MOLEN & ASSOCIATES

2090 E. 104th Ave., Suite 205
Thornton, Colorado 80233
Office 303-450-1600 • Fax 303-452-4515
www.molenandassociates.com

December 13, 2019

Mr. Peter Hayes
Division of Reclamation, Mining and Safety
1313 N Sherman Street, Ste 215
Denver, CO 80203

Subject: Broda's Inert Fill at Aggregate Industries Platte Valley Operations
1859 North Highway 85 at WCR 6, Brighton, Colorado (the Property)
Groundwater Monitoring Reports for 2018

Dear Mr. Hayes:

Groundwater monitoring at the Aggregate Industries Platte Valley Operations (Broda- AI) has been conducted from August 2010 through December 2017. Compliance with the recycling regulations with the Colorado Department of Public Health and Environment (CDPHE) was the purpose of the groundwater monitoring and reporting. Since that time, CDPHE has stated that groundwater monitoring would not be required as long as the filling operation was in compliance with the Division of Reclamation, Mining, and Safety (DRMS). A groundwater monitoring report had not been prepared until it was needed now and the monitoring at the site discontinued in the fourth quarter of 2018.

Contained within this letter report are Broda's Inert Fill at Aggregate Industries Platte Valley Operations (Broda AI) groundwater monitoring results for the year 2018. Attached to this report are the following:

- Groundwater Monitoring Well Location Map
- Groundwater Static Water Measurements
- Summary Table of all Water Quality Data
- Time Series Graphs of Water Quality Data

Data from the period from August 2010 through November 2015 were provided in the 2015 groundwater monitoring report dated February 26, 2016. The Groundwater Monitoring Report for 2017 is dated July 18, 2018 and provided information for that time period. This report includes data from 2018 and summaries of all the data collected at the facility.

Groundwater monitoring at the Broda AI property was conducted on a semi-annual basis through 2015, with sampling events generally occurring in the spring and fall of each year, to establish baseline water quality at the facility. The frequency of the groundwater monitoring was increased to quarterly in 2016 to comply with the Recycling Operations Plan and the No Further Action requirements. The groundwater monitoring network and sample collection procedures at the facility are generally consistent with regulations presented in Appendix B of the Colorado Department of Public Health and Environment (CDPHE) 6 CCR 1007-2, *Regulations Pertaining to Solid Waste*

Sites and Facilities, July 2007 - Appendix I for Detection Monitoring as amended from time to time (Groundwater Monitoring Regulations). Routine groundwater sampling analytical parameters are consistent with detection monitoring parameters listed in Appendix IA and IB of the Groundwater Monitoring Regulations.

The following are included in this groundwater monitoring report:

- Groundwater elevation measurements
- Analytical result summaries and laboratory reports from the 2018 sampling events

Facility Groundwater Monitoring Network and Property Conditions

The facility groundwater monitoring network consists of monitoring wells MW-1, MW-2, and MW-3 (see Figure 1). The direction of groundwater flow at the facility is northwesterly, toward the nearby South Platte River. Therefore, groundwater monitoring well MW-3 serves as the up-gradient facility well, and wells MW-1 and MW-2 serve as down-gradient facility wells. The Property was previously mined for aggregate, resulting in an open pit. The open pit has been excavated to an elevation below the water table, resulting in ponded groundwater and surface water across much of the property southeast of and adjacent to well MW-2. The Property is being filled with inert material along its east side and at the southwestern corner. Filling has been done along the western boundary to bolster the berm dividing the South Platte River from the facility, an effort precipitated by near flooding conditions in recent years.

Sample Collection

Groundwater samples were collected on a semi-annual basis from facility monitoring wells from 2010 to 2015 and on a quarterly basis since 2016. Groundwater sampling procedures have been performed in general compliance with the Groundwater Monitoring Regulations. Groundwater sample analytical parameters include detection monitoring parameters listed in Appendix IA and IB of the Groundwater Monitoring Regulations.

Monitoring network wells MW-1, MW-2, and MW-3 have dedicated bailers. Well purging and sampling activities were completed using these dedicated bailers and/or a squirt pump. The purge water was measured in a 5-gallon bucket and was discarded on the ground approximately 20 feet from the well. Purging continued until an adequate volume was removed (at least three well bore volumes) and the field parameters had stabilized in the purge water.

Groundwater samples, collected immediately following well purging activities, were transferred directly from the bailers into sample bottles provided by the laboratory. The sample bottles were preserved as appropriate for the analytical method. Sampling activities were conducted using new nitrile gloves, and sample bottles were filled without introducing contamination from soils or other foreign objects. The groundwater sample bottles were labeled, identifying the sample name, collection date and time, sampler's name, and the requested laboratory analyses. Immediately following collection, the samples were placed in an ice-filled cooler for overnight delivery

following standard chain-of-custody procedures to Environmental Science Corporation (ESC) analytical laboratory in Mt. Juliet, Tennessee. Following the conclusion of sampling activities, the wells were closed and locked.

Sample Analysis and Results

A summary of the all laboratory analytical results for each facility monitoring well from 2010 to 2018 is presented in Table 2, with complete laboratory reports provided in Appendix III. Alkalinity is reported as carbonate and bicarbonate, and a summation of those results provide the total alkalinity value. Carbonate values have been below the detection limits in all the groundwater results, and therefore, total alkalinity is equal to the bicarbonate value. No organic constituents included in the Appendix IB list have been detected during facility monitoring activities, with one exception. Acetone was detected in the sample collected from MW-1 on December 14, 2010 at a concentration of 0.095 mg/L. Because acetone is a common laboratory contaminant and acetone has not been detected at well MW-1 since (or any of the other facility monitoring network wells), the detection of acetone at well MW-1 is considered suspect and likely a laboratory artifact.

The following constituents have consistently had concentrations below the detection limits in all wells.

- Antimony
- Mercury
- Nitrite
- Silver
- Thallium

Groundwater Level Monitoring Results

The depth to groundwater at facility monitoring network wells has remained relatively consistent in the 2018 monitoring period, with variations of approximately 1-2 feet measured in each well. Groundwater elevation data related to monitoring at the three monitoring network wells is presented in Table 1 and with charts in Appendix II.

Summary and Discussion

Groundwater monitoring events have been completed without any notable problems. As stated previously, groundwater has been monitored at the facility on a semi-annual basis since August 2010 to 2016 and quarterly from Spring 2016.

Dedicated bailers were placed into each well and have been utilized for each sampling event. Laboratory-provided sampling containers were used for all collected samples. Sample preservatives were added, as appropriate, to the samples collected and as indicated on the chain of custody. Iced sample coolers were shipped for over-night delivery, with chain-of-custody documentation, to the analytical laboratory shortly following sample collection. Samples received at the laboratory were immediately logged into the laboratory database for analysis.

The data presented in this report should be considered background data. Trends in the data may be the result of natural variations in the groundwater geochemistry at the facility. Existing data and future monitoring data will continue to be used to establish background groundwater quality conditions. The lake receives water runoff from the adjacent highway as well as discharges from mining activities on the AI site. The absence of detectable volatile organic constituents in monitoring, to date, suggests that there is no impact to groundwater quality from facility activities.

Please contact me if you have any questions or comments regarding this letter report.

Yours truly,
MOLEN & ASSOCIATES, LLC

Mark A Molen

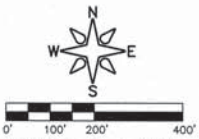
Figure 1: Map of Groundwater Well Locations
Table 1: Groundwater Elevation Measurements
Table 2: Analytical Results Summary: 2010-2018

Appendix I: Field Data Sheets
Appendix II: Groundwater Elevation Charts
Appendix III: Analytical Lab Reports
Appendix IV: Time Series Graphs

Figures and Tables

MONITORING WELL LOCATIONS- BRODA AI

AGGREGATE INDUSTRIES PLATTE VALLEY OPERATIONS, WELD COUNTY, COLORADO.



SCALE: 1" = 200'

MON. WELL	LATITUDE	LONGITUDE
MONITOR WELL – #1	N 40–01–18.798	W 104–49–06.717
MONITOR WELL – #2	N 40–01–19.675	W 104–49–27.587
MONITOR WELL – #3	N 40–00–58.651	W 104–49–09.930
GREAT WEST SUGER TANK	N 39–59–57.475	W 104–49–12.027
C.D.O.H. MONUMENT	N 40–01–34.580	W 104–49–02.538

NOTICE:
ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

EXCEPT AS SHOWN OR SPECIFICALLY STATED THIS MAP DOES NOT PURPORT TO REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THE SUBJECT REAL ESTATE; EASEMENTS, OTHER THAN POSSIBLE EASEMENTS WHICH WERE VISIBLE AT THE TIME OF MAKING THIS SURVEY, COMPATIBILITY OF THIS DESCRIPTION WITH THOSE OF ADJACENT TRACTS OF LAND OR RIGHTS–OF–WAYS, RESTRICTIVE COVENANTS, SUBDIVISION RESTRICTIONS, ZONING OR OTHER LAND USE REGULATIONS, ANY OTHER FACTS.

NO STATEMENT IS MADE CONCERNING SUBSURFACE CONDITIONS OR THE EXISTENCE OF OVERHEAD OR UNDERGROUND CONTAINERS OR FACILITIES, WHICH MAY AFFECT THE DEVELOPMENT OF THIS TRACT.

THERE MAY BE UNDERGROUND UTILITIES ADJACENT TO OR LOCATED ON THIS PARCEL NOT LOCATED BY THIS SURVEY.

BOUNDARY INFORMATION TAKEN FROM MAP OF PLATTE VALLEY PIT AMUSR–905 BY APPLEGATE GROUP, DATED FEB. 25, 2004.

BENCHMARK: EXISTING 3 1/2" BRASS CAP MATCHING N.G.S. DATA SHEET TIES FOR "Q 260 RESET" IN SECTION 31, TOWNSHIP 1 NORTH, RANGE 66 WEST.
ELEVATION = 4963.01' N.A.V.D. 88 DATUM

T.B.M. TOP OF CONCRETE ON EAST SIDE OF A SIGN THAT IS APPROXIMATLY 75 FEET NORTH AND 30 FEET EAST OF THE SOUTHEAST CORNER OF PARCEL, TOP CONCRETE BASE AT EAST SIDE OF LARGE STEEL SIGN POST 75.00 FEET± NORTH OF EAST–WEST FENCE AND 30.00 FEET± WEST OF WEST RIGHT–OF–WAY FENCE ALONG U.S. HIGHWAY 85.
ELEVATION = 5216.87' N.A.V.D. 88 DATUM

VICINITY MAP
NOT TO SCALE

REVISIONS: CAD FILE: M10144/M10144.DWG

R.W. BAYER & ASSOCIATES, INC. 2090 EAST 104TH AVENUE, SUITE 200 THORNTON, COLORADO 80233–4316 (303) 452–4433 FAX: (720)833–4216	**MOLEN & ASSOCIATES** 2090 EAST 104TH AVENUE, SUITE 205 THORNTON, COLORADO 80233–4316	**MONITOR WELL LOCATIONS** THAT PART OF SECTION 30, TOWNSHIP 1 NORTH, RANGE 66 WEST OF THE 6TH P.M., STATE OF COLORADO.	SCALE: 1"=200'	DATE: DEC. 21, 2010	DRW BY: S.J.M.	CKD BY: R.B.	PROJ NO: 2010–144
			BOOK: 655	PAGE: 73	FILE NO: 30–1N66–89L		SHEET NO: 1 OF 1

Table 1
Groundwater Elevations

Well ID	Date	Total Depth (ft)	Static Water Level to TOC (ft)	Ground Surface Elevation (ft)	Surveyed Top of Casing (ft)	Groundwater Elevation (ft)
MW-1	8/18/2010	36.28	6.13	4938.94	4941.26	4935.13
	9/29/2010	36.28	6.33	4938.94	4941.26	4934.93
	12/14/2010	36.28	6.82	4938.94	4941.26	4934.44
	4/5/2011	36.28	6.96	4938.94	4941.26	4934.30
	10/17/2011	36.28	6.28	4938.94	4941.26	4934.98
	4/24/2012	36.28	8.13	4938.94	4941.26	4933.13
	10/24/2012	36.28	7.71	4938.94	4941.26	4933.55
	4/30/2013	36.28	8.90	4938.94	4941.26	4932.36
	11/26/2013	36.28	6.66	4938.94	4941.26	4934.60
	5/5/2014	36.28	7.19	4938.94	4941.26	4934.07
	11/19/2014	36.28	6.28	4938.94	4941.26	4934.98
	4/29/2015	36.28	6.99	4938.94	4941.26	4934.27
	11/10/2015	36.28	6.78	4938.94	4941.26	4934.48
	4/25/2016	36.28	6.99	4938.94	4941.26	4934.27
	6/29/2016	36.28	6.48	4938.94	4941.26	4934.78
	12/28/2016	36.28	7.58	4938.94	4941.26	4933.68
	3/27/2017	36.03	8.45	4938.94	4941.26	4932.81
	6/27/2017	36.22	6.72	4938.94	4941.26	4934.54
	9/22/2017	36.02	6.65	4938.94	4941.26	4934.61
	1/4/2018	36.14	8.71	4938.94	4941.26	4932.55
	3/23/2018	36.21	8.29	4938.94	4941.26	4932.97
	7/10/2018	36.10	7.75	4938.94	4941.26	4933.51
	9/28/2018	36.10	6.84	4938.94	4941.26	4934.42
MW-2	8/18/2010	27.90	8.08	4936.42	4938.93	4930.85
	9/29/2010	27.51	8.53	4936.42	4938.93	4930.4
	12/14/2010	27.49	8.59	4936.42	4938.93	4930.34
	4/5/2011	27.72	8.63	4936.42	4938.93	4930.3
	10/17/2011	27.08	8.55	4936.42	4938.93	4930.38
	4/24/2012	27.34	8.86	4936.42	4938.93	4930.07
	10/24/2012	27.83	8.91	4936.42	4938.93	4930.02
	4/30/2013	27.15	8.81	4936.42	4938.93	4930.12
	11/26/2013	27.17	8.30	4936.42	4938.93	4930.63
	5/5/2014	27.17	8.91	4936.42	4938.93	4930.02
	11/19/2014	27.17	8.09	4936.42	4938.93	4930.84
	4/29/2015	27.17	6.92	4936.42	4938.93	4932.01
	11/10/2015	27.17	8.01	4936.42	4938.93	4930.92
	4/25/2016	27.17	6.35	4936.42	4938.93	4932.58
	6/29/2016	27.17	7.15	4936.42	4938.93	4931.78
	12/28/2016	27.17	8.32	4936.42	4938.93	4930.61

Table 1
Groundwater Elevations

Well ID	Date	Total Depth (ft)	Static Water Level to TOC (ft)	Ground Surface Elevation (ft)	Surveyed Top of Casing (ft)	Groundwater Elevation (ft)
	3/27/2017	27.17	8.42	4936.42	4938.93	4930.51
	6/27/2017	27.30	7.59	4936.42	4938.93	4931.34
	9/22/2017	27.40	5.80	4936.42	4938.93	4933.13
	1/4/2018	27.41	8.74	4936.42	4938.93	4930.19
	3/23/2018	27.29	8.00	4936.42	4938.93	4930.93
	7/10/2018	27.30	8.50	4936.42	4938.93	4930.43
	9/28/2018	27.30	8.58	4936.42	4938.93	4930.35
MW-3	8/18/2010	40.00	14.40	4949.44	4951.96	4937.56
	9/29/2010	39.90	14.58	4949.44	4951.96	4937.38
	12/14/2010	39.50	14.50	4949.44	4951.96	4937.46
	4/5/2011	39.58	15.42	4949.44	4951.96	4936.54
	10/17/2011	39.11	14.32	4949.44	4951.96	4937.64
	4/24/2012	39.35	15.52	4949.44	4951.96	4936.44
	10/24/2012	39.06	15.22	4949.44	4951.96	4936.74
	4/30/2013	39.03	15.96	4949.44	4951.96	4936
	11/26/2013	38.99	14.17	4949.44	4951.96	4937.79
	5/5/2014	38.99	15.10	4949.44	4951.96	4936.86
	11/19/2014	38.99	13.80	4949.44	4951.96	4938.16
	4/29/2015	38.99	14.41	4949.44	4951.96	4937.55
	11/10/2015	37.27	13.80	4949.44	4951.96	4938.16
	4/25/2016	38.10	14.93	4949.42	4953.08	4938.15
	6/29/2016	38.10	14.77	4949.42	4953.08	4938.31
	12/28/2016	38.10	15.53	4949.42	4953.08	4937.55
	3/27/2017	38.10	16.02	4949.42	4953.08	4937.06
	6/27/2017	37.95	15.09	4949.42	4953.08	4937.99
	9/22/2017	38.00	15.12	4949.42	4953.08	4937.96
	1/4/2018	38.05	15.41	4949.42	4953.08	4937.67
	3/23/2018	37.95	15.89	4949.42	4953.08	4937.19
	7/16/2018	37.9	16.14	4949.42	4953.08	4936.94
	9/28/2018	37.9	15.68	4949.42	4953.08	4937.4

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-1		MW-1		MW-1		MW-1		MW-1		MW-1	
Collect Date			8/18/2010		9/29/2010		12/14/2010		4/5/2011		10/17/2011		4/24/2012	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	140		130		110		130		110		120	
9056	Nitrate	mg/l	6.3		5.9		5.2		4.3		4.5		3.6	
9056	Nitrite	mg/l	<0.10		<0.10		<0.10		<0.10		<0.10		<0.10	
9056	Sulfate	mg/l	190		180		180		180		180		180	
2320B	Alkalinity	mg/l	170		180		180		170		160		160	
2320B	Alkalinity,Bicarbonate	mg/l	170		180		180		170		160		160	
2320B	Alkalinity,Carbonate	mg/l	<20		<20		<20		<20		<20		<20	
9040C	pH	su	7.3	T8	7.5	T8	7.1	T8	7	T8	7.5	T8	7.3	T8
9050A	Specific Conductance	umhos/cm	1200		1200		1100		1100		1100		1000	
9060A	TOC (Total Organic Carbon)	mg/l	3.7		3.6		2.8	P1	1		3		2.8	
6020	Antimony	mg/l	<0.0010		0.0013		<0.0010		<0.0010		<0.0010		<0.0010	
6020	Beryllium	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.0010		<0.0010	
6020	Cadmium	mg/l	<0.0005		<0.0005		<0.0005		<0.0005		0.0009		<0.0005	
6020	Copper	mg/l	0.009		0.017		0.0048		0.0072		0.0044		<0.0020	
6020	Lead	mg/l	<0.0050		0.011		0.0029		0.0033		0.0028		<0.0010	
6020	Selenium	mg/l	0.0032		0.0043		0.0038		0.0046		0.0034		0.0022	
6010/6020	Thallium	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.0010		<0.0010	
6020	Zinc	mg/l	0.027		0.05		0.014		0.019		0.01		<0.010	
6020/6010	Arsenic	mg/l	0.0018		0.0032		0.0014		0.0038		0.0019		0.0013	
6010B	Barium	mg/l	0.15		0.15		0.094		0.11		0.35		0.074	
6010B	Calcium	mg/l	79		81		75		67		68		63	
6010B	Chromium	mg/l	<0.010		<0.010		<0.010		<0.01		0.025		<0.010	
6010B	Cobalt	mg/l	<0.010		<0.010		<0.010		<0.01		0.01		<0.010	
6010B	Magnesium	mg/l	22		22		22		21		25		20	
6010B	Nickel	mg/l	<0.020		<0.020		<0.020		<0.02		0.022		<0.020	
6010B	Potassium	mg/l	10		8.7		9.5		8.5		17		7.3	
6010B	Silver	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
6010B	Sodium	mg/l	140		120		140		120		160		120	
6010B	Vanadium	mg/l	0.015		<0.010		<0.010		<0.01		0.047		<0.010	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.050		<0.050		0.095		<0.050		<0.050		<0.050	

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-1		MW-1		MW-1		MW-1		MW-1		MW-1	
Collect Date			10/24/2012		4/30/2013		11/26/2013		5/5/2014		11/19/2014		4/29/2015	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	110		110		110		110		110		180	
9056	Nitrate	mg/l	3.9		4.1		3.3		4.3		4.5		5.8	
9056	Nitrite	mg/l	<0.10		<0.10		<0.10		<0.10		<0.10		<0.10	
9056	Sulfate	mg/l	170		180		160		160		160		170	
2320B	Alkalinity	mg/l	220		180		170		160		170		180	
2320B	Alkalinity,Bicarbonate	mg/l	220		180		170		160		170		180	
2320B	Alkalinity,Carbonate	mg/l	<100		<20		<20		<20		<20		<20	
9040C	pH	su	7.6	T8	7.3	T8	7.8	T8	7.4	T8	7.8	T8	6.9	T8
9050A	Specific Conductance	umhos/cm	1000		1100		1000		1000		1100		1100	
9060A	TOC (Total Organic Carbon)	mg/l	2.8		3.8		2.6		2		2.3		2.8	
6020	Antimony	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.0020		<0.0020	
6020	Beryllium	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.0020		<0.0020	
6020	Cadmium	mg/l	<0.0005		0.0016		0.0007		0.001		<0.001		<0.001	
6020	Copper	mg/l	0.0034		0.014		0.0094		0.012		<0.005		<0.005	
6020	Lead	mg/l	0.0012		0.0044		0.0023		0.0047		<0.0020		0.004	
6020	Selenium	mg/l	0.0036		0.0033		0.0033		0.0021		<0.0020		<0.0020	
6010/6020	Thallium	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.002		<0.002	
6020	Zinc	mg/l	<0.010		0.026		0.011		0.039		<0.025		<0.025	
6020/6010	Arsenic	mg/l	0.0023		0.0013		0.0012		0.0012		<0.0020		<0.0020	
6010B	Barium	mg/l	0.076		0.11		0.072		0.12		0.052		0.11	
6010B	Calcium	mg/l	62		74		60		69		130		71	
6010B	Chromium	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
6010B	Cobalt	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
6010B	Magnesium	mg/l	21		23		21		23		7.2		23	
6010B	Nickel	mg/l	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020	
6010B	Potassium	mg/l	8		7.9		8.6		9.1		<0.010		9.3	
6010B	Silver	mg/l	<0.010		<0.010		<0.010		<0.010		<0.10		<0.10	
6010B	Sodium	mg/l	120		120		120		120		6.4		120	
6010B	Vanadium	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.050		<0.050		<0.050		<0.050		<0.050		<0.050	

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-1		MW-1		MW-1		MW-1		MW-1		MW-1	
Collect Date			11/10/2015		04/25/2016		06/29/2016		09/21/2016		12/28/2016		3/27/2017	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	120		118		129		128		135		140	
9056	Nitrate	mg/l	6.58		8.94		9.08		8.84		8.96		9.66	
9056	Nitrite	mg/l	<0.10		<0.1		<0.1		<0.1		<0.1		<0.1	
9056	Sulfate	mg/l	88.4		128		124		118		126		122	
2320B	Alkalinity	mg/l	194		184	J6	NA		167		189		195	
2320B	Alkalinity,Bicarbonate	mg/l	194		184		218		167		189		195	
2320B	Alkalinity,Carbonate	mg/l	<20		<20		<20		<20		<20		<20	
9040C	pH	su	7.29	T8	6.67	T8	7.09	T8	7.33	T8	7.36	T8	7.23	T8
9050A	Specific Conductance	umhos/cm	1130		1130		1120		1120		1130		1170	
9060A	TOC (Total Organic Carbon)	mg/l	2.23		1.61		1.97		2.04		2.17		1.81	
6020	Antimony	mg/l	<0.0020		<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Beryllium	mg/l	<0.0020		<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Cadmium	mg/l	<0.001		0.0047		<0.001		<0.001		<0.001		<0.001	
6020	Copper	mg/l	<0.005		0.0108		<0.005		<0.005		<0.005		0.0266	
6020	Lead	mg/l	<0.0020		0.0047		<0.002		<0.002		<0.002		0.0268	
6020	Selenium	mg/l	<0.0020		0.0027		0.0022		0.0025		0.0023		0.0039	
6010/6020	Thallium	mg/l	<0.002		<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Zinc	mg/l	<0.025		0.0453		<0.025		<0.025		<0.025		0.14	
6020/6010	Arsenic	mg/l	<0.0020		<0.01		<0.01		<0.01		<0.01		0.012	
6010B	Barium	mg/l	0.0694		0.11		0.0786		0.0764		0.0824		0.369	
6010B	Calcium	mg/l	75.3		106		75.7		77.1		NA		86.3	
6010B	Chromium	mg/l	<0.010		<0.01		<0.01		<0.01		<0.01		0.0145	
6010B	Cobalt	mg/l	<0.010		<0.01		<0.01		<0.01		<0.01		0.0101	
6010B	Magnesium	mg/l	23.5		26.9		25.2		25		25.5		30.4	
6010B	Nickel	mg/l	<0.020		<0.01		<0.01		<0.01		<0.01		0.0148	
6010B	Potassium	mg/l	8.64		8.4		9.72		8.64		9.27		11.1	
6010B	Silver	mg/l	<0.10		<0.005		<0.005		<0.005		<0.005		<0.005	
6010B	Sodium	mg/l	120		127		122		119	V	117		117	
6010B	Vanadium	mg/l	<0.010		<0.02		<0.02		<0.02		<0.02		0.0337	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.050		<0.05		<0.05		<0.05		<0.05		<0.05	

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-1		MW-1		MW-1		MW-1		MW-1		MW-1	
Collect Date			6/29/2017		9/22/2017		1/4/2018		3/23/2018		7/10/2018		9/28/2018	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	NA		196		162		157		157		159	
9056	Nitrate	mg/l	9.63		0.134		7.16		8.81		8.91		8.66	
9056	Nitrite	mg/l	<0.1		<0.1		<0.1		<0.1		<0.1		<0.1	
9056	Sulfate	mg/l	119		303		131		133		130		125	
2320B	Alkalinity	mg/l	251		152		199		187		199		182	
2320B	Alkalinity,Bicarbonate	mg/l	251		152		<20		<20		<20		<20	
2320B	Alkalinity,Carbonate	mg/l	<20		<20		199		187		199		182	
9040C	pH	su	7.29	T8	7.17	T8	6.98	T8	7.41	T8	7.34	T8	7.33	T8
9050A	Specific Conductance	umhos/cm	1190		1560		1220		1190		1190		1170	
9060A	TOC (Total Organic Carbon)	mg/l	1.9	B	5.3		2.06		1.31		2.47		1.63	
6020	Antimony	mg/l	<0.002		<0.002		<0.002		<0.001		<0.002		<0.002	
6020	Beryllium	mg/l	<0.002		<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Cadmium	mg/l	<0.001		0.007		<0.001		<0.002		<0.00101		<0.001	
6020	Copper	mg/l	<0.005		0.0103	B	0.0417		0.0256		0.032		0.018	
6020	Lead	mg/l	<0.002		0.0034		0.0437		0.0302		0.0283		0.0189	
6020	Selenium	mg/l	0.0027		<0.002		0.0046		0.00456		0.00444		0.0029	
6010/6020	Thallium	mg/l	<0.002		<0.002		<0.002		<0.001		<0.002		<0.002	
6020	Zinc	mg/l	<0.025		0.0415		0.188		0.0712		0.1		0.0898	
6020/6010	Arsenic	mg/l	<0.01		0.0075		0.0118		<0.001		0.0079		0.00461	
6010B	Barium	mg/l	0.0851		0.197		0.318		0.309		0.383		0.237	
6010B	Calcium	mg/l	83.5		85.4		92.6		94.6		93.7		86.1	
6010B	Chromium	mg/l	<0.01		<0.01		0.013		0.013		0.161		0.00648	
6010B	Cobalt	mg/l	<0.01		<0.01		<0.01		<0.01		0.00939		0.00542	
6010B	Magnesium	mg/l	26.2		22.7		30.3		30.9		32.3		29	
6010B	Nickel	mg/l	<0.01		<0.01		0.0158		0.0122		0.0187		0.00952	
6010B	Potassium	mg/l	8.88		12.6		11.6		10.9		12		9.57	
6010B	Silver	mg/l	<0.005		<0.005		<0.005		<0.005		<0.005		<0.005	
6010B	Sodium	mg/l	111		195		114		126		119		119	
6010B	Vanadium	mg/l	<0.02		<0.02		0.0282		0.0272		0.035		0.0153	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.05		<0.05		<0.05		<0.05		<0.05		<0.05	

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-2		MW-2		MW-2		MW-2		MW-2		MW-2	
Collect Date			8/18/2010		9/29/2010		12/14/2010		4/5/2011		10/17/2011		4/24/2012	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	150		160		130		160		160		180	
9056	Nitrate	mg/l	<0.10		<0.10		<0.10		0.17		<0.10		0.12	
9056	Nitrite	mg/l	<0.10		<0.10		<0.10		<0.10		<0.10		<0.10	
9056	Sulfate	mg/l	190		190		180		230		210		230	
2320B	Alkalinity	mg/l	190		200		200		160		160		160	
2320B	Alkalinity,Bicarbonate	mg/l	190		200		200		160		160		160	
2320B	Alkalinity,Carbonate	mg/l	<20		<20		<20		<20		<20		<20	
9040C	pH	su	7.4	T8	7.7	T8	7.4	T8	7.1	T8	7.7	T8	7.5	T8
9050A	Specific Conductance	umhos/cm	1200		1200		1200		1200		1200		1200	
9060A	TOC (Total Organic Carbon)	mg/l	4.9		6.3		4.5		5.3		6.1		7.4	
6020	Antimony	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.0010		<0.0010	
6020	Beryllium	mg/l	0.0023		<0.0010		<0.0010		<0.0010		<0.0010		<0.0010	
6020	Cadmium	mg/l	0.0016		0.0013		0.0012		0.0008		0.005		<0.0005	
6020	Copper	mg/l	0.063		0.018		0.022		0.009		0.028		<0.0020	
6020	Lead	mg/l	0.066		0.014		0.016		0.0046		0.017		<0.0010	
6020	Selenium	mg/l	<0.0050	O	0.0049		0.0032		0.0039		0.0036		0.002	
6010/6020	Thallium	mg/l	0.0012		<0.0010		<0.0010		<0.0010		<0.0010		<0.0010	
6020	Zinc	mg/l	0.26		0.071		0.082		0.023		0.054		<0.010	
6010/6020	Arsenic	mg/l	0.0085		0.0048		0.0052		0.0069		0.0064		0.0032	
6010B	Barium	mg/l	0.82		0.25		0.34		0.23		0.25		0.13	
6010B	Calcium	mg/l	76		70		75		66		87		71	
6010B	Chromium	mg/l	0.083		0.011		0.023		<0.010		0.014		<0.010	
6010B	Cobalt	mg/l	0.028		<0.010		0.012		<0.010		<0.010		<0.010	
6010B	Magnesium	mg/l	34		24		26		20		21		21	
6010B	Nickel	mg/l	0.054		<0.020		<0.020		<0.020		<0.020		<0.020	
6010B	Potassium	mg/l	33		14		14		9.8		13		9.9	
6010B	Silver	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
6010B	Sodium	mg/l	160		140		160		150		110		180	
6010B	Vanadium	mg/l	0.15		<0.010		0.033		<0.01		0.025		<0.010	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.050		<0.050		<0.050		<0.050		<0.050		<0.050	

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-2		MW-2		MW-2		MW-2		MW-2		MW-2	
Collect Date			10/24/2012		4/30/2013		11/26/2013		5/5/2014		11/19/2014		4/29/2015	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	180		190		180		190		190		247	
9056	Nitrate	mg/l	<0.10		<0.10		<0.10		<0.10		<0.10		<0.10	
9056	Nitrite	mg/l	<0.10		<0.10		<0.10		<0.10		<0.10		<0.10	
9056	Sulfate	mg/l	200		250		270		280		280		322	
2320B	Alkalinity	mg/l	210		170		150		120		140		130	
2320B	Alkalinity,Bicarbonate	mg/l	210		170		150		120		140		130	
2320B	Alkalinity,Carbonate	mg/l	<100		<20		<20		<20		<20		<20	
9040C	pH	su	7.5	T8	7.6	T8	7.6	T8	7.4	T8	7.7	T8	7.2	T8
9050A	Specific Conductance	umhos/cm	1300		1400		1500		1400		1400		1400	
9060A	TOC (Total Organic Carbon)	mg/l	5.5		8		5.6		6.5		5		5.8	
6020	Antimony	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.0020		<0.0020	
6020	Beryllium	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.0020		<0.0020	
6020	Cadmium	mg/l	0.0014		0.0024		<0.0005		0.0006		<0.001		<0.001	
6020	Copper	mg/l	0.007		0.021		0.0056		0.0056		<0.005		<0.005	
6020	Lead	mg/l	0.0031		0.01		0.0019		0.002		<0.0020		<0.0020	
6020	Selenium	mg/l	0.0036		0.0031		0.0036		0.0021		<0.0020		<0.0020	
6010/6020	Thallium	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.002		<0.002	
6020	Zinc	mg/l	0.018		0.046		<0.010		0.012		<0.025		<0.025	
6010/6020	Arsenic	mg/l	0.0064		0.01		0.014		0.016		<0.0020		0.0031	
6010B	Barium	mg/l	0.18		0.4		0.31		0.42		0.1		0.13	
6010B	Calcium	mg/l	70		79		71		78		120		69	
6010B	Chromium	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
6010B	Cobalt	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
6010B	Magnesium	mg/l	21		24		20		23		17		21	
6010B	Nickel	mg/l	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020	
6010B	Potassium	mg/l	11		13		10		12		1.6		12	
6010B	Silver	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
6010B	Sodium	mg/l	170		190		200		210		6.8		200	
6010B	Vanadium	mg/l	<0.010		0.019		<0.010		<0.010		<0.010		<0.010	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.050		<0.050		<0.050		<0.050		<0.050		<0.050	

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-2		MW-2		MW-2		MW-2		MW-2		MW-2	
Collect Date			11/10/2015		04/25/2016		06/29/2016		09/21/2016		12/28/2016		3/27/2017	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	180		166		178		180		189		188	
9056	Nitrate	mg/l	<0.10		<0.1		0.148		<0.1		<0.1		<0.1	
9056	Nitrite	mg/l	<0.10		<0.1		<0.1		<0.1		<0.1		<0.1	
9056	Sulfate	mg/l	303		273		289		276		320		300	
2320B	Alkalinity	mg/l	165		115		NA		139		122		131	
2320B	Alkalinity,Bicarbonate	mg/l	165		115		143		139		122		131	
2320B	Alkalinity,Carbonate	mg/l	<20		<20		<20		<20		<20		<20	
9040C	pH	su	7.44	T8	7.03	T8	7.2	T8	7.51	T8	7.41	T8	7.59	T8
9050A	Specific Conductance	umhos/cm	1510		1380		1420		1430		1440		1480	
9060A	TOC (Total Organic Carbon)	mg/l	6.02		4.67		8.7		5.32		4.72		4.49	
6020	Antimony	mg/l	<0.0020		<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Beryllium	mg/l	<0.0020		<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Cadmium	mg/l	<0.001		<0.001		0.0021		<0.001		<0.001		<0.001	
6020	Copper	mg/l	<0.005		<0.005		0.0119		<0.005		<0.005		<0.005	
6020	Lead	mg/l	<0.0020		<0.002		0.0227		<0.002		<0.002		<0.002	
6020	Selenium	mg/l	<0.0020		<0.002		<0.002		<0.002		<0.002		<0.002	
6010/6020	Thallium	mg/l	<0.002		<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Zinc	mg/l	<0.025		<0.025		0.0425		<0.025		<0.025		<0.025	
6010/6020	Arsenic	mg/l	0.0043		<0.01		<0.01		<0.01		<0.01		<0.01	
6010B	Barium	mg/l	0.134		0.119		0.311		0.135		0.129		0.127	
6010B	Calcium	mg/l	79.1		70.1		76.4		72		NA		75.7	
6010B	Chromium	mg/l	<0.010		<0.01		0.0219		<0.01		<0.01		<0.01	
6010B	Cobalt	mg/l	<0.010		<0.01		<0.01		<0.01		<0.01		<0.01	
6010B	Magnesium	mg/l	22.3		20.4		22		20.9		21.8		22.2	
6010B	Nickel	mg/l	<0.020		<0.01		0.0121		<0.01		<0.01		<0.01	
6010B	Potassium	mg/l	11.9		12		14.8		12.5		11.4		10.3	
6010B	Silver	mg/l	<0.010		<0.005		<0.005		<0.005		<0.005		<0.005	
6010B	Sodium	mg/l	191	V	191	V	188		194		196		193	
6010B	Vanadium	mg/l	<0.010		<0.02		<0.02		<0.02		<0.02		<0.02	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.050		<0.05		<0.05		<0.05		<0.05		<0.05	

Sample ID			MW-2		MW-2		MW-2		MW-2		MW-2	
Collect Date			6/29/2017		9/22/2017		1/4/2018		3/23/2018		7/10/2018	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	NA		153		206		199		185	
9056	Nitrate	mg/l	<0.1		9.69		<0.1		2.32		1.29	
9056	Nitrite	mg/l	<0.1		<0.1		<0.1		<0.1		<0.1	
9056	Sulfate	mg/l	297		119		417		439		476	
2320B	Alkalinity	mg/l	164		207		131		126		133	
2320B	Alkalinity,Bicarbonate	mg/l	164		207		<20		<20		<20	
2320B	Alkalinity,Carbonate	mg/l	<20		<20		131		126		133	
9040C	pH	su	7.41	T8	7.37	T8	7.31	T8	7.63	T8	7.43	T8
9050A	Specific Conductance	umhos/cm	1550		1200		1580		1720		1750	
9060A	TOC (Total Organic Carbon)	mg/l	4.74		3.48		5.17		3.7		4.97	
6020	Antimony	mg/l	<0.002		<0.002		<0.002		<0.001		<0.002	
6020	Beryllium	mg/l	<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Cadmium	mg/l	<0.001		0.0013		0.0019		<0.002		<0.001	
6020	Copper	mg/l	<0.005		0.0059	B	0.0161		<0.001		0.0384	
6020	Lead	mg/l	<0.002		<0.002		0.0063	B	<0.005		0.00597	
6020	Selenium	mg/l	<0.002		0.0026		<0.002		<0.001		<0.002	
6010/6020	Thallium	mg/l	<0.002		<0.002		<0.002		<0.001		<0.002	
6020	Zinc	mg/l	<0.025		0.0296		0.0537		<0.005		0.0349	
6010/6020	Arsenic	mg/l	<0.01		<0.002		0.0037		<0.001		0.00235	
6010B	Barium	mg/l	0.141		0.0909		0.205		0.227		0.248	
6010B	Calcium	mg/l	78.7		85.9		91		107		103	
6010B	Chromium	mg/l	<0.01		<0.01		<0.01		<0.01		0.00674	
6010B	Cobalt	mg/l	<0.01		<0.01		<0.01		<0.01		0.00347	
6010B	Magnesium	mg/l	21.5		26.5		26.4		31.6		32.8	
6010B	Nickel	mg/l	<0.01		<0.01		<0.01		<0.01		0.00873	
6010B	Potassium	mg/l	13.4		8.85		14.5		12.4		14.1	
6010B	Silver	mg/l	<0.005		<0.005		<0.005		<0.005		<0.005	
6010B	Sodium	mg/l	195		110		207		238		232	
6010B	Vanadium	mg/l	<0.02		<0.02		<0.02		<0.02		0.0107	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.05		<0.05		<0.05		<0.05		<0.05	

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-2	
Collect Date			9/28/2018	
Method	Parameter	Units	Value	Qual
9056	Chloride	mg/l	195	
9056	Nitrate	mg/l	0.413	
9056	Nitrite	mg/l	<0.1	
9056	Sulfate	mg/l	453	
2320B	Alkalinity	mg/l	151	
2320B	Alkalinity,Bicarbonate	mg/l	<20	
2320B	Alkalinity,Carbonate	mg/l	151	
9040C	pH	su	7.49	T8
9050A	Specific Conductance	umhos/cm	1850	
9060A	TOC (Total Organic Carbon)	mg/l	3.77	
6020	Antimony	mg/l	<0.002	
6020	Beryllium	mg/l	<0.002	
6020	Cadmium	mg/l	<0.001	
6020	Copper	mg/l	<0.005	
6020	Lead	mg/l	0.00256	
6020	Selenium	mg/l	<0.002	
6010/6020	Thallium	mg/l	<0.002	
6020	Zinc	mg/l	0.0501	
6010/6020	Arsenic	mg/l	<0.002	
6010B	Barium	mg/l	0.187	
6010B	Calcium	mg/l	104	
6010B	Chromium	mg/l	<0.002	
6010B	Cobalt	mg/l	0.0025	
6010B	Magnesium	mg/l	31.3	
6010B	Nickel	mg/l	0.00639	
6010B	Potassium	mg/l	12.4	
6010B	Silver	mg/l	<0.005	
6010B	Sodium	mg/l	233	
6010B	Vanadium	mg/l	<0.005	
7470A	Mercury	mg/l	<0.0002	
8260B	Acetone	mg/l	<0.05	

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-3		MW-3		MW-3		MW-3		MW-3		MW-3	
Collect Date			8/18/2010		9/29/2010		12/14/2010		4/5/2011		10/17/2011		4/24/2012	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	110		130		76		120		120		110	
9056	Nitrate	mg/l	15		19		12		15		15		17	
9056	Nitrite	mg/l	<0.10		<0.10		<0.10		<0.10		<0.10		<0.10	
9056	Sulfate	mg/l	110		140		60		120		130		140	
2320B	Alkalinity	mg/l	180		220		150		170		170		160	
2320B	Alkalinity,Bicarbonate	mg/l	180		220		150		170		170		160	
2320B	Alkalinity,Carbonate	mg/l	<20		<20		<20		<20		<20		<20	
9040C	pH	su	7.2	T8	7.4	T8	7.5	T8	6.9	T8	7.8	T8	7	T8
9050A	Specific Conductance	umhos/cm	1000		1200		950		1100		1100		1000	
9060A	TOC (Total Organic Carbon)	mg/l	2.2		4		3.6		2.8		2.4		3.4	
6020	Antimony	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.0010		<0.0010	
6020	Beryllium	mg/l	0.0032		0.0026		<0.0010		<0.0010		<0.0010		<0.0010	
6020	Cadmium	mg/l	0.001		0.001		<0.0005		0.0006		0.0023		<0.0005	
6020	Copper	mg/l	0.077		0.043		0.016		0.011		0.012		0.0064	
6020	Lead	mg/l	0.14		0.069		0.019		0.012		0.012		0.006	
6020	Selenium	mg/l	<0.0050	O	0.0061		0.0043		0.0068		0.0044		0.004	
6020/6010	Thallium	mg/l	0.0015		<0.0010		<0.0010		<0.0010		<0.0010		<0.0010	
6020	Zinc	mg/l	0.32		0.18		0.064		0.039		0.028		0.021	
6020/6010	Arsenic	mg/l	0.012		0.0097		0.0037		0.0036		0.0033		0.0023	
6010B	Barium	mg/l	1.8		0.81		0.27		0.26		0.092		0.14	
6010B	Calcium	mg/l	110		100		75		96		68		83	
6010B	Chromium	mg/l	0.082		0.027		0.015		0.012		<0.010		<0.010	
6010B	Cobalt	mg/l	0.043		0.017		<0.010		<0.010		<0.010		<0.010	
6010B	Magnesium	mg/l	36		29		19		23		22		19	
6010B	Nickel	mg/l	0.065		0.031		<0.020		<0.020		<0.020		<0.020	
6010B	Potassium	mg/l	32		16		13		13		8.4		8.1	
6010B	Silver	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
6010B	Sodium	mg/l	100		95		96		92		120		110	
6010B	Vanadium	mg/l	0.15		0.031		0.029		<0.010		<0.010		<0.010	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.050		<0.050		<0.050		<0.050		<0.050		<0.050	

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-3		MW-3		MW-3		MW-3		MW-3		MW-3	
Collect Date			10/24/2012		4/30/2013		11/26/2013		5/5/2014		11/19/2014		4/29/2015	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	140		130		110		94		110		190	
9056	Nitrate	mg/l	15		15		17		12		12		10	
9056	Nitrite	mg/l	<0.10		<0.10		<0.10		<0.10		<0.10		<0.10	
9056	Sulfate	mg/l	140		110		120		120		140		160	
2320B	Alkalinity	mg/l	180		160		160		130		170		190	
2320B	Alkalinity,Bicarbonate	mg/l	180		160		160		130		170		190	
2320B	Alkalinity,Carbonate	mg/l	<100		<20		<20		<20		<20		<20	
9040C	pH	su	7.3	T8	7.2	T8	7.3	T8	7.3	T8	7.3	T8	6.8	T8
9050A	Specific Conductance	umhos/cm	1000		1100		1100		950		1100		1100	
9060A	TOC (Total Organic Carbon)	mg/l	2.8		2.6		2.1		1.9		1.6		2.4	
6020	Antimony	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.0020		<0.0020	
6020	Beryllium	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.0020		<0.0020	
6020	Cadmium	mg/l	<0.0005		0.0013		<0.0005		<0.0005		<0.001		<0.001	
6020	Copper	mg/l	0.0052		0.0079		0.0066		0.0057		<0.005		<0.005	
6020	Lead	mg/l	0.0033		0.0064		0.0041		0.0045		<0.0020		<0.0020	
6020	Selenium	mg/l	0.0052		0.0042		0.0041		0.004		<0.0020		0.0032	
6020/6010	Thallium	mg/l	<0.0010		<0.0010		<0.0010		<0.0010		<0.002		<0.002	
6020	Zinc	mg/l	0.013		0.02		0.013		0.032		<0.025		<0.025	
6020/6010	Arsenic	mg/l	0.0023		0.0015		0.0011		0.0014		<0.0020		<0.0020	
6010B	Barium	mg/l	0.095		0.13		0.09		0.098		0.16		0.057	
6010B	Calcium	mg/l	75		84		77		81		71		96	
6010B	Chromium	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
6010B	Cobalt	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
6010B	Magnesium	mg/l	17		18		18		18		14		20	
6010B	Nickel	mg/l	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020	
6010B	Potassium	mg/l	10		12		12		11		60		7.7	
6010B	Silver	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
6010B	Sodium	mg/l	100		100		100		100		27		110	
6010B	Vanadium	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.050		<0.050		<0.050		<0.050		<0.050		<0.050	

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-3		MW-3		MW-3		MW-3		MW-3		MW-3	
Collect Date			11/10/2015		04/25/2016		06/29/2016		09/21/2016		12/28/2016		3/27/2017	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	117		118		119		150		157		138	
9056	Nitrate	mg/l	11.2		10.7		13.2		10.5		9.1		9.64	
9056	Nitrite	mg/l	<0.10		<0.1		<0.1		<0.1		<0.1		<0.1	
9056	Sulfate	mg/l	101		112		135		112		121		141	
2320B	Alkalinity	mg/l	159		158		NA		163		169		182	
2320B	Alkalinity,Bicarbonate	mg/l	159		158		191		163		169		182	
2320B	Alkalinity,Carbonate	mg/l	<20		<20		<20		<20		<20		<20	
9040C	pH	su	7.07	T8	6.48	T8	6.87	T8	7.08	T8	7	T8	7.11	T8
9050A	Specific Conductance	umhos/cm	988		1100		1080		1140		1160		1170	
9060A	TOC (Total Organic Carbon)	mg/l	2.29		1.71		2.67		2.53		2.17		1.68	
6020	Antimony	mg/l	<0.0020		<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Beryllium	mg/l	<0.0020		<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Cadmium	mg/l	<0.001		<0.001		<0.001		<0.001		<0.001		<0.001	
6020	Copper	mg/l	<0.005		<0.005		<0.005		<0.005		<0.005		<0.005	
6020	Lead	mg/l	0.0022		<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Selenium	mg/l	0.0022		0.002		<0.002		0.0022		0.0023		0.003	
6020/6010	Thallium	mg/l	<0.002		<0.002		<0.002		<0.002		<0.002		<0.002	
6020	Zinc	mg/l	<0.025		<0.025		<0.025		<0.025		<0.025		<0.025	
6020/6010	Arsenic	mg/l	<0.0020		<0.01		<0.01		<0.01		<0.01		<0.01	
6010B	Barium	mg/l	0.0709		0.0786		0.0835		0.0662		0.0753		0.0798	
6010B	Calcium	mg/l	78.4		96.7		97.1		94.9		NA		101	
6010B	Chromium	mg/l	<0.010		<0.01		<0.01		<0.01		<0.01		<0.01	
6010B	Cobalt	mg/l	<0.010		<0.01		<0.01		<0.01		<0.01		<0.01	
6010B	Magnesium	mg/l	16.5		20.2		21.8		20.8		21.6		22	
6010B	Nickel	mg/l	<0.020		<0.01		<0.01		<0.01		<0.01		<0.01	
6010B	Potassium	mg/l	8.18		8.52		8.77		7.74		8.35		7.56	
6010B	Silver	mg/l	<0.010		<0.005		<0.005		<0.005		<0.005		<0.005	
6010B	Sodium	mg/l	92		99.2		99.7	V	103		108		104	
6010B	Vanadium	mg/l	<0.010		<0.02		<0.02		<0.02		<0.02		<0.02	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.050		<0.05		<0.05		<0.05		<0.05		<0.05	

BRODA AI INERT FILL
GROUNDWATER MONITORING RESULTS

Sample ID			MW-3		MW-3		MW-3		MW-3		MW-3		MW-3	
Collect Date			6/29/2017		9/22/2017		1/4/2018		3/23/2018		7/16/2018		9/28/2018	
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
9056	Chloride	mg/l	NA		180		151		147		130		146	
9056	Nitrate	mg/l	9.81		10.5		8.79		9.87		9.71		10.8	
9056	Nitrite	mg/l	<0.1		<0.1		<0.1		<0.1		<0.1		<0.1	
9056	Sulfate	mg/l	140		141		138		132		141		137	
2320B	Alkalinity	mg/l	207		207		197		170		168		186	
2320B	Alkalinity,Bicarbonate	mg/l	207		207		<20		<20		<20		<20	
2320B	Alkalinity,Carbonate	mg/l	<20		<20		197		170		168		186	
9040C	pH	su	7.09	T8	7.01	T8	6.92	T8	7.24	T8	7.2	T8	7.16	T8
9050A	Specific Conductance	umhos/cm	1260		1330		1200		1140		1050		1210	
9060A	TOC (Total Organic Carbon)	mg/l	1.77		2.34		2.43		1.27		1.53		1.89	
6020	Antimony	mg/l	<0.002		<0.002		<0.002		<0.001		<0.002		<0.002	
6020	Beryllium	mg/l	<0.002		<0.002		0.0032		0.00257		<0.002		<0.002	
6020	Cadmium	mg/l	<0.001		<0.001		<0.001		<0.002		<0.001		<0.001	
6020	Copper	mg/l	0.0084		<0.005		0.0546		0.0495		0.0187		0.0331	
6020	Lead	mg/l	0.0096		<0.002		0.0771		0.0745		0.0228		0.0476	
6020	Selenium	mg/l	0.0028		0.0027		0.0071		<0.0100		0.00438		0.00438	
6020/6010	Thallium	mg/l	<0.002		<0.002		<0.002		<0.0100		<0.002		<0.002	
6020	Zinc	mg/l	0.032		<0.025		0.258		0.16		0.0665		0.183	
6020/6010	Arsenic	mg/l	<0.01		<0.002		0.0174		0.0224		0.00482		0.00776	
6010B	Barium	mg/l	0.176		0.0943		0.49		0.594		0.255		0.453	
6010B	Calcium	mg/l	107		115		111		110		95		105	
6010B	Chromium	mg/l	<0.01		<0.01		0.0244		0.0233		0.00988		0.021	
6010B	Cobalt	mg/l	<0.01		<0.01		0.0169		0.0183		0.00784		0.0158	
6010B	Magnesium	mg/l	22.9		23.9		27		27.4		22.6		27.2	
6010B	Nickel	mg/l	<0.01		<0.01		0.0267		0.0308		0.0132		0.0243	
6010B	Potassium	mg/l	9.3		8.32		16.1		14		9.45		12.4	
6010B	Silver	mg/l	<0.005		<0.005		<0.005		<0.005		<0.005		<0.005	
6010B	Sodium	mg/l	108		113		111		114		107		113	
6010B	Vanadium	mg/l	<0.02		<0.02		0.0506		0.0576		0.0187		0.0365	
7470A	Mercury	mg/l	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
8260B	Acetone	mg/l	<0.05		<0.05		<0.05		<0.05		<0.05		<0.05	

Appendix I
Field Data Sheets

GROUND WATER SAMPLING FIELD DATA SHEET

CLIENT Broda's Inert Fill

PROJECT Groundwater Monitoring PROJECT NO. 10-0133

SITE AI - Platte Valley Pit

Well No. MW-1	Date: 3/23/18	Time: 9:25	Personnel: Mejer/Salmon
Weather: Sunny, warm		Well Condition: good	
Casing Diam. 2"		Field Calibrated : ___ Yes X No	
Casing Stick-up: (ft)	Sampling Kit: ESC Provided		
Total Well Depth: (from TOC) (ft) 36.21		Sample Tag / Time Sampled / Comment	
Static Water Level: (from TOC) (ft) 8.29	Purging Equip. bailer	Carb/BiCarb — 1:55 — Non-Preserved	
Saturated Thickness:(ft) 27.92	Volume Purged: 13.5 gal	Nitrite/ Nitrate — Non-Preserved	
Casing Volume: (gal) 4.47	Sampling Equip. Bailer	pH/Cond. — Non-Preserved	
		Metals — Preserved HNO3	
		TOC — Preserved HCl	
		VOC — Non-Preserved	

Time	Bailer Numbers	Gallons Purged	pH	Cond	Temp. (°C)	TDS	Comments odor, color, appearance
		8	6.87	2.52	15.2	1.26	slightly turbid, no odor
		9	7.03	1.31	15.1	0.66	" " " "
		10	7.03	1.25	15.4	0.64	" " " "
		11	7.08	1.26	15.4	0.64	" " " "
		13	7.08	1.25	15.5	0.63	" " " "

Remarks and/or Well Condition: _____

	LEL	$\%CH_4$	$\%O_2$	%CO	$\%H_2S$	Time	Comment
GP ___							

GROUND WATER SAMPLING FIELD DATA SHEET

CLIENT Broda's Inert Fill
PROJECT Groundwater Monitoring PROJECT NO. 10-0133
SITE AI - Platte Valley Pit

Well No. MW-2	Date: 3/23/18	Time: 10:12	Personnel: Mahn/Salmon
Weather: Sunny, warm		Well Condition: good	
Casing Diam. 2"		Field Calibrated : ___ Yes X No	
Casing Stick-up: (ft) ~	Sampling Kit: ESC Provided		
Total Well Depth: (from TOC) (ft) 27.24		Sample Tag	Time Sampled	Comment
Static Water Level: (from TOC) (ft) 8.00	Purging Equip. bailer	Carb/BiCarb	10:30	Non-Preserved
	Volume Purged: 9.2	Nitrite/ Nitrate		Non-Preserved
Saturated Thickness:(ft) 19.24	Sampling Equip. bailer	pH/Cond.		Non-Preserved
Casing Volume: (gal) 3.08		Metals		Preserved HNO3
		TOC		Preserved HCl
		VOC		Non-Preserved

Time	Bailer Numbers	Gallons Purged	pH	Cond	Temp. (°C)	TDS	Comments odor, color, appearance
		5	7.25	1.85	10.5	0.93	slightly turbid, no odor
		6	7.41	1.79	10.4	0.90	clear, no odor
		7	7.41	1.77	10.6	0.90	clear, no odor
		8	7.43	1.71	10.7	0.90	" " "
		9	7.47	1.83	11.1	0.93	" " "

Remarks and/or Well Condition: _____

	LEL	$\%CH_4$	$\%O_2$	%CO	$\%H_2S$	Time	Comment
GP___							

GROUND WATER SAMPLING FIELD DATA SHEET

CLIENT Broda's Inert Fill
PROJECT Groundwater Monitoring PROJECT NO. 10-0133
SITE AI - Platte Valley Pit

Well No. MW-3	Date: 3/23/18	Time: 10:48	Personnel: Molen/Salmon
Weather: Sunny, warm		Well Condition: good	
Casing Diam. 2"		Field Calibrated : ___ Yes X No	
Casing Stick-up: (ft)	Sampling Kit: ESC Provided		
Total Well Depth: (from TOC) (ft) 37.95			
Static Water Level: (from TOC) (ft) 15.89	Purging Equip. bailer Volume Purged: 10.6		
Saturated Thickness:(ft) 22.06	Sampling Equip. bailer		
Casing Volume: (gal) 3.53			

Sample Tag	Time Sampled	Comment
Carb/BiCarb	11:20	Non-Preserved
Nitrite/ Nitrate		Non-Preserved
pH/Cond.		Non-Preserved
Metals		Preserved HNO3
TOC		Preserved HCl
VOC		Non-Preserved

Time	Bailer Numbers	Gallons Purged	pH	Cond	Temp. (°C)	TDS	Comments odor, color, appearance
		5	6.89	1.24	16.6	0.62	slightly turbid, no odor
		6	6.97	1.22	16.1	0.62	" " "
		7	6.90	1.23	16.0	0.62	" " "
		8	6.91	1.21	16.0	0.62	" " "

Remarks and/or Well Condition: _____

	LEL	%CH_4	%O_2	%CO	%H_2S	Time	Comment
GP ___							

Company Name/Address:

Molen & Associates

2090 E. 104th Suite 205
Thornton, CO 80223

Billing Information:

Invoice:
Customer : ESCDEN
Phone : (615)758-5858
SAT Del : Y

Date : 19Feb13
Weight : 10 LBS
COD :
DV : 0.00

Shipping : 0.00
Special : 0.00
Handling : 0.00
Total : 0.00

Svcs: PRIORITY OVERNIGHT
TRCK: 4276 0141 3711

Report to: **Mark Molen**

Email To: **molenassociates@gmail.com**

Project Description: **Broda AI Inert Fill**

City/State Collected:

Phone: **303.450.1600**
Fax: **303.452.4515**

Client Project # **10-0133**

Lab Project #

Collected by (print): Olivia Salmon

Site/Facility ID # **Broda AI**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ____ Y X

Rush? (Lab MUST Be Notified)
____ Same Day 200%
____ Next Day 100%
____ Two Day 50%
____ Three Day 25%

Date Results Needed

Email? ___No __Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Mg, Na, K, Ca+AP1 Metals 250ml HDP	CARB, BICARB: ALK 1L HDPE No Pres	Nitrate, Nitrite, Sulfate, Chloride 500ml HDPE	SPCON, pH 250ml HDPE No Pres	TOC - 250ml Amber w/HCl	V8260AP1 (3) 40ml Amber No Pres					Rem./Contaminant	Sample # (lab only)
MW-1	Grab	GW		3/23/18	9:55	8	X	X	X	X	X	X						
MW-2	Grab	GW		↓	10:30	8	X	X	X	X	X	X						
MW-3	Grab	GW		↓	11:20	8	X	X	X	X	X	X						

Chain of Custody Page ___ of ___

ESC LABS
YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L #

Table #

Acctnum: **MOLENTCO**

Template:

Prelogin:

TSR:

Cooler:

Shipped Via:

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other GW

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	3/23/18	14:30	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐ _____

Temp: °C Bottles Received:

Date: Time:

Condition: (lab use only)

COC Seal Intact: ____ Y ____ N ____ NA

pH Checked: NCF:

GROUND WATER SAMPLING FIELD DATA SHEET

CLIENT Broda's Inert Fill

PROJECT Groundwater Monitoring PROJECT NO. 10-0133

SITE AI - Platte Valley Pit

Well No. MW-1	Date: 7/10/18	Time: 9:35	Personnel: Moler/Hargraves
Weather: Sunny/hot		Well Condition: good	
Casing Diam. 2"		Field Calibrated : ____ Yes ____ No	
Casing Stick-up: (ft)	Sampling Kit: ESC Provided		
Total Well Depth: (from TOC) (ft) 36.10		Sample Tag / Time Sampled / Comment	
		Carb/BiCarb: 10:10 — Non-Preserved	
Static Water Level: (from TOC) (ft) 7.75	Purging Equip.	Nitrite/Nitrate — Non-Preserved	
	Volume Purged: 13.6	pH/Cond. — Non-Preserved	
Saturated Thickness:(ft) 28.35	Sampling Equip.	Metals — Preserved HNO3	
		TOC — Preserved HCl	
Casing Volume: (gal) 4.54 x 3		VOC — Non-Preserved	

Time	Bailer Numbers	Gallons Purged	pH	Cond	Temp. (°C)	TDS	Comments odor, color, appearance
		8	6.87	1.28	17.6	0.64	
		10	7.08	1.23	16.8	0.61	
		12	7.12	1.23	15.4	0.63	
		13	7.25	1.28	15.3	0.64	
		13.5	7.28	1.27	15.0	0.63	

Remarks and/or Well Condition: _____

	LEL	$\%CH_4$	$\%O_2$	%CO	$\%H_2S$	Time	Comment
GP ___							

GROUND WATER SAMPLING FIELD DATA SHEET

CLIENT Broda's Inert Fill

PROJECT Groundwater Monitoring PROJECT NO. 10-0133

SITE AI - Platte Valley Pit

Well No. MW-2	Date: 7/10/18	Time: 10:30	Personnel: Mark/Hagerers
Weather:		Well Condition:	
Casing Diam. 2"		Field Calibrated : ____ Yes ____ No	
Casing Stick-up: (ft)	Sampling Kit: ESC Provided		
Total Well Depth: (from TOC) (ft) 27.30			
Static Water Level: (from TOC) (ft) 8.50	Purging Equip. Volume Purged: 9.02		
Saturated Thickness:(ft) 18.80	Sampling Equip.		
Casing Volume: (gal) 3.01			

Sample Tag	Time Sampled	Comment
Carb/BiCarb	10:50	Non-Preserved
Nitrite/ Nitrate		Non-Preserved
pH/Cond.		Non-Preserved
Metals		Preserved HNO3
TOC		Preserved HCl
VOC		Non-Preserved

Time	Bailer Numbers	Gallons Purged	pH	Cond	Temp. (°C)	TDS	Comments odor, color, appearance
		4	7.25	1.77	21.1	0.89	
		5	7.36	1.78	20.4	0.88	
		7	7.32	1.79	20.0	0.90	
		8	7.38	1.76	20.0	0.88	
		9	7.37	1.76	20.3	0.89	

Remarks and/or Well Condition: _____

	LEL	$\%CH_4$	$\%O_2$	%CO	$\%H_2S$	Time	Comment
GP ____							

GROUND WATER SAMPLING FIELD DATA SHEET

CLIENT Broda's Inert Fill

PROJECT Groundwater Monitoring PROJECT NO. 10-0133

SITE AI - Platte Valley Pit

Well No. Lake	Date: 7/10/18	Time: 11:20	Personnel: Moden / Hargreaves
Weather: Sunny, hot		Well Condition:	
Casing Diam. 2"		Field Calibrated : ____ Yes ____ No	
Casing Stick-up: (ft)	Sampling Kit: ESC Provided		
Total Well Depth: (from TOC) (ft)		Sample Tag / Time Sampled / Comment	
Static Water Level: (from TOC) (ft)	Purging Equip.	Carb/BiCarb — 11:20 — Non-Preserved	
	Volume Purged:	Nitrite/ Nitrate — Non-Preserved	
Saturated Thickness:(ft)	Sampling Equip.	pH/Cond. — Non-Preserved	
Casing Volume: (gal)		Metals — Preserved HNO3	
		TOC — Preserved HCl	
		VOC — Non-Preserved	

Time	Bailer Numbers	Gallons Purged	pH	Cond	Temp. (°C)	TDS	Comments odor, color, appearance
N/A							

Remarks and/or Well Condition: _____

	LEL	$\%CH_4$	$\%O_2$	%CO	$\%H_2S$	Time	Comment
GP ____							

ph w/in 2 ph units

GROUND WATER SAMPLING FIELD DATA SHEET

CLIENT Broda's Inert Fill

PROJECT Groundwater Monitoring PROJECT NO. 10-0133

SITE AI - Platte Valley Pit

Well No. MW-3	Date: 7/16/18	Time: 11:15	Personnel: Mark Moler & Associate
Weather: Cloudy, warm		Well Condition: Good	
Casing Diam. 2"		Field Calibrated : X Yes ___ No	
Casing Stick-up: (ft) 3'	Sampling Kit: ESC Provided		
Total Well Depth: (from TOC) (ft) 37.90			
Static Water Level: (from TOC) (ft) 16.14	Purging Equip. Volume Purged:		
Saturated Thickness:(ft) 21.76	Sampling Equip.		
Casing Volume: (gal) 3.48X3 = 10.5			

Sample Tag	Time Sampled	Comment
Carb/BiCarb	12:30	Non-Preserved
Nitrite/ Nitrate	12:30	Non-Preserved
pH/Cond.	12:30	Non-Preserved
Metals	12:30	Preserved HNO3
TOC	12:30	Preserved HCl
VOC	12:30	Non-Preserved

Time	Bailer Numbers	Gallons Purged	pH	Cond	Temp. (°C)	TDS	Comments odor, color, appearance
11:58	26	6	6.88	1.15	19.1	0.57	Cloudy, NO ODOR, Tan
12:04	30	7.2	6.87	1.16	18.4	0.57	Cloudy, no odor, Tan
12:13	36	9	7.22	1.15	17.7	0.58	Cloudy, no odor, Tan
12:17	38	9.2	7.39	1.15	17.6	0.58	Cloudy, no odor, Tan
12:20	40	10.0	7.36	1.14	17.5	0.57	Cloudy, no odor, Tan
12:25	42	10.5	7.36	1.13	17.6	0.57	Cloudy, no odor, Tan

Remarks and/or Well Condition: _____

	LEL	%CH_4	%O_2	%CO	%H_2S	Time	Comment
GP ___							

Company Name/Address:
Molen & Associates, LLC
2090 E. 104th Suite 205
Thornton, CO 80223

Billing Information:

Report to: **Mark Molen**

Email To: **molenassociates@gmail.com**

Project Description: **Broda Al Inert Fill**

City/State Collected:

Phone: **303.450.1600**
Fax: **303.452.4515**

Client Project # **10-0133**

Lab Project #

Collected by (print): EMILY HARGREAVES

Site/Facility ID # **Broda Al**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ____ Y ____

Rush? (Lab MUST Be Notified)
____ Same Day 200%
____ Next Day 100%
____ Two Day 50%
____ Three Day 25%

Date Results Needed

Email? ___No __Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

ESC LABORATORIES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L #

Table #

Acctnum: **MOLENTCO**
Template:
Prelogin:
TSR:
Cooler:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Mg, Na, K, Ca+AP1 Metals 250ml HDPE w/HN03	CARB, BICARB: ALK 1L HDPE No Pres	Nitrate, Nitrite, Sulfate, Chloride 250ml HDPE	SPCON, pH 250ml HDPE No Pres	TOC - 250ml Amber w/HCl	V8260AP1 (3) 40ml Amber No Pres	Rem./Contaminant	Sample # (lab only)
MW-1	Grab	GW		7/10	10:10	8	X	X	X	X	X	X		
MW-2	Grab	GW		7/10	10:50	8	X	X	X	X	X	X		
MW-3	Grab	GW		7/10		8	X	X	X	X	X	X		
Lake-1	Grab	GW		7/10	11:20	8	X	X	X	X	X	X		

Invoice:
Customer : ESCDEN
Phone : (615)758-5858 COD :
SAT Del : N
Date : 25Apr18 Weight : 10 LBS DV :
Shipping : 0.00 Special : 0.00 Handling : 0.00 0.00 Total : 0.00
Svce: STANDARD OVERNIGHT
TRCK: 4361 6933 6051

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other_____

pH _____ Temp _____

Remarks:

Flow _____ Other _____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	7/10/18		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____

Temp: °C Bottles Received:

Date: Time:

Condition: (lab use only)

COC Seal Intact: ____ Y ____ N ____ NA

pH Checked: NCF:

GROUND WATER SAMPLING FIELD DATA SHEET

CLIENT Broda's Inert Fill

PROJECT Groundwater Monitoring PROJECT NO. 10-0133

SITE AI - Platte Valley Pit

Well No. MW-1	Date: 9/28/18	Time: 1345	Personnel: MDan
Weather: Cool 50°		Well Condition:	
Casing Diam.		Field Calibrated : ____ Yes ____ No	
Casing Stick-up: (ft)	Sampling Kit: ESC Provided		
Total Well Depth: (from TOC) (ft)		Sample Tag	Time Sampled / Comment
Static Water Level: (from TOC) (ft) 4.84	Purging Equip. Baler	Carb/BiCarb	1410 Non-Preserved
	Volume Purged:	Nitrite/ Nitrate	Non-Preserved
Saturated Thickness:(ft)	Sampling Equip. Baler	pH/Cond.	Non-Preserved
Casing Volume: (gal)		Metals	Preserved HNO3
		TOC	Preserved HCl
		VOC	Non-Preserved

Time	Bailer Numbers	Gallons Purged	pH	Cond	Temp. (°C)	TDS	Comments odor, color, appearance
			6.88	0.45	15.1	0.23	
			6.88	0.46	15.2	0.23	
			6.98	0.46	14.8	0.23	
			6.99	0.46	14.8	0.23	

Remarks and/or Well Condition: _____

	LEL	$\%CH_4$	$\%O_2$	%CO	$\%H_2S$	Time	Comment
GP ____							

GROUND WATER SAMPLING FIELD DATA SHEET

CLIENT Broda's Inert Fill
PROJECT Groundwater Monitoring PROJECT NO. 10-0133
SITE AI - Platte Valley Pit

Well No. MW-2	Date: 9/28/18	Time: 1430	Personnel: [illegible]
Weather:		Well Condition:	

Casing Diam.		Field Calibrated : ____ Yes ____ No		
Casing Stick-up: (ft)	Sampling Kit: ESC Provided			
Total Well Depth: (from TOC) (ft)		Sample Tag	Time Sampled	Comment
		Carb/BiCarb	1500	Non-Preserved
Static Water Level: (from TOC) (ft) 8.58	Purging Equip.	Nitrite/ Nitrate		Non-Preserved
	Volume Purged:	pH/Cond.		Non-Preserved
Saturated Thickness:(ft)	Sampling Equip.	Metals		Preserved HNO3
		TOC		Preserved HCl
Casing Volume: (gal)		VOC		Non-Preserved

Time	Bailer Numbers	Gallons Purged	pH	Cond	Temp. (°C)	TDS	Comments odor, color, appearance
		6.87	6.88	0.54	14.8	0.340.23	
			7.16	0.55	17.6	0.27	
			7.24	0.56	17.6	0.28	
			7.24	0.54	17.7	0.28	

Remarks and/or Well Condition: _____

	LEL	$\%CH_4$	$\%O_2$	%CO	$\%H_2S$	Time	Comment
GP ____							

GROUND WATER SAMPLING FIELD DATA SHEET

CLIENT Broda's Inert Fill

PROJECT Groundwater Monitoring PROJECT NO. 10-0133

SITE AI - Platte Valley Pit

Well No. MW-3	Date: 9/28/18	Time: 1530	Personnel:
Weather:		Well Condition:	

Casing Diam.		Field Calibrated : ____ Yes ____ No		
Casing Stick-up: (ft)	Sampling Kit: ESC Provided			
Total Well Depth: (from TOC) (ft) 15.68		Sample Tag	Time Sampled	Comment
		Carb/BiCarb	1600	Non-Preserved
Static Water Level: (from TOC) (ft)	Purging Equip.	Nitrite/ Nitrate		Non-Preserved
	Volume Purged:	pH/Cond.		Non-Preserved
Saturated Thickness:(ft)	Sampling Equip.	Metals		Preserved HNO3
		TOC		Preserved HCl
Casing Volume: (gal)		VOC		Non-Preserved

Time	Bailer Numbers	Gallons Purged	pH	Cond	Temp. (°C)	TDS	Comments odor, color, appearance
			6.94	0.48	15.2	0.24	
			7.05	0.49	15.3	0.24	
			7.01	0.45	15.4	0.23	
			7.14	0.45	15.3	0.23	

Remarks and/or Well Condition: _____

	LEL	$\%CH_4$	$\%O_2$	%CO	$\%H_2S$	Time	Comment
GP____							

Molen & Associates, LLC

2090 E. 104th Suite 205
Thornton, CO 80223

Billing Information:

Pres Chk

Report to: **Mark Molen**

Email To: **molenassociates@gmail.com**

Project Description: **Broda AI Inert Fill**

City/State Collected:

Phone: **303-450-1600**
Fax: **303-452-4515**

Client Project # **10-0133**

Lab Project #

Collected by (print): MARK MOLEN

Site/Facility ID # **Broda AI**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L #

Table #

Acctnum: **MOLENTCO**

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Mg,Na,K,Ca+AP1 Metals - 250ml HDPE w/	CARB, BICARB: ALK - 250ml HDPE No Pres	N02N03, S04, Cl - 250ml HDPE No Pres	SPCON, pH - 250ml HDPE No Pres	TOC - 250ml Amber w/HCl	V8260AP1 (3) 40ml Amber w/HCl	Remarks	Sample # (lab only)
MW-1	Grab	GW		9/28/18	1410	8	X	X	X	X	X	X		
MW-2	Grab	GW			1500	8	X	X	X	X	X	X		
MW-3	Grab	GW		↓	1600	8	X	X	X	X	X	X		

Invo: PINYONLCO-11711 Date : 05Sep18 Shipping : 0.00
Customer : P667950 Weight : 10 LBS Special : 0.00
Phone : (615)758-5858 COD : Handling : 0.00
Sat Del : Y DV : 0.00 Total : 0.00

Svcs: PRIORITY OVERNIGHT
TRCK: 4492 6228 6853

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Unpreserved VOC's

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier __ _____

Tracking #

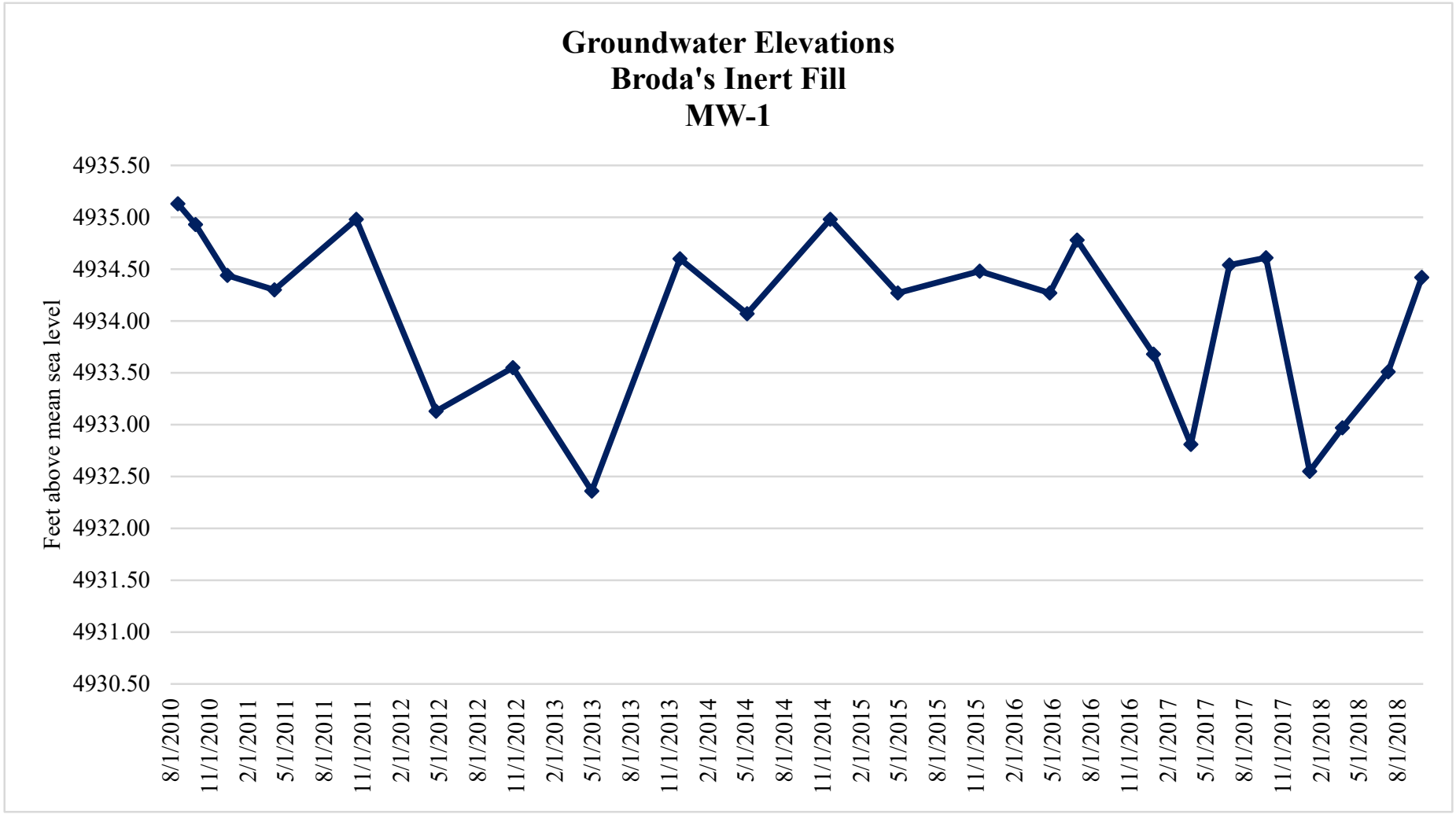
Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

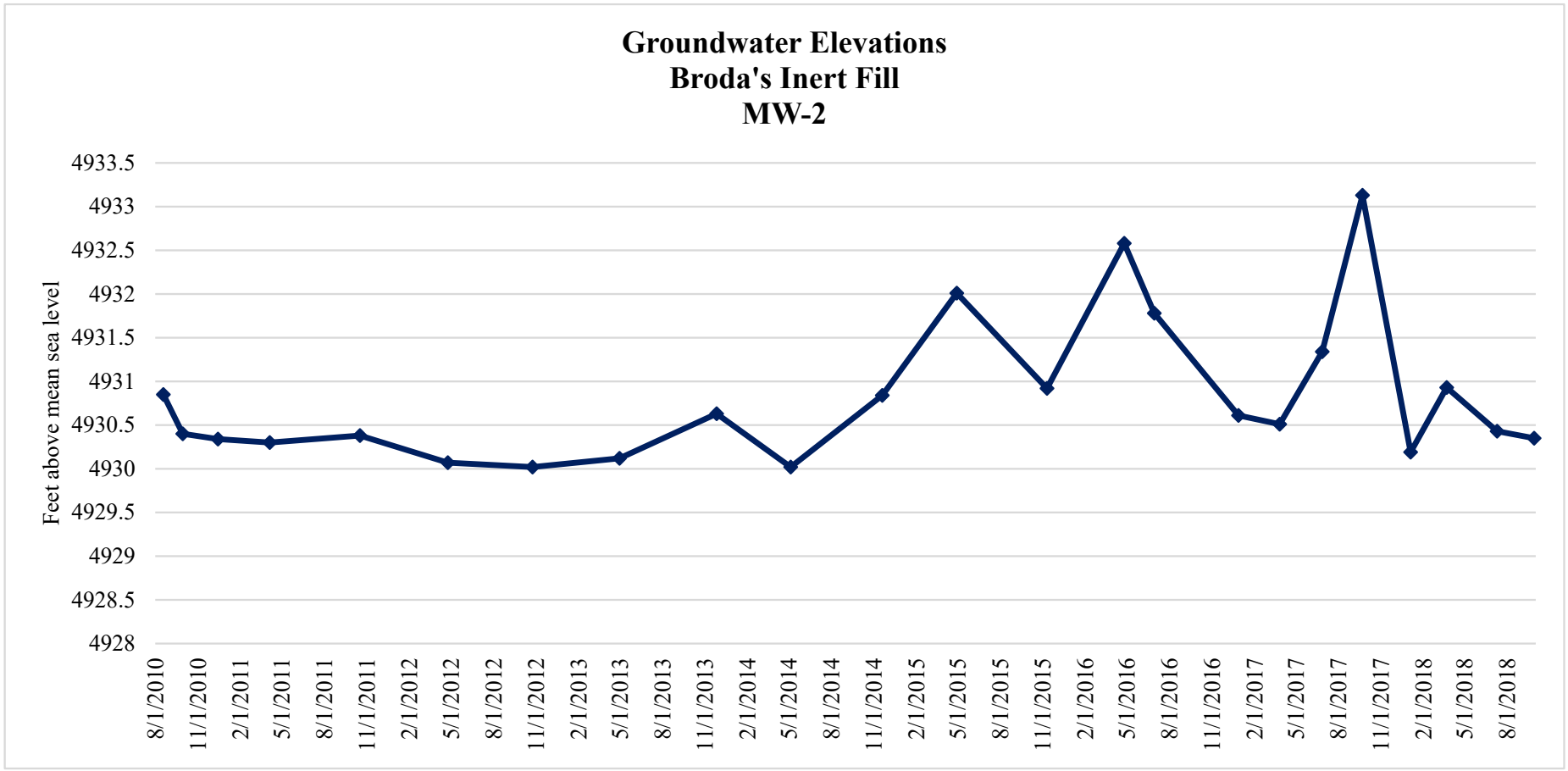
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Mark Molen	9/28/18	1800		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:

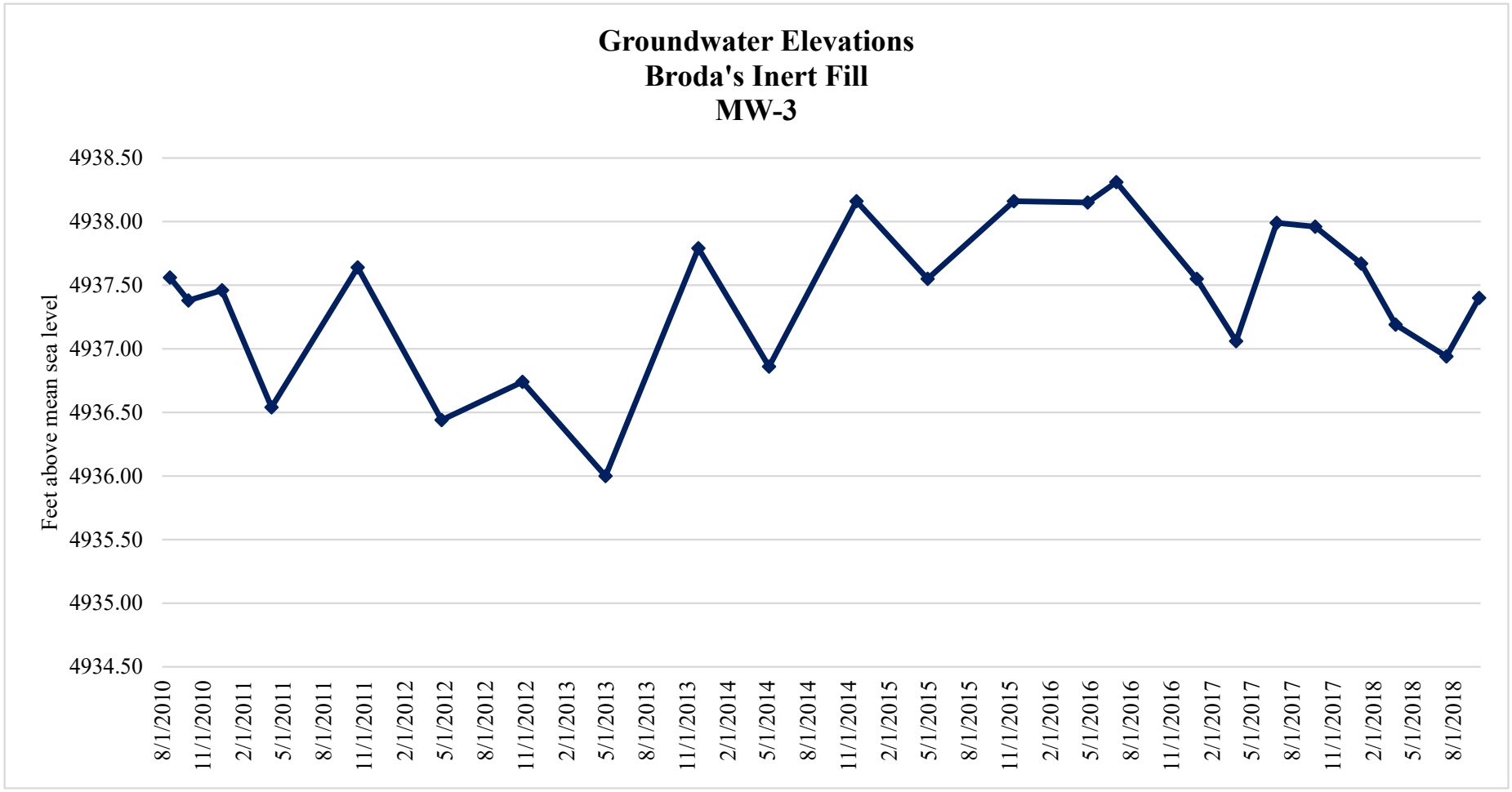
If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

Appendix II
Groundwater Elevation Charts


Groundwater Elevations
Broda's Inert Fill
MW-1
Feet above mean sea level
4935.50
4935.00
4934.50
4934.00
4933.50
4933.00
4932.50
4932.00
4931.50
4931.00
4930.50
8/1/2010
11/1/2010
2/1/2011
5/1/2011
8/1/2011
11/1/2011
2/1/2012
5/1/2012
8/1/2012
11/1/2012
2/1/2013
5/1/2013
8/1/2013
11/1/2013
2/1/2014
5/1/2014
8/1/2014
11/1/2014
2/1/2015
5/1/2015
8/1/2015
11/1/2015
2/1/2016
5/1/2016
8/1/2016
11/1/2016
2/1/2017
5/1/2017
8/1/2017
11/1/2017
2/1/2018
5/1/2018
8/1/2018


Groundwater Elevations
Broda's Inert Fill
MW-2
Feet above mean sea level
4933.5
4933
4932.5
4932
4931.5
4931
4930.5
4930
4929.5
4929
4928.5
4928
8/1/2010
11/1/2010
2/1/2011
5/1/2011
8/1/2011
11/1/2011
2/1/2012
5/1/2012
8/1/2012
11/1/2012
2/1/2013
5/1/2013
8/1/2013
11/1/2013
2/1/2014
5/1/2014
8/1/2014
11/1/2014
2/1/2015
5/1/2015
8/1/2015
11/1/2015
2/1/2016
5/1/2016
8/1/2016
11/1/2016
2/1/2017
5/1/2017
8/1/2017
11/1/2017
2/1/2018
5/1/2018
8/1/2018


Groundwater Elevations
Broda's Inert Fill
MW-3
Feet above mean sea level
4938.50
4938.00
4937.50
4937.00
4936.50
4936.00
4935.50
4935.00
4934.50
8/1/2010
11/1/2010
2/1/2011
5/1/2011
8/1/2011
11/1/2011
2/1/2012
5/1/2012
8/1/2012
11/1/2012
2/1/2013
5/1/2013
8/1/2013
11/1/2013
2/1/2014
5/1/2014
8/1/2014
11/1/2014
2/1/2015
5/1/2015
8/1/2015
11/1/2015
2/1/2016
5/1/2016
8/1/2016
11/1/2016
2/1/2017
5/1/2017
8/1/2017
11/1/2017
2/1/2018
5/1/2018
8/1/2018

Appendix III
ESC Laboratory Reports

ANALYTICAL REPORT

April 03, 2018

Molen & Associates, LLC

Sample Delivery Group:	L980218
Samples Received:	03/24/2018
Project Number:	10-0133
Description:	Broda Al Inert FIll
Site:	BRODA AL
Report To:	Mark Molen 2090 East 104th Avenue Suite #205 Thornton, CO 80233

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

MW-1 L980218-01 GW

Collected by	Collected date/time	Received date/time
Olivia Salmon	03/23/18 09:55	03/24/18 09:01

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1089447	1	03/27/18 10:43	03/27/18 10:43	CSU
Wet Chemistry by Method 9040C	WG1089341	1	03/25/18 16:06	03/25/18 16:06	GB
Wet Chemistry by Method 9050A	WG1089650	1	03/27/18 00:57	03/27/18 00:57	JLJ
Wet Chemistry by Method 9056A	WG1089251	1	03/25/18 08:10	03/25/18 08:10	DR
Wet Chemistry by Method 9056A	WG1091610	5	03/30/18 18:53	03/30/18 18:53	MAJ
Wet Chemistry by Method 9060A	WG1090260	1	03/29/18 00:20	03/29/18 00:20	SJM
Mercury by Method 7470A	WG1089291	1	03/26/18 13:06	03/27/18 11:04	ABL
Metals (ICP) by Method 6010B	WG1089401	1	03/27/18 13:38	03/28/18 16:08	ST
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1089631	1	03/26/18 23:38	03/26/18 23:38	JHH

MW-2 L980218-02 GW

Collected by	Collected date/time	Received date/time
Olivia Salmon	03/23/18 10:30	03/24/18 09:01

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1089447	1	03/27/18 10:50	03/27/18 10:50	CSU
Wet Chemistry by Method 9040C	WG1089341	1	03/25/18 16:06	03/25/18 16:06	GB
Wet Chemistry by Method 9050A	WG1089650	1	03/27/18 00:57	03/27/18 00:57	JLJ
Wet Chemistry by Method 9056A	WG1089251	1	03/25/18 08:25	03/25/18 08:25	DR
Wet Chemistry by Method 9056A	WG1091610	5	03/30/18 19:07	03/30/18 19:07	MAJ
Wet Chemistry by Method 9060A	WG1090260	1	03/29/18 00:38	03/29/18 00:38	SJM
Mercury by Method 7470A	WG1089291	1	03/26/18 13:06	03/27/18 11:06	ABL
Metals (ICP) by Method 6010B	WG1089401	1	03/27/18 13:38	03/28/18 16:11	ST
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1089631	1	03/26/18 23:57	03/26/18 23:57	JHH

MW-3 L980218-03 GW

Collected by	Collected date/time	Received date/time
Olivia Salmon	03/23/18 11:20	03/24/18 09:01

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1089447	1	03/27/18 10:56	03/27/18 10:56	CSU
Wet Chemistry by Method 9040C	WG1089341	1	03/25/18 16:06	03/25/18 16:06	GB
Wet Chemistry by Method 9050A	WG1089650	1	03/27/18 00:57	03/27/18 00:57	JLJ
Wet Chemistry by Method 9056A	WG1089251	1	03/25/18 08:40	03/25/18 08:40	DR
Wet Chemistry by Method 9056A	WG1091610	5	03/30/18 19:20	03/30/18 19:20	MAJ
Wet Chemistry by Method 9060A	WG1090260	1	03/29/18 00:57	03/29/18 00:57	SJM
Mercury by Method 7470A	WG1089291	1	03/26/18 13:06	03/27/18 11:09	ABL
Metals (ICP) by Method 6010B	WG1089401	1	03/27/18 13:38	03/28/18 16:14	ST
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1089631	1	03/27/18 00:16	03/27/18 00:16	JHH

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Technical Service Representative

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	187		20.0	1	03/27/2018 10:43	WG1089447
Alkalinity,Bicarbonate	187		20.0	1	03/27/2018 10:43	WG1089447
Alkalinity,Carbonate	ND		20.0	1	03/27/2018 10:43	WG1089447

Sample Narrative:

L980218-01 WG1089447: Endpoint pH 4.5

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.41	T8	1	03/25/2018 16:06	WG1089341

Sample Narrative:

L980218-01 WG1089341: 7.41 at 20C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	1190		10.0	1	03/27/2018 00:57	WG1089650

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	157		5.00	5	03/30/2018 18:53	WG1091610
Nitrate as (N)	8.81		0.100	1	03/25/2018 08:10	WG1089251
Nitrite as (N)	ND		0.100	1	03/25/2018 08:10	WG1089251
Sulfate	133		25.0	5	03/30/2018 18:53	WG1091610

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TOC (Total Organic Carbon)	1.31		1.00	1	03/29/2018 00:20	WG1090260

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	03/27/2018 11:04	WG1089291

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.0100	1	03/28/2018 16:08	WG1089401
Arsenic	ND		0.0100	1	03/28/2018 16:08	WG1089401
Barium	0.309		0.00500	1	03/28/2018 16:08	WG1089401
Beryllium	ND		0.00200	1	03/28/2018 16:08	WG1089401
Cadmium	ND		0.00200	1	03/28/2018 16:08	WG1089401
Calcium	94.6		1.00	1	03/28/2018 16:08	WG1089401
Chromium	ND		0.0100	1	03/28/2018 16:08	WG1089401
Cobalt	ND		0.0100	1	03/28/2018 16:08	WG1089401
Copper	0.0256		0.0100	1	03/28/2018 16:08	WG1089401
Lead	0.0302		0.00500	1	03/28/2018 16:08	WG1089401
Magnesium	30.9		1.00	1	03/28/2018 16:08	WG1089401
Nickel	0.0122		0.0100	1	03/28/2018 16:08	WG1089401

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Potassium	10.9		1.00	1	03/28/2018 16:08	WG1089401
Selenium	ND		0.0100	1	03/28/2018 16:08	WG1089401
Silver	ND		0.00500	1	03/28/2018 16:08	WG1089401
Sodium	126		1.00	1	03/28/2018 16:08	WG1089401
Thallium	ND		0.0100	1	03/28/2018 16:08	WG1089401
Vanadium	0.0272		0.0200	1	03/28/2018 16:08	WG1089401
Zinc	0.0712		0.0500	1	03/28/2018 16:08	WG1089401

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	0.0500	1	03/26/2018 23:38	WG1089631
Acrylonitrile	ND		0.0100	1	03/26/2018 23:38	WG1089631
Benzene	ND		0.00100	1	03/26/2018 23:38	WG1089631
Bromochloromethane	ND		0.00100	1	03/26/2018 23:38	WG1089631
Bromodichloromethane	ND		0.00100	1	03/26/2018 23:38	WG1089631
Bromoform	ND		0.00100	1	03/26/2018 23:38	WG1089631
Bromomethane	ND		0.00500	1	03/26/2018 23:38	WG1089631
Carbon disulfide	ND		0.00100	1	03/26/2018 23:38	WG1089631
Carbon tetrachloride	ND		0.00100	1	03/26/2018 23:38	WG1089631
Chlorobenzene	ND		0.00100	1	03/26/2018 23:38	WG1089631
Chlorodibromomethane	ND		0.00100	1	03/26/2018 23:38	WG1089631
Chloroethane	ND		0.00500	1	03/26/2018 23:38	WG1089631
Chloroform	ND		0.00500	1	03/26/2018 23:38	WG1089631
Chloromethane	ND		0.00250	1	03/26/2018 23:38	WG1089631
Dibromomethane	ND		0.00100	1	03/26/2018 23:38	WG1089631
1,2-Dichlorobenzene	ND		0.00100	1	03/26/2018 23:38	WG1089631
1,4-Dichlorobenzene	ND		0.00100	1	03/26/2018 23:38	WG1089631
trans-1,4-Dichloro-2-butene	ND		0.00250	1	03/26/2018 23:38	WG1089631
1,1-Dichloroethane	ND		0.00100	1	03/26/2018 23:38	WG1089631
1,2-Dichloroethane	ND		0.00100	1	03/26/2018 23:38	WG1089631
1,1-Dichloroethene	ND		0.00100	1	03/26/2018 23:38	WG1089631
cis-1,2-Dichloroethene	ND		0.00100	1	03/26/2018 23:38	WG1089631
trans-1,2-Dichloroethene	ND		0.00100	1	03/26/2018 23:38	WG1089631
1,2-Dichloropropane	ND		0.00100	1	03/26/2018 23:38	WG1089631
cis-1,3-Dichloropropene	ND		0.00100	1	03/26/2018 23:38	WG1089631
trans-1,3-Dichloropropene	ND		0.00100	1	03/26/2018 23:38	WG1089631
Ethylbenzene	ND		0.00100	1	03/26/2018 23:38	WG1089631
2-Hexanone	ND		0.0100	1	03/26/2018 23:38	WG1089631
Iodomethane	ND		0.0100	1	03/26/2018 23:38	WG1089631
2-Butanone (MEK)	ND		0.0100	1	03/26/2018 23:38	WG1089631
Methylene Chloride	ND		0.00500	1	03/26/2018 23:38	WG1089631
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	03/26/2018 23:38	WG1089631
Styrene	ND		0.00100	1	03/26/2018 23:38	WG1089631
1,1,1,2-Tetrachloroethane	ND		0.00100	1	03/26/2018 23:38	WG1089631
1,1,2,2-Tetrachloroethane	ND		0.00100	1	03/26/2018 23:38	WG1089631
Tetrachloroethene	ND		0.00100	1	03/26/2018 23:38	WG1089631
Toluene	ND		0.00100	1	03/26/2018 23:38	WG1089631
1,1,1-Trichloroethane	ND		0.00100	1	03/26/2018 23:38	WG1089631
1,1,2-Trichloroethane	ND		0.00100	1	03/26/2018 23:38	WG1089631
Trichloroethene	ND		0.00100	1	03/26/2018 23:38	WG1089631
Trichlorofluoromethane	ND		0.00500	1	03/26/2018 23:38	WG1089631
1,2,3-Trichloropropane	ND		0.00250	1	03/26/2018 23:38	WG1089631
Vinyl acetate	ND		0.0100	1	03/26/2018 23:38	WG1089631
Vinyl chloride	ND		0.00100	1	03/26/2018 23:38	WG1089631
Xylenes, Total	ND		0.00300	1	03/26/2018 23:38	WG1089631

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Toluene-d8	*107*		*80.0-120*		*03/26/2018 23:38*	WG1089631
(S) Dibromofluoromethane	*101*		*76.0-123*		*03/26/2018 23:38*	WG1089631
(S) a,a,a-Trifluorotoluene	*104*		*80.0-120*		*03/26/2018 23:38*	WG1089631
(S) 4-Bromofluorobenzene	*99.2*		*80.0-120*		*03/26/2018 23:38*	WG1089631

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	126		20.0	1	03/27/2018 10:50	WG1089447
Alkalinity,Bicarbonate	126		20.0	1	03/27/2018 10:50	WG1089447
Alkalinity,Carbonate	ND		20.0	1	03/27/2018 10:50	WG1089447

Sample Narrative:

L980218-02 WG1089447: Endpoint pH 4.5

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.63	T8	1	03/25/2018 16:06	WG1089341

Sample Narrative:

L980218-02 WG1089341: 7.63 at 19.9C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	1720		10.0	1	03/27/2018 00:57	WG1089650

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	199		5.00	5	03/30/2018 19:07	WG1091610
Nitrate as (N)	2.32		0.100	1	03/25/2018 08:25	WG1089251
Nitrite as (N)	ND		0.100	1	03/25/2018 08:25	WG1089251
Sulfate	439		25.0	5	03/30/2018 19:07	WG1091610

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TOC (Total Organic Carbon)	3.70		1.00	1	03/29/2018 00:38	WG1090260

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	03/27/2018 11:06	WG1089291

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.0100	1	03/28/2018 16:11	WG1089401
Arsenic	ND		0.0100	1	03/28/2018 16:11	WG1089401
Barium	0.227		0.00500	1	03/28/2018 16:11	WG1089401
Beryllium	ND		0.00200	1	03/28/2018 16:11	WG1089401
Cadmium	ND		0.00200	1	03/28/2018 16:11	WG1089401
Calcium	107		1.00	1	03/28/2018 16:11	WG1089401
Chromium	ND		0.0100	1	03/28/2018 16:11	WG1089401
Cobalt	ND		0.0100	1	03/28/2018 16:11	WG1089401
Copper	ND		0.0100	1	03/28/2018 16:11	WG1089401
Lead	ND		0.00500	1	03/28/2018 16:11	WG1089401
Magnesium	31.6		1.00	1	03/28/2018 16:11	WG1089401
Nickel	ND		0.0100	1	03/28/2018 16:11	WG1089401

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Potassium	12.4		1.00	1	03/28/2018 16:11	WG1089401
Selenium	ND		0.0100	1	03/28/2018 16:11	WG1089401
Silver	ND		0.00500	1	03/28/2018 16:11	WG1089401
Sodium	238		1.00	1	03/28/2018 16:11	WG1089401
Thallium	ND		0.0100	1	03/28/2018 16:11	WG1089401
Vanadium	ND		0.0200	1	03/28/2018 16:11	WG1089401
Zinc	ND		0.0500	1	03/28/2018 16:11	WG1089401

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	0.0500	1	03/26/2018 23:57	WG1089631
Acrylonitrile	ND		0.0100	1	03/26/2018 23:57	WG1089631
Benzene	ND		0.00100	1	03/26/2018 23:57	WG1089631
Bromochloromethane	ND		0.00100	1	03/26/2018 23:57	WG1089631
Bromodichloromethane	ND		0.00100	1	03/26/2018 23:57	WG1089631
Bromoform	ND		0.00100	1	03/26/2018 23:57	WG1089631
Bromomethane	ND		0.00500	1	03/26/2018 23:57	WG1089631
Carbon disulfide	ND		0.00100	1	03/26/2018 23:57	WG1089631
Carbon tetrachloride	ND		0.00100	1	03/26/2018 23:57	WG1089631
Chlorobenzene	ND		0.00100	1	03/26/2018 23:57	WG1089631
Chlorodibromomethane	ND		0.00100	1	03/26/2018 23:57	WG1089631
Chloroethane	ND		0.00500	1	03/26/2018 23:57	WG1089631
Chloroform	ND		0.00500	1	03/26/2018 23:57	WG1089631
Chloromethane	ND		0.00250	1	03/26/2018 23:57	WG1089631
Dibromomethane	ND		0.00100	1	03/26/2018 23:57	WG1089631
1,2-Dichlorobenzene	ND		0.00100	1	03/26/2018 23:57	WG1089631
1,4-Dichlorobenzene	ND		0.00100	1	03/26/2018 23:57	WG1089631
trans-1,4-Dichloro-2-butene	ND		0.00250	1	03/26/2018 23:57	WG1089631
1,1-Dichloroethane	ND		0.00100	1	03/26/2018 23:57	WG1089631
1,2-Dichloroethane	ND		0.00100	1	03/26/2018 23:57	WG1089631
1,1-Dichloroethene	ND		0.00100	1	03/26/2018 23:57	WG1089631
cis-1,2-Dichloroethene	ND		0.00100	1	03/26/2018 23:57	WG1089631
trans-1,2-Dichloroethene	ND		0.00100	1	03/26/2018 23:57	WG1089631
1,2-Dichloropropane	ND		0.00100	1	03/26/2018 23:57	WG1089631
cis-1,3-Dichloropropene	ND		0.00100	1	03/26/2018 23:57	WG1089631
trans-1,3-Dichloropropene	ND		0.00100	1	03/26/2018 23:57	WG1089631
Ethylbenzene	ND		0.00100	1	03/26/2018 23:57	WG1089631
2-Hexanone	ND		0.0100	1	03/26/2018 23:57	WG1089631
Iodomethane	ND		0.0100	1	03/26/2018 23:57	WG1089631
2-Butanone (MEK)	ND		0.0100	1	03/26/2018 23:57	WG1089631
Methylene Chloride	ND		0.00500	1	03/26/2018 23:57	WG1089631
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	03/26/2018 23:57	WG1089631
Styrene	ND		0.00100	1	03/26/2018 23:57	WG1089631
1,1,1,2-Tetrachloroethane	ND		0.00100	1	03/26/2018 23:57	WG1089631
1,1,2,2-Tetrachloroethane	ND		0.00100	1	03/26/2018 23:57	WG1089631
Tetrachloroethene	ND		0.00100	1	03/26/2018 23:57	WG1089631
Toluene	ND		0.00100	1	03/26/2018 23:57	WG1089631
1,1,1-Trichloroethane	ND		0.00100	1	03/26/2018 23:57	WG1089631
1,1,2-Trichloroethane	ND		0.00100	1	03/26/2018 23:57	WG1089631
Trichloroethene	ND		0.00100	1	03/26/2018 23:57	WG1089631
Trichlorofluoromethane	ND		0.00500	1	03/26/2018 23:57	WG1089631
1,2,3-Trichloropropane	ND		0.00250	1	03/26/2018 23:57	WG1089631
Vinyl acetate	ND		0.0100	1	03/26/2018 23:57	WG1089631
Vinyl chloride	ND		0.00100	1	03/26/2018 23:57	WG1089631
Xylenes, Total	ND		0.00300	1	03/26/2018 23:57	WG1089631

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Toluene-d8	*106*		*80.0-120*		*03/26/2018 23:57*	WG1089631
(S) Dibromofluoromethane	*99.3*		*76.0-123*		*03/26/2018 23:57*	WG1089631
(S) a,a,a-Trifluorotoluene	*105*		*80.0-120*		*03/26/2018 23:57*	WG1089631
(S) 4-Bromofluorobenzene	*99.8*		*80.0-120*		*03/26/2018 23:57*	WG1089631

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	170		20.0	1	03/27/2018 10:56	WG1089447
Alkalinity,Bicarbonate	170		20.0	1	03/27/2018 10:56	WG1089447
Alkalinity,Carbonate	ND		20.0	1	03/27/2018 10:56	WG1089447

Sample Narrative:
L980218-03 WG1089447: Endpoint pH 4.5

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.24	T8	1	03/25/2018 16:06	WG1089341

Sample Narrative:
L980218-03 WG1089341: 7.24 at 20C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	1140		10.0	1	03/27/2018 00:57	WG1089650

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	147		5.00	5	03/30/2018 19:20	WG1091610
Nitrate as (N)	9.87		0.100	1	03/25/2018 08:40	WG1089251
Nitrite as (N)	ND		0.100	1	03/25/2018 08:40	WG1089251
Sulfate	132		25.0	5	03/30/2018 19:20	WG1091610

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TOC (Total Organic Carbon)	1.27		1.00	1	03/29/2018 00:57	WG1090260

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	03/27/2018 11:09	WG1089291

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.0100	1	03/28/2018 16:14	WG1089401
Arsenic	0.0224		0.0100	1	03/28/2018 16:14	WG1089401
Barium	0.594		0.00500	1	03/28/2018 16:14	WG1089401
Beryllium	0.00257		0.00200	1	03/28/2018 16:14	WG1089401
Cadmium	ND		0.00200	1	03/28/2018 16:14	WG1089401
Calcium	110		1.00	1	03/28/2018 16:14	WG1089401
Chromium	0.0233		0.0100	1	03/28/2018 16:14	WG1089401
Cobalt	0.0183		0.0100	1	03/28/2018 16:14	WG1089401
Copper	0.0495		0.0100	1	03/28/2018 16:14	WG1089401
Lead	0.0745		0.00500	1	03/28/2018 16:14	WG1089401
Magnesium	27.4		1.00	1	03/28/2018 16:14	WG1089401
Nickel	0.0308		0.0100	1	03/28/2018 16:14	WG1089401

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Potassium	14.0		1.00	1	03/28/2018 16:14	WG1089401
Selenium	ND		0.0100	1	03/28/2018 16:14	WG1089401
Silver	ND		0.00500	1	03/28/2018 16:14	WG1089401
Sodium	114		1.00	1	03/28/2018 16:14	WG1089401
Thallium	ND		0.0100	1	03/28/2018 16:14	WG1089401
Vanadium	0.0576		0.0200	1	03/28/2018 16:14	WG1089401
Zinc	0.160		0.0500	1	03/28/2018 16:14	WG1089401

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND	J4	0.0500	1	03/27/2018 00:16	WG1089631
Acrylonitrile	ND		0.0100	1	03/27/2018 00:16	WG1089631
Benzene	ND		0.00100	1	03/27/2018 00:16	WG1089631
Bromochloromethane	ND		0.00100	1	03/27/2018 00:16	WG1089631
Bromodichloromethane	ND		0.00100	1	03/27/2018 00:16	WG1089631
Bromoform	ND		0.00100	1	03/27/2018 00:16	WG1089631
Bromomethane	ND		0.00500	1	03/27/2018 00:16	WG1089631
Carbon disulfide	ND		0.00100	1	03/27/2018 00:16	WG1089631
Carbon tetrachloride	ND		0.00100	1	03/27/2018 00:16	WG1089631
Chlorobenzene	ND		0.00100	1	03/27/2018 00:16	WG1089631
Chlorodibromomethane	ND		0.00100	1	03/27/2018 00:16	WG1089631
Chloroethane	ND		0.00500	1	03/27/2018 00:16	WG1089631
Chloroform	ND		0.00500	1	03/27/2018 00:16	WG1089631
Chloromethane	ND		0.00250	1	03/27/2018 00:16	WG1089631
Dibromomethane	ND		0.00100	1	03/27/2018 00:16	WG1089631
1,2-Dichlorobenzene	ND		0.00100	1	03/27/2018 00:16	WG1089631
1,4-Dichlorobenzene	ND		0.00100	1	03/27/2018 00:16	WG1089631
trans-1,4-Dichloro-2-butene	ND		0.00250	1	03/27/2018 00:16	WG1089631
1,1-Dichloroethane	ND		0.00100	1	03/27/2018 00:16	WG1089631
1,2-Dichloroethane	ND		0.00100	1	03/27/2018 00:16	WG1089631
1,1-Dichloroethene	ND		0.00100	1	03/27/2018 00:16	WG1089631
cis-1,2-Dichloroethene	ND		0.00100	1	03/27/2018 00:16	WG1089631
trans-1,2-Dichloroethene	ND		0.00100	1	03/27/2018 00:16	WG1089631
1,2-Dichloropropane	ND		0.00100	1	03/27/2018 00:16	WG1089631
cis-1,3-Dichloropropene	ND		0.00100	1	03/27/2018 00:16	WG1089631
trans-1,3-Dichloropropene	ND		0.00100	1	03/27/2018 00:16	WG1089631
Ethylbenzene	ND		0.00100	1	03/27/2018 00:16	WG1089631
2-Hexanone	ND		0.0100	1	03/27/2018 00:16	WG1089631
Iodomethane	ND		0.0100	1	03/27/2018 00:16	WG1089631
2-Butanone (MEK)	ND		0.0100	1	03/27/2018 00:16	WG1089631
Methylene Chloride	ND		0.00500	1	03/27/2018 00:16	WG1089631
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	03/27/2018 00:16	WG1089631
Styrene	ND		0.00100	1	03/27/2018 00:16	WG1089631
1,1,1,2-Tetrachloroethane	ND		0.00100	1	03/27/2018 00:16	WG1089631
1,1,2,2-Tetrachloroethane	ND		0.00100	1	03/27/2018 00:16	WG1089631
Tetrachloroethene	ND		0.00100	1	03/27/2018 00:16	WG1089631
Toluene	ND		0.00100	1	03/27/2018 00:16	WG1089631
1,1,1-Trichloroethane	ND		0.00100	1	03/27/2018 00:16	WG1089631
1,1,2-Trichloroethane	ND		0.00100	1	03/27/2018 00:16	WG1089631
Trichloroethene	ND		0.00100	1	03/27/2018 00:16	WG1089631
Trichlorofluoromethane	ND		0.00500	1	03/27/2018 00:16	WG1089631
1,2,3-Trichloropropane	ND		0.00250	1	03/27/2018 00:16	WG1089631
Vinyl acetate	ND		0.0100	1	03/27/2018 00:16	WG1089631
Vinyl chloride	ND		0.00100	1	03/27/2018 00:16	WG1089631
Xylenes, Total	ND		0.00300	1	03/27/2018 00:16	WG1089631

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Toluene-d8	*104*		*80.0-120*		*03/27/2018 00:16*	WG1089631
(S) Dibromofluoromethane	*102*		*76.0-123*		*03/27/2018 00:16*	WG1089631
(S) a,a,a-Trifluorotoluene	*104*		*80.0-120*		*03/27/2018 00:16*	WG1089631
(S) 4-Bromofluorobenzene	*97.9*		*80.0-120*		*03/27/2018 00:16*	WG1089631

L979897-01 Original Sample (OS) • Duplicate (DUP)

(OS) L979897-01 03/27/18 10:27 • (DUP) R3296996-1 03/27/18 10:36

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	59.1	68.6	1	14.9		20
Alkalinity,Bicarbonate	57.9	68.2	1	16.2		20
Alkalinity,Carbonate	ND	0.000	1	0.000		20

Sample Narrative:
OS: Endpoint pH 4.5
DUP: Endpoint pH 4.5

L980161-02 Original Sample (OS) • Duplicate (DUP)

(OS) L980161-02 03/27/18 16:59 • (DUP) R3296996-4 03/27/18 17:07

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	720	862	1	17.9		20
Alkalinity,Bicarbonate	720	862	1	17.9		20
Alkalinity,Carbonate	U	0.000	1	0.000		20

Sample Narrative:
OS: Endpoint pH 4.5
DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3296996-2 03/27/18 11:36 • (LCSD) R3296996-3 03/27/18 16:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Alkalinity	100	89.7	106	89.7	106	85.0-115			16.4	20

Sample Narrative:
LCS: Endpoint pH 4.5
LCSD: Endpoint pH 4.5

L980161-01 Original Sample (OS) • Duplicate (DUP)

(OS) L980161-01 03/25/18 16:06 • (DUP) R3296194-3 03/25/18 16:06

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.42	7.43	1	0.135		1

Sample Narrative:

OS: 7.42 at 18.3C

DUP: 7.43 at 18.3C

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3296194-1 03/25/18 16:06 • (LCSD) R3296194-2 03/25/18 16:06

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	10.0	10.0	100	100	99.0-101			0.000	1

Sample Narrative:

LCS: 10 at 19.4C

LCSD: 10 at 19.4C

Method Blank (MB)

(MB) WG1089650-1 03/27/18 00:57

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	umhos/cm		umhos/cm	umhos/cm
Specific Conductance	U		10.0	10.0

L979835-01 Original Sample (OS) • Duplicate (DUP)

(OS) L979835-01 03/27/18 00:57 • (DUP) WG1089650-4 03/27/18 00:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	839	844	1	0.594		20

L980218-03 Original Sample (OS) • Duplicate (DUP)

(OS) L980218-03 03/27/18 00:57 • (DUP) WG1089650-5 03/27/18 00:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	1140	1140	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG1089650-2 03/27/18 00:57 • (LCSD) WG1089650-3 03/27/18 00:57

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	umhos/cm	umhos/cm	umhos/cm	%	%	%			%	%
Specific Conductance	559	556	553	99.5	98.9	85.0-115			0.541	20

Method Blank (MB)

(MB) R3296170-1 03/24/18 13:01

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Nitrate	U		0.0227	0.100
Nitrite	U		0.0277	0.100

L980196-01 Original Sample (OS) • Duplicate (DUP)

(OS) L980196-01 03/25/18 09:42 • (DUP) R3296170-4 03/25/18 09:57

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate	ND	0.000	1	0.000		15
Nitrite	ND	0.000	1	0.000		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3296170-2 03/24/18 13:17 • (LCSD) R3296170-3 03/24/18 13:32

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Nitrate	8.00	8.09	8.14	101	102	80.0-120			0.580	15
Nitrite	8.00	7.92	7.95	99.0	99.4	80.0-120			0.309	15

L980196-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L980196-01 03/25/18 09:42 • (MS) R3296170-5 03/25/18 10:13 • (MSD) R3296170-6 03/25/18 10:28

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	ND	3.99	5.71	79.8	114	1	80.0-120	J6	J3	35.6	15
Nitrite	5.00	ND	4.10	5.82	81.9	116	1	80.0-120		J3	34.8	15

Method Blank (MB)

(MB) R3297925-1 03/30/18 07:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.0519	1.00
Sulfate	U		0.0774	5.00

L981635-10 Original Sample (OS) • Duplicate (DUP)

(OS) L981635-10 03/30/18 13:47 • (DUP) R3297925-4 03/30/18 14:00

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	17.4	17.4	1	0.365		15
Sulfate	U	0.000	1	0.000		15

L981635-08 Original Sample (OS) • Duplicate (DUP)

(OS) L981635-08 03/30/18 15:07 • (DUP) R3297925-7 03/30/18 15:21

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	10.4	10.3	1	1.18		15
Sulfate	13.6	13.5	1	0.142		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3297925-2 03/30/18 07:22 • (LCSD) R3297925-3 03/30/18 07:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	40.0	39.0	39.9	97.5	99.7	80.0-120			2.29	15
Sulfate	40.0	39.5	40.4	98.9	101	80.0-120			2.13	15

L981635-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L981635-10 03/30/18 13:47 • (MS) R3297925-5 03/30/18 14:14 • (MSD) R3297925-6 03/30/18 14:27

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	17.4	68.3	68.8	102	103	1	80.0-120			0.722	15
Sulfate	50.0	U	50.6	51.0	101	102	1	80.0-120			0.889	15

L981635-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L981635-08 03/30/18 15:07 • (MS) R3297925-8 03/30/18 15:34

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	10.4	61.3	102	1	80.0-120	
Sulfate	50.0	13.6	64.0	101	1	80.0-120	

Method Blank (MB)

(MB) R3297270-1 03/28/18 09:17

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
TOC (Total Organic Carbon)	U		0.102	1.00

L980057-02 Original Sample (OS) • Duplicate (DUP)

(OS) L980057-02 03/28/18 19:43 • (DUP) R3297270-4 03/28/18 19:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
TOC (Total Organic Carbon)	0.849	0.705	1	18.5	J	20

L979911-03 Original Sample (OS) • Duplicate (DUP)

(OS) L979911-03 03/28/18 18:30 • (DUP) R3297270-7 03/29/18 01:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
TOC (Total Organic Carbon)	6.35	6.70	1	5.35		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3297270-2 03/28/18 13:25 • (LCSD) R3297270-3 03/28/18 16:59

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
TOC (Total Organic Carbon)	75.0	72.8	71.9	97.1	95.9	85.0-115			1.29	20

L980184-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L980184-01 03/28/18 23:19 • (MS) R3297270-5 03/28/18 23:40 • (MSD) R3297270-6 03/29/18 00:01

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
TOC (Total Organic Carbon)	50.0	3.03	50.8	51.1	95.5	96.2	1	80.0-120			0.648	20

Method Blank (MB)

(MB) R3296649-1 03/27/18 10:44

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Mercury	U		0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3296649-5 03/27/18 12:10 • (LCSD) R3296649-2 03/27/18 10:48

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Mercury	0.00300	0.00290	0.00272	96.8	90.5	80.0-120			6.71	20

L980220-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L980220-01 03/27/18 10:50 • (MS) R3296649-3 03/27/18 10:59 • (MSD) R3296649-4 03/27/18 11:02

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.00300	ND	0.00291	0.00290	97.0	96.7	1	75.0-125			0.368	20

Method Blank (MB)

(MB) R3297225-1 03/28/18 15:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.00750	0.0100
Arsenic	U		0.00650	0.0100
Barium	U		0.00170	0.00500
Beryllium	U		0.000700	0.00200
Cadmium	U		0.000700	0.00200
Calcium	U		0.0463	1.00
Chromium	U		0.00140	0.0100
Cobalt	U		0.00230	0.0100
Copper	U		0.00530	0.0100
Lead	U		0.00190	0.00500
Magnesium	U		0.0111	1.00
Nickel	U		0.00490	0.0100
Potassium	U		0.102	1.00
Selenium	U		0.00740	0.0100
Silver	U		0.00280	0.00500
Sodium	U		0.0985	1.00
Thallium	U		0.00650	0.0100
Vanadium	U		0.00240	0.0200
Zinc	U		0.00590	0.0500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3297225-2 03/28/18 15:40 • (LCSD) R3297225-3 03/28/18 15:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	1.00	1.01	0.991	101	99.1	80.0-120			2.09	20
Arsenic	1.00	1.03	1.03	103	103	80.0-120			0.101	20
Barium	1.00	1.07	1.07	107	107	80.0-120			0.442	20
Beryllium	1.00	1.06	1.06	106	106	80.0-120			0.683	20
Cadmium	1.00	1.03	1.03	103	103	80.0-120			0.787	20
Calcium	10.0	10.4	10.5	104	105	80.0-120			0.768	20
Chromium	1.00	1.03	1.04	103	104	80.0-120			0.935	20
Cobalt	1.00	1.06	1.06	106	106	80.0-120			0.0617	20
Copper	1.00	1.05	1.06	105	106	80.0-120			0.701	20
Lead	1.00	1.04	1.05	104	105	80.0-120			0.229	20
Magnesium	10.0	10.9	11.1	109	111	80.0-120			1.10	20
Nickel	1.00	1.06	1.06	106	106	80.0-120			0.302	20
Potassium	10.0	10.4	10.4	104	104	80.0-120			0.0209	20
Selenium	1.00	1.03	1.03	103	103	80.0-120			0.0180	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3297225-2 03/28/18 15:40 • (LCSD) R3297225-3 03/28/18 15:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Silver	0.200	0.193	0.195	96.6	97.4	80.0-120			0.895	20
Sodium	10.0	10.6	10.6	106	106	80.0-120			0.517	20
Thallium	1.00	1.05	1.05	105	105	80.0-120			0.111	20
Vanadium	1.00	1.05	1.05	105	105	80.0-120			0.199	20
Zinc	1.00	1.04	1.05	104	105	80.0-120			1.24	20

L980314-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L980314-01 03/28/18 15:45 • (MS) R3297225-5 03/28/18 15:50 • (MSD) R3297225-6 03/28/18 15:53

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	1.00	U	1.01	1.02	101	102	1	75.0-125			1.32	20
Arsenic	1.00	0.0211	1.03	1.04	101	102	1	75.0-125			1.16	20
Barium	1.00	0.0241	1.04	1.05	102	103	1	75.0-125			1.09	20
Beryllium	1.00	U	1.03	1.05	103	105	1	75.0-125			1.08	20
Cadmium	1.00	U	1.00	1.01	100	101	1	75.0-125			0.714	20
Calcium	10.0	143	148	148	50.8	47.2	1	75.0-125	V	V	0.244	20
Chromium	1.00	U	0.981	0.988	98.1	98.8	1	75.0-125			0.743	20
Cobalt	1.00	U	1.04	1.04	104	104	1	75.0-125			0.649	20
Copper	1.00	U	1.02	1.03	102	103	1	75.0-125			1.27	20
Lead	1.00	0.00289	1.01	1.02	101	102	1	75.0-125			0.592	20
Magnesium	10.0	1.31	11.6	11.7	103	104	1	75.0-125			1.12	20
Nickel	1.00	U	1.03	1.04	103	104	1	75.0-125			0.814	20
Potassium	10.0	1.18	11.2	11.3	100	101	1	75.0-125			0.570	20
Selenium	1.00	U	1.01	1.03	101	103	1	75.0-125			2.09	20
Silver	0.200	U	0.188	0.190	93.8	94.9	1	75.0-125			1.10	20
Sodium	10.0	4.91	15.1	15.1	101	102	1	75.0-125			0.386	20
Thallium	1.00	U	1.01	1.01	101	101	1	75.0-125			0.174	20
Vanadium	1.00	0.00422	1.03	1.03	102	103	1	75.0-125			0.691	20
Zinc	1.00	U	0.990	0.994	99.0	99.4	1	75.0-125			0.467	20

Method Blank (MB)

(MB) R3297072-2 03/26/18 16:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromochloromethane	U		0.000520	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
Carbon disulfide	U		0.000275	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
Dibromomethane	U		0.000346	0.00100
1,2-Dichlorobenzene	U		0.000349	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
trans-1,4-Dichloro-2-butene	U		0.000866	0.00250
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
Ethylbenzene	U		0.000384	0.00100
2-Hexanone	U		0.00382	0.0100
Iodomethane	U		0.00171	0.0100
2-Butanone (MEK)	U		0.00393	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100
Styrene	U		0.000307	0.00100
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100

Method Blank (MB)

(MB) R3297072-2 03/26/18 16:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Trichlorofluoromethane	U		0.00120	0.00500
1,2,3-Trichloropropane	U		0.000807	0.00250
Vinyl acetate	U		0.00163	0.0100
Vinyl chloride	U		0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*106*			*80.0-120*
(S) Dibromofluoromethane	*96.5*			*76.0-123*
(S) a,a,a-Trifluorotoluene	*105*			*80.0-120*
(S) 4-Bromofluorobenzene	*101*			*80.0-120*

Laboratory Control Sample (LCS)

(LCS) R3297072-1 03/26/18 16:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	0.125	0.283	226	10.0-160	J4
Acrylonitrile	0.125	0.156	125	60.0-142	
Benzene	0.0250	0.0223	89.3	69.0-123	
Bromodichloromethane	0.0250	0.0231	92.4	76.0-120	
Bromochloromethane	0.0250	0.0220	87.9	76.0-122	
Bromoform	0.0250	0.0230	91.8	67.0-132	
Bromomethane	0.0250	0.0339	136	18.0-160	
Carbon disulfide	0.0250	0.0190	76.1	55.0-127	
Carbon tetrachloride	0.0250	0.0227	90.8	63.0-122	
Chlorobenzene	0.0250	0.0233	93.4	79.0-121	
Chlorodibromomethane	0.0250	0.0227	90.9	75.0-125	
Chloroethane	0.0250	0.0246	98.2	47.0-152	
Chloroform	0.0250	0.0237	94.8	72.0-121	
Chloromethane	0.0250	0.0235	93.9	48.0-139	
Dibromomethane	0.0250	0.0225	89.9	78.0-120	
1,2-Dichlorobenzene	0.0250	0.0241	96.4	80.0-120	
1,4-Dichlorobenzene	0.0250	0.0223	89.3	77.0-120	
trans-1,4-Dichloro-2-butene	0.0250	0.0241	96.4	55.0-134	
1,1-Dichloroethane	0.0250	0.0227	90.6	70.0-126	
1,2-Dichloroethane	0.0250	0.0227	90.7	67.0-126	
1,1-Dichloroethene	0.0250	0.0218	87.2	64.0-129	
cis-1,2-Dichloroethene	0.0250	0.0236	94.2	73.0-120	
trans-1,2-Dichloroethene	0.0250	0.0232	92.9	71.0-121	
1,2-Dichloropropane	0.0250	0.0231	92.3	75.0-125	

Laboratory Control Sample (LCS)

(LCS) R3297072-1 03/26/18 16:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
cis-1,3-Dichloropropene	0.0250	0.0229	91.5	79.0-123	
trans-1,3-Dichloropropene	0.0250	0.0231	92.3	74.0-127	
Ethylbenzene	0.0250	0.0232	92.6	77.0-120	
2-Hexanone	0.125	0.135	108	58.0-147	
Iodomethane	0.125	0.116	92.6	57.0-140	
2-Butanone (MEK)	0.125	0.110	87.9	37.0-158	
Methylene Chloride	0.0250	0.0237	94.8	66.0-121	
4-Methyl-2-pentanone (MIBK)	0.125	0.125	100	59.0-143	
Styrene	0.0250	0.0197	78.7	78.0-124	
1,1,1,2-Tetrachloroethane	0.0250	0.0236	94.3	75.0-122	
1,1,2,2-Tetrachloroethane	0.0250	0.0231	92.4	71.0-122	
Tetrachloroethene	0.0250	0.0245	98.1	70.0-127	
Toluene	0.0250	0.0215	85.9	77.0-120	
1,1,1-Trichloroethane	0.0250	0.0226	90.3	68.0-122	
1,1,2-Trichloroethane	0.0250	0.0236	94.4	78.0-120	
Trichloroethene	0.0250	0.0252	101	78.0-120	
Trichlorofluoromethane	0.0250	0.0252	101	56.0-137	
1,2,3-Trichloropropane	0.0250	0.0221	88.5	72.0-124	
Vinyl acetate	0.125	0.0947	75.7	46.0-160	
Vinyl chloride	0.0250	0.0226	90.6	64.0-133	
Xylenes, Total	0.0750	0.0691	92.1	77.0-120	
(S) Toluene-d8			*105*	*80.0-120*	
(S) Dibromofluoromethane			*95.8*	*76.0-123*	
(S) α,α,α-Trifluorotoluene			*105*	*80.0-120*	
(S) 4-Bromofluorobenzene			*92.8*	*80.0-120*	

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

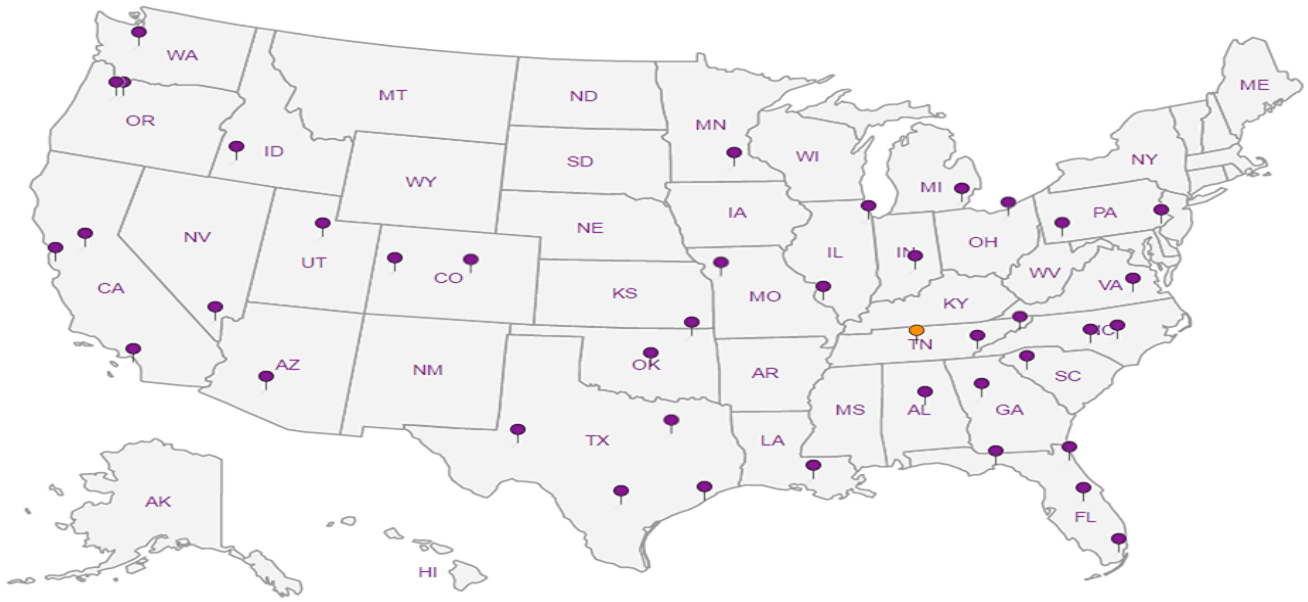
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Company Name/Address:
Molen & Associates, LLC
2090 E. 104th Suite 205
Thornton, CO 80223

Billing Information:

Report to: **Mark Molen**

Email To: **molenassociates@gmail.com**

Project Description: **Broda AI Inert Fill**

City/State Collected:

Phone: **303.450.1600**
Fax: **303.452.4515**

Client Project # **10-0133**

Lab Project #

Collected by (print): Olivia Salmon

Site/Facility ID # **Broda AI**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No ___Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Mg, Na, K, Ca+AP1 Metals 250ml HDPE w/HN03	CARB, BICARB: ALK 1L HDPE No Pres	Nitrate, Nitrite, Sulfate, Chloride 500ml HDPE	SPCON, pH 250ml HDPE No Pres	TOC - 250ml Amber w/HCl	V8260AP1 (3) 40ml Amber No Pres					Rem./Contaminant	Sample # (lab only)
MW-1	Grab	GW		3/23/18	9:55	8	X	X	X	X	X	X						01
MW-2	Grab	GW		↓	10:30	8	X	X	X	X	X	X						02
MW-3	Grab	GW		↓	11:20	8	X	X	X	X	X	X						03

Chain of Custody Page ___ of ___

ESC LABS SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 98048

Table G088

Acctnum: MOLENTCO

Template:

Prelogin:

TSR:

Cooler:

Shipped Via:

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other GW

Remarks: 4276 0141 3711

pH _____ Temp _____

Flow _____ Other _____

Hold #

Condition: (lab use only)

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	3/23/18	14:30	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			AM

Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐ _____

Temp: 3.1 °C Bottles Received: 24

Date: 3/24/18 Time: 0901

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client: Molentco	SDG#	480216	
Cooler Received/Opened On: 5/24/18	Temperature:	3.1	°C
Received By: Jeff Mann			
Signature: JM			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 17, 2018

Molen & Associates, LLC

Sample Delivery Group:	L1008194
Samples Received:	07/11/2018
Project Number:	10-0133
Description:	Broda Al Inert Fill
Site:	BRODA AL
Report To:	Mark Molen 2090 East 104th Avenue Suite #205 Thornton, CO 80233

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

MW-1 L1008194-01 GW

Collected by: Emily Hargreaves | Collected date/time: 07/10/18 10:10 | Received date/time: 07/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1137008	1	07/13/18 14:25	07/13/18 14:25	GB
Wet Chemistry by Method 9040C	WG1136596	1	07/12/18 11:00	07/12/18 11:00	AJG
Wet Chemistry by Method 9050A	WG1136348	1	07/11/18 16:56	07/11/18 16:56	MJA
Wet Chemistry by Method 9056A	WG1136339	1	07/11/18 19:16	07/11/18 19:16	MAJ
Wet Chemistry by Method 9056A	WG1136697	5	07/13/18 03:01	07/13/18 03:01	MAJ
Wet Chemistry by Method 9056A	WG1137211	5	07/13/18 20:24	07/13/18 20:24	MAJ
Wet Chemistry by Method 9060A	WG1136137	1	07/11/18 23:29	07/11/18 23:29	SJM
Mercury by Method 7470A	WG1136414	1	07/11/18 23:25	07/12/18 07:37	ABL
Metals (ICPMS) by Method 6020	WG1136425	1	07/12/18 08:04	07/12/18 23:12	LD
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1136643	1	07/11/18 20:58	07/11/18 20:58	DWR

MW-2 L1008194-02 GW

Collected by: Emily Hargreaves | Collected date/time: 07/10/18 10:50 | Received date/time: 07/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1137008	1	07/13/18 14:32	07/13/18 14:32	GB
Wet Chemistry by Method 9040C	WG1136596	1	07/12/18 11:00	07/12/18 11:00	AJG
Wet Chemistry by Method 9050A	WG1136348	1	07/11/18 16:56	07/11/18 16:56	MJA
Wet Chemistry by Method 9056A	WG1136339	1	07/11/18 19:31	07/11/18 19:31	MAJ
Wet Chemistry by Method 9056A	WG1136339	5	07/11/18 19:47	07/11/18 19:47	MAJ
Wet Chemistry by Method 9056A	WG1136697	5	07/13/18 03:16	07/13/18 03:16	MAJ
Wet Chemistry by Method 9060A	WG1136137	1	07/11/18 23:41	07/11/18 23:41	SJM
Mercury by Method 7470A	WG1136414	1	07/11/18 23:25	07/12/18 07:39	ABL
Metals (ICPMS) by Method 6020	WG1136425	1	07/12/18 08:04	07/12/18 23:16	LD
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1136643	1	07/11/18 21:17	07/11/18 21:17	DWR

LAKE-1 L1008194-03 GW

Collected by: Emily Hargreaves | Collected date/time: 07/10/18 11:20 | Received date/time: 07/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1137010	1	07/13/18 19:23	07/13/18 19:23	GB
Wet Chemistry by Method 9040C	WG1136596	1	07/12/18 11:00	07/12/18 11:00	AJG
Wet Chemistry by Method 9050A	WG1136348	1	07/11/18 16:56	07/11/18 16:56	MJA
Wet Chemistry by Method 9056A	WG1136339	1	07/11/18 20:33	07/11/18 20:33	MAJ
Wet Chemistry by Method 9056A	WG1136339	5	07/11/18 20:48	07/11/18 20:48	MAJ
Wet Chemistry by Method 9056A	WG1136697	5	07/13/18 03:32	07/13/18 03:32	MAJ
Wet Chemistry by Method 9060A	WG1136137	1	07/11/18 23:59	07/11/18 23:59	SJM
Mercury by Method 7470A	WG1136414	1	07/11/18 23:25	07/12/18 07:41	ABL
Metals (ICPMS) by Method 6020	WG1136425	1	07/12/18 08:04	07/12/18 23:20	LD
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1136643	1	07/11/18 21:35	07/11/18 21:35	DWR

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	199		20.0	1	07/13/2018 14:25	WG1137008
Alkalinity,Carbonate	ND		20.0	1	07/13/2018 14:25	WG1137008

Sample Narrative:
L1008194-01 WG1137008: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.34	T8	1	07/12/2018 11:00	WG1136596

Sample Narrative:
L1008194-01 WG1136596: 7.34 at 15.3C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	1190		10.0	1	07/11/2018 16:56	WG1136348

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	157		5.00	5	07/13/2018 03:01	WG1136697
Nitrate as (N)	8.91		0.100	1	07/11/2018 19:16	WG1136339
Nitrite as (N)	ND		0.100	1	07/11/2018 19:16	WG1136339
Sulfate	130		25.0	5	07/13/2018 20:24	WG1137211

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TOC (Total Organic Carbon)	2.47		1.00	1	07/11/2018 23:29	WG1136137

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	07/12/2018 07:37	WG1136414

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00200	1	07/12/2018 23:12	WG1136425
Arsenic	0.00790		0.00200	1	07/12/2018 23:12	WG1136425
Barium	0.383		0.00500	1	07/12/2018 23:12	WG1136425
Beryllium	ND		0.00200	1	07/12/2018 23:12	WG1136425
Cadmium	0.00101		0.00100	1	07/12/2018 23:12	WG1136425
Calcium	93.7		1.00	1	07/12/2018 23:12	WG1136425
Chromium	0.0161		0.00200	1	07/12/2018 23:12	WG1136425
Copper	0.0320		0.00500	1	07/12/2018 23:12	WG1136425
Cobalt	0.00939		0.00200	1	07/12/2018 23:12	WG1136425
Lead	0.0283		0.00200	1	07/12/2018 23:12	WG1136425
Magnesium	32.3		1.00	1	07/12/2018 23:12	WG1136425
Nickel	0.0187		0.00200	1	07/12/2018 23:12	WG1136425
Potassium	12.0		1.00	1	07/12/2018 23:12	WG1136425

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Selenium	0.00444		0.00200	1	07/12/2018 23:12	WG1136425
Silver	ND		0.00200	1	07/12/2018 23:12	WG1136425
Sodium	119		1.00	1	07/12/2018 23:12	WG1136425
Thallium	ND		0.00200	1	07/12/2018 23:12	WG1136425
Vanadium	0.0350		0.00500	1	07/12/2018 23:12	WG1136425
Zinc	0.100		0.0250	1	07/12/2018 23:12	WG1136425

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	07/11/2018 20:58	WG1136643
Acrylonitrile	ND		0.0100	1	07/11/2018 20:58	WG1136643
Benzene	ND		0.00100	1	07/11/2018 20:58	WG1136643
Bromochloromethane	ND		0.00100	1	07/11/2018 20:58	WG1136643
Bromodichloromethane	ND		0.00100	1	07/11/2018 20:58	WG1136643
Bromoform	ND		0.00100	1	07/11/2018 20:58	WG1136643
Bromomethane	ND		0.00500	1	07/11/2018 20:58	WG1136643
Carbon disulfide	ND		0.00100	1	07/11/2018 20:58	WG1136643
Carbon tetrachloride	ND		0.00100	1	07/11/2018 20:58	WG1136643
Chlorobenzene	ND		0.00100	1	07/11/2018 20:58	WG1136643
Chlorodibromomethane	ND		0.00100	1	07/11/2018 20:58	WG1136643
Chloroethane	ND		0.00500	1	07/11/2018 20:58	WG1136643
Chloroform	ND		0.00500	1	07/11/2018 20:58	WG1136643
Chloromethane	ND		0.00250	1	07/11/2018 20:58	WG1136643
Dibromomethane	ND		0.00100	1	07/11/2018 20:58	WG1136643
1,2-Dichlorobenzene	ND		0.00100	1	07/11/2018 20:58	WG1136643
1,4-Dichlorobenzene	ND		0.00100	1	07/11/2018 20:58	WG1136643
trans-1,4-Dichloro-2-butene	ND		0.00250	1	07/11/2018 20:58	WG1136643
1,1-Dichloroethane	ND		0.00100	1	07/11/2018 20:58	WG1136643
1,2-Dichloroethane	ND		0.00100	1	07/11/2018 20:58	WG1136643
1,1-Dichloroethene	ND		0.00100	1	07/11/2018 20:58	WG1136643
cis-1,2-Dichloroethene	ND		0.00100	1	07/11/2018 20:58	WG1136643
trans-1,2-Dichloroethene	ND		0.00100	1	07/11/2018 20:58	WG1136643
1,2-Dichloropropane	ND		0.00100	1	07/11/2018 20:58	WG1136643
cis-1,3-Dichloropropene	ND		0.00100	1	07/11/2018 20:58	WG1136643
trans-1,3-Dichloropropene	ND		0.00100	1	07/11/2018 20:58	WG1136643
Ethylbenzene	ND		0.00100	1	07/11/2018 20:58	WG1136643
2-Hexanone	ND		0.0100	1	07/11/2018 20:58	WG1136643
Iodomethane	ND		0.0100	1	07/11/2018 20:58	WG1136643
2-Butanone (MEK)	ND	J3	0.0100	1	07/11/2018 20:58	WG1136643
Methylene Chloride	ND		0.00500	1	07/11/2018 20:58	WG1136643
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	07/11/2018 20:58	WG1136643
Styrene	ND		0.00100	1	07/11/2018 20:58	WG1136643
1,1,1,2-Tetrachloroethane	ND		0.00100	1	07/11/2018 20:58	WG1136643
1,1,2,2-Tetrachloroethane	ND		0.00100	1	07/11/2018 20:58	WG1136643
Tetrachloroethene	ND		0.00100	1	07/11/2018 20:58	WG1136643
Toluene	ND		0.00100	1	07/11/2018 20:58	WG1136643
1,1,1-Trichloroethane	ND		0.00100	1	07/11/2018 20:58	WG1136643
1,1,2-Trichloroethane	ND		0.00100	1	07/11/2018 20:58	WG1136643
Trichloroethene	ND		0.00100	1	07/11/2018 20:58	WG1136643
Trichlorofluoromethane	ND		0.00500	1	07/11/2018 20:58	WG1136643
1,2,3-Trichloropropane	ND		0.00250	1	07/11/2018 20:58	WG1136643
Vinyl acetate	ND		0.0100	1	07/11/2018 20:58	WG1136643
Vinyl chloride	ND		0.00100	1	07/11/2018 20:58	WG1136643
Xylenes, Total	ND		0.00300	1	07/11/2018 20:58	WG1136643
(S) Toluene-d8	*107*		*80.0-120*		*07/11/2018 20:58*	WG1136643

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Dibromofluoromethane	*88.8*		*76.0-123*		*07/11/2018 20:58*	WG1136643
(S) a,a,a-Trifluorotoluene	*98.1*		*80.0-120*		*07/11/2018 20:58*	WG1136643
(S) 4-Bromofluorobenzene	*112*		*80.0-120*		*07/11/2018 20:58*	WG1136643

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	133		20.0	1	07/13/2018 14:32	WG1137008
Alkalinity,Carbonate	ND		20.0	1	07/13/2018 14:32	WG1137008

Sample Narrative:
L1008194-02 WG1137008: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.43	T8	1	07/12/2018 11:00	WG1136596

Sample Narrative:
L1008194-02 WG1136596: 7.43 at 15C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	1750		10.0	1	07/11/2018 16:56	WG1136348

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	185		5.00	5	07/13/2018 03:16	WG1136697
Nitrate as (N)	1.29		0.100	1	07/11/2018 19:31	WG1136339
Nitrite as (N)	ND		0.100	1	07/11/2018 19:31	WG1136339
Sulfate	476		25.0	5	07/11/2018 19:47	WG1136339

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TOC (Total Organic Carbon)	4.97		1.00	1	07/11/2018 23:41	WG1136137

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	07/12/2018 07:39	WG1136414

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00200	1	07/12/2018 23:16	WG1136425
Arsenic	0.00235		0.00200	1	07/12/2018 23:16	WG1136425
Barium	0.248		0.00500	1	07/12/2018 23:16	WG1136425
Beryllium	ND		0.00200	1	07/12/2018 23:16	WG1136425
Cadmium	ND		0.00100	1	07/12/2018 23:16	WG1136425
Calcium	103		1.00	1	07/12/2018 23:16	WG1136425
Chromium	0.00674		0.00200	1	07/12/2018 23:16	WG1136425
Copper	0.0384		0.00500	1	07/12/2018 23:16	WG1136425
Cobalt	0.00347		0.00200	1	07/12/2018 23:16	WG1136425
Lead	0.00597		0.00200	1	07/12/2018 23:16	WG1136425
Magnesium	32.8		1.00	1	07/12/2018 23:16	WG1136425
Nickel	0.00873		0.00200	1	07/12/2018 23:16	WG1136425
Potassium	14.1		1.00	1	07/12/2018 23:16	WG1136425

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Selenium	ND		0.00200	1	07/12/2018 23:16	WG1136425
Silver	ND		0.00200	1	07/12/2018 23:16	WG1136425
Sodium	232		1.00	1	07/12/2018 23:16	WG1136425
Thallium	ND		0.00200	1	07/12/2018 23:16	WG1136425
Vanadium	0.0107		0.00500	1	07/12/2018 23:16	WG1136425
Zinc	0.0349		0.0250	1	07/12/2018 23:16	WG1136425

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	07/11/2018 21:17	WG1136643
Acrylonitrile	ND		0.0100	1	07/11/2018 21:17	WG1136643
Benzene	ND		0.00100	1	07/11/2018 21:17	WG1136643
Bromochloromethane	ND		0.00100	1	07/11/2018 21:17	WG1136643
Bromodichloromethane	ND		0.00100	1	07/11/2018 21:17	WG1136643
Bromoform	ND		0.00100	1	07/11/2018 21:17	WG1136643
Bromomethane	ND		0.00500	1	07/11/2018 21:17	WG1136643
Carbon disulfide	ND		0.00100	1	07/11/2018 21:17	WG1136643
Carbon tetrachloride	ND		0.00100	1	07/11/2018 21:17	WG1136643
Chlorobenzene	ND		0.00100	1	07/11/2018 21:17	WG1136643
Chlorodibromomethane	ND		0.00100	1	07/11/2018 21:17	WG1136643
Chloroethane	ND		0.00500	1	07/11/2018 21:17	WG1136643
Chloroform	ND		0.00500	1	07/11/2018 21:17	WG1136643
Chloromethane	ND		0.00250	1	07/11/2018 21:17	WG1136643
Dibromomethane	ND		0.00100	1	07/11/2018 21:17	WG1136643
1,2-Dichlorobenzene	ND		0.00100	1	07/11/2018 21:17	WG1136643
1,4-Dichlorobenzene	ND		0.00100	1	07/11/2018 21:17	WG1136643
trans-1,4-Dichloro-2-butene	ND		0.00250	1	07/11/2018 21:17	WG1136643
1,1-Dichloroethane	ND		0.00100	1	07/11/2018 21:17	WG1136643
1,2-Dichloroethane	ND		0.00100	1	07/11/2018 21:17	WG1136643
1,1-Dichloroethene	ND		0.00100	1	07/11/2018 21:17	WG1136643
cis-1,2-Dichloroethene	ND		0.00100	1	07/11/2018 21:17	WG1136643
trans-1,2-Dichloroethene	ND		0.00100	1	07/11/2018 21:17	WG1136643
1,2-Dichloropropane	ND		0.00100	1	07/11/2018 21:17	WG1136643
cis-1,3-Dichloropropene	ND		0.00100	1	07/11/2018 21:17	WG1136643
trans-1,3-Dichloropropene	ND		0.00100	1	07/11/2018 21:17	WG1136643
Ethylbenzene	ND		0.00100	1	07/11/2018 21:17	WG1136643
2-Hexanone	ND		0.0100	1	07/11/2018 21:17	WG1136643
Iodomethane	ND		0.0100	1	07/11/2018 21:17	WG1136643
2-Butanone (MEK)	ND	J3	0.0100	1	07/11/2018 21:17	WG1136643
Methylene Chloride	ND		0.00500	1	07/11/2018 21:17	WG1136643
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	07/11/2018 21:17	WG1136643
Styrene	ND		0.00100	1	07/11/2018 21:17	WG1136643
1,1,1,2-Tetrachloroethane	ND		0.00100	1	07/11/2018 21:17	WG1136643
1,1,2,2-Tetrachloroethane	ND		0.00100	1	07/11/2018 21:17	WG1136643
Tetrachloroethene	ND		0.00100	1	07/11/2018 21:17	WG1136643
Toluene	ND		0.00100	1	07/11/2018 21:17	WG1136643
1,1,1-Trichloroethane	ND		0.00100	1	07/11/2018 21:17	WG1136643
1,1,2-Trichloroethane	ND		0.00100	1	07/11/2018 21:17	WG1136643
Trichloroethene	ND		0.00100	1	07/11/2018 21:17	WG1136643
Trichlorofluoromethane	ND		0.00500	1	07/11/2018 21:17	WG1136643
1,2,3-Trichloropropane	ND		0.00250	1	07/11/2018 21:17	WG1136643
Vinyl acetate	ND		0.0100	1	07/11/2018 21:17	WG1136643
Vinyl chloride	ND		0.00100	1	07/11/2018 21:17	WG1136643
Xylenes, Total	ND		0.00300	1	07/11/2018 21:17	WG1136643
(S) Toluene-d8	*102*		*80.0-120*		*07/11/2018 21:17*	WG1136643

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Dibromofluoromethane	*98.8*		*76.0-123*		*07/11/2018 21:17*	WG1136643
(S) a,a,a-Trifluorotoluene	*95.0*		*80.0-120*		*07/11/2018 21:17*	WG1136643
(S) 4-Bromofluorobenzene	*111*		*80.0-120*		*07/11/2018 21:17*	WG1136643

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	76.7		20.0	1	07/13/2018 19:23	WG1137010
Alkalinity,Carbonate	ND		20.0	1	07/13/2018 19:23	WG1137010

Sample Narrative:
L1008194-03 WG1137010: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.88	T8	1	07/12/2018 11:00	WG1136596

Sample Narrative:
L1008194-03 WG1136596: 8.88 at 14.9C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	1750		10.0	1	07/11/2018 16:56	WG1136348

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	187		5.00	5	07/13/2018 03:32	WG1136697
Nitrate as (N)	5.87		0.100	1	07/11/2018 20:33	WG1136339
Nitrite as (N)	0.167		0.100	1	07/11/2018 20:33	WG1136339
Sulfate	498		25.0	5	07/11/2018 20:48	WG1136339

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TOC (Total Organic Carbon)	5.04		1.00	1	07/11/2018 23:59	WG1136137

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	07/12/2018 07:41	WG1136414

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00200	1	07/12/2018 23:20	WG1136425
Arsenic	ND		0.00200	1	07/12/2018 23:20	WG1136425
Barium	0.0479		0.00500	1	07/12/2018 23:20	WG1136425
Beryllium	ND		0.00200	1	07/12/2018 23:20	WG1136425
Cadmium	ND		0.00100	1	07/12/2018 23:20	WG1136425
Calcium	93.3		1.00	1	07/12/2018 23:20	WG1136425
Chromium	ND		0.00200	1	07/12/2018 23:20	WG1136425
Copper	ND		0.00500	1	07/12/2018 23:20	WG1136425
Cobalt	ND		0.00200	1	07/12/2018 23:20	WG1136425
Lead	ND		0.00200	1	07/12/2018 23:20	WG1136425
Magnesium	33.5		1.00	1	07/12/2018 23:20	WG1136425
Nickel	0.00398		0.00200	1	07/12/2018 23:20	WG1136425
Potassium	10.2		1.00	1	07/12/2018 23:20	WG1136425

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Selenium	0.00346		0.00200	1	07/12/2018 23:20	WG1136425
Silver	ND		0.00200	1	07/12/2018 23:20	WG1136425
Sodium	239		1.00	1	07/12/2018 23:20	WG1136425
Thallium	ND		0.00200	1	07/12/2018 23:20	WG1136425
Vanadium	ND		0.00500	1	07/12/2018 23:20	WG1136425
Zinc	ND		0.0250	1	07/12/2018 23:20	WG1136425

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	07/11/2018 21:35	WG1136643
Acrylonitrile	ND		0.0100	1	07/11/2018 21:35	WG1136643
Benzene	ND		0.00100	1	07/11/2018 21:35	WG1136643
Bromochloromethane	ND		0.00100	1	07/11/2018 21:35	WG1136643
Bromodichloromethane	ND		0.00100	1	07/11/2018 21:35	WG1136643
Bromoform	ND		0.00100	1	07/11/2018 21:35	WG1136643
Bromomethane	ND		0.00500	1	07/11/2018 21:35	WG1136643
Carbon disulfide	ND		0.00100	1	07/11/2018 21:35	WG1136643
Carbon tetrachloride	ND		0.00100	1	07/11/2018 21:35	WG1136643
Chlorobenzene	ND		0.00100	1	07/11/2018 21:35	WG1136643
Chlorodibromomethane	ND		0.00100	1	07/11/2018 21:35	WG1136643
Chloroethane	ND		0.00500	1	07/11/2018 21:35	WG1136643
Chloroform	ND		0.00500	1	07/11/2018 21:35	WG1136643
Chloromethane	ND		0.00250	1	07/11/2018 21:35	WG1136643
Dibromomethane	ND		0.00100	1	07/11/2018 21:35	WG1136643
1,2-Dichlorobenzene	ND		0.00100	1	07/11/2018 21:35	WG1136643
1,4-Dichlorobenzene	ND		0.00100	1	07/11/2018 21:35	WG1136643
trans-1,4-Dichloro-2-butene	ND		0.00250	1	07/11/2018 21:35	WG1136643
1,1-Dichloroethane	ND		0.00100	1	07/11/2018 21:35	WG1136643
1,2-Dichloroethane	ND		0.00100	1	07/11/2018 21:35	WG1136643
1,1-Dichloroethene	ND		0.00100	1	07/11/2018 21:35	WG1136643
cis-1,2-Dichloroethene	ND		0.00100	1	07/11/2018 21:35	WG1136643
trans-1,2-Dichloroethene	ND		0.00100	1	07/11/2018 21:35	WG1136643
1,2-Dichloropropane	ND		0.00100	1	07/11/2018 21:35	WG1136643
cis-1,3-Dichloropropene	ND		0.00100	1	07/11/2018 21:35	WG1136643
trans-1,3-Dichloropropene	ND		0.00100	1	07/11/2018 21:35	WG1136643
Ethylbenzene	ND		0.00100	1	07/11/2018 21:35	WG1136643
2-Hexanone	ND		0.0100	1	07/11/2018 21:35	WG1136643
Iodomethane	ND		0.0100	1	07/11/2018 21:35	WG1136643
2-Butanone (MEK)	ND	J3	0.0100	1	07/11/2018 21:35	WG1136643
Methylene Chloride	ND		0.00500	1	07/11/2018 21:35	WG1136643
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	07/11/2018 21:35	WG1136643
Styrene	ND		0.00100	1	07/11/2018 21:35	WG1136643
1,1,1,2-Tetrachloroethane	ND		0.00100	1	07/11/2018 21:35	WG1136643
1,1,2,2-Tetrachloroethane	ND		0.00100	1	07/11/2018 21:35	WG1136643
Tetrachloroethene	ND		0.00100	1	07/11/2018 21:35	WG1136643
Toluene	ND		0.00100	1	07/11/2018 21:35	WG1136643
1,1,1-Trichloroethane	ND		0.00100	1	07/11/2018 21:35	WG1136643
1,1,2-Trichloroethane	ND		0.00100	1	07/11/2018 21:35	WG1136643
Trichloroethene	ND		0.00100	1	07/11/2018 21:35	WG1136643
Trichlorofluoromethane	ND		0.00500	1	07/11/2018 21:35	WG1136643
1,2,3-Trichloropropane	ND		0.00250	1	07/11/2018 21:35	WG1136643
Vinyl acetate	ND		0.0100	1	07/11/2018 21:35	WG1136643
Vinyl chloride	ND		0.00100	1	07/11/2018 21:35	WG1136643
Xylenes, Total	ND		0.00300	1	07/11/2018 21:35	WG1136643
(S) Toluene-d8	*104*		*80.0-120*		*07/11/2018 21:35*	WG1136643

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Dibromofluoromethane	*95.4*		*76.0-123*		*07/11/2018 21:35*	WG1136643
(S) a,a,a-Trifluorotoluene	*97.4*		*80.0-120*		*07/11/2018 21:35*	WG1136643
(S) 4-Bromofluorobenzene	*111*		*80.0-120*		*07/11/2018 21:35*	WG1136643

Method Blank (MB)

(MB) R3325451-1 07/13/18 12:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Alkalinity	U		2.71	20.0
Alkalinity,Carbonate	U		2.71	20.0

Sample Narrative:

BLANK: Endpoint pH 4.5

L1008437-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1008437-01 07/13/18 12:51 • (DUP) R3325451-2 07/13/18 12:59

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	9.83	10.4	1	5.86	J	20
Alkalinity,Carbonate	U	0.000	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5

DUP: Endpoint pH 4.5

L1008473-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1008473-03 07/13/18 15:32 • (DUP) R3325451-5 07/13/18 15:39

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	19.3	19.2	1	0.492	J	20
Alkalinity,Carbonate	U	0.000	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325451-3 07/13/18 13:57 • (LCSD) R3325451-4 07/13/18 15:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Alkalinity	100	103	103	103	103	85.0-115			0.00350	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325451-3 07/13/18 13:57 • (LCSD) R3325451-4 07/13/18 15:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %

Sample Narrative:

LCS: Endpoint pH 4.5

LCSD: Endpoint pH 4.5

L1008194-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1008194-03 07/13/18 19:23 • (DUP) R3325794-5 07/13/18 19:31

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	76.7	76.6	1	0.164		20
Alkalinity,Carbonate	ND	7.86	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

L1007767-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1007767-01 07/13/18 16:52 • (DUP) R3325794-1 07/13/18 16:59

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	546	546	1	0.0531		20
Alkalinity,Carbonate	U	0.000	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325794-3 07/13/18 17:56 • (LCSD) R3325794-4 07/13/18 19:13

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Alkalinity	100	100	99.9	100	99.9	85.0-115			0.219	20

Sample Narrative:

LCS: Endpoint pH 4.5

LCSD: Endpoint pH 4.5

L1008135-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1008135-01 07/12/18 11:00 • (DUP) R3324991-3 07/12/18 11:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.62	6.61	1	0.151		1

Sample Narrative:

OS: 6.62 at 18.7C

DUP: 6.61 at 18.9C

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3324991-1 07/12/18 11:00 • (LCSD) R3324991-2 07/12/18 11:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	10.0	10.0	100	100	99.0-101			0.000	1

Sample Narrative:

LCS: 10.03 at 18.3C

LCSD: 10.03 at 18.4C

Method Blank (MB)

(MB) R3324835-1 07/11/18 16:56

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

L1008177-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1008177-01 07/11/18 16:56 • (DUP) R3324835-4 07/11/18 16:56

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	390	393	1	0.766		20

L1008220-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1008220-02 07/11/18 16:56 • (DUP) R3324835-5 07/11/18 16:56

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	129	130	1	0.772		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3324835-2 07/11/18 16:56 • (LCSD) R3324835-3 07/11/18 16:56

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCSD Result umhos/cm	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Specific Conductance	559	561	558	100	99.8	85.0-115			0.536	20

Method Blank (MB)

(MB) R3324990-1 07/11/18 07:21

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Nitrate	U		0.0227	0.100
Nitrite	U		0.0277	0.100
Sulfate	U		0.0774	5.00

L1008215-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1008215-01 07/11/18 21:19 • (DUP) R3324990-4 07/11/18 21:35

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate	5.47	5.59	1	2.13		15
Nitrite	ND	0.000	1	0.000		15
Sulfate	21.5	21.2	1	1.44		15

L1008391-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1008391-04 07/12/18 03:02 • (DUP) R3324990-7 07/12/18 03:17

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate	1.15	1.16	1	1.48		15
Nitrite	ND	0.000	1	0.000		15
Sulfate	52.3	52.3	1	0.0669		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3324990-2 07/11/18 07:36 • (LCSD) R3324990-3 07/11/18 07:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Nitrate	8.00	8.23	8.24	103	103	80.0-120			0.0668	15
Nitrite	8.00	8.02	8.01	100	100	80.0-120			0.0898	15
Sulfate	40.0	40.8	40.9	102	102	80.0-120			0.256	15

L1008215-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1008215-01 07/11/18 21:19 • (MS) R3324990-5 07/11/18 21:50 • (MSD) R3324990-6 07/11/18 22:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	5.47	10.4	10.9	99.4	109	1	80.0-120	E	E	4.44	15
Nitrite	5.00	ND	4.93	5.41	98.7	108	1	80.0-120			9.18	15
Sulfate	50.0	21.5	70.0	74.5	97.0	106	1	80.0-120			6.26	15

L1008391-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1008391-04 07/12/18 03:02 • (MS) R3324990-8 07/12/18 03:33

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Nitrate	5.00	1.15	6.28	103	1	80.0-120	
Nitrite	5.00	ND	5.13	103	1	80.0-120	
Sulfate	50.0	52.3	101	97.2	1	80.0-120	E

Method Blank (MB)

(MB) R3325337-1 07/12/18 23:25

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00

L1008381-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1008381-01 07/13/18 04:02 • (DUP) R3325337-7 07/13/18 04:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	49.7	50.1	1	0.805		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325337-2 07/12/18 23:40 • (LCSD) R3325337-3 07/12/18 23:56

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	38.9	38.9	97.2	97.3	80.0-120			0.0671	15

L1008381-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1008381-01 07/13/18 04:02 • (MS) R3325337-8 07/13/18 04:33

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	49.7	105	111	1	80.0-120	E

Method Blank (MB)

(MB) R3325509-1 07/13/18 13:17

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Sulfate	U		0.0774	5.00

L1008505-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1008505-01 07/13/18 20:39 • (DUP) R3325509-4 07/13/18 20:55

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	ND	1.20	1	0.000		15

L1008505-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1008505-11 07/14/18 00:30 • (DUP) R3325509-7 07/14/18 00:46

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	5.21	5.26	1	0.985		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325509-2 07/13/18 13:32 • (LCSD) R3325509-3 07/13/18 13:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Sulfate	40.0	39.5	39.5	98.7	98.7	80.0-120			0.00836	15

L1008505-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1008505-01 07/13/18 20:39 • (MS) R3325509-5 07/13/18 21:10 • (MSD) R3325509-6 07/13/18 21:25

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	50.0	ND	51.1	51.1	99.9	100	1	80.0-120			0.0755	15

L1008505-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L1008505-11 07/14/18 00:30 • (MS) R3325509-8 07/14/18 01:01

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50.0	5.21	55.2	100	1	80.0-120	

Method Blank (MB)

(MB) R3324899-1 07/11/18 17:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TOC (Total Organic Carbon)	U		0.102	1.00

L1007949-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1007949-04 07/11/18 22:55 • (DUP) R3324899-7 07/11/18 23:06

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	0.579	0.800	1	32.1	J P1	20

L1007707-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1007707-03 07/11/18 18:47 • (DUP) R3324899-3 07/11/18 18:59

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	5.19	5.68	1	9.02		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3324899-2 07/11/18 17:51 • (LCSD) R3324899-4 07/11/18 19:25

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	75.0	76.5	77.6	102	103	85.0-115			1.49	20

L1007707-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1007707-08 07/11/18 20:36 • (MS) R3324899-5 07/11/18 20:51 • (MSD) R3324899-6 07/11/18 21:06

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	50.0	7.32	56.2	56.9	97.7	99.1	1	80.0-120			1.27	20

Method Blank (MB)

(MB) R3325035-1 07/12/18 07:11

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325035-2 07/12/18 07:14 • (LCSD) R3325035-3 07/12/18 07:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.00299	0.00300	99.8	99.9	80.0-120			0.100	20

L1008409-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1008409-01 07/12/18 07:18 • (MS) R3325035-4 07/12/18 07:20 • (MSD) R3325035-5 07/12/18 07:22

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	U	0.00316	0.00290	105	96.7	1	75.0-125			8.47	20

Method Blank (MB)

(MB) R3325229-1 07/12/18 22:41

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.000250	0.00200
Barium	U		0.000360	0.00500
Beryllium	U		0.000120	0.00200
Cadmium	U		0.000160	0.00100
Calcium	0.0806	J	0.0460	1.00
Chromium	U		0.000540	0.00200
Copper	0.00190	J	0.000520	0.00500
Cobalt	U		0.000260	0.00200
Lead	0.000296	J	0.000240	0.00200
Magnesium	U		0.100	1.00
Nickel	U		0.000350	0.00200
Potassium	U		0.0370	1.00
Selenium	U		0.000380	0.00200
Silver	U		0.000310	0.00200
Sodium	U		0.110	1.00
Thallium	U		0.000190	0.00200
Vanadium	U		0.000180	0.00500
Zinc	U		0.00256	0.0250

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325229-2 07/12/18 22:46 • (LCSD) R3325229-3 07/12/18 22:50

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	0.0574	0.0566	115	113	80.0-120			1.41	20
Arsenic	0.0500	0.0532	0.0516	106	103	80.0-120			3.01	20
Barium	0.0500	0.0538	0.0537	108	107	80.0-120			0.0963	20
Beryllium	0.0500	0.0539	0.0518	108	104	80.0-120			3.96	20
Cadmium	0.0500	0.0531	0.0524	106	105	80.0-120			1.35	20
Calcium	5.00	5.21	5.31	104	106	80.0-120			2.04	20
Chromium	0.0500	0.0540	0.0538	108	108	80.0-120			0.368	20
Copper	0.0500	0.0568	0.0571	114	114	80.0-120			0.632	20
Cobalt	0.0500	0.0553	0.0541	111	108	80.0-120			2.27	20
Lead	0.0500	0.0518	0.0505	104	101	80.0-120			2.45	20
Magnesium	5.00	5.44	5.44	109	109	80.0-120			0.0249	20
Nickel	0.0500	0.0547	0.0536	109	107	80.0-120			2.10	20
Potassium	5.00	5.25	5.22	105	104	80.0-120			0.404	20
Selenium	0.0500	0.0583	0.0557	117	111	80.0-120			4.54	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325229-2 07/12/18 22:46 • (LCSD) R3325229-3 07/12/18 22:50

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Silver	0.0500	0.0535	0.0524	107	105	80.0-120			1.95	20
Sodium	5.00	5.55	5.49	111	110	80.0-120			1.11	20
Thallium	0.0500	0.0530	0.0520	106	104	80.0-120			1.90	20
Vanadium	0.0500	0.0532	0.0521	106	104	80.0-120			2.08	20
Zinc	0.0500	0.0575	0.0567	115	113	80.0-120			1.34	20

L1007119-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1007119-01 07/12/18 22:54 • (MS) R3325229-5 07/12/18 23:03 • (MSD) R3325229-6 07/12/18 23:07

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	U	0.0581	0.0580	116	116	1	75.0-125			0.105	20
Arsenic	0.0500	0.106	0.155	0.154	97.3	96.0	1	75.0-125			0.434	20
Barium	0.0500	1.57	1.61	1.61	70.4	83.1	1	75.0-125	V		0.395	20
Beryllium	0.0500	U	0.0511	0.0511	102	102	1	75.0-125			0.0633	20
Cadmium	0.0500	U	0.0529	0.0523	106	105	1	75.0-125			1.13	20
Calcium	5.00	396	398	401	32.5	90.6	1	75.0-125	V		0.728	20
Chromium	0.0500	0.000541	0.0520	0.0517	103	102	1	75.0-125			0.653	20
Copper	0.0500	0.00249	0.0677	0.0564	130	108	1	75.0-125	J5		18.1	20
Cobalt	0.0500	0.00123	0.0527	0.0525	103	103	1	75.0-125			0.396	20
Potassium	5.00	4.47	9.55	9.58	102	102	1	75.0-125			0.317	20
Lead	0.0500	0.000387	0.0509	0.0516	101	102	1	75.0-125			1.45	20
Magnesium	5.00	127	131	131	73.3	75.2	1	75.0-125	V		0.0708	20
Nickel	0.0500	0.0361	0.0870	0.0855	102	98.9	1	75.0-125			1.74	20
Selenium	0.0500	0.00135	0.0573	0.0592	112	116	1	75.0-125			3.15	20
Silver	0.0500	U	0.0521	0.0524	104	105	1	75.0-125			0.571	20
Sodium	5.00	100	104	104	77.6	63.3	1	75.0-125		V	0.689	20
Thallium	0.0500	U	0.0498	0.0502	99.6	100	1	75.0-125			0.834	20
Vanadium	0.0500	0.000930	0.0525	0.0515	103	101	1	75.0-125			1.89	20
Zinc	0.0500	0.00407	0.0572	0.0553	106	103	1	75.0-125			3.26	20

Method Blank (MB)

(MB) R3325665-3 07/11/18 20:20

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromochloromethane	U		0.000520	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
Carbon disulfide	U		0.000275	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
Dibromomethane	U		0.000346	0.00100
1,2-Dichlorobenzene	U		0.000349	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
trans-1,4-Dichloro-2-butene	U		0.000866	0.00250
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
Ethylbenzene	U		0.000384	0.00100
2-Hexanone	U		0.00382	0.0100
Iodomethane	U		0.00171	0.0100
2-Butanone (MEK)	U		0.00393	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100
Styrene	U		0.000307	0.00100
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100

Method Blank (MB)

(MB) R3325665-3 07/11/18 20:20

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Trichlorofluoromethane	U		0.00120	0.00500
1,2,3-Trichloropropane	U		0.000807	0.00250
Vinyl acetate	U		0.00163	0.0100
Vinyl chloride	U		0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*102*			*80.0-120*
(S) Dibromofluoromethane	*102*			*76.0-123*
(S) a,a,a-Trifluorotoluene	*95.0*			*80.0-120*
(S) 4-Bromofluorobenzene	*106*			*80.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325665-1 07/11/18 19:23 • (LCSD) R3325665-2 07/11/18 19:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.0495	0.0521	39.6	41.6	10.0-160			4.95	23
Acrylonitrile	0.125	0.118	0.106	94.1	84.9	60.0-142			10.2	20
Benzene	0.0250	0.0229	0.0249	91.7	99.5	69.0-123			8.17	20
Bromodichloromethane	0.0250	0.0237	0.0258	94.9	103	76.0-120			8.35	20
Bromochloromethane	0.0250	0.0256	0.0269	102	108	76.0-122			4.90	20
Bromoform	0.0250	0.0249	0.0263	99.7	105	67.0-132			5.14	20
Bromomethane	0.0250	0.0253	0.0279	101	112	18.0-160			9.56	20
Carbon disulfide	0.0250	0.0231	0.0266	92.3	106	55.0-127			14.2	20
Carbon tetrachloride	0.0250	0.0243	0.0270	97.4	108	63.0-122			10.3	20
Chlorobenzene	0.0250	0.0256	0.0271	102	108	79.0-121			5.79	20
Chlorodibromomethane	0.0250	0.0256	0.0272	102	109	75.0-125			5.85	20
Chloroethane	0.0250	0.0215	0.0245	86.0	97.9	47.0-152			12.9	20
Chloroform	0.0250	0.0243	0.0258	97.1	103	72.0-121			6.28	20
Chloromethane	0.0250	0.0207	0.0224	82.7	89.5	48.0-139			7.87	20
Dibromomethane	0.0250	0.0247	0.0263	98.9	105	78.0-120			6.00	20
1,2-Dichlorobenzene	0.0250	0.0240	0.0253	96.2	101	80.0-120			5.02	20
1,4-Dichlorobenzene	0.0250	0.0234	0.0252	93.5	101	77.0-120			7.41	20
trans-1,4-Dichloro-2-butene	0.0250	0.0194	0.0210	77.7	84.1	55.0-134			7.86	20
1,1-Dichloroethane	0.0250	0.0217	0.0235	87.0	94.2	70.0-126			7.94	20
1,2-Dichloroethane	0.0250	0.0241	0.0254	96.4	102	67.0-126			5.31	20
1,1-Dichloroethene	0.0250	0.0250	0.0279	99.8	112	64.0-129			11.1	20
cis-1,2-Dichloroethene	0.0250	0.0241	0.0265	96.5	106	73.0-120			9.42	20
trans-1,2-Dichloroethene	0.0250	0.0234	0.0258	93.6	103	71.0-121			9.56	20
1,2-Dichloropropane	0.0250	0.0219	0.0231	87.4	92.3	75.0-125			5.45	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325665-1 07/11/18 19:23 • (LCSD) R3325665-2 07/11/18 19:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
cis-1,3-Dichloropropene	0.0250	0.0247	0.0258	98.7	103	79.0-123			4.31	20
trans-1,3-Dichloropropene	0.0250	0.0243	0.0255	97.3	102	74.0-127			4.67	20
Ethylbenzene	0.0250	0.0258	0.0274	103	110	77.0-120			6.17	20
2-Hexanone	0.125	0.109	0.106	87.2	84.6	58.0-147			3.06	20
Iodomethane	0.125	0.118	0.142	94.5	114	57.0-140			18.4	20
2-Butanone (MEK)	0.125	0.106	0.0856	85.0	68.5	37.0-158		J3	21.5	20
Methylene Chloride	0.0250	0.0236	0.0244	94.3	97.5	66.0-121			3.32	20
4-Methyl-2-pentanone (MIBK)	0.125	0.119	0.117	95.1	93.6	59.0-143			1.55	20
Styrene	0.0250	0.0280	0.0296	112	118	78.0-124			5.57	20
1,1,1,2-Tetrachloroethane	0.0250	0.0243	0.0255	97.3	102	75.0-122			4.58	20
1,1,2,2-Tetrachloroethane	0.0250	0.0259	0.0269	104	108	71.0-122			3.58	20
Tetrachloroethene	0.0250	0.0249	0.0266	99.8	106	70.0-127			6.38	20
Toluene	0.0250	0.0247	0.0262	98.8	105	77.0-120			5.83	20
1,1,1-Trichloroethane	0.0250	0.0257	0.0283	103	113	68.0-122			9.65	20
1,1,2-Trichloroethane	0.0250	0.0250	0.0263	100	105	78.0-120			4.91	20
Trichloroethene	0.0250	0.0248	0.0272	99.1	109	78.0-120			9.45	20
Trichlorofluoromethane	0.0250	0.0269	0.0306	108	122	56.0-137			12.9	20
1,2,3-Trichloropropane	0.0250	0.0275	0.0285	110	114	72.0-124			3.80	20
Vinyl acetate	0.125	0.0924	0.0929	73.9	74.3	46.0-160			0.465	20
Vinyl chloride	0.0250	0.0216	0.0239	86.6	95.7	64.0-133			10.0	20
Xylenes, Total	0.0750	0.0778	0.0824	104	110	77.0-120			5.74	20
(S) Toluene-d8				*102*	*99.4*	*80.0-120*				
(S) Dibromofluoromethane				*101*	*99.9*	*76.0-123*				
(S) α,α,α-Trifluorotoluene				*95.3*	*95.0*	*80.0-120*				
(S) 4-Bromofluorobenzene				*109*	*108*	*80.0-120*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

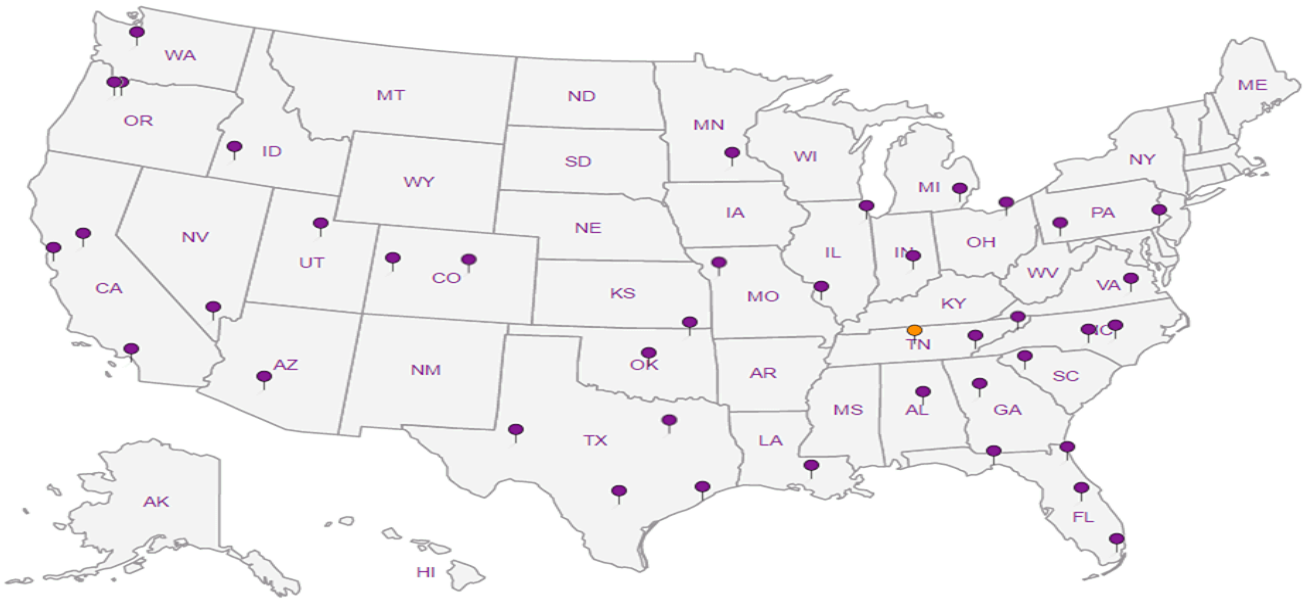
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Company Name/Address:	Billing Information:	Analysis / Container / Preservative	Chain of Custody Page ___ of ___
Molen & Associates, LLC 2090 E. 104th Suite 205 Thornton, CO 80223			ESC LABS YOUR LAB OF CHOICE 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859
Report to: **Mark Molen**	Email To: **molenassociates@gmail.com**		L# 1008194
Project Description: **Broda AI Inert Fill**	City/State Collected:		Tab G077
Phone: **303.450.1600** Fax: **303.452.4515**	Client Project # **10-0133**	Lab Project #	Acctnum: **MOLENTCO**
Collected by (print): EMILY HARGREAVES	Site/Facility ID # **Broda AI**	P.O. #	Template:
Collected by (signature):	*Rush?* (Lab MUST Be Notified) ___ Same Day .....200% ___ Next Day .....100% ___ Two Day .....50% ___ Three Day 25%	Date Results Needed Email? ___No ___Yes FAX? ___No ___Yes	Prelogin: TSR: Cooler: Shipped Via:
Immediately Packed on Ice N ___ Y X			

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Mg, Na, K, Ca+AP1 Metals 250ml HDPE w/HN03 ∠2	CARB, BICARB: ALK 1L HDPE No Pres	Nitrate, Nitrite, Sulfate, Chloride 250ml HDPE ∠4	SPCON, pH 250ml HDPE No Pres	TOC - 250ml Amber w/HCl ∠2	V8260AP1 (3) 40ml Amber No Pres	Rem./Contaminant	Sample # (lab only)
MW-1	Grab	GW		7/10	10:10	8	X	X	X	X	X	X		-01
MW-2	Grab	GW		7/10	10:50	8	X	X	X	X	X	X		-02
~~MW-3~~	~~Grab~~	~~GW~~		~~7/10~~		8	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		
Lake-1	Grab	GW		7/10	11:20	8	X	X	X	X	X	X		-03

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other_____

pH _____ Temp _____

Remarks: MW-1 is unpreserved. 4356933 EOS1

Flow _____ Other _____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐ _____	Condition: (lab use only)
	7/10/18	3:15			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.0 °C Bottles Received: 24	COC Seal Intact: ✓ Y ___N ___NA
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 7/11/18 Time: 0845	pH Checked: NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client: MOLENTIO	SDG#	1008194
Cooler Received/Opened On: 7/11/18	Temperature:	1.0°
Received By: Eric Struck		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?		//	
Preservation Correct / Checked?		✓	

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 24, 2018

Molen & Associates, LLC

Sample Delivery Group:	L1009709
Samples Received:	07/17/2018
Project Number:	10-0133
Description:	Broda's Inert Fill
Site:	BRODA AI
Report To:	Mark Molen 2090 East 104th Avenue Suite #205 Thornton, CO 80223

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

MW-3 L1009709-01 GW

Collected by	Collected date/time	Received date/time
Jim Scott	07/16/18 12:30	07/17/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1140151	1	07/19/18 16:35	07/19/18 16:35	GB
Wet Chemistry by Method 9040C	WG1139730	1	07/18/18 14:44	07/18/18 14:44	AJG
Wet Chemistry by Method 9050A	WG1139020	1	07/17/18 14:36	07/17/18 14:36	TH
Wet Chemistry by Method 9056A	WG1138935	1	07/17/18 19:48	07/17/18 19:48	MCG
Wet Chemistry by Method 9056A	WG1138935	10	07/17/18 20:04	07/17/18 20:04	MCG
Wet Chemistry by Method 9060A	WG1139537	1	07/18/18 14:24	07/18/18 14:24	EEM
Mercury by Method 7470A	WG1139054	1	07/18/18 01:48	07/18/18 09:19	ABL
Metals (ICPMS) by Method 6020	WG1139262	1	07/19/18 07:54	07/19/18 13:25	LAT
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1139170	1	07/17/18 20:35	07/17/18 20:35	DWR

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity,Bicarbonate	168		20.0	1	07/19/2018 16:35	WG1140151
Alkalinity,Carbonate	ND		20.0	1	07/19/2018 16:35	WG1140151

Sample Narrative:
L1009709-01 WG1140151: Endpoint pH 4.5 HEADSPACE

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.20	T8	1	07/18/2018 14:44	WG1139730

Sample Narrative:
L1009709-01 WG1139730: 7.2 at 9.3C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	1050		10.0	1	07/17/2018 14:36	WG1139020

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	130		10.0	10	07/17/2018 20:04	WG1138935
Nitrate as (N)	9.71		0.100	1	07/17/2018 19:48	WG1138935
Nitrite as (N)	ND		0.100	1	07/17/2018 19:48	WG1138935
Sulfate	141		50.0	10	07/17/2018 20:04	WG1138935

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TOC (Total Organic Carbon)	1.53		1.00	1	07/18/2018 14:24	WG1139537

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	07/18/2018 09:19	WG1139054

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00200	1	07/19/2018 13:25	WG1139262
Arsenic	0.00482		0.00200	1	07/19/2018 13:25	WG1139262
Barium	0.255		0.00500	1	07/19/2018 13:25	WG1139262
Beryllium	ND		0.00200	1	07/19/2018 13:25	WG1139262
Cadmium	ND		0.00100	1	07/19/2018 13:25	WG1139262
Calcium	95.0		1.00	1	07/19/2018 13:25	WG1139262
Chromium	0.00988		0.00200	1	07/19/2018 13:25	WG1139262
Copper	0.0187		0.00500	1	07/19/2018 13:25	WG1139262
Cobalt	0.00784		0.00200	1	07/19/2018 13:25	WG1139262
Lead	0.0228		0.00200	1	07/19/2018 13:25	WG1139262
Magnesium	22.6		1.00	1	07/19/2018 13:25	WG1139262
Nickel	0.0132		0.00200	1	07/19/2018 13:25	WG1139262
Potassium	9.45		1.00	1	07/19/2018 13:25	WG1139262

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Selenium	0.00438		0.00200	1	07/19/2018 13:25	WG1139262
Silver	ND		0.00200	1	07/19/2018 13:25	WG1139262
Sodium	107		1.00	1	07/19/2018 13:25	WG1139262
Thallium	ND		0.00200	1	07/19/2018 13:25	WG1139262
Vanadium	0.0187		0.00500	1	07/19/2018 13:25	WG1139262
Zinc	0.0665		0.0250	1	07/19/2018 13:25	WG1139262

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	07/17/2018 20:35	WG1139170
Acrylonitrile	ND		0.0100	1	07/17/2018 20:35	WG1139170
Benzene	ND		0.00100	1	07/17/2018 20:35	WG1139170
Bromochloromethane	ND		0.00100	1	07/17/2018 20:35	WG1139170
Bromodichloromethane	ND		0.00100	1	07/17/2018 20:35	WG1139170
Bromoform	ND		0.00100	1	07/17/2018 20:35	WG1139170
Bromomethane	ND		0.00500	1	07/17/2018 20:35	WG1139170
Carbon disulfide	ND		0.00100	1	07/17/2018 20:35	WG1139170
Carbon tetrachloride	ND		0.00100	1	07/17/2018 20:35	WG1139170
Chlorobenzene	ND		0.00100	1	07/17/2018 20:35	WG1139170
Chlorodibromomethane	ND		0.00100	1	07/17/2018 20:35	WG1139170
Chloroethane	ND		0.00500	1	07/17/2018 20:35	WG1139170
Chloroform	ND		0.00500	1	07/17/2018 20:35	WG1139170
Chloromethane	ND		0.00250	1	07/17/2018 20:35	WG1139170
Dibromomethane	ND		0.00100	1	07/17/2018 20:35	WG1139170
1,2-Dichlorobenzene	ND		0.00100	1	07/17/2018 20:35	WG1139170
1,4-Dichlorobenzene	ND		0.00100	1	07/17/2018 20:35	WG1139170
trans-1,4-Dichloro-2-butene	ND		0.00250	1	07/17/2018 20:35	WG1139170
1,1-Dichloroethane	ND		0.00100	1	07/17/2018 20:35	WG1139170
1,2-Dichloroethane	ND		0.00100	1	07/17/2018 20:35	WG1139170
1,1-Dichloroethene	ND		0.00100	1	07/17/2018 20:35	WG1139170
cis-1,2-Dichloroethene	ND		0.00100	1	07/17/2018 20:35	WG1139170
trans-1,2-Dichloroethene	ND		0.00100	1	07/17/2018 20:35	WG1139170
1,2-Dichloropropane	ND		0.00100	1	07/17/2018 20:35	WG1139170
cis-1,3-Dichloropropene	ND		0.00100	1	07/17/2018 20:35	WG1139170
trans-1,3-Dichloropropene	ND		0.00100	1	07/17/2018 20:35	WG1139170
Ethylbenzene	ND		0.00100	1	07/17/2018 20:35	WG1139170
2-Hexanone	ND		0.0100	1	07/17/2018 20:35	WG1139170
Iodomethane	ND		0.0100	1	07/17/2018 20:35	WG1139170
2-Butanone (MEK)	ND		0.0100	1	07/17/2018 20:35	WG1139170
Methylene Chloride	ND		0.00500	1	07/17/2018 20:35	WG1139170
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	07/17/2018 20:35	WG1139170
Styrene	ND		0.00100	1	07/17/2018 20:35	WG1139170
1,1,1,2-Tetrachloroethane	ND		0.00100	1	07/17/2018 20:35	WG1139170
1,1,2,2-Tetrachloroethane	ND		0.00100	1	07/17/2018 20:35	WG1139170
Tetrachloroethene	ND		0.00100	1	07/17/2018 20:35	WG1139170
Toluene	ND		0.00100	1	07/17/2018 20:35	WG1139170
1,1,1-Trichloroethane	ND		0.00100	1	07/17/2018 20:35	WG1139170
1,1,2-Trichloroethane	ND		0.00100	1	07/17/2018 20:35	WG1139170
Trichloroethene	ND		0.00100	1	07/17/2018 20:35	WG1139170
Trichlorofluoromethane	ND		0.00500	1	07/17/2018 20:35	WG1139170
1,2,3-Trichloropropane	ND		0.00250	1	07/17/2018 20:35	WG1139170
Vinyl acetate	ND		0.0100	1	07/17/2018 20:35	WG1139170
Vinyl chloride	ND		0.00100	1	07/17/2018 20:35	WG1139170
Xylenes, Total	ND		0.00300	1	07/17/2018 20:35	WG1139170
(S) Toluene-d8	*104*		*80.0-120*		*07/17/2018 20:35*	WG1139170

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Dibromofluoromethane	*102*		*76.0-123*		*07/17/2018 20:35*	WG1139170
(S) a,a,a-Trifluorotoluene	*105*		*80.0-120*		*07/17/2018 20:35*	WG1139170
(S) 4-Bromofluorobenzene	*106*		*80.0-120*		*07/17/2018 20:35*	WG1139170

L1009709-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1009709-01 07/19/18 16:35 • (DUP) R3327147-1 07/19/18 16:41

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Alkalinity,Bicarbonate	168	185	1	9.24		20
Alkalinity,Carbonate	ND	0.000	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 HEADSPACE

DUP: Endpoint pH 4.5

L1010174-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1010174-03 07/19/18 19:37 • (DUP) R3327147-4 07/19/18 19:43

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Alkalinity,Bicarbonate	131	131	1	0.0481		20
Alkalinity,Carbonate	ND	0.000	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 HEADSPACE

DUP: Endpoint pH 4.5

L1009709-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1009709-01 07/18/18 14:44 • (DUP) R3326598-3 07/18/18 14:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.20	7.21	1	0.139		1

Sample Narrative:

OS: 7.2 at 9.3C

DUP: 7.21 at 9.4C

L1010058-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1010058-01 07/18/18 14:44 • (DUP) R3326598-4 07/18/18 14:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.58	7.57	1	0.132		1

Sample Narrative:

OS: 7.58 at 18.8C

DUP: 7.57 at 18.7C

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3326598-1 07/18/18 14:44 • (LCSD) R3326598-2 07/18/18 14:44

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	9.97	9.98	99.7	99.8	99.0-101			0.100	1

Sample Narrative:

LCS: 9.97 at 20C

LCSD: 9.98 at 20.2C

Method Blank (MB)

(MB) R3326229-1 07/17/18 14:36

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	umhos/cm		umhos/cm	umhos/cm
Specific Conductance	U		10.0	10.0

L1009701-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1009701-01 07/17/18 14:36 • (DUP) R3326229-4 07/17/18 14:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	1720	1720	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3326229-2 07/17/18 14:36 • (LCSD) R3326229-3 07/17/18 14:36

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	umhos/cm	umhos/cm	umhos/cm	%	%	%			%	%
Specific Conductance	877	869	869	99.1	99.1	85.0-115			0.000	20

Method Blank (MB)

(MB) R3326456-1 07/17/18 07:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.0519	1.00
Nitrate	U		0.0227	0.100
Nitrite	U		0.0277	0.100
Sulfate	U		0.0774	5.00

L1009693-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1009693-01 07/17/18 15:49 • (DUP) R3326456-4 07/17/18 16:05

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	30.1	30.4	1	0.966		15
Nitrate	4.22	4.47	1	5.71		15
Nitrite	ND	0.000	1	0.000		15
Sulfate	15.4	15.4	1	0.115		15

L1009704-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1009704-05 07/17/18 19:18 • (DUP) R3326456-7 07/17/18 19:33

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	17.9	17.9	1	0.0441		15
Nitrate	U	0.000	1	0.000		15
Nitrite	U	0.000	1	0.000		15
Sulfate	12.1	12.1	1	0.483		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3326456-2 07/17/18 08:00 • (LCSD) R3326456-3 07/17/18 08:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	40.0	39.2	39.1	98.1	97.9	80.0-120			0.214	15
Nitrate	8.00	8.29	8.26	104	103	80.0-120			0.312	15
Nitrite	8.00	7.96	7.97	99.6	99.6	80.0-120			0.0703	15
Sulfate	40.0	41.9	41.8	105	104	80.0-120			0.360	15

L1009701-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1009701-01 07/17/18 16:36 • (MS) R3326456-5 07/17/18 16:51 • (MSD) R3326456-6 07/17/18 17:15

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	20.8	68.3	70.0	95.0	98.5	1	80.0-120			2.48	15
Nitrate	5.00	U	4.60	4.80	92.0	96.0	1	80.0-120			4.27	15
Nitrite	5.00	U	4.88	5.06	97.6	101	1	80.0-120			3.70	15
Sulfate	50.0	U	47.8	49.7	95.5	99.5	1	80.0-120			4.02	15

L1009725-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1009725-01 07/17/18 20:19 • (MS) R3326456-8 07/17/18 20:35

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	18.6	67.8	98.5	1	80.0-120	
Nitrate	5.00	0.142	4.98	96.8	1	80.0-120	
Nitrite	5.00	ND	5.06	101	1	80.0-120	
Sulfate	50.0	5.14	56.4	103	1	80.0-120	

Method Blank (MB)

(MB) R3326712-1 07/18/18 08:59

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TOC (Total Organic Carbon)	U		0.102	1.00

L1009899-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1009899-02 07/18/18 14:47 • (DUP) R3326712-3 07/18/18 14:58

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	0.971	0.964	1	0.765	J	20

L1010063-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1010063-02 07/18/18 20:25 • (DUP) R3326712-7 07/18/18 20:36

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	ND	0.897	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3326712-2 07/18/18 09:35 • (LCSD) R3326712-4 07/18/18 15:47

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	75.0	73.9	75.0	98.5	100	85.0-115			1.49	20

L1009985-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1009985-01 07/18/18 16:58 • (MS) R3326712-5 07/18/18 17:13 • (MSD) R3326712-6 07/18/18 17:29

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	50.0	0.382	52.2	52.2	104	104	1	80.0-120			0.0958	20

Method Blank (MB)

(MB) R3326423-1 07/18/18 08:43

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	0.0000589	J	0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3326423-2 07/18/18 08:45 • (LCSD) R3326423-3 07/18/18 08:47

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.00320	0.00273	107	91.0	80.0-120			15.9	20

L1009725-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1009725-01 07/18/18 08:54 • (MS) R3326423-4 07/18/18 08:56 • (MSD) R3326423-5 07/18/18 08:58

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00298	0.00304	99.5	101	1	75.0-125			1.83	20

Method Blank (MB)

(MB) R3326949-1 07/19/18 12:55

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.000250	0.00200
Barium	0.00170	J	0.000360	0.00500
Beryllium	U		0.000120	0.00200
Cadmium	U		0.000160	0.00100
Calcium	0.433	J	0.0460	1.00
Chromium	0.000558	J	0.000540	0.00200
Copper	U		0.000520	0.00500
Cobalt	U		0.000260	0.00200
Lead	U		0.000240	0.00200
Magnesium	U		0.100	1.00
Nickel	U		0.000350	0.00200
Potassium	0.0400	J	0.0370	1.00
Selenium	U		0.000380	0.00200
Silver	U		0.000310	0.00200
Sodium	U		0.110	1.00
Thallium	U		0.000190	0.00200
Vanadium	U		0.000180	0.00500
Zinc	U		0.00256	0.0250

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3326949-2 07/19/18 12:59 • (LCSD) R3326949-3 07/19/18 13:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	0.0515	0.0508	103	102	80.0-120			1.37	20
Arsenic	0.0500	0.0479	0.0481	95.8	96.3	80.0-120			0.524	20
Barium	0.0500	0.0467	0.0458	93.4	91.6	80.0-120			1.94	20
Beryllium	0.0500	0.0483	0.0473	96.7	94.5	80.0-120			2.28	20
Cadmium	0.0500	0.0496	0.0482	99.1	96.4	80.0-120			2.76	20
Calcium	5.00	5.12	4.84	102	96.8	80.0-120			5.68	20
Chromium	0.0500	0.0496	0.0492	99.3	98.4	80.0-120			0.899	20
Copper	0.0500	0.0506	0.0502	101	100	80.0-120			0.964	20
Cobalt	0.0500	0.0509	0.0510	102	102	80.0-120			0.293	20
Lead	0.0500	0.0475	0.0472	95.0	94.4	80.0-120			0.688	20
Magnesium	5.00	4.97	4.91	99.5	98.1	80.0-120			1.34	20
Nickel	0.0500	0.0513	0.0507	103	101	80.0-120			1.07	20
Potassium	5.00	4.76	4.72	95.2	94.4	80.0-120			0.890	20
Selenium	0.0500	0.0519	0.0508	104	102	80.0-120			2.11	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3326949-2 07/19/18 12:59 • (LCSD) R3326949-3 07/19/18 13:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Silver	0.0500	0.0490	0.0483	98.0	96.6	80.0-120			1.43	20
Sodium	5.00	5.03	4.98	101	99.6	80.0-120			1.05	20
Thallium	0.0500	0.0479	0.0475	95.9	95.0	80.0-120			0.939	20
Vanadium	0.0500	0.0488	0.0486	97.5	97.3	80.0-120			0.264	20
Zinc	0.0500	0.0517	0.0490	103	97.9	80.0-120			5.48	20

L1010092-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1010092-02 07/19/18 13:08 • (MS) R3326949-5 07/19/18 13:17 • (MSD) R3326949-6 07/19/18 13:21

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	ND	0.0529	0.0523	106	105	1	75.0-125			1.17	20
Arsenic	0.0500	ND	0.0470	0.0483	94.0	96.7	1	75.0-125			2.77	20
Barium	0.0500	0.0122	0.0582	0.0592	91.9	93.9	1	75.0-125			1.76	20
Beryllium	0.0500	ND	0.0463	0.0472	92.6	94.5	1	75.0-125			1.98	20
Cadmium	0.0500	ND	0.0500	0.0492	100	98.4	1	75.0-125			1.66	20
Calcium	5.00	279	280	280	29.5	25.9	1	75.0-125	V	V	0.0639	20
Chromium	0.0500	ND	0.0477	0.0483	94.1	95.3	1	75.0-125			1.22	20
Copper	0.0500	ND	0.0519	0.0511	95.5	94.0	1	75.0-125			1.42	20
Cobalt	0.0500	ND	0.0491	0.0490	98.2	98.0	1	75.0-125			0.222	20
Potassium	5.00	3.07	7.71	7.67	92.8	92.0	1	75.0-125			0.515	20
Lead	0.0500	ND	0.0470	0.0476	94.1	95.2	1	75.0-125			1.21	20
Magnesium	5.00	119	122	122	66.4	55.8	1	75.0-125	V	V	0.436	20
Nickel	0.0500	ND	0.0492	0.0496	95.6	96.5	1	75.0-125			0.878	20
Selenium	0.0500	0.0754	0.129	0.123	108	94.9	1	75.0-125			5.03	20
Silver	0.0500	ND	0.0483	0.0480	96.7	96.1	1	75.0-125			0.631	20
Sodium	5.00	369	373	374	89.9	104	1	75.0-125			0.186	20
Thallium	0.0500	ND	0.0479	0.0481	95.8	96.1	1	75.0-125			0.322	20
Vanadium	0.0500	ND	0.0485	0.0483	96.3	96.0	1	75.0-125			0.300	20
Zinc	0.0500	ND	0.0481	0.0493	96.3	98.6	1	75.0-125			2.38	20

Method Blank (MB)

(MB) R3326479-3 07/17/18 16:01

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromochloromethane	U		0.000520	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
Carbon disulfide	U		0.000275	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
Dibromomethane	U		0.000346	0.00100
1,2-Dichlorobenzene	U		0.000349	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
trans-1,4-Dichloro-2-butene	U		0.000866	0.00250
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
Ethylbenzene	U		0.000384	0.00100
2-Hexanone	U		0.00382	0.0100
Iodomethane	U		0.00171	0.0100
2-Butanone (MEK)	U		0.00393	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100
Styrene	U		0.000307	0.00100
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100

Method Blank (MB)

(MB) R3326479-3 07/17/18 16:01

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Trichlorofluoromethane	U		0.00120	0.00500
1,2,3-Trichloropropane	U		0.000807	0.00250
Vinyl acetate	U		0.00163	0.0100
Vinyl chloride	U		0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*104*			*80.0-120*
(S) Dibromofluoromethane	*102*			*76.0-123*
(S) a,a,a-Trifluorotoluene	*105*			*80.0-120*
(S) 4-Bromofluorobenzene	*103*			*80.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3326479-1 07/17/18 15:02 • (LCSD) R3326479-2 07/17/18 15:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.120	0.121	96.1	96.5	10.0-160			0.443	23
Acrylonitrile	0.125	0.136	0.132	108	106	60.0-142			2.42	20
Benzene	0.0250	0.0248	0.0238	99.2	95.0	69.0-123			4.34	20
Bromodichloromethane	0.0250	0.0233	0.0224	93.2	89.7	76.0-120			3.85	20
Bromochloromethane	0.0250	0.0262	0.0245	105	98.0	76.0-122			6.60	20
Bromoform	0.0250	0.0252	0.0254	101	102	67.0-132			0.986	20
Bromomethane	0.0250	0.0252	0.0233	101	93.0	18.0-160			8.08	20
Carbon disulfide	0.0250	0.0225	0.0214	90.1	85.4	55.0-127			5.34	20
Carbon tetrachloride	0.0250	0.0230	0.0215	91.9	86.2	63.0-122			6.49	20
Chlorobenzene	0.0250	0.0270	0.0257	108	103	79.0-121			4.88	20
Chlorodibromomethane	0.0250	0.0253	0.0246	101	98.4	75.0-125			2.65	20
Chloroethane	0.0250	0.0223	0.0212	89.2	84.9	47.0-152			4.96	20
Chloroform	0.0250	0.0236	0.0225	94.4	90.0	72.0-121			4.75	20
Chloromethane	0.0250	0.0270	0.0257	108	103	48.0-139			5.19	20
Dibromomethane	0.0250	0.0260	0.0244	104	97.5	78.0-120			6.61	20
1,2-Dichlorobenzene	0.0250	0.0263	0.0257	105	103	80.0-120			2.32	20
1,4-Dichlorobenzene	0.0250	0.0240	0.0239	96.0	95.4	77.0-120			0.650	20
trans-1,4-Dichloro-2-butene	0.0250	0.0229	0.0233	91.6	93.0	55.0-134			1.58	20
1,1-Dichloroethane	0.0250	0.0242	0.0231	96.9	92.4	70.0-126			4.77	20
1,2-Dichloroethane	0.0250	0.0247	0.0239	98.8	95.7	67.0-126			3.20	20
1,1-Dichloroethene	0.0250	0.0230	0.0227	92.1	90.6	64.0-129			1.64	20
cis-1,2-Dichloroethene	0.0250	0.0237	0.0226	94.7	90.6	73.0-120			4.42	20
trans-1,2-Dichloroethene	0.0250	0.0236	0.0218	94.5	87.4	71.0-121			7.79	20
1,2-Dichloropropane	0.0250	0.0259	0.0251	104	100	75.0-125			3.27	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3326479-1 07/17/18 15:02 • (LCSD) R3326479-2 07/17/18 15:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
cis-1,3-Dichloropropene	0.0250	0.0261	0.0250	104	100	79.0-123			4.24	20
trans-1,3-Dichloropropene	0.0250	0.0275	0.0267	110	107	74.0-127			2.94	20
Ethylbenzene	0.0250	0.0260	0.0247	104	98.9	77.0-120			5.05	20
2-Hexanone	0.125	0.143	0.141	114	112	58.0-147			1.62	20
Iodomethane	0.125	0.107	0.118	85.9	94.3	57.0-140			9.25	20
2-Butanone (MEK)	0.125	0.135	0.133	108	106	37.0-158			1.66	20
Methylene Chloride	0.0250	0.0222	0.0212	88.9	84.7	66.0-121			4.82	20
4-Methyl-2-pentanone (MIBK)	0.125	0.136	0.133	109	107	59.0-143			2.24	20
Styrene	0.0250	0.0270	0.0266	108	106	78.0-124			1.46	20
1,1,1,2-Tetrachloroethane	0.0250	0.0251	0.0239	101	95.5	75.0-122			5.24	20
1,1,2,2-Tetrachloroethane	0.0250	0.0242	0.0246	96.8	98.2	71.0-122			1.49	20
Tetrachloroethene	0.0250	0.0261	0.0245	104	98.1	70.0-127			6.28	20
Toluene	0.0250	0.0247	0.0236	98.9	94.6	77.0-120			4.46	20
1,1,1-Trichloroethane	0.0250	0.0236	0.0226	94.5	90.5	68.0-122			4.30	20
1,1,2-Trichloroethane	0.0250	0.0254	0.0240	102	95.9	78.0-120			5.72	20
Trichloroethene	0.0250	0.0256	0.0238	102	95.4	78.0-120			7.00	20
Trichlorofluoromethane	0.0250	0.0246	0.0236	98.3	94.5	56.0-137			3.86	20
1,2,3-Trichloropropane	0.0250	0.0242	0.0252	96.6	101	72.0-124			4.25	20
Vinyl acetate	0.125	0.122	0.106	97.7	84.7	46.0-160			14.3	20
Vinyl chloride	0.0250	0.0248	0.0234	99.2	93.6	64.0-133			5.81	20
Xylenes, Total	0.0750	0.0757	0.0730	101	97.3	77.0-120			3.63	20
(S) Toluene-d8				*105*	*104*	*80.0-120*				
(S) Dibromofluoromethane				*99.2*	*99.2*	*76.0-123*				
(S) α,α,α-Trifluorotoluene				*105*	*104*	*80.0-120*				
(S) 4-Bromofluorobenzene				*102*	*104*	*80.0-120*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

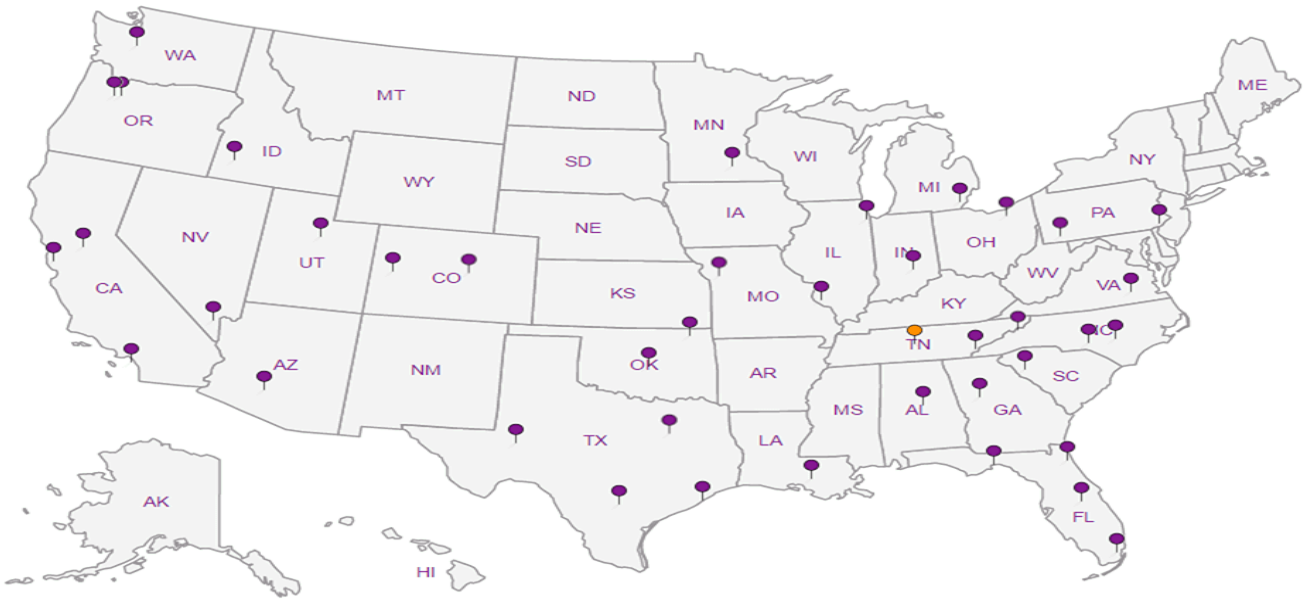
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Chain of Custody
Page___of___

Prepared by: L1009709

ENVIRONMENTAL Science corp

12065 Lebanon Road
Mt. Juliet TN 37122

Phone (615)758-5858
Phone (800) 767-5859

E160

CoCode (lab use only)
MOLENTCO
Template/Prelogin

Shipped Via:

Company Name/Address

Molen & Associates, LLC

2090 East 104th Ave
Suite 205
Thornton, CO 80223

Alternate Billing

Report to:Mark Molen

Email to :mmolen@qwest.net

Project Description: **Broda's Inert Fill**

PHONE: 303.450.1600 FAX: 303.452.4515

Client Project No. 10-0133

Lab Project #

Collected by: Jim Scott

Site/Facility ID# Broda AI

P.O.#

Collected by(signature):

Packed on Ice N___ Y___

Rush? (Lab MUST be Notified)
_____Same Day.....200%
_____Next Day.....100%
_____Two Day.....50%

Date Results Needed

Email?___No___Yes
FAX?___No___Yes

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	RCRA 8 Metals – 500ml HDPE – HNO3	PH- 125ml HDPE – No Pres	VOA 40ml Amber – Specific Cond.	RCRA8 – 2oz soil	PH – 2oz soil	VOA 2oz soil	Nitrate/Nitrite, Sulfate, Chloride 250ml HDPE	Mg, Na, K, Ca, ATI Metals 250ml HDPE 4°C with HNO3 Preserved	Remarks/contaminant	Sample # (lab only)
MW-3	Grab	GW		7/16/18	12:30	8		X	X	X	X		X	X		-01

Analysis/Container/Preservative

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____

pH_____ Temp_____

Flow_____ Other_____

Remarks: ESCDEN 4361 6930 1594

	Date:	Time:	
Relinquisher by:(Signature) Jim Scott	7/16/18	14:05	Received by:(Signature)
Relinquisher by:(Signature)	7/16/18	1730	Received by: (Signature)
Relinquisher by:(Signature)	Date:	Time:	Received for lab by: (Signature) 801

Samples returned via: FedEx__ UPS__Other__

Temp: 10°

Bottles Received: 8 + 1TB

Date: 7/17/18

Time: 8:45

Condition (lab use only)

pH Checked: NCF:

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: NVOLENTCO	SDG#	L1009709
Cooler Received/Opened On: 7/17/18	Temperature:	1.0
Received By: Kevin Turner		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?			
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?		✓	
Preservation Correct / Checked?		✓	

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

October 08, 2018

Molen & Associates, LLC

Sample Delivery Group:	L1030150
Samples Received:	09/29/2018
Project Number:	10-0133
Description:	Broda Al Inert Fill
Site:	BRODA AL
Report To:	Mark Molen 2090 East 104th Avenue Suite #205 Thornton, CO 80233

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

MW-1 L1030150-01 GW

Collected by	Collected date/time	Received date/time
Mark Molen	09/28/18 14:10	09/29/18 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1176556	1	10/07/18 18:02	10/07/18 18:02	GB
Wet Chemistry by Method 9040C	WG1174205	1	10/02/18 08:01	10/02/18 08:01	AMB
Wet Chemistry by Method 9050A	WG1173629	1	09/30/18 11:14	09/30/18 11:14	TH
Wet Chemistry by Method 9056A	WG1173412	1	09/29/18 18:33	09/29/18 18:33	MAJ
Wet Chemistry by Method 9056A	WG1173412	5	09/29/18 18:51	09/29/18 18:51	MAJ
Wet Chemistry by Method 9060A	WG1175012	1	10/03/18 12:22	10/03/18 12:22	SJM
Mercury by Method 7470A	WG1173680	1	10/01/18 07:49	10/02/18 15:50	ABL
Metals (ICPMS) by Method 6020	WG1177056	1	10/07/18 18:44	10/08/18 00:48	LD
Metals (ICPMS) by Method 6020	WG1177056	1	10/07/18 18:44	10/08/18 11:03	LAT
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1173596	1	09/30/18 12:29	09/30/18 12:29	BMB

MW-2 L1030150-02 GW

Collected by	Collected date/time	Received date/time
Mark Molen	09/28/18 15:00	09/29/18 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1176556	1	10/07/18 18:17	10/07/18 18:17	GB
Wet Chemistry by Method 9040C	WG1174205	1	10/02/18 08:01	10/02/18 08:01	AMB
Wet Chemistry by Method 9050A	WG1173630	1	09/30/18 13:46	09/30/18 13:46	TH
Wet Chemistry by Method 9056A	WG1173412	1	09/29/18 19:09	09/29/18 19:09	MAJ
Wet Chemistry by Method 9056A	WG1173412	5	09/29/18 19:28	09/29/18 19:28	MAJ
Wet Chemistry by Method 9060A	WG1175012	1	10/03/18 12:45	10/03/18 12:45	SJM
Mercury by Method 7470A	WG1173680	1	10/01/18 07:49	10/02/18 15:53	ABL
Metals (ICPMS) by Method 6020	WG1177056	1	10/07/18 18:44	10/08/18 00:53	LD
Metals (ICPMS) by Method 6020	WG1177056	1	10/07/18 18:44	10/08/18 11:07	LAT
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1173596	1	09/30/18 12:49	09/30/18 12:49	BMB

MW-3 L1030150-03 GW

Collected by	Collected date/time	Received date/time
Mark Molen	09/28/18 16:00	09/29/18 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1176556	1	10/07/18 18:24	10/07/18 18:24	GB
Wet Chemistry by Method 9040C	WG1174205	1	10/02/18 08:01	10/02/18 08:01	AMB
Wet Chemistry by Method 9050A	WG1173630	1	09/30/18 13:46	09/30/18 13:46	TH
Wet Chemistry by Method 9056A	WG1173412	1	09/29/18 19:46	09/29/18 19:46	MAJ
Wet Chemistry by Method 9056A	WG1173412	5	09/29/18 20:04	09/29/18 20:04	MAJ
Wet Chemistry by Method 9060A	WG1175012	1	10/03/18 12:57	10/03/18 12:57	SJM
Mercury by Method 7470A	WG1173680	1	10/01/18 07:49	10/02/18 15:55	ABL
Metals (ICPMS) by Method 6020	WG1177056	1	10/07/18 18:44	10/08/18 00:57	LD
Metals (ICPMS) by Method 6020	WG1177056	1	10/07/18 18:44	10/08/18 11:12	LAT
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1173596	1	09/30/18 13:09	09/30/18 13:09	BMB

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Olivia Studebaker
Project Manager

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	182		20.0	1	10/07/2018 18:02	WG1176556
Alkalinity,Bicarbonate	182		20.0	1	10/07/2018 18:02	WG1176556
Alkalinity,Carbonate	ND		20.0	1	10/07/2018 18:02	WG1176556

Sample Narrative:

L1030150-01 WG1176556: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.33	T8	1	10/02/2018 08:01	WG1174205

Sample Narrative:

L1030150-01 WG1174205: 7.33 at 11.6C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	1170		10.0	1	09/30/2018 11:14	WG1173629

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	159		5.00	5	09/29/2018 18:51	WG1173412
Nitrate as (N)	8.66		0.100	1	09/29/2018 18:33	WG1173412
Nitrite as (N)	ND		0.100	1	09/29/2018 18:33	WG1173412
Sulfate	125		25.0	5	09/29/2018 18:51	WG1173412

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TOC (Total Organic Carbon)	1.63		1.00	1	10/03/2018 12:22	WG1175012

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/02/2018 15:50	WG1173680

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00200	1	10/08/2018 00:48	WG1177056
Arsenic	0.00461		0.00200	1	10/08/2018 00:48	WG1177056
Barium	0.237		0.00500	1	10/08/2018 00:48	WG1177056
Beryllium	ND		0.00200	1	10/08/2018 00:48	WG1177056
Cadmium	ND		0.00100	1	10/08/2018 00:48	WG1177056
Calcium	86.1		1.00	1	10/08/2018 00:48	WG1177056
Chromium	0.00648		0.00200	1	10/08/2018 00:48	WG1177056
Copper	0.0180		0.00500	1	10/08/2018 00:48	WG1177056
Cobalt	0.00542		0.00200	1	10/08/2018 11:03	WG1177056
Lead	0.0189		0.00200	1	10/08/2018 00:48	WG1177056
Magnesium	29.0		1.00	1	10/08/2018 11:03	WG1177056
Nickel	0.00952		0.00200	1	10/08/2018 11:03	WG1177056

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Potassium	9.57		1.00	1	10/08/2018 00:48	WG1177056
Selenium	0.00290		0.00200	1	10/08/2018 00:48	WG1177056
Silver	ND		0.00200	1	10/08/2018 00:48	WG1177056
Sodium	119		1.00	1	10/08/2018 11:03	WG1177056
Thallium	ND		0.00200	1	10/08/2018 00:48	WG1177056
Vanadium	0.0153		0.00500	1	10/08/2018 00:48	WG1177056
Zinc	0.0898		0.0250	1	10/08/2018 00:48	WG1177056

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	09/30/2018 12:29	WG1173596
Acrylonitrile	ND		0.0100	1	09/30/2018 12:29	WG1173596
Benzene	ND		0.00100	1	09/30/2018 12:29	WG1173596
Bromochloromethane	ND		0.00100	1	09/30/2018 12:29	WG1173596
Bromodichloromethane	ND		0.00100	1	09/30/2018 12:29	WG1173596
Bromoform	ND		0.00100	1	09/30/2018 12:29	WG1173596
Bromomethane	ND		0.00500	1	09/30/2018 12:29	WG1173596
Carbon disulfide	ND		0.00100	1	09/30/2018 12:29	WG1173596
Carbon tetrachloride	ND		0.00100	1	09/30/2018 12:29	WG1173596
Chlorobenzene	ND		0.00100	1	09/30/2018 12:29	WG1173596
Chlorodibromomethane	ND		0.00100	1	09/30/2018 12:29	WG1173596
Chloroethane	ND		0.00500	1	09/30/2018 12:29	WG1173596
Chloroform	ND		0.00500	1	09/30/2018 12:29	WG1173596
Chloromethane	ND		0.00250	1	09/30/2018 12:29	WG1173596
Dibromomethane	ND		0.00100	1	09/30/2018 12:29	WG1173596
1,2-Dichlorobenzene	ND		0.00100	1	09/30/2018 12:29	WG1173596
1,4-Dichlorobenzene	ND		0.00100	1	09/30/2018 12:29	WG1173596
trans-1,4-Dichloro-2-butene	ND		0.00250	1	09/30/2018 12:29	WG1173596
1,1-Dichloroethane	ND		0.00100	1	09/30/2018 12:29	WG1173596
1,2-Dichloroethane	ND		0.00100	1	09/30/2018 12:29	WG1173596
1,1-Dichloroethene	ND		0.00100	1	09/30/2018 12:29	WG1173596
cis-1,2-Dichloroethene	ND		0.00100	1	09/30/2018 12:29	WG1173596
trans-1,2-Dichloroethene	ND		0.00100	1	09/30/2018 12:29	WG1173596
1,2-Dichloropropane	ND		0.00100	1	09/30/2018 12:29	WG1173596
cis-1,3-Dichloropropene	ND		0.00100	1	09/30/2018 12:29	WG1173596
trans-1,3-Dichloropropene	ND		0.00100	1	09/30/2018 12:29	WG1173596
Ethylbenzene	ND		0.00100	1	09/30/2018 12:29	WG1173596
2-Hexanone	ND		0.0100	1	09/30/2018 12:29	WG1173596
Iodomethane	ND		0.0100	1	09/30/2018 12:29	WG1173596
2-Butanone (MEK)	ND		0.0100	1	09/30/2018 12:29	WG1173596
Methylene Chloride	ND		0.00500	1	09/30/2018 12:29	WG1173596
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	09/30/2018 12:29	WG1173596
Styrene	ND		0.00100	1	09/30/2018 12:29	WG1173596
1,1,1,2-Tetrachloroethane	ND		0.00100	1	09/30/2018 12:29	WG1173596
1,1,2,2-Tetrachloroethane	ND		0.00100	1	09/30/2018 12:29	WG1173596
Tetrachloroethene	ND		0.00100	1	09/30/2018 12:29	WG1173596
Toluene	ND		0.00100	1	09/30/2018 12:29	WG1173596
1,1,1-Trichloroethane	ND		0.00100	1	09/30/2018 12:29	WG1173596
1,1,2-Trichloroethane	ND		0.00100	1	09/30/2018 12:29	WG1173596
Trichloroethene	ND		0.00100	1	09/30/2018 12:29	WG1173596
Trichlorofluoromethane	ND		0.00500	1	09/30/2018 12:29	WG1173596
1,2,3-Trichloropropane	ND		0.00250	1	09/30/2018 12:29	WG1173596
Vinyl acetate	ND		0.0100	1	09/30/2018 12:29	WG1173596
Vinyl chloride	ND		0.00100	1	09/30/2018 12:29	WG1173596
Xylenes, Total	ND		0.00300	1	09/30/2018 12:29	WG1173596

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Toluene-d8	*104*		*80.0-120*		*09/30/2018 12:29*	WG1173596
(S) Dibromofluoromethane	*101*		*75.0-120*		*09/30/2018 12:29*	WG1173596
(S) a,a,a-Trifluorotoluene	*97.7*		*80.0-120*		*09/30/2018 12:29*	WG1173596
(S) 4-Bromofluorobenzene	*97.1*		*77.0-126*		*09/30/2018 12:29*	WG1173596

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	151		20.0	1	10/07/2018 18:17	WG1176556
Alkalinity,Bicarbonate	151		20.0	1	10/07/2018 18:17	WG1176556
Alkalinity,Carbonate	ND		20.0	1	10/07/2018 18:17	WG1176556

Sample Narrative:

L1030150-02 WG1176556: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.49	T8	1	10/02/2018 08:01	WG1174205

Sample Narrative:

L1030150-02 WG1174205: 7.49 at 10.3C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	1850		10.0	1	09/30/2018 13:46	WG1173630

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	195		5.00	5	09/29/2018 19:28	WG1173412
Nitrate as (N)	0.413		0.100	1	09/29/2018 19:09	WG1173412
Nitrite as (N)	ND		0.100	1	09/29/2018 19:09	WG1173412
Sulfate	453		25.0	5	09/29/2018 19:28	WG1173412

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TOC (Total Organic Carbon)	3.77		1.00	1	10/03/2018 12:45	WG1175012

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/02/2018 15:53	WG1173680

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00200	1	10/08/2018 00:53	WG1177056
Arsenic	ND		0.00200	1	10/08/2018 00:53	WG1177056
Barium	0.187		0.00500	1	10/08/2018 00:53	WG1177056
Beryllium	ND		0.00200	1	10/08/2018 00:53	WG1177056
Cadmium	ND		0.00100	1	10/08/2018 00:53	WG1177056
Calcium	104		1.00	1	10/08/2018 00:53	WG1177056
Chromium	ND		0.00200	1	10/08/2018 00:53	WG1177056
Copper	ND		0.00500	1	10/08/2018 00:53	WG1177056
Cobalt	0.00250		0.00200	1	10/08/2018 11:07	WG1177056
Lead	0.00256		0.00200	1	10/08/2018 00:53	WG1177056
Magnesium	31.3		1.00	1	10/08/2018 11:07	WG1177056
Nickel	0.00639		0.00200	1	10/08/2018 11:07	WG1177056

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Potassium	12.4		1.00	1	10/08/2018 00:53	WG1177056
Selenium	ND		0.00200	1	10/08/2018 00:53	WG1177056
Silver	ND		0.00200	1	10/08/2018 00:53	WG1177056
Sodium	233		1.00	1	10/08/2018 11:07	WG1177056
Thallium	ND		0.00200	1	10/08/2018 00:53	WG1177056
Vanadium	ND		0.00500	1	10/08/2018 00:53	WG1177056
Zinc	0.0501		0.0250	1	10/08/2018 00:53	WG1177056

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	09/30/2018 12:49	WG1173596
Acrylonitrile	ND		0.0100	1	09/30/2018 12:49	WG1173596
Benzene	ND		0.00100	1	09/30/2018 12:49	WG1173596
Bromochloromethane	ND		0.00100	1	09/30/2018 12:49	WG1173596
Bromodichloromethane	ND		0.00100	1	09/30/2018 12:49	WG1173596
Bromoform	ND		0.00100	1	09/30/2018 12:49	WG1173596
Bromomethane	ND		0.00500	1	09/30/2018 12:49	WG1173596
Carbon disulfide	ND		0.00100	1	09/30/2018 12:49	WG1173596
Carbon tetrachloride	ND		0.00100	1	09/30/2018 12:49	WG1173596
Chlorobenzene	ND		0.00100	1	09/30/2018 12:49	WG1173596
Chlorodibromomethane	ND		0.00100	1	09/30/2018 12:49	WG1173596
Chloroethane	ND		0.00500	1	09/30/2018 12:49	WG1173596
Chloroform	ND		0.00500	1	09/30/2018 12:49	WG1173596
Chloromethane	ND		0.00250	1	09/30/2018 12:49	WG1173596
Dibromomethane	ND		0.00100	1	09/30/2018 12:49	WG1173596
1,2-Dichlorobenzene	ND		0.00100	1	09/30/2018 12:49	WG1173596
1,4-Dichlorobenzene	ND		0.00100	1	09/30/2018 12:49	WG1173596
trans-1,4-Dichloro-2-butene	ND		0.00250	1	09/30/2018 12:49	WG1173596
1,1-Dichloroethane	ND		0.00100	1	09/30/2018 12:49	WG1173596
1,2-Dichloroethane	ND		0.00100	1	09/30/2018 12:49	WG1173596
1,1-Dichloroethene	ND		0.00100	1	09/30/2018 12:49	WG1173596
cis-1,2-Dichloroethene	ND		0.00100	1	09/30/2018 12:49	WG1173596
trans-1,2-Dichloroethene	ND		0.00100	1	09/30/2018 12:49	WG1173596
1,2-Dichloropropane	ND		0.00100	1	09/30/2018 12:49	WG1173596
cis-1,3-Dichloropropene	ND		0.00100	1	09/30/2018 12:49	WG1173596
trans-1,3-Dichloropropene	ND		0.00100	1	09/30/2018 12:49	WG1173596
Ethylbenzene	ND		0.00100	1	09/30/2018 12:49	WG1173596
2-Hexanone	ND		0.0100	1	09/30/2018 12:49	WG1173596
Iodomethane	ND		0.0100	1	09/30/2018 12:49	WG1173596
2-Butanone (MEK)	ND		0.0100	1	09/30/2018 12:49	WG1173596
Methylene Chloride	ND		0.00500	1	09/30/2018 12:49	WG1173596
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	09/30/2018 12:49	WG1173596
Styrene	ND		0.00100	1	09/30/2018 12:49	WG1173596
1,1,1,2-Tetrachloroethane	ND		0.00100	1	09/30/2018 12:49	WG1173596
1,1,2,2-Tetrachloroethane	ND		0.00100	1	09/30/2018 12:49	WG1173596
Tetrachloroethene	ND		0.00100	1	09/30/2018 12:49	WG1173596
Toluene	ND		0.00100	1	09/30/2018 12:49	WG1173596
1,1,1-Trichloroethane	ND		0.00100	1	09/30/2018 12:49	WG1173596
1,1,2-Trichloroethane	ND		0.00100	1	09/30/2018 12:49	WG1173596
Trichloroethene	ND		0.00100	1	09/30/2018 12:49	WG1173596
Trichlorofluoromethane	ND		0.00500	1	09/30/2018 12:49	WG1173596
1,2,3-Trichloropropane	ND		0.00250	1	09/30/2018 12:49	WG1173596
Vinyl acetate	ND		0.0100	1	09/30/2018 12:49	WG1173596
Vinyl chloride	ND		0.00100	1	09/30/2018 12:49	WG1173596
Xylenes, Total	ND		0.00300	1	09/30/2018 12:49	WG1173596

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Toluene-d8	*101*		*80.0-120*		*09/30/2018 12:49*	WG1173596
(S) Dibromofluoromethane	*98.2*		*75.0-120*		*09/30/2018 12:49*	WG1173596
(S) a,a,a-Trifluorotoluene	*99.0*		*80.0-120*		*09/30/2018 12:49*	WG1173596
(S) 4-Bromofluorobenzene	*98.6*		*77.0-126*		*09/30/2018 12:49*	WG1173596

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	186		20.0	1	10/07/2018 18:24	WG1176556
Alkalinity,Bicarbonate	186		20.0	1	10/07/2018 18:24	WG1176556
Alkalinity,Carbonate	ND		20.0	1	10/07/2018 18:24	WG1176556

Sample Narrative:

L1030150-03 WG1176556: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.16	T8	1	10/02/2018 08:01	WG1174205

Sample Narrative:

L1030150-03 WG1174205: 7.16 at 11.9C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	umhos/cm		umhos/cm		date / time	
Specific Conductance	1210		10.0	1	09/30/2018 13:46	WG1173630

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	146		5.00	5	09/29/2018 20:04	WG1173412
Nitrate as (N)	10.8		0.500	5	09/29/2018 20:04	WG1173412
Nitrite as (N)	ND		0.100	1	09/29/2018 19:46	WG1173412
Sulfate	137		25.0	5	09/29/2018 20:04	WG1173412

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
TOC (Total Organic Carbon)	1.89		1.00	1	10/03/2018 12:57	WG1175012

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/02/2018 15:55	WG1173680

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00200	1	10/08/2018 00:57	WG1177056
Arsenic	0.00776		0.00200	1	10/08/2018 00:57	WG1177056
Barium	0.453		0.00500	1	10/08/2018 00:57	WG1177056
Beryllium	ND		0.00200	1	10/08/2018 00:57	WG1177056
Cadmium	ND		0.00100	1	10/08/2018 00:57	WG1177056
Calcium	105		1.00	1	10/08/2018 00:57	WG1177056
Chromium	0.0210		0.00200	1	10/08/2018 00:57	WG1177056
Copper	0.0331		0.00500	1	10/08/2018 00:57	WG1177056
Cobalt	0.0158		0.00200	1	10/08/2018 11:12	WG1177056
Lead	0.0476		0.00200	1	10/08/2018 00:57	WG1177056
Magnesium	27.2		1.00	1	10/08/2018 11:12	WG1177056
Nickel	0.0243		0.00200	1	10/08/2018 11:12	WG1177056

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Potassium	12.4		1.00	1	10/08/2018 00:57	WG1177056
Selenium	0.00438		0.00200	1	10/08/2018 00:57	WG1177056
Silver	ND		0.00200	1	10/08/2018 00:57	WG1177056
Sodium	113		1.00	1	10/08/2018 11:12	WG1177056
Thallium	ND		0.00200	1	10/08/2018 00:57	WG1177056
Vanadium	0.0365		0.00500	1	10/08/2018 00:57	WG1177056
Zinc	0.183		0.0250	1	10/08/2018 00:57	WG1177056

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	09/30/2018 13:09	WG1173596
Acrylonitrile	ND		0.0100	1	09/30/2018 13:09	WG1173596
Benzene	ND		0.00100	1	09/30/2018 13:09	WG1173596
Bromochloromethane	ND		0.00100	1	09/30/2018 13:09	WG1173596
Bromodichloromethane	ND		0.00100	1	09/30/2018 13:09	WG1173596
Bromoform	ND		0.00100	1	09/30/2018 13:09	WG1173596
Bromomethane	ND		0.00500	1	09/30/2018 13:09	WG1173596
Carbon disulfide	ND		0.00100	1	09/30/2018 13:09	WG1173596
Carbon tetrachloride	ND		0.00100	1	09/30/2018 13:09	WG1173596
Chlorobenzene	ND		0.00100	1	09/30/2018 13:09	WG1173596
Chlorodibromomethane	ND		0.00100	1	09/30/2018 13:09	WG1173596
Chloroethane	ND		0.00500	1	09/30/2018 13:09	WG1173596
Chloroform	ND		0.00500	1	09/30/2018 13:09	WG1173596
Chloromethane	ND		0.00250	1	09/30/2018 13:09	WG1173596
Dibromomethane	ND		0.00100	1	09/30/2018 13:09	WG1173596
1,2-Dichlorobenzene	ND		0.00100	1	09/30/2018 13:09	WG1173596
1,4-Dichlorobenzene	ND		0.00100	1	09/30/2018 13:09	WG1173596
trans-1,4-Dichloro-2-butene	ND		0.00250	1	09/30/2018 13:09	WG1173596
1,1-Dichloroethane	ND		0.00100	1	09/30/2018 13:09	WG1173596
1,2-Dichloroethane	ND		0.00100	1	09/30/2018 13:09	WG1173596
1,1-Dichloroethene	ND		0.00100	1	09/30/2018 13:09	WG1173596
cis-1,2-Dichloroethene	ND		0.00100	1	09/30/2018 13:09	WG1173596
trans-1,2-Dichloroethene	ND		0.00100	1	09/30/2018 13:09	WG1173596
1,2-Dichloropropane	ND		0.00100	1	09/30/2018 13:09	WG1173596
cis-1,3-Dichloropropene	ND		0.00100	1	09/30/2018 13:09	WG1173596
trans-1,3-Dichloropropene	ND		0.00100	1	09/30/2018 13:09	WG1173596
Ethylbenzene	ND		0.00100	1	09/30/2018 13:09	WG1173596
2-Hexanone	ND		0.0100	1	09/30/2018 13:09	WG1173596
Iodomethane	ND		0.0100	1	09/30/2018 13:09	WG1173596
2-Butanone (MEK)	ND		0.0100	1	09/30/2018 13:09	WG1173596
Methylene Chloride	ND		0.00500	1	09/30/2018 13:09	WG1173596
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	09/30/2018 13:09	WG1173596
Styrene	ND		0.00100	1	09/30/2018 13:09	WG1173596
1,1,1,2-Tetrachloroethane	ND		0.00100	1	09/30/2018 13:09	WG1173596
1,1,2,2-Tetrachloroethane	ND		0.00100	1	09/30/2018 13:09	WG1173596
Tetrachloroethene	ND		0.00100	1	09/30/2018 13:09	WG1173596
Toluene	ND		0.00100	1	09/30/2018 13:09	WG1173596
1,1,1-Trichloroethane	ND		0.00100	1	09/30/2018 13:09	WG1173596
1,1,2-Trichloroethane	ND		0.00100	1	09/30/2018 13:09	WG1173596
Trichloroethene	ND		0.00100	1	09/30/2018 13:09	WG1173596
Trichlorofluoromethane	ND		0.00500	1	09/30/2018 13:09	WG1173596
1,2,3-Trichloropropane	ND		0.00250	1	09/30/2018 13:09	WG1173596
Vinyl acetate	ND		0.0100	1	09/30/2018 13:09	WG1173596
Vinyl chloride	ND		0.00100	1	09/30/2018 13:09	WG1173596
Xylenes, Total	ND		0.00300	1	09/30/2018 13:09	WG1173596

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Toluene-d8	*104*		*80.0-120*		*09/30/2018 13:09*	WG1173596
(S) Dibromofluoromethane	*100*		*75.0-120*		*09/30/2018 13:09*	WG1173596
(S) a,a,a-Trifluorotoluene	*97.6*		*80.0-120*		*09/30/2018 13:09*	WG1173596
(S) 4-Bromofluorobenzene	*102*		*77.0-126*		*09/30/2018 13:09*	WG1173596

Method Blank (MB)

(MB) R3348563-1 10/07/18 17:54

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Alkalinity	3.76	J	2.71	20.0
Alkalinity,Bicarbonate	3.76	J	2.71	20.0
Alkalinity,Carbonate	U		2.71	20.0

Sample Narrative:

BLANK: Endpoint pH 4.5

L1030150-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1030150-01 10/07/18 18:02 • (DUP) R3348563-2 10/07/18 18:09

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	182	186	1	2.31		20
Alkalinity,Bicarbonate	182	186	1	2.31		20
Alkalinity,Carbonate	ND	0.000	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

L1030339-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1030339-10 10/08/18 12:55 • (DUP) R3348563-5 10/08/18 13:03

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	667	697	1	4.50		20
Alkalinity,Bicarbonate	539	562	1	4.29		20
Alkalinity,Carbonate	128	135	1	5.37		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3348563-3 10/07/18 19:08 • (LCSD) R3348563-4 10/07/18 20:29

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Alkalinity	100	101	103	101	103	85.0-115			1.43	20

Sample Narrative:

LCS: Endpoint pH 4.5

LCSD: Endpoint pH 4.5

L1030115-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1030115-01 10/02/18 08:01 • (DUP) R3346712-3 10/02/18 08:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.23	7.27	1	0.552		1

Sample Narrative:

OS: 7.23 at 18.1C

DUP: 7.27 at 18.2C

L1030179-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1030179-01 10/02/18 08:01 • (DUP) R3346712-4 10/02/18 08:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.63	7.64	1	0.131		1

Sample Narrative:

OS: 7.63 at 16.1C

DUP: 7.64 at 16.3C

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3346712-1 10/02/18 08:01 • (LCSD) R3346712-2 10/02/18 08:01

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	10.0	10.0	100	100	99.0-101			0.100	1

Sample Narrative:

LCS: 10 at 18.4C

LCSD: 10.01 at 18.4C

Method Blank (MB)

(MB) R3346456-1 09/30/18 11:14

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	umhos/cm		umhos/cm	umhos/cm
Specific Conductance	U		10.0	10.0

L1029787-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1029787-03 09/30/18 11:14 • (DUP) R3346456-4 09/30/18 11:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	929	929	1	0.000		20

L1030150-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1030150-01 09/30/18 11:14 • (DUP) R3346456-5 09/30/18 11:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	1170	1170	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3346456-2 09/30/18 11:14 • (LCSD) R3346456-3 09/30/18 11:14

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	umhos/cm	umhos/cm	umhos/cm	%	%	%			%	%
Specific Conductance	1090	1080	1080	99.1	98.9	85.0-115			0.185	20

Method Blank (MB)

(MB) R3346459-1 09/30/18 13:46

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	umhos/cm		umhos/cm	umhos/cm
Specific Conductance	U		10.0	10.0

L1030150-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1030150-02 09/30/18 13:46 • (DUP) R3346459-4 09/30/18 13:46

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	1850	1850	1	0.000		20

L1030339-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1030339-08 09/30/18 13:46 • (DUP) R3346459-5 09/30/18 13:46

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	988	989	1	0.101		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3346459-2 09/30/18 13:46 • (LCSD) R3346459-3 09/30/18 13:46

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	umhos/cm	umhos/cm	umhos/cm	%	%	%			%	%
Specific Conductance	1090	1080	1080	98.9	98.9	85.0-115			0.000	20

Method Blank (MB)

(MB) R3346616-1 09/29/18 07:06

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.0519	1.00
Nitrate	U		0.0227	0.100
Nitrite	U		0.0277	0.100
Sulfate	0.130	J	0.0774	5.00

L1030122-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1030122-01 09/29/18 11:53 • (DUP) R3346616-4 09/29/18 12:12

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	1.55	1.55	1	0.142		15
Nitrate	2.08	2.07	1	0.709		15
Nitrite	ND	0.000	1	0.000		15
Sulfate	32.1	32.2	1	0.310		15

L1030138-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1030138-01 09/29/18 15:31 • (DUP) R3346616-7 09/29/18 15:50

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	9.00	9.00	1	0.0867		15
Nitrate	1.10	1.13	1	1.90		15
Nitrite	ND	0.000	1	0.000		15
Sulfate	43.9	43.9	1	0.0932		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3346616-2 09/29/18 07:24 • (LCSD) R3346616-3 09/29/18 07:43

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	40.0	40.3	40.3	101	101	80.0-120			0.0161	15
Nitrate	8.00	8.15	8.15	102	102	80.0-120			0.0392	15
Nitrite	8.00	8.10	8.11	101	101	80.0-120			0.123	15
Sulfate	40.0	40.5	40.6	101	101	80.0-120			0.306	15

L1030122-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1030122-01 09/29/18 11:53 • (MS) R3346616-5 09/29/18 12:30 • (MSD) R3346616-6 09/29/18 12:48

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	1.55	51.7	51.9	100	101	1	80.0-120			0.344	15
Nitrate	5.00	2.08	7.00	7.02	98.4	98.8	1	80.0-120			0.329	15
Nitrite	5.00	ND	5.13	5.16	103	103	1	80.0-120			0.424	15
Sulfate	50.0	32.1	80.6	80.7	96.9	97.2	1	80.0-120			0.211	15

L1030138-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1030138-01 09/29/18 15:31 • (MS) R3346616-8 09/29/18 16:08

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	9.00	59.0	100	1	80.0-120	
Nitrate	5.00	1.10	6.05	99.0	1	80.0-120	
Nitrite	5.00	ND	5.14	103	1	80.0-120	
Sulfate	50.0	43.9	91.6	95.3	1	80.0-120	

Method Blank (MB)

(MB) R3347486-1 10/03/18 11:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TOC (Total Organic Carbon)	0.142	J	0.102	1.00

L1030150-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1030150-01 10/03/18 12:22 • (DUP) R3347486-3 10/03/18 12:33

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	1.63	1.74	1	6.46		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3347486-2 10/03/18 11:48 • (LCSD) R3347486-4 10/03/18 14:26

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	75.0	74.4	74.0	99.1	98.7	85.0-115			0.458	20

Method Blank (MB)

(MB) R3347045-1 10/02/18 15:36

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3347045-2 10/02/18 15:38 • (LCSD) R3347045-3 10/02/18 15:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.00328	0.00310	109	103	80.0-120			5.62	20

L1030331-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1030331-01 10/02/18 15:43 • (MS) R3347045-4 10/02/18 15:45 • (MSD) R3347045-5 10/02/18 15:48

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.000983	0.00273	0.00276	58.2	59.1	1	75.0-125	J6	J6	1.05	20

Method Blank (MB)

(MB) R3348422-1 10/07/18 21:58

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.000250	0.00200
Barium	U		0.000360	0.00500
Beryllium	U		0.000120	0.00200
Cadmium	U		0.000160	0.00100
Calcium	U		0.0460	1.00
Chromium	U		0.000540	0.00200
Copper	U		0.000520	0.00500
Cobalt	U		0.000260	0.00200
Lead	U		0.000240	0.00200
Nickel	U		0.000350	0.00200
Potassium	U		0.0370	1.00
Selenium	U		0.000380	0.00200
Silver	U		0.000310	0.00200
Thallium	U		0.000190	0.00200
Vanadium	U		0.000180	0.00500
Zinc	U		0.00256	0.0250

Method Blank (MB)

(MB) R3348499-1 10/08/18 09:52

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Magnesium	U		0.100	1.00
Sodium	U		0.110	1.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3348422-2 10/07/18 22:03 • (LCSD) R3348422-3 10/07/18 22:07

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	0.0507	0.0488	101	97.7	80.0-120			3.78	20
Arsenic	0.0500	0.0488	0.0490	97.5	98.0	80.0-120			0.532	20
Barium	0.0500	0.0476	0.0465	95.3	92.9	80.0-120			2.50	20
Beryllium	0.0500	0.0486	0.0495	97.3	98.9	80.0-120			1.67	20
Cadmium	0.0500	0.0505	0.0516	101	103	80.0-120			2.21	20
Calcium	5.00	4.90	4.87	98.0	97.4	80.0-120			0.697	20
Chromium	0.0500	0.0507	0.0504	101	101	80.0-120			0.582	20
Copper	0.0500	0.0495	0.0496	98.9	99.2	80.0-120			0.238	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3348422-2 10/07/18 22:03 • (LCSD) R3348422-3 10/07/18 22:07

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cobalt	0.0500	0.0538	0.0532	108	106	80.0-120			1.20	20
Lead	0.0500	0.0488	0.0483	97.6	96.6	80.0-120			0.933	20
Nickel	0.0500	0.0530	0.0529	106	106	80.0-120			0.309	20
Potassium	5.00	4.68	4.65	93.7	93.0	80.0-120			0.740	20
Selenium	0.0500	0.0498	0.0516	99.6	103	80.0-120			3.60	20
Silver	0.0500	0.0511	0.0502	102	100	80.0-120			1.63	20
Thallium	0.0500	0.0479	0.0486	95.8	97.2	80.0-120			1.46	20
Vanadium	0.0500	0.0490	0.0488	98.0	97.5	80.0-120			0.512	20
Zinc	0.0500	0.0508	0.0504	102	101	80.0-120			0.812	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3348499-2 10/08/18 09:57 • (LCSD) R3348499-3 10/08/18 10:01

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Magnesium	5.00	4.96	5.00	99.3	99.9	80.0-120			0.666	20
Sodium	5.00	4.93	5.00	98.5	100	80.0-120			1.43	20

L1030072-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1030072-14 10/07/18 22:12 • (MS) R3348422-5 10/07/18 22:21 • (MSD) R3348422-6 10/07/18 22:25

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	0.00408	0.0540	0.0536	99.8	99.0	1	75.0-125			0.693	20
Arsenic	0.0500	0.00617	0.0539	0.0547	95.5	97.0	1	75.0-125			1.36	20
Barium	0.0500	0.0136	0.0599	0.0583	92.5	89.4	1	75.0-125			2.68	20
Beryllium	0.0500	ND	0.0474	0.0489	94.9	97.8	1	75.0-125			3.06	20
Cadmium	0.0500	ND	0.0500	0.0516	99.9	103	1	75.0-125			3.18	20
Calcium	5.00	27.1	32.0	31.5	99.6	89.7	1	75.0-125			1.56	20
Chromium	0.0500	0.0119	0.0606	0.0609	97.4	98.0	1	75.0-125			0.520	20
Copper	0.0500	0.0104	0.0583	0.0578	95.8	94.8	1	75.0-125			0.852	20
Cobalt	0.0500	ND	0.0537	0.0540	104	105	1	75.0-125			0.554	20
Potassium	5.00	3.41	7.99	8.05	91.8	92.9	1	75.0-125			0.709	20
Lead	0.0500	ND	0.0485	0.0486	96.9	97.3	1	75.0-125			0.384	20
Nickel	0.0500	0.00215	0.0539	0.0539	104	104	1	75.0-125			0.00137	20
Selenium	0.0500	ND	0.0499	0.0508	97.4	99.0	1	75.0-125			1.62	20
Silver	0.0500	ND	0.0505	0.0502	101	100	1	75.0-125			0.724	20
Thallium	0.0500	ND	0.0478	0.0486	95.7	97.2	1	75.0-125			1.59	20
Vanadium	0.0500	0.00924	0.0567	0.0582	94.9	97.9	1	75.0-125			2.68	20

L1030072-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1030072-14 10/07/18 22:12 • (MS) R3348422-5 10/07/18 22:21 • (MSD) R3348422-6 10/07/18 22:25

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Zinc	0.0500	ND	0.0650	0.0626	101	96.1	1	75.0-125			3.76	20

L1030072-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1030072-14 10/08/18 10:06 • (MS) R3348499-5 10/08/18 10:15 • (MSD) R3348499-6 10/08/18 10:19

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Magnesium	5.00	2.42	7.33	7.44	98.2	100	1	75.0-125			1.43	20
Sodium	5.00	21.7	26.2	26.6	89.9	97.2	1	75.0-125			1.39	20

Method Blank (MB)

(MB) R3347424-2 09/30/18 06:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromochloromethane	U		0.000520	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
Carbon disulfide	U		0.000275	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
Dibromomethane	U		0.000346	0.00100
1,2-Dichlorobenzene	U		0.000349	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
trans-1,4-Dichloro-2-butene	U		0.000866	0.00250
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	0.00101		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
Ethylbenzene	U		0.000384	0.00100
2-Hexanone	U		0.00382	0.0100
Iodomethane	U		0.00171	0.0100
2-Butanone (MEK)	U		0.00393	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100
Styrene	U		0.000307	0.00100
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	0.000458	J	0.000398	0.00100

Method Blank (MB)

(MB) R3347424-2 09/30/18 06:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Trichlorofluoromethane	U		0.00120	0.00500
1,2,3-Trichloropropane	U		0.000807	0.00250
Vinyl acetate	U		0.00163	0.0100
Vinyl chloride	0.000496	J	0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*102*			*80.0-120*
(S) Dibromofluoromethane	*101*			*75.0-120*
(S) a,a,a-Trifluorotoluene	*100*			*80.0-120*
(S) 4-Bromofluorobenzene	*103*			*77.0-126*

Laboratory Control Sample (LCS)

(LCS) R3347424-1 09/30/18 06:13

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	0.125	0.0941	75.3	19.0-160	
Acrylonitrile	0.125	0.120	96.1	55.0-149	
Benzene	0.0250	0.0264	106	70.0-123	
Bromodichloromethane	0.0250	0.0227	90.7	75.0-120	
Bromochloromethane	0.0250	0.0260	104	76.0-122	
Bromoform	0.0250	0.0236	94.2	68.0-132	
Bromomethane	0.0250	0.0281	113	10.0-160	
Carbon disulfide	0.0250	0.0261	104	61.0-128	
Carbon tetrachloride	0.0250	0.0242	96.9	68.0-126	
Chlorobenzene	0.0250	0.0250	100	80.0-121	
Chlorodibromomethane	0.0250	0.0237	94.9	77.0-125	
Chloroethane	0.0250	0.0281	112	47.0-150	
Chloroform	0.0250	0.0256	103	73.0-120	
Chloromethane	0.0250	0.0258	103	41.0-142	
Dibromomethane	0.0250	0.0265	106	80.0-120	
1,2-Dichlorobenzene	0.0250	0.0264	106	79.0-121	
1,4-Dichlorobenzene	0.0250	0.0253	101	79.0-120	
trans-1,4-Dichloro-2-butene	0.0250	0.0200	80.1	33.0-144	
1,1-Dichloroethane	0.0250	0.0261	104	70.0-126	
1,2-Dichloroethane	0.0250	0.0254	101	70.0-128	
1,1-Dichloroethene	0.0250	0.0267	107	71.0-124	
cis-1,2-Dichloroethene	0.0250	0.0272	109	73.0-120	
trans-1,2-Dichloroethene	0.0250	0.0259	104	73.0-120	
1,2-Dichloropropane	0.0250	0.0251	101	77.0-125	

Laboratory Control Sample (LCS)

(LCS) R3347424-1 09/30/18 06:13

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
cis-1,3-Dichloropropene	0.0250	0.0239	95.8	80.0-123	
trans-1,3-Dichloropropene	0.0250	0.0234	93.8	78.0-124	
Ethylbenzene	0.0250	0.0254	101	79.0-123	
2-Hexanone	0.125	0.118	94.5	67.0-149	
Iodomethane	0.125	0.121	96.9	33.0-147	
2-Butanone (MEK)	0.125	0.115	92.0	44.0-160	
Methylene Chloride	0.0250	0.0237	95.0	67.0-120	
4-Methyl-2-pentanone (MIBK)	0.125	0.114	91.4	68.0-142	
Styrene	0.0250	0.0256	103	73.0-130	
1,1,1,2-Tetrachloroethane	0.0250	0.0228	91.4	75.0-125	
1,1,2,2-Tetrachloroethane	0.0250	0.0235	93.9	65.0-130	
Tetrachloroethene	0.0250	0.0235	94.1	72.0-132	
Toluene	0.0250	0.0242	97.0	79.0-120	
1,1,1-Trichloroethane	0.0250	0.0272	109	73.0-124	
1,1,2-Trichloroethane	0.0250	0.0244	97.8	80.0-120	
Trichloroethene	0.0250	0.0275	110	78.0-124	
Trichlorofluoromethane	0.0250	0.0261	104	59.0-147	
1,2,3-Trichloropropane	0.0250	0.0256	103	73.0-130	
Vinyl acetate	0.125	0.0632	50.5	11.0-160	
Vinyl chloride	0.0250	0.0291	116	67.0-131	
Xylenes, Total	0.0750	0.0747	99.6	79.0-123	
(S) Toluene-d8			*97.3*	*80.0-120*	
(S) Dibromofluoromethane			*101*	*75.0-120*	
(S) a,a,a-Trifluorotoluene			*98.8*	*80.0-120*	
(S) 4-Bromofluorobenzene			*99.8*	*77.0-126*	

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

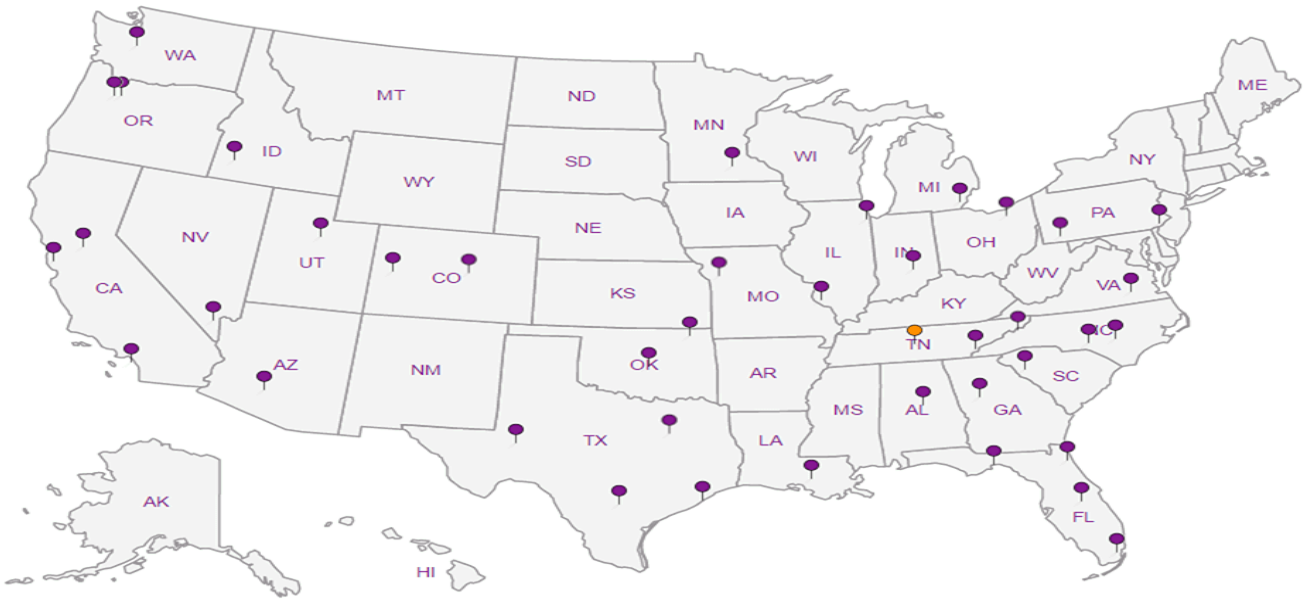
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Molen & Associates, LLC

2090 E. 104th Suite 205
Thornton, CO 80223

Billing Information:

Report to: **Mark Molen**

Email To: **molenassociates@gmail.com**

Project Description: **Broda AI Inert Fill**

City/State Collected:

Phone: **303-450-1600**
Fax: **303-452-4515**

Client Project # **10-0133**

Lab Project #

Collected by (print): **MARK MOLEN**

Site/Facility ID # **Broda AI**

P.O. #

Collected by (signature): Mark Molen

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L # L1030150

B170

Acctnum: **MOLENTCO**

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	Mg,Na,K,Ca+AP1 Metals - 250ml HDPE w/HNO3	CARB, BICARB: ALK - 250ml HDPE No Pres	N02N03, S04, Cl - 250ml HDPE No Pres	SPCON, pH - 250ml HDPE No Pres	TOC - 250ml Amber w/HCl	V8260AP1 (3) 40ml Amber w/HCl	Remarks	Sample # (lab only)
								2				2			
MW-1	Grab	GW		9/28/18	1410	8		X	X	X	X	X	X		-01
MW-2	Grab	GW		↓	1500	8		X	X	X	X	X	X		-02
MW-3	Grab	GW		↓	1600	8		X	X	X	X	X	X		-03

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Unpreserved VOC's

RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier __ _____

Tracking # 4492 6278 6853

Sample Receipt Checklist
COC Seal Present/Intact: __NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Mark Molen	9/28/18	1800	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Bk Faux

Trip Blank Received: Yes (No) HCL / MeoH TBR

Temp: 1.0+.3=1.3 °C Bottles Received: 24

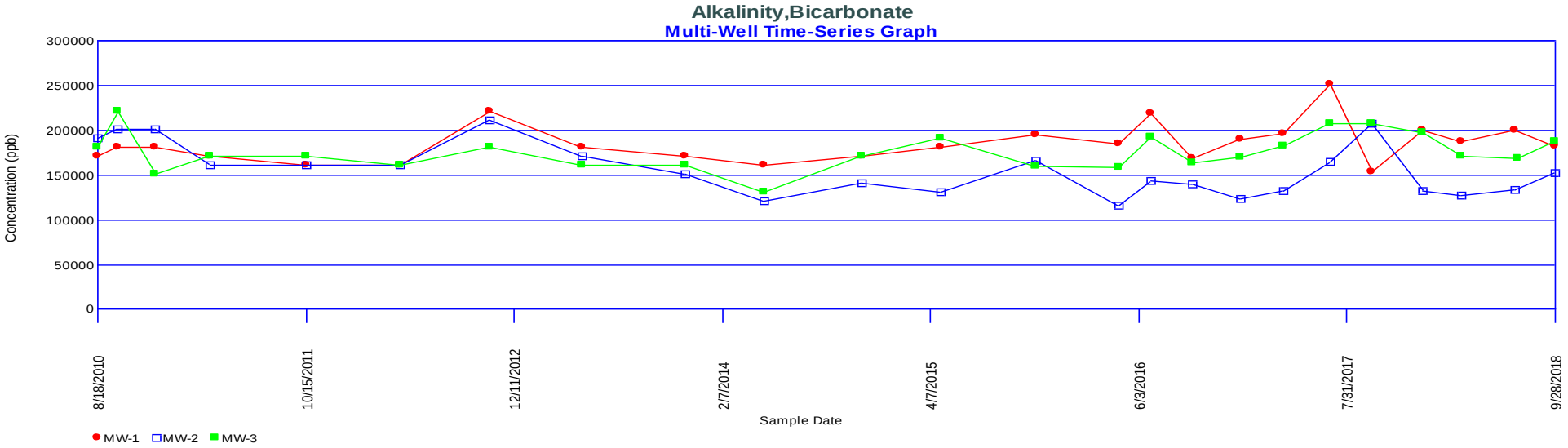
Date: 9/29/18 Time: 0900

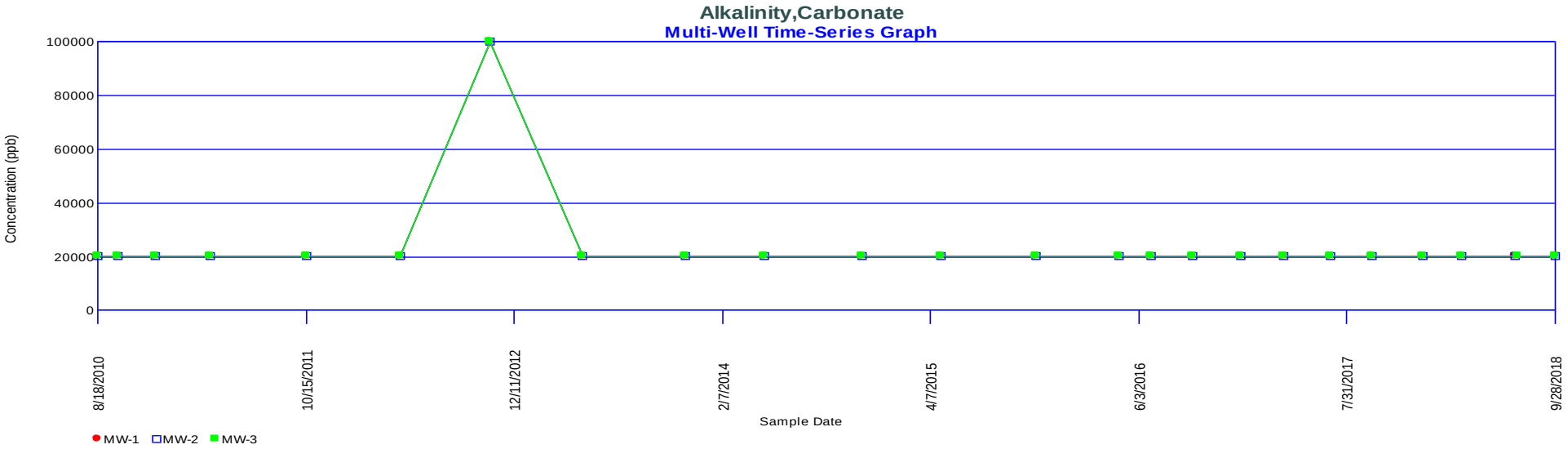
If preservation required by Login: Date/Time

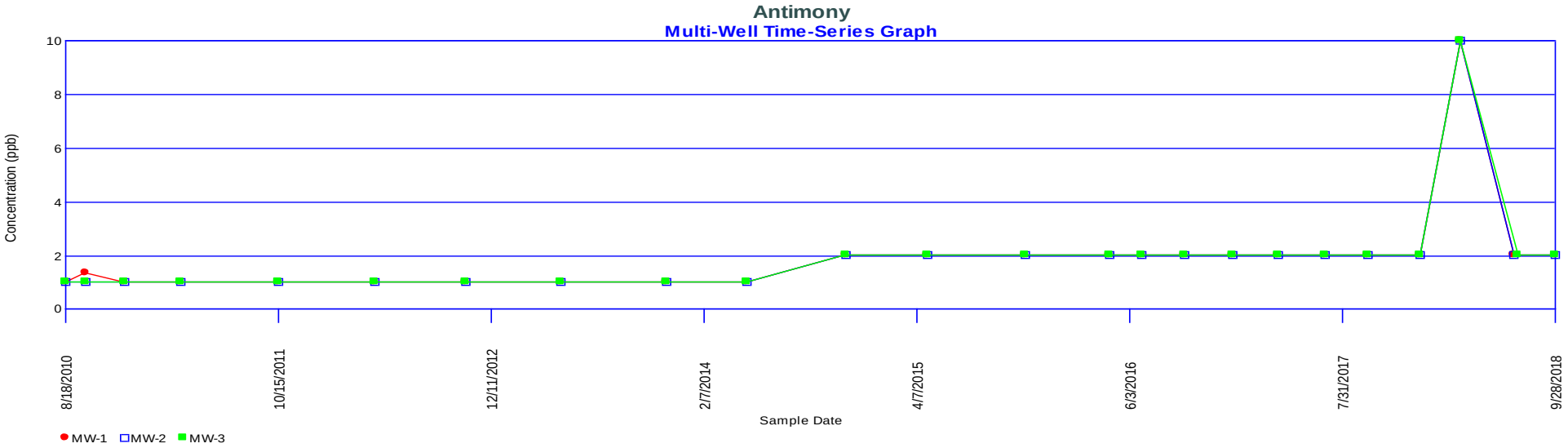
Hold:

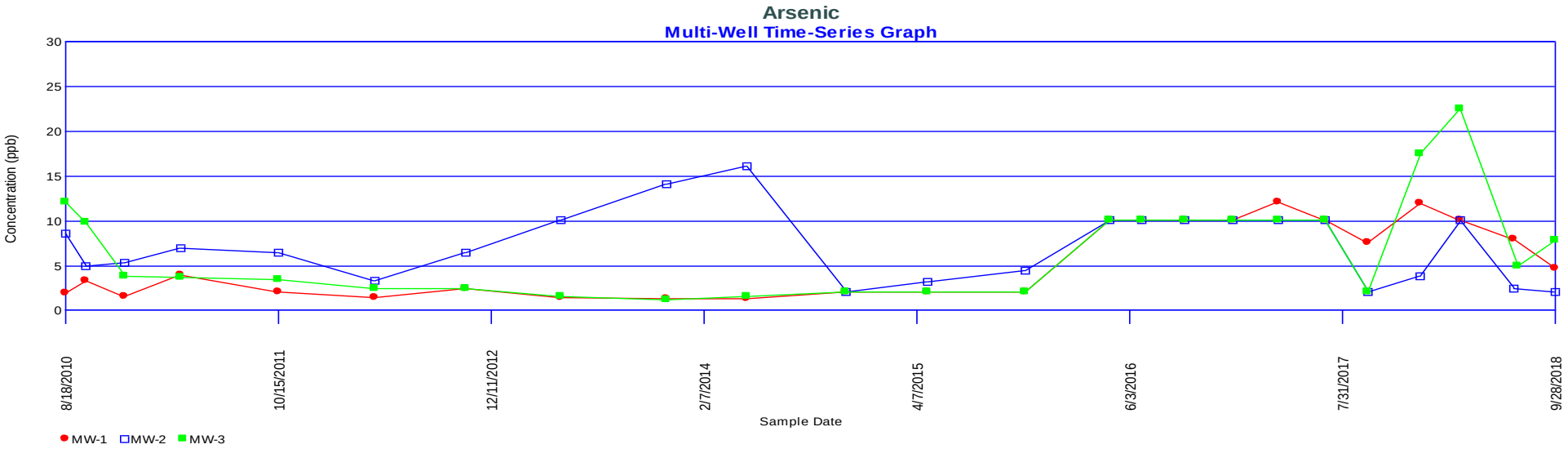
Condition: NCF / OK

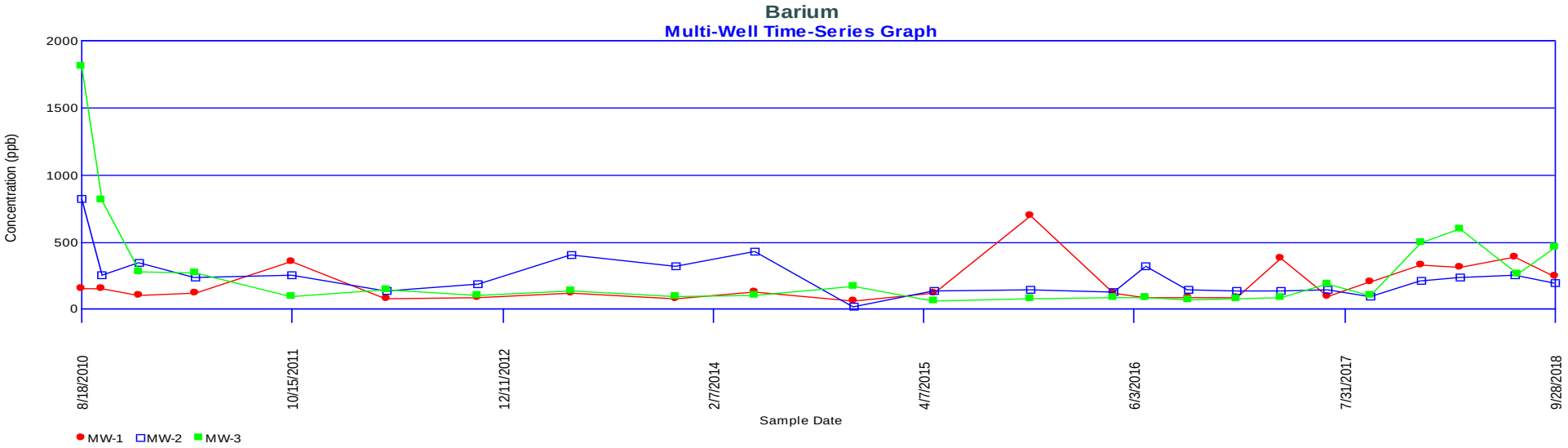
Appendix IV
Time Series Charts

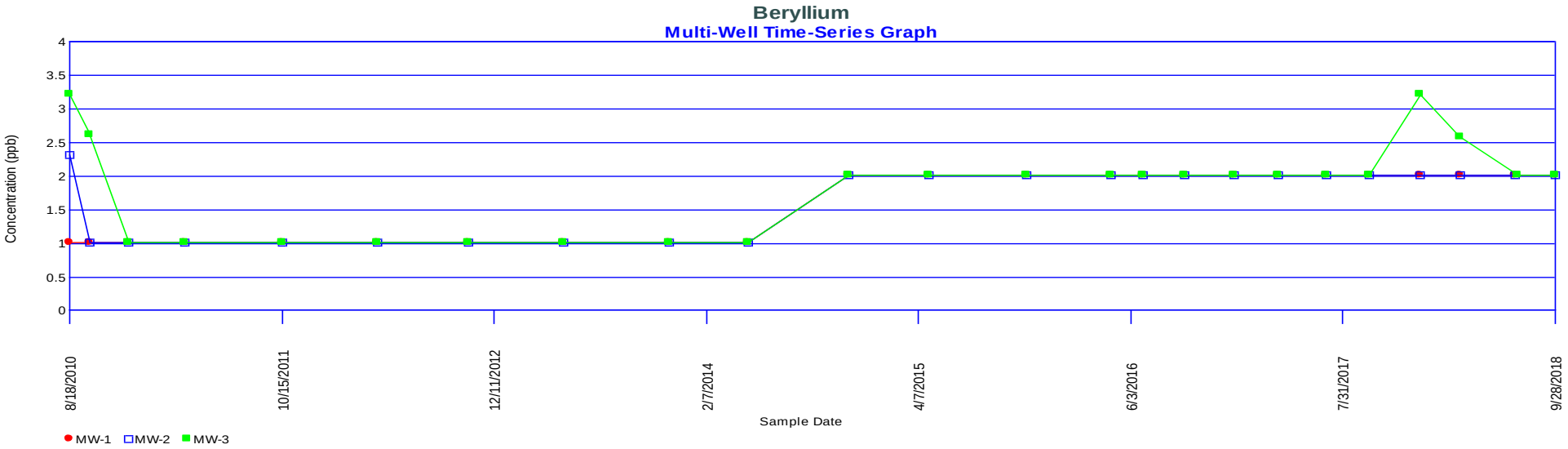

Alkalinity,Bicarbonate
Multi-Well Time-Series Graph
Concentration (ppb)
300000
250000
200000
150000
100000
50000
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

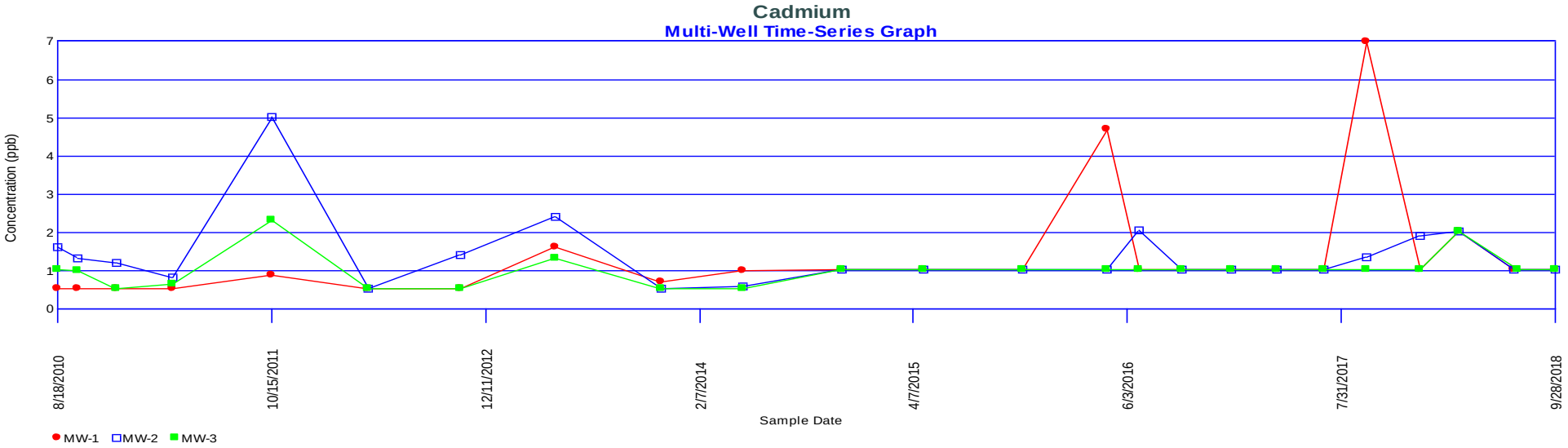

Alkalinity,Carbonate
Multi-Well Time-Series Graph
Concentration (ppb)
100000
80000
60000
40000
20000
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

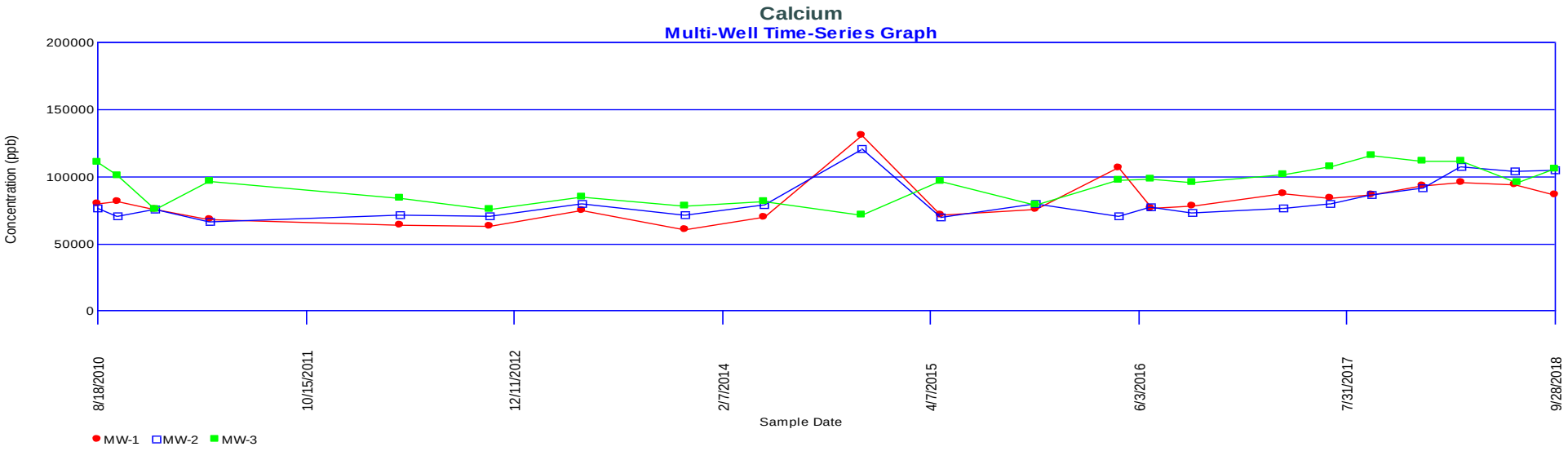

Antimony
Multi-Well Time-Series Graph
Concentration (ppb)
10
8
6
4
2
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

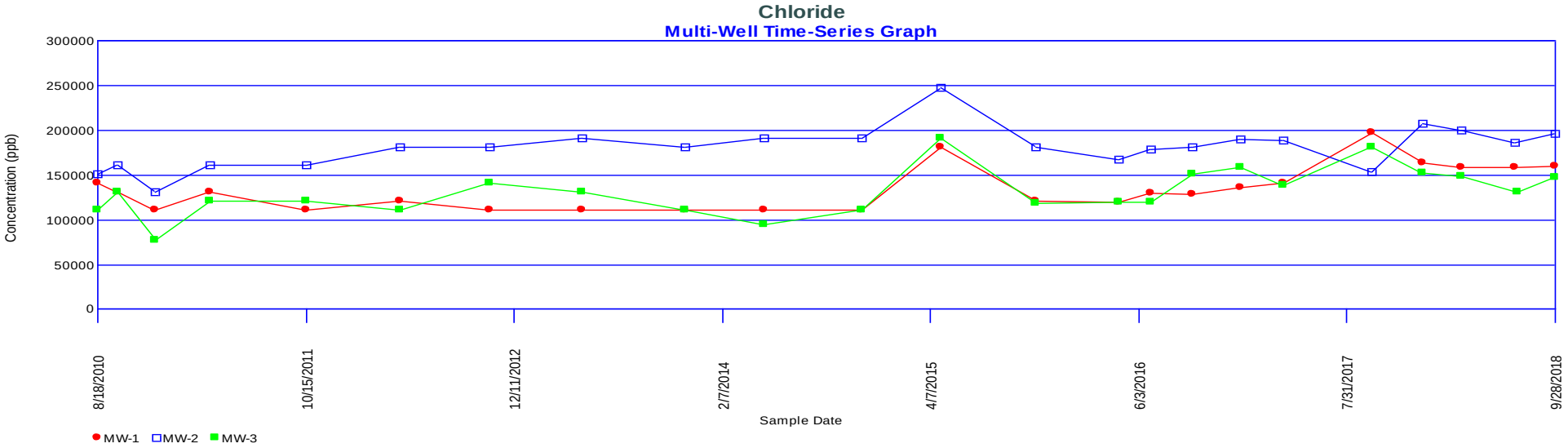

Arsenic
Multi-Well Time-Series Graph
Concentration (ppb)
30
25
20
15
10
5
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

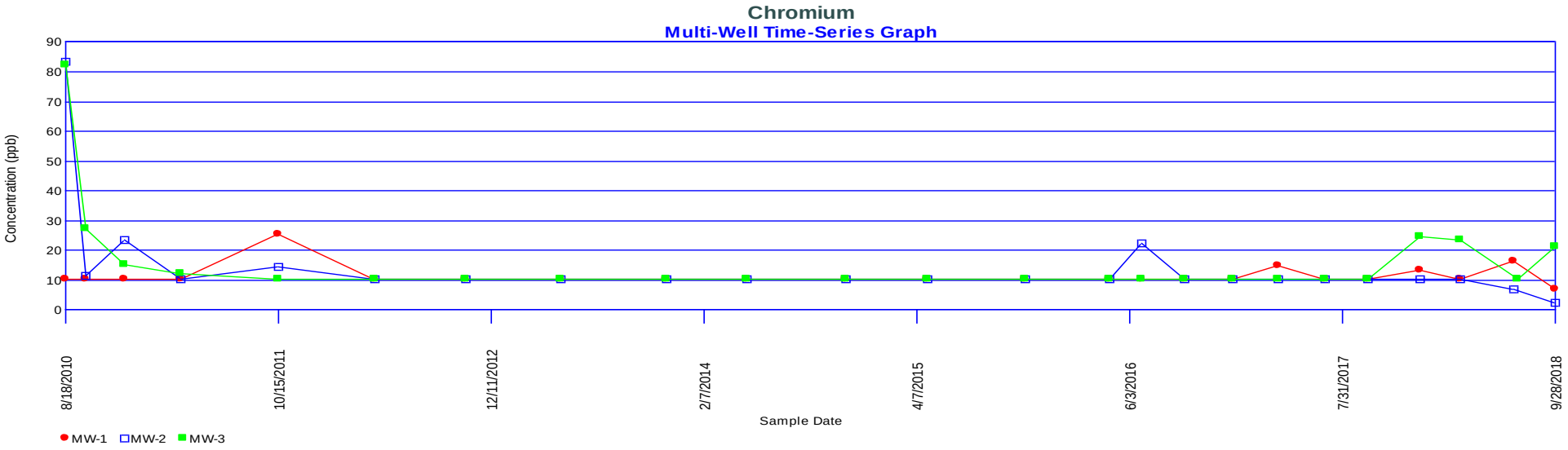

Barium
Multi-Well Time-Series Graph
Concentration (ppb)
2000
1500
1000
500
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

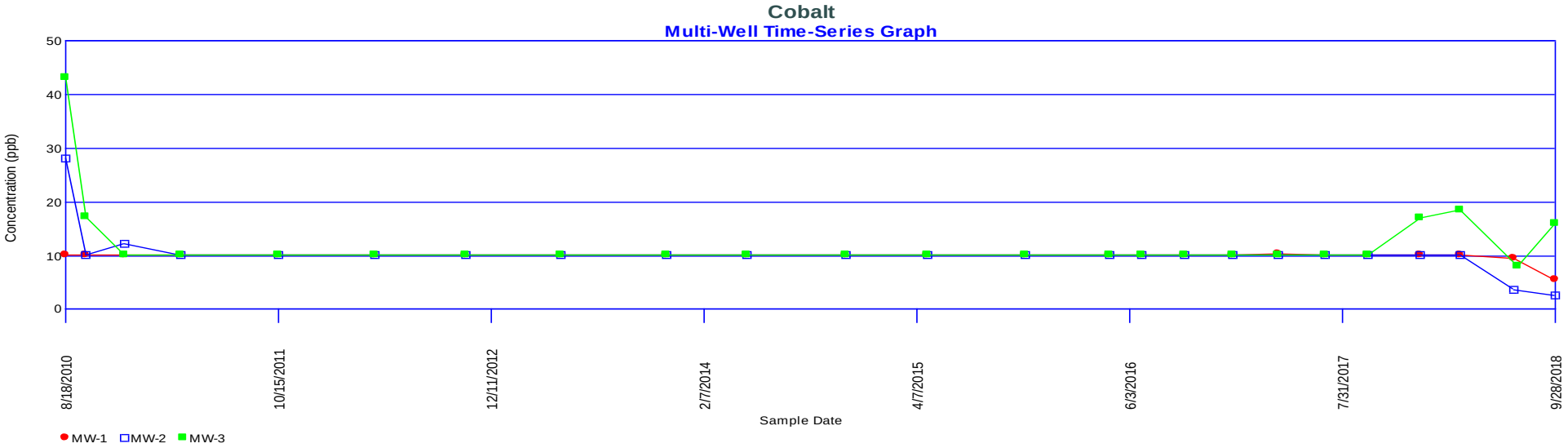

Beryllium
Multi-Well Time-Series Graph
Concentration (ppb)
4
3.5
3
2.5
2
1.5
1
0.5
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

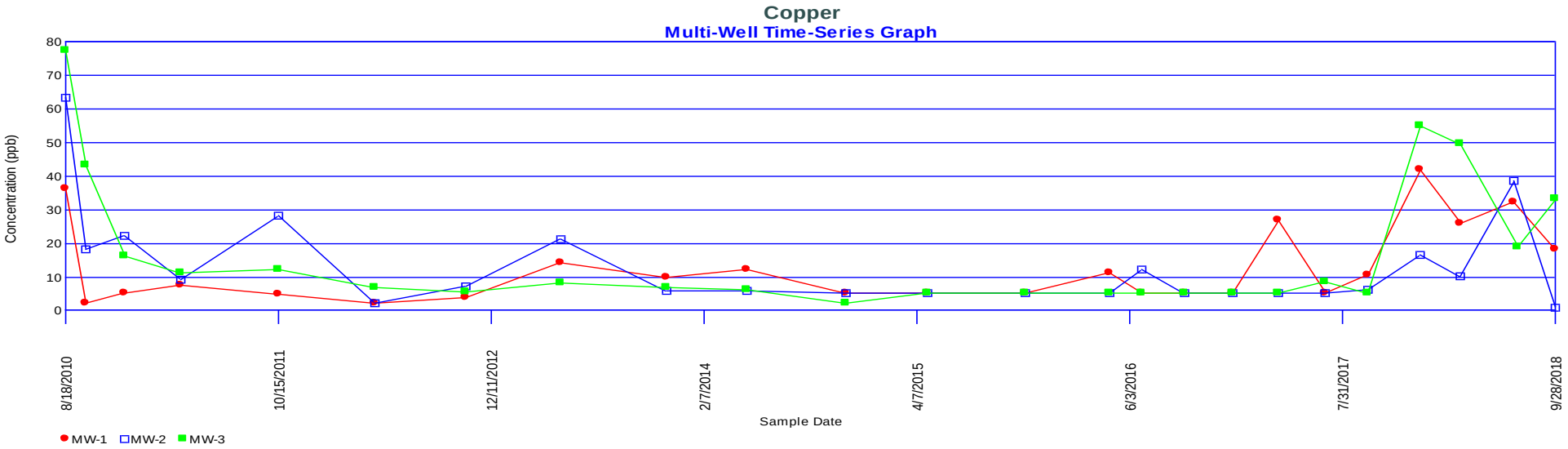

Cadmium
Multi-Well Time-Series Graph
Concentration (ppb)
0
1
2
3
4
5
6
7
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

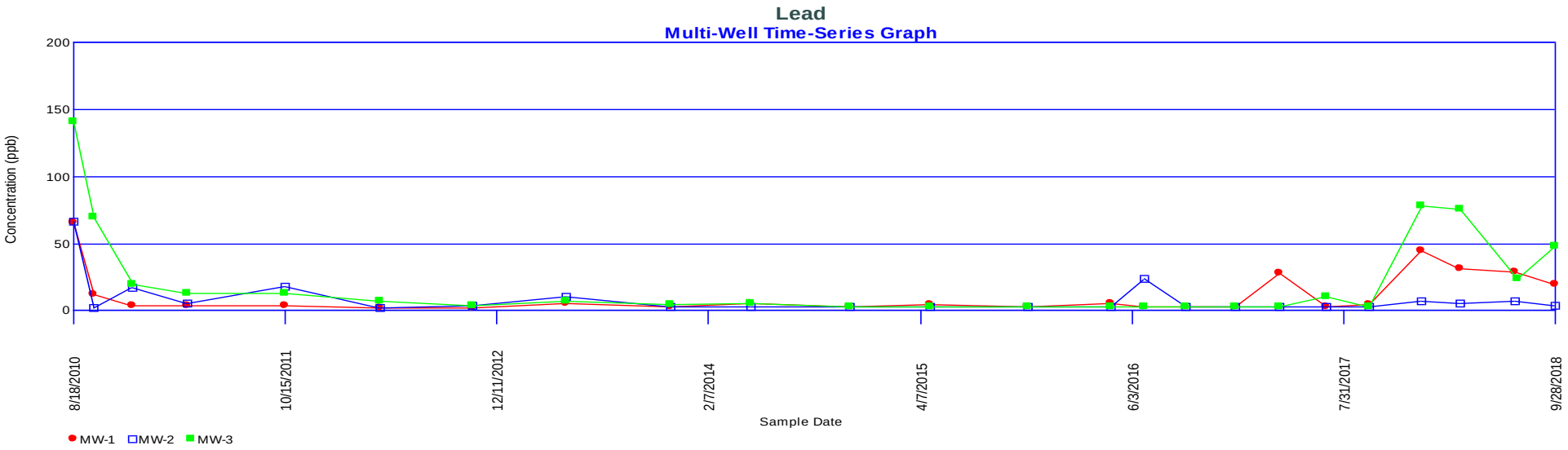

Calcium
Multi-Well Time-Series Graph
Concentration (ppb)
0
50000
100000
150000
200000
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

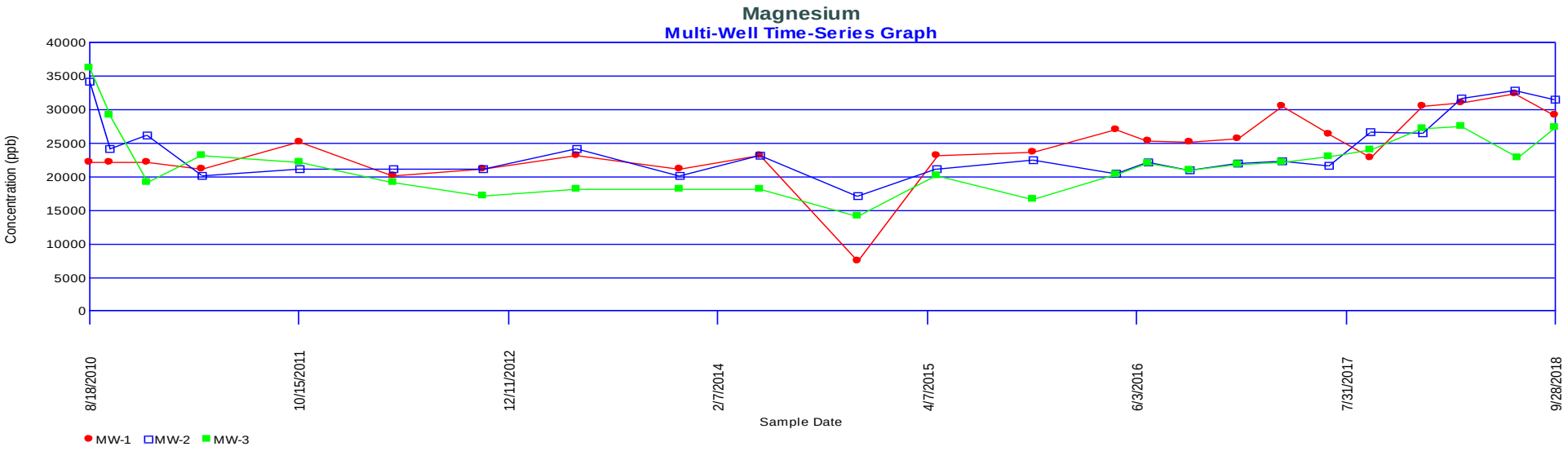

Chloride
Multi-Well Time-Series Graph
Concentration (ppb)
300000
250000
200000
150000
100000
50000
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

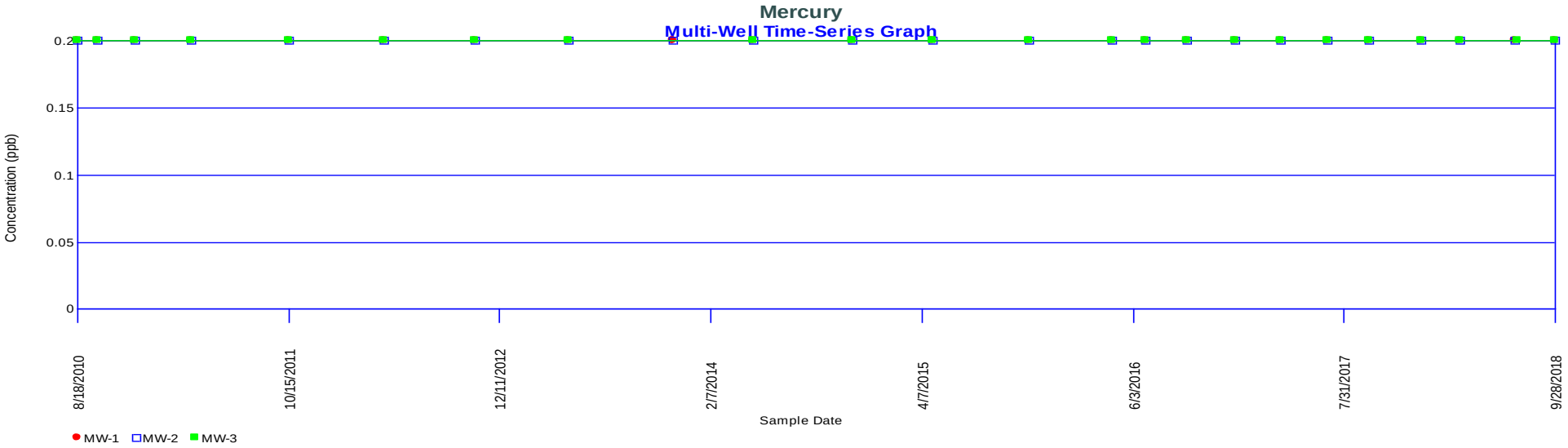

Chromium
Multi-Well Time-Series Graph
Concentration (ppb)
90
80
70
60
50
40
30
20
10
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

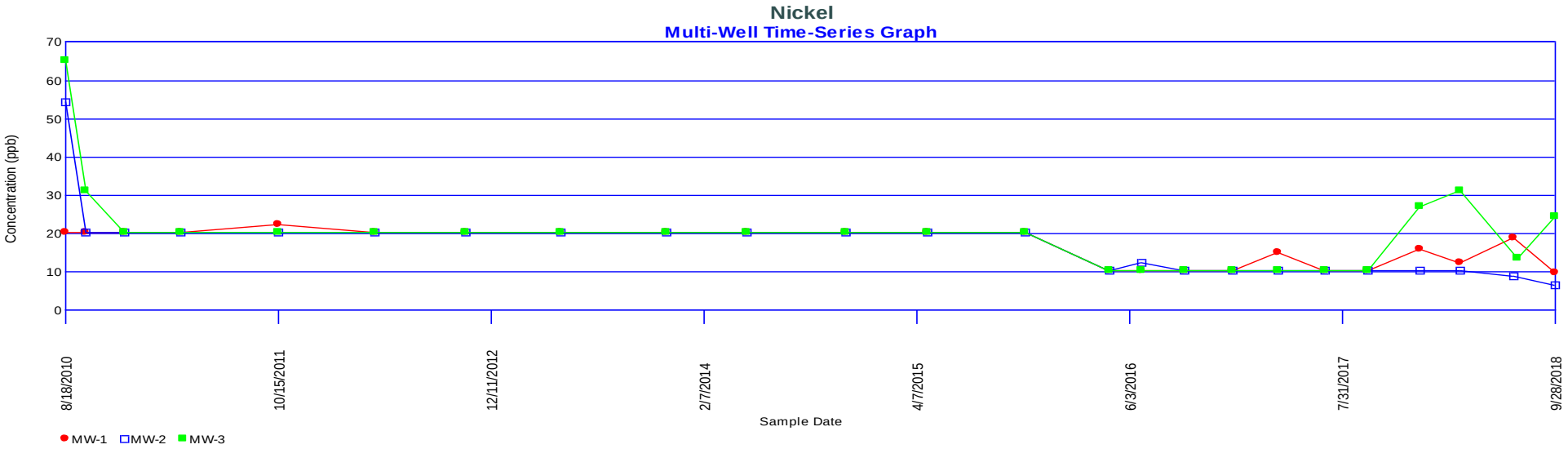

Cobalt
Multi-Well Time-Series Graph
Concentration (ppb)
50
40
30
20
10
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

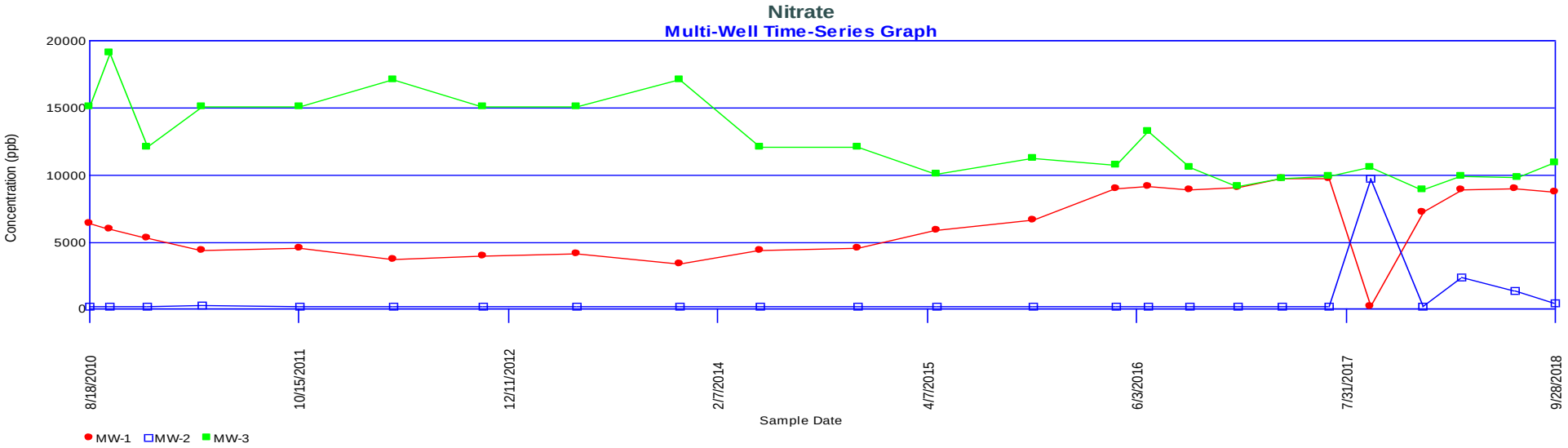

Copper
Multi-Well Time-Series Graph
Concentration (ppb)
80
70
60
50
40
30
20
10
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

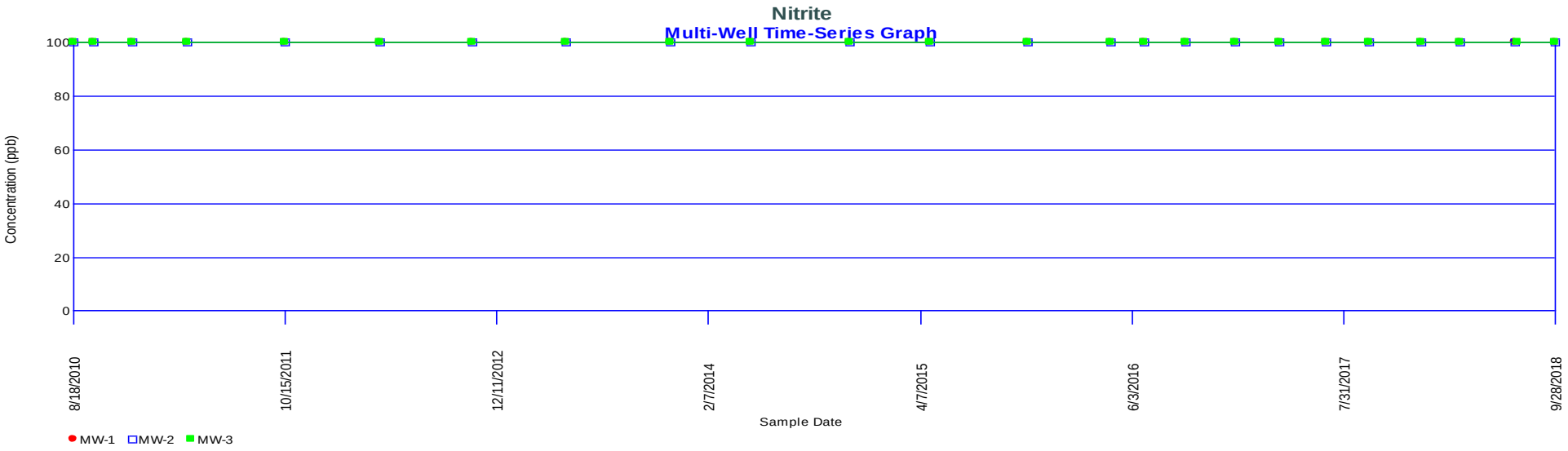

Lead
Multi-Well Time-Series Graph
Concentration (ppb)
200
150
100
50
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

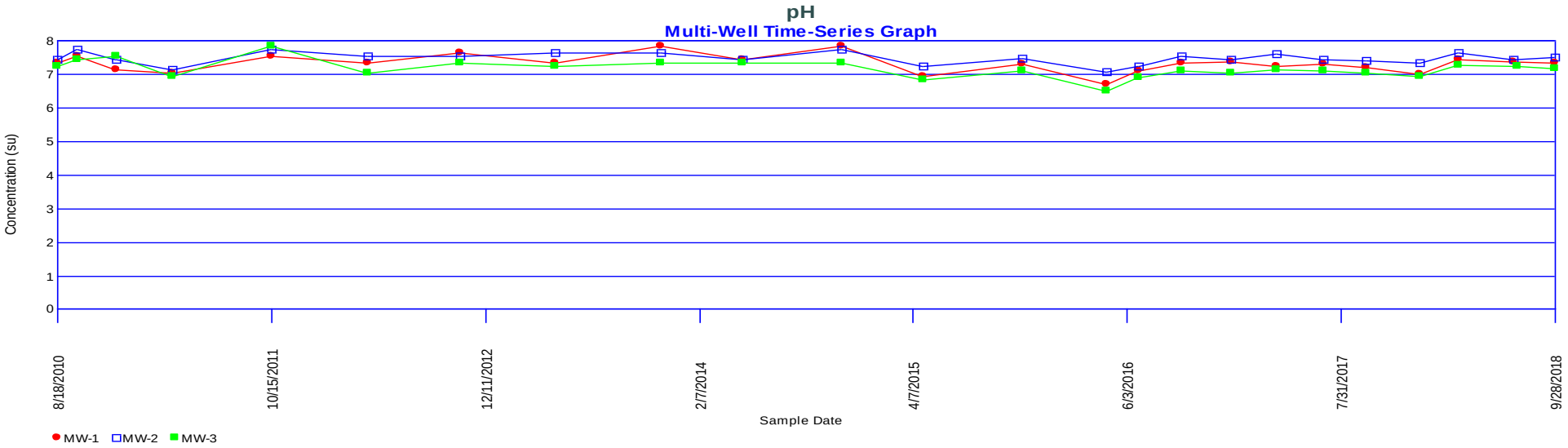

Magnesium
Multi-Well Time-Series Graph
Concentration (ppb)
40000
35000
30000
25000
20000
15000
10000
5000
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

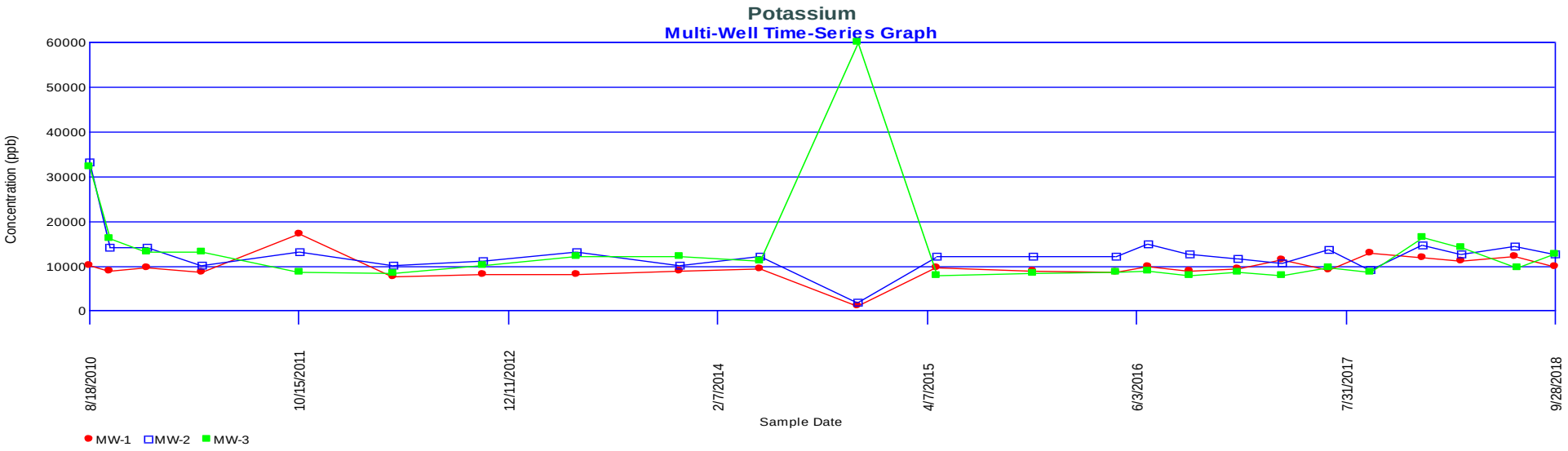

Mercury
Multi-Well Time-Series Graph
Concentration (ppb)
0.2
0.15
0.1
0.05
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

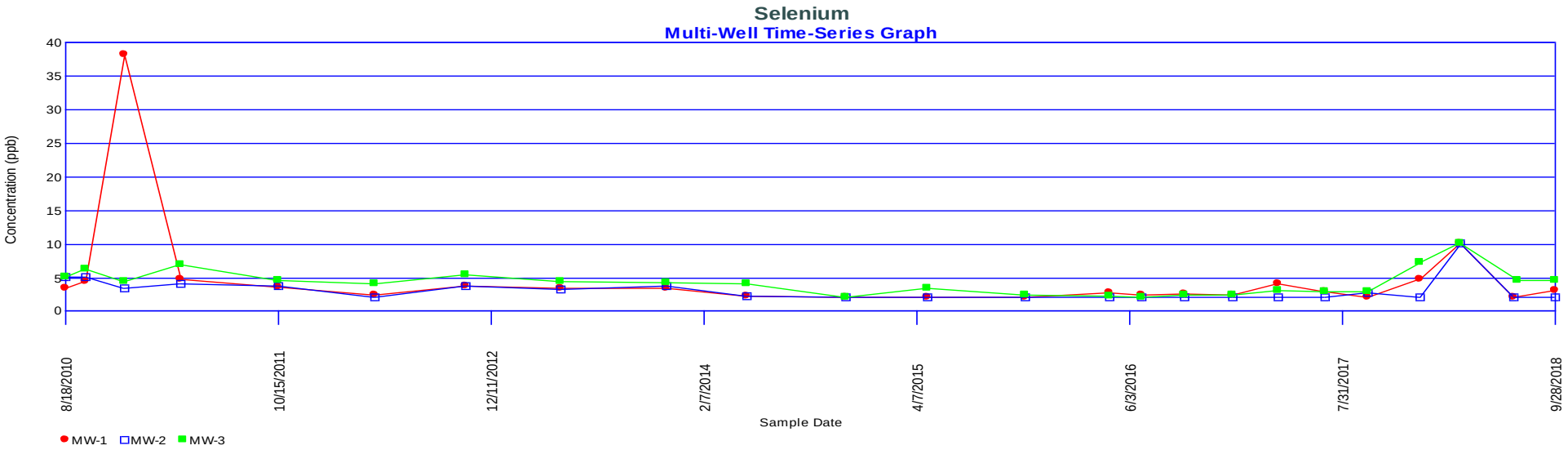

Nickel
Multi-Well Time-Series Graph
Concentration (ppb)
70
60
50
40
30
20
10
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

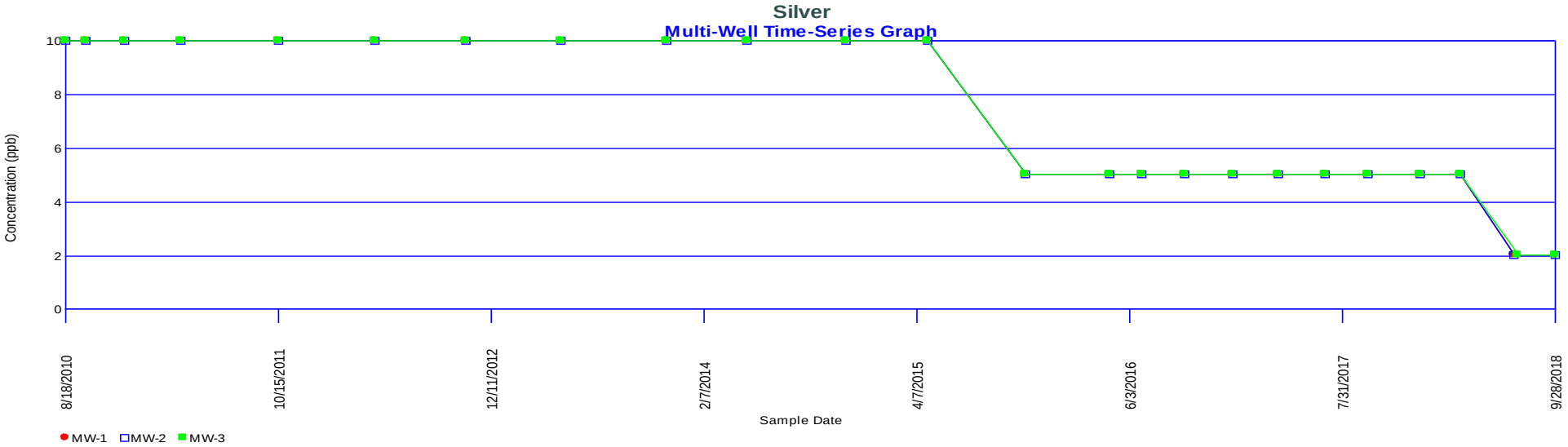

Nitrate
Multi-Well Time-Series Graph
Concentration (ppb)
20000
15000
10000
5000
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

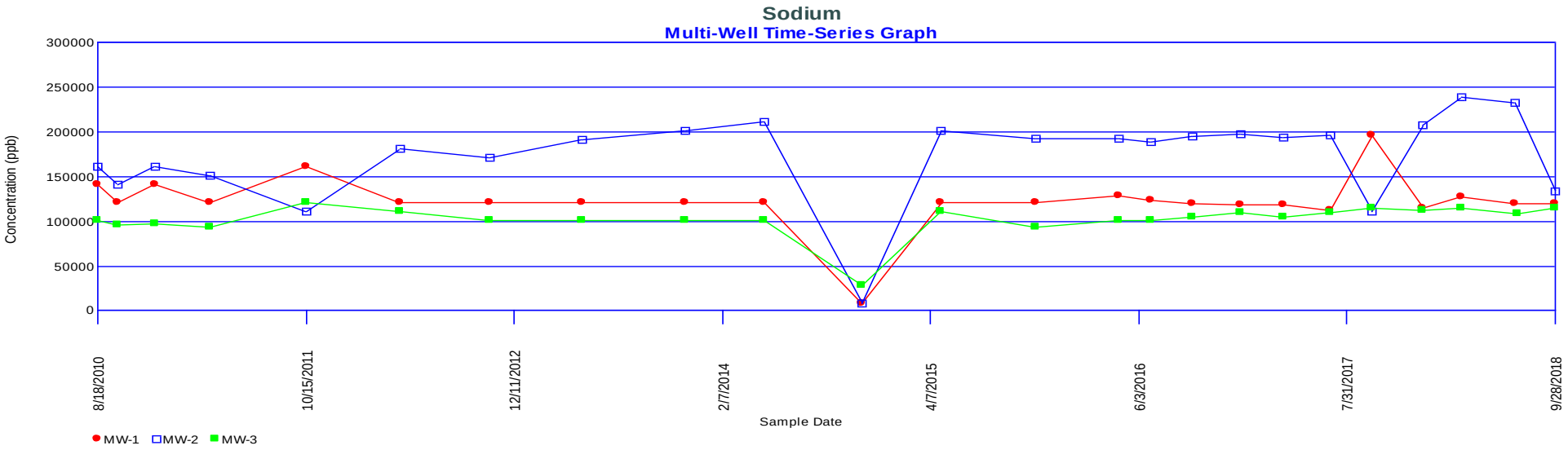

Nitrite
Multi-Well Time-Series Graph
Concentration (ppb)
100
80
60
40
20
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

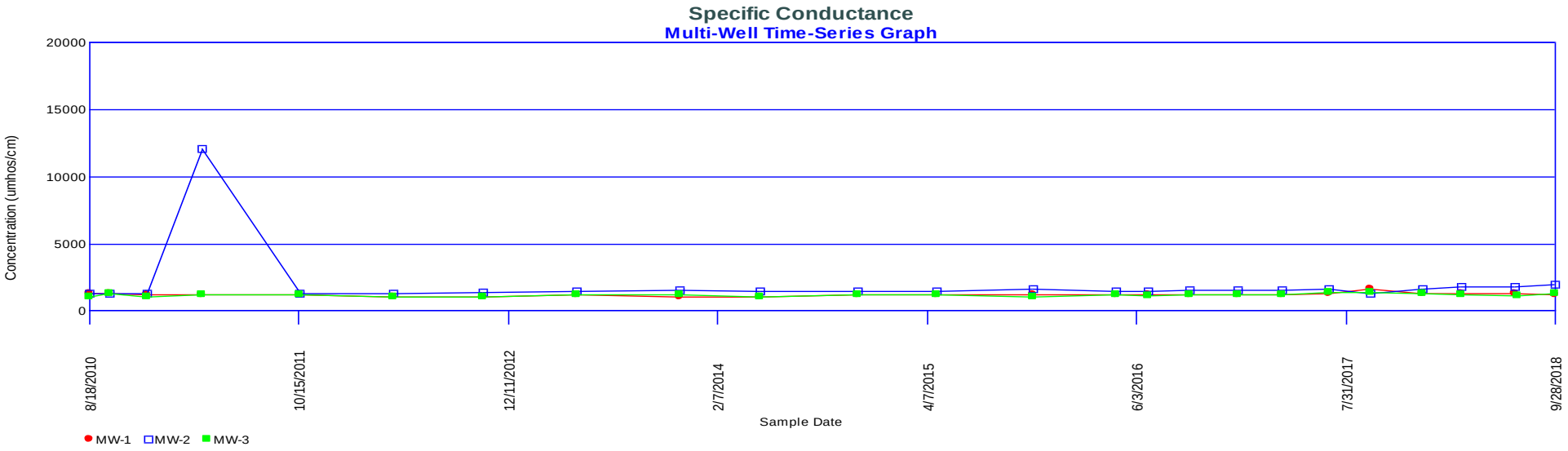

pH
Multi-Well Time-Series Graph
Concentration (su)
0
1
2
3
4
5
6
7
8
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

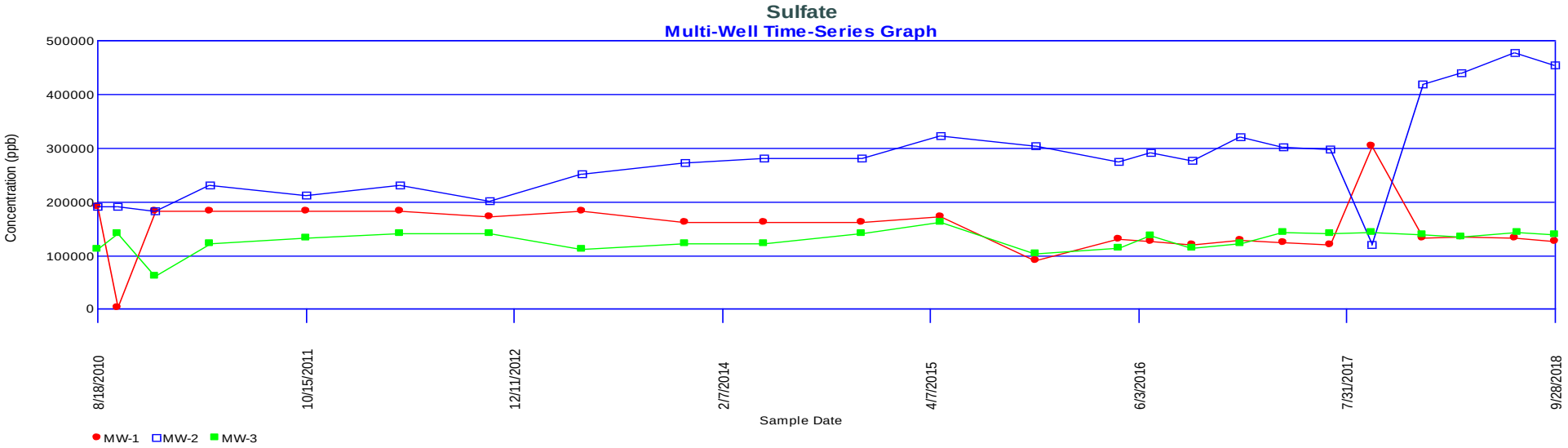

Potassium
Multi-Well Time-Series Graph
Concentration (ppb)
0
10000
20000
30000
40000
50000
60000
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

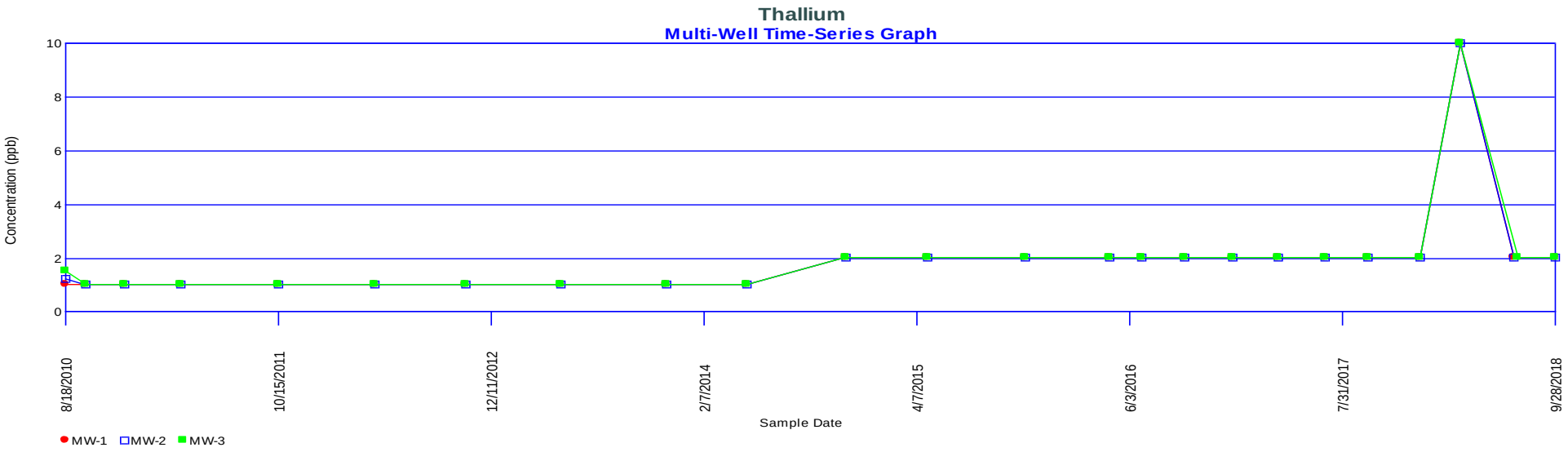

Selenium
Multi-Well Time-Series Graph
Concentration (ppb)
40
35
30
25
20
15
10
5
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

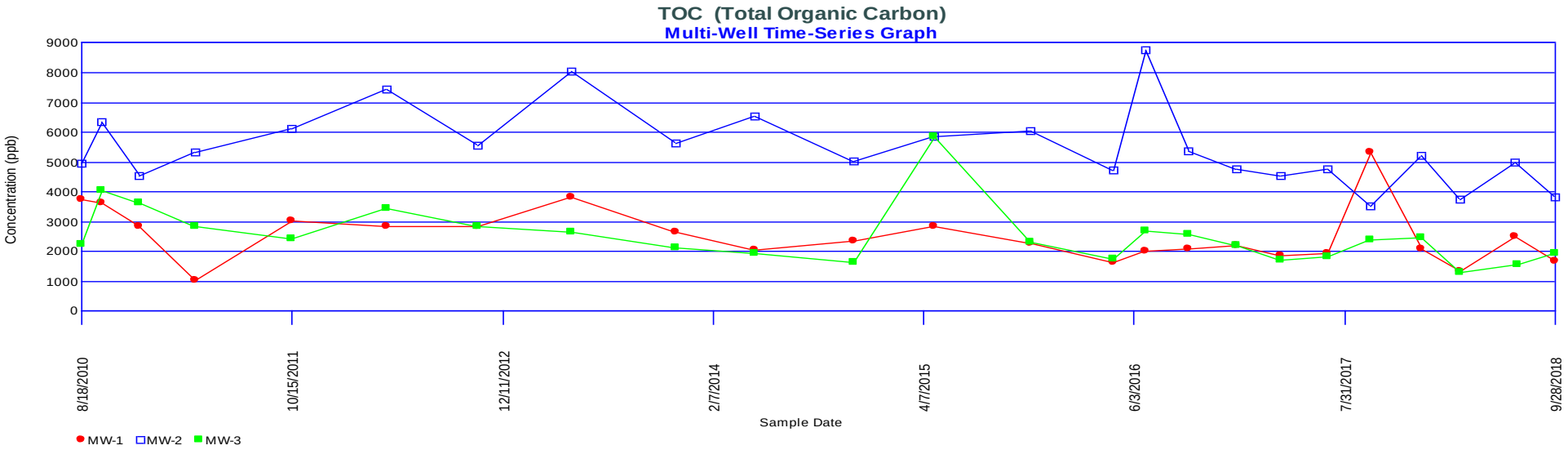

Silver
Multi-Well Time-Series Graph
Concentration (ppb)
10
8
6
4
2
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

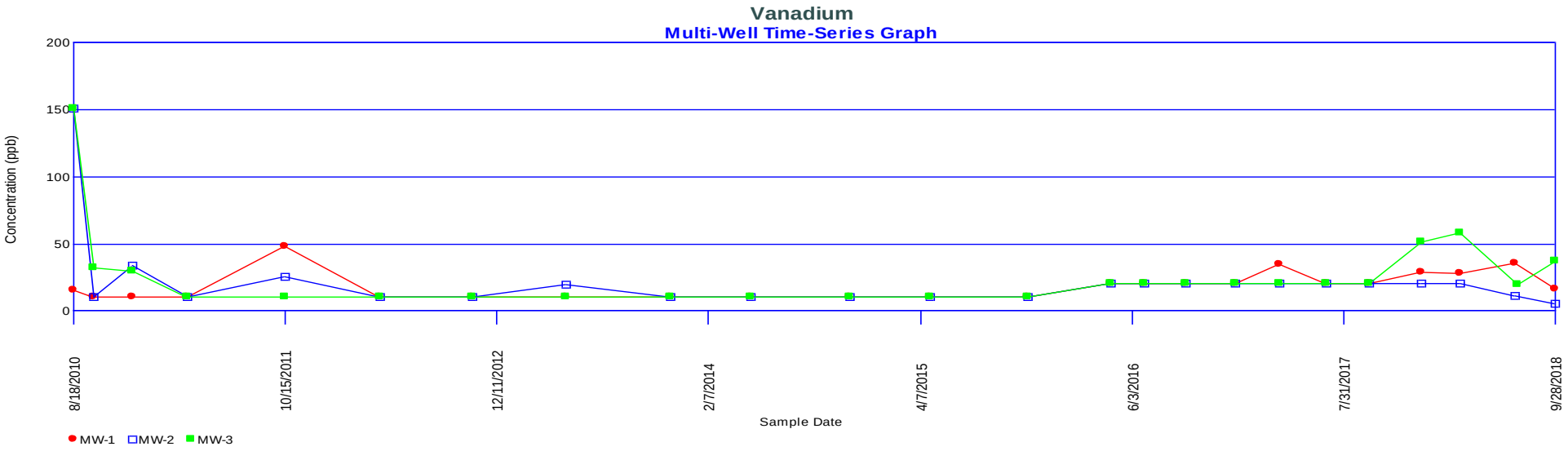

Sodium
Multi-Well Time-Series Graph
Concentration (ppb)
300000
250000
200000
150000
100000
50000
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3

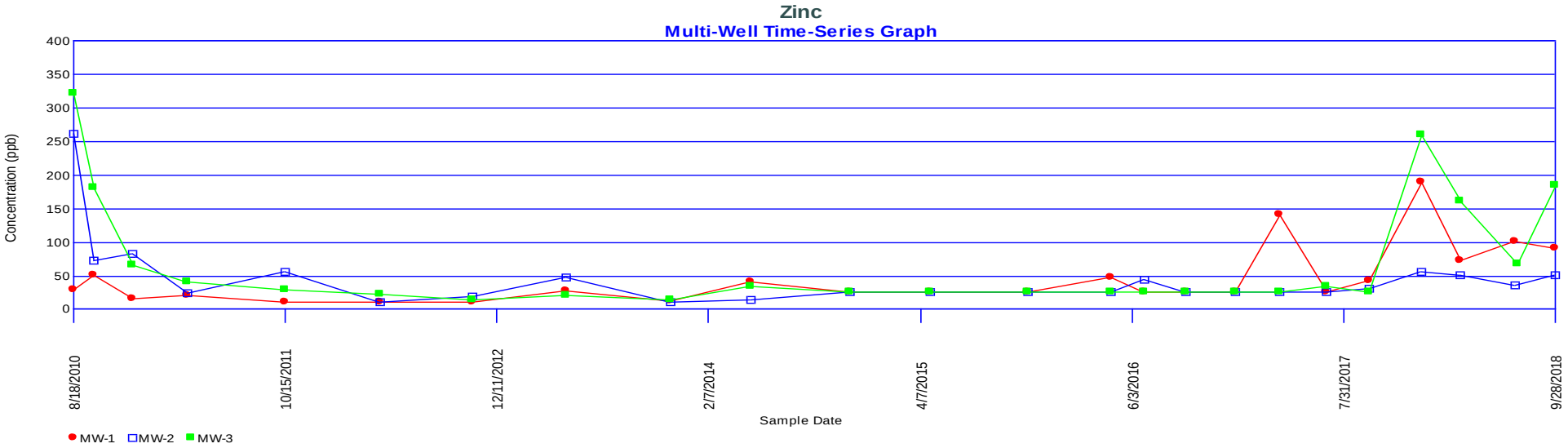

Specific Conductance
Multi-Well Time-Series Graph
Concentration (umhos/cm)
20000
15000
10000
5000
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3


Sulfate
Multi-Well Time-Series Graph
Concentration (ppb)
500000
400000
300000
200000
100000
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3


Thallium
Multi-Well Time-Series Graph
Concentration (ppb)
10
8
6
4
2
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3


TOC (Total Organic Carbon)
Multi-Well Time-Series Graph
Concentration (ppb)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1 MW-2 MW-3


Vanadium
Multi-Well Time-Series Graph
Concentration (ppb)
200
150
100
50
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1 MW-2 MW-3


Zinc
Multi-Well Time-Series Graph
Concentration (ppb)
400
350
300
250
200
150
100
50
0
8/18/2010
10/15/2011
12/11/2012
2/7/2014
4/7/2015
6/3/2016
7/31/2017
9/28/2018
Sample Date
MW-1
MW-2
MW-3