



FORM  
4  
Rev 12/05

Page 2

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

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COGCC

- |  |
|--|
| 1. OGCC Operator Number: <u>10079</u> API Number: <u>N/A</u>                                   |
| 2. Name of Operator: <u>Antero Resources Piceance Corp</u> OGCC Facility ID # <u>149020</u>    |
| 3. Well/Facility Name: <u>Wasatch Bench Water Mngmt Fac</u> , Well/Facility Number: <u>N/A</u> |
| 4. Location (QtrQtr, Sec, Twp, Rng, Meridian): <u>NWNW Section 20, T6S, R92W, 6th P.M.</u>     |

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.

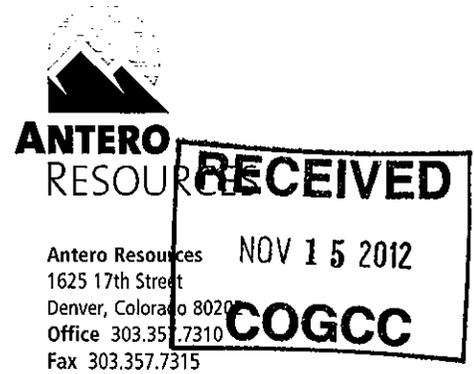
5. DESCRIBE PROPOSED OR COMPLETED OPERATIONS

Attached please find Antero Resources' response to the Conditions of Approval for the May 23, 2011 Liner Repair and Replacement Sundry.

Enclosures

November 13, 2011

Attn: Alex Fisher  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, CO 80203



**RE: Response to May 23, 2011 Liner Repair and Replacement Conditions of Approval Sundry  
Antero Resources Piceance Corporation ("Antero")**

Mr. Alex Fisher,

Enclosed with this letter is a Sundry Form 4 prepared in response to the Conditions of Approval set forth in the May 23, 2011 approved Sundry Form 4 regarding liner replacements at Antero's Wasatch Bench Water Management Facility. The Response to the Conditions of Approval is attached to the enclosed Sundry Form 4.

If you have any questions please feel free to contact Mr. Jerry Alberts at (303) 357-7341 or me at (303) 357-6709.

Sincerely,

Cole Kilstrom  
Environmental Specialist  
Antero Resources Piceance Corporation

Enclosures



State of Colorado

Fischer, Alex <alex.fischer@state.co.us>

## Facility ID: 149020; Wasatch Bench Water Management Facility

1 message

Fischer, Alex <alex.fischer@state.co.us>

Wed, Nov 21, 2012 at 10:48 AM

To: Jerry Alberts <jalberts@anteroresources.com>, Randy Kloberdanz <rkloberdanz@anteroresources.com>

Jerry,

The COGCC is in receipt of Antero's Sundry Form 4 Response to COA Sundry, dated November 13, 2012 (Document Number 1949117). The submitted Sundry does not address the conditions of approval (COA).

*" within 30 calendar days of construction/refurbishing activities."*

The "Site As-Built Survey" provides a detail of the facility but does not provide structural detail and integrity of the facility and embankments. The "Site As-Built Survey" was stamped by a Professional Land Surveyor and not by a P.E. as required. The "Site As-Built Survey" was to be provided within 30-days of construction. It has been well over a year since the work was completed.

In the approved Sundry (Document Number 2214225) Antero stated:

- *"Weston Solutions, Inc. is engineering the new liner implementation, overseeing project management, and will provide as-built diagrams after completion if new liners are installed."*
- *"Engineered diagrams will be submitted to the COGCC after replacement is completed."*

### Additional COAs.

- Hydrostatic testing of the facility shall be annually and not every two years as proposed by Antero. This COA will be reevaluated upon receipt of the required as-built information.
- Operator shall provide engineered calculation (using Bernoulli's equation, or other) to determine the site- and pit-specific Action Leak Rate (ALR) for the Wasatch Bench Water Management Facility Pit. (This was an original COA that was not adequately addressed).
- Provide a liner inspection report including all QA/QC documentation.
- Operator must submit a professional engineer (P.E.) approved/stamped as-built drawing (planview and cross-sections) of the pit/facility.
- Provide the required information by February 1, 2013.

Thanks  
Alex

—

**Alex Fischer, P.G.**  
**Environmental Supervisor, Western Colorado**  
 State of Colorado, Oil and Gas Conservation Commission  
 1120 Lincoln Street, Suite 801  
 Denver, Colorado 80203  
 office: 303.894-2100 ext. 5138 | fax: 303.894-2109  
 email: alex.fischer@state.co.us

## Antero Resources Piceance Corporation

### Wasatch Bench Water Management Facility – COGCC Facility ID Number 149020

#### Response to Conditions of Approval for May 23, 2011 Liner Repair and Replacement Sundry

##### **Overview**

This Notice of Completion Sundry Form 4 is being provided to the Colorado Oil and Gas Conservation Commission (“COGCC”) in response to the Wasatch Bench Water Management Facility (“Facility”) Liner Repair/Replacement Sundry submitted to the COGCC on May 23, 2011 and approved on June 5, 2011.

The liner repair and installation at the Facility commenced in early June 2011 and continued through July 2011. The work included removing both the 60 mil HDPE liner and lower liner and installing two 80 mil HDPE liners with a 6-inch leak detection pipe installed between the two liners. On July 22, 2011, Mr. Alex Fisher of the COGCC was notified that the liner installation and hydrostatic test was complete. Mr. Fisher subsequently approved Antero’s request to re-commission the Facility on August 9, 2011 via e-mail.

##### **Condition of Approval Number One - Existing Baseline Conditions**

Requires analytical data on the two down gradient monitoring wells at this Facility and a grab sample from the water in the pit. Comparisons will be made between existing baseline conditions and water in the pit. The samples will be evaluated for the following parameters;

- Anions (Cl, BR, SO4) by Method 300.0IC
- Dissolved metals (Ca, Fe, Mg, Mn, K, Na) by Method 6010B
- Alkalinity Series (Carbonate, Bicarbonate, Hydroxide, and Total Alkalinity) by Method 2320B
- Total Dissolved Solids by Method 2540C
- Specific Conductance by Method 2510C
- pH by Method E150.1
- Volatile Organics, full list by GC/MS
- Semi-Volatile Organics, full list by GC/

##### **Antero Response**

There are two water wells (Monitoring Wells 1 and 2) located down gradient from the Wasatch Bench Pond. These wells are shown in the attached Figure 1. Monitoring Well 2 is sampled monthly for BTEX to monitor possible impacts from the Wasatch Bench Pond. Monitoring Well 1 is usually dry, but is also sampled with Monitoring Well 2, if possible. Antero commenced its monthly sampling monitoring program in the summer of 2010. Sampling data since that time indicate no impacts to ground water have occurred.

On June 3, 2011, while the Wasatch Bench Pond was being emptied, Monitoring Well 2 (“MW-2”) was sampled for the constituents specified in Condition of Approval Number One, listed above. Wasatch Bench Pond water was also sampled and analyzed for the same constituents. Monitoring Well 1 was dry and could not be sampled. Furthermore on July 12, 2011, after the liner installation was complete, MW-2 was sampled again and analyzed for the parameters required in Conditional of Approval Number One. The hard copy lab analytical report for these two sample events is provided in Appendix A, “Water Quality Results.” Summary tables of the results are provided in the Tables section of this report.

The Wasatch Bench Pond analytical results provided in Appendix A indicate that the produced water has high levels of metals (Ca, Fe, Mg, Mn, K, Na), chlorides, acetone, benzene, and toluene which is characteristic of produced water generated from the Piceance Basin Williams Fork formation. In comparison, the analytical results from MW-2 are non-detect in acetone, benzene, and toluene and have significantly lower metal and chloride values. The results suggest that there is no communication between the Wasatch Bench Pond water and the underlying groundwater.

##### **Condition of Approval Number Two - Hydrostatic Testing**

After installation of the uppermost liner and prior to using any pit, the synthetic liner(s) shall be tested by filling the pit with at least eight (8) feet of fresh water, measured from the base of the pit (not to exceed the two (2) foot

freeboard requirement). The operator shall monitor the pit for leaks for a period of seventy-two (72) hours prior to draining the pit and commencing operations. User of the pit shall not resume until a successful hydrotest is performed and the results have been submitted with a Form 4, Sundry Notice to the Director for approval. Hydrotest monitoring results must be maintained by the operator for the life of the pit and provided to the Director upon request. Operator shall notify the COGCC Environmental Supervisor for Western Colorado ([Alex.fischer@state.co.us](mailto:Alex.fischer@state.co.us)) 48 hours prior to the initial hydrotest.

*R. 2011  
w/ Alex Fischer*

**Antero Response**

On July 13, 2011 Antero verbally notified the COGCC that Antero would be performing the hydrostatic test on July 18, 2011. The test was conducted from July 18 through July 21 2011 to monitor the pit for possible leaks prior to commencing operations. The hydrostatic test was conducted before Antero began using the pit for normal operations. The results from the test are provided in Appendix B.

**Condition of Approval Three – Action Leak Rate Determinations**

3(a) – Operator shall provide engineered calculations (using Bernoulli’s equation, or other) to determine the site and pit specific Action Leak Rate (ALR) for the Wasatch Bench Water Management Facility Pit.

**Antero Response**

The hydrostatic test results provided in Appendix B describe the testing procedure for the calculated change in pit level during the test. The calculated change in pit level was determined by the equation:

$$\Delta S = P + I - O - E$$

Where:             $\Delta S$  = Change in pit storage  
                      P = Precipitation Inflow  
                      I = Measured Inflows  
                      O = Measured Outflows  
                      E = Evaporation

The calculated change of water level during the 72 hour test event was (-0.41) inches. The measured change was (-0.36) inches. It is noted that there was no observable loss of liner integrity and that evaporation exceeded measured fluid level drop in the pit. Weather during the test was dry and hot, daytime temperatures ranging from 80-90 degrees.

3(b) – Operator shall verify through the initial 72-hour leak test that the calculated ALR is correct or adjust the value as necessary.

**Antero Response**

The initial 72 hour leak test resulted in a calculated change in inches of (-0.136) inches/day and the measured change in inches was (-0.12) inches/day. The difference between the calculated and measured pit fluid level was 0.016 inches/day.

3(c) Proposed changes to the ALR shall be submitted to the COGCC via Form 4 Sundry Notice for approval

**Antero Response**

The hydrotest, conducted July 18 through July 21, 2012, resulted in no observed loss in liner system integrity; therefore corrections or adjustments to the Action Leakage Rate (ALR) are not warranted at this time. The ALR may be evaluated in the near future with data and information obtained from the implementation of Antero Resources’ leak detection monitoring program.

**3(d) Provide a hydrostatic testing plan and schedule for the duration of the facility**

**Antero Response**

Antero is proposing to do hydrostatic testing at the Wasatch Bench Pond once every two years. The hydrostatic test will be conducted when operations permit. Monitoring Well 2 will continue to be sampled on a monthly basis and bi-monthly sump inspections will occur starting in October 2012.

**Condition of Approval Four – As-Built Drawing**

Operator must submit a professional engineer (PE) approved/stamped as-built drawing (planview and cross-sections) of the pit within 30 calendar days of the construction/refurbishing activities.

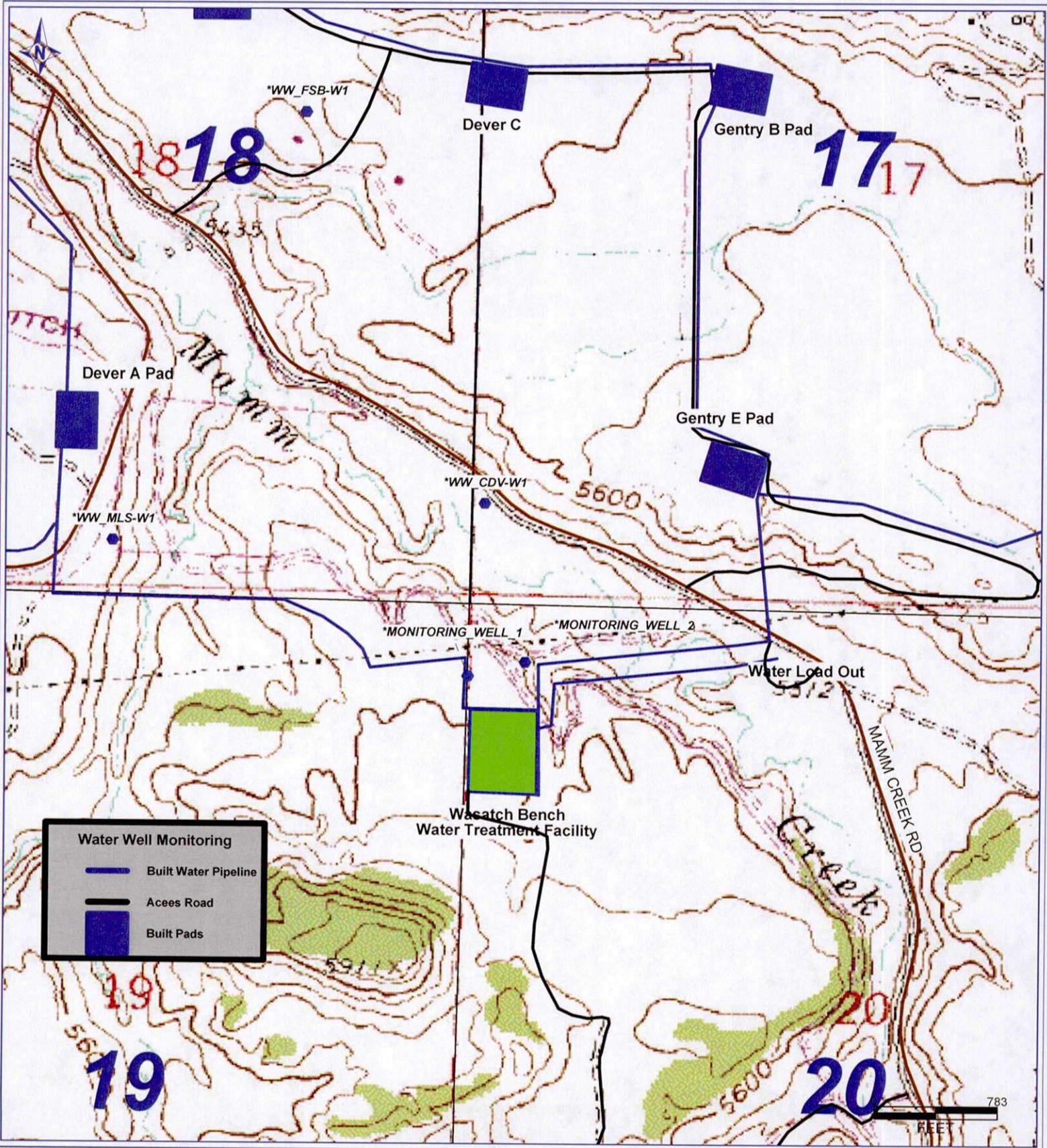
**Antero Response**

The as-built survey was completed on August 11, 2011, by River Valley Survey, Inc. The as-built Survey is included in Appendix C of this submittal.

# Figure 1



Monitoring Well Location Map



# Tables

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**TABLES**  
**Analytical Data Comparison - Wasatch Bench Pond Produced Water and Monitoring Well # 2**  
**Antero Resources Piceance Corporation**

Sample Location	POND	Monitoring Well # 1 (MW-1)	Monitoring Well # 2 (MW-2)
Date Collected	6/3/2012	6/3/2012	7/12/2011
<b>Volatile Organics</b>			
Acetone (ug/l)	1590.000	<10	<10
Benzene (ug/l)	1980.000	<1.0	<1.0
Bromodichloromethane (ug/l)	<100	<2.0	<2.0
Bromofom (ug/l)	<100	<2.0	<2.0
Chlorobenzene (ug/l)	<100	<2.0	<2.0
Chloroethane (ug/l)	<100	<2.0	<2.0
Chloroform (ug/l)	<100	<2.0	<2.0
2-Chloroethyl vinyl ether (ug/l)	<500	<10	<10
Carbon Disulfide (ug/l)	<100	1.800	1.800
Carbon Tetrachloride (ug/l)	<100	<2.0	<2.0
1, 1-Dichloroethane (ug/l)	<100	<2.0	<2.0
1, 1-Dichloroethylene (ug/l)	<100	<2.0	<2.0
1, 2-Dichloroethane (ug/l)	<100	<2.0	<2.0
1, 2-Dichloropropane (ug/l)	<100	<2.0	<2.0
Dibromochloromethane (ug/l)	<100	<2.0	<2.0
cis-1, 2-Dichloroethylene (ug/l)	<50	0.390	0.390
cis-1, 3-Dichloropropane (ug/l)	<100	<2.0	<2.0
m-Dichlorobenzene (ug/l)	<100	<2.0	<2.0
o-Dichlorobenzene (ug/l)	<100	<2.0	<2.0
p-Dichlorobenzene (ug/l)	<100	0.610	<2.0
trans-1, 2-Dichloroethylene (ug/l)	<100	1.000	<2.0
trans-1, 3-Dichloropropane (ug/l)	<100	<2.0	<2.0
Ethylbenzene (ug/l)	<100	<2.0	<2.0
2-Hexanone (ug/l)	<100	<2.0	<2.0
4-Methyl-2-pentanone (ug/l)	<500	<10	<10
Methyl Bromide (ug/l)	<250	<5.0	<5.0
Methyl Chloride (ug/l)	<100	<2.0	<2.0
Methylene Chloride (ug/l)	<250	<5.0	<5.0
Methyl ethyl ketone (ug/l)	<500	<10	<10
Styrene (ug/l)	26.2	<2.0	<2.0
1, 1, 1-Trichloroethane (ug/l)	<100	<2.0	<2.0
1, 1, 2, 2-Tetrachloroethane (ug/l)	<100	<2.0	<2.0
1, 1, 2-Trichloroethane (ug/l)	<100	<2.0	<2.0
Toluene (ug/l)	4690	<2.0	<2.0
Trichloroethylene (ug/l)	<100	<2.0	<2.0
Vinyl Chloride (ug/l)	<100	<2.0	<2.0
Vinyl Acetate (ug/l)	<250	<5.0	<5.0
Xylene (Total) (ug/l)	4650	<4.0	<4.0

Sample Location	POND	Monitoring Well # 1 (MW-1)	Monitoring Well # 2 (MW-2)
Date Collected	6/3/2012	6/3/2012	7/12/2011
<b>Semi-Volatile Organics</b>			
Benzoic Acid	<2500	<19	<20
2-Chlorophenol	<250	<1.9	<2.0
4-Chloro-3-methyl phenol	<630	<4.8	<5.0
2, 4-Dichlorophenol	<250	<1.9	<2.0
2, 4-Dimethylphenol	<130	<0.95	<1.0
2, 4-Dinitrophenol	<630	<4.8	<5.0
4, 6-Dinitro-o-cresol	<1300	<9.5	<10
2-Methylphenol	<630	<4.8	<5.0
4-Methylphenol	<250	<1.9	<2.0
2-Nitrophenol	<250	<1.9	<2.0
4-Nitrophenol	<940	<7.1	<7.5
Pentachlorophenol	<630	<4.8	<5.0
Phenol	<630	<4.8	<5.0
2, 4, 5-Trichlorophenol	<630	<4.8	<5.0
2, 4, 6-Trichlorophenol	<630	<4.8	<5.0
Acenaphthene	<130	<0.95	<1.0
Acenaphthylene	<130	<0.95	<1.0
Anthracene	<250	<1.9	<2.0
Benzo(a)anthracene	<130	<0.95	<1.0
Benzo(a)pyrene	<130	<0.95	<1.0
Benzo(b)fluoranthene	<130	<0.95	<1.0
Benzo(g,h,i)perylene	<250	<1.9	<2.0
Benzo(k)fluoranthene	<250	<1.9	<2.0
4-Bromophenyl phenyl ether	<250	<1.9	<2.0
Butyl benzyl phthalate	<250	<1.9	<2.0
Benzyl Alcohol	<630	<4.8	<5.0
2-Chloronaphthalene	<630	<4.8	<5.0
4-Chloroaniline	<630	<4.8	<5.0
Chrysene	<130	<0.95	<1.0
bis(2-Chloroethoxy)methane	<630	<4.8	<5.0
bis(2-Chloroethyl)ether	<250	<1.9	<2.0
bis(2-Chloroisopropyl)ether	<630	<4.8	<5.0
4-Chlorophenyl phenyl ether	<630	<4.8	<5.0
1, 2-Dichlorobenzene	<630	<4.8	<5.0
1, 3-Dichlorobenzene	<630	<4.8	<5.0
1, 4-Dichlorobenzene	<630	<4.8	<5.0
2, 4-Dinitrotoluene	<630	<4.8	<5.0
2, 6-Dinitrotoluene	<630	<4.8	<5.0
3, 3'-Dichlorobenzidine	<630	<4.8	<5.0
Dibenzo(a,h)anthracene	<250	<1.9	<2.0
Dibenzofuran	<630	<4.8	<5.0
Di-n-butyl phthalate	<250	<1.9	<2.0
Di-n-octyl phthalate	<250	<1.9	<2.0
Diethyl phthalate	<250	<1.9	<2.0
Dimethyl phthalate	<250	<1.9	<2.0
bis(2-Ethylhexyl)phthalate	<250	<1.9	<2.0
Fluoranthene	<250	<1.9	<2.0
Fluorene	731	<1.9	<2.0
Hexachlorobenzene	<250	<1.9	<2.0
Hexachlorobutadiene	<630	<4.8	<5.0
Hexachlorocyclopentadiene	<1300	<9.5	<10
Hexachloroethane	<630	<4.8	<5.0
Indeno(1,2,3-cd)pyrene	<630	<4.8	<5.0
Isophorone	<250	<1.9	<2.0
2-Methylnaphthalene	3450	<4.8	<5.0
2-Nitroaniline	<630	<4.8	<5.0
3-Nitroaniline	<630	<4.8	<5.0
4-Nitroaniline	<630	<4.8	<5.0
Naphthalene	553	<0.95	<1.0
Nitrobenzene	<130	<0.95	<1.0
N-Nitroso-di-n-propylamine	<250	<1.9	<2.0
N-Nitrosodiphenylamine	<250	<1.9	<2.0
Phenanthrene	<130	<0.95	<1.0
Pyrene	<130	<0.95	<1.0
1,2,4-Trichlorobenzene	<630	<4.8	<5.0

Sample Location	POND	Monitoring Well # 1 (MW-1)	Monitoring Well # 2 (MW-2)
Date Collected	6/3/2012	6/3/2012	7/12/2011
<b>Metals</b>			
Calcium	124000.00	7440.00	7350.00
Iron	10700.00	<70	99.90
Magnesium	18400.00	987.00	895.00
Manganese	797.00	30.80	30.20
Potassium	30400.00	1710.00	1350.00
Sodium	3510000.00	409000.00	392000.00
<b>Alkalinity Series</b>			
Alkalinity, Bicarbonate as CaC (mg/l)	1280.00	330.00	327.00
Alkalinity, Carbonate (mg/l)	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO <sub>3</sub> (mg/l)	1280.00	330.00	327.00
<b>Other Parameters</b>			
Bromide (mg/l)	43.4	2.1	1.9
Chloride (mg/l)	5540	429	417
Total Dissolved Solids (TDS)	10300	1110	1140
Specific Conductivity	14700	1760	1760
Sulfate (mg/l)	26.3	36.8	37.4
pH	7.52	8.06	8.07

# Appendix A

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Water Quality Results



06/17/11

**Technical Report for**

---

**LT Environmental  
Wasatch Pond Facility**

**Accutest Job Number: D24028**

**Sampling Date: 06/03/11**

---

**Report to:**

**LT Environmental**

**bdodek@ltenv.com**

**ATTN: Brian Dodek**

**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.

  
**John Hamilton  
Laboratory Director**

**Client Service contact: 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.

# Table of Contents

Sections:



-1-

<b>Section 1: Sample Summary .....</b>	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary .....</b>	<b>4</b>
<b>Section 3: Sample Results .....</b>	<b>6</b>
3.1: D24028-1: MW-2 .....	7
3.2: D24028-1F: MW-2 .....	13
3.3: D24028-2: POND .....	14
3.4: D24028-2F: POND .....	20
<b>Section 4: Misc. Forms .....</b>	<b>21</b>
4.1: Chain of Custody .....	22

### Sample Summary

LT Environmental

Job No: D24028

Wasatch Pond Facility

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D24028-1	06/03/11	14:10	CM	06/04/11	AQ Ground Water	MW-2
D24028-1F	06/03/11	14:10	CM	06/04/11	AQ Groundwater Filtered	MW-2
D24028-2	06/03/11	13:10	CM	06/04/11	AQ Ground Water	POND
D24028-2F	06/03/11	13:10	CM	06/04/11	AQ Groundwater Filtered	POND

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** LT Environmental

**Job No** D24028

**Site:** Wasatch Pond Facility

**Report Dat** 6/17/2011 8:43:53 AM

On 06/04/2011, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D24028 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

<b>Matrix</b> AQ	<b>Batch ID:</b> V7V379
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24293-6MS, D24293-6MSD were used as the QC samples indicated.
- The blank spike (BS) recovery(s) of Vinyl Acetate are outside control limits. Compound ND in associated samples.
- The RPD(s) for the MS and MSD recoveries of 2-Chloroethyl vinyl ether are outside control limits for sample D24293-6MSD. Probable cause due to sample homogeneity.
- D24293-6MS/MSD for 2-Chloroethyl vinyl ether: Recovery of 2-chloroethyl vinyl ether is affected by sample preservation.

### Extractables by GCMS By Method SW846 8270C

<b>Matrix</b> AQ	<b>Batch ID:</b> OP3808
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D23879-15MS, D23879-15MSD were used as the QC samples indicated.
- Sample(s) D24028-2 have surrogates outside control limits. Probable cause due to matrix interference.

### Metals By Method SW846 6010B

<b>Matrix</b> AQ	<b>Batch ID:</b> MP4884
------------------	-------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24028-1FMS, D24028-1FMSD were used as the QC samples for the metals analysis.

### Wet Chemistry By Method EPA 300/SW846 9056

<b>Matrix</b> AQ	<b>Batch ID:</b> GP4596
------------------	-------------------------

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D23994-2MS, D23994-2MSD were used as the QC samples for the Bromide, Chloride, Sulfate analysis.

**Wet Chemistry By Method SM20 2320B**

<b>Matrix</b> AQ	<b>Batch ID:</b> GN9898
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D23926-1ADUP, D23926-1AMS, D23926-1AMSD were used as the QC samples for the Alkalinity, Total as CaCO3 analysis.

<b>Matrix</b> AQ	<b>Batch ID:</b> GN9902
------------------	-------------------------

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

<b>Matrix</b> AQ	<b>Batch ID:</b> GN9903
------------------	-------------------------

- 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**

<b>Matrix</b> AQ	<b>Batch ID:</b> GP4608
------------------	-------------------------

- Sample(s) D24058-3DUP were used as the QC samples for the Specific Conductivity analysis.

**Wet Chemistry By Method SM20 2540C**

<b>Matrix</b> AQ	<b>Batch ID:</b> GN9850
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D23926-1ADUP were used as the QC samples for the Solids, Total Dissolved analysis.

**Wet Chemistry By Method SM20 4500H**

<b>Matrix</b> AQ	<b>Batch ID:</b> GN9881
------------------	-------------------------

- The following samples were run outside of holding time for method SM20 4500H: D24028-1, D24028-2.

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

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Report of Analysis

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Report of Analysis

Client Sample ID:	MW-2	Date Sampled:	06/03/11
Lab Sample ID:	D24028-1	Date Received:	06/04/11
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Wasatch Pond Facility		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V07103.D	1	06/15/11	KV	n/a	n/a	V7V379
Run #2							

Run #	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	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.25	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	0.50	ug/l	
75-25-2	Bromoform	ND	2.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	2.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	0.50	ug/l	
67-66-3	Chloroform	ND	2.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	10	5.0	ug/l	
75-15-0	Carbon disulfide	1.8	2.0	1.1	ug/l	J
56-23-5	Carbon tetrachloride	ND	2.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	0.77	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.39	1.0	0.32	ug/l	J
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	0.54	ug/l	
106-46-7	p-Dichlorobenzene	0.61	2.0	0.50	ug/l	J
156-60-5	trans-1,2-Dichloroethylene	1.0	2.0	0.90	ug/l	J
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	2.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	2.5	ug/l	
74-83-9	Methyl bromide	ND	5.0	2.9	ug/l	
74-87-3	Methyl chloride	ND	2.0	0.58	ug/l	
75-09-2	Methylene chloride	ND	5.0	2.5	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.5	ug/l	
100-42-5	Styrene	ND	2.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.50	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

3.1  
3

<b>Client Sample ID:</b> MW-2	<b>Date Sampled:</b> 06/03/11
<b>Lab Sample ID:</b> D24028-1	<b>Date Received:</b> 06/04/11
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> Wasatch Pond Facility	

**VOA HSL List**

CAS No.	Compound	Result	RL	MDL	Units	Q
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.50	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	0.75	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	2.5	ug/l	
1330-20-7	Xylene (total)	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	90%		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

Client Sample ID:	MW-2	Date Sampled:	06/03/11
Lab Sample ID:	D24028-1	Date Received:	06/04/11
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C		
Project:	Wasatch Pond Facility		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G102707.D	1	06/07/11	TMB	06/07/11	OP3808	E1G443
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

## ABN HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	19	7.1	ug/l	
95-57-8	2-Chlorophenol	ND	1.9	0.55	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.8	0.48	ug/l	
120-83-2	2,4-Dichlorophenol	ND	1.9	0.50	ug/l	
105-67-9	2,4-Dimethylphenol	ND	0.95	0.81	ug/l	
51-28-5	2,4-Dinitrophenol	ND	4.8	3.8	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	9.5	4.8	ug/l	
95-48-7	2-Methylphenol	ND	4.8	0.52	ug/l	
106-44-5	4-Methylphenol	ND	1.9	0.49	ug/l	
88-75-5	2-Nitrophenol	ND	1.9	0.53	ug/l	
100-02-7	4-Nitrophenol	ND	7.1	2.9	ug/l	
87-86-5	Pentachlorophenol	ND	4.8	0.67	ug/l	
108-95-2	Phenol	ND	4.8	0.48	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.8	0.74	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.8	0.56	ug/l	
83-32-9	Acenaphthene	ND	0.95	0.60	ug/l	
208-96-8	Acenaphthylene	ND	0.95	0.60	ug/l	
120-12-7	Anthracene	ND	1.9	0.48	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.95	0.48	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.95	0.48	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.95	0.48	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.9	0.54	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.9	0.48	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	1.9	0.48	ug/l	
85-68-7	Butyl benzyl phthalate	ND	1.9	0.48	ug/l	
100-51-6	Benzyl Alcohol	ND	4.8	0.61	ug/l	
91-58-7	2-Chloronaphthalene	ND	4.8	0.63	ug/l	
106-47-8	4-Chloroaniline	ND	4.8	0.49	ug/l	
218-01-9	Chrysene	ND	0.95	0.48	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	4.8	0.66	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	1.9	0.69	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	4.8	0.64	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:	MW-2	Date Sampled:	06/03/11
Lab Sample ID:	D24028-1	Date Received:	06/04/11
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C		
Project:	Wasatch Pond Facility		

## ABN HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
7005-72-3	4-Chlorophenyl phenyl ether	ND	4.8	0.53	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	4.8	0.70	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	4.8	0.86	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	4.8	0.72	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	4.8	0.48	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	4.8	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	4.8	0.58	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.9	0.78	ug/l	
132-64-9	Dibenzofuran	ND	4.8	0.55	ug/l	
84-74-2	Di-n-butyl phthalate	ND	1.9	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	1.9	0.50	ug/l	
84-66-2	Diethyl phthalate	ND	1.9	0.48	ug/l	
131-11-3	Dimethyl phthalate	ND	1.9	0.48	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1.9	0.67	ug/l	
206-44-0	Fluoranthene	ND	1.9	0.71	ug/l	
86-73-7	Fluorene	ND	1.9	0.55	ug/l	
118-74-1	Hexachlorobenzene	ND	1.9	0.48	ug/l	
87-68-3	Hexachlorobutadiene	ND	4.8	0.76	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	9.5	4.8	ug/l	
67-72-1	Hexachloroethane	ND	4.8	0.95	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.8	1.6	ug/l	
78-59-1	Isophorone	ND	1.9	0.58	ug/l	
91-57-6	2-Methylnaphthalene	ND	4.8	0.69	ug/l	
88-74-4	2-Nitroaniline	ND	4.8	0.48	ug/l	
99-09-2	3-Nitroaniline	ND	4.8	0.56	ug/l	
100-01-6	4-Nitroaniline	ND	4.8	0.53	ug/l	
91-20-3	Naphthalene	ND	0.95	0.73	ug/l	
98-95-3	Nitrobenzene	ND	0.95	0.66	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	1.9	0.66	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	1.9	0.48	ug/l	
85-01-8	Phenanthrene	ND	0.95	0.48	ug/l	
129-00-0	Pyrene	ND	0.95	0.48	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	4.8	0.83	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	47%		10-130%
4165-62-2	Phenol-d5	32%		10-136%
118-79-6	2,4,6-Tribromophenol	85%		10-153%
4165-60-0	Nitrobenzene-d5	74%		10-130%

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

3.1  
3

Client Sample ID: MW-2			
Lab Sample ID: D24028-1		Date Sampled: 06/03/11	
Matrix: AQ - Ground Water		Date Received: 06/04/11	
Method: SW846 8270C SW846 3510C		Percent Solids: n/a	
Project: Wasatch Pond Facility			

**ABN HSL List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
321-60-8	2-Fluorobiphenyl	69%		10-130%
1718-51-0	Terphenyl-d14	103%		13-130%

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

Client Sample ID: MW-2	Date Sampled: 06/03/11
Lab Sample ID: D24028-1	Date Received: 06/04/11
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Wasatch Pond Facility	

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC 330		5.0	mg/l	1	06/08/11	JK	SM20 2320B
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	06/08/11	JK	SM20 2320B
Alkalinity, Total as CaCO3	330	5.0	mg/l	1	06/08/11	JK	SM20 2320B
Bromide	2.1	0.40	mg/l	2	06/06/11 11:00	CB	EPA 300/SW846 9056
Chloride	429	5.0	mg/l	10	06/06/11 13:18	CB	EPA 300/SW846 9056
Solids, Total Dissolved	1110	10	mg/l	1	06/06/11	JK	SM20 2540C
Specific Conductivity	1750	1.0	umhos/cm	1	06/07/11	JD	SM20 2510B
Sulfate	36.8	1.0	mg/l	2	06/06/11 11:00	CB	EPA 300/SW846 9056
pH	8.08		su	1	06/07/11 11:40	JD	SM20 4500H

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> MW-2 <b>Lab Sample ID:</b> D24028-1F <b>Matrix:</b> AQ - Groundwater Filtered <b>Project:</b> Wasatch Pond Facility	<b>Date Sampled:</b> 06/03/11 <b>Date Received:</b> 06/04/11 <b>Percent Solids:</b> n/a
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**Dissolved Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	7440	400	ug/l	1	06/08/11	06/10/11 GJ	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>
Iron	< 70	70	ug/l	1	06/08/11	06/10/11 GJ	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>
Magnesium	987	200	ug/l	1	06/08/11	06/10/11 GJ	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>
Manganese	30.8	5.0	ug/l	1	06/08/11	06/10/11 GJ	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>
Potassium	1710	1000	ug/l	1	06/08/11	06/10/11 GJ	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>
Sodium	409000	400	ug/l	1	06/08/11	06/10/11 GJ	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA1584

(2) Prep QC Batch: MP4884

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RL = Reporting Limit

## Report of Analysis

Client Sample ID:	POND	Date Sampled:	06/03/11
Lab Sample ID:	D24028-2	Date Received:	06/04/11
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Wasatch Pond Facility		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V07104.D	50	06/15/11	KV	n/a	n/a	V7V379
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

## VOA HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	1590	500	250	ug/l	
71-43-2	Benzene	1980	50	13	ug/l	
75-27-4	Bromodichloromethane	ND	100	25	ug/l	
75-25-2	Bromoform	ND	100	25	ug/l	
108-90-7	Chlorobenzene	ND	100	25	ug/l	
75-00-3	Chloroethane	ND	100	25	ug/l	
67-66-3	Chloroform	ND	100	25	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	500	250	ug/l	
75-15-0	Carbon disulfide	ND	100	55	ug/l	
56-23-5	Carbon tetrachloride	ND	100	25	ug/l	
75-34-3	1,1-Dichloroethane	ND	100	25	ug/l	
75-35-4	1,1-Dichloroethylene	ND	100	39	ug/l	
107-06-2	1,2-Dichloroethane	ND	100	25	ug/l	
78-87-5	1,2-Dichloropropane	ND	100	25	ug/l	
124-48-1	Dibromochloromethane	ND	100	25	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	50	16	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	100	25	ug/l	
541-73-1	m-Dichlorobenzene	ND	100	25	ug/l	
95-50-1	o-Dichlorobenzene	ND	100	27	ug/l	
106-46-7	p-Dichlorobenzene	ND	100	25	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	45	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	100	25	ug/l	
100-41-4	Ethylbenzene	318	100	25	ug/l	
591-78-6	2-Hexanone	ND	100	25	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	500	130	ug/l	
74-83-9	Methyl bromide	ND	250	150	ug/l	
74-87-3	Methyl chloride	ND	100	29	ug/l	
75-09-2	Methylene chloride	ND	250	130	ug/l	
78-93-3	Methyl ethyl ketone	ND	500	130	ug/l	
100-42-5	Styrene	26.2	100	25	ug/l	J
71-55-6	1,1,1-Trichloroethane	ND	100	25	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	25	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:	POND	Date Sampled:	06/03/11
Lab Sample ID:	D24028-2	Date Received:	06/04/11
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Wasatch Pond Facility		

VOA HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-00-5	1,1,2-Trichloroethane	ND	100	25	ug/l	
127-18-4	Tetrachloroethylene	ND	100	25	ug/l	
108-88-3	Toluene	4690	100	50	ug/l	
79-01-6	Trichloroethylene	ND	100	25	ug/l	
75-01-4	Vinyl chloride	ND	100	38	ug/l	
108-05-4	Vinyl Acetate	ND	250	130	ug/l	
1330-20-7	Xylene (total)	4650	200	100	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	101%		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

Client Sample ID:	POND	Date Sampled:	06/03/11
Lab Sample ID:	D24028-2	Date Received:	06/04/11
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C		
Project:	Wasatch Pond Facility		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G102723.D	10	06/08/11	TMB	06/07/11	OP3808	E1G444
Run #2							

Run #	Initial Volume	Final Volume
Run #1	960 ml	12.0 ml
Run #2		

## ABN HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	2500	940	ug/l	
95-57-8	2-Chlorophenol	ND	250	73	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	630	63	ug/l	
120-83-2	2,4-Dichlorophenol	ND	250	65	ug/l	
105-67-9	2,4-Dimethylphenol	ND	130	110	ug/l	
51-28-5	2,4-Dinitrophenol	ND	630	500	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	1300	630	ug/l	
95-48-7	2-Methylphenol	ND	630	69	ug/l	
106-44-5	4-Methylphenol	ND	250	64	ug/l	
88-75-5	2-Nitrophenol	ND	250	70	ug/l	
100-02-7	4-Nitrophenol	ND	940	380	ug/l	
87-86-5	Pentachlorophenol	ND	630	88	ug/l	
108-95-2	Phenol	ND	630	63	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	630	98	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	630	74	ug/l	
83-32-9	Acenaphthene	ND	130	79	ug/l	
208-96-8	Acenaphthylene	ND	130	79	ug/l	
120-12-7	Anthracene	ND	250	63	ug/l	
56-55-3	Benzo(a)anthracene	ND	130	63	ug/l	
50-32-8	Benzo(a)pyrene	ND	130	63	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	130	63	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	250	71	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	250	63	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	250	63	ug/l	
85-68-7	Butyl benzyl phthalate	ND	250	63	ug/l	
100-51-6	Benzyl Alcohol	ND	630	80	ug/l	
91-58-7	2-Chloronaphthalene	ND	630	83	ug/l	
106-47-8	4-Chloroaniline	ND	630	64	ug/l	
218-01-9	Chrysene	ND	130	63	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	630	86	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	250	90	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	630	84	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:	POND	Date Sampled:	06/03/11
Lab Sample ID:	D24028-2	Date Received:	06/04/11
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C		
Project:	Wasatch Pond Facility		

## ABN HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
7005-72-3	4-Chlorophenyl phenyl ether	ND	630	70	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	630	93	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	630	110	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	630	95	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	630	63	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	630	63	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	630	76	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	250	100	ug/l	
132-64-9	Dibenzofuran	ND	630	73	ug/l	
84-74-2	Di-n-butyl phthalate	ND	250	65	ug/l	
117-84-0	Di-n-octyl phthalate	ND	250	65	ug/l	
84-66-2	Diethyl phthalate	ND	250	63	ug/l	
131-11-3	Dimethyl phthalate	ND	250	63	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	250	88	ug/l	
206-44-0	Fluoranthene	ND	250	94	ug/l	
86-73-7	Fluorene	731	250	73	ug/l	
118-74-1	Hexachlorobenzene	ND	250	63	ug/l	
87-68-3	Hexachlorobutadiene	ND	630	100	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	1300	630	ug/l	
67-72-1	Hexachloroethane	ND	630	130	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	630	200	ug/l	
78-59-1	Isophorone	ND	250	76	ug/l	
91-57-6	2-Methylnaphthalene	3450	630	90	ug/l	
88-74-4	2-Nitroaniline	ND	630	63	ug/l	
99-09-2	3-Nitroaniline	ND	630	74	ug/l	
100-01-6	4-Nitroaniline	ND	630	70	ug/l	
91-20-3	Naphthalene	553	130	96	ug/l	
98-95-3	Nitrobenzene	ND	130	86	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	250	86	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	250	63	ug/l	
85-01-8	Phenanthrene	852	130	63	ug/l	
129-00-0	Pyrene	ND	130	63	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	630	110	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	0% <sup>a</sup>		10-130%
4165-62-2	Phenol-d5	0% <sup>a</sup>		10-136%
118-79-6	2,4,6-Tribromophenol	0% <sup>a</sup>		10-153%
4165-60-0	Nitrobenzene-d5	0% <sup>a</sup>		10-130%

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

33  
3

<b>Client Sample ID:</b> POND <b>Lab Sample ID:</b> D24028-2 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8270C SW846 3510C <b>Project:</b> Wasatch Pond Facility	<b>Date Sampled:</b> 06/03/11 <b>Date Received:</b> 06/04/11 <b>Percent Solids:</b> n/a
--	---

**ABN HSL List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
321-60-8	2-Fluorobiphenyl	67% <sup>a</sup>		10-130%
1718-51-0	Terphenyl-d14	0% <sup>a</sup>		13-130%

(a) Outside control limits due to possible matrix interference.

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:	POND	Date Sampled:	06/03/11
Lab Sample ID:	D24028-2	Date Received:	06/04/11
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Wasatch Pond Facility		

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	1280	5.0	mg/l	1	06/08/11	JK	SM20 2320B
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	06/08/11	JK	SM20 2320B
Alkalinity, Total as CaCO3	1280	5.0	mg/l	1	06/08/11	JK	SM20 2320B
Bromide	43.4	5.0	mg/l	25	06/06/11 11:12	CB	EPA 300/SW846 9056
Chloride	5540	50	mg/l	100	06/06/11 13:31	CB	EPA 300/SW846 9056
Solids, Total Dissolved	10300	10	mg/l	1	06/06/11	JK	SM20 2540C
Specific Conductivity	14700	1.0	umhos/cm	1	06/07/11	JD	SM20 2510B
Sulfate	26.3	13	mg/l	25	06/06/11 11:12	CB	EPA 300/SW846 9056
pH	7.52		su	1	06/07/11 11:40	JD	SM20 4500H

RL = Reporting Limit

## Report of Analysis

3.4  
3

<b>Client Sample ID:</b> POND <b>Lab Sample ID:</b> D24028-2F <b>Matrix:</b> AQ - Groundwater Filtered <b>Project:</b> Wasatch Pond Facility	<b>Date Sampled:</b> 06/03/11 <b>Date Received:</b> 06/04/11 <b>Percent Solids:</b> n/a
---	---

### Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	124000	400	ug/l	1	06/08/11	06/10/11 GJ	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Iron	10700	70	ug/l	1	06/08/11	06/10/11 GJ	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Magnesium	18400	200	ug/l	1	06/08/11	06/10/11 GJ	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Manganese	797	5.0	ug/l	1	06/08/11	06/10/11 GJ	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Potassium	30400	1000	ug/l	1	06/08/11	06/10/11 GJ	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Sodium	3510000	4000	ug/l	10	06/08/11	06/14/11 JY	SW846 6010B <sup>2</sup>	SW846 3010A <sup>3</sup>

- (1) Instrument QC Batch: MA1584
- (2) Instrument QC Batch: MA1590
- (3) Prep QC Batch: MP4884

---

RL = Reporting Limit



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

FED-EX Tracking #  
Accutest Order #  
Write Order Control # **D24028**  
Accutest Job #

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)										Matrix Codes	
Company Name <b>LTE</b>		Project Name: <b>Wasatch Pond</b>		<b>Ammonia (Cl, BR, SO<sub>4</sub>) 3000K</b> <b>Disinfectant Metals Co/ClOIS</b> <b>ALKALINITY SERIES by 2510B</b> <b>TDS by 2540C</b> <b>EC by 2510C</b> <b>pH by E150.1</b> <b>Full list VOC's GC/MS</b> <b>Full list SVOC's GC/MS</b>										DW - Drinking Water GW - Ground Water WW - Waste SW - Surface Water SO - Soil SL - Sludge SED - Sediment O - Oil LO - Other Liquid AIR - Air SOL - Other Solid WIP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Street Address <b>820 Morgan Ave Unit B</b>		Billing Information (if different from Report to)													
City <b>Rifle CO 81650</b>		Company Name													
Project Contact <b>Brian Dadek bdaadek@ltev.com</b>		Street Address													
Phone # <b>303.423.9788</b>		Project # <b>025811004</b>		City		State		Zip		Attention:		LAB USE ONLY			
Sampler(s) Name(s) <b>Chris McKisson</b>		Project Manager <b>Brian Dadek</b>													
Turnaround Time (Business days)		Data Deliverable Information										Comments / Special Instructions			
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> UST Analysis 3-4 Days <input type="checkbox"/> 8-9 Day RUSH <input type="checkbox"/> 3-5 Day RUSH <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY		Approved By (Accutest Pkg. / Date):		<input type="checkbox"/> Level 1 <input type="checkbox"/> Level 2 <input type="checkbox"/> Level 3 <input type="checkbox"/> Level 4 Level 1 = Results Only Level 2 = Results + QC Summary + Case Narrative Level 3 = Results + QC Summary + Partial Raw data Level 4 = Full Deliverable	<input type="checkbox"/> PDF <input type="checkbox"/> EDD Format <input type="checkbox"/> Other										
Emergency & Rush T/A data available VIA Lablink		Sample Custody must be documented below each time samples change possession, including courier delivery.													
Relinquished by Sample:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:
3	6.3.11 1440	1	6.3.11 1440	2	6.3.11 1440	3	6.3.11 1440	4	6.3.11 1440	5	6.3.11 1440	6	6.3.11 1440	7	6.3.11 1440
5															

4.1  
4

D24028: Chain of Custody  
Page 1 of 3



# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D24028 Client: LT Immediate Client Services Action Required: Yes

Date / Time Received: 6/4/2011 10:20:00 AM Delivery Method: \_\_\_\_\_

Project: Wasatch Pond No. Coolers: \_\_\_\_\_ Airbill #'s: FEDEX

**Cooler Security**

1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. SmpI Dates/Time OK	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Cooler Temperature**

1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	<u>Infrared gun</u>	
3. Cooler media:	<u>Ice (bag)</u>	

**Quality Control Preservation**

	<u>Y</u>	<u>N</u>	<u>NA</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/>	<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Comments**

No metals listed. I cant find any history - plz tell me what they are

**Sample Integrity - Documentation**

1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Sample Integrity - Condition**

1. Sample rec'd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	<u>Intact</u>	

**Sample Integrity - Instructions**

	<u>Y</u>	<u>N</u>	<u>NA</u>
1. Analysis requested is clear:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Sufficient volume rec'd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.1  
4



**ACCUTEST.**  
LABORATORIES

## Sample Receipt Summary - Problem Resolution

Accutest Job Number: D24028

CSR: Shea Greiner

Response Date 6/8/2011

**Response:** Per Brian Dodek, Diss Metals 6010 are are follows: CA,FE,MG,MN,K,NA. Please log

4.1

4

Accutest Laboratories  
V:303.425.6021

4036 Youngfield Street  
F: 303.425.6854

Wheat Ridge, CO  
www/accutest.com

**D24028: Chain of Custody**  
**Page 3 of 3**



07/22/11

**Technical Report for**

---

**LT Environmental**

**Wasatch Pond Facility**

**025811004**

**Accutest Job Number: D25474**

**Sampling Date: 07/12/11**

---

**Report to:**

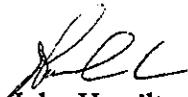
**LT Environmental  
820 Megan Avenue Unit B  
Rifle, CO 81650  
bdodek@ltenv.com**

**ATTN: Brian Dodek**

**Total number of pages in report: 47**



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.

  
**John Hamilton**  
Laboratory Director

**Client Service contact: 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.

# Table of Contents

Sections:

1  
2  
3  
4  
5  
6  
7  
8

-1-

<b>Section 1: Sample Summary</b> .....	3
<b>Section 2: Case Narrative/Conformance Summary</b> .....	4
<b>Section 3: Sample Results</b> .....	6
3.1: D25474-1: MW-2 .....	7
3.2: D25474-1F: MW-2 .....	13
<b>Section 4: Misc. Forms</b> .....	14
4.1: Chain of Custody .....	15
<b>Section 5: GC/MS Volatiles - QC Data Summaries</b> .....	17
5.1: Method Blank Summary .....	18
5.2: Blank Spike Summary .....	20
5.3: Matrix Spike/Matrix Spike Duplicate Summary .....	22
<b>Section 6: GC/MS Semi-volatiles - QC Data Summaries</b> .....	24
6.1: Method Blank Summary .....	25
6.2: Blank Spike Summary .....	28
6.3: Matrix Spike/Matrix Spike Duplicate Summary .....	31
<b>Section 7: Metals Analysis - QC Data Summaries</b> .....	34
7.1: Prep QC MP5218: Ca,Fe,Mg,Mn,K,Na .....	35
<b>Section 8: General Chemistry - QC Data Summaries</b> .....	43
8.1: Method Blank and Spike Results Summary .....	44
8.2: Duplicate Results Summary .....	45
8.3: Matrix Spike Results Summary .....	46
8.4: Matrix Spike Duplicate Results Summary .....	47



### Sample Summary

LT Environmental

Job No: D25474

Wasatch Pond Facility  
Project No: 025811004

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D25474-1	07/12/11	14:00 CM	07/13/11	AQ	Ground Water	MW-2
D25474-1F	07/12/11	14:00 CM	07/13/11	AQ	Groundwater Filtered	MW-2

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** LT Environmental

**Job No** D25474

**Site:** Wasatch Pond Facility

**Report Dat** 7/22/2011 3:15:57 PM

On 07/13/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.1 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D25474 was assigned to the project. The lab sample ID, client sample ID, and date 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

<b>Matrix</b> AQ	<b>Batch ID:</b> V3V753
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D25474-1MS, D25474-1MSD were used as the QC samples indicated.
- The matrix spike and matrix spike duplicate (MS/MSD) recovery(s) of 2-Chloroethyl vinyl ether are outside control limits. Probable cause due to matrix interference.
- V3V753-MB for Acetone: Compound ND in associated samples.

### Extractables by GCMS By Method SW846 8270C

<b>Matrix</b> AQ	<b>Batch ID:</b> OP4084
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D25389-11MS, D25389-11MSD were used as the QC samples indicated.

### Metals By Method SW846 6010B

<b>Matrix</b> AQ	<b>Batch ID:</b> MP5218
------------------	-------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D25438-1MS, D25438-1MSD were used as the QC samples for the metals analysis.

### Wet Chemistry By Method EPA 300/SW846 9056

<b>Matrix</b> AQ	<b>Batch ID:</b> GP4945
------------------	-------------------------

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D25535-2MS, D25535-2MSD were used as the QC samples for the Chloride, Sulfate, analysis.

### Wet Chemistry By Method SM20 2320B

<b>Matrix</b> AQ	<b>Batch ID:</b> GN10579
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D25407-1DUP, D25407-1MS, D25407-1MSD were used as the QC samples for the Alkalinity, Total as CaCO3 analysis.

<b>Matrix</b> AQ	<b>Batch ID:</b> GN10580
------------------	--------------------------

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

<b>Matrix</b> AQ	<b>Batch ID:</b> GN10581
------------------	--------------------------

- 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

<b>Matrix</b> AQ	<b>Batch ID:</b> GP4919
------------------	-------------------------

- Sample(s) D25474-1DUP were used as the QC samples for the Specific Conductivity analysis.

### Wet Chemistry By Method SM20 2540C

<b>Matrix</b> AQ	<b>Batch ID:</b> GN10575
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D25411-2DUP were used as the QC samples for the Solids, Total Dissolved 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

Client Sample ID:	MW-2	Date Sampled:	07/12/11
Lab Sample ID:	D25474-1	Date Received:	07/13/11
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Wasatch Pond Facility		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V13233.D	1	07/19/11	BR	n/a	n/a	V3V753
Run #2							

Run #	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	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.25	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	0.50	ug/l	
75-25-2	Bromoform	ND	2.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	2.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	0.50	ug/l	
67-66-3	Chloroform	ND	2.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	10	5.0	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.4	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	0.77	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.32	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	0.54	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.90	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	2.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	2.5	ug/l	
74-83-9	Methyl bromide	ND	5.0	2.9	ug/l	
74-87-3	Methyl chloride	ND	2.0	0.58	ug/l	
75-09-2	Methylene chloride	ND	5.0	2.5	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.5	ug/l	
100-42-5	Styrene	ND	2.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.50	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:	MW-2	Date Sampled:	07/12/11
Lab Sample ID:	D25474-1	Date Received:	07/13/11
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Wasatch Pond Facility		

VOA HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.50	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	0.75	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	2.5	ug/l	
1330-20-7	Xylene (total)	ND	4.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	84%		67-131%
2037-26-5	Toluene-D8	83%		65-130%
460-00-4	4-Bromofluorobenzene	78%		65-130%

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

Client Sample ID: MW-2	Date Sampled: 07/12/11
Lab Sample ID: D25474-1	Date Received: 07/13/11
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270C SW846 3510C	
Project: Wasatch Pond Facility	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G103356.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463
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	20	7.5	ug/l	
95-57-8	2-Chlorophenol	ND	2.0	0.58	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.50	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	0.52	ug/l	
105-67-9	2,4-Dimethylphenol	ND	1.0	0.85	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	4.0	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	0.55	ug/l	
106-44-5	4-Methylphenol	ND	2.0	0.51	ug/l	
88-75-5	2-Nitrophenol	ND	2.0	0.56	ug/l	
100-02-7	4-Nitrophenol	ND	7.5	3.0	ug/l	
87-86-5	Pentachlorophenol	ND	5.0	0.70	ug/l	
108-95-2	Phenol	ND	5.0	0.50	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	0.78	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.59	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.63	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.63	ug/l	
120-12-7	Anthracene	ND	2.0	0.50	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.50	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.50	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.50	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	2.0	0.57	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	2.0	0.50	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.50	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.50	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	0.64	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.66	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.50	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.69	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.72	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	0.67	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:	MW-2	Date Sampled:	07/12/11
Lab Sample ID:	D25474-1	Date Received:	07/13/11
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C		
Project:	Wasatch Pond Facility		

## ABN HSL List

CAS No.	Compound	Result	RL	MDL	Units	Q
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	0.56	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	0.74	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	0.90	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	0.76	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	0.50	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	0.50	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.61	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	2.0	0.82	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.58	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.52	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.52	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.50	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.50	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.70	ug/l	
206-44-0	Fluoranthene	ND	2.0	0.75	ug/l	
86-73-7	Fluorene	ND	2.0	0.58	ug/l	
118-74-1	Hexachlorobenzene	ND	2.0	0.50	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	0.80	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	5.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	1.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	1.6	ug/l	
78-59-1	Isophorone	ND	2.0	0.61	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	0.72	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.50	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.59	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.56	ug/l	
91-20-3	Naphthalene	ND	1.0	0.77	ug/l	
98-95-3	Nitrobenzene	ND	1.0	0.69	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.69	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	2.0	0.50	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.50	ug/l	
129-00-0	Pyrene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.87	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		10-130%
4165-62-2	Phenol-d5	21%		10-136%
118-79-6	2,4,6-Tribromophenol	65%		10-153%
4165-60-0	Nitrobenzene-d5	36%		10-130%

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

Client Sample ID: MW-2	Date Sampled: 07/12/11
Lab Sample ID: D25474-1	Date Received: 07/13/11
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270C SW846 3510C	
Project: Wasatch Pond Facility	

ABN HSL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
321-60-8	2-Fluorobiphenyl	37%		10-130%
1718-51-0	Terphenyl-d14	47%		13-130%

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

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3

<b>Client Sample ID:</b> MW-2	<b>Date Sampled:</b> 07/12/11
<b>Lab Sample ID:</b> D25474-1	<b>Date Received:</b> 07/13/11
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> Wasatch Pond Facility	

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	327	5.0	mg/l	1	07/18/11	CJ	SM20 2320B
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	07/18/11	CJ	SM20 2320B
Alkalinity, Total as CaCO3	327	5.0	mg/l	1	07/18/11	CJ	SM20 2320B
Bromide	1.9	0.40	mg/l	2	07/15/11 14:54	JML	EPA 300/SW846 9056
Chloride	417	13	mg/l	25	07/15/11 16:06	JML	EPA 300/SW846 9056
Solids, Total Dissolved	1140	10	mg/l	1	07/18/11	JD	SM20 2540C
Specific Conductivity	1760	1.0	umhos/cm	1	07/14/11	JD	SM20 2510B
Sulfate	37.4	1.0	mg/l	2	07/15/11 14:54	JML	EPA 300/SW846 9056
pH	8.07		su	1	07/13/11 13:45	CJ	SM20 4500H

RL = Reporting Limit

## Report of Analysis



<b>Client Sample ID:</b> MW-2 <b>Lab Sample ID:</b> D25474-1F <b>Matrix:</b> AQ - Groundwater Filtered <b>Project:</b> Wasatch Pond Facility	<b>Date Sampled:</b> 07/12/11 <b>Date Received:</b> 07/13/11 <b>Percent Solids:</b> n/a
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**Dissolved Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	7350	400	ug/l	1	07/14/11	07/16/11 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Iron	99.9	70	ug/l	1	07/14/11	07/16/11 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Magnesium	895	200	ug/l	1	07/14/11	07/16/11 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Manganese	30.2	5.0	ug/l	1	07/14/11	07/16/11 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Potassium	1350	1000	ug/l	1	07/14/11	07/16/11 JM	SW846 6010B <sup>1</sup>	SW846 3010A <sup>3</sup>
Sodium	392000	400	ug/l	1	07/14/11	07/18/11 JY	SW846 6010B <sup>2</sup>	SW846 3010A <sup>3</sup>

- (1) Instrument QC Batch: MA1675
- (2) Instrument QC Batch: MA1681
- (3) Prep QC Batch: MP5218

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RL = Reporting Limit



**Misc. Forms**

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**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
TBL 303-425-6021; 877-737-4321 FAX: 303-425-6854
www.accutest.com

Form with fields: Accutest Order #, Billing Order Control #, Accutest Job # (D25474)

Main data table with columns: Client/Reporting Information, Project Information, Requested Analysis (see TEST CODE sheet), Matrix Codes. Includes handwritten entries for 'Wasatch Pond', 'LTE', 'Brian Dadek', and various analysis codes like 'Anions (Cl, Br, SO4) 300.01'.

Turnaround Time (Business days) and Date Deliverable Information section. Includes checkboxes for 'Bld. 10 Business Days', 'RUSH', 'EMERGENCY' and 'Level 1-4' options.

Chain of Custody table with columns: Requisitioned By, Date/Time, Received By, Date/Time, Requisitioned By, Date/Time, Received By, Date/Time. Includes handwritten signatures and dates.

4.1 4

D25474: Chain of Custody

Page 1 of 2



# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D25474 Client: LTE Immediate Client Services Action Required: No  
 Date / Time Received: 7/13/2011 12:10:00 PM No. Coolers: 1 Client Service Action Required at Login: No  
 Project: WASATCH POND Airbill #'s: HD/CO

**Cooler Security**      Y or N      Y or N  
 1. Custody Seals Present:        3. COC Present:    
 2. Custody Seals Intact:        4. Smp Dates/Time OK:

**Cooler Temperature**      Y or N  
 1. Temp criteria achieved:    
 2. Cooler temp verification: Infrared gun  
 3. Cooler media: Ice (bag)

**Quality Control Preservation**      Y or N      NA  
 1. Trip Blank present / cooler:    
 2. Trip Blank listed on COC:    
 3. Samples preserved properly:    
 4. VOCs headspace free:

**Sample Integrity - Documentation**      Y or N  
 1. Sample labels present on bottles:    
 2. Container labeling complete:    
 3. Sample container label / COC agree:

**Sample Integrity - Condition**      Y or N  
 1. Sample recvd within HT:    
 2. All containers accounted for:    
 3. Condition of sample: Intact

**Sample Integrity - Instructions**      Y or N      NA  
 1. Analysis requested is clear:    
 2. Bottles received for unspecified tests:    
 3. Sufficient volume rec'd for analysis:    
 4. Compositing instructions clear:     
 5. Filtering instructions clear:

Comments

Accutest Laboratories  
V.(303) 425-6021

4036 Youngfield Street  
F. (303) 425-6854

Wheat Ridge, CO  
www/accutest.com

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4



GC/MS Volatiles

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5

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

Job Number: D25474  
 Account: LTENVCOR LT Environmental  
 Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V753-MB	3V13224A.D1		07/19/11	BR	n/a	n/a	V3V753

The QC reported here applies to the following samples:

Method: SW846 8260B

D25474-1

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone <sup>a</sup>	9.7	10	5.0	ug/l	J
71-43-2	Benzene	ND	1.0	0.25	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	0.50	ug/l	
75-25-2	Bromoform	ND	2.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	2.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	0.50	ug/l	
67-66-3	Chloroform	ND	2.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	10	5.0	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.4	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	0.77	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.32	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	0.54	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.90	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	2.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	2.5	ug/l	
74-83-9	Methyl bromide	ND	5.0	2.9	ug/l	
74-87-3	Methyl chloride	ND	2.0	0.58	ug/l	
75-09-2	Methylene chloride	ND	5.0	2.5	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.5	ug/l	
100-42-5	Styrene	ND	2.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.50	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.50	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	

5.1.1  
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# Method Blank Summary

Job Number: D25474  
Account: LTENVCOR LT Environmental  
Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V753-MB	3V13224A.D1		07/19/11	BR	n/a	n/a	V3V753

The QC reported here applies to the following samples:

Method: SW846 8260B

D25474-1

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	ND	2.0	0.75	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	2.5	ug/l	
1330-20-7	Xylene (total)	ND	4.0	2.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
17060-07-0	1,2-Dichloroethane-D4	86%	67-131%
2037-26-5	Toluene-D8	85%	65-130%
460-00-4	4-Bromofluorobenzene	76%	65-130%

(a) Compound ND in associated samples.

5.1.1  
5

# Blank Spike Summary

Job Number: D25474  
Account: LTENVCOR LT Environmental  
Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V753-BS	3V13225A.D1		07/19/11	BR	n/a	n/a	V3V753

The QC reported here applies to the following samples:

Method: SW846 8260B

D25474-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	50	54.1	108	31-168
71-43-2	Benzene	50	44.5	89	70-130
75-27-4	Bromodichloromethane	50	44.0	88	70-130
75-25-2	Bromoform	50	44.3	89	64-132
108-90-7	Chlorobenzene	50	47.9	96	70-130
75-00-3	Chloroethane	50	40.5	81	43-140
67-66-3	Chloroform	50	47.5	95	70-130
110-75-8	2-Chloroethyl vinyl ether	50	62.4	125	10-266
75-15-0	Carbon disulfide	50	43.1	86	61-144
56-23-5	Carbon tetrachloride	50	47.2	94	66-151
75-34-3	1,1-Dichloroethane	50	46.9	94	70-135
75-35-4	1,1-Dichloroethylene	50	46.9	94	70-132
107-06-2	1,2-Dichloroethane	50	43.3	87	70-137
78-87-5	1,2-Dichloropropane	50	46.5	93	70-130
124-48-1	Dibromochloromethane	50	43.1	86	70-133
156-59-2	cis-1,2-Dichloroethylene	50	49.2	98	70-132
10061-01-5	cis-1,3-Dichloropropene	50	45.2	90	70-130
541-73-1	m-Dichlorobenzene	50	44.8	90	70-130
95-50-1	o-Dichlorobenzene	50	46.8	94	70-130
106-46-7	p-Dichlorobenzene	50	43.8	88	70-130
156-60-5	trans-1,2-Dichloroethylene	50	47.8	96	70-135
10061-02-6	trans-1,3-Dichloropropene	50	40.4	81	63-130
100-41-4	Ethylbenzene	50	46.4	93	70-130
591-78-6	2-Hexanone	50	37.6	75	53-130
108-10-1	4-Methyl-2-pentanone	50	42.5	85	58-130
74-83-9	Methyl bromide	50	47.6	95	10-188
74-87-3	Methyl chloride	50	35.1	70	31-131
75-09-2	Methylene chloride	50	46.8	94	70-130
78-93-3	Methyl ethyl ketone	50	41.0	82	53-137
100-42-5	Styrene	50	47.5	95	70-130
71-55-6	1,1,1-Trichloroethane	50	42.6	85	70-130
79-34-5	1,1,2,2-Tetrachloroethane	50	42.9	86	64-130
79-00-5	1,1,2-Trichloroethane	50	43.9	88	70-130
127-18-4	Tetrachloroethylene	50	49.2	98	70-130
108-88-3	Toluene	50	43.9	88	70-130
79-01-6	Trichloroethylene	50	46.0	92	70-130

5.2.1  
5

# Blank Spike Summary

Job Number: D25474  
Account: LTENVCOR LT Environmental  
Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V753-BS	3V13225A.D1		07/19/11	BR	n/a	n/a	V3V753

The QC reported here applies to the following samples:

Method: SW846 8260B

D25474-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-01-4	Vinyl chloride	50	34.5	69	33-130
108-05-4	Vinyl Acetate	50	70.1	140	42-253
1330-20-7	Xylene (total)	100	87.0	87	56-138

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	83%	67-131%
2037-26-5	Toluene-D8	83%	65-130%
460-00-4	4-Bromofluorobenzene	78%	65-130%

5.2.1  
5

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D25474  
 Account: LTENVCOR LT Environmental  
 Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D25474-1MS	3V13234.D	1	07/19/11	BR	n/a	n/a	V3V753
D25474-1MSD	3V13235.D	1	07/19/11	BR	n/a	n/a	V3V753
D25474-1	3V13233.D	1	07/19/11	BR	n/a	n/a	V3V753

The QC reported here applies to the following samples:

Method: SW846 8260B

D25474-1

CAS No.	Compound	D25474-1 ug/l	Spike Q	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND	50	40.2	80	40.4	81	0	19-184/30
71-43-2	Benzene	ND	50	42.6	85	45.4	91	6	61-133/30
75-27-4	Bromodichloromethane	ND	50	40.9	82	44.3	89	8	70-130/30
75-25-2	Bromoform	ND	50	44.2	88	48.7	97	10	59-137/30
108-90-7	Chlorobenzene	ND	50	46.4	93	50.3	101	8	70-130/30
75-00-3	Chloroethane	ND	50	39.0	78	41.9	84	7	42-141/30
67-66-3	Chloroform	ND	50	43.2	86	46.5	93	7	70-135/30
110-75-8	2-Chloroethyl vinyl ether	ND	50	ND	0*	ND	0*	nc	10-266/30
75-15-0	Carbon disulfide	ND	50	41.3	83	44.0	88	6	45-152/30
56-23-5	Carbon tetrachloride	ND	50	46.8	94	47.6	95	2	62-155/30
75-34-3	1,1-Dichloroethane	ND	50	43.1	86	46.9	94	8	70-136/30
75-35-4	1,1-Dichloroethylene	ND	50	45.4	91	47.4	95	4	70-135/30
107-06-2	1,2-Dichloroethane	ND	50	38.9	78	41.7	83	7	69-141/30
78-87-5	1,2-Dichloropropane	ND	50	42.6	85	46.3	93	8	70-130/30
124-48-1	Dibromochloromethane	ND	50	43.6	87	45.4	91	4	67-136/30
156-59-2	cis-1,2-Dichloroethylene	ND	50	44.8	90	46.7	93	4	70-132/30
10061-01-5	cis-1,3-Dichloropropene	ND	50	42.1	84	44.4	89	5	69-130/30
541-73-1	m-Dichlorobenzene	ND	50	44.2	88	46.4	93	5	70-130/30
95-50-1	o-Dichlorobenzene	ND	50	45.2	90	48.0	96	6	70-130/30
106-46-7	p-Dichlorobenzene	ND	50	43.0	86	46.1	92	7	70-130/30
156-60-5	trans-1,2-Dichloroethylene	ND	50	44.8	90	48.4	97	8	68-137/30
10061-02-6	trans-1,3-Dichloropropene	ND	50	38.2	76	40.0	80	5	62-130/30
100-41-4	Ethylbenzene	ND	50	44.7	89	47.8	96	7	70-130/30
591-78-6	2-Hexanone	ND	50	40.2	80	43.6	87	8	44-138/30
108-10-1	4-Methyl-2-pentanone	ND	50	44.5	89	47.2	94	6	51-134/30
74-83-9	Methyl bromide	ND	50	45.5	91	48.6	97	7	10-193/30
74-87-3	Methyl chloride	ND	50	31.6	63	33.2	66	5	26-134/30
75-09-2	Methylene chloride	ND	50	44.4	89	46.6	93	5	70-130/30
78-93-3	Methyl ethyl ketone	ND	50	46.3	93	42.4	85	9	40-153/30
100-42-5	Styrene	ND	50	46.6	93	48.9	98	5	70-130/30
71-55-6	1,1,1-Trichloroethane	ND	50	39.7	79	41.1	82	3	69-132/30
79-34-5	1,1,2,2-Tetrachloroethane	ND	50	42.6	85	46.7	93	9	53-131/30
79-00-5	1,1,2-Trichloroethane	ND	50	42.6	85	44.9	90	5	70-130/30
127-18-4	Tetrachloroethylene	ND	50	47.6	95	50.6	101	6	70-130/30
108-88-3	Toluene	ND	50	42.9	86	45.5	91	6	70-130/30
79-01-6	Trichloroethylene	ND	50	45.2	90	46.4	93	3	58-147/30

5.3.1  
5

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D25474  
 Account: LTENVCOR LT Environmental  
 Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D25474-1MS	3V13234.D	1	07/19/11	BR	n/a	n/a	V3V753
D25474-1MSD	3V13235.D	1	07/19/11	BR	n/a	n/a	V3V753
D25474-1	3V13233.D	1	07/19/11	BR	n/a	n/a	V3V753

The QC reported here applies to the following samples:

Method: SW846 8260B

D25474-1

CAS No.	Compound	D25474-1 ug/l	Spike Q	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-01-4	Vinyl chloride	ND	50	32.0	64	33.6	67	5	33-130/30
108-05-4	Vinyl Acetate	ND	50	66.0	132	70.8	142	7	28-285/30
1330-20-7	Xylene (total)	ND	100	83.8	84	87.7	88	5	56-138/30

CAS No.	Surrogate Recoveries	MS	MSD	D25474-1	Limits
17060-07-0	1,2-Dichloroethane-D4	84%	84%	84%	67-131%
2037-26-5	Toluene-D8	85%	85%	83%	65-130%
460-00-4	4-Bromofluorobenzene	82%	79%	78%	65-130%

5.3.1  
5



**GC/MS Semi-volatiles**

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9

**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

Job Number: D25474  
 Account: LTENVCOR LT Environmental  
 Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4084-MB	1G103351.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463

The QC reported here applies to the following samples:

Method: SW846 8270C

D25474-1

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	20	7.5	ug/l	
95-57-8	2-Chlorophenol	ND	2.0	0.58	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.50	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	0.52	ug/l	
105-67-9	2,4-Dimethylphenol	ND	1.0	0.85	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	4.0	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	0.55	ug/l	
106-44-5	4-Methylphenol	ND	2.0	0.51	ug/l	
88-75-5	2-Nitrophenol	ND	2.0	0.56	ug/l	
100-02-7	4-Nitrophenol	ND	7.5	3.0	ug/l	
87-86-5	Pentachlorophenol	ND	5.0	0.70	ug/l	
108-95-2	Phenol	ND	5.0	0.50	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	0.78	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.59	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.63	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.63	ug/l	
120-12-7	Anthracene	ND	2.0	0.50	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.50	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.50	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.50	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	2.0	0.57	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	2.0	0.50	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.50	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.50	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	0.64	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.66	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.50	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.69	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.72	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	0.67	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	0.56	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	0.74	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	0.90	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	0.76	ug/l	

6.1.1  
**6**

# Method Blank Summary

Job Number: D25474  
 Account: LTENVCOR LT Environmental  
 Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4084-MB	1G103351.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463

The QC reported here applies to the following samples:

Method: SW846 8270C

D25474-1

CAS No.	Compound	Result	RL	MDL	Units	Q
121-14-2	2,4-Dinitrotoluene	ND	5.0	0.50	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	0.50	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.61	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	2.0	0.82	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.58	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.52	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.52	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.50	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.50	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.70	ug/l	
206-44-0	Fluoranthene	ND	2.0	0.75	ug/l	
86-73-7	Fluorene	ND	2.0	0.58	ug/l	
118-74-1	Hexachlorobenzene	ND	2.0	0.50	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	0.80	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	5.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	1.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	1.6	ug/l	
78-59-1	Isophorone	ND	2.0	0.61	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	0.72	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.50	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.59	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.56	ug/l	
91-20-3	Naphthalene	ND	1.0	0.77	ug/l	
98-95-3	Nitrobenzene	ND	1.0	0.69	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.69	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	2.0	0.50	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.50	ug/l	
129-00-0	Pyrene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.87	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	32%	10-130%
4165-62-2	Phenol-d5	19%	10-136%
118-79-6	2,4,6-Tribromophenol	49%	10-153%

6.1.1  
6

# Method Blank Summary

Job Number: D25474  
Account: LTENVCOR LT Environmental  
Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4084-MB	1G103351.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463

The QC reported here applies to the following samples:

Method: SW846 8270C

D25474-1

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	33%	10-130%
321-60-8	2-Fluorobiphenyl	32%	10-130%
1718-51-0	Terphenyl-d14	51%	13-130%

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

6.1.1  
6

# Blank Spike Summary

Job Number: D25474  
 Account: LTENVCOR LT Environmental  
 Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4084-BS	1G103352.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463

The QC reported here applies to the following samples:

Method: SW846 8270C

D25474-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	50	13.7	27	10-159
95-57-8	2-Chlorophenol	50	23.4	47	10-163
59-50-7	4-Chloro-3-methyl phenol	50	27.2	54	11-152
120-83-2	2,4-Dichlorophenol	50	24.5	49	10-165
105-67-9	2,4-Dimethylphenol	50	22.9	46	10-130
51-28-5	2,4-Dinitrophenol	50	29.6	59	10-179
534-52-1	4,6-Dinitro-o-cresol	50	34.3	69	10-183
95-48-7	2-Methylphenol	50	22.5	45	13-143
106-44-5	4-Methylphenol	50	21.5	43	10-147
88-75-5	2-Nitrophenol	50	24.5	49	10-160
100-02-7	4-Nitrophenol	50	15.5	31	10-159
87-86-5	Pentachlorophenol	50	32.1	64	10-181
108-95-2	Phenol	50	11.7	23	10-164
95-95-4	2,4,5-Trichlorophenol	50	28.4	57	10-166
88-06-2	2,4,6-Trichlorophenol	50	28.4	57	10-158
83-32-9	Acenaphthene	50	23.8	48	40-130
208-96-8	Acenaphthylene	50	25.3	51	41-130
120-12-7	Anthracene	50	32.0	64	45-130
56-55-3	Benzo(a)anthracene	50	32.7	65	52-130
50-32-8	Benzo(a)pyrene	50	33.7	67	40-132
205-99-2	Benzo(b)fluoranthene	50	34.1	68	38-147
191-24-2	Benzo(g,h,i)perylene	50	31.9	64	33-136
207-08-9	Benzo(k)fluoranthene	50	31.8	64	41-140
101-55-3	4-Bromophenyl phenyl ether	50	27.7	55	40-138
85-68-7	Butyl benzyl phthalate	50	31.0	62	46-130
100-51-6	Benzyl Alcohol	50	25.9	52	35-134
91-58-7	2-Chloronaphthalene	50	21.1	42	37-130
106-47-8	4-Chloroaniline	50	23.1	46	37-130
218-01-9	Chrysene	50	31.6	63	42-130
111-91-1	bis(2-Chloroethoxy)methane	50	22.8	46	37-130
111-44-4	bis(2-Chloroethyl)ether	50	23.0	46	33-131
108-60-1	bis(2-Chloroisopropyl)ether	50	21.6	43	30-130
7005-72-3	4-Chlorophenyl phenyl ether	50	25.7	51	40-130
95-50-1	1,2-Dichlorobenzene	50	14.3	29	23-133
541-73-1	1,3-Dichlorobenzene	50	12.6	25	18-134
106-46-7	1,4-Dichlorobenzene	50	13.3	27	18-134

6.2.1  
**6**

# Blank Spike Summary

Job Number: D25474  
 Account: LTENVCOR LT Environmental  
 Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4084-BS	1G103352.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463

The QC reported here applies to the following samples:

Method: SW846 8270C

D25474-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
121-14-2	2,4-Dinitrotoluene	50	30.0	60	38-149
606-20-2	2,6-Dinitrotoluene	50	29.8	60	44-135
91-94-1	3,3'-Dichlorobenzidine	50	22.7	45	21-137
53-70-3	Dibenzo(a,h)anthracene	50	34.2	68	35-139
132-64-9	Dibenzofuran	50	25.1	50	37-130
84-74-2	Di-n-butyl phthalate	50	34.3	69	45-132
117-84-0	Di-n-octyl phthalate	50	30.4	61	18-163
84-66-2	Diethyl phthalate	50	28.1	56	39-130
131-11-3	Dimethyl phthalate	50	28.5	57	40-130
117-81-7	bis(2-Ethylhexyl)phthalate	50	30.6	61	44-130
206-44-0	Fluoranthene	50	34.6	69	39-139
86-73-7	Fluorene	50	27.1	54	44-130
118-74-1	Hexachlorobenzene	50	28.0	56	33-142
87-68-3	Hexachlorobutadiene	50	10.0	20	19-132
77-47-4	Hexachlorocyclopentadiene	50	11.6	23	10-130
67-72-1	Hexachloroethane	50	10.1	20	15-130
193-39-5	Indeno(1,2,3-cd)pyrene	50	31.5	63	29-140
78-59-1	Isophorone	50	25.9	52	46-135
91-57-6	2-Methylnaphthalene	50	19.2	38	32-130
88-74-4	2-Nitroaniline	50	28.7	57	46-130
99-09-2	3-Nitroaniline	50	29.9	60	47-130
100-01-6	4-Nitroaniline	50	31.6	63	22-161
91-20-3	Naphthalene	50	19.4	39	30-130
98-95-3	Nitrobenzene	50	21.9	44	37-130
621-64-7	N-Nitroso-di-n-propylamine	50	24.9	50	41-130
86-30-6	N-Nitrosodiphenylamine	50	28.3	57	39-138
85-01-8	Phenanthrene	50	29.8	60	40-130
129-00-0	Pyrene	50	31.1	62	42-131
120-82-1	1,2,4-Trichlorobenzene	50	14.4	29	25-130

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	31%	10-130%
4165-62-2	Phenol-d5	20%	10-136%
118-79-6	2,4,6-Tribromophenol	63%	10-153%

6.2.1  
6

# Blank Spike Summary

Job Number: D25474  
Account: LTENVCOR LT Environmental  
Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4084-BS	1G103352.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463

The QC reported here applies to the following samples:

Method: SW846 8270C

D25474-1

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	34%	10-130%
321-60-8	2-Fluorobiphenyl	35%	10-130%
1718-51-0	Terphenyl-d14	48%	13-130%

6.2.1

6

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D25474  
 Account: LTENVCOR LT Environmental  
 Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4084-MS	1G103354.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463
OP4084-MSD	1G103355.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463
D25389-11	1G103353.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463

The QC reported here applies to the following samples:

Method: SW846 8270C

D25474-1

CAS No.	Compound	D25389-11 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	17.3	35	17.5	35	1	10-159/30
95-57-8	2-Chlorophenol	ND	50	25.0	50	27.6	55	10	10-163/30
59-50-7	4-Chloro-3-methyl phenol	ND	50	30.1	60	30.9	62	3	10-152/30
120-83-2	2,4-Dichlorophenol	ND	50	26.2	52	28.3	57	8	10-165/30
105-67-9	2,4-Dimethylphenol	ND	50	22.7	45	24.1	48	6	10-130/30
51-28-5	2,4-Dinitrophenol	ND	50	31.7	63	31.6	63	0	10-196/30
534-52-1	4,6-Dinitro-o-cresol	ND	50	34.7	69	35.2	70	1	10-187/30
95-48-7	2-Methylphenol	ND	50	24.2	48	25.6	51	6	10-143/30
106-44-5	4-Methylphenol	ND	50	23.3	47	24.5	49	5	10-147/30
88-75-5	2-Nitrophenol	ND	50	25.4	51	28.6	57	12	10-160/30
100-02-7	4-Nitrophenol	ND	50	16.3	33	15.7	31	4	10-165/30
87-86-5	Pentachlorophenol	ND	50	32.8	66	33.1	66	1	10-181/30
108-95-2	Phenol	ND	50	12.5	25	13.3	27	6	10-164/30
95-95-4	2,4,5-Trichlorophenol	ND	50	30.3	61	31.3	63	3	10-166/30
88-06-2	2,4,6-Trichlorophenol	ND	50	30.6	61	31.6	63	3	10-164/30
83-32-9	Acenaphthene	ND	50	24.4	49	26.1	52	7	10-174/30
208-96-8	Acenaphthylene	ND	50	23.7	47	25.6	51	8	41-130/30
120-12-7	Anthracene	ND	50	31.0	62	31.7	63	2	39-130/30
56-55-3	Benzo(a)anthracene	ND	50	33.8	68	32.8	66	3	52-130/30
50-32-8	Benzo(a)pyrene	ND	50	33.6	67	33.2	66	1	10-181/30
205-99-2	Benzo(b)fluoranthene	ND	50	35.5	71	33.9	68	5	38-147/30
191-24-2	Benzo(g,h,i)perylene	ND	50	33.9	68	32.4	65	5	33-136/30
207-08-9	Benzo(k)fluoranthene	ND	50	32.7	65	33.3	67	2	41-140/30
101-55-3	4-Bromophenyl phenyl ether	ND	50	28.8	58	29.3	59	2	40-138/30
85-68-7	Butyl benzyl phthalate	ND	50	33.5	67	31.5	63	6	10-187/30
100-51-6	Benzyl Alcohol	ND	50	28.5	57	30.7	61	7	22-137/30
91-58-7	2-Chloronaphthalene	ND	50	21.4	43	23.3	47	9	13-151/30
106-47-8	4-Chloroaniline	ND	50	21.4	43	22.3	45	4	10-130/30
218-01-9	Chrysene	ND	50	32.1	64	31.9	64	1	41-130/30
111-91-1	bis(2-Chloroethoxy)methane	ND	50	24.5	49	25.9	52	6	37-130/30
111-44-4	bis(2-Chloroethyl)ether	ND	50	25.0	50	27.1	54	8	33-131/30
108-60-1	bis(2-Chloroisopropyl)ether	ND	50	22.7	45	25.5	51	12	30-130/30
7005-72-3	4-Chlorophenyl phenyl ether	ND	50	26.9	54	27.5	55	2	13-157/30
95-50-1	1,2-Dichlorobenzene	ND	50	14.2	28	16.8	34	17	23-133/30
541-73-1	1,3-Dichlorobenzene	ND	50	12.4	25	15.0	30	19	18-134/30
106-46-7	1,4-Dichlorobenzene	ND	50	13.1	26	15.4	31	16	18-134/30

6.3.1

6

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D25474  
 Account: LTENVCOR LT Environmental  
 Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4084-MS	1G103354.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463
OP4084-MSD	1G103355.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463
D25389-11	1G103353.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463

The QC reported here applies to the following samples:

Method: SW846 8270C

D25474-1

CAS No.	Compound	D25389-11 ug/l	Spike Q	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
121-14-2	2,4-Dinitrotoluene	ND	50	30.9	62	31.5	63	2	17-175/30
606-20-2	2,6-Dinitrotoluene	ND	50	31.1	62	31.6	63	2	25-158/30
91-94-1	3,3'-Dichlorobenzidine	ND	50	17.4	35	18.2	36	4	10-183/30
53-70-3	Dibenzo(a,h)anthracene	ND	50	36.4	73	34.5	69	5	35-139/30
132-64-9	Dibenzofuran	ND	50	25.9	52	27.5	55	6	18-148/30
84-74-2	Di-n-butyl phthalate	ND	50	37.0	74	35.8	72	3	33-141/30
117-84-0	Di-n-octyl phthalate	ND	50	32.9	66	31.1	62	6	18-163/30
84-66-2	Diethyl phthalate	ND	50	29.8	60	29.0	58	3	10-191/30
131-11-3	Dimethyl phthalate	ND	50	30.5	61	29.5	59	3	23-147/30
117-81-7	bis(2-Ethylhexyl)phthalate	ND	50	33.1	66	30.6	61	8	29-146/30
206-44-0	Fluoranthene	ND	50	34.8	70	35.2	70	1	39-139/30
86-73-7	Fluorene	ND	50	28.0	56	28.9	58	3	15-162/30
118-74-1	Hexachlorobenzene	ND	50	28.2	56	28.7	57	2	33-142/30
87-68-3	Hexachlorobutadiene	ND	50	9.4	19	11.3	23	18	19-132/30
77-47-4	Hexachlorocyclopentadiene	ND	50	9.8	20	12.2	24	22	10-186/30
67-72-1	Hexachloroethane	ND	50	9.6	19	12.0	24	22	15-130/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND	50	33.9	68	32.8	66	3	10-188/30
78-59-1	Isophorone	ND	50	27.7	55	29.7	59	7	44-135/30
91-57-6	2-Methylnaphthalene	ND	50	19.2	38	21.5	43	11	24-132/30
88-74-4	2-Nitroaniline	ND	50	30.4	61	30.7	61	1	27-134/30
99-09-2	3-Nitroaniline	ND	50	29.3	59	29.4	59	0	42-130/30
100-01-6	4-Nitroaniline	ND	50	31.6	63	32.3	65	2	22-161/30
91-20-3	Naphthalene	ND	50	19.2	38	21.9	44	13	25-130/30
98-95-3	Nitrobenzene	ND	50	22.4	45	25.3	51	12	37-130/30
621-64-7	N-Nitroso-di-n-propylamine	ND	50	26.7	53	28.8	58	8	41-130/30
86-30-6	N-Nitrosodiphenylamine	ND	50	20.0	40	20.8	42	4	27-138/30
85-01-8	Phenanthrene	ND	50	29.6	59	30.7	61	4	33-135/30
129-00-0	Pyrene	ND	50	32.9	66	32.0	64	3	30-143/30
120-82-1	1,2,4-Trichlorobenzene	ND	50	13.8	28	16.0	32	15	25-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D25389-11	Limits
367-12-4	2-Fluorophenol	36%	37%	34%	10-130%
4165-62-2	Phenol-d5	23%	24%	21%	10-136%
118-79-6	2,4,6-Tribromophenol	68%	66%	58%	10-153%

6.3.1  
6

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D25474  
 Account: LTENVCOR LT Environmental  
 Project: Wasatch Pond Facility

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4084-MS	1G103354.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463
OP4084-MSD	1G103355.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463
D25389-11	1G103353.D	1	07/18/11	TMB	07/15/11	OP4084	E1G463

The QC reported here applies to the following samples:

Method: SW846 8270C

D25474-1

CAS No.	Surrogate Recoveries	MS	MSD	D25389-11	Limits
4165-60-0	Nitrobenzene-d5	39%	40%	35%	10-130%
321-60-8	2-Fluorobiphenyl	41%	40%	34%	10-130%
1718-51-0	Terphenyl-d14	53%	49%	53%	13-130%

6.3.1

6



## Metals Analysis

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## 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: D25474  
Account: LTENVCOR - LT Environmental  
Project: Wasatch Pond Facility

QC Batch ID: MP5218  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 07/14/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	5.9	5.9		
Antimony	30	3.1	3.1		
Arsenic	25	5.9	5.9		
Barium	10	1.1	1.1		
Beryllium	10	.44	.5		
Boron	50	4.8	4.8		
Cadmium	10	.27	.27		
Calcium	400	9.6	15	40.7	<400
Chromium	10	.18	.79		
Cobalt	5.0	.35	.35		
Copper	10	.85	2.8		
Iron	70	3.4	13	24.5	<70
Lead	50	1.6	2.1		
Lithium	2.0	.28	1.2		
Magnesium	200	5.8	10	4.0	<200
Manganese	5.0	.053	.31	1.5	<5.0
Molybdenum	10	.45	.87		
Nickel	30	.43	1		
Phosphorus	100	11	20		
Potassium	1000	55	55	-64	<1000
Selenium	50	3.8	3.8		
Silicon	50	3.8	3.8		
Silver	30	.18	.31		
Sodium	400	110	110	-120	<400
Strontium	5.0		.25		
Thallium	10	2.9	2.9		
Tin	50	5.5	9.9		
Titanium	10	.11	.31		
Uranium	50	1.5	3.5		
Vanadium	10	.16	.22		
Zinc	30	.28	1.8		

Associated samples MP5218: D25474-1F

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D25474  
Account: LTENVCOR - LT Environmental  
Project: Wasatch Pond Facility

QC Batch ID: MP5218  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

7.1.1

7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D25474  
 Account: LTENVCOR - LT Environmental  
 Project: Wasatch Pond Facility

QC Batch ID: MP5218  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 07/14/11

Metal	D25438-1 Original MS	SpikeLot MPICPALL % Rec	QC Limits
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Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Boron					
Cadmium	anr				
Calcium	4570	31700	25000	108.5	75-125
Chromium	anr				
Cobalt					
Copper	anr				
Iron	738	5300	5000	91.2	75-125
Lead	anr				
Lithium					
Magnesium	875	26000	25000	100.5	75-125
Manganese	15.4	500	500	96.9	75-125
Molybdenum					
Nickel					
Phosphorus					
Potassium	767	26100	25000	101.3	75-125
Selenium	anr				
Silicon					
Silver	anr				
Sodium	1750	28600	25000	106.9	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP5218: D25474-1F

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

7.1.2  
7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D25474  
Account: LTENVCOR - LT Environmental  
Project: Wasatch Pond Facility

QC Batch ID: MP5218  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date:

Metal

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

7.1.2

7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D25474  
 Account: LTENVCOR - LT Environmental  
 Project: Wasatch Pond Facility

QC Batch ID: MP5218  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 07/14/11

Metal	D25438-1 Original MSD	SpikeLot MPICPALL & Rec	MSD RPD	QC Limit
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Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Boron						
Cadmium	anr					
Calcium	4570	31400	25000	107.3	1.0	20
Chromium	anr					
Cobalt						
Copper	anr					
Iron	738	5390	5000	93.0	1.7	20
Lead	anr					
Lithium						
Magnesium	875	25900	25000	100.1	0.4	20
Manganese	15.4	497	500	96.3	0.6	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	767	26000	25000	100.9	0.4	20
Selenium	anr					
Silicon						
Silver	anr					
Sodium	1750	28200	25000	105.3	1.8	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP5218: D25474-1F

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

7.1.2  
7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D25474  
Account: LTENVCOR - LT Environmental  
Project: Wasatch Pond Facility

QC Batch ID: MP5218  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date:

Metal

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

7.1.2

7

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D25474  
 Account: LTENVCOR - LT Environmental  
 Project: Wasatch Pond Facility

QC Batch ID: MP5218  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 07/14/11

Metal	BSP Result	Spikelet MPICPAL	& Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium	27400	25000	109.6	80-120
Chromium	anr			
Cobalt				
Copper	anr			
Iron	4730	5000	94.6	80-120
Lead	anr			
Lithium				
Magnesium	25100	25000	100.4	80-120
Manganese	489	500	97.8	80-120
Molybdenum				
Nickel				
Phosphorus				
Potassium	25200	25000	100.8	80-120
Selenium	anr			
Silicon				
Silver	anr			
Sodium	27100	25000	108.4	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP5218: D25474-1F

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

7.1.3  
**7**

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D25474  
Account: LTENVCOR - LT Environmental  
Project: Wasatch Pond Facility

QC Batch ID: MP5218  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

7.1.3  
7

## General Chemistry

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## 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: D25474  
Account: LTENVCOR - LT Environmental  
Project: Wasatch Pond Facility

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN10580	5.0	0.0	mg/l	100	101	101.0	90-110%
Alkalinity, Carbonate	GN10581	5.0	0.0	mg/l	100	101	101.0	80-120%
Alkalinity, Total as CaCO3	GN10579	5.0	0.0	mg/l	100	101	101.0	90-110%
Bromide	GP4945/GN10572	0.20	0.0	mg/l	20	20.0	100.0	90-110%
Chloride	GP4945/GN10572	0.50	0.31	mg/l	20	21.0	105.0	90-110%
Nitrogen, Nitrite	GP4945/GN10572	0.061	0.0	mg/l	6.09	6.01	98.7	90-110%
Solids, Total Dissolved	GN10575	10	0.0	mg/l	400	400	100.0	90-110%
Specific Conductivity	GP4919/GN10544			umhos/cm	99	94.9	95.9	90-110%
Sulfate	GP4945/GN10572	0.50	0.0	mg/l	30	30.4	101.3	90-110%
pH	GN10533			su	8.00	7.97	99.6	99.3-100.7%

Associated Samples:

Batch GN10533: D25474-1  
Batch GN10575: D25474-1  
Batch GN10579: D25474-1  
Batch GN10580: D25474-1  
Batch GN10581: D25474-1  
Batch GP4919: D25474-1  
Batch GP4945: D25474-1  
(\* ) Outside of QC limits

8.1

8

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D25474  
Account: LTENVCOR - LT Environmental  
Project: Wasatch Pond Facility

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN10579	D25407-1	mg/l	115	117	1.7	0-20%
Solids, Total Dissolved	GN10575	D25411-2	mg/l	154	162	5.1	0-25%
Specific Conductivity	GP4919/GN10544	D25474-1	umhos/cm	1760	1770	0.3	0-20%

Associated Samples:  
Batch GN10575: D25474-1  
Batch GN10579: D25474-1  
Batch GP4919: D25474-1  
(\*) Outside of QC limits

8.2

8

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D25474  
Account: LTENVCOR - LT Environmental  
Project: Wasatch Pond Facility

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN10579	D25407-1	mg/l	115	100	210	95.7	80-120%
Chloride	GP4945/GN10572	D25535-2	mg/l	59.1	100	163	103.9	80-120%
Nitrogen, Nitrite	GP4945/GN10572	D25535-2	mg/l	1.1	3.05	4.2	101.8	80-120%
Sulfate	GP4945/GN10572	D25535-2	mg/l	93.5	100	197	103.5	80-120%

Associated Samples:

Batch GN10579: D25474-1

Batch GP4945: D25474-1

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

83

8

MATRIX SPIKE DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D25474  
Account: LTEENVCOR - LT Environmental  
Project: Wasatch Pond Facility

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN10579	D25407-1	mg/l	115	100	210	0.1	20%
Chloride	GP4945/GN10572	D25535-2	mg/l	59.1	100	164	0.6	20%
Nitrogen, Nitrite	GP4945/GN10572	D25535-2	mg/l	1.1	3.05	4.2	0.0	20%
Sulfate	GP4945/GN10572	D25535-2	mg/l	93.5	100	197	0.0	20%

Associated Samples:

Batch GN10579: D25474-1

Batch GP4945: D25474-1

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

8.4

8

# Appendix B

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Hydrostatic Test Results



**Fox Engineering Solutions, LLC**

July 22, 2011

Tofazzel Haque  
Production Manager – Antero Resources  
792 Buckhorn Drive  
Rifle, CO 81650

Re: Wasatch Bench Pit – Hydrostatic Integrity Test  
NE1/4, Section 20, Township 6 South, Range 9 West, 6th P.M. - Garfield County, Colorado

Dear Mr. Haque,

Attached are the results of the 72-hour hydrostatic test conducted July 18 through July 21, 2011 at Antero's Wasatch Bench pit. The test results indicated no observable loss in liner integrity.

As per COGCC requirements, the pit was filled with fresh water to a depth of approximately 8.5 feet and the pit monitored for 72 hours. Fox Engineering Solutions installed a weather station consisting of a National Weather Service Class A evaporation pan and rain gauge. Survey data, including fluid levels and surface areas, were collected by Bookcliff Surveying.

The lining system was reported to consist of two 80 mil liners along with interstitial monitoring. The liner installation had just been completed and appeared to be in excellent condition.

Should you have any questions or require additional information, please let me know.

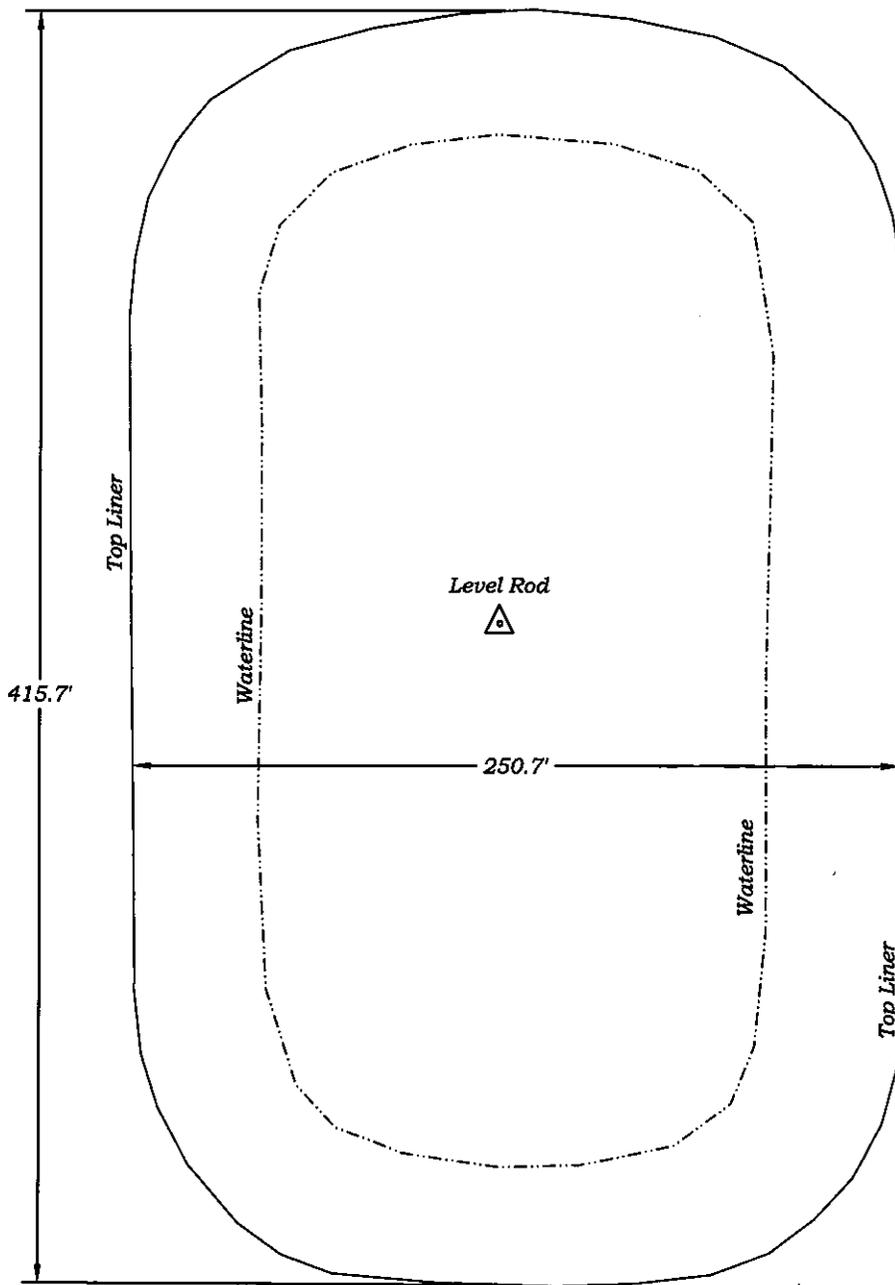
Best regards,

David Fox, P.E.  
**Fox Engineering Solutions LLC**  
670 Canyon Creek Drive  
Grand Junction, CO 81503  
Ph: (970) 250-5505 Fax (626) 784-0667  
Email: [coloradofox@bresnan.net](mailto:coloradofox@bresnan.net)





# WASATCH BENCH EXHIBIT



SCALE: 1" = 60'

  
 Benchmark  
 Elevation = 5607.96'

## WASATCH BENCH PIT DETAILS (@ 8:00 P.M.)

TOP WATER ELEV. (JULY 18, 2011) = 5590.88'  
 TOP WATER ELEV. (JULY 21, 2011) = 5590.85'

TOP WATER SURFACE AREA (JULY 18, 2011) = 52,205 sq. ft.  
 TOP WATER SURFACE AREA (JULY 21, 2011) = 52,254 sq. ft.

TOP OF LINER SURFACE AREA = 96,862 sq. ft.

## WASATCH BENCH PIT LOCATION

NW1/4 SECTION 20,  
 TOWNSHIP 6 SOUTH,  
 RANGE 92 WEST OF THE SIXTH P.M.

COSP NAD83 CENTRAL ZONE  
 LATITUDE: 39.516665°  
 LONGITUDE: -107.699006°



Fox Engineering Solutions  
 670 Canyon Creek Dr.  
 Grand Junction, CO 81503

ANTERO RESOURCES  
 WASATCH BENCH

DATE: 7/21/11  
 SHEET: 1 OF 1  
 PROJECT: ANTERO  
 DFT: SRB

# Hydrostatic Testing Procedures for COGCC Earthen Pits

Version 5.0



The purpose for hydrostatic testing earthen pits is to comply with COGCC approval conditions for verifying the fluid holding integrity of the pit lining system. These procedures are specific to existing or active earthen pits holding oil and gas related fluids including, but not limited to, produced water. During testing, the pit shall have fluid level as high as practical, without encroaching into the 2 ft. freeboard, and the test shall be conducted for a minimum of 72 hours, if practical. Visible portions of the liner, including the anchor trench and seams, shall be inspected for defects. The test shall be scheduled and coordinated with personnel to ensure that oil and gas activities do not interfere with the test. Testing procedures may be subject to changes as dictated by field and climatic factors. All personnel involved with testing, while onsite, shall comply with their respective EH&S requirements.

- If practical, a sign shall be placed in a conspicuous location during the test stating "Hydrostatic Testing in Progress, Pit Closed to All Water Hauling Activities". Contact information shall also be placed on the sign.
- A semi-permanent datum elevation point shall be established at the pit location. The surface area of the water surface and the surface area of the liner area, tributary to the pit shall be measured. The date and time of each measurement shall be documented.
- The pit fluid level; fluid surface area; and the lined surface area, tributary to the pit, shall be measured and recorded at the beginning of the test. The pit fluid level shall be measured again at the end of the test. A survey grade total station shall be utilized for accuracy to capture this information. The date and time of measurements shall be documented.
- A 4" diameter official rain gauge with funnel inlet shall be installed at the pit site. Precipitation shall be recorded for the duration of the hydrostatic test.
- Pan Evaporation shall be measured during the duration of the test following the procedures established by the National Weather Service – NOAA in the document entitled "National Weather Service - Observing Handbook No. 2, dated July 1989. A Class A evaporation pan shall be placed at the site, or as near as practical, with evaporation measured per established procedures.
- For the duration of the test, all inflows and outflows, such as truck and piped transfers, shall cease. If the cessation of inflows and outflows is not practical, all pit inflows and outflows shall be accurately metered and documented during the test. 24-hour surveillance monitoring may be warranted.
- If no precipitation has occurred during the test, compare the change in the pit fluid level with the recorded pan evaporation.
- If precipitation has occurred during the test, precipitation falling onto tributary portions of the liner, outside of the fluid surface area, must be added as an inflow to the pit and converted into inches of depth over the fluid surface area.
- The calculated change in pit level during the test is:  $\Delta S = P + I - O - E$  (all measurements converted to inches)

Where:  $\Delta S$  = Change in pit storage

P = Precipitation Inflow

I = Measured Inflows

O = Measured Outflows

E = Evaporation

- The measured change in the pit fluid level shall be compared to the calculated change, utilizing precipitation and evaporation data, in the pit fluid level during the test duration. The test procedures and results will be reviewed and analyzed for discrepancies. If the test results indicate integrity issues with the lining system, the test will be repeated.

Fox Engineering Solutions

Vers. 5.0 6-28-11

©

# Appendix C



Wasatch Bench Water Management Facility As-Built

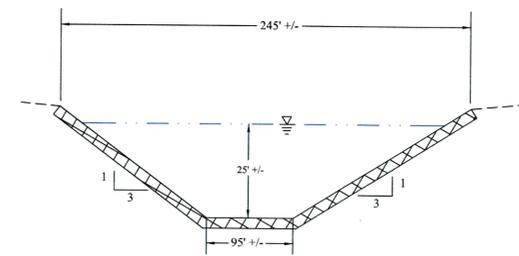
# AS-BUILT SURVEY

## Wasatch Bench Production Water Pond Site

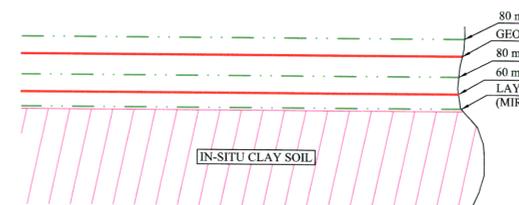
SECTION 20, TOWNSHIP 6 SOUTH, RANGE 92 WEST OF THE 6th P.M., COUNTY OF GARFIELD, STATE OF COLORADO

BRYNILDSON, SCOTT W. & LINDA S.  
PARCEL# 2179-301-00-522

POND STORAGE VOLUME TABLE				
Elev (ft)	Area (ac)	Cumml Avg (ft)	Cumml Avg (Ac-Ft)	
5604.0	2.083	1,342.298.1	30.81	
5603.0	2.003	1,253,289.5	28.77	
5602.0	1,925	1,167,722.6	26.81	
5601.0	1,849	1,085,510.6	24.92	
5600.0	1,774	1,006,591.6	23.11	
5599.0	1,701	930,903.4	21.37	
5598.0	1,629	858,383.9	19.71	
5597.0	1,558	788,971.1	18.11	
5596.0	1,489	722,602.9	16.59	
5595.0	1,421	659,217.2	15.13	
5594.0	1,355	598,751.9	13.75	
5593.0	1,290	541,144.8	12.42	
5592.0	1,227	486,334.0	11.16	
5591.0	1,164	434,257.3	9.97	
5590.0	1,104	384,852.7	8.84	
5589.0	1,045	338,058.1	7.76	
5588.0	987	293,811.3	6.74	
5587.0	931	252,050.3	5.79	
5586.0	876	212,713.0	4.88	
5585.0	822	175,737.3	4.03	
5584.0	770	141,061.1	3.24	
5583.0	719	108,622.3	2.49	
5582.0	670	78,258.9	1.80	
5581.0	622	50,208.8	1.15	
5580.0	576	24,109.9	0.55	
5579.0	531	0.0	0.00	



TYPICAL WASATCH BENCH POND SECTION  
N.T.S.



TYPICAL WASATCH BENCH POND CROSS SECTION  
N.T.S.



VICINITY MAP  
SCALE: 1" = 1,000'

### LEGEND

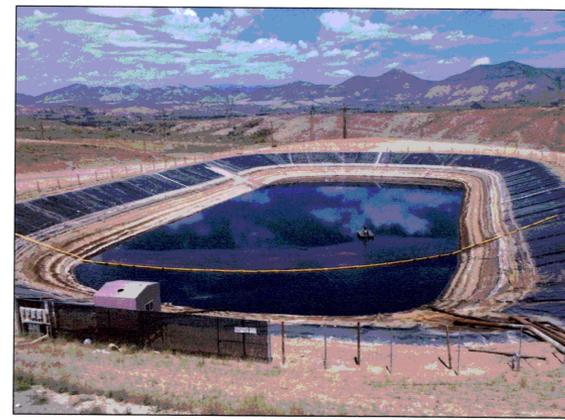
- ACCESS ROAD AND DRIVEWAY
- 10" WATER LINE
- 12" WATER LINE
- OVERHEAD ELECTRIC
- CHAIN LINK FENCE
- MAJOR CONTOUR
- MINOR CONTOUR
- POWER POLE
- WATER VALVE
- TRUCK LOADING AND UNLOADING STATION
- CONTROLLER CABINET
- GROUNDING ROD
- LIGHT POLE
- ELECTRIC BOX
- WIND SOCK

### CONSTRUCTION NOTES:

1. THE WASATCH BENCH POND 25 FEET +/- DEEP.
2. ALL SIDE SLOPES WITHIN THE POND ARE GRADED AT A 33% (3:1) SLOPE.
3. THE WASATCH BENCH POND BASE CONSISTS OF NATURAL CLAY SOIL.
4. THE POND SHAPE WAS CONSTRUCTED WITH STANDARD EARTHMOVING EQUIPMENT AND COMPACTED WITH AN 84 INCH SMOOTH DRUM ROLLER.
5. THE BASE LAYER OF CLAY WAS TOPPED WITH A LAYER OF GEOFABRIC (MIRIFIL 140N).
6. THE GEOFABRIC LAYER WAS TOPPED WITH A IMPERVIOUS 60 MIL LINER.
7. BETWEEN THE 60 MIL AND 80 MIL LINERS WERE PLACED 4" VENT PIPES ON 4 CORNERS OF POND.
8. COVERING 60 MIL LINER AND VENT PIPES IS AN 80 MIL LINER.
9. COVERING THE 80 MIL LINER IS A GEO MAT LINER.
10. BETWEEN THE GEO MAT AND 80 MIL LINER ARE LEAK DETECTION PIPES. 6" PERFORATED PIPE COVERED WITH FABRIC. THE PIPE IS COVERED WITH 3" GRAVEL 7' WIDE BY 12" DEEP+ EXTENDING 38" FROM TOE OF POND LOCATED ON NORTH AND SOUTH SIDE OF POND.
11. THE GEO MAT WAS TOPPED WITH AN 80 MIL FINISH LINER.
12. COVERING THE TOP OF POND IS A BIRD NET.

### SURVEY NOTES:

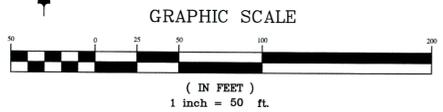
- 1) THE DATE OF THIS SURVEY WAS MARCH 16 & JUNE 27, THROUGH AUGUST 10, 2011.
- 2) CONTOUR INTERVAL EQUALS 1 FOOT.
- 3) ALL COORDINATES ARE BASED ON UNIVERSAL TRANSVERSE MERCATOR ZONE 13 NORTH (UTM 13N) WITH NORTH AMERICAN DATUM 1983 (NAD 83)
- 4) ALL ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
- 5) UNITS OF MEASURE FOR ALL DIMENSIONS SHOWN HEREON IS U.S. SURVEY FEET.



**AS-BUILT**  
Drawing Prepared By:  
**RIVER VALLEY SURVEY, INC.**  
110 EAST 3RD STREET, STE 213  
RIFLE, COLORADO 81650  
(970) 625-1954

1. **SCOTT E. AIBNER**, A REGISTERED LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS AS-BUILT SURVEY OF **WASATCH BENCH POND**, REPRESENTS AN ACTUAL SURVEY MADE ON THE GROUND IN ACCORDANCE WITH THE LAWS OF THE STATE OF COLORADO UNDER MY DIRECT SUPERVISION ON **MARCH, 2011** IN THE STATE OF COLORADO.

 <b>Antero Resources</b> 1625 17th Street Denver, Colorado 80202 Ph: (303) 357-7310	Drawn By: SPG	NO. 1	Date 6-27-11	Revision Bottom Pond Topo	By SEA	ANTERO RESOURCES GARFIELD COUNTY, CO <b>WASATCH BENCH POND                  EXISTING CONDITIONS                  SITE AS-BUILT SURVEY</b>	Project NO. 60011
	Checked By: SEA	NO. 2	Date 08-11-11	Revision Update Pond Improvements	By SEA		POND
 <b>River Valley Survey, Inc.</b> 110 East 3rd Street, Suite 213 Rifle, Colorado 81650 Ph: 970-379-7846 Fax: 970-625-5775	Date: 3/18/11	Computer File: EXCOND-POND					



**SURVEY CONTROL**  
 PT# 366  
 NORTHING: 14361593.7640  
 EASTING: 879295.9590  
 LATITUDE: 39° 30' 54.5"  
 LONGITUDE: 107° 41' 54.9"  
 ELEVATION: 5629.81'

BRYNILDSON, SCOTT W. & LINDA S.  
PARCEL# 2179-301-00-522

