

COVER LETTER

Tuesday, April 06, 2010

Rick Beauheim
Sandia National Lab
4100 National Parks Hwy.
MS1395
Carlsbad, NM 88220

TEL: (505) 234-0006
FAX (505) 234-0061

RE: WIPP/WIPP-18 (M)

Order No.: 1003482

Dear Rick Beauheim:

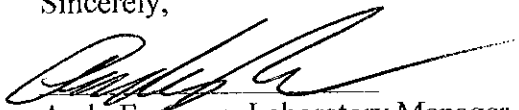
Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 3/19/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,


Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX



Hall Environmental Analysis Laboratory, Inc.

Date: 06-Apr-10

CLIENT: Sandia National Lab
Lab Order: 1003482
Project: WIPP/WIPP-18 (M)
Lab ID: 1003482-01

Client Sample ID: WIPP-18 (M)_031810
Collection Date: 3/18/2010 1:22:00 PM
Date Received: 3/19/2010
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: MMS
Fluoride	1.8	0.50		mg/L	5	4/2/2010 7:20:05 PM
Chloride	2400	100		mg/L	200	4/2/2010 7:54:54 PM
Bromide	2.4	0.10		mg/L	1	3/19/2010 5:04:40 PM
Nitrate (As N)+Nitrite (As N)	ND	10		mg/L	50	4/2/2010 7:37:29 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	3/19/2010 5:04:40 PM
Sulfate	3600	100		mg/L	200	4/2/2010 7:54:54 PM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: SNV
Calcium	550	20		mg/L	20	3/25/2010 3:18:07 PM
Magnesium	210	20		mg/L	20	3/25/2010 3:18:07 PM
Potassium	ND	20		mg/L	20	3/25/2010 3:18:07 PM
Sodium	2000	50		mg/L	50	3/25/2010 12:44:36 PM
Strontium	10	0.30		mg/L	50	3/25/2010 12:44:36 PM
SM 2320B: ALKALINITY						Analyst: NSB
Alkalinity, Total (As CaCO3)	23	20		mg/L CaCO3	1	3/19/2010 4:50:00 PM
Carbonate	ND	2.0		mg/L CaCO3	1	3/19/2010 4:50:00 PM
Bicarbonate	23	20		mg/L CaCO3	1	3/19/2010 4:50:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: NSB
Specific Conductance	9200	0.010		µmhos/cm	1	3/19/2010 4:50:00 PM
SM4500-H+B: PH						Analyst: NSB
pH	7.15	0.1		pH units	1	3/19/2010 4:50:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	8670	20.0		mg/L	1	3/26/2010 10:21:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

CATION/ANION BALANCE SHEET FOR WATER ANALYSES

HEAL LAB NUMBER	WIPP-18 (M)_031810 1003482-1									
CATIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sodium	2000	86.99								
Potassium	ND	*								
Calcium	550	27.45								
Magnesium	210	17.28								
Total Cations		131.72								
ANIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sulfate	3600	74.95								
Chloride	2400	67.70								
Bicarbonate (CaCO3)	23	0.46								
Carbonate (CaCO3)	ND	*								
Phosphate (P)	ND	*								
Nitrite (N)	ND	*								
Nitrate (N)	ND	*								
Fluoride	1.8	0.09								
Bromide	2.4	0.03								
Total Anions		143.24								
Elect. Cond. (µMhos/cm)	9200									
CATION/ANION RATIO		0.92								
% Difference		4								
TOTAL DISSOLVED SOLIDS RATIOS										
TDS (measured)	8670									
TDS (calculated)	8778									
Ratio meas TDS:calc TDS		1.0								
Ratio Meas. TDS:EC		0.94								
Ratio Calc. TDS:EC		0.95								
Ratio of anion sum:EC		1.6								
Ratio of cation sum:EC		1.4								

* Analyte not detected (below method detection limit).

** Values below 0.55 can be obtained in waters containing appreciable concentrations of free acid or alkalinity, or not within pH 6 to 9. Values much higher than 0.7 are possible in highly saline waters.

GENERALLY ACCEPTED RANGES

Cation/Anion balance: 0-3 meq/L- 0.2 meq/L, 3-10 meq/L- 2%, >10 meq/L - 5%

Ratio measured TDS:calculated TDS -- 1.0-1.2. Ratio Calculated TDS:EC -- 0.55-0.7. Ratio Measured TDS:EC--0.55-0.7. Ratio of anion sum:EC -- 0.9-1.1.

Ratio of cation sum:EC -- 0.9-1.1

QA/QC SUMMARY REPORT

Client: Sandia National Lab
 Project: WIPP/WIPP-18 (M)

Work Order: 1003482

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SM 2320B: Alkalinity											
Sample ID: MB		<i>MBLK</i>			Batch ID: R37847		Analysis Date: 3/19/2010 1:56:00 PM				
Alkalinity, Total (As CaCO3)	ND	mg/L Ca	20								
Carbonate	ND	mg/L Ca	2.0								
Bicarbonate	ND	mg/L Ca	20								
Sample ID: 80PPM LCS		<i>LCS</i>			Batch ID: R37847		Analysis Date: 3/19/2010 2:02:00 PM				
Alkalinity, Total (As CaCO3)	78.64	mg/L Ca	20	80	0	98.3	92.5	110			
Method: EPA Method 6010B: Dissolved Metals											
Sample ID: MB		<i>MBLK</i>			Batch ID: R37917		Analysis Date: 3/25/2010 11:04:25 AM				
Calcium	ND	mg/L	1.0								
Magnesium	ND	mg/L	1.0								
Potassium	ND	mg/L	1.0								
Sodium	ND	mg/L	1.0								
Strontium	ND	mg/L	0.0060								
Sample ID: LCS		<i>LCS</i>			Batch ID: R37917		Analysis Date: 3/25/2010 11:07:14 AM				
Calcium	50.93	mg/L	1.0	50.5	0	101	80	120			
Magnesium	51.33	mg/L	1.0	50.5	0	102	80	120			
Potassium	54.12	mg/L	1.0	55	0	98.4	80	120			
Sodium	50.41	mg/L	1.0	50.5	0	99.8	80	120			
Strontium	0.09158	mg/L	0.0060	0.1	0	91.6	80	120			
Method: SM2540C MOD: Total Dissolved Solids											
Sample ID: MB-21748		<i>MBLK</i>			Batch ID: 21748		Analysis Date: 3/26/2010 10:21:00 AM				
Total Dissolved Solids	ND	mg/L	20.0								
Sample ID: LCS-21748		<i>LCS</i>			Batch ID: 21748		Analysis Date: 3/26/2010 10:21:00 AM				
Total Dissolved Solids	1022	mg/L	20.0	1000	0	102	80	120			

Qualifiers:

- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SANDIA CARLSBAD

Date Received:

3/19/2010

Work Order Number 1003482

Received by:

TLS

Checklist completed by:

Signature



3/19/10
Date

Sample ID labels checked by:

AT
Initials

Matrix:

Carrier name FedEx

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present Not Shipped
- Custody seals intact on sample bottles? Yes No N/A
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Water - VOA vials have zero headspace? No VOA vials submitted Yes No
- Water - Preservation labels on bottle and cap match? Yes No N/A
- Water - pH acceptable upon receipt? Yes No N/A

Number of preserved bottles checked for pH:

2
<2 > 12 unless noted below.

Container/Temp Blank temperature?

1.0°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: Sandia National Laboratories

Mailing Address: 4100 National Parks Highway
Carlsbad, NM 88220

Phone #: (575) 234-0107

email or Fax#: (575) 234-0061

QA/QC Package:

Standard Level 4 (Full Validation)

Other _____

EDD (Type) _____

Turn-Around Time:

Standard Rush

Project Name:

WIPP / WIPP-18 (M)

Project #:

98806 / 1.4.2.3

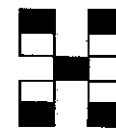
Project Manager:

Rick Beauheim /
Mike Schuen

Sampler: Wes DeYonge, Raul Rascon

On Ice: Yes No

Sample Temperature:



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Cation / Anion Balance	pH, Cond, TDS, Alkalinity	NO ₂ + NO ₃	Metals / Strontium	Air Bubbles (Y or N)	
3/18/10	13:22	H ₂ O	WIPP-18(M)_031810	#1: 500 mL	NONE	1003482	-											X	X				
3/18/10	13:22	H ₂ O	WIPP-18(M)_031810	#2: 125 mL	H ₂ SO ₄		-														X		
3/18/10	13:22	H ₂ O	WIPP-18(M)_031810	#3: 125 mL	HNO ₃		-															X	
			END OF SAMPLE LIST																				

Date: 3/18/10 Time: 3:40 PM Relinquished by: Wesley F. DeYonge
 Received by: [Signature] Date: 3/19/10 Time: 9:00
 Relinquished by: _____ Received by: _____ Date: _____ Time: _____

Remarks:
 Container #3 was filtered.
 Samples may contain high levels of salts.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

