

**GROUNDWATER MONITORING REPORT FOR 1<sup>ST</sup> QUARTER 2011**

**HIGH PLAINS DISPOSAL WELD SITE #1  
WASTE WATER DISPOSAL FACILITY  
SOUTHWEST OF WELD COUNTY ROADS 49 AND 54  
KERSEY, COLORADO**

**Terracon Project No. 20117002  
February 18, 2011**

***Prepared for:***

**High Plains Disposal  
3770 Puritan Way, Suite #J  
Frederick, CO 80516**

***Prepared by:***

**TERRACON  
FORT COLLINS, COLORADO**



February 18, 2011

Mr. Bob Ballard  
High Plains Disposal  
3770 Puritan Way, Suite #J  
Frederick, CO 80516

Telephone: (281) 372-2333

Re: Groundwater Monitoring Report for 1<sup>st</sup> Quarter 2011  
High Plains Disposal Weld Site #1  
Waste Water Disposal Facility  
Southwest of Weld County Roads 49 and 54  
Kersey, Colorado  
Terracon Project No. 20117002

Dear Mr. Ballard:

Terracon Consultants, Inc., (Terracon) is pleased to submit one copy of the Groundwater Monitoring Report for 1<sup>st</sup> Quarter 2011 for the above referenced site. This project was performed in general accordance with Terracon Proposal Number P20100235r dated December 21, 2010.

We appreciate the opportunity to perform these services for High Plains Disposal. Please contact either of the undersigned at (970) 484-0359 if you have questions regarding the information provided in the report.

Sincerely,  
**Terracon**

Prepared by:

Scott M. Gruenberger  
Senior Technician  
Environmental Services

Reviewed by:

Dana L. Harris  
Department Manager  
Environmental Services

Enclosures  
CC:

- Troy Swain, Weld County Department Public Health & Environment: 1555 N. 17th Avenue, Greeley, CO 80631
- John E. Axelson, P.G., State of Colorado Oil and Gas Conservation Commission, Brighton, CO



Terracon Consultants, Inc. 301 North Howes Fort Collins, Colorado 80521  
P [970] 484 0359 F [970] 484 0454 [terracon.com](http://terracon.com)

Geotechnical



Environmental



Construction Materials



Facilities

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Terracon

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# **GROUNDWATER MONITORING REPORT FOR 1<sup>st</sup> QUARTER 2011**

## **HIGH PLAINS DISPOSAL WELD SITE #1 WASTE WATER DISPOSAL FACILITY SOUTHWEST OF COUNTY ROADS 49 AND 54 KERSEY, COLORADO**

**Terracon Project No. 20117002  
February 18, 2011**

### **1.0 INTRODUCTION**

#### **1.1 Background**

High Plains Disposal (High Plains) has obtained a Use by Special Request (USR) permit from the Weld County Department of Planning (Weld County) for the High Plains Disposal Weld Site #1 Class II Waste Water Disposal Facility located southwest of the intersection of Weld County Roads (WCR) 49 and 54 in Kersey, Weld County, Colorado. A topographic map is included as Figure 1, and a site plan is included as Figure 2, Appendix A. The facility is geographically located in the northeast ¼ of the northwest ¼ of Section 25, Township 5 North, Range 65 West of the 6<sup>th</sup> Principle Meridian, Weld County, Colorado. Terracon's revised Groundwater Monitoring Plan (GMP) Addendum for the site dated October 19, 2009, was approved by the Weld County Department of Health and Environment on November 2, 2009. The GMP called for the installation of seven groundwater monitoring wells to be used for leak detection and/or groundwater monitoring. The GMP called for monthly leak detection monitoring of the four wells to be installed at the facility's loading pad and processing vault. The GMP also called for quarterly monitoring of all seven wells and reporting of quarterly monitoring results to Weld County.

#### **1.2 Scope of Work**

Terracon completed the following tasks for the 1<sup>st</sup> Quarter sampling event:

- Collection of groundwater samples from each well (7); and,
- Laboratory analysis of collected groundwater samples.

#### **1.3 Standard of Care**

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does

not warrant the work of laboratories, regulatory agencies or other third parties supplying information used in the preparation of the report. These services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not restricted by ASTM E1903-97.

#### **1.4 Additional Scope Limitations**

Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, non-detectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this project. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

#### **1.5 Reliance**

This report has been prepared for the exclusive use of High Plains Disposal, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of High Plains Disposal and Terracon. Any unauthorized distribution or reuse is at the client's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in the proposal, this report, and Terracon's Terms and Conditions. The limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to the client and all relying parties unless otherwise agreed in writing.

### **2.0 FIELD ACTIVITIES**

#### **2.1 GROUNDWATER SAMPLING**

Terracon mobilized to the site for sampling on January 14, 2011. Terracon measured water levels in each well prior to sampling. Water level measurements and groundwater elevations are shown on Table 1, Appendix B, and groundwater contours are shown on Figure 3, Appendix A. Prior to sample collection, each monitoring well was purged of a minimum of three well casing volumes of groundwater, until the monitoring well formation

failed to recharge (i.e., well ran dry) or consistent values (i.e., less than 10% variance between consecutive readings) were obtained for pH, temperature and conductivity. Subsequent to sufficient recharge, one groundwater sample was collected from each monitoring well utilizing a new, disposable, polypropylene bailer.

Groundwater samples were collected and placed in laboratory prepared glassware, sealed with custody tape and placed on ice in a cooler which was secured with a custody seal. The sample coolers and completed chain-of-custody forms were relinquished to Pace Analytical Laboratories in Lenexa, Kansas for analysis.

## **2.2 Leak Detection Sampling**

High Plains Disposal representatives completed monthly leak testing in November 2010. Terracon began conducting the monthly leak testing in December 2010. Monthly leak testing consisted of sampling monitoring wells MW-3, MW-4, MW-5 and MW-6. Groundwater samples were relinquished to Pace Analytical Laboratories in Lenexa, Kansas for analysis. Upon receipt, leak detection sampling results were reviewed by Terracon and forwarded to High Plains representatives. Leak testing analytical results are summarized in this periodic monitoring report.

Monthly leak detection laboratory results are summarized in Table 2, Appendix B. The executed chain-of-custody form and laboratory data sheets are provided in Appendix C.

## **3.0 LABORATORY ANALYTICAL METHODS**

The groundwater samples were analyzed for:

- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by EPA method 8260;
- Total Dissolved Solids (TDS) by EPA Method 160.1; and
- Chloride and Sulfate by EPA Method 300.1.

Laboratory results are summarized in Table 2, Appendix B. The executed chain-of-custody form and laboratory data sheets are provided in Appendix C.

## **4.0 DATA EVALUATION**

### **4.1 Groundwater Analytical Results**

Toluene and xylenes were detected in concentrations above the laboratory method reporting limits in MW-6, each reported at a concentration of 1.0 micrograms per liter (µg/L) during the

November 2010 leak testing event conducted by High Plains representatives. Benzene was detected in the sample from MW-6 at a concentration of 1.0 µg/L during the December 2010 leak testing event conducted by Terracon.

TDS concentrations ranged from 1,840 milligrams per liter (mg/L) to 2,000 mg/L. Chloride concentrations ranged from 247 mg/L to 378 mg/L. Sulfate concentrations ranged from 898 mg/L to 1,130 mg/L.

#### **4.2 Assessment of Groundwater Analytical Results**

In accordance with the GMP, groundwater analytical results are assessed using statistical methods. Trend analyses will be performed using the Mann-Kendall test and Sen's slope estimator. Using the Mann-Kendall test, a trend is significant at a 95% confidence level (two-tailed) if the absolute value of the Mann-Kendall statistic is greater than or equal to the absolute value of the critical value. A minimum of 7 rounds of data will be required to accurately assess trends; therefore statistical trend analysis is not being performed at this time.

Descriptive statistical analyses (number of data points, number of non-detectable data points, mean, maximum, minimum, standard deviation, and description of outliers) are presented in Appendix E.

Based on current groundwater elevations', monitoring well MW-7 is upgradient of the site processes and appears to represent background conditions for groundwater entering the site from upgradient sources.

#### **5.0 CONCLUSIONS AND RECOMMENDATIONS**

Toluene and xylenes were identified above laboratory reporting limits in MW-6 during the November 2010 leak testing sampling event. Benzene was identified above laboratory reporting limits in MW-6 during the December 2010 leak testing and January 2011 monitoring events.

Groundwater monitoring and leak testing will continue, as discussed with the Weld County Department of Public Health and Environment (WCDPHE) and the Colorado Oil and Gas Conservation Commission (COGCC) representatives Terracon is currently scheduled to conduct the next leak testing sampling event in February 2011 and the next periodic monitoring event during the 2<sup>nd</sup> Quarter 2011 (April 2011). Statistical trend analysis will be submitted upon completion of seven monitoring events or approximately August, 2011.

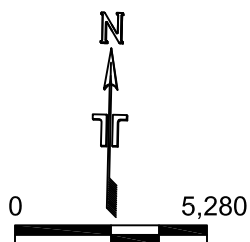
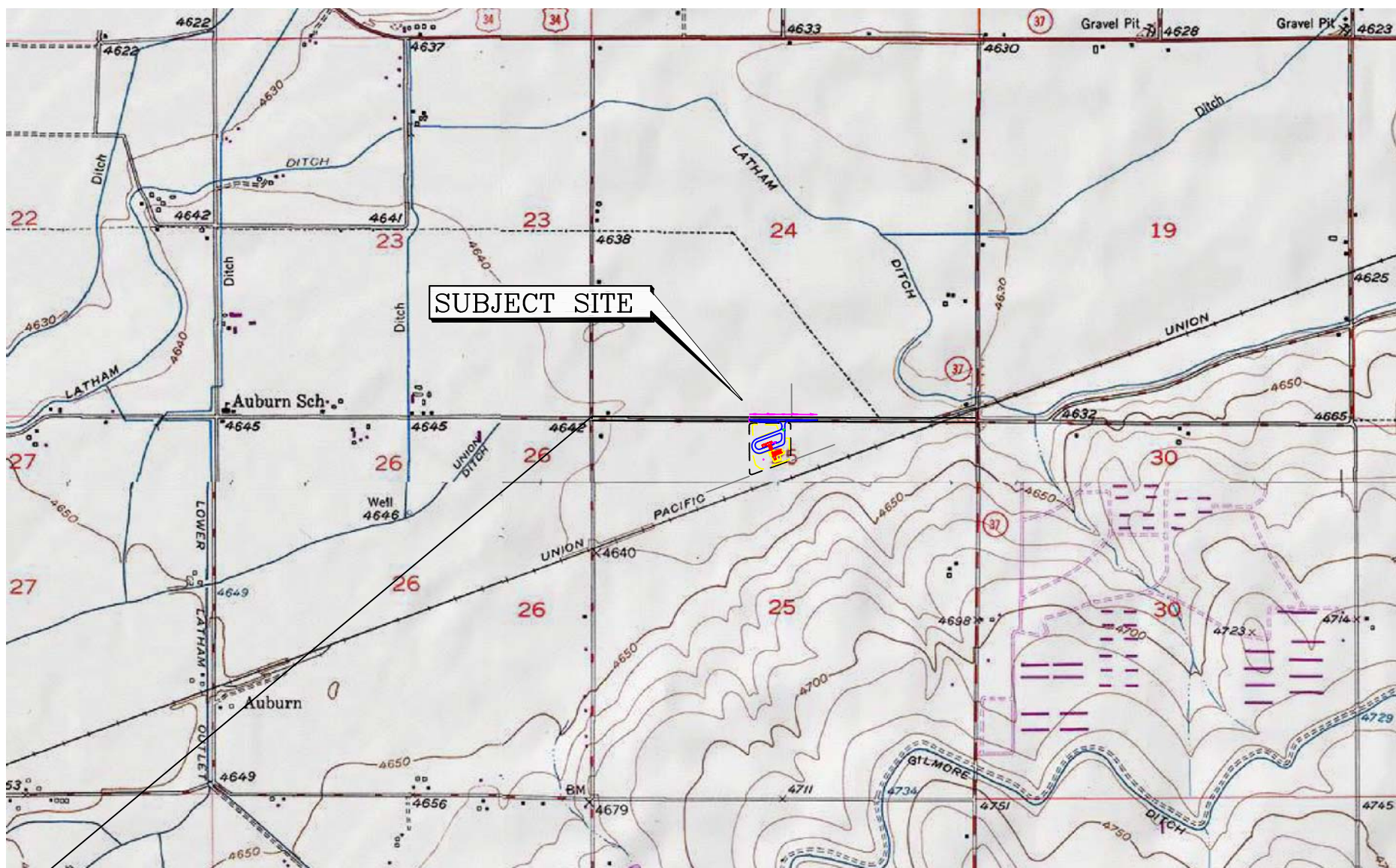
## **APPENDIX A**

**Figure 1 – Topographic Map**

**Figure 2 – Site Plan**

**Figure 3 – Piezometric Site Diagram**





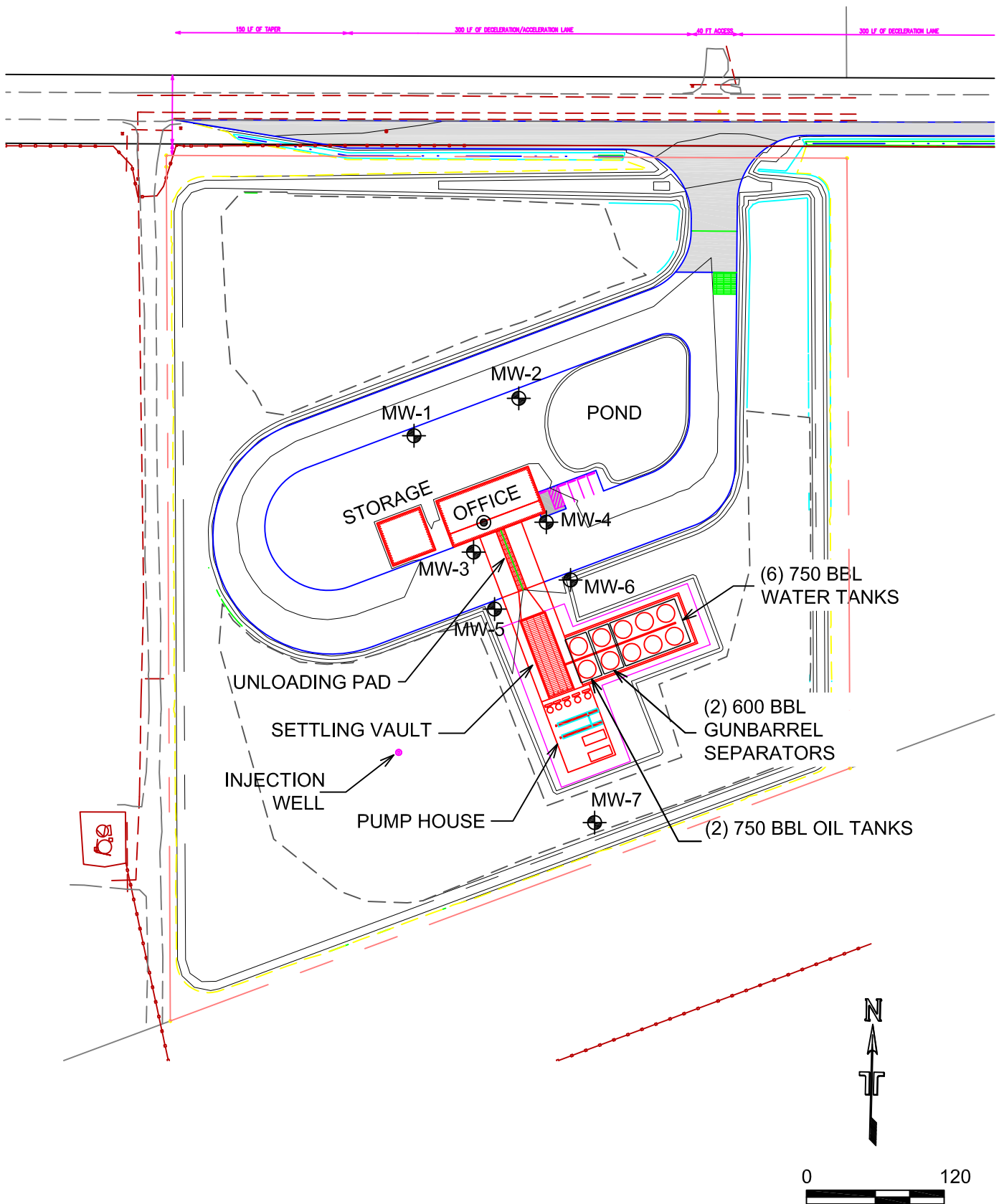
Project Mng'r:	DLH	Project No.	201117002
Drawn By:	DJS	Scale:	AS NOTED
Checked By:	DLH	Date:	02/04/11
Approved By:	DLH		

**Terracon**  
Consulting Engineers and Scientists

301 N. HOWES FORT COLLINS, CO 80521  
PH. (970) 484-0359 FAX. (970) 484-0454

FIGURE 1: SITE LOCATION MAP
1st QTR. 2011 GROUNDWATER MONITORING REPORT
HIGH PLAINS DISPOSAL, WELD SITE #1
KERSEY, COLORADO
File No. N:\Projects\2009\20097021\Quarterly Reports\Well-11Q1\CADD 11Q1

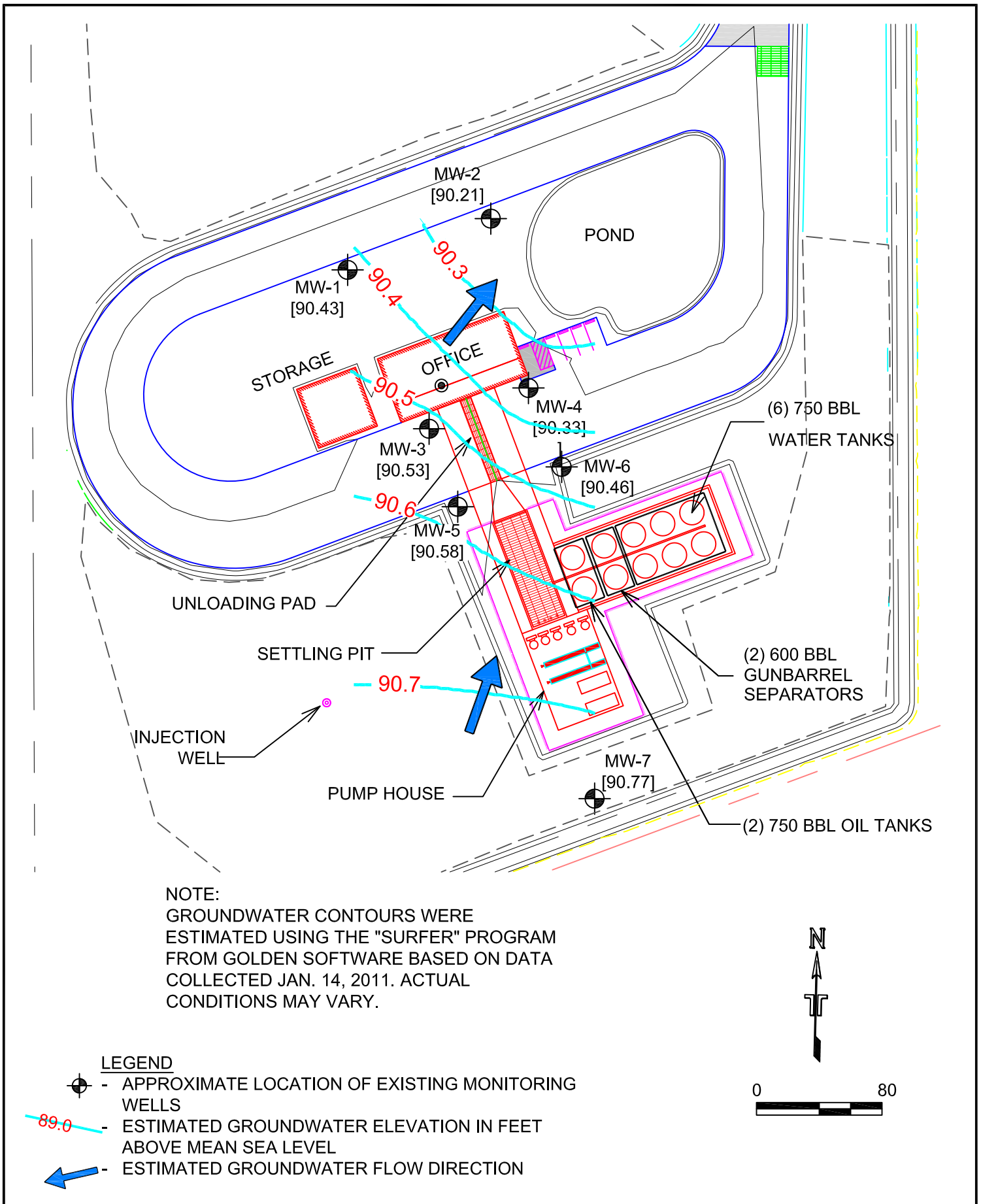
FIG. No.
1



**LEGEND**  
 - GROUNDWATER MONITORING WELL LOCATIONS

Project Mng'r:	DLH	Project No.	20117002	<b>Terracon</b> Consulting Engineers and Scientists 301 N. HOWES FORT COLLINS, CO 80521 PH. (970) 484-0359	<b>FIGURE 2: SITE DIAGRAM</b> <b>1st QUARTER 2011 MONITORING REPORT</b> HIGH PLAINS DISPOSAL, WELD SITE #1 KERSEY, COLORADO	<b>FIG. No.</b>  <b>2</b>
Drawn By:	DJS	Scale:	1:120			
Checked By:	DLH	Date:	2/4/2011			
Approved By:	DLH					

N:\Projects\2009\20097021-1G Quarterly Reports\Well-11Q1\CADD 11Q1\20097021-2 update.dwg



Project Mng'r:	DLH	Project No.	20117002	<b>Terracon</b> Consulting Engineers and Scientists 301 N. HOWES FORT COLLINS, CO 80521 PH. (970) 484-0359 FAX. (970) 484-0454	<b>FIGURE 3: PIEZOMETRIC SITE DIAGRAM</b> 1st QTR. 2011 GROUNDWATER MONITORING REPORT HIGH PLAINS DISPOSAL, WELD SITE #1 KERSEY, COLORADO File No. N:\Projects\2009\20097021\Quarterly Reports\Well-11Q1\CADD 11Q1	<b>FIG. No.</b>  <b>3</b>
Drawn By:	DJS	Scale:	1:80			
Checked By:	DLH	Date:	02/04/11			
Approved By:	DRP					

## **APPENDIX B**

**Table 1 – Groundwater Elevations**

**Table 2 – Summary of Groundwater Analytical Results**

**TABLE 1**  
**GROUNDWATER ELEVATIONS**

**High Plains Disposal Weld Site #1 Waste Water Disposal Facility**  
**Southwest of Weld County Roads 49 and 54, Kersey, CO**  
**Terracon Project No. 20117002**

Well Number	Date Measured	TOC	DTW	Groundwater Elevation
		(Feet)	(Feet)	(Feet)
MW-1	11/24/2009	96.10	3.87	92.23
	3/4/2010	96.10	7.90	88.20
	4/30/2010	96.10	7.53	88.57
	7/26/2010	96.10	3.96	92.14
	10/13/2010	96.10	1.99	94.11
	1/14/2011	96.10	5.67	90.43
MW-2	11/24/2009	96.40	4.45	91.95
	3/4/2010	96.40	7.42	88.98
	4/30/2010	96.40	8.05	88.35
	7/26/2010	96.40	4.32	92.08
	10/13/2010	96.40	2.54	93.86
	1/14/2011	96.40	6.19	90.21
MW-3	11/24/2009	99.00	6.41	92.59
	3/4/2010	99.00	9.67	89.33
	4/30/2010	99.00	10.30	88.70
	7/26/2010	99.00	6.94	92.06
	10/13/2010	99.00	4.89	94.11
	1/14/2011	99.00	8.47	90.53
MW-4	11/24/2009	98.70	6.30	92.40
	3/4/2010	98.70	9.54	89.16
	4/30/2010	98.70	10.20	88.50
	7/26/2010	98.70	6.77	91.93
	10/13/2010	98.70	4.78	93.92
	1/14/2011	98.70	8.37	90.33
MW-5	11/24/2009	99.00	6.50	92.50
	3/4/2010	99.00	9.60	89.40
	4/30/2010	99.00	10.24	88.76
	7/26/2010	99.00	7.01	91.99
	10/13/2010	99.00	4.87	94.13
	1/14/2011	99.00	8.42	90.58
MW-6	11/24/2009	98.80	6.49	92.31
	3/4/2010	98.80	9.53	89.27
	4/30/2010	98.80	10.17	88.63
	7/26/2010	98.80	6.86	91.94
	10/13/2010	98.80	4.80	94.00
	1/14/2011	98.80	8.34	90.46
MW-7	11/24/2009	95.20	2.46	92.74
	3/4/2010	95.20	5.57	89.63
	4/30/2010	95.20	6.19	89.01
	7/26/2010	95.20	3.50	91.70
	10/13/2010	95.20	0.95	94.25
	1/14/2011	95.20	4.43	90.77

**Notes:**

- 1) TOC = Top of well casing elevation, surveyed relative to arbitrary 100' benchmark.
- 2) Groundwater elevation relative to arbitrary 100' benchmark.



**TABLE 2**  
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**

**High Plains Disposal Weld Site #1 Waste Water Disposal Facility**  
**Southwest of Weld County Roads 49 and 54, Kersey, CO**  
**Terracon Project No. 20117002**

Monitoring Well Number	Date Sampled	Benzene	Toluene	Ethylbenzene	Xylenes	TDS	Chloride	Sulfate
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)
MW-1	11/24/2009	ND	ND	ND	ND	2,100	257	853
	3/4/2010	ND	ND	ND	ND	1,600	214	597
	4/30/2010	ND	ND	ND	ND	1,620	233	634
	7/26/2010	ND	ND	ND	ND	1,900	277	818
	10/13/2010	ND	ND	ND	ND	1,980	274	703
	1/14/2011	ND	ND	ND	ND	1,930	356	898
MW-2	11/25/2009	ND	ND	ND	ND	2,310	403	1,185
	3/4/2010	ND	ND	ND	ND	1,610	251	723
	4/30/2010	ND	ND	ND	ND	1,550	253	670
	7/26/2010	ND	ND	ND	ND	1,790	256	774
	10/13/2010	ND	ND	ND	ND	2,050	287	747
	1/14/2011	ND	ND	ND	ND	1,930	351	1,130
MW-3	11/24/2009	ND	ND	ND	ND	1,970	257	760
	3/2/2010	ND	ND	ND	ND	NA	239	663
	3/4/2010	ND	ND	ND	ND	1,670	210	589
	4/9/2010	ND	ND	ND	ND	NA	232	NA
	4/30/2010	ND	ND	ND	ND	3,850	240	619
	5/6/2010	ND	ND	ND	ND	NA	259	724
	6/7/2010	ND	ND	ND	ND	NA	218	598
	7/26/2010	ND	ND	ND	ND	1,740	265	787
	8/16/2010	ND	ND	ND	ND	NA	NA	870
	9/17/2010	ND	ND	ND	ND	NA	NA	812
	10/13/2010	ND	ND	ND	ND	1,870	266	674
	11/16/2010	ND	ND	ND	ND	1,880	278	813
	12/27/2010	ND	ND	ND	ND	1,880	269	812
	1/14/2011	ND	ND	ND	ND	1,870	359	1,030
	11/24/2009	ND	ND	ND	ND	1,980	242	738
MW-4	3/2/2010	ND	ND	ND	ND	NA	235	649
	3/4/2010	ND	ND	ND	ND	1,610	207	575
	4/9/2010	ND	ND	ND	ND	NA	227	NA
	4/30/2010	ND	ND	ND	ND	1,140	224	591
	5/6/2010	ND	ND	ND	ND	NA	252	691
	6/7/2010	ND	ND	ND	ND	NA	219	598
	7/26/2010	ND	ND	ND	ND	1,750	247	728
	8/16/2010	ND	ND	ND	ND	NA	NA	846
	9/17/2010	ND	ND	ND	ND	NA	NA	859
	10/13/2010	ND	ND	ND	ND	1,880	265	677
	11/16/2010	ND	ND	ND	ND	1,820	285	832
	12/27/2010	ND	ND	ND	ND	1,820	259	775
	1/14/2011	ND	ND	ND	ND	1,840	247	912
	11/24/2009	ND	ND	ND	ND	1,990	261	792
	3/2/2010	ND	ND	ND	ND	NA	238	669
MW-5	3/4/2010	ND	ND	ND	ND	1,610	211	581
	4/9/2010	ND	ND	ND	ND	NA	263	NA
	4/30/2010	ND	ND	ND	ND	2,740	256	647
	5/6/2010	ND	ND	ND	ND	NA	316	858
	6/7/2010	ND	ND	ND	ND	NA	259	668
	7/26/2010	ND	ND	ND	ND	1,820	253	717
	8/16/2010	ND	ND	ND	ND	NA	NA	832
	9/17/2010	ND	ND	ND	ND	NA	NA	754
	10/13/2010	ND	ND	ND	ND	2,030	277	710
	11/16/2010	ND	ND	ND	ND	1,940	290	884
	12/27/2010	ND	ND	ND	ND	1,800	260	804
	1/14/2011	ND	ND	ND	ND	1,920	357	945
	11/24/2009	ND	ND	ND	ND	2,290	304	986
	3/2/2010	ND	ND	ND	ND	NA	262	738
	3/4/2010	ND	ND	ND	ND	1,780	223	624
MW-6	4/9/2010	ND	ND	ND	ND	NA	268	NA
	4/30/2010	ND	ND	ND	ND	2,820	258	678
	5/6/2010	ND	ND	ND	ND	NA	265	722
	6/7/2010	ND	ND	ND	ND	NA	293	790
	7/26/2010	ND	ND	ND	ND	1,770	266	698
	8/16/2010	ND	ND	ND	ND	NA	NA	863
	9/17/2010	ND	ND	ND	ND	NA	NA	845
	10/13/2010	ND	ND	ND	ND	1,960	256	684
	11/16/2010	ND	1.0	ND	1.0	1,900	327	975
	12/27/2010	1.0	ND	ND	ND	1,880	5.3	16.3
	1/14/2011	2.0	ND	ND	ND	2,000	361	974
	11/25/2009	ND	ND	ND	ND	2,360	358	950
	3/4/2010	ND	ND	ND	ND	1,740	262	673
	4/30/2010	ND	ND	ND	ND	5,820	286	683
	7/26/2010	ND	ND	ND	ND	2,090	311	832
	10/13/2010	ND	ND	ND	ND	1,940	285	678
	1/14/2011	ND	ND	ND	ND	1,860	378	940
MW-7	11/25/2009	ND	ND	ND	ND	2,360	358	950
	3/4/2010	ND	ND	ND	ND	1,740	262	673
	4/30/2010	ND	ND	ND	ND	5,820	286	683
	7/26/2010	ND	ND	ND	ND	2,090	311	832
	10/13/2010	ND	ND	ND	ND	1,940	285	678
	1/14/2011	ND	ND	ND	ND	1,860	378	940

**Notes:**

- 1) BTEX = Benzene, Toluene, Ethylbenzene, and Total Xylenes
- 2) µg/L = micrograms per liter; mg/l - milligrams per liter
- 3) TDS = Total Dissolved Solids
- 4) ND = None Detected
- 5) NS = None Sampled
- 6) NA = Not Analyzed
- 7) © = Monthly leak testing program
- 8) Shading - Above Laboratory Detection Limits

## **APPENDIX C**

### **Laboratory Data Sheets**

January 25, 2011

Scott Gruenberger  
Terracon Ft. Collins Colorado  
301 North Howes St.  
Fort Collins, CO 80521

RE: Project: High Plains Kersey  
Pace Project No.: 6092364

Dear Scott Gruenberger:

Enclosed are the analytical results for sample(s) received by the laboratory on January 18, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Colleen Koporc

colleen.koporc@pacelabs.com  
Project Manager

Enclosures

cc: Dana Harris, Terracon Ft. Collins Colorado

## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: High Plains Kersey

Pace Project No.: 6092364

### Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

A2LA Certification #: 2456.01

Arkansas Certification #: 05-008-0

Illinois Certification #: 001191

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407-08-TX

Utah Certification #: 9135995665

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: High Plains Kersey

Pace Project No.: 6092364

Lab ID	Sample ID	Matrix	Date Collected	Date Received
6092364001	MW-1	Water	01/14/11 13:40	01/18/11 09:30
6092364002	MW-2	Water	01/14/11 14:00	01/18/11 09:30
6092364003	MW-3	Water	01/14/11 14:10	01/18/11 09:30
6092364004	MW-4	Water	01/14/11 14:40	01/18/11 09:30
6092364005	MW-5	Water	01/14/11 12:50	01/18/11 09:30
6092364006	MW-6	Water	01/14/11 14:52	01/18/11 09:30
6092364007	MW-7	Water	01/14/11 15:15	01/18/11 09:30

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE ANALYTE COUNT

Project: High Plains Kersey

Pace Project No.: 6092364

Lab ID	Sample ID	Method	Analysts	Analytes Reported
6092364001	MW-1	EPA 8260	JDM	8
		SM 2540C	JPF	1
		SM 4500-H+B	SRM1	1
		EPA 300.0	JML	2
6092364002	MW-2	EPA 8260	JDM	8
		SM 2540C	JPF	1
		SM 4500-H+B	SRM1	1
		EPA 300.0	JML	2
6092364003	MW-3	EPA 8260	JDM	8
		SM 2540C	JPF	1
		SM 4500-H+B	SRM1	1
		EPA 300.0	JML	2
6092364004	MW-4	EPA 8260	JDM	8
		SM 2540C	JPF	1
		SM 4500-H+B	SRM1	1
		EPA 300.0	JML	2
6092364005	MW-5	EPA 8260	JDM	8
		SM 2540C	JPF	1
		SM 4500-H+B	SRM1	1
		EPA 300.0	JML	2
6092364006	MW-6	EPA 8260	JDM	8
		SM 2540C	JPF	1
		SM 4500-H+B	SRM1	1
		EPA 300.0	JML	2
6092364007	MW-7	EPA 8260	JDM	8
		SM 2540C	JPF	1
		SM 4500-H+B	SRM1	1
		EPA 300.0	JML	2

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: High Plains Kersey

Pace Project No.: 6092364

Sample: MW-1		Lab ID: 6092364001	Collected: 01/14/11 13:40	Received: 01/18/11 09:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV GRO and Oxygenates</b>		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		01/20/11 13:44	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		01/20/11 13:44	100-41-4	
Toluene	ND	ug/L	1.0	1		01/20/11 13:44	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		01/20/11 13:44	1330-20-7	
Toluene-d8 (S)	100	%	90-110	1		01/20/11 13:44	2037-26-5	
4-Bromofluorobenzene (S)	102	%	87-113	1		01/20/11 13:44	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	82-119	1		01/20/11 13:44	17060-07-0	
Preservation pH	1.0		0.10	1		01/20/11 13:44		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C						
Total Dissolved Solids	1930	mg/L	5.0	1		01/19/11 08:31		
<b>4500H+ pH, Electrometric</b>		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		01/18/11 15:10		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Chloride	356	mg/L	20.0	20		01/24/11 14:31	16887-00-6	
Sulfate	898	mg/L	100	100		01/24/11 14:45	14808-79-8	

## ANALYTICAL RESULTS

Project: High Plains Kersey  
Pace Project No.: 6092364

Sample: MW-2		Lab ID: 6092364002	Collected: 01/14/11 14:00	Received: 01/18/11 09:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV GRO and Oxygenates</b>		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		01/20/11 14:00	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		01/20/11 14:00	100-41-4	
Toluene	ND	ug/L	1.0	1		01/20/11 14:00	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		01/20/11 14:00	1330-20-7	
Toluene-d8 (S)	103	%	90-110	1		01/20/11 14:00	2037-26-5	
4-Bromofluorobenzene (S)	99	%	87-113	1		01/20/11 14:00	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	82-119	1		01/20/11 14:00	17060-07-0	
Preservation pH	1.0		0.10	1		01/20/11 14:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C						
Total Dissolved Solids	1930	mg/L	5.0	1		01/19/11 08:31		
<b>4500H+ pH, Electrometric</b>		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		01/18/11 15:10		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Chloride	351	mg/L	20.0	20		01/24/11 14:59	16887-00-6	
Sulfate	1130	mg/L	100	100		01/24/11 15:12	14808-79-8	

## ANALYTICAL RESULTS

Project: High Plains Kersey

Pace Project No.: 6092364

Sample: MW-3		Lab ID: 6092364003	Collected: 01/14/11 14:10	Received: 01/18/11 09:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV GRO and Oxygenates</b>		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		01/20/11 14:16	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		01/20/11 14:16	100-41-4	
Toluene	ND	ug/L	1.0	1		01/20/11 14:16	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		01/20/11 14:16	1330-20-7	
Toluene-d8 (S)	101	%	90-110	1		01/20/11 14:16	2037-26-5	
4-Bromofluorobenzene (S)	98	%	87-113	1		01/20/11 14:16	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	82-119	1		01/20/11 14:16	17060-07-0	
Preservation pH	1.0		0.10	1		01/20/11 14:16		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C						
Total Dissolved Solids	1870	mg/L	5.0	1		01/19/11 08:32		
<b>4500H+ pH, Electrometric</b>		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		01/18/11 15:10		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Chloride	359	mg/L	20.0	20		01/24/11 15:26	16887-00-6	
Sulfate	1030	mg/L	100	100		01/24/11 15:40	14808-79-8	

## ANALYTICAL RESULTS

Project: High Plains Kersey  
Pace Project No.: 6092364

Sample: MW-4		Lab ID: 6092364004	Collected: 01/14/11 14:40	Received: 01/18/11 09:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV GRO and Oxygenates</b>		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		01/25/11 05:28	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		01/25/11 05:28	100-41-4	
Toluene	ND	ug/L	1.0	1		01/25/11 05:28	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		01/25/11 05:28	1330-20-7	
Toluene-d8 (S)	101	%	90-110	1		01/25/11 05:28	2037-26-5	
4-Bromofluorobenzene (S)	98	%	87-113	1		01/25/11 05:28	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	82-119	1		01/25/11 05:28	17060-07-0	
Preservation pH	1.0		0.10	1		01/25/11 05:28		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C						
Total Dissolved Solids	1840	mg/L	5.0	1		01/19/11 08:32		
<b>4500H+ pH, Electrometric</b>		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		01/18/11 15:10		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Chloride	247	mg/L	20.0	20		01/24/11 15:53	16887-00-6	
Sulfate	912	mg/L	100	100		01/24/11 16:34	14808-79-8	

## ANALYTICAL RESULTS

Project: High Plains Kersey  
Pace Project No.: 6092364

Sample: MW-5		Lab ID: 6092364005	Collected: 01/14/11 12:50	Received: 01/18/11 09:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV GRO and Oxygenates</b>		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		01/20/11 14:56	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		01/20/11 14:56	100-41-4	
Toluene	ND	ug/L	1.0	1		01/20/11 14:56	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		01/20/11 14:56	1330-20-7	
Toluene-d8 (S)	100	%	90-110	1		01/20/11 14:56	2037-26-5	
4-Bromofluorobenzene (S)	99	%	87-113	1		01/20/11 14:56	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	82-119	1		01/20/11 14:56	17060-07-0	
Preservation pH	1.0		0.10	1		01/20/11 14:56		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C						
Total Dissolved Solids	1920	mg/L	5.0	1		01/19/11 08:33		
<b>4500H+ pH, Electrometric</b>		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		01/18/11 15:10		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Chloride	357	mg/L	20.0	20		01/24/11 16:48	16887-00-6	
Sulfate	945	mg/L	100	100		01/24/11 17:02	14808-79-8	



## ANALYTICAL RESULTS

Project: High Plains Kersey  
Pace Project No.: 6092364

Sample: MW-6		Lab ID: 6092364006	Collected: 01/14/11 14:52	Received: 01/18/11 09:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV GRO and Oxygenates</b>		Analytical Method: EPA 8260						
Benzene	2.0	ug/L	1.0	1		01/20/11 15:12	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		01/20/11 15:12	100-41-4	
Toluene	ND	ug/L	1.0	1		01/20/11 15:12	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		01/20/11 15:12	1330-20-7	
Toluene-d8 (S)	101	%	90-110	1		01/20/11 15:12	2037-26-5	
4-Bromofluorobenzene (S)	98	%	87-113	1		01/20/11 15:12	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	82-119	1		01/20/11 15:12	17060-07-0	
Preservation pH	1.0		0.10	1		01/20/11 15:12		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C						
Total Dissolved Solids	2000	mg/L	5.0	1		01/19/11 08:33		
<b>4500H+ pH, Electrometric</b>		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		01/18/11 15:10		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Chloride	361	mg/L	20.0	20		01/24/11 17:15	16887-00-6	
Sulfate	974	mg/L	100	100		01/24/11 17:29	14808-79-8	

## ANALYTICAL RESULTS

Project: High Plains Kersey  
Pace Project No.: 6092364

Sample: MW-7		Lab ID: 6092364007	Collected: 01/14/11 15:15	Received: 01/18/11 09:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV GRO and Oxygenates</b>		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		01/20/11 15:28	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		01/20/11 15:28	100-41-4	
Toluene	ND	ug/L	1.0	1		01/20/11 15:28	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		01/20/11 15:28	1330-20-7	
Toluene-d8 (S)	104	%	90-110	1		01/20/11 15:28	2037-26-5	
4-Bromofluorobenzene (S)	97	%	87-113	1		01/20/11 15:28	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	82-119	1		01/20/11 15:28	17060-07-0	
Preservation pH	1.0		0.10	1		01/20/11 15:28		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C						
Total Dissolved Solids	1860	mg/L	5.0	1		01/19/11 08:33		
<b>4500H+ pH, Electrometric</b>		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		01/18/11 15:10		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Chloride	378	mg/L	50.0	50		01/24/11 17:43	16887-00-6	
Sulfate	940	mg/L	50.0	50		01/24/11 17:43	14808-79-8	

## QUALITY CONTROL DATA

Project: High Plains Kersey

Pace Project No.: 6092364

QC Batch: MSV/34738

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV MO GRO Oxygenates

Associated Lab Samples: 6092364001, 6092364002, 6092364003, 6092364005, 6092364006, 6092364007

METHOD BLANK: 762214

Matrix: Water

Associated Lab Samples: 6092364001, 6092364002, 6092364003, 6092364005, 6092364006, 6092364007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	01/20/11 11:54	
Ethylbenzene	ug/L	ND	1.0	01/20/11 11:54	
Toluene	ug/L	ND	1.0	01/20/11 11:54	
Xylene (Total)	ug/L	ND	3.0	01/20/11 11:54	
1,2-Dichloroethane-d4 (S)	%	96	82-119	01/20/11 11:54	
4-Bromofluorobenzene (S)	%	99	87-113	01/20/11 11:54	
Toluene-d8 (S)	%	101	90-110	01/20/11 11:54	

LABORATORY CONTROL SAMPLE: 762215

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.4	102	79-116	
Ethylbenzene	ug/L	20	20.3	101	76-122	
Toluene	ug/L	20	19.4	97	75-120	
Xylene (Total)	ug/L	60	62.3	104	74-124	
1,2-Dichloroethane-d4 (S)	%			97	82-119	
4-Bromofluorobenzene (S)	%			98	87-113	
Toluene-d8 (S)	%			104	90-110	

## QUALITY CONTROL DATA

Project: High Plains Kersey

Pace Project No.: 6092364

QC Batch: MSV/34771

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV MO GRO Oxygenates

Associated Lab Samples: 6092364004

METHOD BLANK: 763372

Matrix: Water

Associated Lab Samples: 6092364004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	01/25/11 01:46	
Ethylbenzene	ug/L	ND	1.0	01/25/11 01:46	
Toluene	ug/L	ND	1.0	01/25/11 01:46	
Xylene (Total)	ug/L	ND	3.0	01/25/11 01:46	
1,2-Dichloroethane-d4 (S)	%	92	82-119	01/25/11 01:46	
4-Bromofluorobenzene (S)	%	99	87-113	01/25/11 01:46	
Toluene-d8 (S)	%	99	90-110	01/25/11 01:46	

LABORATORY CONTROL SAMPLE: 763373

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	21.0	105	79-116	
Ethylbenzene	ug/L	20	20.6	103	76-122	
Toluene	ug/L	20	20.6	103	75-120	
Xylene (Total)	ug/L	60	62.0	103	74-124	
1,2-Dichloroethane-d4 (S)	%			95	82-119	
4-Bromofluorobenzene (S)	%			100	87-113	
Toluene-d8 (S)	%			100	90-110	

## QUALITY CONTROL DATA

Project: High Plains Kersey

Pace Project No.: 6092364

QC Batch: WET/27308 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 6092364001, 6092364002, 6092364003, 6092364004, 6092364005, 6092364006, 6092364007

METHOD BLANK: 761548 Matrix: Water  
Associated Lab Samples: 6092364001, 6092364002, 6092364003, 6092364004, 6092364005, 6092364006, 6092364007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	01/19/11 08:29	

SAMPLE DUPLICATE: 761549

Parameter	Units	6092385001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1350	1380	2	17	

SAMPLE DUPLICATE: 761550

Parameter	Units	6092364004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1840	1850	1	17	

## QUALITY CONTROL DATA

Project: High Plains Kersey

Pace Project No.: 6092364

QC Batch:	WET/27300	Analysis Method:	SM 4500-H+B
QC Batch Method:	SM 4500-H+B	Analysis Description:	4500H+B pH
Associated Lab Samples:	6092364001, 6092364002, 6092364003, 6092364004, 6092364005, 6092364006, 6092364007		

SAMPLE DUPLICATE: 761414

Parameter	Units	6092364005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	0	5	H6

## QUALITY CONTROL DATA

Project: High Plains Kersey

Pace Project No.: 6092364

QC Batch: WETA/15279

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 6092364001, 6092364002, 6092364003, 6092364004, 6092364005, 6092364006, 6092364007

METHOD BLANK: 763345

Matrix: Water

Associated Lab Samples: 6092364001, 6092364002, 6092364003, 6092364004, 6092364005, 6092364006, 6092364007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	01/24/11 09:31	
Sulfate	mg/L	ND	1.0	01/24/11 09:31	

LABORATORY CONTROL SAMPLE: 763346

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	90-110	
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 763347

763348

Parameter	Units	6092096002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	291	100	100	393	388	102	98	64-118	1	12	
Sulfate	mg/L	235	100	100	333	326	98	91	61-119	2	10	

MATRIX SPIKE SAMPLE: 763349

Parameter	Units	6092162001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	986	250	1280	117	64-118	
Sulfate	mg/L	95.2	250	404	124	61-119 M0	

## QUALIFIERS

Project: High Plains Kersey

Pace Project No.: 6092364

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

### BATCH QUALIFIERS

Batch: MSV/34738

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/34771

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

H6 Analysis initiated more than 15 minutes after sample collection.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.



## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: High Plains Kersey

Pace Project No.: 6092364

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
6092364001	MW-1	EPA 8260	MSV/34738		
6092364002	MW-2	EPA 8260	MSV/34738		
6092364003	MW-3	EPA 8260	MSV/34738		
6092364004	MW-4	EPA 8260	MSV/34771		
6092364005	MW-5	EPA 8260	MSV/34738		
6092364006	MW-6	EPA 8260	MSV/34738		
6092364007	MW-7	EPA 8260	MSV/34738		
6092364001	MW-1	SM 2540C	WET/27308		
6092364002	MW-2	SM 2540C	WET/27308		
6092364003	MW-3	SM 2540C	WET/27308		
6092364004	MW-4	SM 2540C	WET/27308		
6092364005	MW-5	SM 2540C	WET/27308		
6092364006	MW-6	SM 2540C	WET/27308		
6092364007	MW-7	SM 2540C	WET/27308		
6092364001	MW-1	SM 4500-H+B	WET/27300		
6092364002	MW-2	SM 4500-H+B	WET/27300		
6092364003	MW-3	SM 4500-H+B	WET/27300		
6092364004	MW-4	SM 4500-H+B	WET/27300		
6092364005	MW-5	SM 4500-H+B	WET/27300		
6092364006	MW-6	SM 4500-H+B	WET/27300		
6092364007	MW-7	SM 4500-H+B	WET/27300		
6092364001	MW-1	EPA 300.0	WETA/15279		
6092364002	MW-2	EPA 300.0	WETA/15279		
6092364003	MW-3	EPA 300.0	WETA/15279		
6092364004	MW-4	EPA 300.0	WETA/15279		
6092364005	MW-5	EPA 300.0	WETA/15279		
6092364006	MW-6	EPA 300.0	WETA/15279		
6092364007	MW-7	EPA 300.0	WETA/15279		

## Page: 7 of 10

**Invoice Information:**

[illegible]

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples intact (Y/N)
PRINT Name of SAMPLER: Scott Givens Bengten					
SIGNATURE of SAMPLER: [Signature]	DATE Signed (MM/DD/YY): 01/14/11				

## ANALYTICAL RESULTS

Project: H.P. KERSEY & PLATTEVILLE

Pace Project No.: 6091656

Sample: MW-3 KERSEY		Lab ID: 6091656003	Collected: 12/27/10 15:00	Received: 12/30/10 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV GRO and Oxygenates</b>		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		01/04/11 12:45	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		01/04/11 12:45	100-41-4	
Toluene	ND ug/L		1.0	1		01/04/11 12:45	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		01/04/11 12:45	1330-20-7	
Toluene-d8 (S)	95 %		90-110	1		01/04/11 12:45	2037-26-5	
4-Bromofluorobenzene (S)	98 %		87-113	1		01/04/11 12:45	460-00-4	
1,2-Dichloroethane-d4 (S)	103 %		82-119	1		01/04/11 12:45	17060-07-0	
Preservation pH	1.0		0.10	1		01/04/11 12:45		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C						
Total Dissolved Solids	1880 mg/L		5.0	1		01/03/11 12:45		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Chloride	269 mg/L		50.0	50		01/07/11 11:20	16887-00-6	
Sulfate	812 mg/L		50.0	50		01/07/11 11:20	14808-79-8	

## ANALYTICAL RESULTS

Project: H.P. KERSEY & PLATTEVILLE

Pace Project No.: 6091656

Sample: MW-4 KERSEY		Lab ID: 6091656004	Collected: 12/27/10 14:35	Received: 12/30/10 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV GRO and Oxygenates</b>		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		01/04/11 13:03	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		01/04/11 13:03	100-41-4	
Toluene	ND ug/L		1.0	1		01/04/11 13:03	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		01/04/11 13:03	1330-20-7	
Toluene-d8 (S)	97 %		90-110	1		01/04/11 13:03	2037-26-5	
4-Bromofluorobenzene (S)	97 %		87-113	1		01/04/11 13:03	460-00-4	
1,2-Dichloroethane-d4 (S)	104 %		82-119	1		01/04/11 13:03	17060-07-0	
Preservation pH	1.0		0.10	1		01/04/11 13:03		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C						
Total Dissolved Solids	1820 mg/L		5.0	1		01/03/11 12:46		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Chloride	259 mg/L		50.0	50		01/07/11 11:36	16887-00-6	
Sulfate	775 mg/L		50.0	50		01/07/11 11:36	14808-79-8	

## ANALYTICAL RESULTS

Project: H.P. KERSEY & PLATTEVILLE

Pace Project No.: 6091656

Sample: MW-5 KERSEY		Lab ID: 6091656005	Collected: 12/27/10 15:25	Received: 12/30/10 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV GRO and Oxygenates</b>		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		01/04/11 13:20	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		01/04/11 13:20	100-41-4	
Toluene	ND ug/L		1.0	1		01/04/11 13:20	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		01/04/11 13:20	1330-20-7	
Toluene-d8 (S)	97 %		90-110	1		01/04/11 13:20	2037-26-5	
4-Bromofluorobenzene (S)	100 %		87-113	1		01/04/11 13:20	460-00-4	
1,2-Dichloroethane-d4 (S)	104 %		82-119	1		01/04/11 13:20	17060-07-0	
Preservation pH	1.0		0.10	1		01/04/11 13:20		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C						
Total Dissolved Solids	1800 mg/L		5.0	1		01/03/11 12:46		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Chloride	260 mg/L		50.0	50		01/07/11 11:53	16887-00-6	
Sulfate	804 mg/L		50.0	50		01/07/11 11:53	14808-79-8	

## ANALYTICAL RESULTS

Project: H.P. KERSEY & PLATTEVILLE

Pace Project No.: 6091656

Sample: MW-6 KERSEY		Lab ID: 6091656006	Collected: 12/27/10 15:40	Received: 12/30/10 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV GRO and Oxygenates</b>		Analytical Method: EPA 8260						
Benzene	1.0 ug/L		1.0	1		01/04/11 13:37	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		01/04/11 13:37	100-41-4	
Toluene	ND ug/L		1.0	1		01/04/11 13:37	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		01/04/11 13:37	1330-20-7	
Toluene-d8 (S)	99 %		90-110	1		01/04/11 13:37	2037-26-5	
4-Bromofluorobenzene (S)	90 %		87-113	1		01/04/11 13:37	460-00-4	
1,2-Dichloroethane-d4 (S)	101 %		82-119	1		01/04/11 13:37	17060-07-0	
Preservation pH	1.0		0.10	1		01/04/11 13:37		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C						
Total Dissolved Solids	1880 mg/L		5.0	1		01/03/11 12:46		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Chloride	5.3 mg/L		1.0	1		01/07/11 14:19	16887-00-6	
Sulfate	16.3 mg/L		1.0	1		01/07/11 14:19	14808-79-8	





# TECHNOLOGY LABORATORY, INC.

## CENTRE PROFESSIONAL PARK

1012 Centre Avenue  
Fort Collins, Colorado 80526  
(970) 490-1414

### CERTIFICATE OF ANALYSIS

High Plains Disposal  
701 N. First #109  
Lufkin, TX 75901

Sample ID: Kersey MW4

Laboratory ID: A2852-03

Sampled: 11/16/10

Received: 11/16/10

Project No.: 20097021/20097022

Matrix: Water

<u>CAS Number</u>	<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>MDL</u>	<u>Method</u>	<u>Date Analyzed</u>
71-43-2	Benzene	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
108-88-3	Toluene	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
100-41-4	Ethylbenzene	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
1330-20-7	Total Xylenes	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
16887-00-6	Chloride	285	mg/L	1	EPA-300.1	11/19/10
18785-72-3	Sulfate	832	mg/L	0.05	EPA-300.1	11/19/10
	Total Dissolved Solids (TDS)	1820	mg/L	5	EPA-160.1	11/18/10

### QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	106	68-120
Toluene-d8	93	81-128
Bromofluorobenzene	96	70-113

The results contained in this report  
relate only to those items tested.





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(970) 490-1414

### CERTIFICATE OF ANALYSIS

High Plains Disposal  
701 N. First #109  
Lufkin, TX 75901

Sample ID: Kersey MW3

Laboratory ID: A2852-04

Sampled: 11/16/10

Received: 11/16/10

Project No.: 20097021/20097022

Matrix: Water

<u>CAS Number</u>	<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>MDL</u>	<u>Method</u>	<u>Date Analyzed</u>
71-43-2	Benzene	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
108-88-3	Toluene	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
100-41-4	Ethylbenzene	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
1330-20-7	Total Xylenes	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
16887-00-6	Chloride	278	mg/L	1	EPA-300.1	11/19/10
18785-72-3	Sulfate	813	mg/L	0.05	EPA-300.1	11/19/10
	Total Dissolved Solids (TDS)	1880	mg/L	5	EPA-160.1	11/18/10

### QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	109	68-120
Toluene-d8	94	81-128
Bromofluorobenzene	100	70-113

The results contained in this report  
relate only to those items tested.



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### CERTIFICATE OF ANALYSIS

High Plains Disposal  
701 N. First #109  
Lufkin, TX 75901

Sample ID: Kersey MW5

Laboratory ID: A2852-05

Sampled: 11/16/10

Received: 11/16/10

Project No.: 20097021/20097022

Matrix: Water

<u>CAS Number</u>	<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>MDL</u>	<u>Method</u>	<u>Date Analyzed</u>
71-43-2	Benzene	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
108-88-3	Toluene	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
100-41-4	Ethylbenzene	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
1330-20-7	Total Xylenes	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
16887-00-6	Chloride	290	mg/L	1	EPA-300.1	11/19/10
18785-72-3	Sulfate	884	mg/L	0.05	EPA-300.1	11/19/10
	Total Dissolved Solids (TDS)	1940	mg/L	5	EPA-160.1	11/18/10

### QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	109	68-120
Toluene-d8	95	81-128
Bromofluorobenzene	99	70-113

The results contained in this report  
relate only to those items tested.



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## CENTRE PROFESSIONAL PARK

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Fort Collins, Colorado 80526  
(970) 490-1414

### CERTIFICATE OF ANALYSIS

High Plains Disposal  
701 N. First #109  
Lufkin, TX 75901

Sample ID: Kersey MW6

Laboratory ID: A2852-06

Sampled: 11/16/10

Received: 11/16/10

Project No.: 20097021/20097022

Matrix: Water

<u>CAS Number</u>	<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>MDL</u>	<u>Method</u>	<u>Date Analyzed</u>
71-43-2	Benzene	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
108-88-3	Toluene	0.001	mg/L	0.001	EPA-8260B	11/18/10
100-41-4	Ethylbenzene	< 0.001	mg/L	0.001	EPA-8260B	11/18/10
1330-20-7	Total Xylenes	0.001	mg/L	0.001	EPA-8260B	11/18/10
16887-00-6	Chloride	327	mg/L	1	EPA-300.1	11/19/10
18785-72-3	Sulfate	975	mg/L	0.05	EPA-300.1	11/19/10
	Total Dissolved Solids (TDS)	1900	mg/L	5	EPA-160.1	11/18/10

### QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	111	68-120
Toluene-d8	92	81-128
Bromofluorobenzene	97	70-113

The results contained in this report  
relate only to those items tested.

Phone: (970) 490-1414 Fax: (970) 472 5488  
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W.O. NUMBER A2852

# CHAIN-OF-CUSTODY REPORT

[illegible]

## **APPENDIX D**

### **Statistical Analyses**

**STATISTICAL SUMMARY  
QUARTERLY GROUNDWATER ANALYTICAL RESULTS**

**High Plains Disposal Weld Site #1 Waste Water Disposal Facility  
Southwest of Weld County Roads 49 and 54, Kersey, CO  
Terracon Project No. 20117002**

Monitoring Well Number	Date Sampled	Benzene	Toluene	Ethylbenzene	Xylenes	TDS	Chloride	Sulfate
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)
MW-1	11/24/2009	0.5	0.5	0.5	1.5	2,100	257	853
	3/4/2010	0.5	0.5	0.5	1.5	1,600	214	597
	4/30/2010	0.5	0.5	0.5	1.5	1,620	233	634
	7/26/2010	0.5	0.5	0.5	1.5	1,900	277	818
	10/13/2010	0.5	0.5	0.5	1.5	1,980	274	703
	1/14/2011	0.5	0.5	0.5	1.5	1,930	356	898
MW-2	11/25/2009	0.5	0.5	0.5	1.5	2,310	403	1,185
	3/4/2010	0.5	0.5	0.5	1.5	1,610	251	723
	4/30/2010	0.5	0.5	0.5	1.5	1,550	253	670
	7/26/2010	0.5	0.5	0.5	1.5	1,790	256	774
	10/13/2010	0.5	0.5	0.5	1.5	2,050	287	747
	1/14/2011	0.5	0.5	0.5	1.5	1,930	351	1,130
MW-3	11/24/2009	0.5	0.5	0.5	1.5	1,970	257	760
	3/2/2010	0.5	0.5	0.5	1.5	NA	239	663
	3/4/2010	0.5	0.5	0.5	1.5	1,670	210	589
	4/9/2010	0.5	0.5	0.5	1.5	NA	232	NA
	4/30/2010	0.5	0.5	0.5	1.5	3,850	240	619
	5/6/2010	0.5	0.5	0.5	1.5	NA	259	724
	6/7/2010	0.5	0.5	0.5	1.5	NA	218	598
	7/26/2010	0.5	0.5	0.5	1.5	1,740	265	787
	8/16/2010	0.5	0.5	0.5	1.5	NA	NA	870
	9/17/2010	0.5	0.5	0.5	1.5	NA	NA	812
	10/13/2010	0.5	0.5	0.5	1.5	1,870	266	674
	11/16/2010	0.5	0.5	0.5	1.5	1,880	278	813
	12/27/2010	0.5	0.5	0.5	1.5	1,880	269	812
	1/14/2011	0.5	0.5	0.5	1.5	1,870	359	1,030
	11/24/2009	0.5	0.5	0.5	1.5	1,980	242	738
MW-4	3/2/2010	0.5	0.5	0.5	1.5	NA	235	649
	3/4/2010	0.5	0.5	0.5	1.5	1,610	207	575
	4/9/2010	0.5	0.5	0.5	1.5	NA	227	NA
	4/30/2010	0.5	0.5	0.5	1.5	1,140	224	591
	5/6/2010	0.5	0.5	0.5	1.5	NA	252	691
	6/7/2010	0.5	0.5	0.5	1.5	NA	219	598
	7/26/2010	0.5	0.5	0.5	1.5	1,750	247	728
	8/16/2010	0.5	0.5	0.5	1.5	NA	NA	846
	9/17/2010	0.5	0.5	0.5	1.5	NA	NA	859
	10/13/2010	0.5	0.5	0.5	1.5	1,880	265	677
	11/16/2010	0.5	0.5	0.5	1.5	1,820	285	832
	12/27/2010	0.5	0.5	0.5	1.5	1,820	259	775
	1/14/2011	0.5	0.5	0.5	1.5	1,840	247	912
	11/24/2009	0.5	0.5	0.5	1.5	1,990	261	792
	3/2/2010	0.5	0.5	0.5	1.5	NA	238	669
MW-5	3/4/2010	0.5	0.5	0.5	1.5	1,610	211	581
	4/9/2010	0.5	0.5	0.5	1.5	NA	263	NA
	4/30/2010	0.5	0.5	0.5	1.5	2,740	256	647
	5/6/2010	0.5	0.5	0.5	1.5	NA	316	858
	6/7/2010	0.5	0.5	0.5	1.5	NA	259	668
	7/26/2010	0.5	0.5	0.5	1.5	1,820	253	717
	8/16/2010	0.5	0.5	0.5	1.5	NA	NA	832
	9/17/2010	0.5	0.5	0.5	1.5	NA	NA	754
	10/13/2010	0.5	0.5	0.5	1.5	2,030	277	710
	11/16/2010	0.5	0.5	0.5	1.5	1,940	290	884
	12/27/2010	0.5	0.5	0.5	1.5	1,800	260	804
	1/14/2011	0.5	0.5	0.5	1.5	1,920	357	945
	11/24/2009	0.5	0.5	0.5	1.5	2,290	304	986
	3/2/2010	0.5	0.5	0.5	1.5	NA	262	738
	3/4/2010	0.5	0.5	0.5	1.5	1,780	223	624
MW-6	4/9/2010	0.5	0.5	0.5	1.5	NA	268	NA
	4/30/2010	0.5	0.5	0.5	1.5	2,820	258	678
	5/6/2010	0.5	0.5	0.5	1.5	NA	265	722
	6/7/2010	0.5	0.5	0.5	1.5	NA	293	790
	7/26/2010	0.5	0.5	0.5	1.5	1,770	266	698
	8/16/2010	0.5	0.5	0.5	1.5	NA	NA	863
	9/17/2010	0.5	0.5	0.5	1.5	NA	NA	845
	10/13/2010	0.5	0.5	0.5	1.5	1,960	256	684
	11/16/2010	0.5	1.0	0.5	1.0	1,900	327	975
	12/27/2010	1.0	0.5	0.5	1.5	1,880	5.3	16.3
	1/14/2011	2.0	0.5	0.5	1.5	2,000	361	974
	11/25/2009	0.5	0.5	0.5	1.5	2,360	358	950
	3/4/2010	0.5	0.5	0.5	1.5	1,740	262	673
	4/30/2010	0.5	0.5	0.5	1.5	5,820	286	683
	7/26/2010	0.5	0.5	0.5	1.5	2,090	311	832
MW-7	10/13/2010	0.5	0.5	0.5	1.5	1,940	285	678
	1/14/2011	0.5	0.5	0.5	1.5	1,860	378	940
Number of Data Points		74	74	74	74	50	68	71
Number of Non-Detects		72	73	74	73	0	0	0
Mean		0.5	0.5	0.5	1.5	2,020.0	267.0	759.5
Maximum		2.0	1.0	0.5	1.5	5,820.0	403.0	1,185.0
Minimum		0.5	0.5	0.5	1.0	1,140.0	5.3	16.3
Standard Deviation		0.2	0.1	0.0	0.1	670.4	54.4	158.4

**Notes:**

1) BTEX = Benzene, Toluene, Ethylbenzene, and Total Xylenes

2) µg/L = micrograms per liter; mg/l - milligrams per liter

3) TDS = Total Dissolved Solids

4) ND = None Detected

5) NS = None Sampled

6) NA = Not Analyzed

7) © = Monthly Leak Testing Program

8) Shading = Above Laboratory Detection Limits

9) BTEX results presented as half of the laboratory reporting limited, except where shaded

10) Xylenes results presented as half of the laboratory reporting limit for single xylene isomer, except where shaded.