REPORT**

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

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

Date Received: 05/28/09

Job#:

G005862/JPL Groundwater Monitoring

Anions by IC

EPA Method 300.0 / 9056

		Parameter	Concentration R	eporting Limit	Date Sampled	Date Analyzed
Client ID:	MW-1					
Lab ID:	BMI09052802-01A	Chloride	26	0.50 mg/L	05/27/09	05/28/09
		Sulfate (SO4)	55	0.50 mg/L	05/27/09	05/28/09
Client ID:	MW-9					
Lab ID:	BMI09052802-02A	Chloride	28	0.50 mg/L	05/27/09	05/28/09
		Sulfate (SO4)	66	0.50 mg/L	05/27/09	05/28/09

Roger Scholl Kandy Saulan

Walter Hinkman

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

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

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

6/10/09 Report Date



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

### **ANALYTICAL REPORT**

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

Fax: (614) 458-6641

Date Received: 05/28/09

Job#:

G005862/JPL Groundwater Monitoring

### Perchlorate by Ion Chromatography

EPA Method 314.0

		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID : Lab ID :	MW-1 BMI09052802-01A	Perchlorate	ND	1.00 μg/L	05/27/09	06/01/09
Client ID: Lab ID:	MW-9 BMI09052802-02A	Perchlorate	ND	1.00 µg/L	05/27/09	06/01/09

ND = Not Detected

Roger Scholl Kandy Saulur

Walter Firehour

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

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.

6/10/09

**Report Date** 



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

### **ANALYTICAL REPORT**

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

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

Date Received: 05/28/09

Job#: G005862/JPL Groundwater Monitoring

Alkalinity

SM2320B

		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID:	MW-1					
Lab ID:	BMI09052802-01A	Alkalinity, Bicarbonate (As CaCO3) Alkalinity, Carbonate (As CaCO3) Alkalinity, Total (As CaCO3 at pH 4.5)	190 ND 190	10 mg/L 10 mg/L 10 mg/L	05/27/09 05/27/09 05/27/09	06/05/09 06/05/09 06/05/09
Client ID: Lab ID:	MW-9 BMI09052802-02A	Alkalinity, Bicarbonate (As CaCO3) Alkalinity, Carbonate (As CaCO3) Alkalinity, Total (As CaCO3 at pH 4.5)	180 ND 180	10 rag/L 10 mg/L 10 mg/L	05/27/09 05/27/09 05/27/09	06/05/09 06/05/09 06/05/09

ND = Not Detected

Roger Scholl Kandy Saulaur

Walter Hirahow

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.

6/16/09
Report Date



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

### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

**David Conner** Attn:

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

Date Received: 05/28/09

Job#:

G005862/JPL Groundwater Monitoring

Metals by ICPMS

EPA Method 200.8

		Parameter	Concentration	Reporting	Date	Date
				Limit	Sampled	Analyzed
Client ID:	MW-1					
Lab ID:	BMI09052802-01A	Sodium (Na)	32	0.50 mg/L	05/27/09	05/29/09
		Magnesium (Mg)	19	0.50 mg/L	05/27/09	05/29/09
		Potassium (K)	3.6	0.50 mg/L	05/27/09	05/29/09
		Calcium (Ca)	69	0.50 mg/L	05/27/09	05/29/09
		Chromium (Cr)	ND	0.0050 mg/L	05/27/09	05/29/09
		Iron (Fe)	0.51	0.10 mg/L	05/27/09	05/29/09
		Arsenic (As)	ND	0.0020 mg/L	05/27/09	05/29/09
		Lead (Pb)	ND	0.0050 mg/L	05/27/09	05/29/09
Client ID:	MW-9					
Lab ID:	BMI09052802-02A	Sodium (Na)	31	0.50 mg/L	05/27/09	05/29/09
		Magnesium (Mg)	18	0.50 mg/L	05/27/09	05/29/09
		Potassium (K)	3.1	0.50 mg/L	05/27/09	05/29/09
		Calcium (Ca)	64	0.50 mg/L	05/27/09	05/29/09
		Chromium (Cr)	ND	0.0050 mg/L	05/27/09	05/29/09
		Iron (Fe)	0.44	0.10 mg/L	05/27/09	06/01/09
		Arsenic (As)	ND	0.0020 mg/L	05/27/09	05/29/09
		Lead (Pb)	ND	0.0050 mg/L	05/27/09	05/29/09

ND = Not Detected

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

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

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

**Report Date** 



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

### **ANALYTICAL REPORT**

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

Attn: **David Conner** Phone: (818) 393-2808 Fax: (614) 458-6641 Date Received: 05/28/09

Job#:

G005862/JPL Groundwater Monitoring

pH (Range 1.7 to 12.4) EPA Method 150.2 / SM4500HB / SW9040C

	Parameter	Concentration	Reporting Limit	Date / Time Sampled	Date / Time Analyzed
Client ID: MW-1	pН	7.6	1.7 pH Units	05/27/09 08:45	05/28/09 16:03
Lab ID: BMI09052802-01A	pH - Temperature	22	1.0 °C	05/27/09 08:45	05/28/09 16:03
Client ID: MW-9	рН	7.2	1.7 pH Units	05/27/09 10:13	05/28/09 16:14
Lab ID: BMI09052802-02A	pH - Temperature	22	1.0 °C	05/27/09 10:13	05/28/09 16:14

The EPA has established an analytical holding time of 15 minutes for this method as documented in the Methods Update Rule, Federal Register, Vol 72, No 47, March 2007. This holding time will always be exceeded, unless samples are analyzed in the field.

The laboratory performed this analysis in the shortest practical holding time after sample receipt.

Roger Scholl

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

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

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

6/10/09 Report Date



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

### **ANALYTICAL REPORT**

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

Attn: **David Conner** 

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

Date Received: 05/28/09

Job#: G005862/JPL Groundwater Monitoring

Total Dissolved Solids (TDS)

SM2540C

		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID: Lab ID:	· -	Solids, Total Dissolved (TDS)	290	10 mg/L	05/27/09	06/01/09
	<b>MW-9</b> BM109052802-02A	Solids, Total Dissolved (TDS)	340	10 mg/L	05/27/09	06/01/09

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.

**Report Date** 



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

### **ANALYTICAL REPORT**

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

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

Job#: G005862/JPL Groundwater Monitoring

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

			Vicinitian Company of the Company of	Estimated			
		Parameter	Estimated	Reporting	Date	Date	Date
			Concentration	Limit	Received	Sampled	Analyzed
Client ID : Lab ID :	MW-1 BMI09052802-01A	*** None Found ***	ND	2.0 μg/L	05/28/09	05/27/09	06/03/09
Client ID: Lab ID:	MW-9 BMI09052802-02A	*** None Found ***	ND	2.0 μg/L	05/28/09	05/27/09	06/03/09
Client ID : Lab ID :	<b>TB-20-05/27/09</b> BMI09052802-03A	*** None Found ***	ND	2.0 μg/L	05/28/09	05/27/09	06/03/09

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

Roger Scholl

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

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

**Report Date** 



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

### **ANALYTICAL REPORT**

Attn:

Fax:

Phone:

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

G005862/JPL Groundwater Monitoring

Client I.D. Number: MW-1

Alpha Analytical Number: BMI09052802-01A

Sampled: 05/27/09 Received: 05/28/09 Analyzed: 06/03/09

David Conner

(818) 393-2808

(614) 458-6641

Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1.1.1.2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	2.0	μg/L	37	Chlorobenzene	ND	0.50	µg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	2.0	μg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	µg/L	42	o-Xvlene	ND	0.50	µg/L
8	Dichloromethane	ND	2.0	µg/L	43	1.1.2.2-Tetrachloroethane	ND	0.50	μg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	2.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	µg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	µg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	μg/L	47	n-Propylbenzene	ND	0.50	μg/L μg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	μg/L μg/L
14	cis-1,2-Dichloroethene	ND	0.50	μg/L	49	2-Chlorotoluene	ND	0.50	μg/L μg/L
15	Bromochloromethane	ND	0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	
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 ∵~/L
18	1,2-Dichloroethane	ND	0.50	µg/L	53	sec-Butvibenzene	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 μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	ND	0.50	µg/L
23	Dibromomethane	ND	0.50	µg/L	58	n-Butvlbenzene	ND		µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L μg/L	59	1,2-Dibromo-3-chloropropane (DBCF		0.50	µg/L
25	Trichloroethene	ND	0.50	µg/L µg/L	60	1,2,4-Trichlorobenzene	ND ND	3.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L μg/L	61	Naphthalene	ND	2.0	μg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	µg/L µg/L	62	Hexachlorobutadiene	ND ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50		63		1	2.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L μg/L	64	1,2,3-Trichlorobenzene Surr: 1,2-Dichloroethane-d4	ND 404	2.0	µg/L
30	1,1,2-Trichloroethane	ND	0.50	μg/L	65	Surr: Toluene-d8	104	(70-130)	%REC
31	Toluene	ND	0.50		66	Surr: 4-Bromofluorobenzene	102	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L μg/L	00	Sun. 4-Biomonuoropenzene	103	(70-130)	%REC
33	Dibromochloromethane	ND	0.50	ua/L					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

ND

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

2.0

μg/L

µg/L

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.

6/10/09

Report Date



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

### **ANALYTICAL REPORT**

Battelle Memorial Institute

3990 Old Town Ave San Diego, CA 92110

Job#: G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09052802-02A Client I.D. Number: MW-9

Attn:

David Conner (818) 393-2808

Phone: Fax:

(614) 458-6641

Sampled: 05/27/09

Received: 05/28/09 Analyzed: 06/03/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	µg/L	36	1,1,1,2-Tetrachloroethane	ND	0.50	μg/L
2	Chloromethane	ND	2.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	µg/L
4	Chloroethane	ND	0.50	µg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	2.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	μg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	o-Xvlene	ND	0.50	μg/L
8	Dichloromethane	ND	2.0	µg/L	43	1.1.2.2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	2.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	μg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	µg/L	47	n-Propylbenzene	ND	0.50	μg/L
13	2-Butanone (MEK)	ND	10	µg/L	48	4-Chlorotoluene	ND	0.50	μg/L
14	cis-1,2-Dichloroethene	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	μg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	µg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	μg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND	0.50	μg/L	57	1.2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	µg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCF		3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	µg/L	61	Naphthalene	ND	2.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	μg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1,2,3-Trichlorobenzene	ND	2.0	μg/L
29	trans-1,3-Dichloropropene	ND	0.50	µg/L	64	Surr: 1,2-Dichloroethane-d4	111	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	µg/L	65	Surr: Toluene-d8	101	(70-130)	%REC
31	Toluene	ND	0.50	µg/L	66	Surr: 4-Bromofluorobenzene	98	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	μg/L	00	Ca I Diomondorobonzone	30	(10-130)	MINEU
33	Dibromochloromethane	ND	0.50	uo/l					

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

Roger Scholl

ND

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

μg/L

µg/L

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

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.

6/10/09

**Report Date** 



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

### ANALYTICAL REPORT

Battelle Memorial Institute 3990 Old Town Ave

San Diego, CA 92110

Job#: G005862/JPL Groundwater Monitoring

Alpha Analytical Number: BMI09052802-03A

Client I.D. Number: TB-20-05/27/09

Attn:

David Conner Phone: (818) 393-2808

Fax:

(614) 458-6641

Sampled: 05/27/09

Received: 05/28/09 Analyzed: 06/03/09

### Volatile Organics by GC/MS

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting L	imit
1	Dichlorodifluoromethane	ND	0.50	μg/L	36	1.1.1.2-Tetrachloroethane	ND	0.50	
2	Chloromethane	ND	2.0	µg/L	37	Chlorobenzene	ND	0.50	μg/L
3	Vinyl chloride	ND	0.50	μg/L	38	Ethylbenzene	ND	0.50	μg/L
4	Chloroethane	ND	0.50	μg/L	39	m,p-Xylene	ND	0.50	μg/L
5	Bromomethane	ND	2.0	µg/L	40	Bromoform	ND	0.50	μg/L
6	Trichlorofluoromethane	ND	0.50	µg/L	41	Styrene	ND	0.50	µg/L
7	1,1-Dichloroethene	ND	0.50	μg/L	42	•	ND	0.50	μg/L
8	Dichloromethane	ND	2.0	µg/L	43	1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
9	Freon-113	ND	0.50	μg/L	44	1,2,3-Trichloropropane	ND	2.0	μg/L
10	trans-1,2-Dichloroethene	ND	0.50	μg/L	45	Isopropylbenzene	ND	0.50	µg/L
11	Methyl tert-butyl ether (MTBE)	ND	0.50	µg/L	46	Bromobenzene	ND	0.50	μg/L
12	1,1-Dichloroethane	ND	0.50	µg/L	47	n-Propylbenzene	ND	0.50	µg/L
13	2-Butanone (MEK)	ND	10	μg/L	48	4-Chlorotoluene	ND	0.50	µg/L
14	',	ND	0.50	µg/L	49	2-Chlorotoluene	ND	0.50	μg/L
15	Bromochloromethane	ND	0.50	µg/L	50	1,3,5-Trimethylbenzene	ND	0.50	μg/L
16	Chloroform	ND	0.50	μg/L	51	tert-Butylbenzene	ND	0.50	μg/L
17	2,2-Dichloropropane	ND	0.50	μg/L	52	1,2,4-Trimethylbenzene	ND	0.50	µg/L
18	1,2-Dichloroethane	ND	0.50	μg/L	53	sec-Butylbenzene	ND	0.50	μg/L
19	1,1,1-Trichloroethane	ND	0.50	μg/L	54	1,3-Dichlorobenzene	ND	0.50	μg/L
20	1,1-Dichloropropene	ND	0.50	µg/L	55	1,4-Dichlorobenzene	ND	0.50	μg/L
21	Carbon tetrachloride	ND	0.50	μg/L	56	4-Isopropyltoluene	ND	0.50	µg/L
22	Benzene	ND	0.50	µg/L	57	1,2-Dichlorobenzene	ND	0.50	μg/L
23	Dibromomethane	ND	0.50	μg/L	58	n-Butylbenzene	ND	0.50	μg/L
24	1,2-Dichloropropane	ND	0.50	μg/L	59	1,2-Dibromo-3-chloropropane (DBCI	P) ND	3.0	μg/L
25	Trichloroethene	ND	0.50	μg/L	60	1,2,4-Trichlorobenzene	ND	2.0	μg/L
26	Bromodichloromethane	ND	0.50	μg/L	61	Naphthalene	ND	2.0	µg/L
27	4-Methyl-2-pentanone (MIBK)	ND	2.5	µg/L	62	Hexachlorobutadiene	ND	2.0	μg/L
28	cis-1,3-Dichloropropene	ND	0.50	μg/L	63	1.2.3-Trichlorobenzene	ND	2.0	µg/L
29	trans-1,3-Dichloropropene	ND	0.50	μg/L	64	Surr: 1,2-Dichloroethane-d4	104	(70-130)	%REC
30	1,1,2-Trichloroethane	ND	0.50	µg/L	65	Surr: Toluene-d8	100	(70-130)	%REC
31	Toluene	ND	0.50	μg/L	66	Surr: 4-Bromofluorobenzene	102	(70-130)	%REC
32	1,3-Dichloropropane	ND	0.50	µg/L			, ,,,,	(.0.100)	,31 TEO
33	Dibromochloromethane	ND	0.50	μg/L					
	1.2 Dibanasa Albanas (EDD)								

Note: Analysis conducted using EPA Method 524.2 criteria.

ND = Not Detected

34 1,2-Dibromoethane (EDB)

Tetrachloroethene

ND

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

2.0

μg/L

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.

6/10/09

**Report Date** 



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: BMI09052802

Project: G005862/JPL Groundwater Monitoring

Alpha's Sample ID	Client's Sample ID	Matrix	рН
09052802-01A	MW-1	Aqueous	2
09052802-02A	MW-9	Aqueous	2
09052802-03A	TB-20-05/27/09	Aqueous	2

6/10/09

Report Date

### 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

Battelle Memorial Institute Suite C-205 3990 Old Town Ave

PO: 218013

San Diego, CA 92110

QC Level: DS4 Client's COC #: 25531

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

G005862/JPL Groundwater Monitoring

WorkOrder: BMIS09052802

Report Due By: 5:00 PM On: 11-Jun-2009

EDD Required: Yes

Sampled by: Client

Cooler Temp 4°C

Samples Received 28-May-2009

28-May-2009 Date Printed

BMI09052802-03A TB-20-05/27/09 BMI09052802-02A MW-9 BMI09052802-01A MW-1 Sample ID Sample ID = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates AQ 05/27/09 08:45 ò å Matrix Date 05/27/09 10:13 05/27/09 00:00 Collection No. of Bottles Alpha Sub S G 0 0 0 TAT 5 10 70 NO2, NO3, SO4, CI NO2, NO3, SO4, CI 300\_0(A)\_W 300\_0(B)\_W 300\_0(C)\_W 314\_W NO2, NO3, NO2, NO3, SO4, CI SO4, CI NO2, NO3, NO2, NO3, SO4, CI SO4, CI Perchlorate Requested Tests Carb, Total)

Ca, Pb, As,

Ca, Pb, As,

Mg, Fe Alk (Bicarb, Carb, Total) ALKALINIT METALS\_D Cr, Pb, As, Na, K, Ca, Mg, Fe PH\_W ΡH Ħ TDS TDS TDS Reno Trip Blank 3/16/09 Sample Remarks Level IV QC

No security seals. Frozen ice. Temp Blank #7833 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). Sample date taken from sample containers.:

Comments:

Logged in by: **Print Name** XOUL Alpha Analytical, Inc. 5:28:07 10:01 Date/Time

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

### Billing Information:

## CHAIN-OF-CUSTODY RECORD

### Alpha Analytical, Inc.

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

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

Client:

Battelle Memorial Institute

3990 Old Town Ave Suite C-205

Shane Walton

Betsy Cutie

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

cutiee@batelle.org

waltons@battelle.org

PO: 218013

San Diego, CA 92110

Client's COC #: 25531

Job :

G005862/JPL Groundwater Monitoring

WorkOrder: BMIS09052802

Page: 2012

Report Due By: 5:00 PM On: 11-Jun-2009

EDD Required: Yes

Sampled by: Client

Cooler Temp

Samples Received 28-May-2009 28-May-2009

Date Printed

BMI09052802-03A TB-20-05/27/09 Sample ID BMI09052802-02A MW-9 BMI09052802-01A MW-1 QC Level: DS4 Client Sample ID = DOD QC Required : Final Rpt, MBLK, InitCal/ConCal data, LCS, MS/MSD With Surrogates ð å Š Matrix Date 05/27/09 00:00 05/27/09 08:45 05/27/09 10:13 Collection No. of Bottles Alpha Sub Ç 0 0 0 TAT 70 10 5 VOC by 524 VOC by 524 Criteria Criteria VOC by 524 VOC by 524 Criteria Criteria VOC by 524 VOC by 524 Criteria Criteria VOC\_TIC\_ VOC\_W Requested Tests Reno Trip Blank 3/16/09 Sample Remarks Level IV QC

Comments:

date taken from sample containers. No security seals. Frozen ice. Temp Blank #7833 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). Sample

	Logged in by:	3
	outh (ldcox	Signature
	Elizabeth Flowx	Print Name
	Alpha Analytical, Inc.	Company
•	5-28-09 10:01	Date/Time

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

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

Received by	Relinquished by Signature Print Name Company Date  Received by Canabath Class Bregon Tasuati Canabath Class Size 3  Relinquished by Can	ADDITIONAL INSTRUCTIONS:		10- 05/27/ 09		Ale   Below   Lab ID Number (Lose Conju)   Sample Description   TAT   Field   See below   See below   See Selow   See Selow	Matrix: Sampled by Phone # 97/10 Phone # 97/16 736 731/1 Fax # Total and type of Spice of Spi	14.0) 200.0 150.) 150.)	Billing Information:         Name (メビアムトン TOMPKINS)       Alpha Analytical, Inc.       Samples Collected From Which State?         Name (メビアムトン TOMPKINS)       255 Glendale Avenue, Suite 21       AZ CA K NV WA MA MAZ CA K NV WA MA MAZ CA K NV WA MA MAZ CA K NV WA
	Date Time 5:28-09 10:01			TRIP BLOCK	DC 1-21-27 DB	$\rightarrow$		Required QC Level?	ich State? 2553 VA Page # _/ of ed /

(Pa)



### CAS SR #P0901761

### **Table of Contents**

Cover Letter	1
Case Narrative.	
Sample Cross-Reference	3
Acronym List	4
Chain of Custody	5
Internal Chain of Custody	
Sample Acceptance Check Form	7
Hexavalent Chromium Analytical Data	
Havayalant Chromium Raw Data	14-25



### LABORATORY REPORT

June 1, 2009

David Conner Battelle 3990 Old Town Ave., Suite C-205 San Diego, CA 92110

RE: JPL GW Mon 2Q09 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 26, 2009. For your reference, these analyses have been assigned our service request number P0901761.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-08-TX. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.

Sue Anderson Project Manager

Page 1 of <u>25</u>



Client:

Battelle

CAS Project No:

P0901761

Project:

JPL GW Mon 2Q09 / G486090

### CASE NARRATIVE

The samples were received intact under chain of custody on May 26, 2009 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client:

Battelle

**Project:** 

JPL GW Mon 2Q09/G486090

Service Request: P0901761

### SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	<u>DATE</u>	TIME
P0901761-001	MW-5	5/26/09	08:13
P0901761-002	MW-6	5/26/09	09:58

### Columbia Analytical Services, Inc.

### Acronyms

CA LUFT California DHS LUFT Method

ASTM American Society for Testing and Materials
BTEX Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number Chemical Abstract Service Registry Number

CFC Chlorofluorocarbon

CRDL Contract Required Detection Limit
DLCS Duplicate Laboratory Control Sample

DMS Duplicate Matrix Spike
DOH or DHS Department of Health Services

EPA U.S. Environmental Protection Agency

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

IC Ion Chromatography
 ICB Initial Calibration Blank
 ICV Initial Calibration Verification
 LCS Laboratory Control Sample
 LUFT Leaking Underground Fuel Tank

M Modified Method

MDL Method Detection Limit

MRL Method Reporting Limit

MS Matrix Spike

MTBE Methyl tert - Butyl Ether

NA Not Applicable NC Not Calculated

ND None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)

NTU Nephelometric Turbidity Units

ppb Parts Per Billionppm Parts Per Million

PQL Practical Quantitation Limit
QA/QC Quality Assurance/Quality Control
RCRA Resource Conservation and Recovery Act

RPD Relative Percent Difference SIM Selected Ion Monitoring

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.
SW Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846,

Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.

TDS Total Dissolved Solids

TPH Total Petroleum Hydrocarbons
TSS Total Suspended Solids

TTLC Total Threshold Limit Concentration

VOA Volatile Organic Analyte(s)
VOC Volatile Organic Compound(s)

### Qualifiers

U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

J The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.

**B** Analyte detected in the method blank above MRL (PQL).

E Estimated; result based on response which exceeded the instrument calibration range.

N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.

**D** The reported result is from a dilution.

X See case narrative.

# Water & Soil - Chain of Custody Record & Analytical Service Request

ı		r	—						***************************************		<del></del>		1	03	)	<del></del>		· · · · · ·	·	т	<del></del>			<del></del>	Т			_
	CAS Project No.	CAS Contact:	Preservative Key		1 HCL 2 HNO3	3 H2SO4	4 NaOH	S Zn Acetate	7 Other		Remarks			Aus amo	Who a long to the										-	Project Requirements (MRLs, QAPP)		Cooler / Blank / Ice / No Ice
	CA	రి																								<u>ā</u>	2	Ŏ
															-		-	-							-		Time,	Tiple 1
	dard																								-	oN / s	10	
	e y - Standard	alytes	de				······														-	-			-	EDD required Yes / No Type:	Date	18
	se circle 10 Day	l/or Ana	Preservative Code	Н											T						_		<u> </u>		-	EDD rec Type:	\ <b>65</b> ./	
	<b>s) pleas</b> 7 (25%)	od and	Preserv	0			(0°.			) AL	V Q N														-			
	<b>charge</b> ) 5 Day	Analysis Method and/or Analytes		9		_	02	(	<u>- /                                    </u>	) I	IN	·   ×	×	   	<u> </u>										-	Yes / No		6 8 8
	<b>ys (Sur</b> ay (35%	Analys				·	(p	SW acte	os GC/	le Organio ∪S) 🗆 Oo	Semi-Volati 7S8 □ 3S∂			1												es / No required		110000
	ess Da %) 4 D	:		$\Box$	racted)	дuo					TPH Diesel			H	+	-									-	MRL required Yes / No MDL / PQL / J reguired Yes / No	-	
	<b>n Busir</b> Day (50				-,-,-,,					IM □8	7PH Gas 8 BTEX 8021 TPH Diesel															MRL 7	(e)	ire)
	l Time i 5%) 3					) se					Volatile Org 828 □ 428			,													/: (Segnatu	/: (Sígnatu
	Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day		•	2009			۔ ا	ATTO GENERAL TOMPKINS	43201		Number of Containers	_		1	-											Tier III - (Data Validation Package) 10% Surcharge (client specified)	Received by: (Sonature)	Received by: (Signature)
	<b>ested Tu</b> (100%)			MON	,	0	ormation	7	OHO.					H												e) 10% S		Time: 3 1 / 24
	Reque 1 Day	ame	,		umber	607	illing Int	んない	4126	Ē.	Matrix	3		$\mathbb{H}$												Packag	Time	Time
te A 5		Project Name		221	Project Number	0409845	P.O. # / Billing Information 2/43/9 / おArrcユゼ	5	505 KING	Sampler (Print & Sign)	Time Collected	8/3	8560													Tier III - (Data Validation	25/4/	Defe.
rive, Sui ia 9306	<u>1</u>	T		<u> </u>	<u> </u>		<u>т (1</u>			ıpler (Pı	Date Collected C	5/80 08/3	0	H	<u> </u>										$\dashv$	II - (Data ; (client s		Ī
enter D Californ	526-7	ormation	, 2	Š						San	<del> </del>	12/26	<u>``</u>	$\mid \downarrow$	-		-					-				Tier - X		
2655 Park Center Drive, Suite A Simi Valley, California 93065	Phone (805) 526-7161 Fax (805) 526-7270	ting Infc	1	<u>ن</u> `	2110					D	Laboratory ID Number	(c)	B													1	M	1
265£ Simi	Phor Fax (	(Repo	,	<b>A</b> //c	<i>6</i> ′		٦	Fav	<u> </u>	eportin				20			<del> </del>				_	$\dagger$			-	elect pecified)	N	
Analytical Services NG	An Employee - Owned Company	Company Name & Address (Reporting Information)	BATTELLE	2000 OLD TOWN AVE, C- FOI	SAN DIEGO, CA 92110		Project Manager	3	1151-726-7311	Email Address for Result Reporting	Client Sample ID	W-5	9-~	// //										•		Report Tier Levels - please select Tier I - (Results/Default if not specified) Tier II - (Results + QC)	Relinquished by: (Signature)	Relinquisher of (Signature)
	An Employee - r	Company I	BATTE	7000	540 I	5	Project Ma	Phone	12-619	Email Add	Client Samp	M-5	716	00 / Ca	20											Report Tier   Tier   - (Resi Tier    - (Resi	Relinquished b	

### Columbia Analytical Services, Inc. Chain of Custody Report

Client: Project: Battelle

JPL GW Mon 2Q09/G486090

Service Request: P0901761

<b>Bottle ID</b>	Tests	Date	Time	Sample Location / User	Disposed On
P0901761-001.01					
	7196A				
		5/26/09	1150	SMO / MZAMORA	
		5/26/09	1151	P-37 / MZAMORA	
		5/26/09	1237	In Lab / SANDERSON	
		5/26/09	1630	P-37 / SANDERSON	
P0901761-002.01					
	7196A				
		5/26/09	1150	SMO / MZAMORA	
		5/26/09	1151	P-37 / MZAMORA	
		5/26/09	1237	In Lab / SANDERSON	
		5/26/09	1630	P-37 / SANDERSON	

### Columbia Analytical Services, Inc. Sample Acceptance Check Form

	Battelle	A LANGUAGO A ANGUARA A ANGUAGO A ANG	Sampi	е Ассерсан	—	Work order:	P0901761	····		
-		2Q09 / G486090	** 0		D.4 1	05/26/00	1	) 477 A 3	4OD 4	
• `	s) received on:		T1	G G	Date opened:		·	MZAN		c
		samples received by CAS  Thermal preservation and							marcano	n 01
compilance	or noncomorning.	Thermal preservation and	pir will omy oc	evaruacea erene	at the request of t	are enemiality of as is	equired by the meth	Yes	<u>No</u>	<u>N/A</u>
1	Were sample	containers properly n	narked with cl	ient sample	ID?			$\times$		
2	Container(s) s	upplied by CAS?						$\times$		
3	Did sample co	ontainers arrive in go	od condition?					$\boxtimes$		
4	Was a chain-o	of-custody provided?						$\boxtimes$		
5	Was the chain	-of-custody properly	completed?					$\times$		
6	Did sample co	ontainer labels and/or	r tags agree wi	th custody p	apers?			$\times$		
7	Was sample v	olume received adequ	ate for analys	is?				$\times$		
8	Are samples w	vithin specified holdin	g times?					X		
9	Was proper te	mperature (thermal p	preservation) o	of cooler at r	eceipt adhered	to?		$\times$		
	C	ooler Temperature		°C Blank	Temperature	3	_°C			
10	Was a trip bla	nk received?							$\times$	
	Trip blank st	upplied by CAS:					_			
11	Were custody	seals on outside of co	ooler/Box?						X	
	Location of	seal(s)?					_ Sealing Lid?			X
	Were signatu	are and date included?	?			•				X
	Were seals in	ntact?								X
	Were custody	seals on outside of sa	mple containe	r?					$\times$	
	Location of	seal(s)?					_ Sealing Lid?			$\times$
	Were signatu	are and date included:	?							$\times$
	Were seals in	ntact?								$\times$
12	Do containers	have appropriate pre	servation, acc	ording to m	ethod/SOP or C	Client specified in	nformation?	$\times$		
	Is there a clien	nt indication that the s	submitted samp	ples are <b>pH</b>	preserved?					$\times$
	Were <b>VOA</b> v	ials checked for prese	nce/absence o	f air bubbles	?					$\overline{\times}$
	Does the clier	nt/method/SOP require	e that the analy	st check the	sample pH an	d if necessary a	lter it?			X
13	<b>Tubes:</b>	Are the tubes cap	ped and intact	?						X
		Do they contain n	noisture?							X
14	Badges:	Are the badges p	roperly capped	1 and intact?						$\times$
		Are dual bed badg	ges separated a	nd individu	ally capped and	l intact?				$\boxtimes$
Lab S	Sample ID	Container	Required	Received	Adjusted	VOA Headspac	e Receip	t / Pres	ervation	i
	•	Description	р <b>Н</b> *	pН	pН	(Presence/Absence		Commer		
P0901761	-001.01	125mL Plastic NP								
P0901761	-002.01	125mL Plastic NP								
									· · · · ·	
Explain a	ny discrepancies	: (include lab sample ID	numbers):						•	
	- *									

### **DIVIDER SHEET**

### ANALYTICAL DATA FOR

**Hexavalent Chromium** 

**ANALYSIS** 

### COLUMBIA ANALYTICAL SERVICES, INC.

### Analytical Report

Client: Battelle

Project Name: JPL GW Mon 2Q09

**Project Number:** G486090 **Sample Matrix:** WATER

Service Request: P0901761

Date Collected: 05/26/09

Date Received: 05/26/09

Chromium, Hexavalent

Prep Method: None Units: mg/L (ppm)

Analysis Method: 7196A Basis: NA

Γest Notes:

				Dilution	Date	Date/Time		Result
Sample Name	Lab Code	PQL	MDL	Factor	Extracted	Analyzed	Result	Notes
MW-5	P0901761-001	0.010	0.003	1	NA	05/26/09 13:20	ND	
MW-6	P0901761-002	0.010	0.003	1	NA	05/26/09 13:20	ND	
Method Blank	P0901761-MB	0.010	0.003	1	NA	05/26/09 13:20	ND	

Approved By Kuth Date: 05/06/09



### CAS SR #P0901734

### **Table of Contents**

Cover Letter	1
Case Narrative	2
Sample Cross-Reference	3
Acronym List	
Chain of Custody	5
Internal Chain of Custody	6
Sample Acceptance Check Form	7
Hexavalent Chromium Analytical Data	
Hexavalent Chromium Raw Data	14-2



### LABORATORY REPORT

May 26, 2009

David Conner Battelle 3990 Old Town Ave., Suite C-205 San Diego, CA 92110

RE: JPL GW Mon 2Q09 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 21, 2009. For your reference, these analyses have been assigned our service request number P0901734.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-08-TX. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.

me Culish

Sue Anderson Project Manager

> Page 1 of <u>25</u>



Client:

Battelle

CAS Project No:

P0901734

Project:

JPL GW Mon 2Q09 / G486090

### **CASE NARRATIVE**

The samples were received intact under chain of custody on May 21, 2009 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle Service Request: P0901734

**Project:** JPL GW Mon 2Q09/G486090

### SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	<u>DATE</u>	<u>TIME</u>
P0901734-001	MW-10	5/21/09	07:38
P0901734-002	MW-15	5/21/09	08:58

### Columbia Analytical Services, Inc.

### **Acronyms**

CA LUFT California DHS LUFT Method

ASTM American Society for Testing and Materials
BTEX Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number Chemical Abstract Service Registry Number

CFC Chlorofluorocarbon

CRDL Contract Required Detection Limit
DLCS Duplicate Laboratory Control Sample

DMS Duplicate Matrix Spike

DOH or DHS Department of Health Services

**EPA** U.S. Environmental Protection Agency

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

ICIon ChromatographyICBInitial Calibration BlankICVInitial Calibration VerificationLCSLaboratory Control SampleLUFTLeaking Underground Fuel Tank

M Modified Method

MDL Method Detection Limit

MRL Method Reporting Limit

MS Matrix Spike

MTBE Methyl tert - Butyl Ether

NA Not Applicable NC Not Calculated

ND None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)

NTU Nephelometric Turbidity Units

ppb Parts Per Billionppm Parts Per Million

PQL Practical Quantitation Limit
QA/QC Quality Assurance/Quality Control
RCRA Resource Conservation and Recovery Act

RPD Relative Percent Difference SIM Selected Ion Monitoring

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995.
 SW Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846,

Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.

TDS Total Dissolved Solids

TPH Total Petroleum Hydrocarbons
TSS Total Suspended Solids

TTLC Total Threshold Limit Concentration

VOA Volatile Organic Analyte(s)
VOC Volatile Organic Compound(s)

### Qualifiers

U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

J The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.

B Analyte detected in the method blank above MRL (PQL).

E Estimated; result based on response which exceeded the instrument calibration range.

N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.

**D** The reported result is from a dilution.

X See case narrative.

# Water & Soil - Chain of Custody Record & Analytical Service Request

ō

Page 1

Columbia Analytical

2655 Park Center Drive, Suite A Simi Valley, California 93065 Phone (805) 526-7161 Fax (805) 526-7270

An Employee - Owned Company

JUN PHENT BLANK Zn Acetate **Asc Acid** Project Requirements (MRLs, QAPP) H2S04 Preservative Key HN03 NaOH Other None 되 Remarks 4 6 5 CAS Project No. က 4 CAS Contact Time: / 0 EDD required Yes / No Type: Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard Analysis Method and/or Analytes Preservative Code 0 02-18 QL / J required Yes / No 0 X MML required Yes / No MDL APQL / J required 8270C □ (Subcontracted) SM\OB anics GC\MS LbH EC □ 8012M (Subconfracted) TPH Diesel Low Level 8015B [ (Subcontracted) TPH Diesel 8015B [ Subcontracted) TPH Gas 8015B ☐ BTEX 8021B ☐ M Volatile Organics GC/MS 624 □ 8260B □ Oxygenates □ TPH Gas □ ATTN: LERALD TOMPKINS 505 KING AUE 200 Number of Containers Tier III - (Data Validation Package) 10% **S**urch**a**rge P.O. #/ Billing Information E H Project Number COLUMBUS, OH 12031 Matrix 0609825 Project Name Sampler (Print & Sign) Tier V - (client specified) Date Time Collected 12 738 S 8 3990 OLD TOWN AVE, C-205 Company Name & Address (Reporting Information) 7 Laboratory ID Number SAN DIEGO, CA 92110 Email Address for Result Reporting Tier 1 - (Results/Default if not specified) Fax DAVID CONNER Report Tier Levels - please select 1182-778-7311 Fier II - (Results + QC) Project Manager Client Sample ID 11-10 NW-Phone

Cooler(/ Blank / Ice / No Ice

**Temperature** 

Received by: (Signature)

Relinquished by: (Signature)

### Columbia Analytical Services, Inc. Chain of Custody Report

Client: Project:

Battelle

JPL GW Mon 2Q09/G486090

Service Request: P0901734

<b>Bottle ID</b>	Tests	Date	Time	Sample Location / User	Disposed On
P0901734-001.01					
	7196A				
		5/21/09	1203	SMO / MZAMORA	
		5/21/09	1203	P-37 / MZAMORA	
		5/21/09	1207	In Lab / SANDERSON	
		5/21/09	1525	P-37 / SANDERSON	
P0901734-002.01					
	7196A				
		5/21/09	1203	SMO / MZAMORA	
		5/21/09	1203	P-37 / MZAMORA	
		5/21/09	1207	In Lab / SANDERSON	
		5/21/09	1525	P-37 / SANDERSON	

### Columbia Analytical Services, Inc. Sample Acceptance Check Form

	Battelle				•	Work order:	P0901734			
-		2Q09 / G486090			D-41	05/21/00	<del> </del>	16711	(OD 4	
Sample(s) received on: 05/21/09 by: MZAMORA										
<u>Note:</u> This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.										
compnance	or noncomorning.	Thermal preservation and	pir will only be	evaluated ettlet a	i me request or u	ne chem and/or as re	equired by the meth	Yes	<u>No</u>	<u>N/A</u>
1	Were sample	containers properly i	narked with cl	ient sample ID	?			$\times$		
2	Container(s) s	supplied by CAS?						$\boxtimes$		
3	Did sample co	ontainers arrive in go	od condition?					$\times$		
4	Was a chain-	of-custody provided?						$\times$		
5	Was the chair	ı-of-custody properly	completed?					X		
6	Did sample co	ontainer labels and/o	r tags agree wi	th custody par	ers?			$\times$		
7	Was sample v	olume received adequ	ate for analys	is?				$\times$		
8	Are samples v	vithin specified holding	g times?					$\boxtimes$		
9	Was proper te	mperature (thermal)	preservation) o	of cooler at rec	eipt adhered t	to?		X		
	C	ooler Temperature		°C Blank	Temperature	3	_°C			
10	Was a trip bla	ank received?							$\times$	
	Trip blank s	upplied by CAS:					<del></del>			
11	Were custody	seals on outside of co	ooler/Box?						$\boxtimes$	
	Location of	* *					_Sealing Lid?			X
	_	ure and date included	?							X
	Were seals i									X
		seals on outside of sa	mple containe	r?					×	
	Location of	` '					_Sealing Lid?			$\boxtimes$
	Were signature and date included?								$\boxtimes$	
	Were seals intact?  Do containers have appropriate <b>preservation</b> , according to method/SOP or Client specified information?									$\boxtimes$
12			•	_		thent specified in	iformation?	<u>×</u>		
		nt indication that the s	-		reserved?					X
		ials checked for prese								$\boxtimes$
		nt/method/SOP requir	•		ample pH and	d if necessary al	ter it?			$\overline{\times}$
13	Tubes:	Are the tubes cap		?						$\boxtimes$
		Do they contain n								$\boxtimes$
14	Badges:	Are the badges p	1 , 11							X
		Are dual bed badg	ges separated a	nd individuall	y capped and	intact?				X
Lab S	Sample ID	Container	Required	Received	Adjusted	VOA Headspace	Receip	t / Pres	ervatior	
		Description	р <b>Н</b> *	pН	рН	(Presence/Absence)	(	Commer	its	
P0901734		125mL Plastic NP								
P0901734	-002.01	125mL Plastic NP								
								•		
Explain ar	ny discrepancies	: (include lab sample ID	numbers):							

### **DIVIDER SHEET**

### ANALYTICAL DATA FOR

**Hexavalent Chromium** 

**ANALYSIS** 

### COLUMBIA ANALYTICAL SERVICES, INC.

### Analytical Report

Client: Project Name: Battelle

JPL GW Mon 2Q09

**Project Number:** G486090

Sample Matrix:

WATER

Service Request: P0901734

**Date Collected:** 05/21/09 Date Received: 05/21/09

Chromium, Hexavalent

Prep Method:

None

Analysis Method: 7196A

Test Notes:

Units: mg/L (ppm)

Basis: NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-10	P0901734-001	0.010	0.003	1	NA	05/21/09 15:00	ND	
MW-15	P0901734-002	0.010	0.003	1	NA	05/21/09 15:00	ND	
Method Blank	P0901734-MB	0.010	0.003	1	NA	05/21/09 15:00	ND	

Date: oslavlos Approved By KLUH



### CAS SR #P0901719

### **Table of Contents**

Cover Letter	
Case Narrative.	2
Sample Cross-Reference	
Acronym List	4
Chain of Custody	5
Internal Chain of Custody	6
Sample Acceptance Check Form	7
1,4-Dioxane Analytical Data	
1,4-Dioxane Raw Data	14-59
Hexavalent Chromium Analytical Data	
Hexavalent Chromium Raw Data	66-76
CAS - Kelso Data Package	



### LABORATORY REPORT

June 10, 2009

David Conner Battelle 3990 Old Town Ave., Suite C-205 San Diego, CA 92110

RE: JPL GW Mon 2009 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 20, 2009. One of the samples was sent out for partial analysis to our Kelso facility. Please find their report attached. For your reference, these analyses have been assigned our service request number P0901719.

All analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 176 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No. 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-08-TX. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.

Sue Anderson Project Manager

Page 1 of <u>175</u>



Client: Project:

Battelle

JPL GW Mon 2Q09 / G486090

CAS Project No:

P0901719

### CASE NARRATIVE

The samples were received intact under chain of custody on May 20, 2009 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

### 1,4-Dioxane by EPA Method 8270C SIM Modified

No anomalies were encountered during this analysis.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client:

Battelle

Project:

JPL GW Mon 2Q09/G486090

Service Request: P0901719

### SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	<u>DATE</u>	<u>TIME</u>
P0901719-001	MW-13	5/20/09	08:33
P0901719-002	MW-8	5/20/09	10:33

### Columbia Analytical Services, Inc.

### Acronyms

CA LUFT California DHS LUFT Method

ASTM American Society for Testing and Materials BTEX Benzene/Toluene/Ethylbenzene/Xylenes CAS Number Chemical Abstract Service Registry Number

CFC Chlorofluorocarbon

**CRDL** Contract Required Detection Limit **DLCS** Duplicate Laboratory Control Sample

DMS Duplicate Matrix Spike DOH or DHS Department of Health Services **EPA** U.S. Environmental Protection Agency

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

IC Ion Chromatography **ICB** Initial Calibration Blank **ICV** Initial Calibration Verification LCS Laboratory Control Sample LUFT Leaking Underground Fuel Tank

Modified Method M MDL Method Detection Limit MRL Method Reporting Limit

Matrix Spike MS

MTBE Methyl tert -Butyl Ether

NA Not Applicable NC Not Calculated

ND None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)

NTU Nephelometric Turbidity Units

Parts Per Billion ppb ppm Parts Per Million

Practical Quantitation Limit **PQL** QA/QC Quality Assurance/Quality Control **RCRA** Resource Conservation and Recovery Act

RPD Relative Percent Difference SIM Selected Ion Monitoring

SM Standard Methods for the Examination of Water and Wastewater, 19th Ed., 1995. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, SW

Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.

TDS Total Dissolved Solids TPH Total Petroleum Hydrocarbons TSS Total Suspended Solids

TTLC Total Threshold Limit Concentration VOA Volatile Organic Analyte(s) VOC

Volatile Organic Compound(s)

### Qualifiers

U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

J The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.

В Analyte detected in the method blank above MRL (PQL).

E Estimated; result based on response which exceeded the instrument calibration range.

N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.

D The reported result is from a dilution.

X See case narrative.