



SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry Information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form.) Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b.)

Remediation Number 5093

Received  
11/18/2011  
Rifle COGCC

1. OGCC Operator Number: 10071  
2. Name of Operator: Bill Barrett Corporation (BBC)  
3. Address: 1099 18th Street, Suite 2300  
City: Denver State: CO Zip: 80202  
4. Contact Name: Scott Ghan  
Phone: 970-876-1959  
Fax: 970-876-0981  
5. API Number 05- 045-17690 OGCC Facility ID Number 417356  
6. Well/Facility Name BBC 12A-24-692/Upper BBC Pit 7. Well/Facility Number 12A-24-692/417356  
8. Location (QtrQtr, Sec, Twp, Rng, Meridian): SENE, Sec 23, T6S, R92W, 6th PM  
9. County: Garfield 10. Field Name: Mamm Creek  
11. Federal, Indian or State Lease Number: NA

Complete the Attachment Checklist

OP OGCC

Survey Plat		
Directional Survey		
Surface Eqpm Diagram		
Technical Info Page		
Other		

General Notice

☐ CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit)

Change of Surface Footage from Exterior Section Lines:

Change of Surface Footage to Exterior Section Lines:

Change of Bottomhole Footage from Exterior Section Lines:

Change of Bottomhole Footage to Exterior Section Lines:

FNL/FSL

FEL/FWL

attach directional survey

Bottomhole location Qtr/Qtr, Sec, Twp, Rng, Mer

Latitude

Longitude

Ground Elevation

Distance to nearest property line

Distance to nearest bldg, public rd, utility or RR

Distance to nearest lease line

Is location in a High Density Area (rule 603b)?

Distance to nearest well same formation

Surface owner consultation date:

Yes/No

GPS DATA:

Date of Measurement PDOP Reading Instrument Operator's Name

☐ CHANGE SPACING UNIT

Formation

Formation Code

Spacing order number

Unit Acreage

Unit configuration

☐ Remove from surface bond

Signed surface use agreement attached

☐ CHANGE OF OPERATOR (prior to drilling):

Effective Date:

Plugging Bond:

Blanket

Individual

☐ CHANGE WELL NAME

NUMBER

From:

To:

Effective Date:

☐ ABANDONED LOCATION:

Was location ever built?

Yes

No

Is site ready for Inspection?

Yes

No

Date Ready for Inspection:

☐ NOTICE OF CONTINUED SHUT IN STATUS

Date well shut in or temporarily abandoned:

Has Production Equipment been removed from site?

Yes

No

MIT required if shut in longer than two years. Date of last MIT

☐ SPUD DATE:

☐ REQUEST FOR CONFIDENTIAL STATUS (6 mos from date casing set)

☐ SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK

\*submit cbl and cement job summaries

Method used

Cementing tool setting/perf depth

Cement volume

Cement top

Cement bottom

Date

☐ RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004.

Final reclamation will commence on approximately

Final reclamation is completed and site is ready for inspection.

Technical Engineering/Environmental Notice

☐ Notice of Intent

Approximate Start Date:

Report of Work Done

Date Work Completed:

12/2/2010

Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)

☐ Intent to Recomplete (submit form 2)

☐ Change Drilling Plans

☐ Gross Interval Changed?

☐ Casing/Cementing Program Change

☐ Request to Vent or Flare

☐ Repair Well

☐ Rule 502 variance requested

☐ Other:

☐ E&P Waste Disposal

☐ Beneficial Reuse of E&P Waste

☒ Status Update/Change of Remediation Plans

for Spills and Releases

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Scott Ghan Date: 11/16/2011 Email: SGhan@billbarrettcorp.com  
Print Name: Scott Ghan Title: EH&S Coordinator

COGCC Approved: Title Date: 3/7/2012

CONDITIONS OF APPROVAL, IF ANY:

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number:	10071	API Number:	15-045-17690
2. Name of Operator:	Bill Barrett Corporation (BBC)	OGCC Facility ID #	417356
3. Well/Facility Name:	BBC 12A-24-692/Upper BBC Pit	Well/Facility Number:	12A-24-692/417356
4. Location (QtrQtr, Sec, Twp, Rng, Meridian):	SENE, Sec 23, T6S, R92W, 6th PM		

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5. DESCRIBE PROPOSED OR COMPLETED OPERATIONS

Please see attached report (remediation number 5093).



November 18, 2011

Ms. Linda Spry O'Rourke  
Colorado Oil & Gas Conservation Commission  
707 Wapiti Court  
Suite 204  
Rifle, CO 81650

**RE: Bill Barrett Corporation – BBC Pad Groundwater Sampling  
Upper BBC Pit (Facility Number 417356)  
Tharp Water Well Investigation (Remediation Number 5093)  
Garfield County, Colorado**

Dear Ms. O'Rourke,

On April 28<sup>th</sup>, 2010, a seep was identified on the down gradient side of Bill Barrett Corporation's (BBC's) Upper BBC Pit Facility. Olsson Associates (Olsson) was contracted by BBC to conduct groundwater sampling following the Notice of Alleged Violation (NOAV) issued for this incident. The following report presents the results of all sampling conducted for the Ralph Tharp water well.

## **SAMPLING ACTIVITIES**

Olsson personnel identified six (6) water wells within a one half mile radius down gradient of the site. The water well, which is the subject of this report, is identified by the property owner Tharp. Its location is shown in **Figure 1**. Information regarding the other five (5) water wells is included in the Form 4 submitted to the COGCC on May 27<sup>th</sup>, 2011.

The Tharp water well was sampled on five different occasions, which are detailed below. The water well is not currently active and was thoroughly purged before each sample was collected, in order to obtain a sample representative of formation water.

Olsson personnel collected a baseline sample from the Tharp water well on January 13<sup>th</sup>, 2010. This sampling was conducted prior to commencement of any activity related to the BBC natural gas pad located on the Tharp property (please refer to **Figure 1**).

The water well was next sampled on September 8<sup>th</sup>, 2010 following the issuance of the NOAV. The well was then subsequently sampled on October 19<sup>th</sup>, 2010, November 11<sup>th</sup>, 2010, and December 2<sup>nd</sup>, 2010 to monitor benzene levels, originally identified in the sample collected on

September 8<sup>th</sup>, 2010. All detectable benzene in the water samples are within acceptable limits according to the COGCC's Table 910-1.

To ensure the benzene detected in the sample collected on September 8<sup>th</sup>, 2010 was not a result of environmental contaminants, Olsson personnel made several quality assurance efforts in additional follow-up sampling. Field blanks were collected on October 19<sup>th</sup> and November 11<sup>th</sup>, 2010. Equipment blanks were collected on November 11<sup>th</sup> and December 2<sup>nd</sup>, 2010. Additionally, a rinse water blank and trip blank were collected on November 11<sup>th</sup>, 2010. The results from the analysis of all blanks, as well as their descriptions, are contained in **Table 2**.

An uncompleted borehole located on the Tharp property (please refer to **Figure 1**) was also sampled. This borehole is not associated with an active water well, and was sampled by Olsson personnel using a bailer. The results from the analysis of this sample are contained in **Table 2**.

## LABORATORY ANALYSIS

The baseline water sample collected on January 13<sup>th</sup>, 2010 was analyzed for benzene, toluene, ethylbenzene and xylene (BTEX), methyl tert-butyl ether (MTBE), dissolved methane, total dissolved solids, pH, specific conductance, dissolved metals, and anions.

The sample collected on September 8<sup>th</sup> was analyzed for those analytes detailed in the NOAV which include: anions, dissolved metals, fluoride, alkalinity series, volatile organics (full 8260 list), semi-volatile organics (full 8270 list), gasoline and diesel range organics, chlorite and chlorate by E300.0, total dissolved solids, specific conductance, and pH.

All subsequent samples collected from the Tharp well were analyzed for BTEX by 8260, with the sample collected on November 11<sup>th</sup> additionally being analyzed for methane. The sample collected from the inactive borehole was also analyzed for MTBE and dissolved methane. All blank samples were analyzed for BTEX. Field data for all samples was collected using a Hydrolab Quanta water quality meter.

The baseline sample was shipped via overnight delivery to Environmental Science Corp. of Mt. Juliet, Tennessee following strict chain-of-custody protocol. All other samples were shipped via overnight delivery to Accutest Laboratories of Wheat Ridge, Colorado following strict chain-of-custody protocol. All samples arrived in good condition and within the appropriate temperature range and holding time. The full analytical reports for each sample collected are attached and the data is summarized in **Table 1**.

If you have any questions or concerns regarding this Sundry Notice, please do not hesitate to contact me at (970) 263-7800.

Sincerely,  
**Olsson Associates**



Ken Kreie  
Environmental Scientist

## Attachments

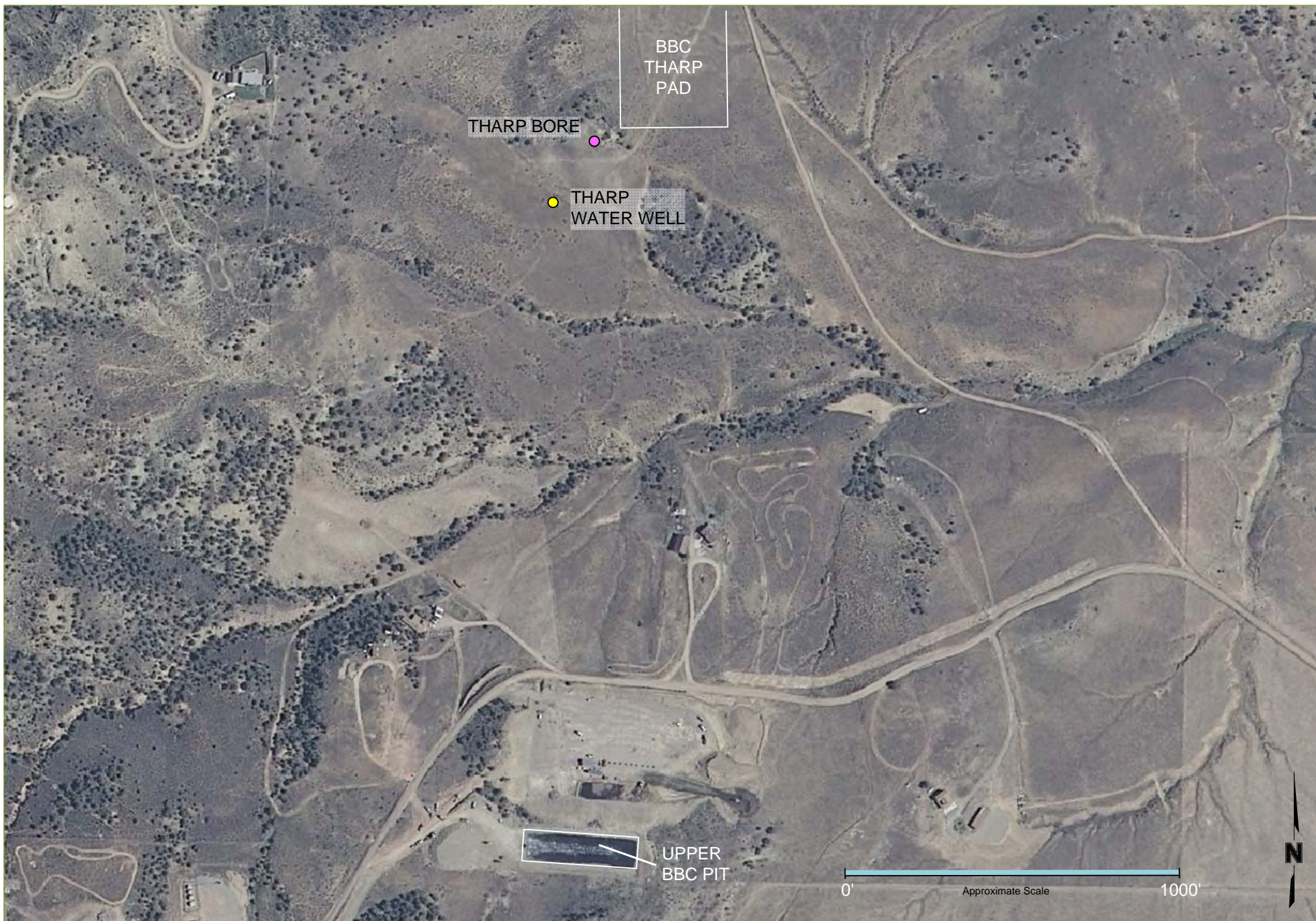
Figure 1

Table 1

Table 2

Analytical Reports (5)





PROJECT NO: 010-0974  
 DRAWN BY: JLS  
 DATE: 6/6/2011

BBC UPPER PIT THARP WATER WELL INVESTIGATION  
 Bill Barrett Corporation  
 Sections 23 & 24, Township 6S, Range 92W  
 Garfield County, CO

**OLSSON**  
 ASSOCIATES

826 21½ Road  
 Grand Junction, CO 81505  
 TEL 970.263.7800  
 FAX 970.263.7456

Figure

1

**TABLE 1**  
 Tharp Water Well Sampling Data  
 Bill Barrett Corporation

Parameter	Sample Date	1/13/2010	9/8/2010*	10/19/2010	11/11/2010	12/2/2010	COGCC ALLOWABLE LIMITS	Units
	Location	Tharp Well	Tharp Well	Tharp Well	Tharp Well	Tharp Well		
	Sample Type	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
<b>Organics (+BTEX)</b>	Benzene	ND	0.80	2.2	1.3	1.9	5	µg/L
	Toluene	ND	ND	ND	ND	234	560 - 1,000	µg/L
	Ethylbenzene	ND	ND	ND	ND	ND	700	µg/L
	Xylene (total)	ND	ND	ND	ND	ND	1,400 - 10,000	µg/L
	MTBE	ND	NR	NR	ND	ND	NA	µg/L
	Methane	ND	NR	NR	0.0293	ND	NA	mg/L
	TPH-DRO (C10-C28)	NR	ND	NR	NR	NR	BDL	mg/L
	TPH-GRO (C6-C10)	NR	ND	NR	NR	NR	BDL	mg/L
<b>WQ</b>	pH - Field	7.96	7.20	7.07	8.19	8.56	NA	su
	Solids, Total Dissolved	2000	2420	NR	NR	NR	1.25 x background	mg/L
	Specific Conductivity	2900	3080	NR	NR	NR	NA	µmhos/cm
	Alkalinity, Total as CaCO3	NR	394	NR	NR	NR	NA	mg/L
	Alkalinity, Carbonate	NR	ND	NR	NR	NR	NA	mg/L
	Alkalinity, Bicarbonate as CaCO3	NR	394	NR	NR	NR	NA	mg/L
	Hydroxide Alkalinity	NR	ND	NR	NR	NR	NA	mg/L
<b>Anions</b>	Bromide	1.0	ND	NR	NR	NR	NA	mg/L
	Chlorite	NR	ND	NR	NR	NR	NA	mg/L
	Chlorate	NR	ND	NR	NR	NR	NA	mg/L
	Chloride	120	70.2	NR	NR	NR	NA	mg/L
	Fluoride	0.72	1.1	NR	NR	NR	NA	mg/L
	Nitrogen, Nitrite (a)	ND	ND	NR	NR	NR	NA	mg/L
	Nitrogen, Nitrate	0.99	ND	NR	NR	NR	NA	mg/L
	Phosphate, Ortho (a)	NR	ND	NR	NR	NR	NA	mg/L
<b>Metals</b>	Sulfate	720	1300	NR	NR	NR	NA	mg/L
	Antimony	NR	ND	NR	NR	NR	NA	mg/L
	Arsenic	NR	ND	NR	NR	NR	NA	mg/L
	Barium	NR	0.0168	NR	NR	NR	NA	mg/L
	Beryllium	NR	ND	NR	NR	NR	NA	mg/L
	Boron	NR	0.171	NR	NR	NR	NA	mg/L
	Cadmium	NR	ND	NR	NR	NR	NA	mg/L
	Calcium	44	35.7	NR	NR	NR	NA	mg/L
	Chromium	NR	ND	NR	NR	NR	NA	mg/L
	Cobalt	NR	ND	NR	NR	NR	NA	mg/L
	Copper	NR	ND	NR	NR	NR	NA	mg/L
	Iron	0.41	0.106	NR	NR	NR	NA	mg/L
	Lead	NR	ND	NR	NR	NR	NA	mg/L
	Lithium	NR	0.059	NR	NR	NR	NA	mg/L
	Magnesium	11	5.11	NR	NR	NR	NA	mg/L
	Manganese	0.14	0.0333	NR	NR	NR	NA	mg/L
	Molybdenum	NR	ND	NR	NR	NR	NA	mg/L
	Nickel	NR	ND	NR	NR	NR	NA	mg/L
	Potassium	3.8	2.45	NR	NR	NR	NA	mg/L
	Selenium	0.029	ND	NR	NR	NR	NA	mg/L
	Silicon	NR	3.360	NR	NR	NR	NA	mg/L
	Silver	NR	ND	NR	NR	NR	NA	mg/L
	Sodium	660	NR	NR	NR	NR	NA	mg/L
	Strontium	NR	1.210	NR	NR	NR	NA	mg/L
	Thallium	NR	ND	NR	NR	NR	NA	mg/L
	Uranium	NR	ND	NR	NR	NR	NA	mg/L
	Vanadium	NR	ND	NR	NR	NR	NA	mg/L
	Zinc	NR	ND	NR	NR	NR	NA	mg/L

ND - analyte not detected above the laboratory detection limit  
 NR - analysis not requested for sample  
 NT - field parameter not tested  
 NA - no applicable standard for analyte  
 BDL - liquid hydrocarbon concentrations must be below detection  
 µg/L - micrograms per liter  
 mg/L - milligrams per liter  
 µhos/cm - micromhos per centimeter  
 su - standard units

\*Note - the sample collected on 9/8/2010 was also analyzed for the full 8260 and 8270 list (volatiles and semi-volatiles). None of the analytes were detected. The results of these analyses are included in the full analytical report.

**TABLE 2**  
 Tharp Water Well Sampling Quality Assurance Data  
 Bill Barrett Corporation

Parameter	Sample Date	10/19/2010	11/11/2010				12/2/2010		COGCC ALLOWABLE LIMITS	Units
	Sample ID	BLANK	EQUIPMENT BLANK	RINSE	FIELD BLANK	TRIP BLANK	THAR2	EQUIPMENT BLANK		
	Sample Type	Field Blank	Equipment Blank	Rinse Water Blank	Field Blank	Trip Blank	Groundwater	Equipment Blank		
	Sample Description	Field blank filled with distilled water and submitted with groundwater sample.	Rinsate blank filled with tap water that had been through the pump and tubing.	Rinsate blank tap water before it was used to clean equipment.	Field blank filled with distilled water and submitted with groundwater sample.	Analyte-free water taken from the laboratory to the sampling site and returned to the laboratory unopened.	Groundwater collected from the uncompleted borehole located east of the well.	Rinsate blank filled with distilled water that was put in contact with sampling equipment (bailer and twine).		
pH - Field		NT	NT	NT	NT	NT	7.66	NT	NA	su
Organics	Benzene	ND	ND	ND	ND	ND	ND	ND	5	µg/L
	Toluene	ND	ND	ND	ND	ND	ND	ND	560 - 1,000	µg/L
	Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	700	µg/L
	Xylene (total)	ND	ND	ND	ND	ND	ND	ND	1,400 - 10,000	µg/L
	MTBE	NT	NT	NT	NT	NT	ND	NT	NA	µg/L
	Methane	NT	NT	NT	NT	NT	ND	NT	NA	µg/L

ND - analyte not detected above the laboratory detection limit

NT - field parameter not tested

µg/L - micrograms per liter





12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Ken Kreie  
Cordilleran Compliance - GJ, CO  
826 21 1/2 Road

Grand Junction, CO 81505

## Report Summary

Tuesday January 19, 2010

Report Number: L440230

Samples Received: 01/14/10

Client Project: 009-2484

Description: Bill Barrett

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

John D. Blackman, ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487  
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140  
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233  
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

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Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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# REPORT OF ANALYSIS

Ken Kreie  
Cordilleran Compliance - GJ, CO  
826 21 1/2 Road  
Grand Junction, CO 81505

January 19, 2010

Date Received : January 14, 2010  
Description : Bill Barrett

Sample ID : THAR1

Collected By : Ken Kreie  
Collection Date : 01/13/10 14:00

ESC Sample # : L440230-01

Site ID :

Project # : 009-2484

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Bromide	1.0	1.0	mg/l	9056	01/14/10	1
Chloride	120	1.0	mg/l	9056	01/14/10	1
Fluoride	0.72	0.10	mg/l	9056	01/14/10	1
Nitrate	0.99	0.10	mg/l	9056	01/14/10	1
Nitrite	BDL	0.10	mg/l	9056	01/14/10	1
Sulfate	720	50.	mg/l	9056	01/16/10	10
Methane	BDL	0.010	mg/l	RSK175	01/18/10	1
pH	7.9		su	9040C	01/15/10	1
Specific Conductance	2900		umhos/cm	9050A	01/15/10	1
Dissolved Solids	2000	10.	mg/l	2540C	01/19/10	1
Calcium	44.	0.50	mg/l	6010B	01/15/10	1
Iron	0.41	0.10	mg/l	6010B	01/15/10	1
Magnesium	11.	0.10	mg/l	6010B	01/15/10	1
Manganese	0.14	0.010	mg/l	6010B	01/15/10	1
Potassium	3.8	0.50	mg/l	6010B	01/15/10	1
Selenium	0.029	0.020	mg/l	6010B	01/15/10	1
Sodium	660	0.50	mg/l	6010B	01/15/10	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 01/19/10 11:55 Printed: 01/19/10 11:55  
L440230-01 (PH) - 7.9@18.5c



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Mt. Juliet, TN 37122  
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Est. 1970

REPORT OF ANALYSIS

Ken Kreie  
Cordilleran Compliance - GJ, CO  
826 21 1/2 Road  
Grand Junction, CO 81505

January 19, 2010

Date Received : January 14, 2010  
Description : Bill Barrett

Sample ID : THAR1

Collected By : Ken Kreie  
Collection Date : 01/13/10 14:00

ESC Sample # : L440230-02

Site ID :

Project # : 009-2484

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0010	mg/l	8260B	01/14/10	1
Toluene	BDL	0.0050	mg/l	8260B	01/14/10	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	01/14/10	1
Total Xylenes	BDL	0.0030	mg/l	8260B	01/14/10	1
Methyl tert-butyl ether	BDL	0.0010	mg/l	8260B	01/14/10	1
Surrogate Recovery						
Toluene-d8	104.		% Rec.	8260B	01/14/10	1
Dibromofluoromethane	95.0		% Rec.	8260B	01/14/10	1
4-Bromofluorobenzene	101.		% Rec.	8260B	01/14/10	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/19/10 11:55 Printed: 01/19/10 11:55

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L440230-01	WG459129	SAMP	pH	R1075128	T8

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



Summary of Remarks For Samples Printed  
01/19/10 at 11:55:53

TSR Signing Reports: 151  
R5 - Desired TAT

Client sends unpreserved vials for all projects; Run BTEXM by 8260 on separate dash. DO NOT  
RUSH ALK!!!

Sample: L440230-01 Account: CORCOMGCO Received: 01/14/10 09:00 Due Date: 01/21/10 00:00 RPT Date: 01/19/10 11:55  
Total=\$313.50  
Sample: L440230-02 Account: CORCOMGCO Received: 01/14/10 09:00 Due Date: 01/21/10 00:00 RPT Date: 01/19/10 11:55



**YOUR LAB OF CHOICE**

Cordilleran Compliance - GJ, CO  
Ken Kreie  
826 21 1/2 Road  
Grand Junction, CO 81505

Quality Assurance Report  
Level II

L440230

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
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1-800-767-5859  
Fax (615) 758-5859

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Est. 1970

January 19, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Bromide	< 1	mg/l			WG459007	01/14/10 09:57
Chloride	< 1	mg/l			WG459007	01/14/10 09:57
Fluoride	< .1	mg/l			WG459007	01/14/10 09:57
Nitrate	< .1	mg/l			WG459007	01/14/10 09:57
Nitrite	< .1	mg/l			WG459007	01/14/10 09:57
pH	5.70	su			WG459129	01/15/10 12:42
Calcium	< .5	mg/l			WG459104	01/15/10 21:22
Iron	< .1	mg/l			WG459104	01/15/10 21:22
Manganese	< .01	mg/l			WG459104	01/15/10 21:22
Potassium	< .5	mg/l			WG459104	01/15/10 21:22
Selenium	< .02	mg/l			WG459104	01/15/10 21:22
Sodium	< .5	mg/l			WG459104	01/15/10 21:22
Specific Conductance	1.60	umhos/cm			WG458946	01/15/10 17:30
Benzene	< .001	mg/l			WG459135	01/14/10 23:09
Ethylbenzene	< .001	mg/l			WG459135	01/14/10 23:09
Methyl tert-butyl ether	< .001	mg/l			WG459135	01/14/10 23:09
Toluene	< .005	mg/l			WG459135	01/14/10 23:09
Total Xylenes	< .003	mg/l			WG459135	01/14/10 23:09
4-Bromofluorobenzene	% Rec.		101.3	75-128	WG459135	01/14/10 23:09
Dibromofluoromethane	% Rec.		102.9	79-125	WG459135	01/14/10 23:09
Toluene-d8	% Rec.		104.7	87-114	WG459135	01/14/10 23:09
Methane	< .01	mg/l			WG459495	01/18/10 15:20
Sulfate	< 5	mg/l			WG459287	01/16/10 09:47
Dissolved Solids	< 10	mg/l			WG459094	01/19/10 10:09

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
Nitrate	mg/l	0	0.0400		NA	20	L440203-04	WG459007
pH	su	8.30	8.30		0	1	L440136-01	WG459129
pH	su	8.20	8.20		0	1	L440329-02	WG459129
Calcium	mg/l	0	0.0798		NA	20	L440331-08	WG459104
Iron	mg/l	0	0.00830		NA	20	L440331-08	WG459104
Manganese	mg/l	0	0		0	20	L440331-08	WG459104
Potassium	mg/l	0	0.0903		NA	20	L440331-08	WG459104
Selenium	mg/l	0	0.0102		NA	20	L440331-08	WG459104
Sodium	mg/l	0	0.110		NA	20	L440331-08	WG459104
Specific Conductance	umhos/cm	7400	7400		0.270	20	L439868-01	WG458946

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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January 19, 2010

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
Sulfate	mg/l	730.	720.		1.10	20	L440230-01	WG459287
Sulfate	mg/l	0	0		0	20	L439737-22	WG459287
Dissolved Solids	mg/l	2000	2000		1.51	5	L440230-01	WG459094

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Bromide	mg/l	40	37.7	94.3	90-110	WG459007
Chloride	mg/l	40	37.7	94.3	90-110	WG459007
Fluoride	mg/l	8	7.97	99.6	90-110	WG459007
Nitrate	mg/l	8	8.16	102.	90-110	WG459007
Nitrite	mg/l	8	8.00	100.	90-110	WG459007
pH	su	9.63	9.60	99.7	97.9-100.8	WG459129
Calcium	mg/l	11.3	11.3	100.	85-115	WG459104
Iron	mg/l	1.13	1.10	97.3	85-115	WG459104
Manganese	mg/l	1.13	1.13	100.	85-115	WG459104
Potassium	mg/l	11.3	11.2	99.1	85-115	WG459104
Selenium	mg/l	1.13	1.03	91.2	85-115	WG459104
Sodium	mg/l	11.3	11.4	101.	85-115	WG459104
Specific Conductance	umhos/cm	406	400.	98.5	85-115	WG458946
Benzene	mg/l	.025	0.0246	98.4	67-126	WG459135
Ethylbenzene	mg/l	.025	0.0232	92.7	76-129	WG459135
Methyl tert-butyl ether	mg/l	.025	0.0236	94.4	51-142	WG459135
Toluene	mg/l	.025	0.0242	96.8	72-122	WG459135
Total Xylenes	mg/l	.075	0.0702	93.5	75-128	WG459135
4-Bromofluorobenzene				99.79	75-128	WG459135
Dibromofluoromethane				103.5	79-125	WG459135
Toluene-d8				102.2	87-114	WG459135
Methane	mg/l	.339	0.329	97.1	70-130	WG459495
Sulfate	mg/l	40	38.0	95.0	90-110	WG459287
Dissolved Solids	mg/l	8800	8720	99.1	85-115	WG459094

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Bromide	mg/l	37.9	37.7	95.0	90-110	0.529	20	WG459007
Chloride	mg/l	37.7	37.7	94.0	90-110	0	20	WG459007
Fluoride	mg/l	7.99	7.97	100.	90-110	0.251	20	WG459007
Nitrate	mg/l	8.18	8.16	102.	90-110	0.245	20	WG459007
Nitrite	mg/l	7.98	8.00	100.	90-110	0.250	20	WG459007

\* Performance of this Analyte is outside of established criteria.  
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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
pH	su	9.70	9.60	101*	97.9-100.8	1.04	20	WG459129
Specific Conductance	umhos/	400.	400.	98.0	85-115	0	20	WG458946
Benzene	mg/l	0.0248	0.0246	99.0	67-126	0.757	20	WG459135
Ethylbenzene	mg/l	0.0240	0.0232	96.0	76-129	3.34	20	WG459135
Methyl tert-butyl ether	mg/l	0.0240	0.0236	96.0	51-142	1.68	20	WG459135
Toluene	mg/l	0.0255	0.0242	102.	72-122	5.05	20	WG459135
Total Xylenes	mg/l	0.0715	0.0702	95.0	75-128	1.87	20	WG459135
4-Bromofluorobenzene				100.5	75-128			WG459135
Dibromofluoromethane				102.2	79-125			WG459135
Toluene-d8				104.0	87-114			WG459135
Methane	mg/l	0.329	0.329	97.0	70-130	0.00865	25	WG459495
Sulfate	mg/l	38.3	38.0	96.0	90-110	0.786	20	WG459287
Dissolved Solids	mg/l	8660	8720	98.0	85-115	0.783	20	WG459094

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Nitrate	mg/l	6.55	1.60	5	99.0	80-120	L440203-06	WG459007
Calcium	mg/l	11.3	0.0798	11.3	99.3	75-125	L440331-08	WG459104
Iron	mg/l	1.07	0.00830	1.13	94.0	75-125	L440331-08	WG459104
Manganese	mg/l	1.12	0	1.13	99.1	75-125	L440331-08	WG459104
Potassium	mg/l	11.1	0.0903	11.3	97.4	75-125	L440331-08	WG459104
Selenium	mg/l	1.00	0.0102	1.13	87.6	75-125	L440331-08	WG459104
Sodium	mg/l	11.4	0.110	11.3	99.9	75-125	L440331-08	WG459104
Benzene	mg/l	0.0244	0	.025	97.7	16-158	L440214-02	WG459135
Ethylbenzene	mg/l	0.0231	0	.025	92.5	29-150	L440214-02	WG459135
Methyl tert-butyl ether	mg/l	0.0234	0	.025	93.8	24-167	L440214-02	WG459135
Toluene	mg/l	0.0247	0	.025	99.0	22-152	L440214-02	WG459135
Total Xylenes	mg/l	0.0698	0	.075	93.0	27-151	L440214-02	WG459135
4-Bromofluorobenzene					99.36	75-128		WG459135
Dibromofluoromethane					102.9	79-125		WG459135
Toluene-d8					102.3	87-114		WG459135
Sulfate	mg/l	73.7	24.0	50	99.4	80-120	L440520-01	WG459287

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Nitrate	mg/l	6.62	6.55	100.	80-120	1.06	20	L440203-06	WG459007
Calcium	mg/l	11.4	11.3	100.	75-125	0.881	20	L440331-08	WG459104
Iron	mg/l	1.10	1.07	96.6	75-125	2.76	20	L440331-08	WG459104
Manganese	mg/l	1.13	1.12	100.	75-125	0.889	20	L440331-08	WG459104

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Potassium	mg/l	11.3	11.1	99.2	75-125	1.79	20	L440331-08	WG459104	
Selenium	mg/l	1.02	1.00	89.4	75-125	1.98	20	L440331-08	WG459104	
Sodium	mg/l	11.6	11.4	102.	75-125	1.74	20	L440331-08	WG459104	
Benzene	mg/l	0.0257	0.0244	103.	16-158	4.89	21	L440214-02	WG459135	
Ethylbenzene	mg/l	0.0251	0.0231	100.	29-150	8.14	24	L440214-02	WG459135	
Methyl tert-butyl ether	mg/l	0.0258	0.0234	103.	24-167	9.50	22	L440214-02	WG459135	
Toluene	mg/l	0.0266	0.0247	106.	22-152	7.27	22	L440214-02	WG459135	
Total Xylenes	mg/l	0.0750	0.0698	100.	27-151	7.18	23	L440214-02	WG459135	
4-Bromofluorobenzene				100.7	75-128				WG459135	
Dibromofluoromethane				102.0	79-125				WG459135	
Toluene-d8				103.8	87-114				WG459135	
Sulfate	mg/l	74.8	73.7	102.	80-120	1.48	20	L440520-01	WG459287	

Batch number /Run number / Sample number cross reference

WG459007: R1074228: L440230-01  
WG459129: R1075128: L440230-01  
WG459104: R1075752: L440230-01  
WG458946: R1076328: L440230-01  
WG459135: R1077548: L440230-02  
WG459495: R1077568: L440230-01  
WG459287: R1077768: L440230-01  
WG459094: R1078089: L440230-01

\* \* Calculations are performed prior to rounding of reported values .  
\* Performance of this Analyte is outside of established criteria.  
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'





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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



09/27/10

## Technical Report for

**Olsson Associates**

**Table 910-1**

**PO #010-0974**

**Accutest Job Number: D17219**

**Sampling Date: 09/08/10**

### Report to:

**Olsson Associates  
826 21 1/2 Road  
Grand Junction, CO 81505  
kkreie@oaconsulting.com**

**ATTN: Ken Kreie**

**Total number of pages in report: 66**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

A handwritten signature in black ink, appearing to read 'John Hamilton'.

**John Hamilton  
Laboratory Director**

**Client Service contact: Amanda Kissell 303-425-6021**

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.  
Test results relate only to samples analyzed.

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Sample Summary

Olsson Associates

Job No: D17219

Table 910-1  
Project No: PO #010-0974

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D17219-1	09/08/10	10:30 JS	09/09/10	AQ	Ground Water	KALM1
D17219-1F	09/08/10	10:30 JS	09/09/10	AQ	Groundwater Filtered	KALM1
D17219-2	09/08/10	13:10 JS	09/09/10	AQ	Ground Water	THAR1
D17219-2F	09/08/10	13:10 JS	09/09/10	AQ	Groundwater Filtered	THAR1

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** Olsson Associates

**Job No** D17219

**Site:** Table 910-1

**Report Dat** 9/24/2010 1:54:21 PM

On 09/09/2010, two (2) samples, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 4.5°C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D17219 was assigned to the project. The lab sample IDs, client sample IDs, and dates of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

**Matrix** AQ

**Batch ID:** V3V381

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17219-1MS and D17219-1MSD were used as the QC samples indicated.

### Extractables by GCMS By Method SW846 8270C

**Matrix** AQ

**Batch ID:** OP2502

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17285-1MS and D17285-1MSD were used as the QC samples indicated.
- The blank spike (BS) recoveries for 2,4-Dinitrophenol and Hexachlorocyclopentadiene are outside control limits. Since the bias for 2,4-Dinitrophenol is high and the samples are non-detect for this analyte, no further action is required. All associated samples were re-extracted and reanalyzed for confirmation of Hexachlorocyclopentadiene.
- The matrix spike and matrix spike duplicate (MS/MSD) recoveries of Hexachlorocyclopentadiene are outside control limits. Outside control limits due to matrix interference.

### Volatiles by GC By Method SW846 8015B

**Matrix** AQ

**Batch ID:** GGB389

- All samples were analyzed within the recommended method holding time.
- Samples D17250-1MS and D17250-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Extractables by GC By Method SW846-8015B

**Matrix** AQ

**Batch ID:** OP2511

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17306-1MS and D17306-1MSD were used as the QC samples indicated.



## Metals By Method SW846 6010B

**Matrix** AQ

**Batch ID:** MP2894

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17275-1MS and D17275-1MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery of Silicon is outside control limits. The spike amount is low relative to the sample amount. Refer to the lab control or spike blank for recovery information.

## Wet Chemistry By Method EPA 300.1

**Matrix** AQ

**Batch ID:** GP2818

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17219-1MS and D17219-1MSD were used as the QC samples for the Chlorate and Chlorite analysis.

## Wet Chemistry By Method EPA 300/SW846 9056

**Matrix** AQ

**Batch ID:** GP2759

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17263-7MS and D17263-7MSD were used as the QC samples for the anion analysis.
- Sample D17219-2 for Bromide, Nitrate-N, Nitrite-N, and ortho-Phosphate: The reporting limit (RL) was due to matrix interference.
- Sample D17219-1 for Nitrite-N and ortho-Phosphate: The reporting limit (RL) was due to matrix interference.

**Matrix** AQ

**Batch ID:** GP2800

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17246-1MS and D17246-1MSD were used as the QC samples for the Fluoride analysis.

## Wet Chemistry By Method SM20 2320B

**Matrix** AQ

**Batch ID:** GN6356

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17291-1DUP, D17291-1MS, and D17291-1MSD were used as the QC samples for the Total Alkalinity, as CaCO<sub>3</sub> analysis.

**Matrix** AQ

**Batch ID:** GN6357

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

**Matrix** AQ

**Batch ID:** GN6358

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

**Matrix** AQ

**Batch ID:** GN6359

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

**Wet Chemistry By Method SM20 2510B****Matrix** AQ**Batch ID:** GP2769

- Sample D17246-5DUP was used as the QC sample for the Specific Conductivity analysis.

**Wet Chemistry By Method SM20 2540C****Matrix** AQ**Batch ID:** GN6332

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample D17198-1DUP was used as the QC samples for the Total Dissolved Solids analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

### Sample Results

### Report of Analysis

## Report of Analysis

<b>Client Sample ID:</b>	KALM1	<b>Date Sampled:</b>	09/08/10
<b>Lab Sample ID:</b>	D17219-1	<b>Date Received:</b>	09/09/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	Table 910-1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V07047.D	1	09/13/10	DC	n/a	n/a	V3V381
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## VOA HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.30	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	1.0	ug/l	
75-25-2	Bromoform	ND	4.0	1.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	1.0	ug/l	
75-00-3	Chloroethane	ND	4.0	1.5	ug/l	
67-66-3	Chloroform	ND	2.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	4.0	1.0	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	1.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	0.33	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	1.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	1.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	1.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
591-78-6	2-Hexanone	ND	2.0	1.0	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	2.0	ug/l	
74-83-9	Methyl bromide	ND	4.0	1.5	ug/l	
74-87-3	Methyl chloride	ND	4.0	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	4.3	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.5	ug/l	
100-42-5	Styrene	ND	4.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	1.0	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> KALM1	<b>Date Sampled:</b> 09/08/10
<b>Lab Sample ID:</b> D17219-1	<b>Date Received:</b> 09/09/10
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> Table 910-1	

## VOA HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-00-5	1,1,2-Trichloroethane	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	0.50	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
79-01-6	Trichloroethylene	ND	2.0	0.50	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	4.0	0.60	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.60	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	92%		63-130%
2037-26-5	Toluene-D8	90%		68-130%
460-00-4	4-Bromofluorobenzene	85%		61-130%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	KALM1	<b>Date Sampled:</b>	09/08/10
<b>Lab Sample ID:</b>	D17219-1	<b>Date Received:</b>	09/09/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8270C SW846 3520C		
<b>Project:</b>	Table 910-1		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G09068.D	1	09/16/10	TMB	09/13/10	OP2502	E1G285
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## ABN HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	5.0	4.1	ug/l	
95-57-8	2-Chlorophenol	ND	1.5	1.2	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.5	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.7	ug/l	
105-67-9	2,4-Dimethylphenol	ND	1.0	1.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.2	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	2.0	1.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.5	ug/l	
106-44-5	4-Methylphenol	ND	2.0	1.8	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	1.1	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	5.0	1.3	ug/l	
108-95-2	Phenol	ND	5.0	2.2	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	1.5	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	2.0	1.7	ug/l	
83-32-9	Acenaphthene	ND	1.0	1.0	ug/l	
208-96-8	Acenaphthylene	ND	1.0	1.0	ug/l	
120-12-7	Anthracene	ND	1.3	1.3	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	1.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.90	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.5	1.4	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	2.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.5	1.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	1.5	ug/l	
85-68-7	Butyl benzyl phthalate	ND	1.1	1.1	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	2.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	1.8	ug/l	
106-47-8	4-Chloroaniline	ND	1.0	1.0	ug/l	
218-01-9	Chrysene	ND	1.0	1.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	2.2	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	1.0	1.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	2.5	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	KALM1	<b>Date Sampled:</b>	09/08/10
<b>Lab Sample ID:</b>	D17219-1	<b>Date Received:</b>	09/09/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8270C SW846 3520C		
<b>Project:</b>	Table 910-1		

## ABN HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	2.5	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	1.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	1.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	1.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	1.8	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	1.0	1.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	2.0	1.6	ug/l	
132-64-9	Dibenzofuran	ND	5.0	1.8	ug/l	
84-74-2	Di-n-butyl phthalate	ND	1.3	1.3	ug/l	
117-84-0	Di-n-octyl phthalate	ND	1.8	1.8	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1.5	1.5	ug/l	
206-44-0	Fluoranthene	ND	1.2	1.2	ug/l	
86-73-7	Fluorene	ND	1.4	1.4	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	1.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	1.8	ug/l	
67-72-1	Hexachloroethane	ND	1.0	1.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.0	1.6	ug/l	
78-59-1	Isophorone	ND	1.0	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	1.8	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	2.2	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	1.8	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	1.5	ug/l	
91-20-3	Naphthalene	ND	1.0	1.0	ug/l	
98-95-3	Nitrobenzene	ND	1.0	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	1.6	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	1.0	1.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	2.0	ug/l	
129-00-0	Pyrene	ND	1.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.8	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	77%		43-130%
4165-62-2	Phenol-d5	76%		47-130%
118-79-6	2,4,6-Tribromophenol	95%		32-138%
4165-60-0	Nitrobenzene-d5	65%		45-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





## Report of Analysis

<b>Client Sample ID:</b>	KALM1	<b>Date Sampled:</b>	09/08/10
<b>Lab Sample ID:</b>	D17219-1	<b>Date Received:</b>	09/09/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	Table 910-1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB7153.D	1	09/13/10	JL	n/a	n/a	GGB389
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.20	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	92%		60-140%		

ND = Not detected      MDL - Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	KALM1	<b>Date Sampled:</b>	09/08/10
<b>Lab Sample ID:</b>	D17219-1	<b>Date Received:</b>	09/09/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846-8015B SW846 3510C		
<b>Project:</b>	Table 910-1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD4143.D	1	09/15/10	JB	09/14/10	OP2511	GFD180
Run #2							

	Initial Volume	Final Volume
Run #1	950 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	ND	0.42	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	133%		40-137%	

ND = Not detected  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

**Client Sample ID:** KALM1  
**Lab Sample ID:** D17219-1  
**Matrix:** AQ - Ground Water  
**Project:** Table 910-1

**Date Sampled:** 09/08/10  
**Date Received:** 09/09/10  
**Percent Solids:** n/a

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	264	5.0	mg/l	1	09/14/10	CJ	SM20 2320B
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	09/14/10	CJ	SM20 2320B
Alkalinity, Total as CaCO <sub>3</sub>	264	5.0	mg/l	1	09/14/10	CJ	SM20 2320B
Bromide	1.5	1.0	mg/l	5	09/10/10 09:59	JML	EPA 300/SW846 9056
Chlorate	< 0.080	0.080	mg/l	4	09/20/10	JML	EPA 300.1
Chloride	161	5.0	mg/l	10	09/10/10 10:14	JML	EPA 300/SW846 9056
Chlorite	< 0.080	0.080	mg/l	4	09/20/10	JML	EPA 300.1
Fluoride	1.1	1.0	mg/l	5	09/17/10 09:46	GH	EPA 300/SW846 9056
Hydroxide Alkalinity	< 5.0	5.0	mg/l	1	09/14/10	CJ	SM20 2320B
Nitrogen, Nitrate	1.4	0.23	mg/l	5	09/10/10 09:59	JML	EPA 300/SW846 9056
Nitrogen, Nitrite <sup>a</sup>	< 0.61	0.61	mg/l	10	09/10/10 10:14	JML	EPA 300/SW846 9056
Phosphate, Ortho <sup>a</sup>	< 0.33	0.33	mg/l	5	09/10/10 09:59	JML	EPA 300/SW846 9056
Solids, Total Dissolved	3620	10	mg/l	1	09/13/10	JK	SM20 2540C
Specific Conductivity	3760	1.0	umhos/cm	1	09/13/10	JD	SM20 2510B
Sulfate	2220	50	mg/l	100	09/10/10 20:50	JML	EPA 300/SW846 9056

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

## Report of Analysis

Client Sample ID: KALM1

Lab Sample ID: D17219-1F

Matrix: AQ - Groundwater Filtered

Project: Table 910-1

Date Sampled: 09/08/10

Date Received: 09/09/10

Percent Solids: n/a

## Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analized By	Method	Prep Method
Antimony	< 30	30	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Arsenic	< 25	25	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Barium	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Beryllium	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Boron	152	50	ug/l	1	09/15/10	09/17/10 JM	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Cadmium	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Calcium	246000	400	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Chromium	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Cobalt	< 5.0	5.0	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Copper	< 5.0	5.0	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Iron	70.0	70	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Lead	< 50	50	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Lithium	122	5.0	ug/l	1	09/15/10	09/17/10 JM	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Magnesium	158000	200	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Manganese	< 5.0	5.0	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Molybdenum	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Nickel	< 30	30	ug/l	1	09/15/10	09/17/10 JM	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Potassium	7640	1000	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Selenium	178	50	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Silicon	3570	50	ug/l	1	09/15/10	09/21/10 JM	SW846 6010B <sup>3</sup>	SW846 3010A <sup>4</sup>
Silver	< 30	30	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Strontium	8370	5.0	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Thallium	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Uranium	< 50	50	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Vanadium	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Zinc	< 30	30	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>

(1) Instrument QC Batch: MA984

(2) Instrument QC Batch: MA986

(3) Instrument QC Batch: MA993

(4) Prep QC Batch: MP2894

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	THAR1	<b>Date Sampled:</b>	09/08/10
<b>Lab Sample ID:</b>	D17219-2	<b>Date Received:</b>	09/09/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	Table 910-1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V07050.D	1	09/13/10	DC	n/a	n/a	V3V381
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## VOA HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	4.0	ug/l	
71-43-2	Benzene	0.80	1.0	0.30	ug/l	J
75-27-4	Bromodichloromethane	ND	2.0	1.0	ug/l	
75-25-2	Bromoform	ND	4.0	1.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	1.0	ug/l	
75-00-3	Chloroethane	ND	4.0	1.5	ug/l	
67-66-3	Chloroform	ND	2.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	4.0	1.0	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	1.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	0.33	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	1.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	1.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	1.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
591-78-6	2-Hexanone	ND	2.0	1.0	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	2.0	ug/l	
74-83-9	Methyl bromide	ND	4.0	1.5	ug/l	
74-87-3	Methyl chloride	ND	4.0	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	4.3	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.5	ug/l	
100-42-5	Styrene	ND	4.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	1.0	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID: THAR1

Lab Sample ID: D17219-2

Date Sampled: 09/08/10

Matrix: AQ - Ground Water

Date Received: 09/09/10

Method: SW846 8260B

Percent Solids: n/a

Project: Table 910-1

## VOA HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-00-5	1,1,2-Trichloroethane	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	0.50	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
79-01-6	Trichloroethylene	ND	2.0	0.50	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	4.0	0.60	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.60	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	87%		63-130%
2037-26-5	Toluene-D8	91%		68-130%
460-00-4	4-Bromofluorobenzene	83%		61-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	THAR1	<b>Date Sampled:</b>	09/08/10
<b>Lab Sample ID:</b>	D17219-2	<b>Date Received:</b>	09/09/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8270C SW846 3520C		
<b>Project:</b>	Table 910-1		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G09069.D	1	09/16/10	TMB	09/13/10	OP2502	E1G285
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## ABN HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	5.0	4.1	ug/l	
95-57-8	2-Chlorophenol	ND	1.5	1.2	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.5	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.7	ug/l	
105-67-9	2,4-Dimethylphenol	ND	1.0	1.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.2	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	2.0	1.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.5	ug/l	
106-44-5	4-Methylphenol	ND	2.0	1.8	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	1.1	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	5.0	1.3	ug/l	
108-95-2	Phenol	ND	5.0	2.2	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	1.5	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	2.0	1.7	ug/l	
83-32-9	Acenaphthene	ND	1.0	1.0	ug/l	
208-96-8	Acenaphthylene	ND	1.0	1.0	ug/l	
120-12-7	Anthracene	ND	1.3	1.3	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	1.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.90	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.5	1.4	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	2.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.5	1.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	1.5	ug/l	
85-68-7	Butyl benzyl phthalate	ND	1.1	1.1	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	2.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	1.8	ug/l	
106-47-8	4-Chloroaniline	ND	1.0	1.0	ug/l	
218-01-9	Chrysene	ND	1.0	1.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	2.2	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	1.0	1.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	2.5	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	THAR1	<b>Date Sampled:</b>	09/08/10
<b>Lab Sample ID:</b>	D17219-2	<b>Date Received:</b>	09/09/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8270C SW846 3520C		
<b>Project:</b>	Table 910-1		

## ABN HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	2.5	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	1.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	1.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	1.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	1.8	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	1.0	1.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	2.0	1.6	ug/l	
132-64-9	Dibenzofuran	ND	5.0	1.8	ug/l	
84-74-2	Di-n-butyl phthalate	ND	1.3	1.3	ug/l	
117-84-0	Di-n-octyl phthalate	ND	1.8	1.8	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1.5	1.5	ug/l	
206-44-0	Fluoranthene	ND	1.2	1.2	ug/l	
86-73-7	Fluorene	ND	1.4	1.4	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	1.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	1.8	ug/l	
67-72-1	Hexachloroethane	ND	1.0	1.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.0	1.6	ug/l	
78-59-1	Isophorone	ND	1.0	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	1.8	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	2.2	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	1.8	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	1.5	ug/l	
91-20-3	Naphthalene	ND	1.0	1.0	ug/l	
98-95-3	Nitrobenzene	ND	1.0	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	1.6	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	1.0	1.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	2.0	ug/l	
129-00-0	Pyrene	ND	1.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.8	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	84%		43-130%
4165-62-2	Phenol-d5	81%		47-130%
118-79-6	2,4,6-Tribromophenol	97%		32-138%
4165-60-0	Nitrobenzene-d5	69%		45-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



## Report of Analysis

<b>Client Sample ID:</b>	THAR1	<b>Date Sampled:</b>	09/08/10
<b>Lab Sample ID:</b>	D17219-2	<b>Date Received:</b>	09/09/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8270C SW846 3520C		
<b>Project:</b>	Table 910-1		

## ABN HSL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
321-60-8	2-Fluorobiphenyl	64%		45-130%
1718-51-0	Terphenyl-d14	69%		47-136%

ND = Not detected      MDL - Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	THAR1	<b>Date Sampled:</b>	09/08/10
<b>Lab Sample ID:</b>	D17219-2	<b>Date Received:</b>	09/09/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	Table 910-1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB7154.D	1	09/13/10	JL	n/a	n/a	GGB389
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.20	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	96%		60-140%

ND = Not detected      MDL - Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	THAR1	<b>Date Sampled:</b>	09/08/10
<b>Lab Sample ID:</b>	D17219-2	<b>Date Received:</b>	09/09/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846-8015B SW846 3510C		
<b>Project:</b>	Table 910-1		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD4144.D	1	09/15/10	JB	09/14/10	OP2511	GFD180
Run #2							

	Initial Volume	Final Volume
Run #1	950 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	ND	0.42	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	126%		40-137%	

ND = Not detected  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID: THAR1

Lab Sample ID: D17219-2

Matrix: AQ - Ground Water

Project: Table 910-1

Date Sampled: 09/08/10

Date Received: 09/09/10

Percent Solids: n/a

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	394	5.0	mg/l	1	09/14/10	CJ	SM20 2320B
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	09/14/10	CJ	SM20 2320B
Alkalinity, Total as CaCO <sub>3</sub>	394	5.0	mg/l	1	09/14/10	CJ	SM20 2320B
Bromide <sup>a</sup>	< 1.0	1.0	mg/l	5	09/10/10 10:45	JML	EPA 300/SW846 9056
Chlorate	< 0.080	0.080	mg/l	4	09/20/10	JML	EPA 300.1
Chloride	70.2	2.5	mg/l	5	09/10/10 10:45	JML	EPA 300/SW846 9056
Chlorite	< 0.080	0.080	mg/l	4	09/20/10	JML	EPA 300.1
Fluoride	1.1	1.0	mg/l	5	09/17/10 10:00	GH	EPA 300/SW846 9056
Hydroxide Alkalinity	< 5.0	5.0	mg/l	1	09/14/10	CJ	SM20 2320B
Nitrogen, Nitrate <sup>a</sup>	< 0.23	0.23	mg/l	5	09/10/10 10:45	JML	EPA 300/SW846 9056
Nitrogen, Nitrite <sup>a</sup>	< 0.31	0.31	mg/l	5	09/10/10 10:45	JML	EPA 300/SW846 9056
Phosphate, Ortho <sup>a</sup>	< 0.33	0.33	mg/l	5	09/10/10 10:45	JML	EPA 300/SW846 9056
Solids, Total Dissolved	2420	10	mg/l	1	09/13/10	JK	SM20 2540C
Specific Conductivity	3080	1.0	umhos/cm	1	09/13/10	JD	SM20 2510B
Sulfate	1300	50	mg/l	100	09/10/10 21:06	JML	EPA 300/SW846 9056

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

## Report of Analysis

Client Sample ID: THAR1

Lab Sample ID: D17219-2F

Matrix: AQ - Groundwater Filtered

Project: Table 910-1

Date Sampled: 09/08/10

Date Received: 09/09/10

Percent Solids: n/a

## Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Antimony	< 30	30	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Arsenic	< 25	25	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Barium	16.8	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Beryllium	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Boron	171	50	ug/l	1	09/15/10	09/17/10 JM	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Cadmium	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Calcium	35700	400	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Chromium	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Cobalt	< 5.0	5.0	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Copper	< 5.0	5.0	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Iron	106	70	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Lead	< 50	50	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Lithium	59.0	5.0	ug/l	1	09/15/10	09/17/10 JM	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Magnesium	5110	200	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Manganese	33.3	5.0	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Molybdenum	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Nickel	< 30	30	ug/l	1	09/15/10	09/17/10 JM	SW846 6010B <sup>2</sup>	SW846 3010A <sup>4</sup>
Potassium	2450	1000	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Selenium	< 50	50	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Silicon	3360	50	ug/l	1	09/15/10	09/21/10 JM	SW846 6010B <sup>3</sup>	SW846 3010A <sup>4</sup>
Silver	< 30	30	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Strontium	1210	5.0	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Thallium	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Uranium	< 50	50	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Vanadium	< 10	10	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>
Zinc	< 30	30	ug/l	1	09/15/10	09/16/10 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>4</sup>

(1) Instrument QC Batch: MA984

(2) Instrument QC Batch: MA986

(3) Instrument QC Batch: MA993

(4) Prep QC Batch: MP2894

RL = Reporting Limit

## Misc. Forms

### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody

## CHAIN OF CUSTODY

4036 Youngfield Street, Wheat Ridge, Colorado 80033  
TEL: 303-425-6021; 877-737-4521 FAX: 303-425-6854  
[www.accutest.com](http://www.accutest.com)

D 17219

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## D17219: Chain of Custody

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## GC/MS Volatiles

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### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



## Method Blank Summary

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**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V381-MB1	3V07045.D	1	09/13/10	DC	n/a	n/a	V3V381

The QC reported here applies to the following samples:

Method: SW846 8260B

D17219-1, D17219-2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.30	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	1.0	ug/l	
75-25-2	Bromoform	ND	4.0	1.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	1.0	ug/l	
75-00-3	Chloroethane	ND	4.0	1.5	ug/l	
67-66-3	Chloroform	ND	2.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	4.0	1.0	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	1.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	0.33	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	1.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	1.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	1.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
591-78-6	2-Hexanone	ND	2.0	1.0	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	2.0	ug/l	
74-83-9	Methyl bromide	ND	4.0	1.5	ug/l	
74-87-3	Methyl chloride	ND	4.0	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	4.3	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.5	ug/l	
100-42-5	Styrene	ND	4.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	0.50	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
79-01-6	Trichloroethylene	ND	2.0	0.50	ug/l	

## Method Blank Summary

Page 2 of 2

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V381-MB1	3V07045.D	1	09/13/10	DC	n/a	n/a	V3V381

The QC reported here applies to the following samples:

Method: SW846 8260B

D17219-1, D17219-2

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	ND	2.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	4.0	0.60	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.60	ug/l	

CAS No.	Surrogate Recoveries	Limits
17060-07-0	1,2-Dichloroethane-D4	85% 63-130%
2037-26-5	Toluene-D8	91% 68-130%
460-00-4	4-Bromofluorobenzene	86% 61-130%

## Blank Spike Summary

Page 1 of 2

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V381-BS1	3V07046.D	1	09/13/10	DC	n/a	n/a	V3V381

The QC reported here applies to the following samples:

Method: SW846 8260B

D17219-1, D17219-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	50	29.1	58	49-130
71-43-2	Benzene	50	48.6	97	70-130
75-27-4	Bromodichloromethane	50	50.5	101	70-130
75-25-2	Bromoform	50	46.9	94	48-138
108-90-7	Chlorobenzene	50	51.4	103	70-130
75-00-3	Chloroethane	50	45.6	91	61-130
67-66-3	Chloroform	50	50.9	102	70-130
110-75-8	2-Chloroethyl vinyl ether	50	46.1	92	22-185
75-15-0	Carbon disulfide	50	59.0	118	55-130
56-23-5	Carbon tetrachloride	50	53.5	107	70-130
75-34-3	1,1-Dichloroethane	50	51.1	102	70-130
75-35-4	1,1-Dichloroethylene	50	50.8	102	70-130
107-06-2	1,2-Dichloroethane	50	47.0	94	70-130
78-87-5	1,2-Dichloropropane	50	48.1	96	70-130
124-48-1	Dibromochloromethane	50	44.5	89	64-132
156-59-2	cis-1,2-Dichloroethylene	50	51.3	103	70-130
10061-01-5	cis-1,3-Dichloropropene	50	45.1	90	67-130
541-73-1	m-Dichlorobenzene	50	47.6	95	52-148
95-50-1	o-Dichlorobenzene	50	46.9	94	53-146
106-46-7	p-Dichlorobenzene	50	47.0	94	57-136
156-60-5	trans-1,2-Dichloroethylene	50	52.1	104	70-130
10061-02-6	trans-1,3-Dichloropropene	50	41.5	83	66-130
100-41-4	Ethylbenzene	50	52.8	106	70-130
591-78-6	2-Hexanone	50	39.1	78	38-130
108-10-1	4-Methyl-2-pentanone	50	44.4	89	68-130
74-83-9	Methyl bromide	50	29.3	59	35-151
74-87-3	Methyl chloride	50	43.2	86	46-138
75-09-2	Methylene chloride	50	46.5	93	70-130
78-93-3	Methyl ethyl ketone	50	39.3	79	37-130
100-42-5	Styrene	50	40.2	80	38-130
71-55-6	1,1,1-Trichloroethane	50	49.3	99	70-130
79-34-5	1,1,2,2-Tetrachloroethane	50	47.5	95	70-130
79-00-5	1,1,2-Trichloroethane	50	47.8	96	69-130
127-18-4	Tetrachloroethylene	50	50.8	102	66-134
108-88-3	Toluene	50	50.7	101	70-140
79-01-6	Trichloroethylene	50	49.9	100	70-130

## Blank Spike Summary

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**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V381-BS1	3V07046.D	1	09/13/10	DC	n/a	n/a	V3V381

The QC reported here applies to the following samples:

Method: SW846 8260B

D17219-1, D17219-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-01-4	Vinyl chloride	50	39.0	78	58-135
108-05-4	Vinyl Acetate	50	40.5	81	50-130
1330-20-7	Xylene (total)	100	92.0	92	55-134

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	84%	63-130%
2037-26-5	Toluene-D8	90%	68-130%
460-00-4	4-Bromofluorobenzene	91%	61-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 2

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D17219-1MS	3V07048.D	1	09/13/10	DC	n/a	n/a	V3V381
D17219-1MSD	3V07049.D	1	09/13/10	DC	n/a	n/a	V3V381
D17219-1	3V07047.D	1	09/13/10	DC	n/a	n/a	V3V381

The QC reported here applies to the following samples:

Method: SW846 8260B

D17219-1, D17219-2

CAS No.	Compound	D17219-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		50	32.6	65	26.7	53	20	21-130/30
71-43-2	Benzene	ND		50	51.3	103	53.3	107	4	59-132/30
75-27-4	Bromodichloromethane	ND		50	52.6	105	53.8	108	2	58-130/30
75-25-2	Bromoform	ND		50	51.2	102	50.7	101	1	45-140/30
108-90-7	Chlorobenzene	ND		50	51.5	103	54.0	108	5	70-130/30
75-00-3	Chloroethane	ND		50	50.3	101	50.0	100	1	61-130/30
67-66-3	Chloroform	ND		50	53.1	106	55.6	111	5	69-130/30
110-75-8	2-Chloroethyl vinyl ether	ND		50	49.5	99	47.6	95	4	20-168/30
75-15-0	Carbon disulfide	ND		50	61.5	123	64.4	129	5	41-132/30
56-23-5	Carbon tetrachloride	ND		50	54.2	108	56.9	114	5	70-130/30
75-34-3	1,1-Dichloroethane	ND		50	54.4	109	55.8	112	3	70-130/30
75-35-4	1,1-Dichloroethylene	ND		50	53.3	107	56.2	112	5	69-137/30
107-06-2	1,2-Dichloroethane	ND		50	51.1	102	50.9	102	0	62-130/30
78-87-5	1,2-Dichloropropane	ND		50	52.1	104	53.0	106	2	63-131/30
124-48-1	Dibromochloromethane	ND		50	49.3	99	49.4	99	0	52-141/30
156-59-2	cis-1,2-Dichloroethylene	ND		50	52.9	106	55.4	111	5	70-130/30
10061-01-5	cis-1,3-Dichloropropene	ND		50	47.2	94	49.4	99	5	51-134/30
541-73-1	m-Dichlorobenzene	ND		50	48.6	97	51.0	102	5	38-148/30
95-50-1	o-Dichlorobenzene	ND		50	48.0	96	49.2	98	2	40-148/30
106-46-7	p-Dichlorobenzene	ND		50	47.4	95	49.3	99	4	43-136/30
156-60-5	trans-1,2-Dichloroethylene	ND		50	55.3	111	56.5	113	2	69-134/30
10061-02-6	trans-1,3-Dichloropropene	ND		50	45.4	91	46.1	92	2	50-130/30
100-41-4	Ethylbenzene	ND		50	53.2	106	55.8	112	5	68-130/30
591-78-6	2-Hexanone	ND		50	45.2	90	39.5	79	13	29-130/30
108-10-1	4-Methyl-2-pentanone	ND		50	49.7	99	45.5	91	9	62-130/30
74-83-9	Methyl bromide	ND		50	31.5	63	36.9	74	16	20-171/30
74-87-3	Methyl chloride	ND		50	46.6	93	48.6	97	4	25-148/30
75-09-2	Methylene chloride	ND		50	48.7	97	51.2	102	5	58-139/30
78-93-3	Methyl ethyl ketone	ND		50	47.4	95	40.7	81	15	37-130/30
100-42-5	Styrene	ND		50	41.4	83	42.9	86	4	27-130/30
71-55-6	1,1,1-Trichloroethane	ND		50	50.4	101	53.0	106	5	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND		50	50.7	101	48.4	97	5	61-140/30
79-00-5	1,1,2-Trichloroethane	ND		50	52.7	105	51.1	102	3	52-135/30
127-18-4	Tetrachloroethylene	ND		50	51.0	102	54.5	109	7	61-134/30
108-88-3	Toluene	ND		50	51.0	102	54.1	108	6	56-142/30
79-01-6	Trichloroethylene	ND		50	52.2	104	54.7	109	5	61-132/30

# Matrix Spike/Matrix Spike Duplicate Summary

Page 2 of 2

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D17219-1MS	3V07048.D	1	09/13/10	DC	n/a	n/a	V3V381
D17219-1MSD	3V07049.D	1	09/13/10	DC	n/a	n/a	V3V381
D17219-1	3V07047.D	1	09/13/10	DC	n/a	n/a	V3V381

The QC reported here applies to the following samples:

Method: SW846 8260B

D17219-1, D17219-2

CAS No.	Compound	D17219-1 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-01-4	Vinyl chloride	ND	50	42.3	85	43.8	88	3	54-148/30
108-05-4	Vinyl Acetate	ND	50	44.5	89	43.0	86	3	40-139/30
1330-20-7	Xylene (total)	ND	100	92.5	93	98.6	99	6	36-146/30

CAS No.	Surrogate Recoveries	MS	MSD	D17219-1	Limits
17060-07-0	1,2-Dichloroethane-D4	88%	91%	92%	63-130%
2037-26-5	Toluene-D8	88%	90%	90%	68-130%
460-00-4	4-Bromofluorobenzene	90%	90%	85%	61-130%

## GC/MS Semi-volatiles

### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

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**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2502-MB	1G09056.D	1	09/15/10	TMB	09/13/10	OP2502	E1G285

The QC reported here applies to the following samples:

Method: SW846 8270C

D17219-1, D17219-2

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	5.0	4.1	ug/l	
95-57-8	2-Chlorophenol	ND	1.5	1.2	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.5	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.7	ug/l	
105-67-9	2,4-Dimethylphenol	ND	1.0	1.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.2	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	2.0	1.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.5	ug/l	
106-44-5	4-Methylphenol	ND	2.0	1.8	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	1.1	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	5.0	1.3	ug/l	
108-95-2	Phenol	ND	5.0	2.2	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	1.5	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	2.0	1.7	ug/l	
83-32-9	Acenaphthene	ND	1.0	1.0	ug/l	
208-96-8	Acenaphthylene	ND	1.0	1.0	ug/l	
120-12-7	Anthracene	ND	1.3	1.3	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	1.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.90	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.5	1.4	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	2.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.5	1.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	1.5	ug/l	
85-68-7	Butyl benzyl phthalate	ND	1.1	1.1	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	2.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	1.8	ug/l	
106-47-8	4-Chloroaniline	ND	1.0	1.0	ug/l	
218-01-9	Chrysene	ND	1.0	1.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	2.2	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	1.0	1.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	2.5	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	2.5	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	1.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	1.0	ug/l	



## Method Blank Summary

Page 2 of 3

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2502-MB	1G09056.D	1	09/15/10	TMB	09/13/10	OP2502	E1G285

The QC reported here applies to the following samples:

Method: SW846 8270C

D17219-1, D17219-2

CAS No.	Compound	Result	RL	MDL	Units	Q
121-14-2	2,4-Dinitrotoluene	ND	1.0	1.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	1.8	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	1.0	1.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	2.0	1.6	ug/l	
132-64-9	Dibenzofuran	ND	5.0	1.8	ug/l	
84-74-2	Di-n-butyl phthalate	ND	1.3	1.3	ug/l	
117-84-0	Di-n-octyl phthalate	ND	1.8	1.8	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1.5	1.5	ug/l	
206-44-0	Fluoranthene	ND	1.2	1.2	ug/l	
86-73-7	Fluorene	ND	1.4	1.4	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	1.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	1.8	ug/l	
67-72-1	Hexachloroethane	ND	1.0	1.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.0	1.6	ug/l	
78-59-1	Isophorone	ND	1.0	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	1.8	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	2.2	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	1.8	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	1.5	ug/l	
91-20-3	Naphthalene	ND	1.0	1.0	ug/l	
98-95-3	Nitrobenzene	ND	1.0	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	1.6	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	1.0	1.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	2.0	ug/l	
129-00-0	Pyrene	ND	1.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.8	ug/l	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	82% 43-130%
4165-62-2	Phenol-d5	82% 47-130%
118-79-6	2,4,6-Tribromophenol	87% 32-138%

## Method Blank Summary

Page 3 of 3

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2502-MB	1G09056.D	1	09/15/10	TMB	09/13/10	OP2502	E1G285

The QC reported here applies to the following samples:

Method: SW846 8270C

D17219-1, D17219-2

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	66% 45-130%
321-60-8	2-Fluorobiphenyl	65% 45-130%
1718-51-0	Terphenyl-d14	62% 47-136%

## Blank Spike Summary

Page 1 of 3

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2502-BS	1G09057.D	1	09/15/10	TMB	09/13/10	OP2502	E1G285

The QC reported here applies to the following samples:

Method: SW846 8270C

D17219-1, D17219-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	50	58.1	116	17-130
95-57-8	2-Chlorophenol	50	45.6	91	42-130
59-50-7	4-Chloro-3-methyl phenol	50	46.6	93	46-130
120-83-2	2,4-Dichlorophenol	50	46.3	93	47-130
105-67-9	2,4-Dimethylphenol	50	30.4	61	31-130
51-28-5	2,4-Dinitrophenol	50	68.7	137* a	35-135
534-52-1	4,6-Dinitro-o-cresol	50	54.9	110	54-130
95-48-7	2-Methylphenol	50	43.6	87	47-130
106-44-5	4-Methylphenol	50	42.9	86	45-130
88-75-5	2-Nitrophenol	50	49.6	99	43-130
100-02-7	4-Nitrophenol	50	59.0	118	52-130
87-86-5	Pentachlorophenol	50	56.4	113	49-130
108-95-2	Phenol	50	44.7	89	32-130
95-95-4	2,4,5-Trichlorophenol	50	51.5	103	59-130
88-06-2	2,4,6-Trichlorophenol	50	48.5	97	57-130
83-32-9	Acenaphthene	50	40.8	82	58-130
208-96-8	Acenaphthylene	50	41.2	82	56-130
120-12-7	Anthracene	50	41.6	83	59-130
56-55-3	Benzo(a)anthracene	50	43.1	86	58-130
50-32-8	Benzo(a)pyrene	50	40.4	81	58-130
205-99-2	Benzo(b)fluoranthene	50	44.2	88	64-130
191-24-2	Benzo(g,h,i)perylene	50	42.2	84	62-130
207-08-9	Benzo(k)fluoranthene	50	40.9	82	60-130
101-55-3	4-Bromophenyl phenyl ether	50	39.9	80	65-130
85-68-7	Butyl benzyl phthalate	50	39.2	78	56-130
100-51-6	Benzyl Alcohol	50	43.8	88	60-130
91-58-7	2-Chloronaphthalene	50	40.2	80	60-130
106-47-8	4-Chloroaniline	50	41.2	82	32-130
218-01-9	Chrysene	50	40.2	80	58-130
111-91-1	bis(2-Chloroethoxy)methane	50	41.7	83	58-130
111-44-4	bis(2-Chloroethyl)ether	50	38.2	76	55-130
108-60-1	bis(2-Chloroisopropyl)ether	50	38.7	77	53-130
7005-72-3	4-Chlorophenyl phenyl ether	50	39.0	78	67-130
95-50-1	1,2-Dichlorobenzene	50	33.8	68	52-130
541-73-1	1,3-Dichlorobenzene	50	32.2	64	50-130
106-46-7	1,4-Dichlorobenzene	50	32.9	66	51-130

## Blank Spike Summary

Page 2 of 3

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2502-BS	1G09057.D	1	09/15/10	TMB	09/13/10	OP2502	E1G285

The QC reported here applies to the following samples:

Method: SW846 8270C

D17219-1, D17219-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
121-14-2	2,4-Dinitrotoluene	50	60.0	120	51-131
606-20-2	2,6-Dinitrotoluene	50	54.1	108	59-130
91-94-1	3,3'-Dichlorobenzidine	50	42.6	85	51-130
53-70-3	Dibenzo(a,h)anthracene	50	43.5	87	62-130
132-64-9	Dibenzofuran	50	42.0	84	60-130
84-74-2	Di-n-butyl phthalate	50	37.9	76	55-130
117-84-0	Di-n-octyl phthalate	50	36.3	73	59-130
84-66-2	Diethyl phthalate	50	43.3	87	70-130
131-11-3	Dimethyl phthalate	50	43.8	88	51-130
117-81-7	bis(2-Ethylhexyl)phthalate	50	36.6	73	58-130
206-44-0	Fluoranthene	50	41.4	83	60-130
86-73-7	Fluorene	50	41.4	83	61-130
118-74-1	Hexachlorobenzene	50	38.4	77	58-130
87-68-3	Hexachlorobutadiene	50	32.4	65	42-130
77-47-4	Hexachlorocyclopentadiene	50	8.9	18* b	36-130
67-72-1	Hexachloroethane	50	28.4	57	43-130
193-39-5	Indeno(1,2,3-cd)pyrene	50	41.9	84	62-130
78-59-1	Isophorone	50	42.5	85	52-130
91-57-6	2-Methylnaphthalene	50	38.6	77	54-130
88-74-4	2-Nitroaniline	50	48.5	97	60-130
99-09-2	3-Nitroaniline	50	58.6	117	62-130
100-01-6	4-Nitroaniline	50	59.1	118	56-130
91-20-3	Naphthalene	50	38.2	76	54-130
98-95-3	Nitrobenzene	50	42.9	86	50-130
621-64-7	N-Nitroso-di-n-propylamine	50	38.0	76	60-130
86-30-6	N-Nitrosodiphenylamine	50	34.4	69	54-130
85-01-8	Phenanthrene	50	41.0	82	62-130
129-00-0	Pyrene	50	44.2	88	54-130
120-82-1	1,2,4-Trichlorobenzene	50	35.6	71	52-130

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	80%	43-130%
4165-62-2	Phenol-d5	79%	47-130%
118-79-6	2,4,6-Tribromophenol	102%	32-138%

## Blank Spike Summary

Page 3 of 3

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2502-BS	1G09057.D	1	09/15/10	TMB	09/13/10	OP2502	E1G285

The QC reported here applies to the following samples:

Method: SW846 8270C

D17219-1, D17219-2

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	69%	45-130%
321-60-8	2-Fluorobiphenyl	64%	45-130%
1718-51-0	Terphenyl-d14	71%	47-136%

(a) Compound ND in associated samples.

(b) Outside control limits, all associated samples re-extracted and reanalyzed for confirmation.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 3

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2502-MS	1G09075.D	1	09/16/10	TMB	09/13/10	OP2502	E1G285
OP2502-MSD	1G09076.D	1	09/16/10	TMB	09/13/10	OP2502	E1G285
D17285-1	1G09074.D	1	09/16/10	TMB	09/13/10	OP2502	E1G285

The QC reported here applies to the following samples:

Method: SW846 8270C

D17219-1, D17219-2

CAS No.	Compound	D17285-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic Acid	ND	50	47.1	94	51.5	103	9	8.2-155/30	
95-57-8	2-Chlorophenol	ND	50	43.6	87	39.8	80	9	43-130/30	
59-50-7	4-Chloro-3-methyl phenol	ND	50	44.3	89	41.1	82	7	48-130/30	
120-83-2	2,4-Dichlorophenol	ND	50	44.8	90	41.1	82	9	47-130/30	
105-67-9	2,4-Dimethylphenol	ND	50	25.9	52	24.2	48	7	40-130/30	
51-28-5	2,4-Dinitrophenol	ND	50	64.3	129	64.0	128	0	53-130/30	
534-52-1	4,6-Dinitro-o-cresol	ND	50	54.8	110	52.8	106	4	65-130/30	
95-48-7	2-Methylphenol	ND	50	40.9	82	38.1	76	7	41-130/30	
106-44-5	4-Methylphenol	ND	50	40.0	80	37.8	76	6	42-130/30	
88-75-5	2-Nitrophenol	ND	50	49.5	99	46.3	93	7	46-130/30	
100-02-7	4-Nitrophenol	ND	50	59.6	119	56.0	112	6	52-130/30	
87-86-5	Pentachlorophenol	ND	50	55.6	111	52.6	105	6	51-130/30	
108-95-2	Phenol	ND	50	41.7	83	39.2	78	6	41-130/30	
95-95-4	2,4,5-Trichlorophenol	ND	50	52.0	104	48.1	96	8	56-130/30	
88-06-2	2,4,6-Trichlorophenol	ND	50	47.5	95	43.7	87	8	56-130/30	
83-32-9	Acenaphthene	ND	50	40.3	81	36.7	73	9	54-130/30	
208-96-8	Acenaphthylene	ND	50	40.6	81	37.2	74	9	55-130/30	
120-12-7	Anthracene	ND	50	40.4	81	37.4	75	8	60-130/30	
56-55-3	Benzo(a)anthracene	ND	50	43.3	87	39.5	79	9	54-130/30	
50-32-8	Benzo(a)pyrene	ND	50	40.5	81	37.8	76	7	59-130/30	
205-99-2	Benzo(b)fluoranthene	ND	50	43.4	87	40.9	82	6	58-130/30	
191-24-2	Benzo(g,h,i)perylene	ND	50	37.9	76	32.5	65	15	58-130/30	
207-08-9	Benzo(k)fluoranthene	ND	50	42.9	86	38.6	77	11	53-130/30	
101-55-3	4-Bromophenyl phenyl ether	ND	50	38.5	77	35.2	70	9	61-130/30	
85-68-7	Butyl benzyl phthalate	ND	50	42.2	84	38.5	77	9	51-130/30	
100-51-6	Benzyl Alcohol	ND	50	40.9	82	38.9	78	5	40-130/30	
91-58-7	2-Chloronaphthalene	ND	50	40.2	80	37.3	75	7	57-130/30	
106-47-8	4-Chloroaniline	ND	50	40.2	80	36.6	73	9	32-130/30	
218-01-9	Chrysene	ND	50	40.4	81	36.9	74	9	55-130/30	
111-91-1	bis(2-Chloroethoxy)methane	ND	50	40.5	81	37.1	74	9	48-130/30	
111-44-4	bis(2-Chloroethyl)ether	ND	50	36.8	74	33.7	67	9	45-130/30	
108-60-1	bis(2-Chloroisopropyl)ether	ND	50	37.0	74	33.5	67	10	41-130/30	
7005-72-3	4-Chlorophenyl phenyl ether	ND	50	38.2	76	34.9	70	9	56-130/30	
95-50-1	1,2-Dichlorobenzene	ND	50	33.0	66	30.3	61	9	41-130/30	
541-73-1	1,3-Dichlorobenzene	ND	50	31.3	63	28.8	58	8	39-130/30	
106-46-7	1,4-Dichlorobenzene	ND	50	31.9	64	29.9	60	6	39-130/30	

# Matrix Spike/Matrix Spike Duplicate Summary

Page 2 of 3

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2502-MS	1G09075.D	1	09/16/10	TMB	09/13/10	OP2502	E1G285
OP2502-MSD	1G09076.D	1	09/16/10	TMB	09/13/10	OP2502	E1G285
D17285-1	1G09074.D	1	09/16/10	TMB	09/13/10	OP2502	E1G285

The QC reported here applies to the following samples:

Method: SW846 8270C

D17219-1, D17219-2

CAS No.	Compound	D17285-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
121-14-2	2,4-Dinitrotoluene	ND		50	59.2	118	54.7	109	8	56-130/30
606-20-2	2,6-Dinitrotoluene	ND		50	53.3	107	49.8	100	7	61-130/30
91-94-1	3,3'-Dichlorobenzidine	ND		50	41.7	83	37.0	74	12	19-130/30
53-70-3	Dibenzo(a,h)anthracene	ND		50	39.5	79	34.2	68	14	61-130/30
132-64-9	Dibenzofuran	ND		50	41.0	82	37.4	75	9	57-130/30
84-74-2	Di-n-butyl phthalate	ND		50	37.5	75	34.0	68	10	57-130/30
117-84-0	Di-n-octyl phthalate	ND		50	38.3	77	35.2	70	8	49-130/30
84-66-2	Diethyl phthalate	ND		50	40.3	81	37.0	74	9	70-130/30
131-11-3	Dimethyl phthalate	ND		50	41.2	82	37.3	75	10	55-130/30
117-81-7	bis(2-Ethylhexyl)phthalate	ND		50	38.4	77	34.9	70	10	54-130/30
206-44-0	Fluoranthene	ND		50	42.2	84	38.2	76	10	54-130/30
86-73-7	Fluorene	ND		50	40.6	81	37.2	74	9	54-130/30
118-74-1	Hexachlorobenzene	ND		50	37.6	75	35.4	71	6	59-130/30
87-68-3	Hexachlorobutadiene	ND		50	35.0	70	31.4	63	11	32-130/30
77-47-4	Hexachlorocyclopentadiene	ND		50	4.2	8* a	4.5	9* a	7	28-130/30
67-72-1	Hexachloroethane	ND		50	29.4	59	27.6	55	6	31-130/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		50	37.7	75	33.5	67	12	59-130/30
78-59-1	Isophorone	ND		50	41.6	83	37.9	76	9	45-130/30
91-57-6	2-Methylnaphthalene	ND		50	38.1	76	35.3	71	8	43-130/30
88-74-4	2-Nitroaniline	ND		50	47.0	94	43.9	88	7	58-130/30
99-09-2	3-Nitroaniline	ND		50	57.1	114	52.6	105	8	55-130/30
100-01-6	4-Nitroaniline	ND		50	58.9	118	53.5	107	10	58-130/30
91-20-3	Naphthalene	ND		50	37.3	75	34.3	69	8	43-130/30
98-95-3	Nitrobenzene	ND		50	42.2	84	38.7	77	9	47-130/30
621-64-7	N-Nitroso-di-n-propylamine	ND		50	35.7	71	34.5	69	3	41-130/30
86-30-6	N-Nitrosodiphenylamine	ND		50	33.5	67	30.7	61	9	56-132/30
85-01-8	Phenanthrene	ND		50	40.4	81	37.6	75	7	59-130/30
129-00-0	Pyrene	ND		50	46.5	93	43.3	87	7	51-130/30
120-82-1	1,2,4-Trichlorobenzene	ND		50	36.7	73	33.1	66	10	43-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D17285-1	Limits
367-12-4	2-Fluorophenol	78%	70%	73%	43-130%
4165-62-2	Phenol-d5	75%	70%	74%	47-130%
118-79-6	2,4,6-Tribromophenol	100%	91%	80%	32-138%

## Matrix Spike/Matrix Spike Duplicate Summary

Page 3 of 3

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2502-MS	1G09075.D	1	09/16/10	TMB	09/13/10	OP2502	E1G285
OP2502-MSD	1G09076.D	1	09/16/10	TMB	09/13/10	OP2502	E1G285
D17285-1	1G09074.D	1	09/16/10	TMB	09/13/10	OP2502	E1G285

The QC reported here applies to the following samples:

Method: SW846 8270C

D17219-1, D17219-2

CAS No.	Surrogate Recoveries	MS	MSD	D17285-1	Limits
4165-60-0	Nitrobenzene-d5	70%	63%	63%	45-130%
321-60-8	2-Fluorobiphenyl	63%	57%	58%	45-130%
1718-51-0	Terphenyl-d14	73%	67%	63%	47-136%

(a) Outside control limits due to matrix interference.



## GC Volatiles

## QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D17219  
Account: CORCCOGJ Olsson Associates  
Project: Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB389-MB	GB7148.D	1	09/13/10	JL	n/a	n/a	GGB389

The QC reported here applies to the following samples: Method: SW846 8015B

D17219-1, D17219-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.20	mg/l	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	115% 60-140%

Blank Spike Summary

Job Number: D17219  
Account: CORCCOGJ Olsson Associates  
Project: Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB389-BS	GB7149.D	1	09/13/10	JL	n/a	n/a	GGB389

The QC reported here applies to the following samples: Method: SW846 8015B

D17219-1, D17219-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-GRO (C6-C10)	2.2	2.17	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	115%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D17219  
Account: CORCCOGJ Olsson Associates  
Project: Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D17250-1MS	GB7156.D	1	09/13/10	JL	n/a	n/a	GGB389
D17250-1MSD	GB7157.D	1	09/13/10	JL	n/a	n/a	GGB389
D17250-1	GB7155.D	1	09/13/10	JL	n/a	n/a	GGB389

The QC reported here applies to the following samples: Method: SW846 8015B

D17219-1, D17219-2

CAS No.	Compound	D17250-1 mg/l	Spike Q	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	2.2	2.14	97	1.99	90	7	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D17250-1	Limits
120-82-1	1,2,4-Trichlorobenzene	112%	101%	107%	60-140%

7.3.1  
7

## GC Semi-volatiles

### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

Page 1 of 1

**Job Number:** D17219  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2511-MB	FD4122.D	1	09/14/10	CP	09/14/10	OP2511	GFD179

The QC reported here applies to the following samples:

Method: SW846-8015B

D17219-1, D17219-2

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	ND	0.40	mg/l	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	96% 40-137%

8.1.1

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Blank Spike Summary

Job Number: D17219  
Account: CORCCOGJ Olsson Associates  
Project: Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2511-BS	FD4123.D	1	09/14/10	CP	09/14/10	OP2511	GFD179

The QC reported here applies to the following samples: Method: SW846-8015B

D17219-1, D17219-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	20	20.4	102	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	99%	40-137%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D17219  
Account: CORCCOGJ Olsson Associates  
Project: Table 910-1

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2511-MS	FD4124.D	1	09/14/10	CP	09/14/10	OP2511	GFD179
OP2511-MSD	FD4125.D	1	09/14/10	CP	09/14/10	OP2511	GFD179
D17306-1	FD4126.D	1	09/14/10	CP	09/14/10	OP2511	GFD179

The QC reported here applies to the following samples: Method: SW846-8015B

D17219-1, D17219-2

CAS No.	Compound	D17306-1 mg/l	Spike Q mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND	20	23.8	119	23.5	118	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D17306-1	Limits
84-15-1	o-Terphenyl	113%	114%	100%	40-137%



## Metals Analysis

### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D17219  
Account: CORCCOGJ - Olsson Associates  
Project: Table 910-1

QC Batch ID: MP2894  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 09/15/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	7	49		
Antimony	30	1.7	13	2.2	<30
Arsenic	25	2.8	6.5	-1.2	<25
Barium	10	.14	2.4	0.20	<10
Beryllium	10	1.4	4.4	-0.80	<10
Boron	50	3.5	19	6.3	<50
Cadmium	10	.22	1.2	0.30	<10
Calcium	400	17	9.2	19.0	<400
Chromium	10	.27	1.6	0.20	<10
Cobalt	5.0	.48	.3	-0.50	<5.0
Copper	5.0	1.6	2.7	1.2	<5.0
Iron	70	7.7	10	46.2	<70
Lead	50	1.3	3.2	0.90	<50
Lithium	2.0	.76	1.6	4.0	<5.0
Magnesium	200	5.8	12	5.5	<200
Manganese	5.0	.21	.7	0.80	<5.0
Molybdenum	10	.41	1.2	0.60	<10
Nickel	30	.38	.6	-0.30	<30
Phosphorus	100	15	54		
Potassium	1000	380	540	291	<1000
Selenium	50	2.8	7.2	-0.70	<50
Silicon	50	12	20	31.5	<50
Silver	30	.98	.3	0.0	<30
Sodium	400	230	23		
Strontium	5.0	.091	3.4	0.10	<5.0
Thallium	10	3.1	2.1	-4.4	<10
Tin	50	14	4.4		
Titanium	10	.098	.7		
Uranium	50	2.2	3.9	2.1	<50
Vanadium	10	.27	.3	0.30	<10
Zinc	30	.76	1.7	1.0	<30

Associated samples MP2894: D17219-1F, D17219-2F

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D17219  
Account: CORCCOGJ - Olsson Associates  
Project: Table 910-1

QC Batch ID: MP2894  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17219  
Account: CORCCOGJ - Olsson Associates  
Project: Table 910-1

QC Batch ID: MP2894  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 09/15/10

Metal	D17275-1 Original MS		Spikelot MPICPAL	% Rec	QC Limits
Aluminum					
Antimony	7.0	878	1000	87.1	75-125
Arsenic	36.3	1030	1000	99.4	75-125
Barium	55.6	1970	2000	95.7	75-125
Beryllium	0.0	512	500	102.4	75-125
Boron	1060	2160	1000	109.0	75-125
Cadmium	0.50	461	500	92.1	75-125
Calcium	109000	134000	25000	100.0	75-125
Chromium	5.9	463	500	91.4	75-125
Cobalt	0.50	444	500	88.7	75-125
Copper	9.3	521	500	102.3	75-125
Iron	1870	6730	5000	97.2	75-125
Lead	2.5	892	1000	89.0	75-125
Lithium	119	1110	1000	97.4	75-125
Magnesium	46100	70800	25000	98.8	75-125
Manganese	170	626	500	91.2	75-125
Molybdenum	102	578	500	95.2	75-125
Nickel	3.9	452	500	89.6	75-125
Phosphorus					
Potassium	60000	85100	25000	100.4	75-125
Selenium	6.7	940	1000	93.3	75-125
Silicon	27300	29300	1000	160.0(a)	75-125
Silver	0.0	182	200	91.0	75-125
Sodium	anr				
Strontium	829	1340	500	102.2	75-125
Thallium	0.0	853	1000	85.3	75-125
Tin					
Titanium					
Uranium	150	1030	1000	88.0	75-125
Vanadium	19.9	529	500	101.8	75-125
Zinc	17.0	465	500	89.6	75-125

Associated samples MP2894: D17219-1F, D17219-2F

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17219  
Account: CORCCOGJ - Olsson Associates  
Project: Table 910-1

QC Batch ID: MP2894  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested
- (a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17219  
Account: CORCCOGJ - Olsson Associates  
Project: Table 910-1

QC Batch ID: MP2894  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 09/15/10

Metal	D17275-1 Original	MSD	Spikelet MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	7.0	872	1000	86.5	0.7	20
Arsenic	36.3	1030	1000	99.4	0.0	20
Barium	55.6	1960	2000	95.2	0.5	20
Beryllium	0.0	509	500	101.8	0.6	20
Boron	1060	2120	1000	105.0	1.9	20
Cadmium	0.50	458	500	91.5	0.7	20
Calcium	109000	132000	25000	92.0	1.5	20
Chromium	5.9	460	500	90.8	0.7	20
Cobalt	0.50	445	500	88.9	0.2	20
Copper	9.3	517	500	101.5	0.8	20
Iron	1870	6680	5000	96.2	0.7	20
Lead	2.5	894	1000	89.2	0.2	20
Lithium	119	1100	1000	96.4	0.9	20
Magnesium	46100	70000	25000	95.6	1.1	20
Manganese	170	623	500	90.6	0.5	20
Molybdenum	102	577	500	95.0	0.2	20
Nickel	3.9	451	500	89.4	0.2	20
Phosphorus						
Potassium	60000	83900	25000	95.6	1.4	20
Selenium	6.7	939	1000	93.2	0.1	20
Silicon	27300	28900	1000	120.0	1.4	20
Silver	0.0	182	200	91.0	0.0	20
Sodium	anr					
Strontium	829	1330	500	100.2	0.7	20
Thallium	0.0	857	1000	85.7	0.5	20
Tin						
Titanium						
Uranium	150	1020	1000	87.0	1.0	20
Vanadium	19.9	528	500	101.6	0.2	20
Zinc	17.0	464	500	89.4	0.2	20

Associated samples MP2894: D17219-1F, D17219-2F

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17219  
Account: CORCCOGJ - Olsson Associates  
Project: Table 910-1

QC Batch ID: MP2894  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D17219  
 Account: CORCCOGJ - Olsson Associates  
 Project: Table 910-1

QC Batch ID: MP2894  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 09/15/10

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony	867	1000	86.7	80-120
Arsenic	950	1000	95.0	80-120
Barium	1900	2000	95.0	80-120
Beryllium	513	500	102.6	80-120
Boron	1020	1000	102.0	80-120
Cadmium	447	500	89.4	80-120
Calcium	24400	25000	97.6	80-120
Chromium	469	500	93.8	80-120
Cobalt	452	500	90.4	80-120
Copper	477	500	95.4	80-120
Iron	4850	5000	97.0	80-120
Lead	934	1000	93.4	80-120
Lithium	985	1000	98.5	80-120
Magnesium	23500	25000	94.0	80-120
Manganese	464	500	92.8	80-120
Molybdenum	483	500	96.6	80-120
Nickel	459	500	91.8	80-120
Phosphorus				
Potassium	24100	25000	96.4	80-120
Selenium	906	1000	90.6	80-120
Silicon	960	1000	96.0	80-120
Silver	176	200	88.0	80-120
Sodium	anr			
Strontium	494	500	98.8	80-120
Thallium	955	1000	95.5	80-120
Tin				
Titanium				
Uranium	957	1000	95.7	80-120
Vanadium	510	500	102.0	80-120
Zinc	448	500	89.6	80-120

Associated samples MP2894: D17219-1F, D17219-2F

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D17219  
Account: CORCCOGJ - Olsson Associates  
Project: Table 910-1

QC Batch ID: MP2894  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

9.1.3

9

## General Chemistry

### QC Data Summaries

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Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D17219  
Account: CORCCOGJ - Olsson Associates  
Project: Table 910-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN6357	5.0	2.4	mg/l	100	99.3	99.3	90-110%
Alkalinity, Carbonate	GN6358	5.0	0.0	mg/l	100	99.3	99.3	80-120%
Alkalinity, Total as CaCO3	GN6356	5.0	2.4	mg/l	100	99.3	99.3	90-110%
Bromide	GP2759/GN6329	0.20	0.0	mg/l	20	18.8	94.0	90-110%
Chlorate	GP2818/GN6462	0.020	0.0	mg/l	.142	0.14	98.6	85-115%
Chloride	GP2759/GN6329	0.50	0.0	mg/l	20	20.8	104.0	90-110%
Chloride	GP2800/GN6430	0.50	0.0	mg/l	20	18.4	92.0	90-110%
Chlorite	GP2818/GN6462	0.020	0.0	mg/l	.365	0.37	101.4	85-115%
Fluoride	GP2800/GN6430	0.20	0.0	mg/l	10	9.08	90.8	90-110%
Hydroxide Alkalinity	GN6359	5.0	0.0	mg/l	100	99.3	99.3	80-120%
Nitrogen, Nitrate	GP2759/GN6329	0.045	0.0	mg/l	4.52	4.24	93.8	90-110%
Nitrogen, Nitrate	GP2800/GN6430	0.045	0.0	mg/l	4.52	4.44	98.3	90-110%
Nitrogen, Nitrite	GP2759/GN6329	0.061	0.0	mg/l	6.09	5.96	97.9	90-110%
Phosphate, Ortho	GP2759/GN6329	0.065	0.0	mg/l	9.78	9.39	96.0	90-110%
Solids, Total Dissolved	GN6332	10	0.0	mg/l	400	402	100.5	90-110%
Specific Conductivity	GP2769/GN6341			umhos/cm	99.9	93.4	93.5	90-110%
Sulfate	GP2759/GN6329	0.50	0.0	mg/l	30	29.0	96.7	90-110%
Sulfate	GP2800/GN6430	0.50	0.0	mg/l	30	29.3	97.7	90-110%

Associated Samples:

Batch GN6332: D17219-1, D17219-2  
Batch GN6356: D17219-1, D17219-2  
Batch GN6357: D17219-1, D17219-2  
Batch GN6358: D17219-1, D17219-2  
Batch GN6359: D17219-1, D17219-2  
Batch GP2759: D17219-1, D17219-2  
Batch GP2769: D17219-1, D17219-2  
Batch GP2800: D17219-1, D17219-2  
Batch GP2818: D17219-1, D17219-2

(\*) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D17219  
Account: CORCCOGJ - Olsson Associates  
Project: Table 910-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO <sub>3</sub>	GN6356	D17291-1	mg/l	668	672	0.6	0-20%
Solids, Total Dissolved	GN6332	D17198-1	mg/l	314	300	4.6	0-25%
Specific Conductivity	GP2769/GN6341	D17246-5	umhos/cm	1050	1050	0.2	0-20%

Associated Samples:

Batch GN6332: D17219-1, D17219-2

Batch GN6356: D17219-1, D17219-2

Batch GP2769: D17219-1, D17219-2

(\*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D17219  
Account: CORCCOGJ - Olsson Associates  
Project: Table 910-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO <sub>3</sub>	GN6356	D17291-1	mg/l	668	100	756	88.7	80-120%
Bromide	GP2759/GN6329	D17263-7	mg/l	0.0	2.5	2.4	96.0	80-120%
Chlorate	GP2818/GN6462	D17219-1	mg/l	0.0	2.000	2.0	100.0	75-125%
Chloride	GP2759/GN6329	D17263-7	mg/l	1.9	10	10.6	87.0	80-120%
Chloride	GP2800/GN6430	D17246-1	mg/l	114	50	166	104.0	80-120%
Chlorite	GP2818/GN6462	D17219-1	mg/l	0.0	2.000	1.9	95.0	75-125%
Fluoride	GP2800/GN6430	D17246-1	mg/l	0.88	2.5	3.2	92.8	80-120%
Nitrogen, Nitrate	GP2759/GN6329	D17263-7	mg/l	0.096	0.565	0.62	92.7	80-120%
Nitrogen, Nitrate	GP2800/GN6430	D17246-1	mg/l	0.0	0.565	0.51	90.3	80-120%
Nitrogen, Nitrite	GP2759/GN6329	D17263-7	mg/l	0.0	0.305	0.28	92.0	80-120%
Phosphate, Ortho	GP2759/GN6329	D17263-7	mg/l	0.0	0.815	0.74	90.8	80-120%
Sulfate	GP2759/GN6329	D17263-7	mg/l	7.3	10	16.8	95.0	80-120%
Sulfate	GP2800/GN6430	D17246-1	mg/l	113	50	164	102.0	80-120%

Associated Samples:

Batch GN6356: D17219-1, D17219-2

Batch GP2759: D17219-1, D17219-2

Batch GP2800: D17219-1, D17219-2

Batch GP2818: D17219-1, D17219-2

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

10.3  
10

MATRIX SPIKE DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D17219  
Account: CORCCOGJ - Olsson Associates  
Project: Table 910-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO <sub>3</sub>	GN6356	D17291-1	mg/l	668	100	753	0.4	20%
Bromide	GP2759/GN6329	D17263-7	mg/l	0.0	2.5	2.5	4.1	20%
Chlorate	GP2818/GN6462	D17219-1	mg/l	0.0	2.000	1.99	0.0	20%
Chloride	GP2759/GN6329	D17263-7	mg/l	1.9	10	11.0	3.7	20%
Chloride	GP2800/GN6430	D17246-1	mg/l	114	50	166	0.0	20%
Chlorite	GP2818/GN6462	D17219-1	mg/l	0.0	2.000	1.89	0.0	20%
Fluoride	GP2800/GN6430	D17246-1	mg/l	0.88	2.5	3.2	0.0	20%
Nitrogen, Nitrate	GP2759/GN6329	D17263-7	mg/l	0.096	0.565	0.65	4.7	20%
Nitrogen, Nitrate	GP2800/GN6430	D17246-1	mg/l	0.0	0.565	0.52	1.9	20%
Nitrogen, Nitrite	GP2759/GN6329	D17263-7	mg/l	0.0	0.305	0.29	3.5	20%
Phosphate, Ortho	GP2759/GN6329	D17263-7	mg/l	0.0	0.815	0.76	2.7	20%
Sulfate	GP2759/GN6329	D17263-7	mg/l	7.3	10	17.4	3.5	20%
Sulfate	GP2800/GN6430	D17246-1	mg/l	113	50	164	0.0	20%

Associated Samples:

Batch GN6356: D17219-1, D17219-2

Batch GP2759: D17219-1, D17219-2

Batch GP2800: D17219-1, D17219-2

Batch GP2818: D17219-1, D17219-2

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

10.4  
10



10/22/10

## Technical Report for

Olsson Associates

Barett BBC Pad Seep

010-0974

Accutest Job Number: D18348

Sampling Date: 10/19/10

### Report to:

Olsson Associates  
826 21 1/2 Road  
Grand Junction, CO 81505  
kkreie@oaconsulting.com

ATTN: Ken Kreie

Total number of pages in report: **13**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

A handwritten signature in black ink, appearing to read 'John Hamilton'.

John Hamilton  
Laboratory Director

Client Service contact: Amanda Kissell 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

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Test results relate only to samples analyzed.

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Sample Summary

Olsson Associates

Job No: D18348

Barett BBC Pad Seep  
Project No: 010-0974

Sample Number	Collected		Matrix Code	Type	Client Sample ID
	Date	Time By			
D18348-1	10/19/10	14:50 JS	10/20/10	AQ Field Blank Water	BLANK
D18348-2	10/19/10	14:55 JS	10/20/10	AQ Water	THARP

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** Olsson Associates**Job No** D18348**Site:** Barett BBC Pad Seep**Report Dat** 10/22/2010 1:41:12 PM

On 10/20/2010, one (1) sample, 0 Trip Blanks, and one (1) Field Blank were received at Accutest Mountain States (AMS) at a temperature of 4.5°C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D18348 was assigned to the project. The lab sample IDs, client sample IDs, and dates of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GC By Method SW846 8021B

**Matrix** AQ**Batch ID:** GTA569

- All samples were analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D18348-2MS and D18348-2MSD were used as the QC samples indicated.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

### Sample Results

### Report of Analysis

## Report of Analysis

<b>Client Sample ID:</b>	BLANK	<b>Date Sampled:</b>	10/19/10
<b>Lab Sample ID:</b>	D18348-1	<b>Date Received:</b>	10/20/10
<b>Matrix:</b>	AQ - Field Blank Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8021B		
<b>Project:</b>	Barett BBC Pad Seep		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA9434.D	1	10/20/10	BR	n/a	n/a	GTA569
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	1.0	ug/l	
108-88-3	Toluene	ND	2.0	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	2.0	ug/l	
	m,p-Xylene	ND	2.0	2.0	ug/l	
95-47-6	o-Xylene	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	85%		60-140%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	THARP	<b>Date Sampled:</b>	10/19/10
<b>Lab Sample ID:</b>	D18348-2	<b>Date Received:</b>	10/20/10
<b>Matrix:</b>	AQ - Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8021B		
<b>Project:</b>	Barett BBC Pad Seep		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA9435.D	1	10/20/10	BR	n/a	n/a	GTA569
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	2.2	1.0	1.0	ug/l	
108-88-3	Toluene	ND	2.0	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	2.0	ug/l	
	m,p-Xylene	ND	2.0	2.0	ug/l	
95-47-6	o-Xylene	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	72%		60-140%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Misc. Forms

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### Custody Documents and Other Forms

---

Includes the following where applicable:

- Chain of Custody



# CHAIN OF CUSTODY

4036 Youngfield Street, Wheat Ridge, Colorado 80033  
TEL: 303-425-6021; 877-737-4521 FAX: 303-425-6854  
www.accutest.com

D18348

PAGE 1 OF 1

Client / Reporting Information			Project Information			Requested Analysis (see TEST CODE sheet)										Matrix Codes							
Company Name <b>Obson Associates</b>			Project Name <b>Baretti BCC Pad Seep</b>													DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank							
Street Address <b>826 21 1/2 Rd.</b>			Street																				
City <b>Grand Jct., CO</b>			City																				
State <b>81505</b>			State																				
Zip			Zip																				
Project Contact <b>Ken Kreier</b>			Project # <b>210-09MU</b>			Billing Information (if different from Report to)										LAB USE ONLY							
E-mail			Client Purchase Order #			Company Name										01							
Phone # <b>970-263-7800</b>			Fax #			Street Address										02							
Sample(s) Name(s) <b>J. Sanna</b>			Phone # <b>970-263-7800</b>			City										03							
Project Manager <b>Ken Kreier</b>			Attention:			State																	
Zip						Zip																	
Collection			Number of preserved bottles																				
Field ID / Point of Collection			MECH/ID Val #																				
BLANK			10/17/10 1450			X FB 4																	
THARP			10/17/10 1455			X GW 4																	
Turnaround Time (Business Days)			Data Deliverable Information			Comments / Special Instructions																	
<input type="checkbox"/> Std. 10 Business Days			Approved By (Accutest PM): / Date:			<input type="checkbox"/> Level 1																	
<input type="checkbox"/> UST Analysis 3-5 Days						<input type="checkbox"/> Level 2																	
<input type="checkbox"/> 6 - 9 Day RUSH						<input type="checkbox"/> Level 3																	
<input type="checkbox"/> 3 - 5 Day RUSH						<input type="checkbox"/> Level 4																	
<input type="checkbox"/> 2 Day EMERGENCY						Level 1 = Results Only																	
<input type="checkbox"/> 1 Day EMERGENCY						Level 2 = Results + QC Summary + Case Narrative																	
Emergency & Rush T/A data available via Lablink						Level 3 = Results + QC Summary + Partial Raw data																	
						Level 4 = Full Deliverable																	
Sample custody must be documented below each time samples change possession, including courier delivery.																							
Relinquished by Sampler: <b>1</b>			Date Time: <b>10/19/10 1700</b>			Received By: <b>1 Jacob Parker 10/20/10</b>			Relinquished By: <b>28:45 AM FEDEX</b>			Date Time:			Received By: <b>2</b>								
Relinquished by Sampler: <b>3</b>			Date Time:			Received By: <b>3</b>			Relinquished By: <b>4</b>			Date Time:			Received By: <b>4</b>								
Relinquished by: <b>5</b>			Date Time:			Received By: <b>5</b>			Custody Seal #			<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not intact			Preserved where applicable <input checked="" type="checkbox"/>			On Ice <input checked="" type="checkbox"/>			Cooler Temp. <b>45</b>		

D18348: Chain of Custody

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## GC Volatiles

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## QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



## Method Blank Summary

Page 1 of 1

**Job Number:** D18348  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Barett BBC Pad Seep

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTA569-MB	TA9429.D	1	10/20/10	BR	n/a	n/a	GTA569

The QC reported here applies to the following samples:

Method: SW846 8021B

D18348-1, D18348-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	2.0	ug/l	
108-88-3	Toluene	ND	2.0	2.0	ug/l	
95-47-6	o-Xylene	ND	2.0	2.0	ug/l	
	m,p-Xylene	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	94% 60-140%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D18348  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Barett BBC Pad Seep

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTA569-BS	TA9430.D	1	10/20/10	BR	n/a	n/a	GTA569

The QC reported here applies to the following samples:

Method: SW846 8021B

D18348-1, D18348-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	27.2	23.9	88	70-130
100-41-4	Ethylbenzene	45.6	44.8	98	70-130
108-88-3	Toluene	212	195	92	70-130
95-47-6	o-Xylene	65.9	59.3	90	70-130
	m,p-Xylene	150	155	103	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	103%	60-140%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D18348  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Barett BBC Pad Seep

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D18348-2MS	TA9436.D	1	10/20/10	BR	n/a	n/a	GTA569
D18348-2MSD	TA9437.D	1	10/20/10	BR	n/a	n/a	GTA569
D18348-2	TA9435.D	1	10/20/10	BR	n/a	n/a	GTA569

The QC reported here applies to the following samples:

Method: SW846 8021B

D18348-1, D18348-2

CAS No.	Compound	D18348-2 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	2.2	27.2	26.2	88	25.8	87	2	70-130/30
100-41-4	Ethylbenzene	ND	45.6	44.2	97	44.0	96	0	62-130/30
108-88-3	Toluene	ND	212	191	90	190	90	1	70-130/30
95-47-6	o-Xylene	ND	65.9	58.2	88	57.8	88	1	63-130/30
	m,p-Xylene	ND	150	152	101	151	101	1	70-134/30

CAS No.	Surrogate Recoveries	MS	MSD	D18348-2	Limits
120-82-1	1,2,4-Trichlorobenzene	96%	94%	72%	60-140%



11/29/10

Technical Report for

Olsson Associates

009-2484

Accutest Job Number: D18953

Sampling Date: 11/11/10

Report to:

Olsson Associates  
826 21 1/2 Road  
Grand Junction, CO 81505  
kkreie@oaconsulting.com

ATTN: Ken Kreie

Total number of pages in report: **24**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

A handwritten signature in black ink, appearing to read 'John Hamilton'.

John Hamilton  
Laboratory Director

Client Service contact: Amanda Kissell 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

Test results relate only to samples analyzed.

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Sample Summary

Olsson Associates  
009-2484

Job No: D18953

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D18953-1	11/11/10	10:50 KK	11/12/10	AQ	Equipment Blank	EQUIPMENT BLANK
D18953-2	11/11/10	10:55 KK	11/12/10	AQ	Ground Water	RINSE
D18953-3	11/11/10	15:30 KK	11/12/10	AQ	Field Blank Water	FIELD BLANK
D18953-4	11/11/10	15:35 KK	11/12/10	AQ	Ground Water	THAR1
D18953-5	11/11/10	00:00 KK	11/12/10	AQ	Trip Blank Water	TRIP BLANK

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** Olsson Associates

**Job No** D18953

**Site:** 009-2484

**Report Dat** 11/29/2010 2:26:42 PM

On 11/12/2010, three (3) samples, 1 Trip Blanks, and 1 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 4.0°C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D18953 was assigned to the project. The lab sample IDs, client sample IDs, and dates of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

**Matrix** AQ

**Batch ID:** V5V654

- All samples were analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D18953-2MS and D18953-2MSD were used as the QC samples indicated.

**Matrix** AQ

**Batch ID:** V5V655

- All samples were analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D18986-1MS and D18986-1MSD were used as the QC samples indicated.

### Volatiles by GC By Method RSK175 MOD

**Matrix** AQ

**Batch ID:** GFB78

- All samples were analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D18953-4MS and D18953-4MSD were used as the QC samples indicated.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

### Sample Results

### Report of Analysis



## Report of Analysis

**Client Sample ID:** EQUIPMENT BLANK  
**Lab Sample ID:** D18953-1  
**Matrix:** AQ - Equipment Blank  
**Method:** SW846 8260B  
**Project:** 009-2484

**Date Sampled:** 11/11/10  
**Date Received:** 11/12/10  
**Percent Solids:** n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V11578.D	1	11/13/10	DC	n/a	n/a	V5V654
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
	m,p-Xylene	ND	4.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.60	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		63-130%
2037-26-5	Toluene-D8	99%		68-130%
460-00-4	4-Bromofluorobenzene	89%		61-130%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	RINSE	<b>Date Sampled:</b>	11/11/10
<b>Lab Sample ID:</b>	D18953-2	<b>Date Received:</b>	11/12/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	009-2484		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V11575.D	1	11/13/10	DC	n/a	n/a	V5V654
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
	m,p-Xylene	ND	4.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.60	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	106%		63-130%
2037-26-5	Toluene-D8	96%		68-130%
460-00-4	4-Bromofluorobenzene	86%		61-130%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	FIELD BLANK	<b>Date Sampled:</b>	11/11/10
<b>Lab Sample ID:</b>	D18953-3	<b>Date Received:</b>	11/12/10
<b>Matrix:</b>	AQ - Field Blank Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	009-2484		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V11579.D	1	11/13/10	DC	n/a	n/a	V5V654
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
	m,p-Xylene	ND	4.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.60	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	102%		63-130%
2037-26-5	Toluene-D8	96%		68-130%
460-00-4	4-Bromofluorobenzene	86%		61-130%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	THAR1	<b>Date Sampled:</b>	11/11/10
<b>Lab Sample ID:</b>	D18953-4	<b>Date Received:</b>	11/12/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	009-2484		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V11580.D	1	11/13/10	DC	n/a	n/a	V5V654
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1.3	1.0	0.30	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
	m,p-Xylene	ND	4.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	96%		63-130%
2037-26-5	Toluene-D8	95%		68-130%
460-00-4	4-Bromofluorobenzene	86%		61-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



## Report of Analysis

<b>Client Sample ID:</b>	TRIP BLANK	<b>Date Sampled:</b>	11/11/10
<b>Lab Sample ID:</b>	D18953-5	<b>Date Received:</b>	11/12/10
<b>Matrix:</b>	AQ - Trip Blank Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	009-2484		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V11593.D	1	11/16/10	DC	n/a	n/a	V5V655
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
	m,p-Xylene	ND	4.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.60	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%		63-130%
2037-26-5	Toluene-D8	95%		68-130%
460-00-4	4-Bromofluorobenzene	87%		61-130%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Misc. Forms

### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody





## GC/MS Volatiles

5

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

Page 1 of 1

**Job Number:** D18953  
**Account:** CORCCOGJ Olsson Associates  
**Project:** 009-2484

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V654-MB1	5V11561A.D 1		11/13/10	DC	n/a	n/a	V5V654

The QC reported here applies to the following samples:

Method: SW846 8260B

D18953-1, D18953-2, D18953-3, D18953-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	1.0	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
95-47-6	m,p-Xylene	ND	4.0	0.60	ug/l	
	o-Xylene	ND	2.0	0.60	ug/l	

CAS No.	Surrogate Recoveries	Limits
17060-07-0	1,2-Dichloroethane-D4	87% 63-130%
2037-26-5	Toluene-D8	88% 68-130%
460-00-4	4-Bromofluorobenzene	79% 61-130%

## Method Blank Summary

Page 1 of 1

**Job Number:** D18953  
**Account:** CORCCOGJ Olsson Associates  
**Project:** 009-2484

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V655-MB1	5V11583.D	1	11/16/10	DC	n/a	n/a	V5V655

The QC reported here applies to the following samples:

Method: SW846 8260B

D18953-5

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
	m,p-Xylene	ND	4.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.60	ug/l	

CAS No.	Surrogate Recoveries	Limits
17060-07-0	1,2-Dichloroethane-D4	105% 63-130%
2037-26-5	Toluene-D8	94% 68-130%
460-00-4	4-Bromofluorobenzene	86% 61-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D18953  
**Account:** CORCCOGJ Olsson Associates  
**Project:** 009-2484

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V654-BS1	5V11562A.D 1		11/13/10	DC	n/a	n/a	V5V654

The QC reported here applies to the following samples:

Method: SW846 8260B

D18953-1, D18953-2, D18953-3, D18953-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	50.4	101	70-130
100-41-4	Ethylbenzene	50	52.7	105	70-130
1634-04-4	Methyl Tert Butyl Ether	50	51.1	102	70-146
108-88-3	Toluene	50	51.8	104	70-140
	m,p-Xylene	50	51.6	103	55-134
95-47-6	o-Xylene	50	49.1	98	55-134

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	93%	63-130%
2037-26-5	Toluene-D8	97%	68-130%
460-00-4	4-Bromofluorobenzene	98%	61-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D18953  
**Account:** CORCCOGJ Olsson Associates  
**Project:** 009-2484

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V655-BS1	5V11584.D	1	11/16/10	DC	n/a	n/a	V5V655

The QC reported here applies to the following samples:

Method: SW846 8260B

D18953-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	50.8	102	70-130
100-41-4	Ethylbenzene	50	51.6	103	70-130
108-88-3	Toluene	50	50.8	102	70-140
	m,p-Xylene	50	50.0	100	55-134
95-47-6	o-Xylene	50	47.8	96	55-134

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	100%	63-130%
2037-26-5	Toluene-D8	97%	68-130%
460-00-4	4-Bromofluorobenzene	99%	61-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D18953  
**Account:** CORCCOGJ Olsson Associates  
**Project:** 009-2484

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D18953-2MS	5V11576.D	1	11/13/10	DC	n/a	n/a	V5V654
D18953-2MSD	5V11577.D	1	11/13/10	DC	n/a	n/a	V5V654
D18953-2	5V11575.D	1	11/13/10	DC	n/a	n/a	V5V654

The QC reported here applies to the following samples:

Method: SW846 8260B

D18953-1, D18953-2, D18953-3, D18953-4

CAS No.	Compound	D18953-2 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	50	50.6	101	51.5	103	2	59-132/30
100-41-4	Ethylbenzene	ND	50	51.1	102	52.2	104	2	68-130/30
1634-04-4	Methyl Tert Butyl Ether	ND	50	53.8	108	55.5	111	3	57-150/30
108-88-3	Toluene	ND	50	50.8	102	52.3	105	3	56-142/30
95-47-6	m,p-Xylene	ND	50	49.2	98	50.7	101	3	36-146/30
	o-Xylene	ND	50	48.4	97	49.1	98	1	36-146/30

CAS No.	Surrogate Recoveries	MS	MSD	D18953-2	Limits
17060-07-0	1,2-Dichloroethane-D4	102%	98%	106%	63-130%
2037-26-5	Toluene-D8	99%	98%	96%	68-130%
460-00-4	4-Bromofluorobenzene	97%	98%	86%	61-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D18953  
**Account:** CORCCOGJ Olsson Associates  
**Project:** 009-2484

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D18986-1MS	5V11591.D	1	11/16/10	DC	n/a	n/a	V5V655
D18986-1MSD	5V11592.D	1	11/16/10	DC	n/a	n/a	V5V655
D18986-1	5V11590.D	1	11/16/10	DC	n/a	n/a	V5V655

The QC reported here applies to the following samples:

Method: SW846 8260B

D18953-5

CAS No.	Compound	D18986-1 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	0.50	50	50.6	100	53.9	107	6	59-132/30
100-41-4	Ethylbenzene	ND	50	51.4	103	54.3	109	5	68-130/30
108-88-3	Toluene	ND	50	50.7	101	53.2	106	5	56-142/30
	m,p-Xylene	ND	50	50.4	101	52.6	105	4	36-146/30
95-47-6	o-Xylene	ND	50	48.5	97	51.1	102	5	36-146/30

CAS No.	Surrogate Recoveries	MS	MSD	D18986-1	Limits
17060-07-0	1,2-Dichloroethane-D4	97%	104%	106%	63-130%
2037-26-5	Toluene-D8	98%	100%	96%	68-130%
460-00-4	4-Bromofluorobenzene	100%	102%	89%	61-130%

## GC Volatiles

## QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



## Method Blank Summary

Page 1 of 1

**Job Number:** D18953  
**Account:** CORCCOGJ Olsson Associates  
**Project:** 009-2484

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB78-MB	FB2836.D	1	11/16/10	JB	n/a	n/a	GFB78

The QC reported here applies to the following samples:

Method: RSK175 MOD

D18953-4

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.00080	0.00080	mg/l	

Blank Spike/Blank Spike Duplicate Summary

Job Number: D18953  
Account: CORCCOGJ Olsson Associates  
Project: 009-2484

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB78-BS	FB2837.D	10	11/16/10	JB	n/a	n/a	GFB78
GFB78-BSD	FB2838.D	10	11/16/10	JB	n/a	n/a	GFB78

The QC reported here applies to the following samples: Method: RSK175 MOD

D18953-4

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
74-82-8	Methane	0.5094	0.574	113	0.593	116	3	70-130/30

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D18953  
Account: CORCCOGJ Olsson Associates  
Project: 009-2484

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D18953-4MS	FB2857.D	10	11/16/10	JB	n/a	n/a	GFB78
D18953-4MSD	FB2858.D	10	11/16/10	JB	n/a	n/a	GFB78
D18953-4	FB2840.D	1	11/16/10	JB	n/a	n/a	GFB78

The QC reported here applies to the following samples: Method: RSK175 MOD

D18953-4

CAS No.	Compound	D18953-4 mg/l	Spike Q mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
74-82-8	Methane	0.0293	0.5094	0.599	112	0.601	112	0	70-130/30



12/14/10

## Technical Report for

Olsson Associates

Tharp Investigation-GJ CO

Project 009-2484

Accutest Job Number: D19427

Sampling Date: 12/02/10

### Report to:

Olsson Associates  
826 21 1/2 Road  
Grand Junction, CO 81505  
kkreie@oaconsulting.com

ATTN: Ken Kreie

Total number of pages in report: **19**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

A handwritten signature in black ink, appearing to read 'J. Hamilton'.

John Hamilton  
Laboratory Director

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

Test results relate only to samples analyzed.

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Sample Summary

Olsson Associates

Job No: D19427

Tharp Investigation-GJ CO  
Project No: Project 009-2484

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D19427-1	12/02/10	11:50 KK	12/03/10	AQ	Ground Water	THAR1
D19427-1R	12/02/10	11:50 KK	12/03/10	AQ	Ground Water	THAR1
D19427-2	12/02/10	12:45 KK	12/03/10	AQ	Ground Water	THAR2
D19427-2R	12/02/10	12:45 KK	12/03/10	AQ	Ground Water	THAR2
D19427-3	12/02/10	11:30 KK	12/03/10	AQ	Ground Water	EQUIPMENT BLANK
D19427-4	12/02/10	09:50 SH	12/03/10	SO	Sludge	THARSS1

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** Olsson Associates**Job No** D19427**Site:** Tharp Investigation-GJ CO**Report Dat** 12/14/2010 11:43:21 A

On 12/03/2010, four (4) samples, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 5.8°C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D19427 was assigned to the project. The lab sample IDs, client sample IDs, and dates of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

**Matrix** AQ**Batch ID:** V5V677

- All samples were analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D19402-2MS and D19402-2MSD were used as the QC samples indicated.

**Matrix** SO**Batch ID:** V5V679

- All samples were analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D19427-4MS and D19427-4MSD were used as the QC samples indicated.

### Wet Chemistry By Method SM19 2540B M

**Matrix** SO**Batch ID:** GN7464

- The data for SM19 2540B M meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis



## Report of Analysis

<b>Client Sample ID:</b>	THAR1	<b>Date Sampled:</b>	12/02/10
<b>Lab Sample ID:</b>	D19427-1	<b>Date Received:</b>	12/03/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	Tharp Investigation-GJ CO		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V11841.D	2	12/03/10	DC	n/a	n/a	V5V677
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1.9	2.0	0.60	ug/l	J
108-88-3	Toluene	234	4.0	2.0	ug/l	
100-41-4	Ethylbenzene	ND	4.0	0.60	ug/l	
	m,p-Xylene	ND	8.0	1.2	ug/l	
95-47-6	o-Xylene	ND	4.0	1.2	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	4.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	100%		63-130%
2037-26-5	Toluene-D8	103%		68-130%
460-00-4	4-Bromofluorobenzene	92%		61-130%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	THAR2	<b>Date Sampled:</b>	12/02/10
<b>Lab Sample ID:</b>	D19427-2	<b>Date Received:</b>	12/03/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	Tharp Investigation-GJ CO		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V11842.D	1	12/03/10	DC	n/a	n/a	V5V677
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
	m,p-Xylene	ND	4.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	112%		63-130%
2037-26-5	Toluene-D8	105%		68-130%
460-00-4	4-Bromofluorobenzene	94%		61-130%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	EQUIPMENT BLANK	<b>Date Sampled:</b>	12/02/10
<b>Lab Sample ID:</b>	D19427-3	<b>Date Received:</b>	12/03/10
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	Tharp Investigation-GJ CO		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V11843.D	1	12/03/10	DC	n/a	n/a	V5V677
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
	m,p-Xylene	ND	4.0	0.60	ug/l	
95-47-6	o-Xylene	ND	2.0	0.60	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	117%		63-130%
2037-26-5	Toluene-D8	106%		68-130%
460-00-4	4-Bromofluorobenzene	93%		61-130%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	THARSS1	<b>Date Sampled:</b>	12/02/10
<b>Lab Sample ID:</b>	D19427-4	<b>Date Received:</b>	12/03/10
<b>Matrix:</b>	SO - Sludge	<b>Percent Solids:</b>	60.9
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	Tharp Investigation-GJ CO		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V11848.D	1	12/03/10	DC	n/a	n/a	V5V679
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.00 g	5.0 ml	100 ul
Run #2			

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	110	34	ug/kg	
108-88-3	Toluene	ND	230	110	ug/kg	
100-41-4	Ethylbenzene	ND	230	46	ug/kg	
	m,p-Xylene	ND	460	80	ug/kg	
95-47-6	o-Xylene	ND	230	80	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	99%		70-130%
17060-07-0	1,2-Dichloroethane-D4	107%		70-130%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Misc. Forms

### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody

4036 Youngfield Street, Wheat Ridge, Colorado 80033  
TEL: 303-425-6021; 877-737-4521 FAX: 303-425-6854  
[www.accutest.com](http://www.accutest.com)

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job #

[illegible]

## D19427: Chain of Custody

Page 1 of 2

**Job Change Order: D19427\_12/9/2010**

<b>Requested Date:</b>	12/9/2010	<b>Received Date:</b>	12/3/2010
<b>Account Name:</b>	Olsson Associates	<b>Due Date:</b>	12/17/2010
<b>Project Description:</b>	Tharp Investigation-GJ CO	<b>Deliverable:</b>	COMMBN
<b>SR:</b>	AK	<b>TAT (Days):</b>	14
<b>Sample #:</b>	D19427-1 and 2	<b>Change:</b>	Please log in for V8260MTBE on the original sample for retrieval and an R sample for Billing purposes only. Please make due date 12/10/10.

<b>above Changes</b>	Ken Krele	<b>Date:</b>	12/9/2010
----------------------	-----------	--------------	-----------

o Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service

Page 1 of 1

**D19427: Chain of Custody**  
**Page 2 of 2**

## GC/MS Volatiles

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### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



## Method Blank Summary

Page 1 of 1

**Job Number:** D19427  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Tharp Investigation-GJ CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V677-MB1	5V11835.D	1	12/03/10	DC	n/a	n/a	V5V677

The QC reported here applies to the following samples:

Method: SW846 8260B

D19427-1, D19427-2, D19427-3

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.30	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	1.0	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
95-47-6	m,p-Xylene	ND	4.0	0.60	ug/l	
	o-Xylene	ND	2.0	0.60	ug/l	

CAS No.	Surrogate Recoveries	Limits
17060-07-0	1,2-Dichloroethane-D4	105% 63-130%
2037-26-5	Toluene-D8	104% 68-130%
460-00-4	4-Bromofluorobenzene	94% 61-130%

## Method Blank Summary

Page 1 of 1

**Job Number:** D19427  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Tharp Investigation-GJ CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V679-MB1	5V11835B.D 1		12/03/10	DC	n/a	n/a	V5V679

The QC reported here applies to the following samples:

Method: SW846 8260B

D19427-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	15	ug/kg	
100-41-4	Ethylbenzene	ND	100	20	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
	m,p-Xylene	ND	200	35	ug/kg	
95-47-6	o-Xylene	ND	100	35	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	104% 70-130%
460-00-4	4-Bromofluorobenzene	94% 70-130%
17060-07-0	1,2-Dichloroethane-D4	105% 70-130%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

## Blank Spike Summary

Page 1 of 1

**Job Number:** D19427  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Tharp Investigation-GJ CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V677-BS1	5V11836.D	1	12/03/10	DC	n/a	n/a	V5V677

The QC reported here applies to the following samples:

Method: SW846 8260B

D19427-1, D19427-2, D19427-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	56.7	113	70-130
100-41-4	Ethylbenzene	50	57.6	115	70-130
1634-04-4	Methyl Tert Butyl Ether	50	55.9	112	70-146
108-88-3	Toluene	50	53.9	108	70-140
95-47-6	m,p-Xylene	50	53.0	106	55-134
	o-Xylene	50	53.0	106	55-134

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	94%	63-130%
2037-26-5	Toluene-D8	106%	68-130%
460-00-4	4-Bromofluorobenzene	110%	61-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D19427  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Tharp Investigation-GJ CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V679-BS1	5V11836B.D 1		12/03/10	DC	n/a	n/a	V5V679

The QC reported here applies to the following samples:

Method: SW846 8260B

D19427-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	56.7	113	68-130
100-41-4	Ethylbenzene	50	57.6	115	70-130
108-88-3	Toluene	50	53.9	108	70-130
	m,p-Xylene	50	53.0	106	53-130
95-47-6	o-Xylene	50	53.0	106	61-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	106%	70-130%
460-00-4	4-Bromofluorobenzene	110%	70-130%
17060-07-0	1,2-Dichloroethane-D4	94%	70-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D19427  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Tharp Investigation-GJ CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D19402-2MS	5V11838.D	1	12/03/10	DC	n/a	n/a	V5V677
D19402-2MSD	5V11839.D	1	12/03/10	DC	n/a	n/a	V5V677
D19402-2	5V11837.D	1	12/03/10	DC	n/a	n/a	V5V677

The QC reported here applies to the following samples:

Method: SW846 8260B

D19427-1, D19427-2, D19427-3

CAS No.	Compound	D19402-2 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	50	56.5	113	55.7	111	1	59-132/30
100-41-4	Ethylbenzene	ND	50	55.5	111	55.8	112	1	68-130/30
1634-04-4	Methyl Tert Butyl Ether	ND	50	59.7	119	58.9	118	1	57-150/30
108-88-3	Toluene	ND	50	52.7	105	53.0	106	1	56-142/30
95-47-6	m,p-Xylene	ND	50	51.9	104	51.9	104	0	36-146/30
	o-Xylene	ND	50	52.2	104	52.8	106	1	36-146/30

CAS No.	Surrogate Recoveries	MS	MSD	D19402-2	Limits
17060-07-0	1,2-Dichloroethane-D4	100%	100%	111%	63-130%
2037-26-5	Toluene-D8	105%	106%	104%	68-130%
460-00-4	4-Bromofluorobenzene	110%	111%	96%	61-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D19427  
**Account:** CORCCOGJ Olsson Associates  
**Project:** Tharp Investigation-GJ CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D19427-4MS	5V11849.D	1	12/03/10	DC	n/a	n/a	V5V679
D19427-4MSD	5V11850.D	1	12/03/10	DC	n/a	n/a	V5V679
D19427-4	5V11848.D	1	12/03/10	DC	n/a	n/a	V5V679

The QC reported here applies to the following samples:

Method: SW846 8260B

D19427-4

CAS No.	Compound	D19427-4 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		5710	6610	116	6660	117	1	55-140/30
100-41-4	Ethylbenzene	ND		5710	6580	115	6640	116	1	56-139/30
108-88-3	Toluene	ND		5710	6120	107	6160	108	1	57-144/30
	m,p-Xylene	ND		5710	6150	108	6160	108	0	47-130/30
95-47-6	o-Xylene	ND		5710	6190	108	6220	109	0	51-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D19427-4	Limits
2037-26-5	Toluene-D8	104%	105%	103%	70-130%
460-00-4	4-Bromofluorobenzene	116%	116%	99%	70-130%
17060-07-0	1,2-Dichloroethane-D4	99%	103%	107%	70-130%