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& DUNHAM

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January 15, 2015

Ms. Janet K. Macdonald, P.G.
North Carolina Department of Environment and Natural Resources
Division of Waste Management - Superfund Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Reference: **Quarter 21 Status Report, Remedial Action Progress Report and Work Plan Amendment**
Umicore USA Inc. - NONCD0002833
Maxton, Scotland County, North Carolina

Dear Ms. Macdonald:

As required by the Administrative Agreement (docket number 09-SF-311) entered into by Umicore USA, Inc. (Umicore), Duncklee & Dunham, PC (Duncklee & Dunham), and the North Carolina Department of Environment and Natural Resources (DENR), Division of Waste Management (DWM), Superfund Section, Inactive Hazardous Sites Branch (IHSB), this letter report presents the project status after the 21st quarter.

This quarterly report includes the results of groundwater and pilot test monitoring, updated plume maps, updated potentiometric maps, summary tables of data collected, and graphs that show groundwater trends (see attached). In addition, this progress report provides an update on groundwater remedial actions, and presents a Work Plan Amendment.

Project Status Report

The project is progressing in accordance with the Administrative Agreement. Tasks completed or worked on this quarter include the following:

- Conducted a full groundwater-sampling event in November 2014.
- Obtained a well construction permit from the DENR Division of Water Resources for three new monitoring wells (MW-38, -38I and -38B) on the property of the adjoining Laurinburg Maxton Airport Commission (LMAC). These wells were subsequently constructed and sampled.
- Sampled LMAC combined wells #7 and #8 post-treatment, and combined wells #1, #2, #3, and #6 post-treatment. These samples were tested for cobalt according to EPA Method 6020, and for iron and total dissolved iron according to EPA Method 6010C.
- Collected a sample from individual LMAC water-supply wells #3, #6, #7 and #8. These samples were tested for cobalt according to EPA Method 6020, and iron and total dissolved iron according to EPA Method 6010C. The sample from well #7 was also tested for trihalomethanes according to EPA Method 524.2, halo acetic acid according to EPA Method 552.2, and residual chlorine according to Standard Method 4500cl.
- The supply well sampling tasks were conducted in accordance with discussions and notification to the IHSB by Duncklee & Dunham in lieu of documentation in a work plan, and with the permission of LMAC. The test results for samples from the supply wells were provided to LMAC and the IHSB immediately upon receipt (see attached). LMAC agreed to Umicore's request to allow for the discharge of cobalt-impacted groundwater to the authority's wastewater treatment system via an industrial users permit in order to be protective of supply well #8 and LMAC property.
- Umicore and Duncklee & Dunham met with LMAC to review the cobalt test results for groundwater samples from the monitoring and supply wells. The data show groundwater from the Umicore site that exhibits dissolved cobalt has migrated onto LMAC property. Supply well testing and data collected from regional water quality sources show cobalt is present as a background inorganic compound at concentrations that exceed the North Carolina 2L groundwater standard (the 2L standard) of 1 µg/L (equivalent to parts per billion).
- The MODFLOW groundwater flow model was updated to include groundwater monitoring data from well cluster MW-38.
- The evaluation of the injection pilot test groundwater remedy continued this quarter, as documented below.

Remedial Action Progress Report

A pilot test for the groundwater remedy was initiated in August 2014 under a plan described by the Interim Remedial Action Plan (I-RAP). The remedy tested is the injection of reagents into the aquifer to remove cobalt from the groundwater and stabilize it within the matrix of the aquifer. The Engineering Plan for the pilot test was included in the *Pre-Construction Report- Pilot Test for Groundwater Remedy*, dated August 11, 2014. Details of the reagent injections were reported in the *Construction Completion Report- Pilot Test for Groundwater Remedy*, dated October 2, 2014.

In summary, the pilot test included three injections of ferrous sulfate with the addition of sodium hydroxide as a pH buffer (IP-1, IP-2 and IP-3). At another location (IP-4), magnesium hydroxide was injected as an alternative reagent to evaluate potential difficulties of injection of this more viscous mixture and to compare effectiveness as compared to the ferrous sulfate solutions. A fifth injection (IP-5) was used to test the effects of increasing the groundwater pH only, by injecting sodium hydroxide without any added reagents. The final injection (IP-6) used a limited volume of ferrous sulfate/sodium hydroxide solution to observe any effects on the groundwater several feet outside of the effective treatment zone of the injection.

Laboratory bench testing prior to the pilot test injections confirmed that a groundwater pH of 7 or higher was needed to achieve stable sequestration of the cobalt and that the effectiveness of the remedy was increased as pH increased above 7. The post-injection pH of the groundwater throughout the treatment area was substantially higher than initial conditions due to injections of the sodium hydroxide and magnesium hydroxide, which raised conditions from natural mildly acidic to moderately to strongly alkaline.

Fourteen monitoring wells in the pilot test were used to collect groundwater data and samples during and subsequent to the injections. Since the completion of the pilot test injections, these monitoring wells have been sampled on three occasions, the last in November 2014. Groundwater parameters were measured at the time of sampling. The groundwater samples were tested by the laboratory for cobalt, sulfate and dissolved and total iron. The locations of the injection point and injection monitoring wells are shown on Figure 8 of this quarterly report. The water chemistry and analytical data collected from the injection monitor wells since the last quarterly report are also attached.

To date, the groundwater treatment by ferrous sulfate/sodium hydroxide and sodium hydroxide alone is effective and stable at reducing cobalt. At the completion of the injection program, the composite cobalt concentrations in groundwater were about 15% of pre-injection values. The composite pH was increased to approximately 11.3. Three months after the injection program, composite cobalt concentrations are approximately 13% of pre-injection values, with average pH levels at approximately 10.9. The magnesium hydroxide injection has proven to be less effective. Although the pH levels in the magnesium hydroxide treatment zone initially rose to about 10 with a corresponding reduction in cobalt levels, both cobalt and pH have returned to near pre-injection levels.

Monitoring of the wells in the pilot test area will continue through 2015. The next injection pilot study sampling event is scheduled for January 2015. Review of the cobalt and pH data and other analytical and groundwater parameter data is on-going to evaluate groundwater chemistry and the overall effectiveness and limitations of the ferric sulfate and sodium hydroxide reagent injections. Duncklee & Dunham expects the pH buffering will dissipate over time. Major issues to be evaluated as this occurs include the effects of decreasing pH values on the sequestration of the cobalt and possible solubilizing of the ferric oxyhydroxide.

Work Plan Amendment Seven

The following work tasks have been added to the project work scope to continue to make progress per the Administrative Agreement:

- Evaluate regional groundwater data along with data from LMAC supply wells in the area to establish the likely range of cobalt concentrations in the aquifer. The data collected to-date indicate naturally occurring concentrations of cobalt in the aquifer are greater than the 2L standard. Per the REC Program rules and guidelines, groundwater remediation is not required to less than natural background concentrations for metals.
- Utilize hydraulic profiling tool-groundwater sampling (HPT-GWS) methods in combination with construction of additional groundwater monitoring wells, sampling and analysis, to better define the dissolved cobalt plume and better define the clay aquitard 'pinch-out' zone between: 1) the property line and LMAC supply well #8, and the western portion of the plume and the property line in the direction of LMAC supply well #7.

  HPT-GWS and monitoring well constructions will be conducted in accordance with methods and procedures previously described and documented.
- Utilize the findings of the HPT-GWS methods and additional monitoring wells to construct a groundwater extraction well in the area north of MW-37 and near the property line (see attached Figure 2). The well will be constructed on Umicore property.

  LMAC has agreed in concept to accept discharge of extracted groundwater from this new well into a sewer line that is present along the property line and that is part of their municipal wastewater treatment system. An application for an industrial user permit (IUP) has been requested by LMAC and is being prepared by Umicore.

  The extraction well will be constructed in a ten-inch-diameter boring using sonic drilling methods to an approximate depth of 50 feet below grade. The well will include a 20-foot section of four-inch diameter, PVC 0.020-inch wire wrapped, pre-packed screen. A 1.5-HP, three-phase, 460-volt, low-amp controller and pump heads will be capable of 150 feet of head. Electrical power will be extended from the nearby LMAC well #8 power system.

  The piping from the extraction well will be connected to a totalizing flowmeter and directed to the nearby sewer line for discharge. LMAC has agreed to accept the water in accordance with an IUP, with no treatment. Each well will have a seal, check valve, cutoff valve, a lockable spigot valve to allow water samples to be collected, and will be enclosed in a small well house.
- Additional LMAC supply well water sampling and analytical testing may be conducted periodically to support the ongoing assessment and remedial tasks. These samples will be collected in accordance with methods and procedures previously described and documented.
- Site-wide groundwater monitoring events are being reduced from a past frequency of quarterly to triannual. It is likely the frequency can be reduced to semiannual later this year or next.
- Up to six borings are planned in the pilot test injection area to collect soil samples from the saturated zone. These samples will be visually inspected and tested in the laboratory to acquire additional information on the extent of injection influence.

This document includes the executed signatures that signify approval of this Quarter 21 Status Report by Umicore as the Remediating Party, Duncklee & Dunham as the Registered Environmental Consultant, and David L. Duncklee as the Registered Site Manager. Please contact Dave Duncklee at dave@dunckleedunham.com or (919) 858-9898 if you have any questions.

Sincerely,

Duncklee & Dunham, P.C.

William M. Flinchum
Project Geologist II

David L. Duncklee, P.G., R.S.M.
Senior Project Manager

Senior Peer Review

Richard A. Kolb, L.G.
Senior Geologist

ec: Mr. Theron Grim – Umicore
Ms. Ravila Gupta – Umicore

Attachments:
Figure 1 – Shallow Potentiometric Surface Map – November 2014
Figure 2 – Cobalt in Shallow Groundwater Map – November 2014
Figure 3 – Deep Potentiometric Surface Map – November 2014
Figure 4 – Cobalt in Deep Groundwater – November 2014
Figure 5 – Cross Section Trace Line A – A'
Figure 6 – Cross Section A – A'
Figure 7 – LMAC Water Supply Well Locations
Figure 8 – Locations of Pilot Study Injection Points, Air Sparge and Injection Monitoring Wells
Figure 9 – Cobalt Concentration before Injection Pilot Study – July 2014
Figure 10 – Cobalt Concentrations after Injection Pilot Study – September 2014
Figure 11 – Extraction Well Schematic

Table 17 – Summary of Laboratory Test Results
Table 19 – Summary of Public-Supply Well Laboratory Test Results
Table 20 – Summary of pH in Groundwater
Table 21 – Summary of Laboratory Test Results – Disinfection Byproducts

Appendix A – Boring Logs for MW-38, -38I and -38B
Appendix B – Laboratory Reports
Appendix C – Pilot Study Trend Graphs
Appendix D – Certification Forms

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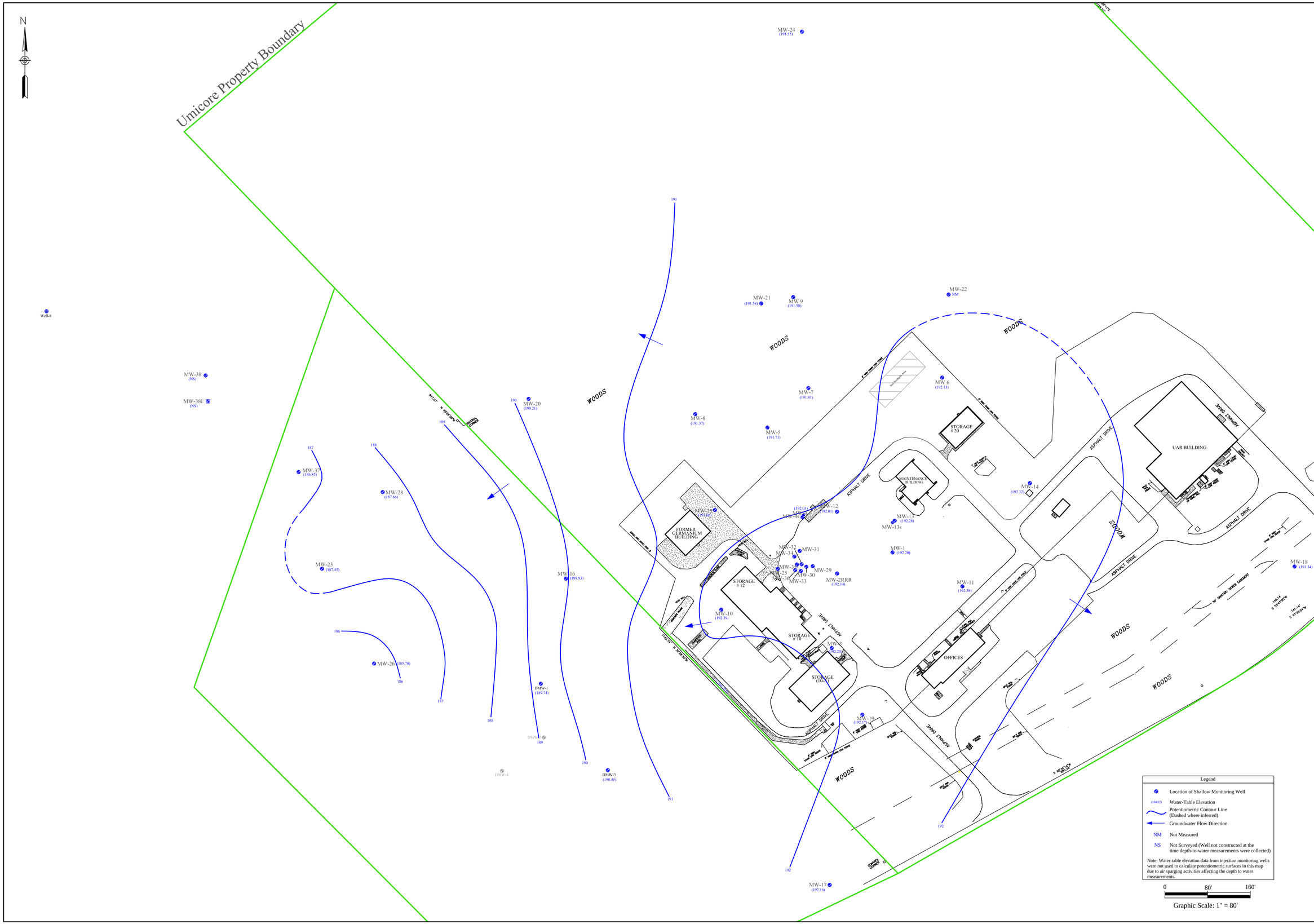
Figures



Shallow Potentiometric Surface Map - November 2014

Umicore Facility
Maxton, North Carolina

Drawn By:	Checked By:	Project Number:	Date:	References:	Scale:	Size:	Layers:
wmf/baj/js	DD	200917	December 2014	Base Map provided by Umicore; Laboratory test results; Surveyor data	1" = 80'	22" x 34"	87,206

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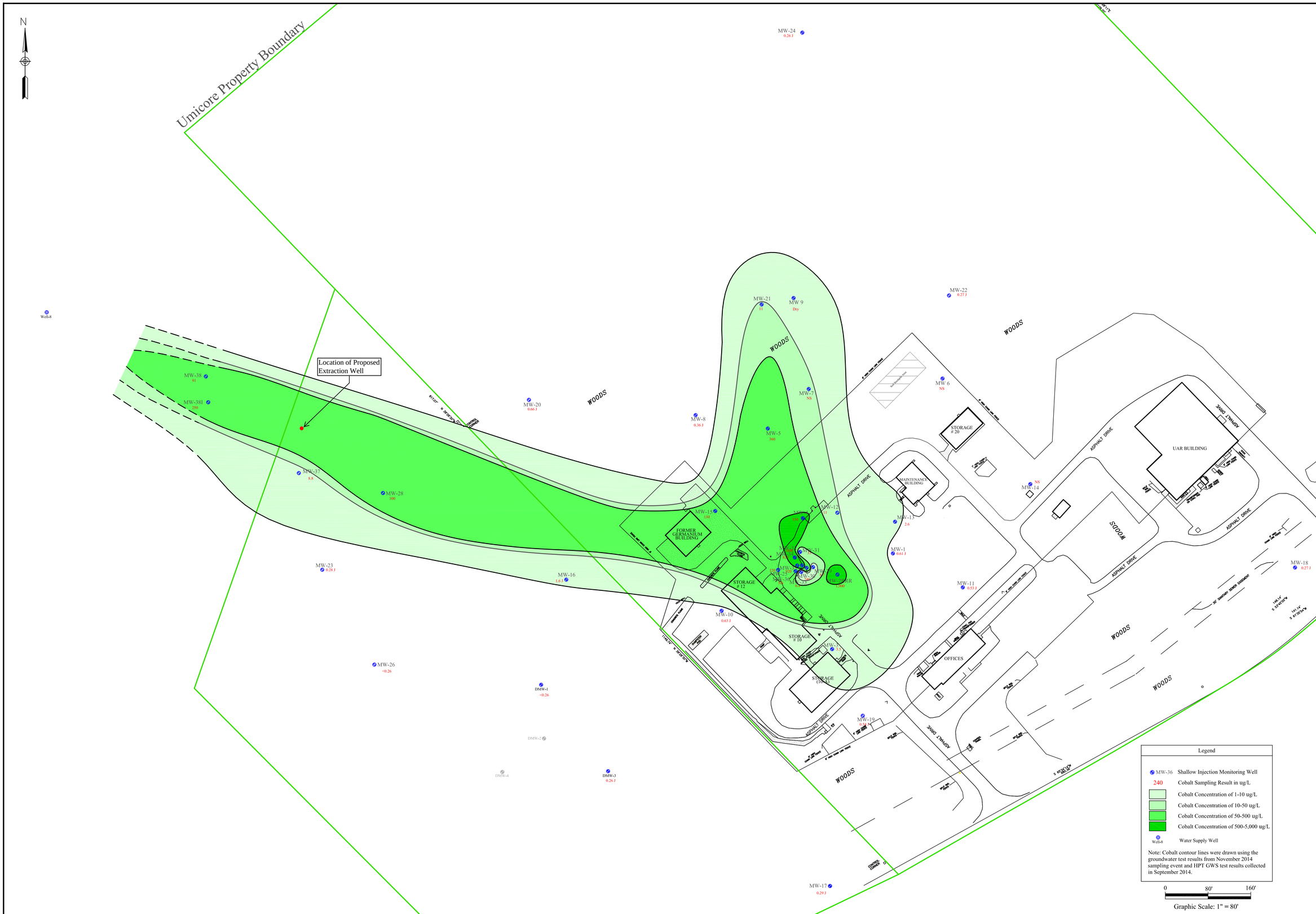
Figure

1



Cobalt in Shallow Groundwater Map - November 2014

Umicore Facility
Maxton, North Carolina

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wmf/baj/js		200917	January 2015	Base Map provided by Umicore; Laboratory test results; Surveyor data	1" = 80'	22" x 34"	87,204

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Figure

2

Legend	
MW-17B	Deep Monitoring Well
Well-8	Water Supply Well
NS	Not Surveyed (Well not constructed at the time depth-to-water measurements were collected)
(191.81)	Potentiometric Surface Elevation
	Potentiometric Contour Line
	Groundwater Flow Direction

Note: Depth-to-water measurements from injection monitoring wells were not used to construct this Deep Potentiometric Surface Map due to air sparging affecting measurements collected.

Deep Potentiometric Surface Map - November 2014

Umicore Facility
Maxton, North Carolina

Drawn By:	Checked By:	Project Number:	Date:	References:	Scale:	Size:	Layers:
baj/js		200917	December 2014	Base Map provided by Umicore; Laboratory test results; Surveyor data	1" = 80'	22" x 34"	0, 43,80,201

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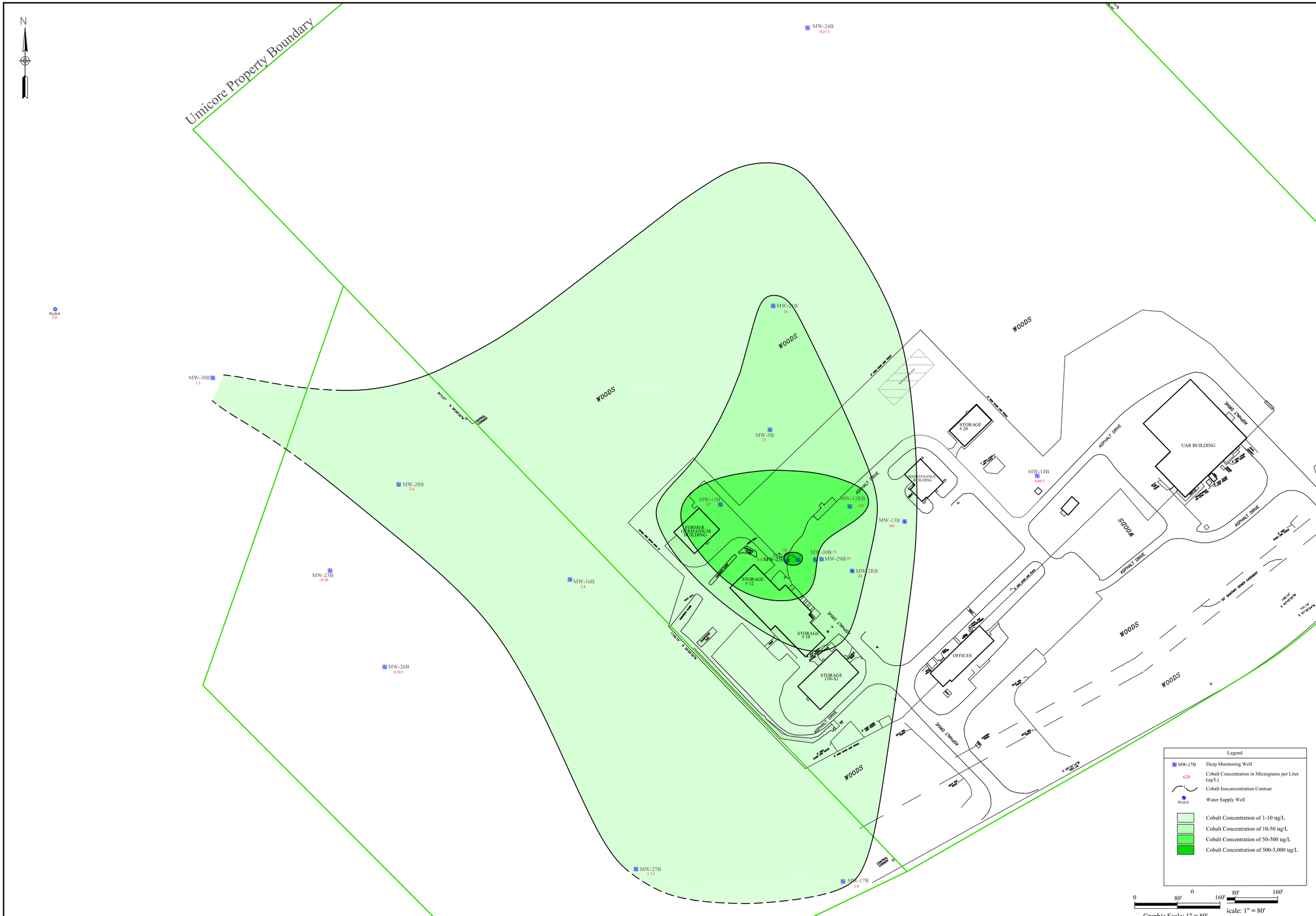
Figure

3



Cobalt in Deep Wells - November 2014

Umicore Facility
Maxton, North Carolina

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baj/js		200917	January 2015	Base Map provided by Umicore; Laboratory test results; Surveyor data	1" = 80'	22" x 34"	

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Figure

4

Cross Section Trace Line - A-A'

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Maxton, North Carolina

Drawn By:	Checked By:	Project Number:	Size:	Layers:
wmf/baj/js		200917	22" x 34"	203

Date:	References:	Scale:
December 2014	Base Map provided by Umicore; Laboratory test results; Surveyor data	1" = 80'

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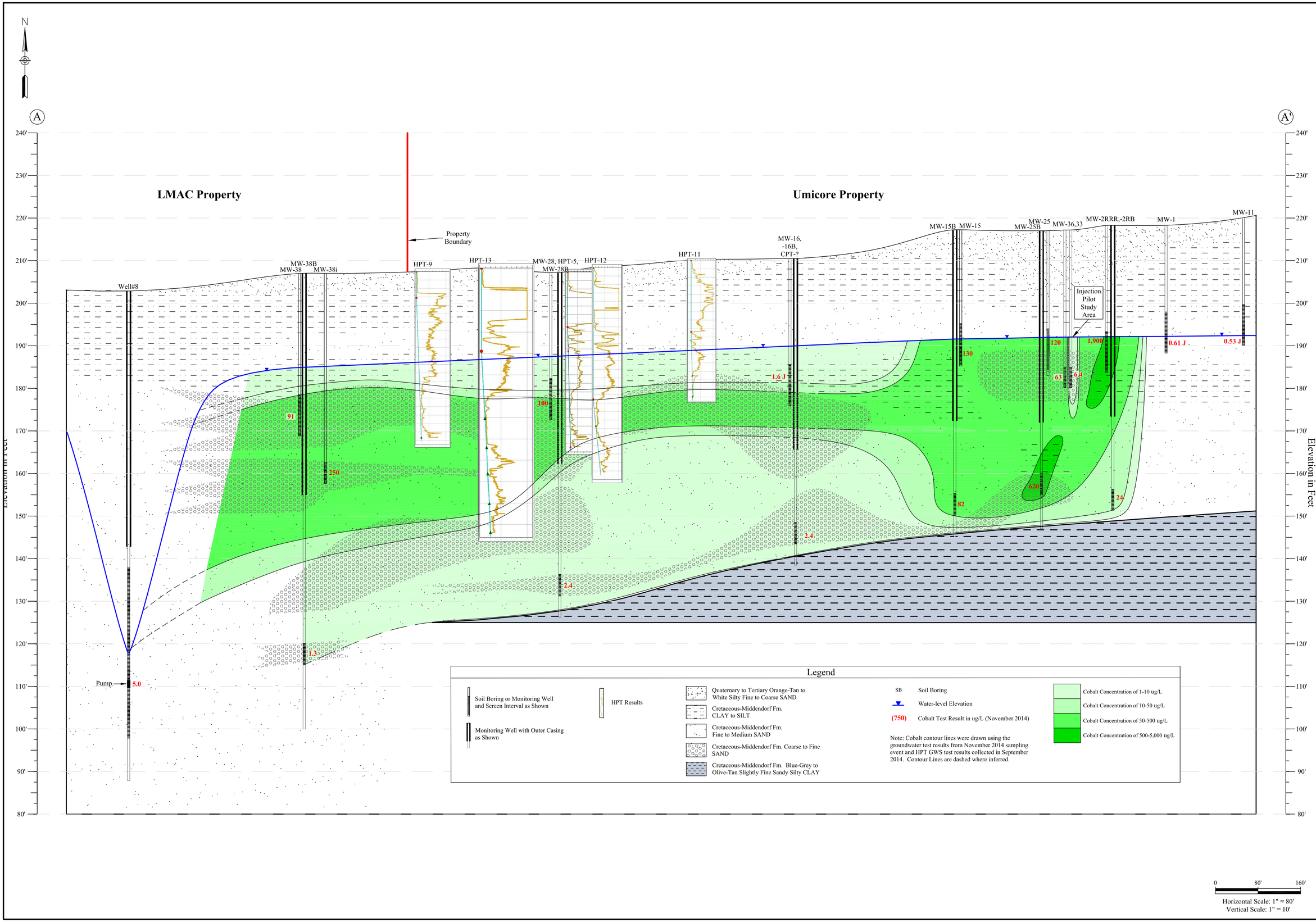
Figure

5



Cross Section A - A' - Groundwater Cobalt Test Results and Isoconcentration Contours

Umicore Facility
Maxton, North Carolina

Drawn By:	Checked By:	Project Number:	Date:	References:	Scale:	Size:	Layers:
wmf	DW	200917	December 2014	HPT Results, Groundwater Test Results, Field Notes	1" = 100'	22" x 34"	38,36,35,33

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Figure

6

Figure 7

LMAC Water Supply Well Locations

Umicore
Maxton, North Carolina

Drawn By:	Checked By:	Project Number:	Date:	References:
js	DD	200917	December 2014	Reference Drawing, Document, Field Notes
Scale: 1" = 1,000'	Size: 11" x 17"	Layers: 1	Filename: P:\Umicore\Maxton - 200917\8 Field-Techn\8.8 CAD and GIS Maps\OnSite\LMAC Wells	

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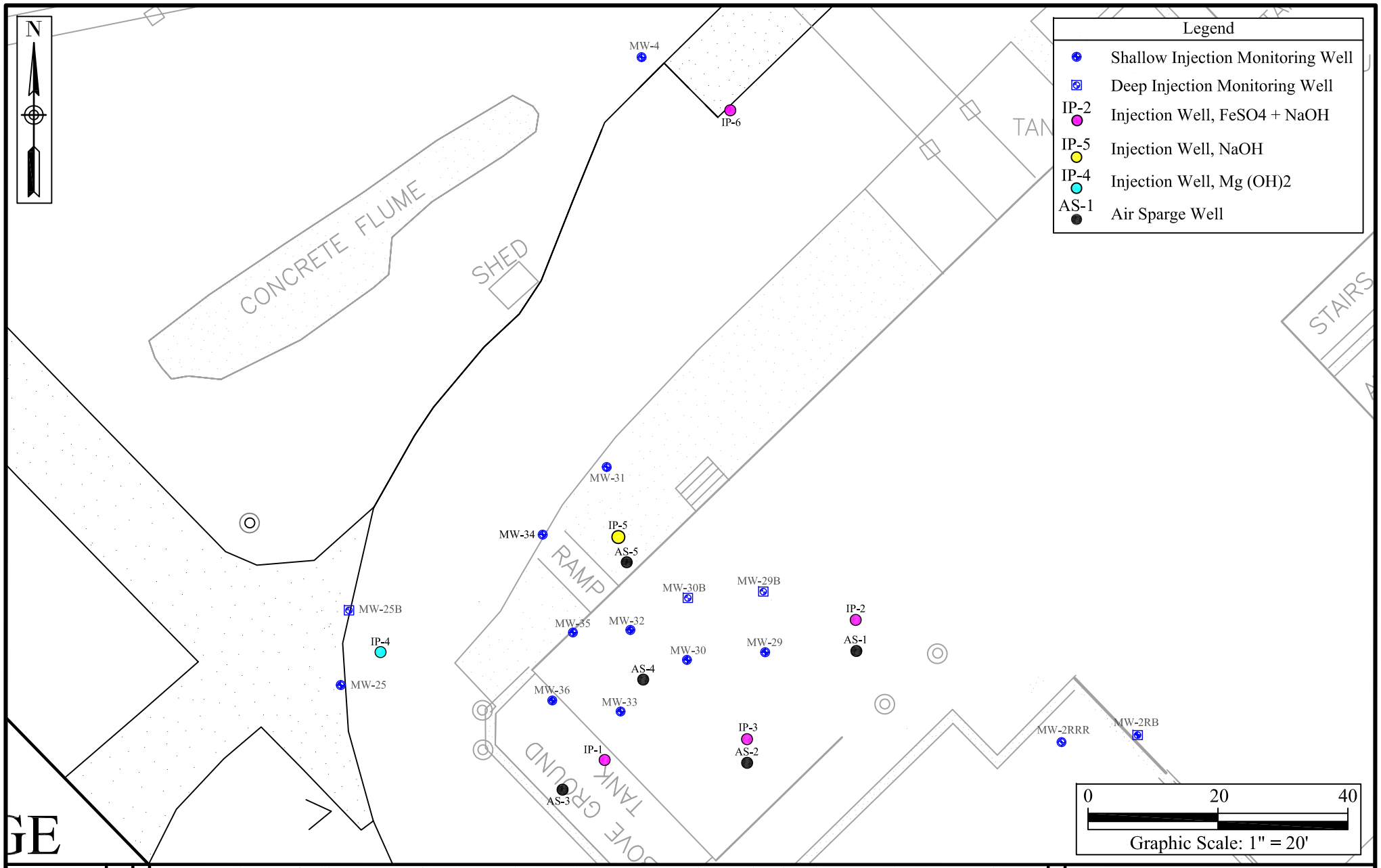

8

Figure

Locations of Pilot Test Injection Points, Air Sparge Wells and Injection Monitoring Wells

Umicore
Maxton, North Carolina

Drawn By:	Checked By:	Project Number:	Date:	Reference:
wmf/amr	DD	200917	Sept 2014	Survey Data, field notes
Scale:	Size:	Layers:	Filename:	
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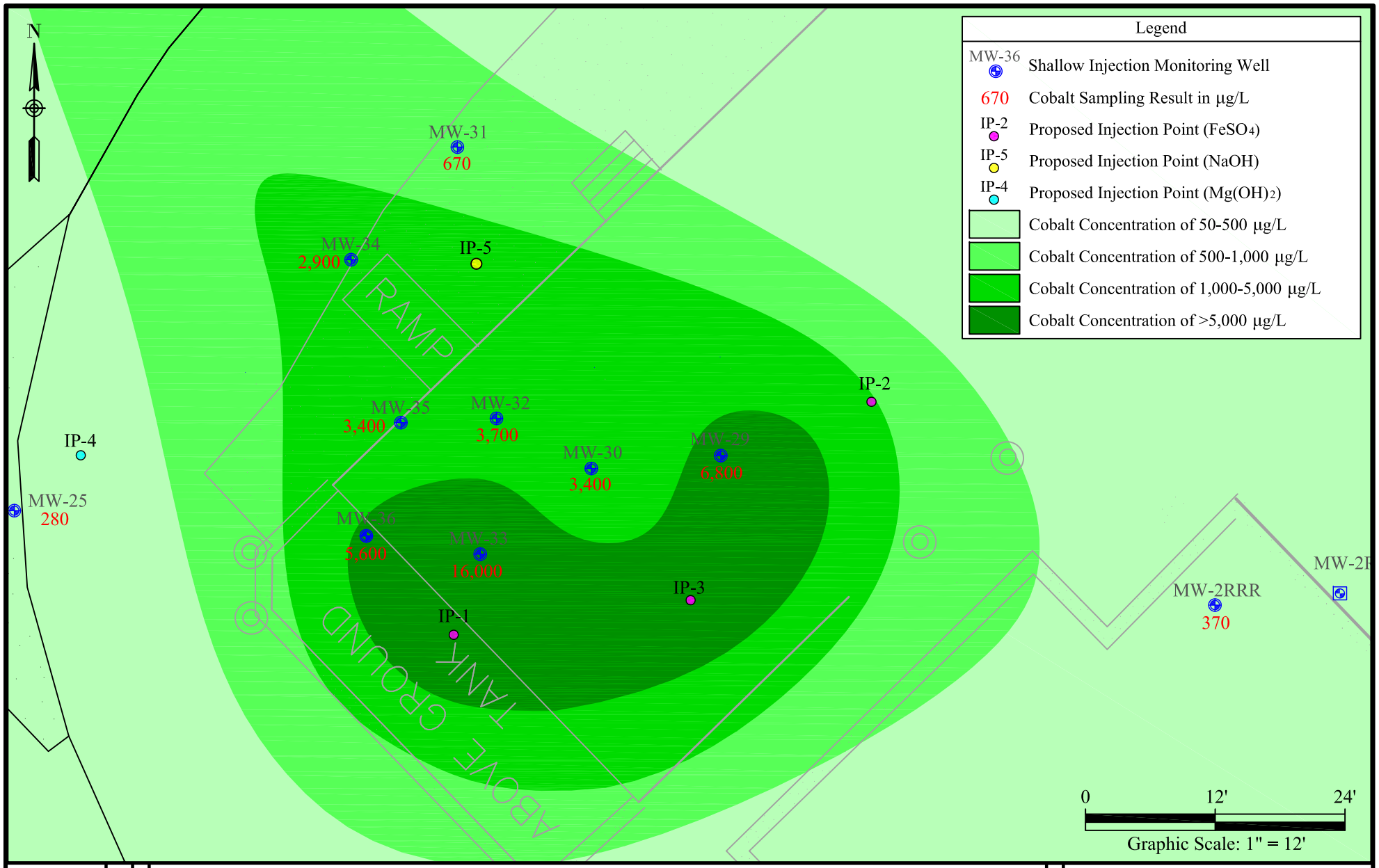

9

Figure

Cobalt Concentrations Before Injection Pilot Study - July 2014
Umicore Facility
Maxton, North Carolina

Drawn By:	Checked By:	Project Number:	Date:	Reference:
wmf	DD	200917	Sep 2014	Survey Data; Field Notes
Scale: 1" = 12'	Size: 8.5" x 11"	Layers:	Filename: P://Umicore\Maxton - 200917\8\8.8\Onsite	

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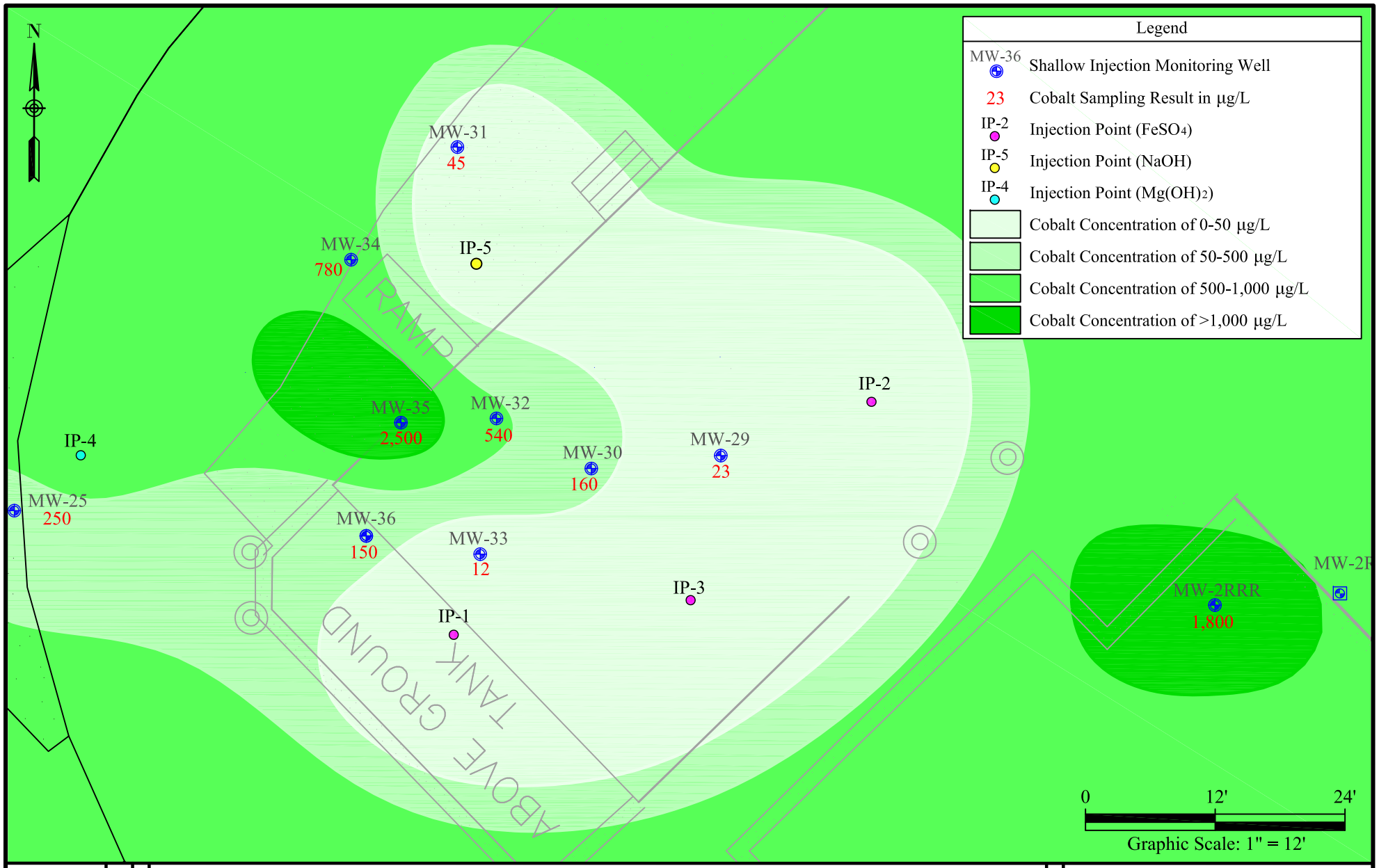

Figure 10

Cobalt Concentrations After Injection Pilot Study - September 2014
Umicore Facility
Maxton, North Carolina

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wmf	DW	200917	Sep 2014	Survey Data; Field Notes
Scale: 1" = 12'	Size: 8.5" x 11"	Layers:	Filename: P://Umicore\Maxton - 200917\8\8.8\Onsite	

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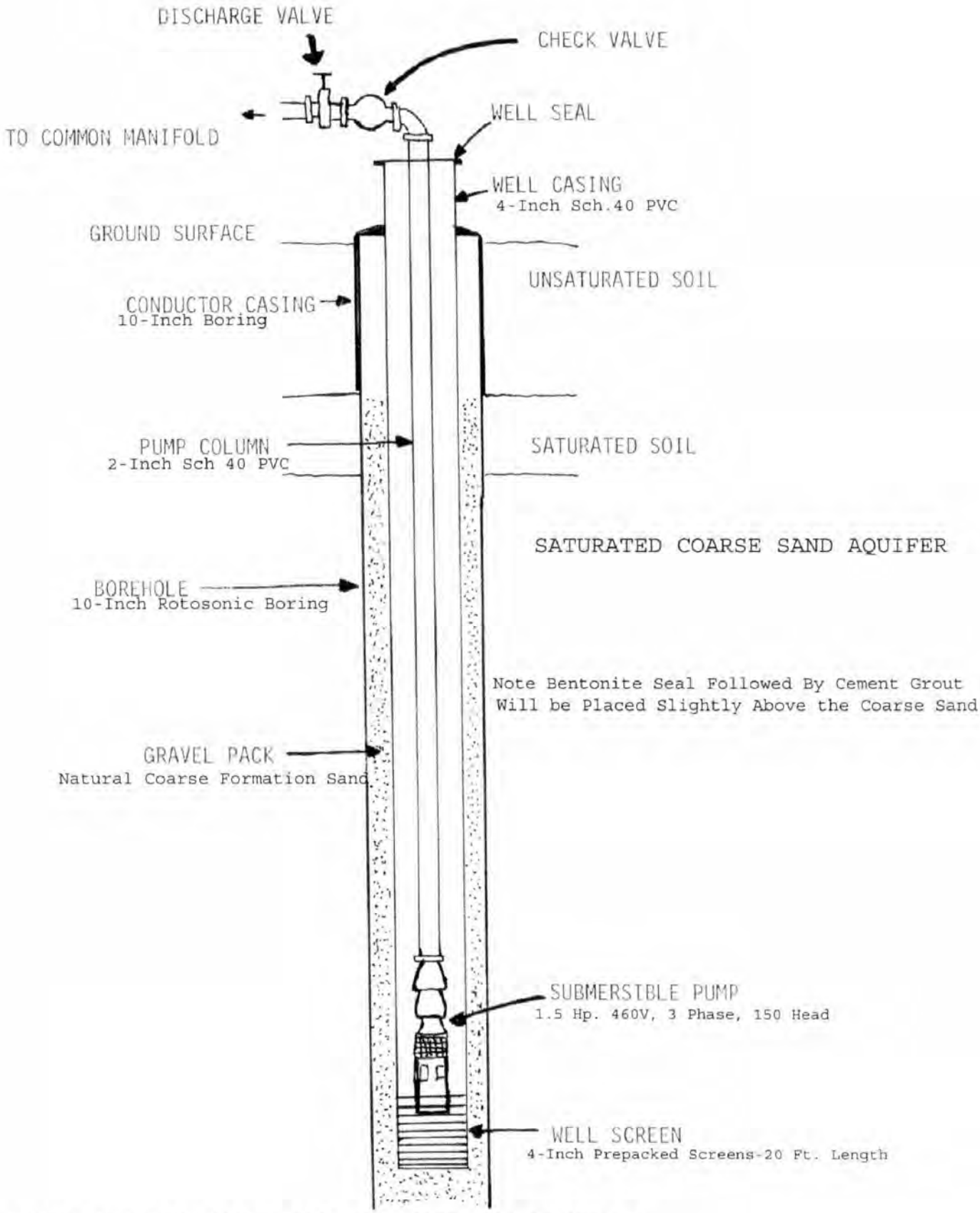

CASED WELL WITH GRAVEL PACK AND SCREEN FOR DEWATERING

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Extraction Well Schematic

Umicore Facility
Maxton, North Carolina

Drawn By:	Checked By:	Project Number:	Date:	References:
wmf	DJD	200917	January 2015	S&ME, Inc.
Scale: Not To Scale	Size: 8.5" x 11"	Layers: 0,1	Filename: P:Umicore\Maxton - 200917\8\8.8\Onsite\Extraction Well Schematic	

Figure 11

Tables

Table 17
Summary of Laboratory Test Results
Groundwater Samples
Umicore Facility
Maxton, North Carolina

Method			2320 B-	2320 B-	6010B	6010B	6020	2320B	6010B	2320B	6010B/6020	9056	6010B	7196A	6020	2540C	9056	ICP-MS	6010B	6010B	6020	6010B	6010B	6010B	9056	9056	4500P-E	365.1	6010B	6010B/6020	6010B	9056	6010B/6020	9060A	6010B
Parameter			Alkalinity, Bicarbonate	Alkalinity, Carbonate	Aluminum	Ammonia Nitrogen	Arsenic	Bicarbonate	Calcium	Carbonate	Cobalt	Chloride	Chromium	Chromium, Hexavalent	Copper	Dissolved Solids	Fluoride	Germanium	Iron	Iron, Dissolved	Lead	Magnesium	Manganese	Nickel	Nitrate	Nitrite	Phosphate, Ortho	Phosphate, Total	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Organic Carbon	Zinc
2L Standard			NE	NE	NE	1.5 a	0.010	NE	NE	NE	0.001 a	250	0.01	NE	1	500	2	NE	0.3	NE	0.015	NS	0.05	0.1	10	1.0	NE	NE	NE	0.020	NE	250	0.0002 a	NE	1
Sample ID	Aquifer	Date (Prep method)	Results in mg/L																																
MW-1	Water-Table	8/11/2008	NT	NT	0.53	NT	NT	NT	3.8	NT	<0.010	310	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	0.94	0.044	NT	NT	NT	NT	NT	1.20	NT	200	NT	NT	NT	0.120
		9/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	810	NT	NT	NT	NT	NT	NT	0.16	NT	NT	NT	0.033	NT	NT	NT	NT	NT	NT	NT	780	160	NT	NT	NT
		12/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	550	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	540	100	NT	NT	NT
		3/3/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	420	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	410	87.0	NT	NT	NT
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	340	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	320	68.0	NT	NT	NT
		9/3/2009	NT	NT	NT	NT	NT	NT	<0.50	NT	<0.010	76	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	68	7.0	NT	NT	NT
		1/6/2010	NT	NT	NT	NT	NT	NT	<0.50	NT	<0.010	170	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.51	NT	150	41.0	NT	NT	NT
		1/6/2010 (dup.)	NT	NT	NT	NT	NT	NT	<0.50	NT	<0.010	170	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.52	NT	150	42.0	NT	NT	NT
		4/14/2010	NT	NT	NT	NT	NT	NT	<0.50	NT	<0.010	250	NT	NT	NT	NT	NT	NT	0.22	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.58	NT	200	53.0	NT	NT	NT
		4/14/2010 (dup.)	NT	NT	NT	NT	NT	NT	<0.50	NT	<0.010	250	NT	NT	NT	NT	NT	NT	0.12	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.57	NT	210	54.0	NT	NT	NT
		7/2/2010	NT	NT	NT	NT	NT	NT	<0.50	NT	0.020	360	NT	NT	NT	NT	NT	NT	0.22	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.81	NT	370	140	NT	NT	NT
		7/2/2010 (dup.)	NT	NT	NT	NT	NT	NT	<0.50	NT	<0.010	360	NT	NT	NT	NT	NT	NT	<0.1	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	1.0	NT	370	150	NT	NT	NT
		2/3/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	14	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.14	NT	17	6.5	<0.00019	NT	NT
		2/3/2011 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	15	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.14	NT	17	6.8	<0.00019	NT	NT
		4/6/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0012	63	NT	NT	NT	NT	NT	NT	0.14	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	53	15.0	<0.00019	NT	NT
		4/6/2011 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.00066 J	65	NT	NT	NT	NT	NT	NT	0.13	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	53	15.0	<0.00019	NT	NT
		7/26/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0088	62	NT	NT	NT	NT	NT	NT	0.04 J	NT	NT	NT	0.0033 J	NT	NT	NT	NT	NT	0.22 J	NT	50	20.0	<0.00019	NT	NT
		7/26/2011 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.0078	64	NT	NT	NT	NT	NT	NT	0.033	NT	NT	NT	0.0033 J	NT	NT	NT	NT	NT	0.21 J	NT	52	22.0	<0.00019	NT	NT
		10/12/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0013 O	38	NT	NT	NT	NT	NT	NT	0.14	NT	NT	NT	0.0042 J	NT	NT	NT	NT	NT	0.18 J	NT	42	19.0	<0.00095 O	NT	NT
		10/12/2011 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.0013	37	NT	NT	NT	NT	NT	NT	0.12	NT	NT	NT	0.0042 J	NT	NT	NT	NT	NT	0.17 J	NT	43	19.0	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.0019	33	NT	NT	NT	NT	NT	NT	0.35	NT	NT	NT	0.0050 JP1	NT	NT	NT	NT	NT	0.270 JP1	NT	33	14.0	<0.00019	NT	NT
		2/9/2012 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.0025	32	NT	NT	NT	NT	NT	NT	<0.026	NT	NT	NT	0.0075 J	NT	NT	NT	NT	NT	0.200 J	NT	34	14.0	<0.00019	NT	NT
		6/21/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.0056	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	6.30	NT	46	NT	<0.00019	NT	NT
		6/21/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	0.0055	39	NT	NT	NT	NT	NT	NT	<0.026	NT	NT	NT	0.0031 J	NT	NT	NT	NT	NT	6.20	NT	46	20.0	<0.00019	NT	NT
		6/21/12 (3015-dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.0057	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	6.10	NT	45	NT	<0.00019	NT	NT
		6/21/12 (3030C-dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.0058	39	NT	NT	NT	NT	NT	NT	<0.026	NT	NT	NT	0.0026 J	NT	NT	NT	NT	NT	5.90	NT	46	20.0	<0.00019	NT	NT
		11/8/2012	NT	NT	NT	NT	<0.001	NT	NT	NT	0.0013	15	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.22 J	0.00088J	22	8.4	<0.00019	NT	NT
		11/8/2012 Dup	NT	NT	NT	NT	<0.001	NT	NT	NT	0.0014	16	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.39 J	0.00098J	21	8.6	<0.00019	NT	NT
		4/3/2013	<5.0	<5.0	0.17	NT	0.00028 J	NT	0.41 J	NT	0.0054	97	<0.0014	NT	<0.00052	NT	<0.0099	NT	0.039 J	<0.014	<0.00024	0.34	0.0096 J	0.0090	1.2	<0.028	NT	NT	0.540	0.0020	92	34.0	<0.00019	NT	0.024 J
		4/3/13 Dup	<5.0	<5.0	0.18	NT	0.00031 J	NT	0.41 J	NT	0.0050	96	<0.0014	NT	<0.00052	NT	<0.0099	NT	0.038 J	<0.014	<0.00024	0.34	0.0095 J	0.0084	1.2	<0.028	NT	NT	0.480 J	0.0020	92	35.0	<0.00019	NT	0.024 J
		8/13/2013	NT	NT	NT	NT	0.00083 J	NT	NT	NT	0.0041	370	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.89	0.0032	540	350	<0.00019	NT	NT
		8/13/13 Dup	NT	NT	NT	NT	0.00071 J	NT	NT	NT	0.0040	380	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.76	0.0026	550	360	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	NT	NT	NT	NT	0.00099 J	13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.21 J	0.00052 J	23	11	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0032	340	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.75	NT	590	430	<0.00019	NT	NT
		9/9/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0020	18	NT	NT	NT	NT	NT	NT	0.09 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.24 J	0.00082	28	14	<0.00019	NT	NT
		11/6/2014	NT	NT	NT	NT	< 0.00025	NT	NT	NT	0.00061 J	32	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.180 J	< 0.00038	42	32	< 0.00019	NT	NT
MW-2A	Perched	8/8/2008	NT	NT	2.30	NT	NT	NT	3.7	NT	0.021	1,300	NT	NT	NT	NT	NT	NT	1.2	NT	NT	1.30	0.037	NT	NT	NT	NT	NT	2.70	NT J	2,700	NS	NT	NT	<0.030
		9/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	0.012	1,200	NT	NT	NT	NT	NT	NT	1.8	NT	NT	NT	0.025	NT	NT	NT	NT	NT	NT	NT	3,600	2,300	NT	NT	NT
		12/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	0.058	1,100	NT	NT	NT	NT	NT	NT	1.3	NT	NT	NT	0.023	NT	NT	NT	NT	NT	NT	NT	3,400	3,500	NT	NT	NT
		3/3/2009	NT	NT	NT	NT	NT	NT	NT	NT	0.31	1,600	NT	NT	NT	NT	NT	NT	0.85	NT	NT	NT	0.029	NT	NT	NT	NT	NT	NT	NT	1,900	1,300	NT	NT	NT
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	0.011	3,800	NT	NT	NT	NT	NT	NT	0.78	NT	NT	NT	0.082	NT	NT	NT	NT	NT	NT	NT	500	79.0	NT	NT	NT
		9/3/2009	NT	NT	NT	NT	NT	NT	NT	NT	0.23	3,900	NT	NT	NT	NT	NT	NT	2.70	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	6.2	NT	7,300	590	NT	NT	NT
		1/6/2010	NT	NT	NT	NT	NT	NT	0.63	NT	0.056	1,600	NT	NT	NT	NT	NT	NT	0.55	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	2.0	NT	2,400	260	NT	NT	NT
MW-2RRs		2/1/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.068	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	290	NT	NT	NT
		4/6/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.110	45	NT	NT	NT	NT	NT	NT	2.4	NT	NT	NT	0.012	NT	NT	NT	NT	NT	1.3	NT	110	97	<0.00019	NT	NT
		7/27/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.076	31	NT	NT	NT	NT	NT	NT	0.59	NT	NT	NT	0.0065 J	NT	NT	NT	NT	NT	0.25 J	NT	95	63	<0.00019	NT	NT
		10/12/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.096	45	NT	NT	NT	NT	NT	NT	5.80	NT	NT	NT	0.021	NT	NT	NT	NT	NT	0.65	NT	180	81	<0.00019	NT	NT
		2/9/2012	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES
MW-2R	Water-Table	9/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	10.0	580	NT	NT	NT	NT	NT	NT	0.96	NT	NT	NT	0.51	NT	NT	NT	NT	NT	NT	NT	450	100	NT	NT	NT
		12/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	6.6	990	NT	NT	NT	NT	NT	NT	0.97	NT	NT	NT	1.6	NT	NT	NT	NT	NT	NT	NT	670	130	NT	NT	NT
		3/3/2009	NT	NT	NT	NT	NT	NT	NT	NT	4.0	990	NT	NT	NT	NT	NT	NT	0.42	NT	NT	NT	1.1	NT	NT	NT	NT	NT	NT	NT	680	130	NT	NT	NT
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	4.3	940	NT	NT	NT	NT	NT	NT	0.36	NT	NT	NT	0.95	NT	NT	NT	NT	NT	NT	NT	680	140	NT	NT	NT
		9/3/2009	NT	NT	NT	NT	NT	NT	16	NT	5.0	1,000	NT	NT	NT	NT	NT	NT	1.30	NT	NT	NT	1.20	NT	NT	NT	NT	NT	1.40	NT	1000	260	NT	NT	NT
		1/6/2010	NT	NT	NT	NT	NT	NT	17	NT	5.0	1,300	NT	NT	NT	NT	NT	NT	0.48	NT	NT	NT	1.10	NT	NT	NT	NT	NT	1.70	NT	1400	440	NT	NT	NT
MW-2RR		2/1/2011	NT	NT	0.57	<0.10	NT	55	6.1	<20	9.2	290	<0.010	NT	0.0054	860	NT	NT	2.20	NT	NT	0.9	0.034	0.05	0.83	<0.10	<0.025	<0.10	4.60	NT	290	170	<0.00019	1.6	<0.030
		4/6/2011	NT	NT	NT	NT	NT	NT	NT	NT	8.7	330	NT	NT	NT	NT	NT	NT	0.36	NT	NT	NT	0.023	NT	NT	NT	NT	NT	1.00	NT	290	160	<0.00019	NT	NT
		7/27/2011	NT	NT	NT	NT	NT	NT	NT	NT	11.0	430	NT	NT	NT	NT	NT	NT	0.77	NT	NT	NT	0.032	NT	NT	NT	NT	NT	1.00	NT	370	200	<0.00019	NT	NT
		10/12/2011	NT	NT	NT	NT	NT	NT	NT	NT	10.0	360	NT	NT	NT	NT	NT	NT	0.54	NT	NT	NT	0.019	NT	NT	NT	NT	NT	0.67	NT	310	180	<0.00019	NT	NT
		2/9/2012	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES	DES
MW-2RRR		4/15/2014	48	<2.6	<0.035	<0.038	0.0016	NT	0.55	NT	0.37	70	<0.0014	NT	NT	250	NT	NT	0.032 J	<0.014	NT	0.38	0.0071 J	0.0059 J	1.1	<0.028	<0.009	NT	0.31 J	0.006	92	42	0.00024 J	0.33 J	<0.0059
		4/15/2014 EB	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	0.15 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.22 J	NT	1.4	<0.077	<0.00019	NT	NT
		9/5/2014	NT	NT	NT	NT	NT	NT	NT	NT	1.8	NT	NT	NT	NT	NT	NT	NT	0.16	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	180	NT	NT	NT
		11/10/2014	NT	NT	NT	NT	0.0003 J	NT	NT	NT	1.9	160	NT	NT	NT	NT	NT	NT	0.033 J	0.049 J	NT	NT	NT	NT	NT	NT	NT	NT	0.87 J	0.0031	180	110	<0.00019	NT	NT
MW-2RB	Deep	2/1/2011	NT	NT	0.93	<0.10	NT	48	10	<20	0.0091	7.2	<0.010	NT	0.011	130	NT	NT	1.00	NT	NT	1.0	0.027	<0.020	0.72	<0.10	0.46	0.37	0.76	NT	26	18	<0.00019	1.2	0.047
		4/7/2011	NT	NT	NT	NT	NT	NT	NT	NT	5600.000	200	NT	NT	NT	NT	NT	NT	2.10	NT	NT	NT	0.490	NT	NT	NT	NT	NT	1.70	NT	210	88	<0.00019	NT	NT
		7/27/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.032	180	NT	NT	NT	NT	NT	NT	2.20	NT	NT	NT	0.400	NT	NT	NT	NT	NT	1.90	NT	210	110	0.00022 J	NT	NT
		10/12/2011	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		8/7/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.031	140	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.29 JP1	NT	130 J5	43	<0.00019	NT	NT
		11/9/2012	NT	NT	<0.100	0.067 J	<0.001	45	1.1	<20	0.026	150	<0.010	NT	NT	390	NT	NT	<0.100	NT	NT	0.80	0.023	<0.020	1.2Q	<0.10Q	<0.025	NT	0.54	0.00069J	140	46	<0.00019	0.80 J	<0.030
		4/4/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.034	120	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.4 J	0.00065 J	110	33	<0.00019	NT	NT
		8/15/2013	NT	NT	NT	NT	0.00025 J	NT	NT	NT	0.042	84	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.31	0.00040 J	62	11	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	0.00034 J	NT	NT	NT	0.028	92	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.35 J	0.00075 J	86	23	<0.00019	NT	NT
		4/15/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.033	70	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.22 J	NT	50	9.2	<0.00019	NT	NT
		4/15/2014 Dup	NT	NT	NT	NT	NT	NT	NT	NT	0.034	71	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.3 J	NT	50	8.8	<0.00019	NT	NT
		11/6/2014	NT	NT	NT	NT	0.0028	NT	NT	NT	0.024	120	NT	NT	NT	NT	NT	NT	0.056 J	0.021 J	NT	NT	NT	NT	NT	NT	NT	NT	<0.1	0.013	110	47.0	<0.00019	NT	NT

Table 17
Summary of Laboratory Test Results
Groundwater Samples
Umicore Facility
Maxton, North Carolina

Method →			2320 B-	2320 B-	6010B	6010B	6020	2320B	6010B	2320B	6010B/6020	9056	6010B	7196A	6020	2540C	9056	ICP-MS	6010B	6010B	6020	6010B	6010B	6010B	9056	9056	4500P-E	365.1	6010B	6010B/6020	6010B	9056	6010B/6020	9060A	6010B
Parameter →			Alkalinity, Bicarbonate	Alkalinity, Carbonate	Aluminum	Ammonia Nitrogen	Arsenic	Bicarbonate	Calcium	Carbonate	Cobalt	Chloride	Chromium	Chromium, Hexavalent	Copper	Dissolved Solids	Fluoride	Germanium	Iron	Iron, Dissolved	Lead	Magnesium	Manganese	Nickel	Nitrate	Nitrite	Phosphate, Ortho	Phosphate, Total	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Organic Carbon	Zinc
2L Standard →			NE	NE	NE	1.5 a	0.010	NE	NE	NE	0.001 a	250	0.01	NE	1	500	2	NE	0.3	NE	0.015	NS	0.05	0.1	10	1.0	NE	NE	NE	0.020	NE	250	0.0002 a	NE	1
Sample ID	Aquifer	Date (Prep method)	Results in mg/L																																
MW-3	Water-Table	8/8/2008	NT	NT	0.48	NT	NT	NT	1.8	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	1.00	NT	NT	0.49	0.068	NT	NT	NT	NT	NT	0.98	NT	5.2	NT	NT	NT	<0.030
		9/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	2.4	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	0.038	NT	NT	NT	NT	NT	NT	NT	6.2	<5.0	NT	NT	NT
		12/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	3.2	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	8.2	<5.0	NT	NT	NT
		3/3/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	2.7	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	13	6.8	NT	NT	NT
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	4.0	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	8.7	7.4	NT	NT	NT
		9/2/2009	NT	NT	NT	NT	NT	NT	0.5	NT	<0.010	3.5	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	9.7	<5.0	NT	NT	NT
		1/6/2010	NT	NT	NT	NT	NT	NT	0.54	NT	<0.010	3.7	NT	NT	NT	NT	NT	NT	0.24	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.53	NT	8.4	<5.0	NT	NT	NT
		4/13/2010	NT	NT	NT	NT	NT	NT	0.56	NT	<0.010	4.0	NT	NT	NT	NT	NT	NT	0.18	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	8.4	12.0	NT	NT	NT
		7/2/2010	NT	NT	NT	NT	NT	NT	1.40	NT	<0.010	3.5	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	7.2	5.8	NT	NT	NT
		2/1/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.00027 J	2.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.14	NT	5.5	2.1 J	<0.00019	NT	NT
		4/5/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	3.0	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.51	NT	5.2	<5.0	<0.00019	NT	NT
		7/26/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		10/12/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		2/9/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		6/19/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		11/5/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/4/2013	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		8/14/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0018	3.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.56	0.00062 J	5.0	3.3 J	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0020	3.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.37 J	0.00067 J	4.0	4.8 J	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0016	3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.51	NT	3.5	3.9 J	0.00023 J	NT	NT
		11/6/2014	NT	NT	NT	NT	0.00041 J	NT	NT	NT	0.0035	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.430 J	0.0011 J	3.5	1.8 J	< 0.00019	NT	NT
MW-4	Water-Table	8/8/2008	NT	NT	0.60	NT	NT	NT	3.3	NT	6.1	800	NT	NT	NT	NT	NT	NT	1.4	NT	NT	1.60	0.065	NT	NT	NT	NT	NT	1.0	NT	680	NT	NT	NT	<0.030
		9/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	7.3	520	NT	NT	NT	NT	NT	NT	0.53	NT	NT	NT	0.029	NT	NT	NT	NT	NT	NT	NT	470	32	NT	NT	NT
		12/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	6.8	320	NT	NT	NT	NT	NT	NT	0.36	NT	NT	NT	0.032	NT	NT	NT	NT	NT	NT	NT	250	62	NT	NT	NT
		3/3/2009	NT	NT	NT	NT	NT	NT	NT	NT	3.4	340	NT	NT	NT	NT	NT	NT	0.35	NT	NT	NT	0.030	NT	NT	NT	NT	NT	NT	NT	310	71	NT	NT	NT
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	5.6	590	NT	NT	NT	NT	NT	NT	2.2	NT	NT	NT	0.034	NT	NT	NT	NT	NT	NT	NT	620	160	NT	NT	NT
		9/3/2009	NT	NT	NT	NT	NT	NT	3.6	NT	12	280	NT	NT	NT	NT	NT	NT	100	NT	NT	NT	0.23	NT	NT	NT	NT	NT	1.5	NT	200	42	NT	NT	NT
		1/7/2010	NT	NT	NT	NT	NT	NT	9.6	NT	3.3	1200	NT	NT	NT	NT	NT	NT	6.1	NT	NT	NT	0.12	NT	NT	NT	NT	NT	2.1	NT	900	210	NT	NT	NT
		4/13/2010	NT	NT	NT	NT	NT	NT	4.1	NT	4.9	920	NT	NT	NT	NT	NT	NT	420	NT	NT	NT	0.19	NT	NT	NT	NT	NT	3.0	NT	870	310	NT	NT	NT
		7/2/2010	NT	NT	NT	NT	NT	NT	0.98	NT	2.2	490	NT	NT	NT	NT	NT	NT	15	NT	NT	NT	0.024	NT	NT	NT	NT	NT	1.2	NT	480	180	NT	NT	NT
		2/1/2011	NT	NT	0.96	<0.10	NT	270	0.76	<20	0.98	490	0.024	NT	0.024	1500	NT	NT	3.0	NT	NT	0.81	0.011	<0.020	1.1	<0.10	<0.025	<0.10	0.65	NT	550	230	<0.00019	1.8	<0.030
		4/4/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.89	580	0.026	<3.9	NT	NT	NT	NT	4.9	NT	NT	NT	0.0066	NT	NT	NT	NT	NT	0.54	NT	620	260	<0.00019	NT	NT
		7/27/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.70	490	NT	NT	NT	NT	NT	NT	0.89	NT	NT	NT	0.005 J	NT	NT	NT	NT	NT	0.51	NT	490	220	<0.00019	NT	NT
		10/12/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.63	460	NT	NT	NT	NT	NT	NT	0.84	NT	NT	NT	0.0039 J	NT	NT	NT	NT	NT	0.39 J	NT	410	150	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.44	430	NT	NT	NT	NT	NT	NT	1.50	NT	NT	NT	0.0030 J	NT	NT	NT	NT	NT	0.34 J	NT	460	220	<0.00019	NT	NT
		6/20/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.42	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.63	NT	370	NT	<0.00019	NT	NT
		6/20/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	0.46	290	NT	NT	NT	NT	NT	NT	0.32	NT	NT	NT	0.0029 J	NT	NT	NT	NT	NT	0.53	NT	370	200	<0.00019	NT	NT
		11/8/2012	NT	NT	NT	NT	0.00047 J	NT	NT	NT	0.48	250	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.71	0.0028	260	99	<0.00019	NT	NT
		1/7/2013	NT	NT	NT	NT	0.00085 J	NT	NT	NT	0.60	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.3	0.0046	470	NT	<0.00019	NT	NT
		4/4/2013	110	<5.0	0.1	NT	0.00084 J	NT	4.7	NT	0.58	320	<0.0014	NT	<0.00052	NT	0.068 J	NT	0.12	0.066 J	<0.00024	1.8	0.014	0.0057	1.1	<0.028	NT	NT	1.00	0.0029	290	88	<0.00019	NT	<0.0059
		8/14/2013	NT	NT	NT	NT	0.00057 J	NT	NT	NT	0.63	300	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.54	0.0037	310	160	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	0.00061 J	NT	NT	NT	0.30	170	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.36 J	0.0017	200	110	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.30	140	NT	NT	NT	NT	NT	NT	0.49	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.52	NT	200	94	<0.00019	NT	NT
		8/29/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.59	NT	NT	NT	NT	NT	NT	NT	0.22	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		8/29/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.55	NT	NT	NT	NT	NT	NT	NT	<0.014	0.019 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	150	NT	NT	NT
		9/11/2014	NT	NT	NT	NT	.00086 J	NT	NT	NT	0.44	240	NT	NT	NT	NT	NT	NT	0.33	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.4 J	0.004	280	140	<.00019	NT	NT
		10/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.64	NT	NT	NT	NT	NT	NT	NT	0.019 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	120	NT	NT	NT
		11/7/2014	NT	NT	NT	NT	0.0014 J	NT	NT	NT	0.55	190	NT	NT	NT	NT	NT	NT	0.014 J	< 0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.2 J	0.0067	220	110	<0.00019	NT	NT
MW-4s	Perched	2/1/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/7/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.071	4.6	NT	NT	NT	NT	NT	NT	<0.1	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	2.1	NT	10	32	<0.0010	NT	NT
		7/27/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		10/11/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.12	3.0	NT	NT	NT	NT	NT	NT	0.28	NT	NT	NT	0.012	NT	NT	NT	NT	NT	1.9	NT	9.0	28	<0.00019	NT	NT
		2/9/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		11/5/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/4/2013	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		9/11/2014	NT	NT	NT	NT	0.00086 J	NT	NT	NT	0.44	NT	NT	NT	NT	NT	NT	NT	0.33	>0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.4	0.0	280	NT	>.00019	NT	NT
MW-5	Water-Table	9/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	0.52	150	NT	NT	NT	NT	NT	NT	0.1	NT	NT	NT	0.012	NT	NT	NT	NT	NT	NT	NT	120	7.0	NT	NT	NT
		12/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	1.8	350	NT	NT	NT	NT	NT	NT	10.0	NT	NT	NT	0.010	NT	NT	NT	NT	NT	NT	NT	280	24	NT	NT	NT
		3/3/2009	NT	NT	NT	NT	NT	NT	NT	NT	1.1	380	NT	NT	NT	NT	NT	NT	0.18	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	290	33	NT	NT	NT
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	1.6	320	NT	NT	NT	NT	NT	NT	7.8	NT	NT	NT	0.015	NT	NT	NT	NT	NT	NT	NT	490	27	NT	NT	NT
		9/2/2009	NT	NT	NT	NT	NT	NT	0.68	NT	1.4	280	NT	NT	NT	NT	NT	NT	0.92	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	230	25	NT	NT	NT
		1/7/2010	NT	NT	NT	NT	NT	NT	1.1	NT	1.6	530	NT	NT	NT	NT	NT	NT	8.3	NT	NT	NT	0.039	NT	NT	NT	NT	NT	1.0	NT	480	65	NT	NT	NT
		4/13/2010	NT	NT	NT	NT	NT	NT	0.65	NT	0.83	490	NT	NT	NT	NT	NT	NT	1.3	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.71	NT	430	67	NT	NT	NT
		7/2/2010	NT	NT	NT	NT	NT	NT	0.72	NT	1.1	380	NT	NT	NT	NT	NT	NT	0.12	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.71	NT	340	58	NT	NT	NT
		2/1/2011	NT	NT	0.75	0.13	NT	85	0.69	<20	1.2	250	<0.010	NT	0.0014 J	660	NT	<0.005	0.70	NT	NT	1.1	<0.010	<0.020	3.0	<0.10	<0.025	<0.10	0.85	NT	280	78	<0.00019	<1.0	<0.030
		4/6/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.87	270	NT	NT	NT	NT	NT	NT	0.57	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.86	NT	220	77	<0.00019	NT	NT
		4/6/2011 (split)	NT	NT	NT	NT	NT	NT	NT	NT	1.84	250	NT	NT	NT	NT	NT	NT	0.67	NT	NT	NT	0.006	NT	NT	NT	NT	NT	0.71	NT	245	72	0.00066 J	NT	NT
		7/26/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.85	380	NT	NT	NT	NT	NT	NT	0.66	NT	NT	NT	0.0061 J	NT	NT	NT	NT	NT	0.63	NT	350	130	<0.00019	NT	NT
		10/11/2011	NT	NT	NT	NT	NT	NT	NT	NT	1.2	530	NT	NT	NT	NT	NT	NT	5.0	NT	NT	NT	0.0086 J	NT	NT	NT	NT	NT	0.61	NT	480	190	<0.00019	NT	NT
		2/10/2012	NT	NT	NT	NT	NT	NT	NT	NT	2.5	590	NT	NT	NT	NT	NT	NT	75.0	NT	NT	NT	0.064	NT	NT	NT	NT	NT	1.7	NT	490	180	0.0006 J	NT	NT
		6/20/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.49	NT	350	NT	<0.00019	NT	NT
		6/20/2012 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	0.89	370	NT	NT	NT	NT	NT	NT	<0.026	NT	NT	NT	0.0042 J	NT	NT	NT	NT	NT	0.56	NT	340	110	<0.00019	NT	NT
		11/5/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/4/2013	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		8/14/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.46	150	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.5	0.0013	130	41	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	0.00035 J	NT	NT	NT	0.44	200	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.54	0.0026	220	110	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.34	150	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.58	NT	170	72	<0.00019	NT	NT
		9/11/2014	NT	NT	NT	NT	0.0005 J	NT	NT	NT	0.31	130	NT	NT	NT	NT	NT	NT	0.46	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.43 J	0.0027	150	71	<0.00019	NT	NT
		11/6/2014	NT	NT	NT	NT	0.0011 J	NT	NT	NT	0.36	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.260 J	0.0053	120	62	<0.00019	NT	NT
MW-5B	Deep	4/21/2014	<2.6	<2.6	1.8	<0.038	0.00044 J	NT	5.3	NT	0.012	160	0.0059 J	NT	NT	320	NT	NT	1.2	0.062 J	NT	3.8	0.024	0.0064 J	0.84	<0.028	0.074	NT	0.79	<0.00038	99	4.2 J	<0.00019	0.32 J	0.018 J
		9/11/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.016	190	NT	NT	NT	NT	NT	NT	0.051 J	<0.00014	NT	NT	NT	NT	NT	NT	NT	NT	0.54 J	<0.00038	110	2.4 J	<0.00019	NT	NT
		9/11/2014 Dup	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.017	200	NT	NT	NT	NT	NT	NT	0.028 J	<0.00014	NT	NT	NT	NT	NT	NT	NT	NT	0.53 J	<0.00038	110	2.4 J	0.00022 J	NT	NT
		11/5/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.012	190	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.36 J	NT	110	2.1 J	<0.00019	NT	NT
		11/5/2014 Dup	NT	NT	NT	NT	NT	NT	NT	NT	0.013	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Table 17
Summary of Laboratory Test Results
Groundwater Samples
Umicore Facility
Maxton, North Carolina

Method →			2320 B-	2320 B-	6010B	6010B	6020	2320B	6010B	2320B	6010B/6020	9056	6010B	7196A	6020	2540C	9056	ICP-MS	6010B	6010B	6020	6010B	6010B	6010B	9056	9056	4500P-E	365.1	6010B	6010B/6020	6010B	9056	6010B/6020	9060A	6010B
Parameter →			Alkalinity, Bicarbonate	Alkalinity, Carbonate	Aluminum	Ammonia Nitrogen	Arsenic	Bicarbonate	Calcium	Carbonate	Cobalt	Chloride	Chromium	Chromium, Hexavalent	Copper	Dissolved Solids	Fluoride	Germanium	Iron	Iron, Dissolved	Lead	Magnesium	Manganese	Nickel	Nitrate	Nitrite	Phosphate, Ortho	Phosphate, Total	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Organic Carbon	Zinc
2L Standard →			NE	NE	NE	1.5 a	0.010	NE	NE	NE	0.001 a	250	0.01	NE	1	500	2	NE	0.3	NE	0.015	NS	0.05	0.1	10	1.0	NE	NE	NE	0.020	NE	250	0.0002 a	NE	1
Sample ID	Aquifer	Date (Prep method)	Results in mg/L																																
MW-6	Water-Table	9/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	3.6	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	0.013	NT	NT	NT	NT	NT	NT	NT	2.8	<5.0	NT	NT	NT
		12/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	2.9	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	3.5	<5.0	NT	NT	NT
		3/3/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	3.1	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	3.4	<5.0	NT	NT	NT
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	3.8	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	2.5	<5.0	NT	NT	NT
		9/2/2009	NT	NT	NT	NT	NT	NT	0.74	NT	<0.010	3.1	NT	NT	NT	NT	NT	NT	0.49	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	2.5	<5.0	NT	NT	NT
		1/6/2010	NT	NT	NT	NT	NT	NT	0.73	NT	0.019	3.0	NT	NT	NT	NT	NT	NT	8.5	NT	NT	NT	0.040	NT	NT	NT	NT	NT	0.59	NT	1.8	<5.0	NT	NT	NT
		4/13/2010	NT	NT	NT	NT	NT	NT	<0.50	NT	<0.010	5.1	NT	NT	NT	NT	NT	NT	2.7	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	2.9	<5.0	NT	NT	NT
		7/2/2010	NT	NT	NT	NT	NT	NT	<0.50	NT	<0.010	4.1	NT	NT	NT	NT	NT	NT	<0.1	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	2.6	<5.0	NT	NT	NT
		2/2/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0033 J	2.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.14	NT	1.5	0.7 J	<0.00019	NT	NT
		4/5/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0013	2.6	NT	NT	NT	NT	NT	NT	<0.1	NT	NT	NT	<0.01	NT	NT	NT	NT	NT	<0.50	NT	1.2	<5.0	<0.00019	NT	NT
		7/26/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.00098 J	2.8	NT	NT	NT	NT	NT	NT	0.160	NT	NT	NT	0.0023	NT	NT	NT	NT	NT	0.170	NT	1.5	0.60 J	<0.00019	NT	NT
		10/11/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.00072 J	3.1	NT	NT	NT	NT	NT	NT	0.120	NT	NT	NT	0.0033 J	NT	NT	NT	NT	NT	0.15 J	NT	1.8	<0.46	<0.00019	NT	NT
		2/10/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.0045	3.0	NT	NT	NT	NT	NT	NT	2.90	NT	NT	NT	0.014	NT	NT	NT	NT	NT	0.29 J	NT	1.6	0.79 J	<0.00019	NT	NT
		6/20/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.00034 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.360 J	NT	2.0	NT	<0.00019	NT	NT
		6/20/2012 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	0.0017	2.8	NT	NT	NT	NT	NT	NT	<0.026	NT	NT	NT	0.0019	NT	NT	NT	NT	NT	<0.120	NT	1.4	1.8 J	<0.00019	NT	NT
		11/5/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/4/2013	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		8/14/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0014	3.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.22 J	<0.00038	2.5	1.2 J	<0.00019	NT	NT
		8/14/2013 FB	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	<0.052	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.18 J	<0.00038	1.5	<0.077	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	0.00079 J	NT	NT	NT	0.00074 J	2.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.28 J	0.0025	2.0	2.2 J	<0.00019	NT	NT
MW-7	Water-Table	9/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	250	NT	NT	NT	NT	NT	NT	0.27	NT	NT	NT	0.026	NT	NT	NT	NT	NT	NT	NT	240	29.0	NT	NT	<0.030
		12/22/2008	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	540	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	0.10	NT	NT	NT	NT	NT	NT	NT	430	74.0	NT	NT	NT
		3/3/2009*	NT	NT	NT	NT	NT	NT	NT	NT	0.011	450	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	0.013	NT	NT	NT	NT	NT	NT	NT	380	51	NT	NT	NT
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	0.012	110	NT	NT	NT	NT	NT	NT	2.3	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	140	6.2	NT	NT	NT
		9/2/2009	NT	NT	NT	NT	NT	NT	0.77	NT	0.021	69	NT	NT	NT	NT	NT	NT	0.4	NT	NT	NT	0.023	NT	NT	NT	NT	NT	1.0	NT	67	<5.0	NT	NT	NT
		1/7/2010	NT	NT	NT	NT	NT	NT	1.4	NT	0.033	29	NT	NT	NT	NT	NT	NT	1.6	NT	NT	NT	0.076	NT	NT	NT	NT	NT	1.4	NT	34	<5.0	NT	NT	NT
		4/13/2010	NT	NT	NT	NT	NT	NT	2.0	NT	0.066	120	NT	NT	NT	NT	NT	NT	160	NT	NT	NT	0.25	NT	NT	NT	NT	NT	3.7	NT	100	30	NT	NT	NT
		7/2/2010	NT	NT	NT	NT	NT	NT	0.95	NT	0.028	250	NT	NT	NT	NT	NT	NT	2.0	NT	NT	NT	0.028	NT	NT	NT	NT	NT	0.99	NT	200	41	NT	NT	NT
		2/2/2011	NT	NT	NT	NT	NT	42	1.2	<1.1	0.058	220	NT	NT	NT	550	NT	NT	NT	NT	NT	1.4	NT	NT	NT	NT	NT	NT	0.99	NT	190	39	<0.00019	NT	NT
		4/6/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.030	99	NT	NT	NT	NT	NT	NT	<0.100	NT	NT	NT	0.025	NT	NT	NT	NT	NT	0.89	NT	83	14	<0.00019	NT	NT
		7/26/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.031	50	NT	NT	NT	NT	NT	NT	0.02 J	NT	NT	NT	0.056	NT	NT	NT	NT	NT	0.96	NT	47	7.7	<0.00019	NT	NT
		10/12/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		2/9/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		6/19/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		11/5/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/4/2013	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		8/14/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.022	40	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.9	0.00072 J	36	4.4 J	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.026	310	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.88	0.0052	230	54	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.020	130	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.97	NT	120	39	<0.00019	NT	NT
		9/10/2014	NT	NT	NT	NT	0.00033 J	NT	NT	NT	0.035	NT	NT	NT	NT	NT	NT	NT	0.11	NT	NT	NT	NT	NT	NT	NT	NT	NT	.980 J	<0.00038	27	NT	<0.00019	NT	NT
MW-8	Water-Table	3/3/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	5.1	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	0.011	NT	NT	NT	NT	NT	NT	NT	4.0	<5.0	NT	NT	NT
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	3.8	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	1.7	<5.0	NT	NT	NT
		9/2/2009	NT	NT	NT	NT	NT	NT	0.90	NT	<0.010	3.2	NT	NT	NT	NT	NT	NT	0.63	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.5	NT	2.0	<5.0	NT	NT	NT
		1/7/2010	NT	NT	NT	NT	NT	NT	0.66	NT	<0.010	3.6	NT	NT	NT	NT	NT	NT	0.13	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.5	NT	2.1	<5.0	NT	NT	NT
		4/13/2010	NT	NT	NT	NT	NT	NT	<0.50	NT	<0.010	4.5	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	2.0	<5.0	NT	NT	NT
		7/2/2010	NT	NT	NT	NT	NT	NT	<0.50	NT	<0.010	3.9	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	1.9	<5.0	NT	NT	NT
		2/2/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	3.2	NT	NT	NT	NT	NT	<0.005	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.14	NT	2.0	<4.6	<0.00019	NT	NT
		4/6/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	4.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	2.3	<4.6	<0.00019	NT	NT
		7/26/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	4.4	NT	NT	NT	NT	NT	NT	0.360	NT	NT	NT	0.0029 J	NT	NT	NT	NT	NT	0.21 J	NT	2.2	<4.6	<0.00019	NT	NT
		10/11/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	3.7	NT	NT	NT	NT	NT	NT	0.220	NT	NT	NT	0.0030 J	NT	NT	NT	NT	NT	0.17 J	NT	1.7	<4.6	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	3.8	NT	NT	NT	NT	NT	NT	0.770	NT	NT	NT	0.0040 J	NT	NT	NT	NT	NT	0.71	NT	2.0	0.41 J	<0.00019	NT	NT
		6/20/12 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.12	NT	2.3	NT	<0.00019	NT	NT
		6/20/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	3.8	NT	NT	NT	NT	NT	NT	<0.026	NT	NT	NT	<0.0015	NT	NT	NT	NT	NT	0.26	NT	2.0	<0.40	NT	NT	NT
		11/7/2012	NT	NT	NT	NT	0.00056J	NT	NT	NT	0.00071J	3.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.24 J	0.00053J	2.2	1.3 J	<0.00019	NT	NT
		4/2/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	3.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.21 J	<0.00038	2.0	0.45 J	<0.00019	NT	NT
		8/13/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00039 J	3.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.25 J	<0.00038	2.3	1.6 J	<0.00019	NT	NT
		9/9/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0003 J	4.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	.210 J	<0.00038	2.4	0.32	<0.00019	NT	NT
		11/5/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	.00036 J	4.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	.270 J	0.00052 J	2.6	0.38 J	<0.00019	NT	NT
MW-9	Water-Table	3/3/2009*	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	11.0	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	0.012	NT	NT	NT	NT	NT	NT	NT	9.7	<5.0	NT	NT	<0.030
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	8.2	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	6.3	<5.0	NT	NT	NT
		9/2/2009	NT	NT	NT	NT	NT	NT	0.69	NT	<0.010	5.2	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	3.7	<5.0	NT	NT	NT
		1/6/2010	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/13/2010	NT	NT	NT	NT	NT	NT	<0.50	NT	<0.010	4.2	NT	NT	NT	NT	NT	NT	5.6 J6	NT	NT	NT	0.018	NT	NT	NT	NT	NT	<0.50	NT	2.5	<5.0	NT	NT	NT
		7/2/2010	NT	NT	NT	NT	NT	NT	0.80	NT	<0.010	11.0	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	0.012	NT	NT	NT	NT	NT	<0.50	NT	8.3	<5.0	NT	NT	NT
		2/1/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0066	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	NT	NT	NT
		4/4/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		7/26/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		10/11/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		2/9/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		6/19/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		11/5/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/4/2013	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		8/14/2013	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY

Table 17
Summary of Laboratory Test Results
Groundwater Samples
Umicore Facility
Maxton, North Carolina

Method →			2320 B-	2320 B-	6010B	6010B	6020	2320B	6010B	2320B	6010B/6020	9056	6010B	7196A	6020	2540C	9056	ICP-MS	6010B	6010B	6020	6010B	6010B	6010B	9056	9056	4500P-E	365.1	6010B	6010B/6020	6010B	9056	6010B/6020	9060A	6010B
Parameter →			Alkalinity, Bicarbonate	Alkalinity, Carbonate	Aluminum	Ammonia Nitrogen	Arsenic	Bicarbonate	Calcium	Carbonate	Cobalt	Chloride	Chromium	Chromium, Hexavalent	Copper	Dissolved Solids	Fluoride	Germanium	Iron	Iron, Dissolved	Lead	Magnesium	Manganese	Nickel	Nitrate	Nitrite	Phosphate, Ortho	Phosphate, Total	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Organic Carbon	Zinc
2L Standard →			NE	NE	NE	1.5 a	0.010	NE	NE	NE	0.001 a	250	0.01	NE	1	500	2	NE	0.3	NE	0.015	NS	0.05	0.1	10	1.0	NE	NE	NE	0.020	NE	250	0.0002 a	NE	1
Sample ID	Aquifer	Date (Prep method)	Results in mg/L																																
MW-10	Water-Table	3/3/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	3.8	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	0.024	NT	NT	NT	NT	NT	NT	NT	6.4	5.8	NT	NT	NT
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	3.4	NT	NT	NT	NT	NT	NT	0.14	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	2.3	<5.0	NT	NT	NT
		9/3/2009	NT	NT	NT	NT	NT	NT	1.0	NT	<0.010	8.2	NT	NT	NT	NT	NT	NT	1.6	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	8.2	<5.0	NT	NT	NT
		1/6/2010	NT	NT	NT	NT	NT	NT	2.0	NT	<0.010	5.6	NT	NT	NT	NT	NT	NT	0.83	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	1.20	NT	5.1	<5.0	NT	NT	NT
		4/13/2010	NT	NT	NT	NT	NT	NT	1.1	NT	<0.010	5.6	NT	NT	NT	NT	NT	NT	0.12	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.76	NT	7.0	8.2	NT	NT	NT
		7/2/2010	NT	NT	NT	NT	NT	NT	1.1	NT	<0.010	3.8	NT	NT	NT	NT	NT	NT	0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.87	NT	5.0	<5.0	<0.0010	NT	NT
		2/2/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	8.2	NT	NT	NT	NT	NT	<0.005	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.14	NT	8.7	5.7	<0.00019	NT	NT
		4/6/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	6.0	NT	NT	NT	NT	NT	NT	0.46	NT	NT	NT	<0.10	NT	NT	NT	NT	NT	<0.50	NT	8.5	6.8	<0.00019	NT	NT
		7/27/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.00039 J	5.7	NT	NT	NT	NT	NT	NT	0.14	NT	NT	NT	0.0025 J	NT	NT	NT	NT	NT	0.51	NT	4.7	3.7	<0.00019	NT	NT
		10/11/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.00031 J	6.4	NT	NT	NT	NT	NT	NT	0.17	NT	NT	NT	0.002 J	NT	NT	NT	NT	NT	0.32	NT	5.0	2.9	<0.0038 O	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.00085 J	8.1	NT	NT	NT	NT	NT	NT	0.16	NT	NT	NT	0.004 J	NT	NT	NT	NT	NT	0.50	NT	7.1	5.4	<0.00019	NT	NT
		6/20/12 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.0016	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.41	NT	6.3	NT	NT	NT	NT
		6/20/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	7.6	NT	NT	NT	NT	NT	NT	0.087 J	NT	NT	NT	0.0029 J	NT	NT	NT	NT	NT	NT	NT	NT	5.6	NT	NT	NT
		11/7/2012	NT	NT	0.31	<0.100	0.00054J	<20	0.29 J	<20	0.0025	3.3	<0.010	NT	NT	29	NT	NT	0.13	NT	NT	1.7	0.0022 J	<0.020	2.2	<0.100	0.008 J	NT	0.33 J	<0.001	1.6	7.0	<0.00019	0.32 J	<0.030
		4/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0014	5.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.61	<0.00038	4.0	6.1	<0.00019	NT	NT
		8/13/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00067 J	4.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.6	<0.00038	12.0	9.3	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0011	5.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.19 J	<0.00038	4.1	7.0	<0.00019	NT	NT
		4/16/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0016	4.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.74	NT	9.0	5.6	0.00023 J	NT	NT
		9/9/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00083 J	8.7	NT	NT	NT	NT	NT	NT	.049 J	<.014	NT	NT	NT	NT	NT	NT	NT	NT	0.17	.00088 J	10.0	7.7	<0.00019	NT	NT
		11/5/2014	NT	NT	NT	NT	0.00063 J	NT	NT	NT	0.00063 J	7.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.160 J	0.0026	12.0	12.0	<0.00019	NT	NT
MW-11	Water-Table	3/3/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	5.4	NT	NT	NT	NT	NT	NT	0.25	NT	NT	NT	0.026	NT	NT	NT	NT	NT	NT	NT	16.0	16.0	NT	NT	NT
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	6.9	NT	NT	NT	NT	NT	NT	0.12	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	13.0	15.0	NT	NT	NT
		9/2/2009	NT	NT	NT	NT	NT	NT	0.80	NT	0.010	7.1	NT	NT	NT	NT	NT	NT	2.3	NT	NT	NT	0.028	NT	NT	NT	NT	NT	<0.50	NT	14.0	12.0	NT	NT	NT
		1/6/2010	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/13/2010	NT	NT	NT	NT	NT	NT	1.1	NT	<0.010	4.3	NT	NT	NT	NT	NT	NT	1.3	NT	NT	NT	0.019	NT	NT	NT	NT	NT	<0.50	NT	3.7	<5.0	NT	NT	NT
		7/2/2010	NT	NT	NT	NT	NT	NT	1.0	NT	<0.010	4.0	NT	NT	NT	NT	NT	NT	0.27	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.61	NT	2.8	<5.0	NT	NT	NT
		2/2/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	5.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.14	NT	8.4	5.6	<0.00019	NT	NT
		4/5/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	5.7	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	8.3	NT	<0.00019	NT	NT
		7/27/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.00061 J	4.3	NT	NT	NT	NT	NT	NT	0.022 J	NT	NT	NT	0.0039 J	NT	NT	NT	NT	NT	<0.47	NT	4.7	2.2	<0.00019	NT	NT
		10/11/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.00034 J	5.4	NT	NT	NT	NT	NT	NT	0.084 J	NT	NT	NT	0.0052 J	NT	NT	NT	NT	NT	0.49 J	NT	4.9	1.6 J	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.00086 J	4.1	NT	NT	NT	NT	NT	NT	0.14	NT	NT	NT	0.0050 J	NT	NT	NT	NT	NT	0.30 J	NT	5.6	3.8 J	<0.00019	NT	NT
		6/20/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.0011	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.59	NT	3	NT	<0.00019	NT	NT
		6/20/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	3.5	NT	NT	NT	NT	NT	NT	0.041 J	NT	NT	NT	0.0045 J	NT	NT	NT	NT	NT	NT	NT	NT	4.1 J	NT	NT	NT
		11/5/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/4/2013	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		8/14/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00039 J	3.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.32 J	<0.00038	1.9	2.3 J	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00080 J	3.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.35 J	<0.00038	2.6	5.1	<0.00019	NT	NT
		11/6/2014	NT	NT	NT	NT	0.00037 J	NT	NT	NT	0.00053 J	4.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.360 J	0.0018 J	9.2	8.9	<0.00019	NT	NT
MW-12B	Deep	3/3/2009*	NT	NT	NT	NT	NT	NT	NT	NT	0.22	340	NT	NT	NT	NT	NT	NT	10.0	NT	NT	NT	0.035	NT	NT	NT	NT	NT	NT	NT	220	19.0	NT	NT	<0.030
		6/18/2009	NT	NT	NT	NT	NT	NT	NT	NT	0.11	360	NT	NT	NT	NT	NT	NT	0.18	NT	NT	NT	0.014	NT	NT	NT	NT	NT	NT	NT	230	21.0	NT	NT	NT
		9/3/2009	NT	NT	NT	NT	NT	NT	2.3	NT	0.090	370	NT	NT	NT	NT	NT	NT	0.41	NT	NT	NT	0.012	NT	NT	NT	NT	NT	0.77	NT	230	15.0	NT	NT	NT
		1/6/2010	NT	NT	NT	NT	NT	NT	1.1	NT	0.064	360	NT	NT	NT	NT	NT	NT	<0.1	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.66	NT	220	9.4	NT	NT	NT
MW-12RB		2/3/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0063	280	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.70	NT	240	63	<0.00019	NT	NT
		2/3/2011 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.0066	270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.60	NT	230	61	<0.00019	NT	NT
		4/7/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.029	300	NT	NT	NT	NT	NT	NT	1.90	NT	NT	NT	1.20	NT	NT	NT	NT	NT	1.20	NT	200	32	<0.00019	NT	NT
		4/7/2011 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.030	300	NT	NT	NT	NT	NT	NT	2.00	NT	NT	NT	1.20	NT	NT	NT	NT	NT	1.40	NT	200	32	<0.00019	NT	NT
		7/27/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.140	280	NT	NT	NT	NT	NT	NT	0.30	NT	NT	NT	0.34	NT	NT	NT	NT	NT	0.69	NT	170	25	<0.00019	NT	NT
		7/27/2011 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.140	280	NT	NT	NT	NT	NT	NT	0.34	NT	NT	NT	0.35	NT	NT	NT	NT	NT	0.69	NT	180	26	<0.00019	NT	NT
		10/12/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.120	250	NT	NT	NT	NT	NT	NT	0.67	NT	NT	NT	0.27	NT	NT	NT	NT	NT	0.87	NT	150	26	<0.00019	NT	NT
		10/12/2011 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.130	250	NT	NT	NT	NT	NT	NT	0.52	NT	NT	NT	0.24	NT	NT	NT	NT	NT	0.53	NT	150	26	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.085	210	NT	NT	NT	NT	NT	NT	0.034 J	NT	NT	NT	0.31	NT	NT	NT	NT	NT	0.95	NT	140	29	<0.00019	NT	NT
		2/9/2012 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.077	200	NT	NT	NT	NT	NT	NT	0.029 J	NT	NT	NT	0.32	NT	NT	NT	NT	NT	0.74	NT	140	31	<0.00019	NT	NT
		6/20/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.180	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.20	NT	170	NT	<0.00019	NT	NT
		6/20/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	220	NT	NT	NT	NT	NT	NT	0.098 J	NT	NT	NT	0.12	NT	NT	NT	NT	NT	NT	NT	NT	240	NT	NT	NT
		6/20/12 (3015-dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.170	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.30	NT	170	NT	<0.00019	NT	NT
		6/20/12 (3030C-dup.)	NT	NT	NT	NT	NT	NT	NT	NT	NT	230	NT	NT	NT	NT	NT	NT	0.12	NT	NT	NT	0.11	NT	NT	NT	NT	NT	NT	NT	NT	240	NT	NT	NT
		11/9/2012	NT	NT	NT	NT	<0.001	NT	NT	NT	0.20	290	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.4	0.00078J	190	20	<0.00019	NT	NT
		11/9/2012 Dup	NT	NT	NT	NT	<0.001	NT	NT	NT	0.20	290	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.5	0.00076J	180	20	<0.00019	NT	NT
		1/7/2013	NT	NT	NT	NT	0.00095 J	NT	NT	NT	0.18	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.4	0.00066J	170	NT	<0.00019	NT	NT
		4/3/2013	<5.0	<5.0	0.32	NT	0.00036 J	NT	2.6	NT	0.15	230	<0.0014	NT	0.0011 J	NT	0.061 J	NT	0.22	0.089 J	0.00061 J	1.6	0.076	0.0042	1.2	<0.028	NT	NT	1.50	0.00063 J	160	23	<0.00019	NT	0.0091 J
		4/3/13 Dup	<5.0	<5.0	0.33	NT	0.00034 J	NT	2.7	NT	0.15	240	<0.0014	NT	0.0011 J	NT	0.055 J	NT	0.21	0.090 J	0.00067 J	1.7	0.080	0.0042	1.2	<0.028	NT	NT	1.60	0.00063 J	170	23	<0.00019	NT	0.010 J
		4/3/2013 FB	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.00038	NT	NT	<0.00019	NT	NT
		8/14/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.13	190	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.2	<0.00038	130	31	<0.00019	NT	NT
		8/14/2013 Dup	NT	NT	NT	NT	0.00040 J	NT	NT	NT	0.12	190	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.0	0.00059 J	120	23	<0.00019	NT	NT
		8/14/2013 EB	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	0.2 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.1 J	<0.00038	1.3	<0.077	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	0.00070 J	NT	NT	NT	0.14	200	NT	NT	NT	NT	NT	NT	0.62	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	1.4	0.0011	140	17	<0.00019	NT	NT
		4/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.16	200	NT	NT	NT	NT	NT	NT	1.8	0.025 J	NT	NT	NT	NT	NT	NT	NT	NT	1.2	NT	140	30	<0.00019	NT	NT
		9/10/2014	NT	NT	NT	NT	0.00071 J	NT	NT	NT	0.15	NT	NT	NT	NT	NT	NT	NT	0.49	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.1	0.0012	150	NT	<0.00019	NT	NT
		11/6/2014	NT	NT	NT	NT	0.0014 J	NT	NT	NT	0.10	NT	NT	NT	NT	NT	NT	NT	0.75	< 0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.800 J	0.00077 J	120	10	< 0.00019	NT	NT
		11/6/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.12	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Table 17
Summary of Laboratory Test Results
Groundwater Samples
Umicore Facility
Maxton, North Carolina

Method →			2320 B-	2320 B-	6010B	6010B	6020	2320B	6010B	2320B	6010B/6020	9056	6010B	7196A	6020	2540C	9056	ICP-MS	6010B	6010B	6020	6010B	6010B	6010B	9056	9056	4500P-E	365.1	6010B	6010B/6020	6010B	9056	6010B/6020	9060A	6010B
Parameter →			Alkalinity, Bicarbonate	Alkalinity, Carbonate	Aluminum	Ammonia Nitrogen	Arsenic	Bicarbonate	Calcium	Carbonate	Cobalt	Chloride	Chromium	Chromium, Hexavalent	Copper	Dissolved Solids	Fluoride	Germanium	Iron	Iron, Dissolved	Lead	Magnesium	Manganese	Nickel	Nitrate	Nitrite	Phosphate, Ortho	Phosphate, Total	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Organic Carbon	Zinc
2L Standard →			NE	NE	NE	1.5 a	0.010	NE	NE	NE	0.001 a	250	0.01	NE	1	500	2	NE	0.3	NE	0.015	NS	0.05	0.1	10	1.0	NE	NE	NE	0.020	NE	250	0.0002 a	NE	1
Sample ID	Aquifer	Date (Prep method)	Results in mg/L																																
MW-12	Water-Table	2/3/2011	NT	NT	NT	NT	NT	240	1.8	<1.1	<0.00026	500	NT	NT	NT	1400	NT	NT	NT	NT	NT	0.7	NT	NT	NT	NT	NT	NT	1.20	NT	500	180	<0.00019	3.6	NT
		4/6/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0064 J	530	NT	NT	NT	NT	NT	NT	4.60	NT	NT	NT	0.022	NT	NT	NT	NT	NT	0.75	NT	480	140	<0.00019	NT	NT
		7/27/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0030	580	NT	NT	NT	NT	NT	NT	3.30	NT	NT	NT	0.013	NT	NT	NT	NT	NT	0.37	NT	550	190	<0.00019	NT	NT
		10/12/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0039	360	NT	NT	NT	NT	NT	NT	6.10	NT	NT	NT	0.019	NT	NT	NT	NT	NT	0.67	NT	600	100	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.0036	600	NT	NT	NT	NT	NT	NT	0.13	NT	NT	NT	0.006 J	NT	NT	NT	NT	NT	1.40	NT	520	190	<0.00019	NT	NT
		6/21/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.0041	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.20	NT	370	NT	<0.00019	NT	NT
		6/21/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	320	NT	NT	NT	NT	NT	NT	0.036 J	NT	NT	NT	0.0033 J	NT	NT	NT	NT	NT	NT	NT	NT	86	NT	NT	NT
		11/8/2012	NT	NT	NT	NT	0.0011	NT	NT	NT	0.0080	500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.0	0.0063	440	170	<0.00019	NT	NT
		4/4/2013	170	<5.0	0.068 J	NT	0.00026 J	NT	14	NT	0.11	350	<0.0014	NT	<0.00052	NT	0.15	NT	10	2	0.00024	2.6	0.064	0.0012	0.23	<0.028	NT	NT	1.10	0.0041	340	120	<0.00019	NT	<0.0059
		8/14/2013	NT	NT	NT	NT	0.00040 J	NT	NT	NT	0.0045	360	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.62	0.0035	490	310	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	0.00058 J	NT	NT	NT	0.0053	240	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.54	0.0023	320	160	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0046	160	NT	NT	NT	NT	NT	NT	4.3	1.6	NT	NT	NT	NT	NT	NT	NT	NT	0.71	NT	200	110	<0.00019	NT	NT
		9/9/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0098	120	NT	NT	NT	NT	NT	NT	7.2	5.9	NT	NT	NT	NT	NT	NT	NT	NT	0.7 J	0.0028	160	88	<0.00019	NT	NT
		2014-09-09 dup	NT	NT	NT	NT	0.0013	NT	NT	NT	0.0098	120	NT	NT	NT	NT	NT	NT	7.3	6.3	NT	NT	NT	NT	NT	NT	NT	NT	0.73 J	0.0025	160	89	<0.00019	NT	NT
		11/7/2014	NT	NT	NT	NT	0.0023	NT	NT	NT	0.0110	220	NT	NT	NT	NT	NT	NT	4.7	0.94	NT	NT	NT	NT	NT	NT	NT	NT	<0.510	0.004	210	99	<0.00019	NT	NT
MW-13s	Perched	2/1/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/4/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		7/27/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		10/12/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		2/9/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		4/4/2013	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-13	Water-Table	2/2/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	420	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.79	NT	340	72	<0.00019	NT	NT
		4/7/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.15	180	NT	NT	NT	NT	NT	NT	1.6	NT	NT	NT	0.071	NT	NT	NT	NT	NT	2.1	NT	120	17	<0.00019	NT	NT
		7/27/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.041	390	NT	NT	NT	NT	NT	NT	0.84	NT	NT	NT	0.037	NT	NT	NT	NT	NT	1.8	NT	240	20	<0.00019	NT	NT
		10/12/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0063	440	NT	NT	NT	NT	NT	NT	0.26	NT	NT	NT	0.0045	NT	NT	NT	NT	NT	0.53	NT	280	20	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.011	280	NT	NT	NT	NT	NT	NT	0.058	NT	NT	NT	0.0035 J	NT	NT	NT	NT	NT	0.4	NT	170	7	<0.00019	NT	NT
		6/20/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.0097	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2.3	NT	98	NT	<0.00019	NT	NT
		6/20/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	150	NT	NT	NT	NT	NT	NT	0.240	NT	NT	NT	0.0066 J	NT	NT	NT	NT	NT	NT	NT	NT	10	NT	NT	NT
		11/8/2012	NT	NT	NT	NT	<0.001	NT	NT	NT	0.0045	120	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.48 J	0.0013	78	4.6 J	<0.00019	NT	NT
		4/4/2013	<5.0	<5.0	0.44	NT	0.00026 J	NT	0.5	NT	0.0032	230	0.0014 J	NT	0.0034	NT	0.13	NT	0.038 J	<0.014	0.00052 J	1.2	0.0031 J	0.00093 J	1.5	<0.028	NT	NT	0.58	0.0025	160	17	<0.00019	NT	0.0082 J
		8/13/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0051	220	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.0	0.0056	360	180	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0026	230	NT	NT	NT	NT	NT	NT	0.077 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.7	0.0028	190	53	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0055	230	NT	NT	NT	NT	NT	NT	0.39	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	1.4	NT	240	130	<0.00019	NT	NT
		9/9/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0023	320	NT	NT	NT	NT	NT	NT	0.13	<.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.0089	240	80	<0.00019	NT	NT
		11/7/2014	NT	NT	NT	NT	0.00029	NT	NT	NT	0.0026	NT	NT	NT	NT	NT	NT	NT	<0.070	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	<0.510	0.0062	260	56	<0.00019	NT	NT
MW-13B	Deep	2/3/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0018	50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.95 J	NT	190	230	<0.00019	NT	NT
		4/7/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0098	87	NT	NT	NT	NT	NT	NT	3.7	NT	NT	NT	0.49	NT	NT	NT	NT	NT	1.3	NT	200	120	<0.0010	NT	NT
		7/27/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0046	110	NT	NT	NT	NT	NT	NT	4.0	NT	NT	NT	0.47	NT	NT	NT	NT	NT	1.2	NT	130	58	<0.00019	NT	NT
		10/12/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0027	100	NT	NT	NT	NT	NT	NT	4.2	NT	NT	NT	0.39	NT	NT	NT	NT	NT	1.3	NT	120	49	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.012	70	NT	NT	NT	NT	NT	NT	2.2	NT	NT	NT	0.29	NT	NT	NT	NT	NT	2.7	NT	120	110	<0.00019	NT	NT
		6/21/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.0054	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.7	NT	110	NT	<0.00019	NT	NT
		6/21/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	0.0049	84	NT	NT	NT	NT	NT	NT	3.8	NT	NT	NT	0.27	NT	NT	NT	NT	NT	1.6	NT	110	86	<0.00019	NT	NT
		11/8/2012	NT	NT	NT	NT	0.0029	NT	NT	NT	0.0066	78	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.2	0.00071J	82	53	<0.00019	NT	NT
		4/3/2013	72	<5.0	0.11	NT	0.0025	NT	18	NT	0.0056	60	<0.0014	NT	0.0015 J	NT	<0.0099	NT	2.7	1.9	0.00035 J	2.1	0.15	0.0011	0.35	<0.028	NT	NT	1.30	<0.00038	74	40	<0.00019	NT	0.01 J
		8/14/2013	NT	NT	NT	NT	0.00098 J	NT	NT	NT	0.0036	68	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.1	<0.00038	77	44	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	0.00089 J	NT	NT	NT	0.0020	71	NT	NT	NT	NT	NT	NT	1.6	0.75	NT	NT	NT	NT	NT	NT	NT	NT	0.9	<0.00038	75	38	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0046	46	NT	NT	NT	NT	NT	NT	0.61	0.23	NT	NT	NT	NT	NT	NT	NT	NT	0.88	NT	54	24	<0.00019	NT	NT
MW-14	Water-Table	2/2/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.00041 J	2.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.74	NT	3.6	0.71 J	<0.00019	NT	NT
		4/5/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	2.2	NT	NT	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	0.54	NT	4.7	<0.46	<0.00019	NT	NT
		7/26/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.00039 J	3.0	NT	NT	NT	NT	NT	NT	0.22	NT	NT	NT	0.00024 J	NT	NT	NT	NT	NT	0.390 J	NT	5.7	<0.46	<0.00019	NT	NT
		10/11/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	2.6	NT	NT	NT	NT	NT	NT	0.29	NT	NT	NT	0.0015 J	NT	NT	NT	NT	NT	0.260 J	NT	4.2	<0.46	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.00066 J	2.6	NT	NT	NT	NT	NT	NT	0.045 J	NT	NT	NT	<0.0015	NT	NT	NT	NT	NT	0.210 J	NT	3.4	<0.40	<0.00019	NT	NT
		6/20/12 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.61	NT	2.8	NT	<0.00019	NT	NT
		6/20/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	2.2	NT	NT	NT	NT	NT	NT	<0.026	NT	NT	NT	<0.0015	NT	NT	NT	NT	NT	<0.120	NT	2.5	<0.40	NT	NT	NT
		11/6/2012	NT	NT	NT	NT	<0.001	NT	NT	NT	0.0017	2.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.50	<0.001	3.6	1.1 J	<0.00019	NT	NT
		4/2/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0014	8.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.21 J	<0.00038	2.6	0.85 J	<0.00019	NT	NT
		8/13/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00062 J	2.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.44 J	<0.00038	3.9	1.1 J	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00065 J	2.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.35 J	0.00038 J	2.2	1.4 J	<0.00019	NT	NT
MW-14B	Deep	6/19/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	2.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.120	NT	3	2.3	<0.00019	NT	NT
		6/19/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.027 J	NT	NT	NT	0.0045 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		11/6/2012	NT	NT	NT	NT	<0.001	NT	NT	NT	0.00035 J	2.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.49 J	<0.001	2.8	1.2 J	<0.00019	NT	NT
		4/2/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00035 J	2.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.19 J	<0.00038	2.0	0.78 J	<0.00019	NT	NT
		8/13/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	2.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.37 J	<0.00038	2.4	0.78 J	<0.00019	NT	NT
		11/5/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00060 J	2.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	.270 J	0.00065 J	2.5	.370 J	<0.00019	NT	NT
MW-15	Water-Table	2/1/2011	NT	NT	0.78	<0.10	NT	44	10	<20	0.27	5.6	<0.010	NT	0.028	87	NT	<0.005	3.5	NT	NT	0.81	0.087	<0.020	2.0	2.0	<0.025	<0.10	0.6	NT	5.0	<5.0	<0.0010	<1.0	<0.030
		4/6/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.50	4.6	NT	NT	NT	NT	NT	<0.005	0.49	NT	NT	NT	0.018	NT	NT	NT	NT	NT	0.73	NT	4.5	<5.0	<0.00019	NT	NT
		7/27/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.074	4.7	NT	NT	NT	NT	NT	NT	0.17	NT	NT	NT	0.009 J	NT	NT	NT	NT	NT	0.53	NT	4.5	0.72 J	<0.00019	NT	NT
		10/11/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.054	5.0	NT	NT	NT	NT	NT	NT	0.38	NT	NT	NT	0.006 J	NT	NT	NT	NT	NT	0.44 J	NT	4.3	<0.46	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.200	5.8	NT	NT	NT	NT	NT	NT	0.19	NT	NT	NT	0.007 J	NT	NT	NT	NT	NT	0.70 J	NT	5.3	<0.66	<0.00019	NT	NT
		6/20/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.640	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.66	NT	5.4	NT	<0.00019	NT	NT
		6/20/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	0.670	6.2	NT	NT	NT	NT	NT	NT	0.19 P1	NT	NT	NT	0.011	NT	NT	NT	NT	NT	0.88	NT	5.4	0.88 J	<0.00019	NT	NT
		8/7/12 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.140	5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.46 J	NT	5.1	0.55 J	<0.00019	NT	NT
		11/9/2012	NT	NT	0.36	0.10	0.0004 J	<20	1.0	<20	0.720	9.7	0.0018 J	NT	NT	82	NT	NT	0.34	NT	NT	1.1	0.011	0.0073 J	2.5	<0.100	<0.025	NT	0.71	<0.001	6.2	3.6 J	<0.00019	0.450J	0.033
		1/8/2013	NT	NT	0.36	NT	0.00074 J	NT	1.5	NT	1.000	NT	<0.010	NT	NT	NT	NT	NT	0.28	NT	NT	1.1	0.015	0.0078 J	NT	NT	NT	NT	0.7	0.00089J	12	NT	<0.00019	NT	0.042
		4/4/2013	NT	NT	NT	NT	0.00043 J	NT	NT	NT	0.55	6.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.61	<0.00038	5.0	4.7 J	<0.00019	NT	NT
		8/15/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00089 J	5.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.2 J	<0.00038	5.0	0.26 J	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	0.00029 J	NT	NT	NT	0.024	5.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.46 J	<0.00038	6.2	0.67 J	<0.00019	NT	NT
		12/4/2013 Dup	NT	NT	NT	NT	0.00037 J	NT	NT	NT	0.023	5.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.4 J	<0.00038	6.3	0.67 J	<0.00019	NT	NT
		12/4/2013 EB	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	0.19 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.22 J	<0.00038	1.3	0.12 J	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.016	5.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.49 J	NT	7.1	0.48 J	<0.00019	NT	NT
		4/17/2014 Dup	NT	NT	NT	NT	NT	NT	NT	NT	0.015	5.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.46 J	NT	6.6	0.4 J	<0.00019	NT	NT
		9/10/2014	NT	NT	NT	NT	.00029 J	NT	NT	NT	0.13	NT	NT	NT	NT	NT	NT	NT	.093 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	.440 J	<0.00038	5.9	NT	<0.00019	NT	NT
		9/10/2014 Dup	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.12	NT	NT	NT	NT	NT	NT	NT	0.11	NT	NT	NT	NT	NT	NT	NT	NT	NT	.420 J	<0.00038	5.8	NT	<0.00019	NT	NT
		11/7/2014	NT	NT	NT	NT	0.0003 J	NT	NT	NT	0.13	5.6	NT	NT	NT	NT	NT	NT	0.028 J	< 0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.47	0.00058 J	5.7	0.230 J	< 0.00019	NT	NT
		11/07/14 dup	NT	NT	NT	NT	NT	NT	NT	NT	0.13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Table 17
Summary of Laboratory Test Results
Groundwater Samples
Umicore Facility
Maxton, North Carolina

Method →			2320 B-	2320 B-	6010B	6010B	6020	2320B	6010B	2320B	6010B/6020	9056	6010B	7196A	6020	2540C	9056	ICP-MS	6010B	6010B	6020	6010B	6010B	6010B	9056	9056	4500P-E	365.1	6010B	6010B/6020	6010B	9056	6010B/6020	9060A	6010B
Parameter →			Alkalinity, Bicarbonate	Alkalinity, Carbonate	Aluminum	Ammonia Nitrogen	Arsenic	Bicarbonate	Calcium	Carbonate	Cobalt	Chloride	Chromium	Chromium, Hexavalent	Copper	Dissolved Solids	Fluoride	Germanium	Iron	Iron, Dissolved	Lead	Magnesium	Manganese	Nickel	Nitrate	Nitrite	Phosphate, Ortho	Phosphate, Total	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Organic Carbon	Zinc
2L Standard →			NE	NE	NE	1.5 a	0.010	NE	NE	NE	0.001 a	250	0.01	NE	1	500	2	NE	0.3	NE	0.015	NS	0.05	0.1	10	1.0	NE	NE	NE	0.020	NE	250	0.0002 a	NE	1
Sample ID	Aquifer	Date (Prep method)	Results in mg/L																																
MW-15B	Deep	6/19/12 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.220	460	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.420 J	NT	280	10	<0.00019	NT	NT
		6/19/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.028 J	NT	NT	NT	0.017	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		8/1/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.460	NT	NT	NT	NT	NT	NT	NT	0.028 J	NT	NT	NT	0.017	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		11/6/2012	NT	NT	0.41	0.092 J	0.00042 J	<20	5.2	<20	0.19	490	<0.010	NT	NT	850	NT	NT	<0.100	NT	NT	4.7	0.013	0.013 J	1.4 Q	<0.10	<0.025	NT	1.1	0.0039	340	41	<0.00019	0.47 J	<0.030
		1/8/2013	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		4/3/2013	NT	NT	NT	NT	0.00043 J	NT	NT	NT	0.14	460	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.2	0.0032	320	40	<0.00019	NT	NT
		8/14/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.12	440	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.1	0.0029	280	52	<0.00019	NT	NT
		8/14/2013 Dup	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.11	440	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.2	0.0022	290	52	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.10	360	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2.6	0.0032	280	55	<0.00019	NT	NT
		12/3/2013 Dup	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.097	370	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2.7	0.0028	290	55	<0.00019	NT	NT
		12/3/2013 EB	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	<0.052	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.24 J	<0.00038	1.8	0.28 J	<0.00019	NT	NT
		4/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.082	360	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.97	NT	290	89	<0.00019	NT	NT
		9/10/2014	NT	NT	NT	NT	0.00036 J	NT	NT	NT	0.082	NT	NT	NT	NT	NT	NT	NT	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	.460 J	0.0038	260	NT	<0.00019	NT	NT
		11/6/2014	NT	NT	NT	NT	0.00046 J	NT	NT	NT	0.082	350	NT	NT	NT	NT	NT	NT	< 0.070	0.034 J	NT	NT	NT	NT	NT	NT	NT	NT	< 0.510	0.0034	230	62	< 0.00019	NT	NT
MW-16	Water-Table	2/2/2011	NT	NT	NT	NT	NT	<1.1	280 J	<1.1	0.0011	6.2	NT	NT	NT	31	NT	NT	NT	NT	NT	0.56	NT	NT	NT	NT	NT	NT	200 J	NT	7.1	1.7 J	<0.00019	<0.22	NT
		2/2/2011 (dup.)	NT	NT	NT	NT	NT	<1.1	<0.50	<1.1	<0.0010	6.4	NT	NT	NT	31	NT	NT	NT	NT	NT	0.57	NT	NT	NT	NT	NT	NT	<0.50	NT	7.3	2.3 J	<0.00019	<0.22	NT
		4/4/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0033	7.5	NT	NT	NT	NT	NT	NT	1.1	NT	NT	NT	0.0021 J	NT	NT	NT	NT	NT	0.35 J	NT	7.8	1.9 J	<0.00019	NT	NT
		4/4/11 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.0038	7.5	NT	NT	NT	NT	NT	NT	1.4	NT	NT	NT	0.0021 J	NT	NT	NT	NT	NT	0.28 J	NT	7.5	1.9 J	<0.00019	NT	NT
		7/26/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0078	9.2	NT	NT	NT	NT	NT	NT	0.084 J	NT	NT	NT	0.0012 J	NT	NT	NT	NT	NT	0.36 J	NT	8.3	NT	<0.00019	NT	NT
		7/26/11 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.0078	9.2	NT	NT	NT	NT	NT	NT	0.33	NT	NT	NT	0.0018 J	NT	NT	NT	NT	NT	0.44 J	NT	8.8	1.7	<0.00019	NT	NT
		10/11/2011	NT	NT	NT	NT	NT	NT	NT	NT	0.0017	8.2	NT	NT	NT	NT	NT	NT	0.14	NT	NT	NT	0.0033 J	NT	NT	NT	NT	NT	0.280 J	NT	7.5	2.6 J	<0.00019	NT	NT
		10/11/11 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	8.2	NT	NT	NT	NT	NT	NT	0.24	NT	NT	NT	0.0048 J	NT	NT	NT	NT	NT	0.300 J	NT	7.6	2.6 J	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.0062	38	NT	NT	NT	NT	NT	NT	1.2	NT	NT	NT	0.0030 J	NT	NT	NT	NT	NT	0.320 J	NT	8.2	2.7 J	<0.00019	NT	NT
		2/9/2012 (dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.0025	26	NT	NT	NT	NT	NT	NT	0.24	NT	NT	NT	<0.0015	NT	NT	NT	NT	NT	0.260 J	NT	7.8	2.9 J	<0.00019	NT	NT
		6/20/12 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.0022	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.26 J	NT	9.2	NT	<0.00019	NT	NT
		6/20/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	0.0032	8.7	NT	NT	NT	NT	NT	NT	0.48	NT	NT	NT	0.0016 J	NT	NT	NT	NT	NT	0.62	NT	8.1	5.3	<0.00019	NT	NT
		6/20/12 (3015-dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.0021	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.18 J	NT	8.8	NT	<0.00019	NT	NT
		6/20/12 (3030C-dup.)	NT	NT	NT	NT	NT	NT	NT	NT	0.003	8.7	NT	NT	NT	NT	NT	NT	0.49	NT	NT	NT	0.0021 J	NT	NT	NT	NT	NT	<0.120	NT	8.1	5.5	<0.00019	NT	NT
		11/7/2012	NT	NT	0.099 J	0.043 J	0.00048 J	<20	0.26 J	<20	0.011	21	<0.010	NT	NT	52	NT	NT	0.18	NT	NT	0.47	<0.010	<0.020	1.3	<0.10	<0.025	NT	0.370 J	<0.001	9.6	7.5	<0.00019	0.40 J	<0.030
		11/7/2012 (dup)	NT	NT	0.096 J	<0.100	0.00036J	<20	0.27 J	<20	0.012	22	<0.010	NT	NT	64	NT	NT	0.17	NT	NT	0.46	<0.010	<0.020	1.3	<0.10	<0.025	NT	0.390 J	<0.001	9.7	7.4	<0.00019	0.36 J	<0.030
		4/4/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.2	69	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.3 J	0.00065 J	47	14	<0.00019	NT	NT
		4/4/2013 Dup	NT	NT	NT	NT	0.00032 J	NT	NT	NT	0.2	67	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.35 J	0.00062 J	50	15	<0.00019	NT	NT
		8/14/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.14	11	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.24 J	<0.00038	12	6.0	<0.00019	NT	NT
		8/14/2013 Dup	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.14	11	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.20 J	<0.00038	11	5.9	<0.00019	NT	NT
		8/14/2013 EB	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	<0.052	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.20 J	<0.00038	1.4	<0.077	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	0.00030 J	NT	NT	NT	0.072	4.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.39 J	<0.00038	5.8	4.8 J	<0.00019	NT	NT
		4/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0029	4.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.31 J	NT	5.4	2.7 J	<0.00019	NT	NT
		4/21/2014 EB	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	0.18 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.12 J	NT	1.2	<0.077	<0.00019	NT	NT
		9/10/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0015	NT	NT	NT	NT	NT	NT	NT	0.024 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.360 J	<0.00038	7.6	NT	<0.00019	NT	NT
		11/6/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0016 J	7.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.310 J	< 0.00038	9.1	4.2	< 0.00019	NT	NT
MW-16B	Deep	8/3/2012	NT	NT	NT	NT	0.00027J	NT	NT	NT	0.011	92	NT	NT	NT	NT	NT	NT	0.160	NT	NT	NT	0.029	NT	NT	NT	NT	NT	0.810	0.0021	62	4.700 J	0.00099J	NT	NT
		8/3/2012 DUP	NT	NT	NT	NT	0.00079J	NT	NT	NT	0.011	96	NT	NT	NT	NT	NT	NT	0.200	NT	NT	NT	0.029	NT	NT	NT	NT	NT	0.670	0.004	62	4.700 J	0.00057J	NT	NT
		11/7/2012	NT	NT	0.048 J	0.046 J	<0.001	<20	2.9	<20	0.011	140	<0.010	NT	NT	250	NT	NT	0.021 J	NT	NT	1.4	0.027	0.010J	0.93	<0.10	<0.025	NT	0.54	<0.001	92	7.2	0.00037J	0.73 J	0.0093J
		4/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0062	120	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.00	<0.00038	82	1.6 J	<0.00019	NT	NT
		4/3/13 EB	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.00038	NT	NT	<0.00019	NT	NT
		8/14/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.003	100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.35 J	<0.00038	65	1.5 J	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0028	110	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.46 J	<0.00038	79	1.3 J	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0020	110	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.53	NT	78	1.4 J	0.00034 J	NT	NT
		9/10/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0067	NT	NT	NT	NT	NT	NT	NT	0.023 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	.450 J	.00054 J	NT	NT	<0.00019	NT	NT
		11/5/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0024	100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	.290 J	.00072 J	69	1 J	<0.00019	NT	NT
MW-17	Water-Table	2/2/2011	NT	NT	NT	NT	NT	<1.1	0.33 J	<1.1	0.0026	2.1	NT	NT	NT	13	NT	NT	NT	NT	NT	0.34	NT	NT	NT	NT	NT	NT	<0.14	NT	1.8	<5.0	<0.00019	0.57 J	NT
		4/4/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.0010	2.1	NT	NT	NT	NT	NT	NT	0.84	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	<0.50	NT	1.2	<5.0	<0.00019	NT	NT
		4/4/2011 (split)	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	3.2	NT	NT	NT	NT	NT	NT	0.108	NT	NT	NT	<0.0010	NT	NT	NT	NT	NT	0.168 J	NT	1.18	1.9 JB	<0.00019	NT	NT
		7/26/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	1.9	NT	NT	NT	NT	NT	NT	0.084 J	NT	NT	NT	<0.0010	NT	NT	NT	NT	NT	<0.50	NT	1.0	<5.0	<0.00019	NT	NT
		10/11/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	2.2	NT	NT	NT	NT	NT	NT	0.041 J	NT	NT	NT	<0.0015	NT	NT	NT	NT	NT	<0.120	NT	0.99	<0.46	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	1.9	NT	NT	NT	NT	NT	NT	<0.026	NT	NT	NT	<0.0015	NT	NT	NT	NT	NT	0.230 J	NT	1.10	0.410	<0.00019	NT	NT
		6/19/12 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	1.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.120	NT	1.40	0.680 J	<0.00019	NT	NT
		6/19/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.24	NT	NT	NT	0.0015 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		11/7/2012	NT	NT	0.31	<0.100	0.0013	<20	0.35 J	<20	0.00055 J	8.7	0.0068 J	NT	NT	14 T4	NT	NT	0.78	NT	NT	0.35	0.0022 J	<0.020	0.34	<0.10	0.046	NT	0.240 J	<0.001	1.2	0.84J	<0.00095	0.650J	<0.030
		4/2/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	8.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.1	<0.00038	0.85	0.55 J	<0.00019	NT	NT
		8/12/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	2.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.29 J	<0.00038	1.4	0.9 J	<0.00019	NT	NT
		4/16/2014	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	2.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.15 J	NT	1.3	1.4 J	0.00022 J	NT	NT
		11/4/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00029 J	1.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	.170 J	<0.00038	1.2	0.32 J	<0.00019	NT	NT
MW-17B	Deep	8/17/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.00048 J	13	NT	NT	NT	NT	NT	NT	0.43	NT	NT	NT	0.012	NT	NT	NT	NT	NT	1.2	NT	46	35	<0.00019	NT	NT
		8/27/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.00086 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		11/6/2012	NT	NT	0.80	0.33	0.001	50	5.7	<20	0.0019	19	<0.010	NT	NT	220	NT	NT	0.46	NT	NT	0.58	0.049	0.012J	0.12 Q	<0.10	0.11	NT	1.7	0.00049J	35	24	<0.00019	23	0.010J
		1/8/2013 Split	NT	NT	NT	NT	NT	NT	NT	NT	0.00168	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		1/8/2013	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.40	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		1/8/2013 DUP	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.37	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		4/2/2013	NT	NT	NT	NT	0.00066 J	NT	NT	NT	0.0016	2.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.76	<0.00038	12	13	<0.00019	NT	NT
		8/13/2013	NT	NT	NT	NT	0.00045 J	NT	NT	NT	0.00080 J	2.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.87	<0.00038	8.8	10	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	0.001	NT	NT	NT	0.0019	1.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.0	<0.00038	6.7	10	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0017	2.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.93	NT	6.1	8.8	0.00036 J	NT	NT
		4/17/2014 Dup	NT	NT	NT	NT	NT	NT	NT	NT	0.0017	2.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.0	NT	6.2	8.8	0.00037 J	NT	NT
		11/5/2014	NT	NT	NT	NT	0.00031 J	NT	NT	NT	0.002	2.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	.970 J	<0.00038	4.2	8.6	0.00025 J	NT	NT

Table 17
Summary of Laboratory Test Results
Groundwater Samples
Umicore Facility
Maxton, North Carolina

Method →			2320 B-	2320 B-	6010B	6010B	6020	2320B	6010B	2320B	6010B/6020	9056	6010B	7196A	6020	2540C	9056	ICP-MS	6010B	6010B	6020	6010B	6010B	6010B	9056	9056	4500P-E	365.1	6010B	6010B/6020	6010B	9056	6010B/6020	9060A	6010B
Parameter →			Alkalinity, Bicarbonate	Alkalinity, Carbonate	Aluminum	Ammonia Nitrogen	Arsenic	Bicarbonate	Calcium	Carbonate	Cobalt	Chloride	Chromium	Chromium, Hexavalent	Copper	Dissolved Solids	Fluoride	Germanium	Iron	Iron, Dissolved	Lead	Magnesium	Manganese	Nickel	Nitrate	Nitrite	Phosphate, Ortho	Phosphate, Total	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Organic Carbon	Zinc
2L Standard →			NE	NE	NE	1.5 a	0.010	NE	NE	NE	0.001 a	250	0.01	NE	1	500	2	NE	0.3	NE	0.015	NS	0.05	0.1	10	1.0	NE	NE	NE	0.020	NE	250	0.0002 a	NE	1
Sample ID	Aquifer	Date (Prep method)	Results in mg/L																																
MW-18	Water-Table	2/1/2011	NT	NT	0.26	<0.10	NT	<20	<0.50	<20	0.01	3.4	<0.010	NT	0.011	<10	NT	NT	1.6	NT	NT	0.44	0.02	<0.020	0.41	<0.10	<0.025	<0.10	<0.50	NT	2.6	<5.0	<0.00019	<1.0	<0.030
		4/4/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.001	3.4	NT	NT	NT	NT	NT	NT	0.54	NT	NT	NT	8.9 J	NT	NT	NT	NT	NT	0.160 J	NT	2.3	<5.0	<0.00019	NT	NT
		4/4/2011 (split)	NT	NT	NT	NT	NT	NT	NT	NT	0.000223 J	4.2 JB	NT	NT	NT	NT	NT	NT	0.40	NT	NT	NT	0.0109 B	NT	NT	NT	NT	NT	0.341 J	NT	2.39	0.0019	0.000386 J	NT	NT
		7/26/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	3.9	NT	NT	NT	NT	NT	NT	0.59	NT	NT	NT	0.0026 J	NT	NT	NT	NT	NT	0.220 J	NT	2.3	<0.46	<0.00019	NT	NT
		10/11/2011	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	3.6	NT	NT	NT	NT	NT	NT	0.54	NT	NT	NT	0.0028 J	NT	NT	NT	NT	NT	0.230 J	NT	1.7	<0.46	<0.00019	NT	NT
		2/9/2012	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	3.8	NT	NT	NT	NT	NT	NT	0.061 J	NT	NT	NT	0.006 J	NT	NT	NT	NT	NT	0.350 J	NT	2.2	<0.40	<0.00019	NT	NT
		6/19/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.120	NT	2.6	0.79	<0.00019	NT	NT
		6/19/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.130	NT	NT	NT	0.0023 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		11/7/2012	NT	NT	NT	NT	0.00039 J	NT	NT	NT	0.00078 J	4.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.390 J	<0.001	2.6	0.68 J	<0.00019	NT	NT
		4/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00046 J	4.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.49 J	<0.00038	2.8	1.1 J	<0.00019	NT	NT
		8/12/2013	NT	NT	NT	NT	0.00045 J	NT	NT	NT	0.00080 J	2.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.34 J	<0.00038	1.4	0.76 J	<0.00019	NT	NT
		8/12/2013 EB	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	<0.52	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.1	<0.00038	1.1	<0.77	<0.00019	NT	NT
		11/4/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00027 J	4.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.2 J	0.00062 J	3.4	0.99 JPl	<0.00019	NT	NT
MW-19	Water-Table	6/18/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.120	NT	5.1	1.3 J	<0.00019	NT	NT
		6/18/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.061 J	NT	NT	NT	0.0037 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		11/5/2012	NT	NT	0.032 J	<0.100	0.00048 J	<20	0.23 J	<20	0.00058 J	9.9	<0.010	NT	NT	10 J	NT	NT	<0.100	NT	NT	0.51	0.0054 J	0.010 J	0.77	<0.100	<0.025	NT	0.370 J	0.001 J	8.1	4.8 J	<0.00019	2.7	<0.030
		4/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00061 J	9.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.45 J	0.00054 J	9.9	10	<0.00019	NT	NT
		8/13/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00033 J	4.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.36 J	<0.00038	2.8	1.7 J	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	NT	NT	NT	NT	0.0012	5.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.32 J	NT	3.5	3.6 J	<0.00019	NT	NT
		11/5/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00054 J	4.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.300 J	0.00046 J	3.1	2.9 J	<0.00019	NT	NT
MW-20	Water-Table	6/19/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.00063 J	5.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.68	NT	3.2	1.9 J	<0.00019	NT	NT
		6/19/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		11/5/2012	NT	NT	0.82	<0.100	<0.001	<20	1.20	<20	0.0015	4.8	<0.010	NT	NT	12	NT	NT	0.19	NT	NT	0.72	0.034	0.011J	0.77	<0.100	<0.025	NT	0.320 J	<0.001	2.7	1.1 J	<0.00019	0.240 J	0.012J
		4/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0011	3.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.25 J	<0.00038	2.4	2.5 J	<0.00019	NT	NT
		8/13/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	3.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.36 J	<0.00038	2.1	1.4 J	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00037 J	6.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.24 J	0.00077 J	4.6	4.7 J	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.00054 J	6.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.36 J	NT	4.8	2.3 J	<0.00019	NT	NT
		9/9/2014	NT	NT	NT	NT	.00076 J	NT	NT	NT	0.00060 J	6.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.31 J	0.0015	4.2	0.79	<0.00019	NT	NT
		11/4/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00066 J	6.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.350 J	0.002 J	4.1	3.1 J	,0.00019	NT	NT
MW-21	Water-Table	6/19/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.013	35	NT	NT	NT	NT	NT	NT	0.037 J	NT	NT	NT	0.017	NT	NT	NT	NT	NT	0.61	NT	27	1.8 J	<0.00019	NT	NT
		6/19/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.037 J	NT	NT	NT	0.017	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		6/19/2012 (3015-dup)	NT	NT	NT	NT	NT	NT	NT	NT	0.014	35	NT	NT	NT	NT	NT	NT	0.046 J	NT	NT	NT	0.018	NT	NT	NT	NT	NT	0.170 J	NT	28	1.9 J	<0.00019	NT	NT
		6/19/12 (3030C-dup.)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.046 J	NT	NT	NT	0.018	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		11/6/2012	NT	NT	0.16	<0.100	<0.001	<20	0.74	<20	0.017	23	<0.010	NT	NT	64	NT	NT	0.027J	NT	NT	1.0	0.012	0.0076J	2.0	<0.100	0.012 J	NT	0.79	0.00063J	18	0.840J	<0.00019	0.330 J	<0.030
		11/6/2012 dup	NT	NT	0.18	<0.100	<0.001	<20	0.76	<20	0.017	24	<0.010	NT	NT	65	NT	NT	0.028J	NT	NT	1.0	0.013	0.0089J	2.0	<0.100	<0.025	NT	0.80	<0.001	19	1.60J	<0.00019	0.480J	<0.030
		4/3/2013	NT	NT	NT	NT	0.00029 J	NT	NT	NT	0.014	37	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.56	<0.00038	27	2.5 J	<0.00019	NT	NT
		4/3/13 Dup	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.015	37	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.58	<0.00038	27	2.7 J	<0.00019	NT	NT
		8/13/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0041	43	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.63	<0.00038	32	3.3 J	<0.00019	NT	NT
		8/13/2013 Dup	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0041	42	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.69	<0.00038	33	3.3 J	<0.00019	NT	NT
		8/13/2013 EB	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	<0.52	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.14 J	<0.00038	1.2	0.2 J	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	0.00035 J	NT	NT	NT	0.010	48	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.57	0.0010	45	3.2 J	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0029	9.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.74	NT	10	3.5 J	<0.00019	NT	NT
		9/9/2014	NT	NT	NT	Nt	.00076 J	NT	NT	NT	0.0006	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	.310 J	0.0015	4.2	NT	<0.00019	NT	NT
		11/5/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.011	16	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.430 J	0.00093 J	74	1.8 J	<0.00019	NT	NT
MW-21B	Deep	6/19/2012 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.0074	130	NT	NT	NT	NT	NT	NT	0.26	NT	NT	NT	0.014	NT	NT	NT	NT	NT	0.73	NT	86	6.5	<0.00019	NT	NT
		6/19/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.26	NT	NT	NT	0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		11/6/2012	NT	NT	0.36	0.063 J	<0.001	<20	1.6	<20	0.0088	140	<0.010	NT	NT	250	NT	NT	0.18	NT	NT	1.8	0.0064J	0.010J	1.6	<0.100	<0.025	NT	1.0	0.00071 J	90	2.2 J	<0.00019	4.3	<0.030
		1/7/2013	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		4/2/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0068	140	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.71	<0.00038	85	1.9 J	<0.00019	NT	NT
		8/13/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0061	140	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.54	<0.00038	82	1.1 J	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	0.00025 J	NT	NT	NT	0.0079	130	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.66	0.00059 J	88	0.91 J	<0.00019	NT	NT
		4/17/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0087	120	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.69	NT	83	1.8 J	<0.00019	NT	NT
		11/5/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.015	120	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.480 J	0.00049 J	13	1.2 J	<0.00019	NT	NT
MW-22	Water-Table	6/19/12 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.00085 J	3.7	NT	NT	NT	NT	NT	NT	0.12	NT	NT	NT	0.23	NT	NT	NT	NT	NT	0.190 J	NT	2.1	1.4 J	<0.00019	NT	NT
		6/19/12 (3030C)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.12	NT	NT	NT	0.23	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		8/7/12 (3015)	NT	NT	NT	NT	NT	NT	NT	NT	0.0013	3.6	NT	NT	NT	NT	NT	NT	0.062 J	NT	NT	NT	0.23	NT	NT	NT	NT	NT	0.14 J	NT	2.1	0.55 J	<0.00019	NT	NT
		11/5/2012	NT	NT	NT	NT	<0.001	NT	NT	NT	<0.00026	0.210J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.500	<0.001	1.2	0.330J	<0.00019	NT	NT
		4/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	3.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.24 J	<0.00038	2.0	1.3 J	<0.00019	NT	NT
		4/3/13 FB	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.00038	NT	NT	<0.00019	NT	NT
		4/3/13 EB	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.00038	NT	NT	<0.00019	NT	NT
		8/14/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	4.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.21 J	<0.00038	2.2	0.9 J	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	NT	NT	NT	NT	0.00027 J	2.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.12 J	<0.00038	2.3	1.8 J	<0.00019	NT	NT
		11/5/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00027 J	3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.210 J	0.0012 J	3.2	1.0 J	< 0.00019	NT	NT
MW-23	Water-Table	8/17/2012	NT	NT	NT	NT	NT	NT	NT	NT	0.00062 J	3.6	NT	NT	NT	NT	NT	NT	0.062 J	NT	NT	NT	0.23	NT	NT	NT	NT	NT	0.14 J	NT	2.1	0.55 J	<0.00019	NT	NT
		8/27/2012	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		11/7/2012	NT	NT	0.056 J	<0.100	0.00038 J	<20	0.28 J	34	0.00051J	5.4	<0.010	NT	NT	24 T4	NT	NT	<0.100	NT	NT	0.43	0.002 J	<0.020	0.37	<0.100	<0.025	NT	0.24 J	0.00064J	3.6	5.3	<0.00019	0.350 J	<0.030
		4/2/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	4.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.11 J	<0.00038	3.1	2.8 J	<0.00019	NT	NT
		8/12/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	5.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.22 J	<0.00038	7.6	4.2 J	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	4.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.24 J	<0.00038	5.3	3.8 J	<0.00019	NT	NT
		4/16/2014	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	4.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.26 J	NT	8.0	2.6 J	0.00023 J	NT	NT
		11/4/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00028 J	4.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.220 J	<0.00038	3.9	2.8 J	<0.00019	NT	NT
MW-23B	Deep	8/17/2012	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	26	NT	NT	NT	NT	NT	NT	3.70	NT	NT	NT	0.035	NT	NT	NT	NT	NT	3.2	NT	110	52	<0.00019	NT	NT
		11/7/2012	NT	NT	3.3	0.95	0.0029	67	16	<20	0.0011	23	0.0094 J	NT	NT	870	NT	NT	1.7	NT	NT	0.78	0.026	0.011J	0.44	0.087 J	0.74	NT	4.3	0.0016	55	18	<0.00019	25	0.016J
		1/8/2013 Split	NT	NT	NT	NT	NT	NT	NT	NT	0.000159	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		1/8/2013	NT	NT	NT	NT	0.00036 J	NT	NT	NT	<0.00026	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.70	<0.001	10	NT	<0.00019	NT	NT
		1/8/2013 DUP	NT	NT	NT	NT	0.0003 J	NT	NT	NT	<0.00026	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.72	<0.001	10	NT	<0.00019	NT	NT
		4/2/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00032 J	13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.3	<0.00038	14	1.5 J	<0.00019	NT	NT
		8/13/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	6.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.71	<0.00038	9.2	0.66 J	<0.00019	NT	NT
		12/3/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	5.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.45 J	<0.00038	5.4	0.27 J	<0.00019	NT	NT
		4/15/2014	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	6.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.34 J	NT	5.4	0.47 J	<0.00019	NT	NT
		11/4/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	5.7	NT	NT	NT	NT	NT	NT	0.024 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.330 J	0.00079 J	4.8	<0.077	<0.00019	NT	NT

Table 17
Summary of Laboratory Test Results
Groundwater Samples
Umicore Facility
Maxton, North Carolina

Method →			2320 B-	2320 B-	6010B	6010B	6020	2320B	6010B	2320B	6010B/6020	9056	6010B	7196A	6020	2540C	9056	ICP-MS	6010B	6010B	6020	6010B	6010B	6010B	9056	9056	4500P-E	365.1	6010B	6010B/6020	6010B	9056	6010B/6020	9060A	6010B
Parameter →			Alkalinity, Bicarbonate	Alkalinity, Carbonate	Aluminum	Ammonia Nitrogen	Arsenic	Bicarbonate	Calcium	Carbonate	Cobalt	Chloride	Chromium	Chromium, Hexavalent	Copper	Dissolved Solids	Fluoride	Germanium	Iron	Iron, Dissolved	Lead	Magnesium	Manganese	Nickel	Nitrate	Nitrite	Phosphate, Ortho	Phosphate, Total	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Organic Carbon	Zinc
2L Standard →			NE	NE	NE	1.5 a	0.010	NE	NE	NE	0.001 a	250	0.01	NE	1	500	2	NE	0.3	NE	0.015	NS	0.05	0.1	10	1.0	NE	NE	NE	0.020	NE	250	0.0002 a	NE	1
Sample ID	Aquifer	Date (Prep method)	Results in mg/L																																
MW-24	Water-Table	8/16/2012	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	4.0	NT	NT	NT	NT	NT	NT	0.13	NT	NT	NT	0.002 J	NT	NT	NT	NT	NT	<0.12	NT	1.9	<0.4	<0.00019	NT	NT
		11/8/2012	NT	NT	0.078 J	<0.100	<0.001	<20	0.290 J	<20	<0.00026	4.2	<0.010	NT	NT	13	NT	NT	0.027 J	NT	NT	0.59	<0.010	<0.020	0.46Q	<0.100Q	<0.025	NT	0.48 J	0.00042J	1.6	1.4 J	<0.00019	1.9	<0.030
		1/7/2013	NT	NT	0.43	NT	<0.00025	NT	0.54	NT	<0.00026	NT	<0.010	NT	NT	NT	NT	NT	0.068 J	NT	NT	0.65	0.0091J	<0.020	0.28	0.14	NT	NT	0.340 J	0.00038J	1.7	NT	<0.00019	NT	0.0064J
		4/2/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00037 J	3.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.48 J	<0.00038	1.4	0.73 J	<0.00019	NT	NT
		8/12/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	4.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.36 J	<0.00038	1.6	0.62 J	<0.00019	NT	NT
		4/16/2014	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	3.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.29 J	NT	2.1	0.44 J	0.00023 J	NT	NT
		11/4/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00026 J	2.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.240 J	<0.00038	1.6	0.54 J	<0.00019	NT	NT
MW-24B	Deep	8/17/2012	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	9.4	NT	NT	NT	NT	NT	NT	0.18	NT	NT	NT	0.019	NT	NT	NT	NT	NT	1.9	NT	33	16	<0.00019	NT	NT
		11/8/2012	NT	NT	1.3	0.36	0.003	96	4.9	<20	0.00041J	18	0.0026 J	NT	NT	280	NT	NT	0.84	NT	NT	1.2	0.015	0.0049J	1.1 Q	<0.10Q	0.23	NT	1.9	0.0013	58	29	<0.00019	2.5	0.012J
		1/8/2013	NT	NT	1.2	NT	0.00069J	NT	2.3	NT	<0.00026	NT	<0.010	NT	NT	NT	NT	NT	0.31	NT	NT	0.56	0.0068 J	0.0089 J	1.2	<0.100	NT	NT	1.1	0.00059J	33	NT	<0.00019	NT	<0.030
		4/2/2013	NT	NT	NT	NT	0.00061 J	NT	NT	NT	<0.00026	11	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.2	<0.00038	26	6.7	<0.00019	NT	NT
		8/13/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	3.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.1	<0.00038	21	5.5	<0.00019	NT	NT
		4/15/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.00029 J	3.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.44 J	NT	7.6	1.5 J	<0.00019	NT	NT
		11/4/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.00027 J	3.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.320 J	0.00039 J	4.4	0.750 J	<0.00019	NT	NT
MW-25	Water-Table	4/15/2014	21	<2.6	0.24	<0.038	0.00028 J	NT	0.52	NT	0.28	10	<0.0014	NT	NT	44	NT	NT	0.029 J	<0.014	NT	0.91	0.0066 J	<0.0049	2.1	<0.028	<0.009	NT	0.36 J	0.00056 J	8.7	2.1 J	<0.00019	0.28 J P1	<0.0059
		8/27/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.16	NT	NT	NT	NT	NT	NT	NT	0.089 J	0.019 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.4	NT	NT	NT
		8/28/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.14	NT	NT	NT	NT	NT	NT	NT	0.017 J	0.020 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	3.5 J	NT	NT	NT
		8/28/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0074	NT	NT	NT	NT	NT	NT	NT	<0.014	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	20.0	NT	NT	NT
		8/28/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.017	NT	NT	NT	NT	NT	NT	NT	<0.014	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5.2	NT	NT	NT
		8/29/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.021	NT	NT	NT	NT	NT	NT	NT	0.036 J	0.031 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.3 J	NT	NT	NT
		9/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.25	NT	NT	NT	NT	NT	NT	NT	0.039	<.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		10/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.096	NT	NT	NT	NT	NT	NT	NT	0.015 J	<.014	NT	NT	NT	NT	NT	Nt	NT	NT	NT	NT	NT	1.0	NT	NT	NT
		11/7/2014	NT	NT	NT	NT	< 0.00025	NT	NT	NT	0.12	18	NT	NT	NT	NT	NT	NT	0.023 J	0.017 J	NT	NT	NT	NT	NT	NT	NT	NT	0.340 J	< 0.00038	15.0	1.4 J	< 0.00019	NT	NT
MW-25B	Deep	4/15/2014	<2.6	<2.6	0.59	<0.038	0.071	NT	11	NT	0.5	490	<0.0014	NT	NT	960	NT	NT	1.1	0.98	NT	6.5	0.047	0.0069 J	0.91	0.03 J	<0.009	NT	1.0	0.027	320	78	0.0012	8.9	0.014 J
		8/15/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.046	NT	NT	NT	NT	NT	NT	NT	.028J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	24	NT	NT	NT
		8/27/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.44	NT	NT	NT	NT	NT	NT	NT	0.065 J	0.049 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	90	NT	NT	NT
		8/28/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.54	NT	NT	NT	NT	NT	NT	NT	0.020 J	0.050 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	6.1	NT	NT	NT
		8/28/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.58	NT	NT	NT	NT	NT	NT	NT	0.017 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5.3	NT	NT	NT
		8/28/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.6	NT	NT	NT	NT	NT	NT	NT	0.016 J	0.070 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5.5	NT	NT	NT
		8/29/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.052	NT	NT	NT	NT	NT	NT	NT	0.025 J	0.024 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	250	NT	NT	NT
		9/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.54	NT	NT	NT	NT	NT	NT	NT	<0.014	0.025 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		10/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.76	NT	NT	NT	NT	NT	NT	NT	<.014	.035 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	31	NT	NT	NT
		11/6/2014	NT	NT	NT	NT	0.00082 J	NT	NT	NT	0.62	NT	NT	NT	NT	NT	NT	NT	0.310 J	< 0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.530 J	0.0078	280 B	9	< 0.00019	NT	NT
MW-26	Water-Table	4/15/2014	<2.6	<2.6	0.62	<0.038	<0.00025	NT	1.7	NT	0.0026	2.2	<0.0014	NT	NT	36	NT	NT	0.18	<0.014	NT	0.58	0.032	0.0062 J	0.48	<0.028	<0.009	NT	0.8	<0.00038	1.8	2.6 J	<0.00019	0.34 J	<0.0059
		11/4/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	5.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.260 J	0.00080 J	6.0	5.0	<0.00019	NT	NT
MW-26B	Deep	4/16/2014	<2.6	64	0.74	<0.038	0.00044 J	NT	84	NT	<0.00026	6.1	0.0038 J	NT	NT	300	NT	NT	<0.014	<0.014	NT	0.21	<0.0012	0.0053 J	0.58	0.046 J	<0.009	NT	5.4	0.001	10	8.0	0.00042 J	8.6	<0.0059
		4/16/2014 FB	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	0.16 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.19 J	NT	1.2	0.38 J	0.00022 J	NT	NT
		11/4/2014	NT	NT	NT	NT	0.0012 J	NT	NT	NT	0.00030 J	8.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.2	0.0014 J	23.0	24	0.00025 J	NT	NT
MW-27B	250	4/16/2014	39	<2.6	0.64	<0.038	0.0016	NT	15	NT	0.0025	3.9	<0.0014	NT	NT	120	NT	NT	0.56	0.21	NT	0.54	0.043	0.0075 J	0.032 J	<0.028	0.099	NT	3.1	<0.00038	8.6	32	0.00031 J	1.7	<0.0059
		4/16/2014 FB	NT	NT	NT	NT	NT	NT	NT	NT	<0.00026	0.1 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.16 J	NT	1.2	0.79 J	0.00022 J	NT	NT
		11/4/2014	NT	NT	NT	NT	0.00041 J	NT	NT	NT	0.0017 J	2.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2.0	0.00059 J	4.4	12	<0.00019	NT	NT
MW-28	Water-Table	4/16/2014	<2.6	<2.6	0.24	<0.038	<0.00025	NT	0.99	NT	0.04	7.5	<0.0014	NT	NT	43	NT	NT	0.098 J	<0.014	NT	0.72	0.018	0.0074 J	0.84	<0.028	<0.009	NT	0.26 J	<0.00038	4.6	1.2 J	<0.00019	0.23 J	<0.0059
		5/8/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.83	<.028	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Bottom	7/1/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.071	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Top	7/1/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.08	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Water Table	9/11/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.081	9.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.3 J	<0.00038	7.4	0.84 J	<0.00019	NT	NT
		11/5/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0024	10	NT	NT	NT	NT	NT	NT	0.020 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.250 J	<0.00038	27.0	1.4 JP1	< 0.00019	NT	NT
MW-28B	Deep	4/17/2014	<2.6	<2.6	0.22	<0.038	<0.00025	NT	1.8	NT	0.0035	42	<0.0014	NT	NT	85	NT	NT	0.47	0.33	NT	1.1	0.014	<0.0049	1.2	<0.028	<0.009	NT	0.45 J	<0.00038	27	0.82 J	<0.00019	0.31 J P1	<0.0059
		5/8/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0032	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.69	<.028	NT	NT	NT	NT	NT	NT	NT	NT	NT
		9/11/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	0.0065	43	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.26 J	<0.00038	28	1.3 J	<0.00019	NT	NT
		11/4/2014	NT	NT	NT	NT	< 0.00025	NT	NT	NT	0.096	44	NT	NT	NT	NT	NT	NT	0.040 J	< 0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.230 J	< 0.00038	7	2.0 J	< 0.00019	NT	NT
		11/04/14 dup	NT	NT	NT	NT	NT	NT	NT	NT	0.0023	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-29	Water-Table	6/3/2014	NT	NT	NT	NT	NT	NT	NT	NT	6.8	NT	NT	NT	NT	NT	NT	NT	0.031 J	0.023 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	100	NT	NT	NT
		8/14/2014	NT	NT	NT	NT	NT	NT	NT	NT	1.7	NT	NT	NT	NT	NT	NT	NT	0.020 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		8/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	1.9	NT	NT	NT	NT	NT	NT	NT	0.016	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	130	NT	NT	NT
		8/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	1.8	NT	NT	NT	NT	NT	NT	NT	0.08 J	0.015 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		8/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	2	NT	NT	NT	NT	NT	NT	NT	0.017	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		8/22/2014	NT	NT	NT	NT	NT	NT	NT	NT	1.8	NT	NT	NT	NT	NT	NT	NT	1.4	.056 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		8/22/2014	NT	NT	NT	NT	NT	NT	NT	NT	1.9	NT	NT	NT	NT	NT	NT	NT	<0.10	.047 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	120	NT	NT	NT
		8/22/2014	NT	NT	NT	NT	NT	NT	NT	NT	1.7	NT	NT	NT	NT	NT	NT	NT	<0.014	.076 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	120	NT	NT	NT
		8/26/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.86	NT	NT	NT	NT	NT	NT	NT	0.22	0.024 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1200	NT	NT	NT
		8/27/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.3	NT	NT	NT	NT	NT	NT	NT	0.33	<.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	520	NT	NT	NT
		8/28/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.037	NT	NT	NT	NT	NT	NT	NT	0.081 J	0.12	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	480	NT	NT	NT
		8/28/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.046	NT	NT	NT	NT	NT	NT	NT	0.039 J	0.041 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1000	NT	NT	NT
		9/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.023	NT	NT	NT	NT	NT	NT	NT	0.19	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		10/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.01	NT	NT	NT	NT	NT	NT	NT	0.053 J	.020 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	480	NT	NT	NT
		11/7/2014	NT	NT	NT	NT	0.03	NT	NT	NT	0.0087	340	NT	NT	NT	NT	NT	NT	< 0.070	0.015 J	NT	NT	NT	NT	NT	NT	NT	NT	0.780 J	0.0087	660 B	380	<0.00019	NT	NT
MW-29B	Deep	6/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.42	NT	NT	NT	NT	NT	NT	NT	0.62	0.14	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	93	NT	NT	NT
		8/15/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.15	NT	NT	NT	NT	NT	NT	NT	0.082 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	72	NT	NT	NT
		8/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.16	NT	NT	NT	NT	NT	NT	NT	.070 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	72	NT	NT	NT
		8/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.15	NT	NT	NT	NT	NT	NT	NT	1.9	0.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	84	NT	NT	NT
		8/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.073	NT	NT	NT	NT	NT	NT	NT	2	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	370	NT	NT	NT
		8/22/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.051	NT	NT	NT	NT	NT	NT	NT	1.2	0.070 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1400	NT	NT	NT
		8/22/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0072	NT	NT	NT	NT	NT	NT	NT	0.1	0.12	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1500	NT	NT	NT
		8/22/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0056	NT	NT	NT	NT	NT	NT	NT	.090J	0.094 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1700	NT	NT	NT
		8/26/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0078	NT	NT	NT	NT	NT	NT	NT	0.17	0.058 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1300	NT	NT	NT
		9/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.022	NT	NT	NT	NT	NT	NT	NT	0.74	0.27	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		9/4/2014 dup	NT	NT	NT	NT	NT	NT	NT	NT	0.022	NT	NT	NT	NT	NT	NT	NT	0.69	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		10/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0053	NT	NT	NT	NT	NT	NT	NT	0.038 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	340	NT	NT	NT
		11/6/2014	NT	NT	NT	NT	0.058	NT	NT	NT	0.035	270	NT	NT	NT	NT	NT	NT	1.3	0.053 J	NT	NT	NT	NT	NT	NT	NT	NT	< 10	0.0067	1,300	880	< 0.00019	NT	NT

Table 17
Summary of Laboratory Test Results
Groundwater Samples
Umicore Facility
Maxton, North Carolina

Method →			2320 B-	2320 B-	6010B	6010B	6020	2320B	6010B	2320B	6010B/6020	9056	6010B	7196A	6020	2540C	9056	ICP-MS	6010B	6010B	6020	6010B	6010B	6010B	9056	9056	4500P-E	365.1	6010B	6010B/6020	6010B	9056	6010B/6020	9060A	6010B
Parameter →			Alkalinity, Bicarbonate	Alkalinity, Carbonate	Aluminum	Ammonia Nitrogen	Arsenic	Bicarbonate	Calcium	Carbonate	Cobalt	Chloride	Chromium	Chromium, Hexavalent	Copper	Dissolved Solids	Fluoride	Germanium	Iron	Iron, Dissolved	Lead	Magnesium	Manganese	Nickel	Nitrate	Nitrite	Phosphate, Ortho	Phosphate, Total	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Organic Carbon	Zinc
2L Standard →			NE	NE	NE	1.5 a	0.010	NE	NE	NE	0.001 a	250	0.01	NE	1	500	2	NE	0.3	NE	0.015	NS	0.05	0.1	10	1.0	NE	NE	NE	0.020	NE	250	0.0002 a	NE	1
Sample ID	Aquifer	Date (Prep method)	Results in mg/L																																
MW-30	Water-Table	6/3/2014	NT	NT	NT	NT	NT	NT	NT	NT	3.4	NT	NT	NT	NT	NT	NT	NT	0.026 J	0.019 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	110	NT	NT	NT
		8/14/2014	NT	NT	NT	NT	NT	NT	NT	NT	5.2	NT	NT	NT	NT	NT	NT	NT	0.020 J	0.047 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	110	NT	NT	NT
		8/27/2014	NT	NT	NT	NT	NT	NT	NT	NT	4.8	NT	NT	NT	NT	NT	NT	NT	<.014	<.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		8/27/2014	NT	NT	NT	NT	NT	NT	NT	NT	5	NT	NT	NT	NT	NT	NT	NT	<0.014	0.38	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	150	NT	NT	NT
		8/28/2014	NT	NT	NT	NT	NT	NT	NT	NT	5	NT	NT	NT	NT	NT	NT	NT	<0.014	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		8/28/2014	NT	NT	NT	NT	NT	NT	NT	NT	4.6	NT	NT	NT	NT	NT	NT	NT	<0.014	0.014 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		9/5/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.16	NT	NT	NT	NT	NT	NT	NT	2.2	0.77	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	300	NT	NT	NT
		10/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.24	NT	NT	NT	NT	NT	NT	NT	1.4	1.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	550	NT	NT	NT
		11/10/2014	NT	NT	NT	NT	0.52	NT	NT	NT	0.059	380	NT	NT	NT	NT	NT	NT	2.9	2.9	NT	NT	NT	NT	NT	NT	NT	NT	1.6	0.0076	690	370	<0.00019	NT	NT
MW-30B	Deep	6/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.63	NT	NT	NT	NT	NT	NT	NT	1.3	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	94	NT	NT	NT
		8/15/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.48	NT	NT	NT	NT	NT	NT	NT	<0.014	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	78	NT	NT	NT
		8/27/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.53	NT	NT	NT	NT	NT	NT	NT	0.031 J	0.049 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	120	NT	NT	NT
		9/5/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.24	NT	NT	NT	NT	NT	NT	NT	0.038 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		10/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.08	NT	NT	NT	NT	NT	NT	NT	0.032 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	430	NT	NT	NT
		11/7/2014	NT	NT	NT	NT	0.11	NT	NT	NT	0.073	230	NT	NT	NT	NT	NT	NT	0.430 J	0.077 J	NT	NT	NT	NT	NT	NT	NT	NT	< 1	0.0051	1000 B	620	< 0.00019	NT	NT
MW-31	Water-Table	6/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.67	NT	NT	NT	NT	NT	NT	NT	0.029 J	0.014 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	74	NT	NT	NT
		8/15/2014	NT	NT	NT	NT	NT	NT	NT	NT	1.9	NT	NT	NT	NT	NT	NT	NT	0.019 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	130	NT	NT	NT
		8/19/2014	NT	NT	NT	NT	NT	NT	NT	NT	2.7	NT	NT	NT	NT	NT	NT	NT	31	0.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	130	NT	NT	NT
		8/19/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.12	NT	NT	NT	NT	NT	NT	NT	<0.130	.070 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	160	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.27	NT	NT	NT	NT	NT	NT	NT	0.95	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	110	NT	NT	NT
		8/26/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.8	NT	NT	NT	NT	NT	NT	NT	0.14	.032 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	150	NT	NT	NT
		9/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.045	NT	NT	NT	NT	NT	NT	NT	0.54	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		10/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.052	NT	NT	NT	NT	NT	NT	NT	0.043 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	320	NT	NT	NT
		11/10/2014	NT	NT	NT	NT	0.017	NT	NT	NT	0.033	400	NT	NT	NT	NT	NT	NT	0.021 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	0.870 J	0.0037	630	370	<0.00019	NT	NT
MW-32	Water-Table	6/3/2014	NT	NT	NT	NT	NT	NT	NT	NT	3.7	NT	NT	NT	NT	NT	NT	NT	0.026 J	0.021 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		8/14/2014	NT	NT	NT	NT	NT	NT	NT	NT	4.6	NT	NT	NT	NT	NT	NT	NT	<0.014	0.033 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	3.8	NT	NT	NT	NT	NT	NT	NT	0.45	.096 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	130	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	2.1	NT	NT	NT	NT	NT	NT	NT	2.1	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	470	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.62	NT	NT	NT	NT	NT	NT	NT	1.4	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	970	NT	NT	NT
		8/27/2014	NT	NT	NT	NT	NT	NT	NT	NT	4.7	NT	NT	NT	NT	NT	NT	NT	0.02 J	<.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2200	NT	NT	NT
		9/5/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.54	NT	NT	NT	NT	NT	NT	NT	0.14	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	360	NT	NT	NT
		10/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.56	NT	NT	NT	NT	NT	NT	NT	0.084 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	330	NT	NT	NT
		11/10/2014	NT	NT	NT	NT	0.0057	NT	NT	NT	1.8	300	NT	NT	NT	NT	NT	NT	0.098 J	0.047 J	NT	NT	NT	NT	NT	NT	NT	NT	2.8	0.0032	310	200	<0.00019	NT	NT
MW-33	Water-Table	6/3/2014	NT	NT	NT	NT	NT	NT	NT	NT	16	NT	NT	NT	NT	NT	NT	NT	0.015 J	0.071 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	280	NT	NT	NT
		8/14/2014	NT	NT	NT	NT	NT	NT	NT	NT	8.9	NT	NT	NT	NT	NT	NT	NT	<0.014	0.083 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	200	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	6.7	NT	NT	NT	NT	NT	NT	NT	0.16	0.16	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	180	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	4.8	NT	NT	NT	NT	NT	NT	NT	0.12	0.14	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	220	NT	NT	NT
		8/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.78	NT	NT	NT	NT	NT	NT	NT	270	2.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	15000	NT	NT	NT
		8/27/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.014	NT	NT	NT	NT	NT	NT	NT	1.6	0.36	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2800	NT	NT	NT
		9/5/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.012	NT	NT	NT	NT	NT	NT	NT	23	0.4 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	15000	NT	NT	NT
		10/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.0083	NT	NT	NT	NT	NT	NT	NT	3.9	0.19	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	9200	NT	NT	NT
		11/7/2014	NT	NT	NT	NT	0.160 T2	NT	NT	NT	0.0064 T2	560	NT	NT	NT	NT	NT	NT	6.6 J	0.18	NT	NT	NT	NT	NT	NT	NT	NT	<20.0	0.00085 JT2	16000 B	12000	< 0.00019 T2	NT	NT
MW-34	Water-Table	6/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	2.9	NT	NT	NT	NT	NT	NT	NT	0.21	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	150	NT	NT	NT
		8/15/2014	NT	NT	NT	NT	NT	NT	NT	NT	3.1	NT	NT	NT	NT	NT	NT	NT	<0.014	0.018 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	130	NT	NT	NT
		8/19/2014	NT	NT	NT	NT	NT	NT	NT	NT	1.4	NT	NT	NT	NT	NT	NT	NT	8.7	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	180	NT	NT	NT
		8/19/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.19	NT	NT	NT	NT	NT	NT	NT	2.5	.015 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	130	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.7	NT	NT	NT	NT	NT	NT	NT	0.64	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	160	NT	NT	NT
		8/26/2014	NT	NT	NT	NT	NT	NT	NT	NT	1.1	NT	NT	NT	NT	NT	NT	NT	0.43	<.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	160	NT	NT	NT
		9/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.78	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		10/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	0.72	NT	NT	NT	NT	NT	NT	NT	0.29	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	NT	NT	NT
		11/10/2014	NT	NT	NT	NT	0.079	NT	NT	NT	0.82	200	NT	NT	NT	NT	NT	NT	0.76	0.51	NT	NT	NT	NT	NT	NT	NT	NT	1.1	0.0037	510	95	<0.00019	NT	NT

Table 17
Summary of Laboratory Test Results
Groundwater Samples
Umicore Facility
Maxton, North Carolina

Method →			2320 B-	2320 B-	6010B	6010B	6020	2320B	6010B	2320B	6010B/6020	9056	6010B	7196A	6020	2540C	9056	ICP-MS	6010B	6010B	6020	6010B	6010B	6010B	9056	9056	4500P-E	365.1	6010B	6010B/6020	6010B	9056	6010B/6020	9060A	6010B
Parameter →			Alkalinity, Bicarbonate	Alkalinity, Carbonate	Aluminum	Ammonia Nitrogen	Arsenic	Bicarbonate	Calcium	Carbonate	Cobalt	Chloride	Chromium	Chromium, Hexavalent	Copper	Dissolved Solids	Fluoride	Germanium	Iron	Iron, Dissolved	Lead	Magnesium	Manganese	Nickel	Nitrate	Nitrite	Phosphate, Ortho	Phosphate, Total	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Organic Carbon	Zinc
2L Standard →			NE	NE	NE	1.5 a	0.010	NE	NE	NE	0.001 a	250	0.01	NE	1	500	2	NE	0.3	NE	0.015	NS	0.05	0.1	10	1.0	NE	NE	NE	0.020	NE	250	0.0002 a	NE	1
Sample ID	Aquifer	Date (Prep method)	Results in mg/L																																
MW-35	Water-Table	6/3/2014	NT	NT	NT	NT	NT	NT	NT	NT	**3.4**	NT	NT	NT	NT	NT	NT	NT	0.021 J	0.044 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**190**	NT	NT	NT
		8/14/2014	NT	NT	NT	NT	NT	NT	NT	NT	**5.5**	NT	NT	NT	NT	NT	NT	NT	0.016 J	0.051 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**200**	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	**5.0**	NT	NT	NT	NT	NT	NT	NT	**0.26**	**0.13**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**190**	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	**5.0**	NT	NT	NT	NT	NT	NT	NT	**0.12**	**0.1**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**290**	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	**2.0**	NT	NT	NT	NT	NT	NT	NT	**0.12**	.040 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**1800**	NT	NT	NT
		8/27/2014	NT	NT	NT	NT	NT	NT	NT	NT	**4.3**	NT	NT	NT	NT	NT	NT	NT	.056 J	**<.014**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**320**	NT	NT	NT
		9/5/2014	NT	NT	NT	NT	NT	NT	NT	NT	**2.5**	NT	NT	NT	NT	NT	NT	NT	**0.3**	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**360**	NT	NT	NT
		10/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	**2**	NT	NT	NT	NT	NT	NT	NT	**0.42**	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**490**	NT	NT	NT
		11/10/2014	NT	NT	NT	NT	**0.075**	NT	NT	NT	**0.92**	**280**	NT	NT	NT	NT	NT	NT	**0.11**	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	**1.5**	**0.0064**	**580**	**530**	<0.00019	NT	NT
		11/10/2014-Dup	NT	NT	NT	NT	NT	NT	NT	NT	**0.88**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		11/10/2014-EB	NT	NT	NT	NT	NT	NT	NT	NT	0.0003 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-35B	Deep	6/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	**0.75**	NT	NT	NT	NT	NT	NT	NT	**1.8**	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**120**	NT	NT	NT
		8/15/2014	NT	NT	NT	NT	NT	NT	NT	NT	**0.65**	NT	NT	NT	NT	NT	NT	NT	0.053 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**79**	NT	NT	NT
		9/4/2014	NT	NT	NT	NT	NT	NT	NT	NT	**1**	NT	NT	NT	NT	NT	NT	NT	**0.13**	0.072 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
		10/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	**0.76**	NT	NT	NT	NT	NT	NT	NT	0.048 J	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**130**	NT	NT	NT
		11/7/2014	NT	NT	NT	NT	0.00074 J	NT	NT	NT	**0.72**	**230**	NT	NT	NT	NT	NT	NT	0.300 J	< 0.014	NT	NT	NT	NT	NT	NT	NT	NT	< 0.510	0.0053	**210**	**130**	< 0.00019	NT	NT
MW-36	Water-Table	6/3/2014	NT	NT	NT	NT	NT	NT	NT	NT	**5.6**	NT	NT	NT	NT	NT	NT	NT	0.018 J	0.026 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**180**	NT	NT	NT
		8/14/2014	NT	NT	NT	NT	NT	NT	NT	NT	**8.9**	NT	NT	NT	NT	NT	NT	NT	0.015 J	0.072 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**230**	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	**6.9**	NT	NT	NT	NT	NT	NT	NT	**0.2**	**0.18**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**220**	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	**1.4**	NT	NT	NT	NT	NT	NT	NT	**900**	**0.76**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**11000**	NT	NT	NT
		8/20/2014	NT	NT	NT	NT	NT	NT	NT	NT	**1.8**	NT	NT	NT	NT	NT	NT	NT	**1.3**	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**2400**	NT	NT	NT
		8/27/2014	NT	NT	NT	NT	NT	NT	NT	NT	**0.19**	NT	NT	NT	NT	NT	NT	NT	0.041 J	0.033 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**2800**	NT	NT	NT
		9/5/2014	NT	NT	NT	NT	NT	NT	NT	NT	**0.15**	NT	NT	NT	NT	NT	NT	NT	**1.1**	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**15000**	NT	NT	NT
		9/5/2014 dup	NT	NT	NT	NT	NT	NT	NT	NT	**0.15**	NT	NT	NT	NT	NT	NT	NT	**0.94**	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**15000**	NT	NT	NT
		10/21/2014	NT	NT	NT	NT	NT	NT	NT	NT	**0.044**	NT	NT	NT	NT	NT	NT	NT	**0.23**	<0.014	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**660**	NT	NT	NT
		11/10/2014	NT	NT	NT	NT	**0.074**	NT	NT	NT	**0.063**	**280**	NT	NT	NT	NT	NT	NT	**0.2**	0.048 J	NT	NT	NT	NT	NT	NT	NT	NT	0.81 J	**0.0039**	**770**	**510**	<0.00019	NT	NT
MW-37	Water-Table	7/1/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	**0.013**	**7.0**	NT	NT	NT	NT	NT	NT	**3.2**	**1.3**	NT	NT	NT	NT	NT	NT	NT	NT	2.1	<0.00038	**8.1**	**5**	<0.00019	NT	NT
		11/5/2014	NT	NT	NT	NT	<0.00025	NT	NT	NT	**0.0088**	**5.0**	NT	NT	NT	NT	NT	NT	**0.7**	0.019 J	NT	NT	NT	NT	NT	NT	NT	NT	1.6	0.00048 J	**4.8**	0.95 J	<0.00019	NT	NT
MW-38	Water-Table	11/24/2014	<2.6	<2.6	<0.035	<0.038	<0.00025	NT	0.680 J	NT	**0.091**	**130**	0.0018 J	NT	NT	**260**	NT	NT	**4.1**	**2.4**	NT	0.490 J	**0.07**	**0.0052**	**1.2**	<0.028	<0.009	NT	0.450 J	0.0017 J	**90**	**20**	<0.00019	0.38 J	<0.0059
MW-38I	Intermediate	11/24/2014	<2.6	<2.6	**0.4**	0.078 J	<0.00025	NT	0.370 J	NT	**0.25**	**60.0**	<0.0014	NT	NT	**120**	NT	NT	**2.3**	**2.1**	NT	0.440 J	**0.042**	<0.0049	**1.3**	<0.028	<0.009	NT	0.330 J	0.00075 J	**41**	1.5 J	<0.00019	0.30 J	<0.0059
MW-38B	Deep	11/24/2014	<2.6	<2.6	0.054 J	<0.038	<0.00025	NT	**1.2**	NT	0.0013 J	**42.0**	<0.0014	NT	NT	**100**	NT	NT	**0.68**	**0.68**	NT	0.960 J	**0.022**	<0.0049	**0.8**	<0.028	<0.009	NT	**1.6**	0.00059 J	**29**	**5.1**	<0.00019	0.72 J	<0.0059
Water Blank		4/4/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	<0.052	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.22 J	<0.00038	**1.0**	<0.077	<0.00019	NT	NT
		8/15/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	<0.052	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.1	<0.00038	**1.1**	<0.077	<0.00019	NT	NT
		12/4/2013	NT	NT	NT	NT	<0.00025	NT	NT	NT	<0.00026	0.15 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.28 J	<0.00038	**1.4**	0.43 J	<0.00019	NT	NT

Notes:
Units are mg/L DES - Well destroyed during construction and was not replaced because of active construction.
Bold value indicates concentration exceeds the practical quantition limit (PQL).
Bold value and shaded cell indicate concentration exceeds the North Carolina groundwater quality standard in 15A NCAC 2L .0202 (the 2L Standard).
<# = Analyte not detected at a concentration that exceeded the practical quantitation limit shown. The method detection limit is cited for cobalt and thallium.
NE = Not established. The PQL is the standard when a numerical 2L Standard has not been established.
NT - Sample not tested for this analyte
a = indicates value is an Interim Maximum Allowable Concentration (IMAC) and is enforceable under the 2L Standards
* - Lab samples collected on 3/3/09 represent data from two separate lab reports (ID # L391150 & L392001)
(split) = A split sample was collected and sent to a separate laboratory
(dup.) = A duplicated sample was tested at the same laboratory
Qualifiers:
O = Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination.
J = Estimated value below the lowest calibration point.
B = The analyte was detected in the associated method blank
Q = Sample held beyond the accepted holding time.
T2 = Laboratory analysis was from an unpreserved or improperly preserved sample
T4 = Quantity not sufficient
P1 = RPD value not applicable for sample concentrations less than 5 times the reporting limit
J6 = The sample was outside the method control limits.
Water Blank was sampled far away from the field site (often collected at the office). Distilled water is used to collect water blank, and pored into the same size bottle that was used for all the other samples.

Table 19
Summary of Public-Supply Well Laboratory Test Results
Umicore Facility
Maxton, North Carolina

Method →				**6020**	**6010C**	**6010C**
Parameter →				**Cobalt**	**Iron**	**Iron, Dissolved**
2L Standard (GW) →				**0.001 a**	**0.3**	**NE**
EPA Drinking-Water (DW) Standard →				**NE**	***0.3**	**NE**
Sample ID	**Lab**	**Sample Matrix**	**Date (Prep method)**	**Results in mg/L**		
Well-3	ENCO	GW	12/2/2014	**0.00323**	**0.0798**	**0.0651**
	ESC		12/2/2014	**0.0037**	0.069 J	0.056 J
Well-6	ENCO	GW	12/2/2014	**0.00697**	**0.346**	**0.338**
	ESC		12/2/2014	**0.0072**	**0.32**	**0.310**
Well-3,6-Treated	ENCO	DW	12/2/2014	**0.00419**	**0.299**	**0.274**
	ECS		12/2/2014	**0.0046**	**0.260**	**0.250**
Well-7	ESC	GW	11/21/2014	**0.010**	**0.180**	**0.160**
	Pace		11/21/2014	**0.0097**	NT	NT
	ENCO		12/2/2014	**0.00891**	**0.160**	**0.156**
	ESC		12/2/2014	**0.0096**	**0.160**	**0.130**
Well-8	ESC	GW	11/21/2014	**0.005**	0.032 J	0.020 J
	Pace		11/21/2014	**0.005**	NT	NT
	ENCO		12/2/2014	**0.00459**	0.0261 J	<0.022
	ESC		12/2/2014	**0.005**	0.046 J	0.019 J
Well-7,8-Treated	ESC	DW	11/21/2014	**0.0066**	0.068 J	0.062 J
	Pace		11/21/2014	**0.0063**	NT	NT
	ENCO		12/2/2014	**0.00641**	**0.0705**	**0.063**
	ESC		12/2/2014	**0.007**	0.074 J	0.056 J

Notes:

Bold value indicates concentration exceeds the practical quantition limit (PQL) or minimum detection limit (MDL).

Bold value and shaded cell indicate concentration exceeds the North Carolina groundwater quality standard in 15A NCAC 2L .0202 (the 2L Standard) or the National Secondary Drinking Water Standard for iron only.

NE = Not established.

GW = Groundwater

DW = Drinking Water

* = The stanadard of 0.3 mg/L for iron is a national secondary drinking water standard. The National Secondary Drinking Water Regulations are non-enforcable guidelines regarding contaminatnts that may cause cosmetic effects in drinking water.

NT = Sample not tested for this analyte

Qualifiers:

J = Estimated value below the lowest calibration point.

Table 20
Summary of pH in Groundwater
Umicore Facility
Maxton, North Carolina

Water Table Monitoring Wells	Sample Date	pH
		SU
MW-1	8/11/2008	6.46
	9/18/2008	5.72
	9/22/2008	6.15
	12/22/2008	5.97
	3/3/2009	6.36
	9/2/2009	8.45
	1/6/2010	5.67
	4/13/2010	5.80
	7/1/2010	4.23
	2/3/2011	5.31
	4/6/2011	5.25
	7/26/2011	5.08
	10/11/2011	4.99
	2/9/2012	5.46
	6/21/2012	5.43
	11/8/2012	5.10
	4/3/2013	4.96
	8/13/2013	6.22
	12/4/2013	5.11
	4/17/2014	6.56
	9/9/2014	5.53
	11/6/2014	4.96
DMW-1	11/4/2014	4.93
MW-2A	8/8/2008	8.25
	9/18/2008	7.91
	9/22/2008	8.18
	12/22/2008	7.88
	3/3/2009	7.86
	9/2/2009	9.47
	1/6/2010	8.90
MW-2R	9/18/2008	5.54
	9/22/2008	5.60
	12/22/2008	5.27
	3/3/2009	5.88
	9/2/2009	8.86
	1/6/2010	6.24
MW-2RRs	2/1/2011	7.16
	4/6/2011	8.53
	7/27/2011	8.55
	10/11/2011	7.98
	2/9/2012**	NA
MW-2RR	2/1/2011	6.02
	4/6/2011	6.07
	7/27/2011	5.54
	10/11/2011	5.56

Table 20
Summary of pH in Groundwater
Umicore Facility
Maxton, North Carolina

Water Table Monitoring Wells	Sample Date	pH
		SU
MW-2RRR	4/15/2014	6.07
	9/5/2014	6.45
	11/10/2014	5.97
MW-2RB	2/1/2011	8.04
	4/7/2011	6.36
	7/27/2011	6.25
	10/11/2011	DRY
	2/9/2012	DRY
	8/7/2012	5.45
	11/9/2012	5.77
	4/3/2013	5.61
	8/15/2013	5.61
	12/4/2013	5.39
	4/15/2014	5.55
	11/6/2014	5.63
MW-3	8/8/2008	5.40
	9/18/2008	4.80
	9/22/2008	4.71
	12/22/2008	4.51
	3/3/2008	4.97
	9/2/2009	7.77
	1/6/2010	4.87
	4/13/2010	5.19
	7/1/2010	1.40
	2/2/2011	4.68
	4/5/2011	4.70
	7/27/2011	DRY
	10/11/2011	DRY
	2/9/2012	DRY
	11/5/2012	DRY
	4/2/2013	DRY
	8/14/2013	4.39
	12/4/2013	4.02
	4/17/2014	4.48
DMW-3	11/4/2014	4.69
MW-4	8/8/2008	6.30
	9/18/2008	5.79
	9/22/2008	5.75
	12/22/2008	5.62
	3/3/2009	6.87
	9/2/2009	8.60*
	1/7/2010	5.69
	4/13/2010	6.41
	7/1/2010	4.82
	2/1/2011	6.65
	4/6/2011	6.49
	7/27/2011	5.96
	10/11/2011	5.81
	2/9/2012	6.24
	6/20/2012	6.44
	11/8/2012	5.86
	1/7/2013	5.85
	4/4/2013	5.82
	8/14/2013	6.11
	12/4/2013	5.85
	4/17/2014	6.41
	8/29/2014	6.35
	9/11/2014	6.28
	10/21/2014	6.08
	11/7/2014	5.92

Table 20
Summary of pH in Groundwater
Umicore Facility
Maxton, North Carolina

Water Table Monitoring Wells	Sample Date	pH
		SU
MW-4s	2/1/2011	DRY
	4/7/2011	5.92
	7/27/2011	DRY
	10/11/2011	5.33
	2/9/2012	DRY
	11/5/2012	DRY
	4/2/2013	DRY
	8/12/2013	DRY
	12/4/2013	DRY
MW-5	9/22/2008	5.75
	12/22/2008	5.66
	3/3/2009	6.29
	9/2/2009	8.26
	1/7/2010	5.98
	4/13/2010	6.14
	7/1/2010	3.74
	2/1/2011	6.24
	4/6/2011	6.09
	7/26/2011	DRY
	10/11/2011	DRY
	2/9/2012	DRY
	6/20/2012	6.46
	11/5/2012	DRY
	4/2/2013	DRY
	8/14/2013	5.90
	12/4/2013	5.64
	4/17/2014	6.08
	9/11/2014	6.11
	11/6/2014	5.69
MW-5B	4/21/2014	4.37
	9/11/2014	4.68
	11/5/2014	4.37
MW-6	9/22/2008	7.34
	12/22/2008	4.34
	3/3/2009	4.88
	9/2/2009	6.76
	1/6/2009	DRY
	4/13/2010	5.15
	7/1/2010	0.63
	2/2/2011	4.77
	4/5/2011	4.58
	7/26/2011	4.81
	10/11/2012	4.40
	2/9/2012	4.65
	6/20/2012	3.68
	11/5/2012	DRY
	4/2/2013	DRY
	8/14/2013	4.22
	12/3/2013	3.88

Table 20
Summary of pH in Groundwater
Umicore Facility
Maxton, North Carolina

Water Table Monitoring Wells	Sample Date	pH
		SU
MW-7	9/22/2008	6.23
	12/22/2008	5.91
	3/3/2009	6.06
	9/2/2009	7.43
	1/7/2010	5.27
	4/13/2010	5.99
	7/1/2010	3.53
	2/2/2011	5.94
	4/6/2011	5.83
	7/26/2011	5.30
	10/11/2011	DRY
	2/9/2012	DRY
	11/5/2012	DRY
	4/2/2013	DRY
	8/14/2013	6.28
	12/4/2013	5.19
	4/17/2014	5.51
	9/10/2014	5.37
MW-8	3/3/2009	5.78
	9/2/2009	7.45
	1/7/2010	5.02
	4/14/2010	5.89
	7/1/2010	1.32
	2/2/2011	5.36
	4/6/2011	5.01
	7/26/2011	4.99
	10/11/2011	4.51
	2/9/2012	5.05
	6/20/2012	4.34
	11/7/2012	NM
	4/2/2013	4.22
	8/13/2013	3.84
	12/4/2013	NS
	9/9/2014	5.33
	11/5/2014	4.79
MW-9	3/3/2009	5.32
	9/2/2009	7.54
	1/7/2010	DRY
	4/13/2010	4.91
	7/1/2010	0.78
	2/1/2011	DRY
	4/5/2011	DRY
	7/26/2011	DRY
	10/11/2011	DRY
	2/9/2012	DRY
	11/5/2012	DRY
	4/2/2013	DRY
	8/12/2013	DRY
	12/4/2013	DRY
MW-10	3/3/2009	5.16
	9/2/2009	7.67
	1/6/2010	4.44
	4/13/2010	5.14
	7/1/2010	1.30
	2/2/2011	4.75
	4/6/2011	4.87
	7/27/2011	4.39
	10/11/2011	4.36
	2/9/2012	4.87
	6/20/2012	3.98
	11/7/2012	4.24
	4/3/2013	4.26
	8/13/2013	5.01
	12/3/2013	4.15
	4/16/2014	4.83
	9/9/2014	4.96
	11/5/2014	4.62

Table 20
Summary of pH in Groundwater
Umicore Facility
Maxton, North Carolina

Water Table Monitoring Wells	Sample Date	pH
		SU
MW-11	3/3/2009	5.98
	9/2/2009	8.13
	1/6/2010	NM
	4/13/2010	5.85
	7/1/2010	2.47
	2/2/2011	5.11
	4/5/2011	4.90
	7/27/2011	4.64
	10/11/2011	5.19*
	2/9/2012	4.83
	6/20/2012	3.05
	11/5/2012	DRY
	4/2/2013	DRY
	8/14/2013	5.67
	12/3/2013	4.14
	11/6/2014	4.70
MW-12	2/3/2011	6.44
	4/7/2011	6.36
	7/27/2011	5.86
	10/11/2011	6.00
	2/9/2012	6.24
	6/21/2012	6.24
	11/8/2012	5.76
	4/4/2013	5.89
	8/14/2013	6.22
	12/4/2013	6.01
	4/16/2014	6.22
	9/9/2014	6.36
	11/7/2014	6.00
MW-12B	3/3/2009	5.68
	3/18/2009	5.57
	9/2/2009	8.47
	1/6/2010	4.59
MW-12RB	2/3/2011	6.61
	4/7/2011	5.93
	10/11/2011	6.16
	2/9/2012	6.31
	6/21/2012	5.07
	11/9/2012	4.65
	1/7/2013	4.56
	4/3/2013	4.79
	8/14/2013	5.00
	12/4/2013	4.58
	4/21/2014	4.68
	9/10/2014	4.91
	11/8/2014	4.81
MW-13	2/3/2011	5.51
	4/7/2011	5.91
	7/27/2011	4.95
	10/11/2011	4.74
	2/9/2012	4.99
	6/21/2012	4.71
	11/8/2012	4.59
	4/4/2013	4.54
	8/13/2013	5.97
	12/4/2013	5.10
	4/17/2014	5.74
	9/9/2014	5.28
	11/7/2014	4.75

Table 20
Summary of pH in Groundwater
Umicore Facility
Maxton, North Carolina

Water Table Monitoring Wells	Sample Date	pH
		SU
MW-13B	2/3/2011	6.67
	4/7/2011	6.87
	7/27/2011	6.46
	10/11/2011	6.29
	2/9/2012	6.39
	6/21/2012	7.10
	11/8/2012	6.37
	4/3/2013	6.26
	8/14/2013	6.65
	12/3/2013	6.16
	4/17/2014	6.26
	9/10/2014	5.35
MW-14	2/2/2011	5.05
	4/5/2011	4.62
	7/27/2011	4.29
	10/11/2011	4.36
	2/9/2012	4.81
	6/20/2012	3.45
	11/6/2012	4.61
	4/2/2013	4.35
	8/13/2013	4.03
	12/3/2013	4.05
	11/6/2014	4.30
MW-14B	6/19/2012	4.04
	11/6/2012	4.65
	4/2/2013	4.73
	8/13/2013	4.34
	12/3/2013	NS
	6/5/2014	4.47
	11/6/2014	4.73
MW-15	2/1/2011	6.21
	4/6/2011	5.99
	7/27/2011	5.49
	10/11/2011	5.49
	2/9/2012	5.16
	6/20/2012	4.35
	8/7/2012	4.22
	11/8/2012	4.58
	1/8/2013	4.46
	4/4/2013	4.50
	8/15/2013	4.76
	12/4/2013	4.79
	4/17/2014	5.29
	9/10/2014	5.03
	11/7/2014	4.69
MW-15B	6/19/2012	4.27
	11/6/2012	4.52
	1/8/2013	4.43
	4/3/2013	4.91
	8/14/2013	5.00
	12/3/2013	4.78
	4/21/2014	5.05
	9/10/2014	5.35
	11/6/2014	5.15

Table 20
Summary of pH in Groundwater
Umicore Facility
Maxton, North Carolina

Water Table Monitoring Wells	Sample Date	pH
		SU
MW-16	2/2/2011	5.92
	4/4/2011	4.74
	7/26/2011	4.86
	10/11/2011	5.47
	2/9/2012	4.95
	6/20/2012	5.04
	11/7/2012	4.67
	4/4/2013	4.89
	8/14/2013	4.55
	12/4/2013	4.22
	4/21/2014	4.50
	9/10/2014	4.94
	11/6/2014	4.89
MW-16B	8/3/2012	5.22
	11/7/2012	5.18
	4/3/2013	5.06
	8/14/2013	5.28
	12/3/2013	4.80
	4/17/2014	4.79
	9/10/2014	5.10
	11/6/2014	4.91
MW-17	2/2/2011	5.10
	4/4/2011	4.94
	7/26/2011	5.04
	10/11/2011	NA
	2/9/2012	5.04
	6/19/2012	3.59
	11/7/2012	NM
	4/2/2013	4.30
	8/12/2013	4.31
	12/3/2013	NS
	4/16/2014	4.71
	11/4/2014	4.63
MW-17B	8/17/2012	6.59
	8/27/2012	6.26
	11/6/2012	6.78
	1/8/2013	5.38
	4/2/2013	6.31
	8/13/2013	5.71
	12/3/2013	5.87
	4/17/2014	5.92
	11/5/2014	6.35
MW-18	2/1/2011	5.54
	4/4/2011	4.91
	7/26/2011	4.93
	10/11/2011	4.62
	2/9/2012	4.65
	6/19/2012	3.77
	11/7/2012	4.71
	4/3/2013	4.53
	8/12/2013	4.29
	12/3/2013	NS
	6/5/2014	4.52
	11/4/2014	4.67

Table 20
Summary of pH in Groundwater
Umicore Facility
Maxton, North Carolina

Water Table Monitoring Wells	Sample Date	pH
		SU
MW-19	6/18/2012	4.62
	11/5/2012	4.63
	4/3/2013	6.28
	8/13/2013	12.90
	12/3/2013	4.25
	11/5/2014	4.54
MW-20	6/19/2012	4.77
	11/5/2012	4.89
	4/3/2013	4.82
	8/13/2013	4.58
	12/3/2013	4.39
	4/17/2014	4.95
	9/9/2014	5.18
	11/4/2014	4.66
MW-21	6/19/2012	4.75
	11/6/2012	4.85
	4/3/2013	4.83
	8/13/2013	4.87
	12/4/2013	4.78
	4/17/2014	5.06
	11/5/2014	4.87
MW-21B	6/19/2012	4.82
	11/6/2012	4.96
	1/7/2013	4.59
	4/2/2013	4.78
	8/14/2013	4.65
	12/4/2013	4.49
	4/17/2014	4.57
	11/5/2014	4.77
MW-22	6/19/2012	4.82
	8/7/2012	4.39
	11/5/2012	4.62
	4/3/2013	5.44
	8/14/2013	4.07
	12/4/2013	4.28
	11/5/2014	4.50
MW-23	8/15/2012	3.36
	8/27/2012	4.06
	11/7/2012	4.64
	4/2/2013	4.83
	8/12/2013	4.96
	12/3/2013	4.81
	4/16/2014	5.60
	11/4/2014	5.05
MW-23B	8/17/2012	8.25
	11/7/2012	10.01
	1/8/2013	5.95
	4/2/2013	6.70
	8/13/2013	6.84
	12/3/2013	5.85
	4/15/2014	6.32
	11/4/2014	6.42

Table 20
Summary of pH in Groundwater
Umicore Facility
Maxton, North Carolina

Water Table Monitoring Wells	Sample Date	pH
		SU
MW-24	8/16/2012	2.89
	11/8/2012	4.72
	1/7/2013	4.50
	4/2/2013	4.75
	8/12/2013	4.13
	12/3/2013	NS
	4/16/2014	4.81
	11/4/2014	4.90
MW-24B	8/17/2012	6.25
	11/8/2012	7.92
	1/8/2013	6.56
	4/2/2013	6.63
	8/13/2013	6.34
	12/3/2013	NS
	4/15/2014	5.78
	11/4/2014	5.66
MW-25	4/15/2014	4.21
	8/27/2014	2.56
	8/29/2014	9.90
	9/4/2014	7.03
	10/21/2014	4.68
	11/7/2014	4.47
MW-25B	4/15/2014	5.36
	6/4/2014	5.31
	8/15/2014	9.31
	8/27/2014	5.53
	8/29/2014	9.04
	9/4/2014	5.42
	10/21/2014	5.24
	11/6/2014	5.39
MW-26	4/16/2014	5.16
	11/4/2014	4.74
MW-26B	4/16/2014	11.74
	11/4/2014	11.47
MW-27B	4/16/2014	6.90
	11/4/2014	6.29
MW-28	4/16/2014	5.07
	9/11/2014	4.92
	11/21/2014	5.12
MW-28B	4/17/2014	4.92
	9/11/2014	4.93
	11/21/2014	4.39
MW-29	6/3/2014	5.79
	8/14/2014	6.30
	8/21/2014	6.20
	8/26/2014	11.60
	9/4/2014	10.65
	10/20/2014	11.18
	11/7/2014	10.72
MW-29B	6/4/2014	5.78
	8/15/2014	6.10
	8/21/2014	5.55
	8/26/2014	12.73
	9/4/2014	11.44
	10/20/2014	10.07
	11/6/2014	12.31

Table 20
Summary of pH in Groundwater
Umicore Facility
Maxton, North Carolina

Water Table Monitoring Wells	Sample Date	pH
		SU
MW-30	6/3/2014	5.68
	8/14/2014	5.82
	8/27/2014	5.76
	9/5/2014	10.10
	10/20/2014	10.55
	11/10/2014	10.48
MW-30B	6/4/2014	6.52
	8/15/2014	5.85
	8/27/2014	5.27
	9/5/2014	9.45
	10/20/2014	11.74
	11/7/2014	12.33
MW-31	6/4/2014	6.08
	8/15/2014	6.35
	8/19/2014	6.02
	8/26/2014	13.06
	9/4/2014	10.90
	10/20/2014	10.47
	11/10/2014	10.05
MW-32	6/3/2014	6.01
	8/14/2014	6.19
	8/20/2014	6.15
	8/27/2014	6.34
	9/5/2014	10.35
	10/21/2014	9.98
	11/10/2014	7.10
MW-33	6/3/2014	6.08
	8/14/2014	6.28
	8/20/2014	6.15
	8/27/2014	13.56
	9/5/2014	13.58
	10/20/2014	13.58
	11/7/2014	13.45
MW-34	6/4/2014	5.81
	8/15/2014	5.87
	8/19/2014	5.95
	8/26/2014	11.61
	9/4/2014	10.75
	10/21/2014	11.79
	11/10/2014	11.66
MW-35	6/4/2014	5.97
	8/14/2014	6.09
	8/20/2014	5.67
	8/27/2014	5.96
	9/5/2014	9.22
	10/21/2014	8.06
	11/10/2014	9.03
MW-35B	6/3/2014	6.10
	8/15/2014	5.62
	9/4/2014	8.70
	10/21/2014	5.90
	11/7/2014	5.97
MW-36	6/3/2014	5.97
	8/14/2014	6.16
	8/20/2014	5.77
	8/27/2014	12.76
	9/5/2014	12.48
	10/20/2014	12.08
	11/10/2014	11.85
MW-37	11/5/2014	5.65
MW-38	11/24/2014	5.21
MW-38I	11/24/2014	5.00
MW-38B	11/24/2014	5.23

Notes:
SU = Standard Units

Table 21
Summary of Laboratory Test Results - Disinfection Byproducts
Groundwater Samples
Umicore Facility
Maxton, North Carolina

Method				524.2	524.2	524.2	524.2	524.2	552.2	552.2	552.2	552.2	552.2	552.2	4500cl
Parameter →				Bromodichlor-methane	Bromoform	Chloroform	Dibromochloro-methane	Total Trihalomethanes	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Total Haloacetic Acids	Trichloroacetic Acid	Residual Chlorine
2L Standard →				0.6	4	70	0.4	NE	NE	0.7*	NE	NE	NE	NE	NE
Sample ID	Lab	Sample Matrix	Date (Prep method)	Results in ug/L											
Well-7	ENCO	GW	12/2/2014	<0.00017	<0.00022	<0.00018	<0.00017	<0.00017	<0.00029	<0.00033	<0.00039	<0.00023	<0.0020	<0.00024	NT
	ESC	GW	12/2/2014	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00200	<0.00100	<0.00100	**150**

Notes:
GW = Groundwater
2L = North Carolina groundwater quality standard in 15A NCAC 2L .0202 (the 2L Standard)
* = Interim Maximum Allowable Concentration (IMAC)
NE = Non Existent
NT = Not Tested (ENCO does not test for this analyte)

Appendix A

Boring ID	MW-38	***Sheet***	1 of 1
Job No.	200917	***Client***	Umicore USA Inc.
Location	Maxton, NC	***Drilling Method***	Sonic
Sample Types	None	***Boring Diameter***	6"
Geologist	WMF	***Total Depth in Ft***	38'
Start	11/10/2014	***Finish***	11/10/2014

Depth in Feet		**Photographs Taken**	**Geologic Description**
0-5			Orange to Tan Fine to Medium SAND
5-7			Orange to Tan to Gray Silty Fine to Medium SAND
7-8			Dark Gray Fine to Medium SAND
8-9			Orange to Tan Fine to Medium SAND
9-10			Light Tan to White Fine to Medium SAND
10-15		*	Orange to Tan Silty Fine to Medium SAND
15-16			Light Tan Fine to Medium SAND
16-18			Orange to Tan Fine to Medium SAND with Silt
18-19			Light Gray to Tan highly compacted Clayey Silty Fine to Medium SAND
19-22		*	Light Gray Fine to Medium SAND with Silt
22-23			Light Gray Medium to Coarse SAND with Silt
23-26		*	Light Gray to Rose Silty Sandy Clay with low plasticity and fine to medium grained sand observed
26-26.5			Light Gray Silty Fine to Medium SAND
26.5-28.5			Light Gray Fine-Grained SAND, well sorted
28.5-30		*	Light Gray to White Medium to Coarse SAND
30-35.5			Light Gray to White Fine to Coarse SAND
35.5-38			Light Gray to White Medium to Coarse SAND

Boring ID	MW-38I	***Sheet***	1 of 2
Job No.	200917	***Client***	Umicore USA Inc.
Location	Maxton, NC	***Drilling Method***	Sonic
Sample Types	None	***Boring Diameter***	6"
Geologist	WMF	***Total Depth in Ft***	52'
Start	11/12/2014	***Finish***	11/12/2014

Depth in Feet		**Photographs Taken**	**Geologic Description**
0-5.5			Light Tan to Orange Fine to Medium SAND
5.5-6			Dark Gray Fine to Medium SAND with organics
6-7			Light Tan Fine to Medium SAND
7-15			Light Tan to Orange Fine to Medium SAND with Silt
15-17			Olive to Light Tan to White Fine to Medium SAND with Silt
17-19			Light Gray to Tan Fine to Medium SAND
19-20.5			Light Gray to White Fine to Medium SAND
20.5-21		*	Light Gray to White Silty CLAY with low plasticity
21-23		*	Light Gray to Rose Clayey Silty Fine to Medium SAND
23-25		*	Light Gray to White to Rose to Orange Fine to Medium SAND with mostly fine grained sand observed
25-30			Light Gray to White Fine to Medium SAND
30-31			Tan to Orange Fine to Medium SAND
31-34		*	Light Gray to Light Tan Fine to Medium SAND with mostly fine grained sand observed
34-37		*	Orange to Tan to Light Gray to Rose Medium to Coarse SAND

Boring ID	MW-38I	***Sheet***	2 of 2
Job No.	200917	***Client***	Umicore USA Inc.
Location	Maxton, NC	***Drilling Method***	Sonic
Sample Types	None	***Boring Diameter***	6"
Geologist	WMF	***Total Depth in Ft***	52'
Start	11/12/2014	***Finish***	11/12/2014

Depth in Feet		**Photographs Taken**	**Geologic Description**
37-42			Light Gray to Rose to White to Light Tan Medium to Coarse SAND
42-44.5		*	Light Gray to White Fine to Medium SAND with mostly fined-grained sand observed
44.5-47		*	Light Gray to White Fine to Medium SAND with mostly coarse grained sand with gravel-sized particles observed
47-52			No Recovery - soil fell out of metal core because it was believed to be coarse-grained sand with gravel sized particles. However, no visual evidence of this soil was observed.

Notes:
Associated Monitoring Well

Boring ID	MW-38B	***Sheet***	1 of 3
Job No.	200917	***Client***	Umicore USA Inc.
Location	Maxton, NC	***Drilling Method***	Sonic
Sample Types	None	***Boring Diameter***	6"
Geologist	WMF/JMH	***Total Depth in Ft***	107'
Start	11/11/2014	***Finish***	11/13/2014

Depth in Feet		**Photographs Taken**	**Geologic Description**
0-5			Orange to Tan Fine to Medium SAND
5-8			Orange to Tan Fine to Medium SAND with mostly fine-grained sand observed
8-9			White to light gray Clayey SILT
9-12			Light Pink to Rose to Light Tan Silty Fine to Medium SAND
12-15			Light Tan to White Clayey Silty Fine to Medium SAND
15-16			White to Light Gray Clayey SILT with low plasticity
16-18			Light Tan to Orange Fine to Medium SAND
18-22		*	Light Gray Fine to Medium SAND with Silt
22-27		*	Light Gray to Rose Sandy Silty CLAY with Fine to Medium Sand
27-27.5			Light Gray Fine SAND, well sorted
27.5-29			Light Tan to Orange Fine to Medium SAND
29-30.5		*	Light Gray Medium to Coarse SAND
30.5-32			Light Gray Fine to Medium SAND
32-36			Light Gray Medium to Coarse SAND
36-40			Light Tan to Orange Medium to Coarse SAND

Boring ID	MW-38B	***Sheet***	2 of 3
Job No.	200917	***Client***	Umicore USA Inc.
Location	Maxton, NC	***Drilling Method***	Sonic
Sample Types	None	***Boring Diameter***	6"
Geologist	WMF/JMH	***Total Depth in Ft***	107'
Start	11/11/2014	***Finish***	11/13/2014

Depth in Feet		**Photographs Taken**	**Geologic Description**
40-41			Light Gray Medium to Coarse SAND
41-42			Light Gray Fine to Medium SAND with mostly fine grained sand observed
42-43.5			Light Tan to Red Silty Fine to Medium SAND with mostly fine grained sand observed
43.5-46		*	Light Tan Medium to Coarse SAND with mostly coarse grained sand observed also gravel sized particles observed
46-52			Light Gray to Light Pink to Light Tan Medium to Coarse SAND
52-53			Light Gray to White Silty Clayey Medium to Coarse SAND
53-57.5			Rose to Light Tan to Light Gray to White Fine to Coarse SAND with mostly medium grained sand observed
57.5-58			Light Gray to White Sandy SILT with fine grained sand.
58-61			White to Orange to Rose to Light Tan Fine to Coarse SAND with mostly medium grained sand observed
61-63			Light Gray to White Fine to Medium SAND with mostly fine grained sand observed
63-64			Light Tan Fine to Medium SAND
64-75			Light Gray to White to Light Tan Fine to Medium SAND
75-76			Light Tan to Light Gray Medium to Coarse SAND
76-77		*	Tan to Orange to Rose Medium to Coarse SAND with gray Clay lenses

Boring ID	MW-38B	***Sheet***	3 of 3
Job No.	200917	***Client***	Umicore USA Inc.
Location	Maxton, NC	***Drilling Method***	Sonic
Sample Types	None	***Boring Diameter***	6"
Geologist	WMF/JMH	***Total Depth in Ft***	107'
Start	11/11/2014	***Finish***	11/13/2014

Depth in Feet		**Photographs Taken**	**Geologic Description**
77-79			White to Light Gray to Light Tan Fine to Medium SAND
79-80			Rose to Light Tan Medium to Coarse SAND
80-86			White to Light Gray to Light Tan to Rose Fine to Medium SAND
86-90		*	Light Tan to Light Orange Medium to Coarse SAND
90-91		*	Light Tan Fine to Medium SAND
91-107			No Recovery - The soil fell out of metal core because it was believed to be Coarse SAND. However, no visual evidence of this soil was observed.

Appendix B

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Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

Report Summary

Thursday October 30, 2014

Report Number: L729011
Samples Received: 10/22/14
Client Project: 200917

Description: Umicore Maxton Facility

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

Entire Report Reviewed By: Jimmy Hunt

Jimmy Hunt , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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REPORT OF ANALYSIS

Matt Flinchum
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PO Box 639
Cary, NC 27512

October 30, 2014

ESC Sample # : L729011-01

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-4

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/21/14 10:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	120000	770	50000	ug/l		9056	10/27/14	10
Cobalt	640	0.26	1.0	ug/l		6020	10/24/14	1
Iron	19.	14.	100	ug/l	J	6010C	10/23/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	10/23/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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October 30, 2014

ESC Sample # : L729011-02

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-25

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/21/14 08:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	1000	77.	5000	ug/l	J	9056	10/29/14	1
Cobalt	96.	0.26	1.0	ug/l		6020	10/24/14	1
Iron	15.	14.	100	ug/l	J	6010C	10/23/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	10/23/14	1

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October 30, 2014

ESC Sample # : L729011-03

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-25B

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/21/14 09:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	31000	77.	5000	ug/l		9056	10/29/14	1
Cobalt	760	0.26	1.0	ug/l		6020	10/24/14	1
Iron	U	14.	100	ug/l		6010C	10/23/14	1
Iron,Dissolved	35.	14.	100	ug/l	J	6010C	10/23/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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October 30, 2014

ESC Sample # : L729011-04

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-29

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/20/14 14:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	480000	770	50000	ug/l		9056	10/29/14	10
Cobalt	10.	0.26	1.0	ug/l		6020	10/24/14	1
Iron	53.	14.	100	ug/l	J	6010C	10/23/14	1
Iron,Dissolved	20.	14.	100	ug/l	J	6010C	10/23/14	1

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RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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October 30, 2014

ESC Sample # : L729011-05

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-29B

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/20/14 13:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	340000	3900	250000	ug/l		9056	10/27/14	50
Cobalt	5.3	0.26	1.0	ug/l		6020	10/24/14	1
Iron	38.	14.	100	ug/l	J	6010C	10/23/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	10/23/14	1

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MDL = Minimum Detection Limit = LOD = TRRP SDL
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October 30, 2014

ESC Sample # : L729011-06

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-30

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/20/14 17:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	550000	7700	500000	ug/l		9056	10/27/14	100
Cobalt	240	0.26	1.0	ug/l		6020	10/24/14	1
Iron	1400	14.	100	ug/l		6010C	10/23/14	1
Iron,Dissolved	1400	14.	100	ug/l		6010C	10/23/14	1

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RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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October 30, 2014

ESC Sample # : L729011-07

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-30B

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/20/14 18:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	430000	770	50000	ug/l		9056	10/29/14	10
Cobalt	80.	0.26	1.0	ug/l		6020	10/24/14	1
Iron	32.	14.	100	ug/l	J	6010C	10/23/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	10/23/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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October 30, 2014

ESC Sample # : L729011-08

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-31

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/20/14 15:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	320000	770	50000	ug/l		9056	10/29/14	10
Cobalt	52.	0.26	1.0	ug/l		6020	10/24/14	1
Iron	43.	14.	100	ug/l	J	6010C	10/23/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	10/23/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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October 30, 2014

ESC Sample # : L729011-09

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-32

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/21/14 11:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	330000	3900	250000	ug/l		9056	10/27/14	50
Cobalt	560	0.26	1.0	ug/l		6020	10/24/14	1
Iron	84.	14.	100	ug/l	J	6010C	10/23/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	10/23/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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October 30, 2014

ESC Sample # : L729011-10

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-33

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/20/14 12:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	9200000	39000	2500000	ug/l		9056	10/29/14	500
Cobalt	8.3	0.26	1.0	ug/l		6020	10/24/14	1
Iron	3900	14.	100	ug/l		6010C	10/23/14	1
Iron,Dissolved	190	14.	100	ug/l		6010C	10/23/14	1

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MDL = Minimum Detection Limit = LOD = TRRP SDL
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October 30, 2014

ESC Sample # : L729011-11

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-34

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/21/14 12:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	140000	390	25000	ug/l		9056	10/29/14	5
Cobalt	720	0.26	1.0	ug/l		6020	10/24/14	1
Iron	290	14.	100	ug/l		6010C	10/23/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	10/23/14	1

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MDL = Minimum Detection Limit = LOD = TRRP SDL
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October 30, 2014

ESC Sample # : L729011-12

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-35

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/21/14 13:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	490000	1500	100000	ug/l		9056	10/29/14	20
Cobalt	2000	1.3	5.0	ug/l		6020	10/24/14	5
Iron	420	14.	100	ug/l		6010C	10/23/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	10/23/14	1

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October 30, 2014

ESC Sample # : L729011-13

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-35B

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/21/14 12:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	130000	150	10000	ug/l		9056	10/30/14	2
Cobalt	760	0.26	1.0	ug/l		6020	10/24/14	1
Iron	48.	14.	100	ug/l	J	6010C	10/23/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	10/23/14	1

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

October 30, 2014

ESC Sample # : L729011-14

Date Received : October 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-36

Project # : 200917

Collected By : Joshua Hanks
Collection Date : 10/21/14 15:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Sulfate	660000	3900	250000	ug/l		9056	10/29/14	50
Cobalt	44.	0.26	1.0	ug/l		6020	10/24/14	1
Iron	230	14.	100	ug/l		6010C	10/23/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	10/23/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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Reported: 10/30/14 11:24 Printed: 10/30/14 11:25

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L729011-01	WG750252	SAMP	Iron	R2999972	J
L729011-02	WG751401	SAMP	Sulfate	R3001131	J
	WG750252	SAMP	Iron	R2999972	J
L729011-03	WG750265	SAMP	Iron,Dissolved	R2999929	J
L729011-04	WG750252	SAMP	Iron	R2999972	J
	WG750265	SAMP	Iron,Dissolved	R2999929	J
L729011-05	WG750252	SAMP	Iron	R2999972	J
L729011-07	WG750252	SAMP	Iron	R2999972	J
L729011-08	WG750252	SAMP	Iron	R2999972	J
L729011-09	WG750252	SAMP	Iron	R2999972	J
L729011-13	WG750252	SAMP	Iron	R2999972	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

Qualifier Report Information

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

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
10/30/14 at 11:25:26

TSR Signing Reports: 350
R5 - Desired TAT

MDL/RDL; Use ASG, COG, TLG not ICP on GW; Attach COC to back of report PDF; PPB

Sample: L729011-01 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-02 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-03 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-04 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-05 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-06 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-07 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-08 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-09 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-10 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-11 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-12 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-13 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

Sample: L729011-14 Account: DUNDUNNC Received: 10/22/14 09:00 Due Date: 10/29/14 00:00 RPT Date: 10/30/14 11:24

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Duncklee and Dunham
Matt Flinchum
PO Box 639

Cary, NC 27512

Quality Assurance Report
Level II

L729011

October 30, 2014

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Iron,Dissolved	< .1	mg/l			WG750265	10/23/14 19:03
Iron	< .1	mg/l			WG750252	10/23/14 20:51
Cobalt	< .001	mg/l			WG750322	10/24/14 10:52
Sulfate	< 5	mg/l			WG750407	10/27/14 12:00
Sulfate	< 5	mg/l			WG751401	10/29/14 08:11
Sulfate	< 5	mg/l			WG751350	10/29/14 15:33

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Sulfate	mg/l	160.	161.	1.00	20	L728897-02	WG750407

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Iron,Dissolved	mg/l	1	1.01	101.	80-120	WG750265
Iron	mg/l	1	1.01	101.	80-120	WG750252
Cobalt	mg/l	.05	0.0488	98.0	85-115	WG750322
Sulfate	mg/l	40	38.9	97.0	90-110	WG750407
Sulfate	mg/l	40	41.2	103.	90-110	WG751401
Sulfate	mg/l	40	40.0	100.	90-110	WG751350

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Iron,Dissolved	mg/l	1.00	1.01	100.	80-120	1.00	20	WG750265
Iron	mg/l	0.948	1.01	95.0	80-120	7.00	20	WG750252
Cobalt	mg/l	0.0473	0.0488	94.0	85-115	3.00	20	WG750322
Sulfate	mg/l	38.7	38.9	97.0	90-110	0.0	20	WG750407
Sulfate	mg/l	41.4	41.2	103.	90-110	0.0	20	WG751401

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L729011

October 30, 2014

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Sulfate	mg/l	40.0	40.0	100.	90-110	0.0	20	WG751350

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Iron,Dissolved	mg/l	1.00	-0.0223	1	100.	75-125	L729011-01	WG750265
Iron	mg/l	1.06	0.0191	1	100.	75-125	L729011-01	WG750252
Sulfate	mg/l	239.	160.	25	79.0*	80-120	L728897-01	WG750407
Sulfate	mg/l	50.6	0.999	50	99.0	80-120	L729011-02	WG751401

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Iron,Dissolved	mg/l	1.01	1.00	104.	75-125	1.00	20	L729011-01	WG750265
Iron	mg/l	1.08	1.06	106.	75-125	2.00	20	L729011-01	WG750252
Sulfate	mg/l	240.	239.	161.*	80-120	1.00	20	L728897-01	WG750407
Sulfate	mg/l	50.9	50.6	99.9	80-120	1.00	20	L729011-02	WG751401

Serial Dilution

Batch number /Run number / Sample number cross reference

WG750265: R2999929: L729011-01 02 03 04 05 06 07 08 09 10 11 12 13 14
WG750252: R2999972: L729011-01 02 03 04 05 06 07 08 09 10 11 12 13 14
WG750322: R3000041: L729011-01 02 03 04 05 06 07 08 09 10 11 12 13 14
WG750407: R3000481: L729011-01 05 06 09
WG751401: R3001131: L729011-02 03 04 07 08 10
WG751350: R3001204: L729011-12 13 14

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

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Quality Assurance Report
Level II

L729011

October 30, 2014

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

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

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

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

Company Name/Address:
Duncklee & Dunham
511 Keisler Dr.
Cary, North Carolina 27518

Billing Information:

Report to: **Matt Flinchum**

Email To: **matt@dunkleedunham.com**

Project Description: **Umicore Maxton Facility**

City/State Collected: **Maxton, NC**

Phone: **919-858-9898**
Fax: **919-858-9899**

Client Project # **200917**

Lab Project #

Collected by (print): Joshua Hanks

Site/Facility ID #

P.O. #

Collected by (signature): Joshua Hanks

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: Standard

Email? ___No ✓Yes
FAX? ✓No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

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

L# L729611

A078

Acctnum: DUNDUNNC
Template:
Prelogin:
TSR:
Cooler:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Sulfate x 9056:1 x 125ml HDPE-NoPres	Co x 6020: 1 x 500ml HDPE-Nitric ✓2	Total Fe x 6010B: combine w/ above	Dissolved Fe x 6010B: 1 x 500ml HDPE-NoPres							Rem./Contaminant	Sample # (lab only)
MW-4	Grab	GW	—	10/21/14	1016	3	X	X	X	X								01
MW-25	↓	↓	—	↓	0830	↓	↓	↓	↓	↓								02
MW-25B			—		0920													03
MW-29			—	10/20/14	1415													04
MW-29B			—		1330													05
MW-30			—		1730													06
MW-30B			—		1830													07
MW-31			—		1500													08
MW-32			—	10/21/14	1105													09
MW-33			—	10/20/14	1200													10

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

pH _____ Temp _____
Flow _____ Other _____

Remarks:

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Joshua Hanks	10/21/14	18:00	[signature]
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
[signature]	10/22/14	18:15	[signature]

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

Temp: 2.4 °C Bottles Received: 42

Date: 10-22-14 Time: 0900

Condition: (lab use only) ✓ JWB

COC Seal Intact: ✓ Y ___N ___NA

pH Checked: C2

NCF:

Company Name/Address:
Duncklee & Dunham
511 Keisler Dr.
Cary, North Carolina 27518

Billing Information:

Report to: **Matt Flinchum**

Email To: **matt@dunkleedunham.com**

Project Description: **Umicore Maxton Facility**

City/State Collected: **Maxton, NC**

Phone: **919-858-9898**
Fax: **919-858-9899**

Client Project # **200917**

Lab Project #

Collected by (print): Joshua Hanks

Site/Facility ID #

P.O. #

Collected by (signature): [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: Standard

Email? ___No ✓Yes
FAX? ✓No ___Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Sulfate x 9056:1 x 125ml HDPE-NoPres	Co x 6020: 1 x 500ml HDPE-Nitric ✓2	Total Fe x 6010B: combine w/ above	Dissolved Fe x 6010B: 1 x 500ml HDPE-NoPres						Rem./Contaminant	Sample # (lab only)
MW-34	Grab	GW	—	10/21/14	1210	3	X	X	X	X							11
MW-35	↓	↓	—	↓	1345	↓	↓	↓	↓	↓							12
MW-35B	↓	↓	—	↓	1255	↓	↓	↓	↓	↓							13
MW-36	↓	↓	—	↓	1555	↓	↓	↓	↓	↓							14

Chain of Custody Page 2 of 2

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L# L725811

Table #

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

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

pH _____ Temp _____
Flow _____ Other _____

Remarks:

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ Sub	Condition: (lab use only)
[signature]	10/21/14	18:00	[signature]		ok
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.4 °C Bottles Received: 42	COC Seal Intact: ✓ Y ___N ___NA
Relinquished by : (Signature) [signature]	Date: 10/21/14	Time: 18:15	Received for lab by: (Signature) [signature]	Date: 10-22-14 Time: 0100	pH Checked: L2 / NCF:

Divider
Page

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PO Box 639
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Report Summary

Wednesday November 19, 2014

Report Number: L732280
Samples Received: 11/07/14
Client Project: 200917

Description: Umicore Maxton Facility

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

Entire Report Reviewed By: Jimmy Hunt

Jimmy Hunt , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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

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

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REPORT OF ANALYSIS

Matt Flinchum
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PO Box 639
Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-01

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : DMW-1

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 11:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	4300	52.	1000	ug/l		9056	11/11/14	1
Sulfate	5400	77.	5000	ug/l		9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	U	0.26	2.0	ug/l		6020	11/12/14	1
Selenium	1.0	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	U	100	1000	ug/l		6010C	11/11/14	1
Sodium	7300	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

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November 19, 2014

ESC Sample # : L732280-02

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : DMW-3

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 12:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	5500	52.	1000	ug/l		9056	11/11/14	1
Sulfate	480	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	0.26	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	0.70	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	180	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	3700	98.	1000	ug/l		6010C	11/11/14	1

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November 19, 2014

ESC Sample # : L732280-03

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-5B

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 15:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	190000	100	2000	ug/l		9056	11/11/14	2
Sulfate	2100	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	12.	0.26	2.0	ug/l		6020	11/12/14	1
Selenium	2.4	0.38	2.0	ug/l		6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	360	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	110000	98.	1000	ug/l		6010C	11/11/14	1

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MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

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November 19, 2014

ESC Sample # : L732280-04

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-5B-DUP

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 15:12

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	13.	0.26	2.0	ug/l		6020	11/12/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-05

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-5B-EB

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 15:11

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	U	0.26	2.0	ug/l		6020	11/12/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
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PO Box 639
Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-06

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-8

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 11:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	4200	52.	1000	ug/l		9056	11/11/14	1
Sulfate	380	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	0.36	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	0.52	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	270	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	2600	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
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November 19, 2014

ESC Sample # : L732280-07

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-14B

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 13:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	2600	52.	1000	ug/l		9056	11/11/14	1
Sulfate	370	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	0.60	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	0.65	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	270	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	2500	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 19, 2014

ESC Sample # : L732280-08

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-16B

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 10:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	100000	100	2000	ug/l		9056	11/13/14	2
Sulfate	1000	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	2.4	0.26	2.0	ug/l		6020	11/12/14	1
Selenium	0.72	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	290	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	69000	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 19, 2014

ESC Sample # : L732280-09

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-17

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 15:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	1800	52.	1000	ug/l		9056	11/11/14	1
Sulfate	320	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	0.29	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	U	0.38	2.0	ug/l		6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	170	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	1200	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 19, 2014

ESC Sample # : L732280-10

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-17B

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 09:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	2200	52.	1000	ug/l		9056	11/11/14	1
Sulfate	8600	77.	5000	ug/l		9056	11/11/14	1
Arsenic	0.31	0.25	2.0	ug/l	J	6020	11/12/14	1
Cobalt	2.0	0.26	2.0	ug/l		6020	11/12/14	1
Selenium	U	0.38	2.0	ug/l		6020	11/12/14	1
Thallium	0.25	0.19	2.0	ug/l	J	6020	11/12/14	1
Potassium	970	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	4200	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 19, 2014

ESC Sample # : L732280-11

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-18

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 14:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	4700	52.	1000	ug/l		9056	11/11/14	1
Sulfate	990	77.	5000	ug/l	JP1	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	0.27	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	0.62	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	200	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	3400	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 19, 2014

ESC Sample # : L732280-12

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-19

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 15:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	4700	52.	1000	ug/l		9056	11/11/14	1
Sulfate	2900	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	0.54	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	0.46	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	300	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	3100	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 19, 2014

ESC Sample # : L732280-13

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-20

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 16:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	6100	52.	1000	ug/l		9056	11/11/14	1
Sulfate	3100	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	0.66	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	2.0	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	350	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	4100	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 19, 2014

ESC Sample # : L732280-14

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-21

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 10:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	16000	52.	1000	ug/l		9056	11/11/14	1
Sulfate	1800	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	11.	0.26	2.0	ug/l		6020	11/12/14	1
Selenium	0.93	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	430	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	74000	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 19, 2014

ESC Sample # : L732280-15

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-21B

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 11:26

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	120000	100	2000	ug/l		9056	11/12/14	2
Sulfate	1200	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	15.	0.26	2.0	ug/l		6020	11/12/14	1
Selenium	0.49	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	480	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	13000	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

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November 19, 2014

ESC Sample # : L732280-16

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-23

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 10:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	4300	52.	1000	ug/l		9056	11/11/14	1
Sulfate	2800	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	0.28	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	U	0.38	2.0	ug/l		6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Iron	30.	14.	100	ug/l	J	6010C	11/11/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	11/13/14	1
Potassium	220	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	3900	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 19, 2014

ESC Sample # : L732280-17

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-23B

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 10:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	5700	52.	1000	ug/l		9056	11/11/14	1
Sulfate	U	77.	5000	ug/l		9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	U	0.26	2.0	ug/l		6020	11/12/14	1
Selenium	0.79	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Iron	24.	14.	100	ug/l	J	6010C	11/11/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	11/13/14	1
Potassium	330	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	4800	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

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November 19, 2014

ESC Sample # : L732280-18

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-24

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 08:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	2800	52.	1000	ug/l		9056	11/11/14	1
Sulfate	540	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	0.26	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	U	0.38	2.0	ug/l		6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	240	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	1600	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 19, 2014

ESC Sample # : L732280-19

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-24B

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 09:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	3900	52.	1000	ug/l		9056	11/11/14	1
Sulfate	750	77.	5000	ug/l	J	9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	0.27	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	0.39	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	320	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	4400	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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Fax (615) 758-5859

Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-20

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-26

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 16:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	5000	52.	1000	ug/l		9056	11/11/14	1
Sulfate	5000	77.	5000	ug/l		9056	11/11/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	U	0.26	2.0	ug/l		6020	11/12/14	1
Selenium	0.80	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	260	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	6000	98.	1000	ug/l		6010C	11/11/14	1

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-21

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-26B

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 11:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	8200	52.	1000	ug/l		9056	11/11/14	1
Sulfate	24000	77.	5000	ug/l		9056	11/11/14	1
Arsenic	1.2	0.25	2.0	ug/l	J	6020	11/12/14	1
Cobalt	0.30	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	1.4	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	0.25	0.19	2.0	ug/l	J	6020	11/12/14	1
Potassium	1200	100	1000	ug/l		6010C	11/11/14	1
Sodium	23000	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-22

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-27B

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 15:16

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	2000	52.	1000	ug/l		9056	11/11/14	1
Sulfate	12000	77.	5000	ug/l		9056	11/11/14	1
Arsenic	0.41	0.25	2.0	ug/l	J	6020	11/12/14	1
Cobalt	1.7	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	0.59	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	2000	100	1000	ug/l		6010C	11/11/14	1
Sodium	4400	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Matt Flinchum
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PO Box 639
Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-23

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-28

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 09:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	10000	52.	1000	ug/l		9056	11/12/14	1
Sulfate	1400	77.	5000	ug/l	JP1	9056	11/12/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	2.4	0.26	2.0	ug/l		6020	11/12/14	1
Selenium	U	0.38	2.0	ug/l		6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Iron	20.	14.	100	ug/l	J	6010C	11/11/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	11/13/14	1
Potassium	250	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	27000	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-24

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-28B

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 16:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	44000	52.	1000	ug/l		9056	11/12/14	1
Sulfate	2000	77.	5000	ug/l	J	9056	11/12/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	96.	0.26	2.0	ug/l		6020	11/12/14	1
Selenium	U	0.38	2.0	ug/l		6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Iron	40.	14.	100	ug/l	J	6010C	11/11/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	11/13/14	1
Potassium	230	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	7100	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
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Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-25

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-28-DUP

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 16:51

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	2.3	0.26	2.0	ug/l		6020	11/12/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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Reported: 11/14/14 11:36 Revised: 11/19/14 10:48

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REPORT OF ANALYSIS

Matt Flinchum
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PO Box 639
Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-26

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-28B-EB

Project # : 200917

Collected By : Flinchum
Collection Date : 11/04/14 16:52

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	U	0.26	2.0	ug/l		6020	11/12/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-27

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-37

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 08:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	5000	52.	1000	ug/l		9056	11/12/14	1
Sulfate	950	77.	5000	ug/l	J	9056	11/12/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	8.8	0.26	2.0	ug/l		6020	11/12/14	1
Selenium	0.48	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Iron	700	14.	100	ug/l		6010C	11/11/14	1
Iron,Dissolved	19.	14.	100	ug/l	J	6010C	11/13/14	1
Potassium	1600	100	1000	ug/l		6010C	11/11/14	1
Sodium	4800	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 19, 2014

ESC Sample # : L732280-28

Date Received : November 07, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-22

Project # : 200917

Collected By : Flinchum
Collection Date : 11/05/14 13:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	3000	52.	1000	ug/l		9056	11/12/14	1
Sulfate	1000	77.	5000	ug/l	J	9056	11/12/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/12/14	1
Cobalt	0.27	0.26	2.0	ug/l	J	6020	11/12/14	1
Selenium	1.2	0.38	2.0	ug/l	J	6020	11/12/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/12/14	1
Potassium	210	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	3200	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
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MDL = Minimum Detection Limit = LOD = TRRP SDL
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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L732280-01	WG754096	SAMP	Selenium	R3004060	J
L732280-02	WG753827	SAMP	Sulfate	R3003866	J
	WG754096	SAMP	Cobalt	R3004060	J
	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-03	WG753827	SAMP	Sulfate	R3003866	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-06	WG753827	SAMP	Sulfate	R3003866	J
	WG754096	SAMP	Cobalt	R3004060	J
	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-07	WG753827	SAMP	Sulfate	R3003866	J
	WG754096	SAMP	Cobalt	R3004060	J
	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-08	WG753827	SAMP	Sulfate	R3003866	J
	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-09	WG753827	SAMP	Sulfate	R3003866	J
	WG754096	SAMP	Cobalt	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-10	WG754096	SAMP	Arsenic	R3004060	J
	WG754096	SAMP	Thallium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-11	WG753831	SAMP	Sulfate	R3003873	JP1
	WG754096	SAMP	Cobalt	R3004060	J
	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-12	WG753831	SAMP	Sulfate	R3003873	J
	WG754096	SAMP	Cobalt	R3004060	J
	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-13	WG753831	SAMP	Sulfate	R3003873	J
	WG754096	SAMP	Cobalt	R3004060	J
	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-14	WG753831	SAMP	Sulfate	R3003873	J
	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-15	WG753831	SAMP	Sulfate	R3003873	J
	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-16	WG753831	SAMP	Sulfate	R3003873	J
	WG754096	SAMP	Cobalt	R3004060	J
	WG753640	SAMP	Iron	R3003600	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-17	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Iron	R3003600	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-18	WG753831	SAMP	Sulfate	R3003873	J
	WG754096	SAMP	Cobalt	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-19	WG753831	SAMP	Sulfate	R3003873	J
	WG754096	SAMP	Cobalt	R3004060	J
	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-20	WG754096	SAMP	Selenium	R3004060	J
	WG753640	SAMP	Potassium	R3003600	J
L732280-21	WG754094	SAMP	Arsenic	R3004061	J
	WG754094	SAMP	Cobalt	R3004061	J
	WG754094	SAMP	Selenium	R3004061	J
	WG754094	SAMP	Thallium	R3004061	J
L732280-22	WG754094	SAMP	Arsenic	R3004061	J
	WG754094	SAMP	Cobalt	R3004061	J
	WG754094	SAMP	Selenium	R3004061	J
L732280-23	WG753831	SAMP	Sulfate	R3003873	JP1
	WG753819	SAMP	Iron	R3003849	J
	WG753819	SAMP	Potassium	R3003849	J
L732280-24	WG753831	SAMP	Sulfate	R3003873	J

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
	WG753819	SAMP	Iron	R3003849	J
	WG753819	SAMP	Potassium	R3003849	J
L732280-27	WG753831	SAMP	Sulfate	R3003873	J
	WG754094	SAMP	Selenium	R3004061	J
	WG754323	SAMP	Iron,Dissolved	R3004436	J
L732280-28	WG753831	SAMP	Sulfate	R3003873	J
	WG754094	SAMP	Cobalt	R3004061	J
	WG754094	SAMP	Selenium	R3004061	J
	WG753819	SAMP	Potassium	R3003849	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

Qualifier Report Information

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

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
11/19/14 at 10:48:40

TSR Signing Reports: 350
R5 - Desired TAT

MDL/RDL; Use ASG, COG, TLG not ICP on GW; Attach COC to back of report PDF; PPB

Sample: L732280-01 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-02 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-03 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-04 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-05 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-06 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-07 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-08 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-09 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-10 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-11 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-12 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-13 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-14 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-15 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-16 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-17 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-18 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-19 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-20 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-21 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-22 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-23 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-24 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-25 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36
Changed sample ID from MW-28B-DUP to MW-28-DUP per Dave Duncklee - jeh 11/19/14
Sample: L732280-26 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-27 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

Sample: L732280-28 Account: DUNDUNNC Received: 11/07/14 07:20 Due Date: 11/14/14 00:00 RPT Date: 11/14/14 11:36

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Duncklee and Dunham
Matt Flinchum
PO Box 639

Cary, NC 27512

Quality Assurance Report
Level II

L732280

November 19, 2014

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Iron	< .1	mg/l			WG753640	11/11/14 08:50
Potassium	< 1	mg/l			WG753640	11/11/14 08:50
Sodium	< 1	mg/l			WG753640	11/11/14 08:50
Iron	< .1	mg/l			WG753819	11/11/14 21:19
Potassium	< 1	mg/l			WG753819	11/11/14 21:19
Sodium	< 1	mg/l			WG753819	11/11/14 21:19
Chloride	< 1	mg/l			WG753827	11/11/14 11:16
Sulfate	< 5	mg/l			WG753827	11/11/14 11:16
Chloride	< 1	mg/l			WG753831	11/11/14 19:06
Sulfate	< 5	mg/l			WG753831	11/11/14 19:06
Arsenic	< .001	mg/l			WG754096	11/12/14 15:56
Cobalt	< .001	mg/l			WG754096	11/12/14 15:56
Selenium	< .001	mg/l			WG754096	11/12/14 15:56
Thallium	< .001	mg/l			WG754096	11/12/14 15:56
Arsenic	< .001	mg/l			WG754094	11/12/14 16:55
Cobalt	< .001	mg/l			WG754094	11/12/14 16:55
Selenium	< .001	mg/l			WG754094	11/12/14 16:55
Thallium	< .001	mg/l			WG754094	11/12/14 16:55
Iron,Dissolved	< .1	mg/l			WG754323	11/13/14 15:10
Chloride	< 1	mg/l			WG754324	11/13/14 06:59

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Chloride	mg/l	0.0	0.621	0.0	20	L732261-01	WG753827
Sulfate	mg/l	14.0	14.0	0.0	20	L732261-01	WG753827
Chloride	mg/l	0.0	0.848	0.0	20	L732261-11	WG753827
Sulfate	mg/l	25.0	24.6	0.0	20	L732261-11	WG753827
Chloride	mg/l	5.00	4.67	8.00	20	L732280-11	WG753831
Sulfate	mg/l	0.0	0.987	94.0*	20	L732280-11	WG753831
Chloride	mg/l	10.0	10.1	4.00	20	L732280-23	WG753831
Sulfate	mg/l	0.0	1.43	67.0*	20	L732280-23	WG753831

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Iron	mg/l	1	1.10	110.	80-120	WG753640
Potassium	mg/l	10	9.88	99.0	80-120	WG753640
Sodium	mg/l	10	10.2	102.	80-120	WG753640
Iron	mg/l	1	0.964	96.0	80-120	WG753819
Potassium	mg/l	10	10.0	100.	80-120	WG753819

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L732280

November 19, 2014

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Sodium	mg/l	10	9.82	98.0	80-120	WG753819
Chloride	mg/l	40	40.2	101.	90-110	WG753827
Sulfate	mg/l	40	39.5	99.0	90-110	WG753827
Chloride	mg/l	40	40.1	100.	90-110	WG753831
Sulfate	mg/l	40	39.9	100.	90-110	WG753831
Arsenic	mg/l	.05	0.0477	95.0	85-115	WG754096
Cobalt	mg/l	.05	0.0538	108.	85-115	WG754096
Selenium	mg/l	.05	0.0508	102.	85-115	WG754096
Thallium	mg/l	.05	0.0515	103.	85-115	WG754096
Arsenic	mg/l	.05	0.0457	91.0	85-115	WG754094
Cobalt	mg/l	.05	0.0514	103.	85-115	WG754094
Selenium	mg/l	.05	0.0497	99.0	85-115	WG754094
Thallium	mg/l	.05	0.0485	97.0	85-115	WG754094
Iron,Dissolved	mg/l	1	0.964	96.0	80-120	WG754323
Chloride	mg/l	40	39.6	99.0	90-110	WG754324

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Iron	mg/l	1.04	1.10	104.	80-120	5.00	20	WG753640
Potassium	mg/l	9.76	9.88	98.0	80-120	1.00	20	WG753640
Sodium	mg/l	9.77	10.2	98.0	80-120	4.00	20	WG753640
Iron	mg/l	0.971	0.964	97.0	80-120	1.00	20	WG753819
Potassium	mg/l	9.99	10.0	100.	80-120	1.00	20	WG753819
Sodium	mg/l	9.81	9.82	98.0	80-120	0.0	20	WG753819
Chloride	mg/l	40.2	40.2	100.	90-110	0.0	20	WG753827
Sulfate	mg/l	39.5	39.5	99.0	90-110	0.0	20	WG753827
Chloride	mg/l	39.9	40.1	100.	90-110	0.0	20	WG753831
Sulfate	mg/l	39.8	39.9	99.0	90-110	0.0	20	WG753831
Arsenic	mg/l	0.0476	0.0477	95.0	85-115	0.0	20	WG754096
Cobalt	mg/l	0.0531	0.0538	106.	85-115	1.00	20	WG754096
Selenium	mg/l	0.0530	0.0508	106.	85-115	4.00	20	WG754096
Thallium	mg/l	0.0501	0.0515	100.	85-115	3.00	20	WG754096
Arsenic	mg/l	0.0484	0.0457	97.0	85-115	6.00	20	WG754094
Cobalt	mg/l	0.0538	0.0514	108.	85-115	5.00	20	WG754094
Selenium	mg/l	0.0481	0.0497	96.0	85-115	3.00	20	WG754094
Thallium	mg/l	0.0504	0.0485	101.	85-115	4.00	20	WG754094

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Quality Assurance Report
Level II

L732280

November 19, 2014

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Iron,Dissolved	mg/l	1.00	0.964	100.	80-120	4.00	20	WG754323
Chloride	mg/l	39.7	39.6	99.0	90-110	0.0	20	WG754324

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Potassium	mg/l	9.90	0.0881	10	98.0	75-125	L732280-01	WG753640
Sodium	mg/l	17.2	7.26	10	100.	75-125	L732280-01	WG753640
Potassium	mg/l	10.0	0.183	10	99.0	75-125	L732566-21	WG753819
Sodium	mg/l	50.1	41.6	10	85.0	75-125	L732566-21	WG753819
Chloride	mg/l	52.7	2.79	50	100.	80-120	L732261-06	WG753827
Sulfate	mg/l	74.1	25.2	50	98.0	80-120	L732261-06	WG753827
Chloride	mg/l	54.3	4.67	50	99.0	80-120	L732280-12	WG753831
Sulfate	mg/l	50.5	2.92	50	95.0	80-120	L732280-12	WG753831
Arsenic	mg/l	0.0515	0.0000254	.05	100.	75-125	L732280-01	WG754096
Cobalt	mg/l	0.0538	0.000177	.05	110.	75-125	L732280-01	WG754096
Selenium	mg/l	0.0512	0.00106	.05	100.	75-125	L732280-01	WG754096
Thallium	mg/l	0.0512	0.0000138	.05	100.	75-125	L732280-01	WG754096
Arsenic	mg/l	0.0526	0.000478	.05	100.	75-125	L732261-06	WG754094
Selenium	mg/l	0.0554	0.00513	.05	100.	75-125	L732261-06	WG754094
Thallium	mg/l	0.0495	0.0000141	.05	99.0	75-125	L732261-06	WG754094
Iron,Dissolved	mg/l	0.964	0.00911	1	95.0	75-125	L732280-16	WG754323

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Potassium	mg/l	9.81	9.90	97.2	75-125	1.00	20	L732280-01	WG753640
Sodium	mg/l	17.3	17.2	100.	75-125	0.0	20	L732280-01	WG753640
Potassium	mg/l	10.2	10.0	99.7	75-125	1.00	20	L732566-21	WG753819
Sodium	mg/l	50.2	50.1	85.6	75-125	0.0	20	L732566-21	WG753819
Chloride	mg/l	52.3	52.7	98.9	80-120	1.00	20	L732261-06	WG753827
Sulfate	mg/l	73.8	74.1	97.2	80-120	0.0	20	L732261-06	WG753827
Chloride	mg/l	54.0	54.3	98.7	80-120	1.00	20	L732280-12	WG753831
Sulfate	mg/l	50.0	50.5	94.2	80-120	1.00	20	L732280-12	WG753831
Arsenic	mg/l	0.0503	0.0515	100.	75-125	2.00	20	L732280-01	WG754096
Cobalt	mg/l	0.0535	0.0538	107.	75-125	1.00	20	L732280-01	WG754096
Selenium	mg/l	0.0486	0.0512	95.1	75-125	5.00	20	L732280-01	WG754096

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Cary, NC 27512

Quality Assurance Report
Level II

L732280

November 19, 2014

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Thallium	mg/l	0.0507	0.0512	101.	75-125	1.00	20	L732280-01	WG754096
Arsenic	mg/l	0.0526	0.0526	104.	75-125	0.0	20	L732261-06	WG754094
Selenium	mg/l	0.0564	0.0554	103.	75-125	2.00	20	L732261-06	WG754094
Thallium	mg/l	0.0503	0.0495	100.	75-125	1.00	20	L732261-06	WG754094
Iron,Dissolved	mg/l	0.957	0.964	94.8	75-125	1.00	20	L732280-16	WG754323

Serial Dilution

Batch number /Run number / Sample number cross reference

WG753640: R3003600: L732280-01 02 03 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21
WG753819: R3003849: L732280-23 24 27
WG753827: R3003866: L732280-01 02 03 06 07 08 09 10
WG753831: R3003873: L732280-11 12 13 14 15 16 17 18 19 20 21 22 23 24 27
WG754096: R3004060: L732280-01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20
WG754094: R3004061: L732280-21 22 23 24 25 26 27
WG754323: R3004436 R3004499: L732280-16 17 23 24 27
WG754324: R3004445: L732280-08

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
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Quality Assurance Report
Level II

L732280

November 19, 2014

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

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

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

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

Company Name/Address:
Duncklee & Dunham
511 Keisler Dr.
Cary, North Carolina 27518

Billing Information: same

Email To: dave@ ll ll .com
matt@dunkleedunham.com

Report to: **Matt Flinchum**, Dave Duncklee

Project Description: **Umicore Maxton Facility**

City/State Collected: **Maxton, NC**

Phone: **919-858-9898**
Fax: **919-858-9899**

Client Project # **200917**

Lab Project #

Collected by (print): Flinchum

Site/Facility ID #

P.O. #

Collected by (signature): [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: Standard

Email? ___ No ✓ Yes
FAX? ✓ No ___ Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 3

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Fax: 615-758-5859

L# L732280
D136

Acctnum: DUNDUNNC
Template:
Prelogin:
TSR:
Cooler:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride & Sulfate x 9056:1 x 125ml HDPE-NoPres	As, Co, Se & Tl x 6020: 1 x 500ml HDPE-Nitric <2	K & Na x 6010B: combine w/ above	Total Fe x 6010B: combine w/ above	Dissolved Fe x 6010B: 1 x 500ml HDPE-NoPres		Co x 6020 only: 500 HDPE-Nitric <2				Rem./Contaminant	Sample # (lab only)
DMW-1	Grab	GW		11-4-14	1115	2	X	X	X									01
DMW-3				11-4-14	1200	2	X	X	X									02
MW-5B				11-5-14	1510	2	X	X	X									03
MW-5B-dup					1512	1							X					04
MW-5B-FB		OT			1511	1							X					05
MW-8					1120	2	X	X	X									06
MW-14B					1345	2	X	X	X									07
MW-16B					1000	2	X	X	X									08
MW-17				11-4-14	1505	2	X	X	X									09
MW-17B				11-5-14	0905	2	X	X	X									10

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

pH _____ Temp _____
Flow _____ Other _____

Remarks:

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☒ SWA	Condition: (lab use only)
[signature]	11/6/14	15:40	[signature]		[signature] TOI
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.4°C Bottles Received: 57	COC Seal Intact: ✓ Y ___ N ___ NA
Relinquished by : (Signature) [signature]	Date: 11/6/14	Time: 17:15	Received for lab by: (Signature) [signature]	Date: 11/7/14 Time: 0720	pH Checked: 22 NCF:

Company Name/Address:
Duncklee & Dunham
511 Keisler Dr.
Cary, North Carolina 27518

Billing Information: Same

Report to: Matt Flinchum ; Dave Duncklee

Email To: matt@dunkleedunham.com

Project Description: Umicore Maxton Facility

City/State Collected: Maxton, NC

Phone: 919-858-9898
Fax: 919-858-9899

Client Project # 200917

Lab Project #

Collected by (print): Flinchum

Site/Facility ID #

P.O. #

Collected by (signature): [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: Standard

Email? ___No ✓Yes
FAX? ✓No ___Yes

Chain of Custody Page 2 of 3

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Phone: 800-767-5859
Fax: 615-758-5859

L# L732280
Table #
Acctnum: DUNDUNNC
Template:
Prelogin:
TSR:
Cooler:
Shipped Via:

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride & Sulfate x 9056:1 x 125ml HDPE-NoPres	As, Co, Se & Tl x 6020: 1 x 500ml HDPE-Nitric <2	K & Na x 6010B: combine w/ above	Total Fe x 6010B: combine w/ above	Dissolved Fe x 6010B: 1 x 500ml HDPE-NoPres		Co x 6020 only: 500 HDPE-Nitric <2				Rem./Contaminant	Sample # (lab only)
MW-18	Grab	GW		11-4-14	1410	2	X	X	X									11
MW-19	↓	↓		11-5-14	1535	2	X	X	X									12
MW-20	↓	↓		11-4-14	1605	2	X	X	X									13
MW-21	↓	↓		11-5-14	1030	2	X	X	X									14
MW-21B	↓	↓		↓	1126	2	X	X	X									15
~~MW-22~~ MW-23																		
MW-23	↓	↓		11-4-14	1000	3	X	X	X	X	X							16
MW-23B	↓	↓		11-4-14	1045	3	X	X	X	X	X							17
MW-24	↓	↓		11-4-14	~~0910~~ 0845	2	X	X	X									18
MW-24B	↓	↓		↓	0910	2	X	X	X									19

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

pH _____ Temp _____
Flow _____ Other _____

Remarks:

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☒ SWA	Condition: (lab use only)
[signature]	11/6/14	15:40	[signature]		TOI
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.4°C Bottles Received: 57	COC Seal Intact: ✓Y ___N ___NA
[signature]	11/6/14	17:15	[signature]	Date: 11/7/14 Time: 0720	pH Checked: <2 NCF:

Company Name/Address:
Duncklee & Dunham
511 Keisler Dr.
Cary, North Carolina 27518

Billing Information: same

Report to: **Matt Flinchum**, Dave Duncklee

Email To: **matt@dunkleedunham.com**

Project Description: **Umicore Maxton Facility**

City/State Collected: **Maxton, NC**

Phone: **919-858-9898**
Fax: **919-858-9899**

Client Project # **200917**

Lab Project #

Collected by (print): Flinchum

Site/Facility ID #

P.O. #

Collected by (signature): [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: Standard

Email? ___ No ✓ Yes
FAX? ✓ No ___ Yes

Analysis / Container / Preservative

Chain of Custody Page 3 of 3

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1206S Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L732280

Table #

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride & Sulfate x 9056:1 x 125ml HDPE-NoPres	As, Co, Se & Tl x 6020: 1 x 500ml HDPE-Nitric <2	K & Na x 6010B: combine w/ above	Total Fe x 6010B: combine w/ above	Dissolved Fe x 6010B: 1 x 500ml HDPE-NoPres		Co x 6020 only: 500 HDPE-Nitric <2				Rem./Contaminant	Sample # (lab only)
MW-26	Grab	GW		11-4-14	1655	2	X	X	X									20
MW-26B				11-4-14	1145	2	X	X	X									21
MW-27B				11-4-14	1516	2	X	X	X									22
MW-28				11-5-14	0930	3	X	X	X	X	X							23
MW-28B				11-4-14	1650	3	X	X	X	X	X							24
MW-28B-dup					1651	1							X					25
MW-28B-EB		OT			1652	1							X					26
MW-37				11-5-14	0835	3	X	X	X	X	X							27
MW-22				11-5-14	1345	2	X	X	X									28

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

Remarks:

pH ___ Temp ___
Flow ___ Other ___

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
[signature]	11/6/14	15:40	[signature]
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
[signature]			
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
[signature]	11/6/14	17:15	[signature]

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

Temp: 2.4°C Bottles Received: 57

Date: 11/7/14 Time: 0720

Condition: (lab use only) w TDI

COC Seal Intact: ✓Y ___N ___NA

pH Checked: 22

NCF:

Divider
Page

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Est. 1970

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

Report Summary

Tuesday November 18, 2014

Report Number: L732566
Samples Received: 11/08/14
Client Project: 200917

Description: Umicore Maxton Facility

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

Entire Report Reviewed By: Jimmy Hunt

Jimmy Hunt , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-01

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-2RB

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 08:51

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	120000	100	2000	ug/l		9056	11/14/14	2
Sulfate	47000	150	10000	ug/l		9056	11/14/14	2
Arsenic	2.8	0.25	2.0	ug/l		6020	11/17/14	1
Cobalt	24.	0.26	2.0	ug/l		6020	11/17/14	1
Selenium	13.	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/17/14	1
Iron	56.	14.	100	ug/l	J	6010C	11/11/14	1
Iron,Dissolved	21.	14.	100	ug/l	J	6010C	11/13/14	1
Potassium	U	100	1000	ug/l		6010C	11/11/14	1
Sodium	110000	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-02

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-4

Project # : 200917

Collected By : Hanks
Collection Date : 11/07/14 10:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	190000	260	5000	ug/l		9056	11/14/14	5
Sulfate	110000	390	25000	ug/l		9056	11/14/14	5
Arsenic	1.4	0.25	2.0	ug/l	J	6020	11/17/14	1
Cobalt	550	2.6	20.	ug/l		6020	11/17/14	10
Selenium	6.7	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/17/14	1
Iron	14.	14.	100	ug/l	J	6010C	11/11/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	11/13/14	1
Potassium	200	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	220000	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
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Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-03

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-5

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 09:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	120000	100	2000	ug/l		9056	11/14/14	2
Sulfate	62000	150	10000	ug/l		9056	11/14/14	2
Arsenic	1.1	0.25	2.0	ug/l	J	6020	11/17/14	1
Cobalt	360	1.3	10.	ug/l		6020	11/17/14	5
Selenium	5.3	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/17/14	1
Potassium	260	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	120000	98.	1000	ug/l		6010C	11/11/14	1

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REPORT OF ANALYSIS

Matt Flinchum
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November 18, 2014

ESC Sample # : L732566-04

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-10

Project # : 200917

Collected By : Hanks
Collection Date : 11/05/14 16:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	7900	52.	1000	ug/l		9056	11/14/14	1
Sulfate	12000	77.	5000	ug/l		9056	11/14/14	1
Arsenic	0.63	0.25	2.0	ug/l	J	6020	11/17/14	1
Cobalt	0.63	0.26	2.0	ug/l	J	6020	11/17/14	1
Selenium	2.6	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/17/14	1
Potassium	160	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	12000	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 18, 2014

ESC Sample # : L732566-05

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-11

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 11:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	4900	52.	1000	ug/l		9056	11/14/14	1
Sulfate	8900	77.	5000	ug/l		9056	11/14/14	1
Arsenic	0.37	0.25	2.0	ug/l	J	6020	11/17/14	1
Cobalt	0.53	0.26	2.0	ug/l	J	6020	11/17/14	1
Selenium	1.8	0.38	2.0	ug/l	J	6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/17/14	1
Potassium	360	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	9200	98.	1000	ug/l		6010C	11/11/14	1

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MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

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November 18, 2014

ESC Sample # : L732566-06

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-12

Project # : 200917

Collected By : Hanks
Collection Date : 11/07/14 08:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	220000	260	5000	ug/l		9056	11/14/14	5
Sulfate	99000	390	25000	ug/l		9056	11/14/14	5
Arsenic	2.3	0.25	2.0	ug/l		6020	11/17/14	1
Cobalt	11.	0.26	2.0	ug/l		6020	11/17/14	1
Selenium	4.0	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/17/14	1
Iron	4700	70.	500	ug/l		6010C	11/11/14	5
Iron,Dissolved	940	14.	100	ug/l		6010C	11/13/14	1
Potassium	U	510	5000	ug/l		6010C	11/11/14	5
Sodium	210000	490	5000	ug/l		6010C	11/11/14	5

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

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November 18, 2014

ESC Sample # : L732566-07

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-12RB

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 14:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	180000	260	5000	ug/l		9056	11/14/14	5
Sulfate	10000	77.	5000	ug/l		9056	11/14/14	1
Arsenic	1.4	0.25	2.0	ug/l	J	6020	11/17/14	1
Cobalt	95.	0.26	2.0	ug/l		6020	11/17/14	1
Selenium	0.77	0.38	2.0	ug/l	J	6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/17/14	1
Iron	750	14.	100	ug/l		6010C	11/11/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	11/13/14	1
Potassium	800	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	120000	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
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Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-08

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-13

Project # : 200917

Collected By : Hanks
Collection Date : 11/07/14 09:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	400000	260	5000	ug/l		9056	11/14/14	5
Sulfate	56000	390	25000	ug/l		9056	11/14/14	5
Arsenic	0.29	0.25	2.0	ug/l	J	6020	11/17/14	1
Cobalt	2.6	0.26	2.0	ug/l		6020	11/17/14	1
Selenium	6.2	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/17/14	1
Iron	U	70.	500	ug/l		6010C	11/11/14	5
Iron,Dissolved	U	14.	100	ug/l		6010C	11/13/14	1
Potassium	U	510	5000	ug/l		6010C	11/11/14	5
Sodium	260000	490	5000	ug/l		6010C	11/11/14	5

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-09

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-14

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 13:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	2900	52.	1000	ug/l		9056	11/14/14	1
Sulfate	410	77.	5000	ug/l	J	9056	11/14/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/17/14	1
Cobalt	0.92	0.26	2.0	ug/l	J	6020	11/17/14	1
Selenium	0.40	0.38	2.0	ug/l	J	6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/17/14	1
Potassium	550	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	4800	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Matt Flinchum
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Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-10

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-15

Project # : 200917

Collected By : Hanks
Collection Date : 11/07/14 14:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	5600	52.	1000	ug/l		9056	11/14/14	1
Sulfate	230	77.	5000	ug/l	J	9056	11/14/14	1
Arsenic	0.30	0.25	2.0	ug/l	J	6020	11/17/14	1
Cobalt	130	1.3	10.	ug/l		6020	11/17/14	5
Selenium	0.58	0.38	2.0	ug/l	J	6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/17/14	1
Iron	28.	14.	100	ug/l	J	6010C	11/11/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	11/13/14	1
Potassium	470	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	5700	98.	1000	ug/l		6010C	11/11/14	1

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RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-11

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-15 DUP

Project # : 200917

Collected By : Hanks
Collection Date : 11/07/14 14:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	130	1.3	10.	ug/l		6020	11/17/14	5

U = ND (Not Detected)
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
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November 18, 2014

ESC Sample # : L732566-12

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-15B

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 10:29

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	350000	260	5000	ug/l		9056	11/13/14	5
Sulfate	62000	390	25000	ug/l		9056	11/13/14	5
Arsenic	0.46	0.25	2.0	ug/l	J	6020	11/17/14	1
Cobalt	82.	0.26	2.0	ug/l		6020	11/17/14	1
Selenium	3.4	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/17/14	1
Iron	U	70.	500	ug/l		6010C	11/11/14	5
Iron,Dissolved	34.	14.	100	ug/l	J	6010C	11/13/14	1
Potassium	U	510	5000	ug/l		6010C	11/11/14	5
Sodium	230000	490	5000	ug/l		6010C	11/11/14	5

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-13

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-16

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 08:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	7400	52.	1000	ug/l		9056	11/12/14	1
Sulfate	4200	77.	5000	ug/l	J	9056	11/12/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/14/14	1
Cobalt	1.6	0.26	2.0	ug/l	J	6020	11/14/14	1
Selenium	U	0.38	2.0	ug/l		6020	11/14/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/14/14	1
Potassium	310	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	9100	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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Matt Flinchum
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Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-14

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-25

Project # : 200917

Collected By : Hanks
Collection Date : 11/07/14 11:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	18000	52.	1000	ug/l		9056	11/13/14	1
Sulfate	1400	77.	5000	ug/l	J	9056	11/13/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/14/14	1
Cobalt	120	1.3	10.	ug/l		6020	11/17/14	5
Selenium	U	0.38	2.0	ug/l		6020	11/14/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/14/14	1
Iron	23.	14.	100	ug/l	J	6010C	11/11/14	1
Iron,Dissolved	17.	14.	100	ug/l	J	6010C	11/13/14	1
Potassium	340	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	15000	98.	1000	ug/l		6010C	11/11/14	1

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RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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November 18, 2014

ESC Sample # : L732566-15

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-25B

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 11:42

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	480000	520	10000	ug/l		9056	11/13/14	10
Sulfate	8900	77.	5000	ug/l		9056	11/13/14	1
Arsenic	0.82	0.25	2.0	ug/l	J	6020	11/14/14	1
Cobalt	620	2.6	20.	ug/l		6020	11/17/14	10
Selenium	7.8	0.38	2.0	ug/l		6020	11/14/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/14/14	1
Iron	310	70.	500	ug/l	J	6010C	11/11/14	5
Iron,Dissolved	U	14.	100	ug/l		6010C	11/13/14	1
Potassium	530	510	5000	ug/l	J	6010C	11/11/14	5
Sodium	280000	490	5000	ug/l	B	6010C	11/11/14	5

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RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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November 18, 2014

ESC Sample # : L732566-16

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-29

Project # : 200917

Collected By : Hanks
Collection Date : 11/07/14 14:06

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	340000	2600	50000	ug/l		9056	11/13/14	50
Sulfate	380000	3900	250000	ug/l		9056	11/13/14	50
Arsenic	30.	0.25	2.0	ug/l		6020	11/14/14	1
Cobalt	8.7	0.26	2.0	ug/l		6020	11/14/14	1
Selenium	8.7	0.38	2.0	ug/l		6020	11/14/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/14/14	1
Iron	U	70.	500	ug/l		6010C	11/11/14	5
Iron,Dissolved	15.	14.	100	ug/l	J	6010C	11/13/14	1
Potassium	780	510	5000	ug/l	J	6010C	11/11/14	5
Sodium	660000	490	5000	ug/l	B	6010C	11/11/14	5

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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November 18, 2014

ESC Sample # : L732566-17

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-29B

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 16:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	270000	2600	50000	ug/l		9056	11/13/14	50
Sulfate	880000	3900	250000	ug/l		9056	11/13/14	50
Arsenic	58.	0.25	2.0	ug/l		6020	11/14/14	1
Cobalt	35.	0.26	2.0	ug/l		6020	11/14/14	1
Selenium	6.7	0.38	2.0	ug/l		6020	11/14/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/14/14	1
Iron	1300	140	1000	ug/l		6010C	11/11/14	10
Iron,Dissolved	53.	14.	100	ug/l	J	6010C	11/13/14	1
Potassium	U	1000	10000	ug/l		6010C	11/11/14	10
Sodium	1300000	980	10000	ug/l	B	6010C	11/11/14	10

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
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Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-18

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-30B

Project # : 200917

Collected By : Hanks
Collection Date : 11/07/14 08:48

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	230000	520	10000	ug/l		9056	11/13/14	10
Sulfate	620000	770	50000	ug/l		9056	11/13/14	10
Arsenic	110	1.2	10.	ug/l		6020	11/18/14	5
Cobalt	73.	0.26	2.0	ug/l		6020	11/14/14	1
Selenium	5.1	0.38	2.0	ug/l		6020	11/14/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/14/14	1
Iron	430	140	1000	ug/l	J	6010C	11/11/14	10
Iron,Dissolved	77.	14.	100	ug/l	J	6010C	11/14/14	1
Potassium	U	1000	10000	ug/l		6010C	11/11/14	10
Sodium	1000000	980	10000	ug/l	B	6010C	11/11/14	10

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Matt Flinchum
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November 18, 2014

ESC Sample # : L732566-19

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-33

Project # : 200917

Collected By : Hanks
Collection Date : 11/07/14 12:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	560000	10000	200000	ug/l		9056	11/13/14	200
Sulfate	12000000	15000	1000000	ug/l		9056	11/13/14	200
Arsenic	160	1.2	10.	ug/l	T2	6020	11/17/14	5
Cobalt	6.4	0.26	2.0	ug/l	T2	6020	11/14/14	1
Selenium	0.85	0.38	2.0	ug/l	JT2	6020	11/14/14	1
Thallium	U	0.19	2.0	ug/l	T2	6020	11/14/14	1
Iron	6600	2800	20000	ug/l	J	6010C	11/11/14	200
Iron,Dissolved	180	14.	100	ug/l		6010C	11/14/14	1
Potassium	U	20000	200000	ug/l		6010C	11/11/14	200
Sodium	16000000	20000	200000	ug/l	B	6010C	11/11/14	200

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Matt Flinchum
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Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-20

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-35B

Project # : 200917

Collected By : Hanks
Collection Date : 11/07/14 10:11

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	230000	260	5000	ug/l		9056	11/13/14	5
Sulfate	130000	390	25000	ug/l		9056	11/13/14	5
Arsenic	0.74	0.25	2.0	ug/l	J	6020	11/14/14	1
Cobalt	720	2.6	20.	ug/l		6020	11/17/14	10
Selenium	5.3	0.38	2.0	ug/l		6020	11/14/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/14/14	1
Iron	300	70.	500	ug/l	J	6010C	11/11/14	5
Iron,Dissolved	U	14.	100	ug/l		6010C	11/14/14	1
Potassium	U	510	5000	ug/l		6010C	11/11/14	5
Sodium	210000	490	5000	ug/l	B	6010C	11/11/14	5

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Matt Flinchum
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Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-21

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-1

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 16:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	32000	52.	1000	ug/l		9056	11/13/14	1
Sulfate	32000	77.	5000	ug/l		9056	11/13/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/14/14	1
Cobalt	0.61	0.26	2.0	ug/l	J	6020	11/14/14	1
Selenium	U	0.38	2.0	ug/l		6020	11/14/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/14/14	1
Potassium	180	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	42000	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
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Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-22

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-1 EB

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 16:40

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	0.29	0.26	2.0	ug/l	J	6020	11/16/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
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November 18, 2014

ESC Sample # : L732566-23

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-3

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 15:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	3500	52.	1000	ug/l		9056	11/13/14	1
Sulfate	1800	77.	5000	ug/l	J	9056	11/13/14	1
Arsenic	0.41	0.25	2.0	ug/l	J	6020	11/16/14	1
Cobalt	3.5	0.26	2.0	ug/l		6020	11/16/14	1
Selenium	1.1	0.38	2.0	ug/l	J	6020	11/16/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/16/14	1
Potassium	430	100	1000	ug/l	J	6010C	11/11/14	1
Sodium	3500	98.	1000	ug/l		6010C	11/11/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-24

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-29-EB

Project # : 200917

Collected By : Hanks
Collection Date : 11/07/14 14:08

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	U	0.26	2.0	ug/l		6020	11/16/14	1

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RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
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PO Box 639
Cary, NC 27512

November 18, 2014

ESC Sample # : L732566-25

Date Received : November 08, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-12-RB-DUP

Project # : 200917

Collected By : Hanks
Collection Date : 11/06/14 14:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	120	1.3	10.	ug/l		6020	11/17/14	5

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L732566-01	WG753820	SAMP	Iron	R3003797	J
	WG754323	SAMP	Iron,Dissolved	R3004436	J
L732566-02	WG754320	SAMP	Arsenic	R3004995	J
	WG753820	SAMP	Iron	R3003797	J
	WG753820	SAMP	Potassium	R3003797	J
L732566-03	WG754320	SAMP	Arsenic	R3004995	J
	WG753820	SAMP	Potassium	R3003797	J
L732566-04	WG754320	SAMP	Arsenic	R3004995	J
	WG754320	SAMP	Cobalt	R3004995	J
	WG753820	SAMP	Potassium	R3003797	J
L732566-05	WG754320	SAMP	Arsenic	R3004995	J
	WG754320	SAMP	Cobalt	R3004995	J
	WG754320	SAMP	Selenium	R3004995	J
	WG753820	SAMP	Potassium	R3003797	J
L732566-07	WG754320	SAMP	Arsenic	R3004995	J
	WG754320	SAMP	Selenium	R3004995	J
	WG753820	SAMP	Potassium	R3003797	J
L732566-08	WG754320	SAMP	Arsenic	R3004995	J
L732566-09	WG753953	SAMP	Sulfate	R3004516	J
	WG754320	SAMP	Cobalt	R3004995	J
	WG754320	SAMP	Selenium	R3004995	J
	WG753820	SAMP	Potassium	R3003797	J
L732566-10	WG753953	SAMP	Sulfate	R3004516	J
	WG754320	SAMP	Arsenic	R3004995	J
	WG754320	SAMP	Selenium	R3004995	J
	WG753820	SAMP	Iron	R3003797	J
	WG753820	SAMP	Potassium	R3003797	J
L732566-12	WG754320	SAMP	Arsenic	R3004995	J
	WG754323	SAMP	Iron,Dissolved	R3004436	J
L732566-13	WG753955	SAMP	Sulfate	R3004168	J
	WG754321	SAMP	Cobalt	R3004810	J
	WG753820	SAMP	Potassium	R3003797	J
L732566-14	WG753955	SAMP	Sulfate	R3004168	J
	WG753820	SAMP	Iron	R3003797	J
	WG754323	SAMP	Iron,Dissolved	R3004436	J
	WG753820	SAMP	Potassium	R3003797	J
L732566-15	WG754321	SAMP	Arsenic	R3004810	J
	WG753820	SAMP	Iron	R3003797	J
	WG753820	SAMP	Potassium	R3003797	J
	WG753820	SAMP	Sodium	R3003797	B
L732566-16	WG754323	SAMP	Iron,Dissolved	R3004436	J
	WG753820	SAMP	Potassium	R3003797	J
	WG753820	SAMP	Sodium	R3003797	B
L732566-17	WG754323	SAMP	Iron,Dissolved	R3004436	J
	WG753820	SAMP	Sodium	R3003797	B
L732566-18	WG753820	SAMP	Iron	R3003797	J
	WG754323	SAMP	Iron,Dissolved	R3004499	J
	WG753820	SAMP	Sodium	R3003797	B
L732566-19	WG754321	SAMP	Arsenic	R3004810	T2
	WG754321	SAMP	Cobalt	R3004810	T2
	WG754321	SAMP	Selenium	R3004810	JT2
	WG754321	SAMP	Thallium	R3004810	T2
	WG753820	SAMP	Iron	R3003797	J
	WG753820	SAMP	Sodium	R3003797	B
L732566-20	WG754321	SAMP	Arsenic	R3004810	J
	WG753820	SAMP	Iron	R3003797	J
	WG753820	SAMP	Sodium	R3003797	B
L732566-21	WG754321	SAMP	Cobalt	R3004810	J
	WG753819	SAMP	Potassium	R3003849	J
L732566-22	WG754321	SAMP	Cobalt	R3004810	J
L732566-23	WG753955	SAMP	Sulfate	R3004168	J
	WG754321	SAMP	Arsenic	R3004810	J
	WG754321	SAMP	Selenium	R3004810	J
	WG753819	SAMP	Potassium	R3003849	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
B	(EPA) - The indicated compound was found in the associated method blank as well as the laboratory sample.
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
T2	(ESC) - Additional method/sample information: The laboratory analysis was from an unpreserved or improperly preserved sample.

Qualifier Report Information

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

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
11/18/14 at 15:53:33

TSR Signing Reports: 350
R5 - Desired TAT

MDL/RDL; Use ASG, COG, TLG not ICP on GW; Attach COC to back of report PDF; PPB

Sample: L732566-01 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-02 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-03 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-04 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-05 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-06 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-07 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-08 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-09 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-10 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-11 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-12 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-13 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-14 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-15 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-16 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-17 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-18 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-19 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-20 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-21 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-22 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-23 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-24 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

Sample: L732566-25 Account: DUNDUNNC Received: 11/08/14 07:30 Due Date: 11/14/14 00:00 RPT Date: 11/18/14 14:57

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Est. 1970

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Matt Flinchum
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Cary, NC 27512

Quality Assurance Report
Level II

L732566

November 18, 2014

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Iron	< .1	mg/l			WG753820	11/11/14 12:28
Potassium	< 1	mg/l			WG753820	11/11/14 12:28
Sodium	< 1	mg/l			WG753820	11/11/14 12:28
Potassium	< 1	mg/l			WG753819	11/11/14 21:19
Sodium	< 1	mg/l			WG753819	11/11/14 21:19
Chloride	< 1	mg/l			WG753955	11/12/14 19:26
Sulfate	< 5	mg/l			WG753955	11/12/14 19:26
Iron,Dissolved	< .1	mg/l			WG754323	11/13/14 15:10
Chloride	< 1	mg/l			WG753953	11/13/14 23:12
Sulfate	< 5	mg/l			WG753953	11/13/14 23:12
Arsenic	< .001	mg/l			WG754321	11/14/14 22:18
Cobalt	< .001	mg/l			WG754321	11/14/14 22:18
Selenium	< .001	mg/l			WG754321	11/14/14 22:18
Thallium	< .001	mg/l			WG754321	11/14/14 22:18
Arsenic	< .001	mg/l			WG754320	11/17/14 16:33
Cobalt	< .001	mg/l			WG754320	11/17/14 16:33
Selenium	< .001	mg/l			WG754320	11/17/14 16:33
Thallium	< .001	mg/l			WG754320	11/17/14 16:33

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Chloride	mg/l	180.	182.	3.00	20	L732610-01	WG753955
Sulfate	mg/l	340.	345.	3.00	20	L732610-01	WG753955
Chloride	mg/l	180.	181.	3.00	20	L732614-01	WG753955
Sulfate	mg/l	330.	344.	3.00	20	L732614-01	WG753955
Chloride	mg/l	6.40	6.15	3.00	20	L732473-01	WG753953
Sulfate	mg/l	7.70	7.47	3.00	20	L732473-01	WG753953
Chloride	mg/l	8.10	7.88	3.00	20	L732566-04	WG753953
Sulfate	mg/l	12.0	12.5	1.00	20	L732566-04	WG753953

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Iron	mg/l	1	0.998	100.	80-120	WG753820
Potassium	mg/l	10	9.83	98.0	80-120	WG753820
Sodium	mg/l	10	9.79	98.0	80-120	WG753820
Potassium	mg/l	10	10.0	100.	80-120	WG753819
Sodium	mg/l	10	9.82	98.0	80-120	WG753819
Chloride	mg/l	40	39.9	100.	90-110	WG753955
Sulfate	mg/l	40	40.6	102.	90-110	WG753955

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L732566

November 18, 2014

		Laboratory Control Sample				
Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Iron,Dissolved	mg/l	1	0.964	96.0	80-120	WG754323
Chloride	mg/l	40	40.1	100.	90-110	WG753953
Sulfate	mg/l	40	40.4	101.	90-110	WG753953
Arsenic	mg/l	.05	0.0480	96.0	85-115	WG754321
Cobalt	mg/l	.05	0.0523	105.	85-115	WG754321
Selenium	mg/l	.05	0.0476	95.0	85-115	WG754321
Thallium	mg/l	.05	0.0505	101.	85-115	WG754321
Arsenic	mg/l	.05	0.0507	101.	85-115	WG754320
Cobalt	mg/l	.05	0.0532	106.	85-115	WG754320
Selenium	mg/l	.05	0.0529	106.	85-115	WG754320
Thallium	mg/l	.05	0.0540	108.	85-115	WG754320

		Laboratory Control Sample Duplicate						
Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Iron	mg/l	1.01	0.998	101.	80-120	1.00	20	WG753820
Potassium	mg/l	9.87	9.83	99.0	80-120	0.0	20	WG753820
Sodium	mg/l	9.83	9.79	98.0	80-120	0.0	20	WG753820
Potassium	mg/l	9.99	10.0	100.	80-120	1.00	20	WG753819
Sodium	mg/l	9.81	9.82	98.0	80-120	0.0	20	WG753819
Chloride	mg/l	39.7	39.9	99.0	90-110	1.00	20	WG753955
Sulfate	mg/l	40.6	40.6	102.	90-110	0.0	20	WG753955
Iron,Dissolved	mg/l	1.00	0.964	100.	80-120	4.00	20	WG754323
Chloride	mg/l	39.7	40.1	99.0	90-110	1.00	20	WG753953
Sulfate	mg/l	40.3	40.4	101.	90-110	0.0	20	WG753953
Arsenic	mg/l	0.0433	0.0480	87.0	85-115	10.0	20	WG754321
Cobalt	mg/l	0.0477	0.0523	95.0	85-115	9.00	20	WG754321
Selenium	mg/l	0.0444	0.0476	89.0	85-115	7.00	20	WG754321
Thallium	mg/l	0.0467	0.0505	93.0	85-115	8.00	20	WG754321
Arsenic	mg/l	0.0473	0.0507	94.0	85-115	7.00	20	WG754320
Cobalt	mg/l	0.0503	0.0532	100.	85-115	6.00	20	WG754320
Selenium	mg/l	0.0500	0.0529	100.	85-115	6.00	20	WG754320
Thallium	mg/l	0.0510	0.0540	102.	85-115	6.00	20	WG754320

		Matrix Spike						
Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Iron	mg/l	1.03	0.0565	1	98.0	75-125	L732566-01	WG753820
Potassium	mg/l	9.92	0.0547	10	99.0	75-125	L732566-01	WG753820
Sodium	mg/l	120.	109.	10	110.	75-125	L732566-01	WG753820

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Cary, NC 27512

Quality Assurance Report
Level II

L732566

November 18, 2014

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Potassium	mg/l	10.0	0.183	10	99.0	75-125	L732566-21	WG753819
Sodium	mg/l	50.1	41.6	10	85.0	75-125	L732566-21	WG753819
Chloride	mg/l	365.	131.	10	94.0	80-120	L732705-06	WG753955
Iron,Dissolved	mg/l	0.964	0.00911	1	95.0	75-125	L732280-16	WG754323
Chloride	mg/l	53.7	4.28	50	99.0	80-120	L732455-12	WG753953
Arsenic	mg/l	0.0665	0.0166	.005	100.	75-125	L732705-06	WG754321
Arsenic	mg/l	0.0553	0.00201	.05	110.	75-125	L732505-01	WG754320
Cobalt	mg/l	0.0495	0.00113	.05	97.0	75-125	L732505-01	WG754320
Selenium	mg/l	0.0557	0.00269	.05	110.	75-125	L732505-01	WG754320
Thallium	mg/l	0.0493	0.000180	.05	98.0	75-125	L732505-01	WG754320

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Iron	mg/l	1.06	1.03	100.	75-125	3.00	20	L732566-01	WG753820
Potassium	mg/l	10.2	9.92	101.	75-125	3.00	20	L732566-01	WG753820
Sodium	mg/l	119.	120.	107.	75-125	1.00	20	L732566-01	WG753820
Potassium	mg/l	10.2	10.0	99.7	75-125	1.00	20	L732566-21	WG753819
Sodium	mg/l	50.2	50.1	85.6	75-125	0.0	20	L732566-21	WG753819
Chloride	mg/l	364.	365.	467.*	80-120	0.0	20	L732705-06	WG753955
Iron,Dissolved	mg/l	0.957	0.964	94.8	75-125	1.00	20	L732280-16	WG754323
Chloride	mg/l	53.8	53.7	99.0	80-120	0.0	20	L732455-12	WG753953
Arsenic	mg/l	0.0756	0.0665	118.	75-125	13.0	20	L732705-06	WG754321
Arsenic	mg/l	0.0561	0.0553	108.	75-125	1.00	20	L732505-01	WG754320
Cobalt	mg/l	0.0510	0.0495	99.8	75-125	3.00	20	L732505-01	WG754320
Selenium	mg/l	0.0561	0.0557	107.	75-125	1.00	20	L732505-01	WG754320
Thallium	mg/l	0.0510	0.0493	102.	75-125	4.00	20	L732505-01	WG754320

Serial Dilution

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Cary, NC 27512

Quality Assurance Report
Level II

L732566

November 18, 2014

Serial Dilution

Batch number /Run number / Sample number cross reference

WG753820: R3003797: L732566-01 02 03 04 05 06 07 08 09 10 12 13 14 15 16 17 18 19 20
WG753819: R3003849: L732566-21 23
WG753955: R3004168: L732566-12 13 14 15 16 17 18 19 20 21 23
WG754323: R3004436 R3004499: L732566-01 02 06 07 08 10 12 14 15 16 17 18 19 20
WG753953: R3004516: L732566-01 02 03 04 05 06 07 08 09 10
WG754321: R3004810 R3004949: L732566-13 14 15 16 17 18 19 20 21 22 23 24 25
WG754320: R3004995: L732566-01 02 03 04 05 06 07 08 09 10 11 12

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

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Quality Assurance Report
Level II

L732566

November 18, 2014

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

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

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

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

Company Name/Address:
Duncklee & Dunham
511 Keisler Dr.
Cary, North Carolina 27518

Billing Information:

Report to: **Matt Flinchum**

Email To: **matt@dunkleedunham.com**

Project Description: **Umicore Maxton Facility**

City/State Collected: **Maxton, NC**

Phone: **919-858-9898**
Fax: **919-858-9899**

Client Project # **200917**

Lab Project #

Collected by (print): Hanks Kyler

Site/Facility ID #

P.O. #

Collected by (signature): cik

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: Standard

Email? ___No ✓Yes
FAX? ✓No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 3

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YOUR LAB OF CHOICE
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L# 732566
G210

Acctnum: DUNDUNNC
Template:
Prelogin:
TSR:
Cooler:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride & Sulfate x 9056:1 x 125ml HDPE-NoPres	As, Co, Se & Tl x 6020: 1 x 500ml HDPE-Nitric ✓2	K & Na x 6010B: combine w/ above	Total Fe x 6010B: combine w/ above	Dissolved Fe x 6010B: 1 x 500ml HDPE-NoPres		Co x 6020 only: 500 HDPE-Nitric ✓				Rem./Contaminant	Sample # (lab only)
MW-2RB	Grab	GW	—	11-6-14	0851	3	X	X	X	X	X							-01
MW-4	Grab	GW	—	11-7-14	1010	3	X	X	X	X	X							-02
MW-5	Grab	GW	—	11-6-14	0950	2	X	X	X									-03
MW-10	Grab	GW	—	11-5-14	1645	2	X	X	X									-04
MW-11	Grab	GW	—	11-6-14	1115	2	X	X	X									-05
MW-12	Grab	GW	—	11-7-14	0815	3	X	X	X	X	X							-06
MW-12RD	Grab	GW	—	11-6-14	1455	3	X	X	X	X	X							-07
MW-13	Grab	GW	—	11-7-14	0900	3	X	X	X	X	X							-08
MW-14	Grab	GW	—	11-6-14	1345	2	X	X	X									-09
MW-15	Grab	GW	—	11-7-14	1400	3	X	X	X	X	X							-10

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

pH _____ Temp _____
Flow _____ Other _____

Remarks:

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
[signature]	11-8-14	1755	[signature]
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			[signature]

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☑ SwA

Temp: 3.1 °C Bottles Received: 63

Date: 11-8-14 Time: 0730

Condition: GW (lab use only) MD

COC Seal Intact: ✓ Y ___N ___NA

pH Checked: ✓2 NCF:

Company Name/Address:
Duncklee & Dunham
511 Keisler Dr.
Cary, North Carolina 27518

Billing Information:

Report to: **Matt Flinchum**

Email To: **matt@dunkleedunham.com**

Project Description: **Umicore Maxton Facility**

City/State Collected: **Maxton, NC**

Phone: **919-858-9898**
Fax: **919-858-9899**

Client Project # **200917**

Lab Project #

Collected by (print): Hanks

Site/Facility ID #

P.O. #

Collected by (signature): gmA

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: Standard

Email? ___No ✓Yes
FAX? ✗No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 2 of 3

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

L# 732566

Table #

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride & Sulfate x 9056:1 x 125ml HDPE-NoPres	As, Co, Se & Tl x 6020: 1 x 500ml HDPE-Nitric <2	K & Na x 6010B: combine w/ above	Total Fe x 6010B: combine w/ above	Dissolved Fe x 6010B: 1 x 500ml HDPE-NoPres		Co x 6020 only: 500 HDPE-Nitric <2				Rem./Contaminant	Sample # (lab only)
MW-15 DUP	Grab	GW	—	11-7-14	1405	3	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		X					-11
MW-15B	↓	↓	—	11-6-14	1029	3	X	X	X	X	X							-12
MW-16			—	11-6-14	0815	2	X	X	X									-13
MW-25			—	11-7-14	1125	3	X	X	X	X	X							-14
MW-25B			—	11-6-14	1142	3	X	X	X	X	X							-15
MW-29			—	11-7-14	1406	3	X	X	X	X	X							-16
MW-29B			—	11-6-14	1620	3	X	X	X	X	X							-17
MW-30B			—	11-7-14	0848	3	X	X	X	X	X							-18
MW-33			—	11-7-14	1205	3	X	X	X	X	X							-19
MW-35B	↓	↓	—	11-7-14	1011	3	X	X	X	X	X							-20

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

pH _____ Temp _____

Remarks: MW-15 DUP run Co x 6020 only

Flow _____ Other _____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
[signature]	11-8-14	17:55	[signature]
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			[signature]

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☑ Jim

Temp: 3.1 °C Bottles Received: 63

Date: 11-8-14 Time: 0730

Condition: OK (lab use only) M3

COC Seal Intact: ✓ Y ___N ___NA

pH Checked: <2 NCF:

Company Name/Address:
Duncklee & Dunham
511 Keisler Dr.
Cary, North Carolina 27518

Billing Information:

Report to: **Matt Flinchum**

Email To: **matt@dunkleedunham.com**

Project Description: **Umicore Maxton Facility**

City/State Collected: **Maxton, NC**

Phone: **919-858-9898**
Fax: **919-858-9899**

Client Project # **200917**

Lab Project #

Collected by (print): Kyler Hanks

Site/Facility ID #

P.O. #

Collected by (signature): crk

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: Standard

Email? ___No ✓Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 3 of 3

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L# 732566

Table #

Acctnum: **DUNDUNNC**

Template:

Prelogin:

TSR:

Cooler:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride & Sulfate x 9056:1 x 125ml HDPE-NoPres	As, Co, Se & Tl x 6020: 1 x 500ml HDPE-Nitric ✓2	K & Na x 6010B: combine w/ above	Total Fe x 6010B: combine w/ above	Dissolved Fe x 6010B: 1 x 500ml HDPE-NoPres		Co x 6020 only: 500 HDPE-Nitric ✓2				Rem./Contaminant	Sample # (lab only)
MW-1	Grab	GW	—	11-6-14	1620	2	X	X	X									-21
MW-1 EB	↓	↑	—	11-6-14	1640	1							X					-22
MW-3			—	11-6-14	1535	2	X	X	X									-23
MW-12RB-Dup			—	11-6-14	1455	1							X					-25
MW-29-EB			—	11-7-14	1408	1							X					-24
MW-12RB-Dup			—	11-6-14	1455	1							X					-26

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

pH _____ Temp _____

Flow _____ Other _____

Remarks:

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☑ SWA	Condition: (lab use only) M3
Chris	11-8-14	1754			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1 °C Bottles Received: 63	COC Seal Intact: ✓ Y ___N ___NA
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11-8-14 Time: 0736	pH Checked: <2 NCF:

James Fuller

ESC Lab Sciences
Non-Conformance Form

Login #: 732566	Client: DUNDUNNC	Date: 11/08/14	Evaluated by: D. Busby

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	x	Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Courie
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments:

Clarify received two containers, labeled MW-12RB-DUP and MW-12RB-EB. Sample id on chain: MW-12RB-DUP twice.

Client informed by:		Call		Email	x	Voice Mail		Date: 11/10/14	Time: 2000
TSR Initials: jeh	Client Contact: Joshua Hanks								

Login Instructions: Identify samples by container labels. Log MW-12RB-DUP; hold MW-12RB-EB until 12/15/14.

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Jimmy Hunt

L732566

From: Josh <josh@dunckleedunham.com>
Sent: Monday, November 10, 2014 8:20 PM
To: Jimmy Hunt
Cc: 'Matt Flinchum'; Chris@dunckleedunham.com
Subject: Umicore Maxton Facility L732566 DUP's

Jimmy,

I apologize for the mix up on our end. After looking through our notes it turns out we collected two sets of equipment blanks and one duplicate with one of the equipment blanks being mislabeled on the CoC. There is a "MW-12RB DUP" and a "MW-12RB EB" but the DUP was written twice. Their names should be labeled appropriately on each of their bottle labels but have the same sample time. If you can determine which of the two is MW-12RB DUP, please run that sample and disregard MW-12RB EB. If for whatever reason it is unclear which sample is which, please disregard both of them. Thank you for the heads up and sorry again for any complications.

Joshua Hanks

Divider
Page

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Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

Report Summary

Monday November 24, 2014

Report Number: L733021
Samples Received: 11/12/14
Client Project: 200917

Description: Umicore Maxton Facility

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

Entire Report Reviewed By: Jimmy Hunt

Jimmy Hunt , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 24, 2014

ESC Sample # : L733021-01

Date Received : November 12, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-2RRR

Project # : 200917

Collected By : Hanks
Collection Date : 11/10/14 09:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	160000	100	2000	ug/l		9056	11/18/14	2
Sulfate	110000	150	10000	ug/l		9056	11/18/14	2
Arsenic	0.30	0.25	2.0	ug/l	J	6020	11/17/14	1
Cobalt	1900	2.6	20.	ug/l		6020	11/18/14	10
Selenium	3.1	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/18/14	1
Iron	33.	14.	100	ug/l	J	6010C	11/16/14	1
Iron,Dissolved	49.	14.	100	ug/l	J	6010C	11/17/14	1
Potassium	870	100	1000	ug/l	J	6010C	11/16/14	1
Sodium	180000	98.	1000	ug/l		6010C	11/16/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 24, 2014

ESC Sample # : L733021-02

Date Received : November 12, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-30

Project # : 200917

Collected By : Hanks
Collection Date : 11/10/14 15:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	380000	2600	50000	ug/l		9056	11/18/14	50
Sulfate	370000	3900	250000	ug/l		9056	11/18/14	50
Arsenic	520	1.2	10.	ug/l		6020	11/18/14	5
Cobalt	59.	0.26	2.0	ug/l		6020	11/17/14	1
Selenium	7.6	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/18/14	1
Iron	2900	14.	100	ug/l		6010C	11/16/14	1
Iron,Dissolved	2900	14.	100	ug/l		6010C	11/24/14	1
Potassium	1600	100	1000	ug/l		6010C	11/16/14	1
Sodium	690000	200	2000	ug/l		6010C	11/16/14	2

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Matt Flinchum
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Cary, NC 27512

November 24, 2014

ESC Sample # : L733021-03

Date Received : November 12, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-31

Project # : 200917

Collected By : Hanks
Collection Date : 11/10/14 10:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	400000	1000	20000	ug/l		9056	11/18/14	20
Sulfate	370000	1500	100000	ug/l		9056	11/18/14	20
Arsenic	17.	0.25	2.0	ug/l		6020	11/17/14	1
Cobalt	33.	0.26	2.0	ug/l		6020	11/17/14	1
Selenium	3.7	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/18/14	1
Iron	21.	14.	100	ug/l	J	6010C	11/16/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	11/17/14	1
Potassium	870	100	1000	ug/l	J	6010C	11/16/14	1
Sodium	630000	200	2000	ug/l		6010C	11/16/14	2

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 24, 2014

ESC Sample # : L733021-04

Date Received : November 12, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-32

Project # : 200917

Collected By : Hanks
Collection Date : 11/10/14 16:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	300000	260	5000	ug/l		9056	11/18/14	5
Sulfate	200000	390	25000	ug/l		9056	11/18/14	5
Arsenic	5.7	0.25	2.0	ug/l		6020	11/17/14	1
Cobalt	1800	5.2	40.	ug/l		6020	11/18/14	20
Selenium	3.2	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/18/14	1
Iron	98.	14.	100	ug/l	J	6010C	11/16/14	1
Iron,Dissolved	47.	14.	100	ug/l	J	6010C	11/17/14	1
Potassium	2800	100	1000	ug/l		6010C	11/16/14	1
Sodium	310000	98.	1000	ug/l		6010C	11/16/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
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Cary, NC 27512

November 24, 2014

ESC Sample # : L733021-05

Date Received : November 12, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-34

Project # : 200917

Collected By : Hanks
Collection Date : 11/10/14 11:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	200000	260	5000	ug/l		9056	11/18/14	5
Sulfate	95000	390	25000	ug/l		9056	11/18/14	5
Arsenic	79.	0.25	2.0	ug/l		6020	11/17/14	1
Cobalt	820	2.6	20.	ug/l		6020	11/18/14	10
Selenium	3.7	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/18/14	1
Iron	760	14.	100	ug/l		6010C	11/16/14	1
Iron,Dissolved	510	14.	100	ug/l		6010C	11/17/14	1
Potassium	1100	100	1000	ug/l		6010C	11/16/14	1
Sodium	510000	98.	1000	ug/l		6010C	11/16/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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Reported: 11/19/14 09:16 Revised: 11/24/14 15:40

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 24, 2014

ESC Sample # : L733021-06

Date Received : November 12, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-35

Project # : 200917

Collected By : Hanks
Collection Date : 11/10/14 17:40

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	280000	520	10000	ug/l		9056	11/18/14	10
Sulfate	530000	770	50000	ug/l		9056	11/18/14	10
Arsenic	75.	0.25	2.0	ug/l		6020	11/17/14	1
Cobalt	920	2.6	20.	ug/l		6020	11/18/14	10
Selenium	6.4	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/18/14	1
Iron	110	14.	100	ug/l		6010C	11/16/14	1
Iron,Dissolved	U	14.	100	ug/l		6010C	11/17/14	1
Potassium	1500	100	1000	ug/l		6010C	11/16/14	1
Sodium	580000	200	2000	ug/l		6010C	11/16/14	2

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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Reported: 11/19/14 09:16 Revised: 11/24/14 15:40

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 24, 2014

ESC Sample # : L733021-07

Date Received : November 12, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-35 DUP

Project # : 200917

Collected By : Hanks
Collection Date : 11/10/14 17:41

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	880	2.6	20.	ug/l		6020	11/18/14	10

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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Reported: 11/19/14 09:16 Revised: 11/24/14 15:40

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 24, 2014

ESC Sample # : L733021-08

Date Received : November 12, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-35 EB

Project # : 200917

Collected By : Hanks
Collection Date : 11/10/14 18:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	0.30	0.26	2.0	ug/l	J	6020	11/17/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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.
Reported: 11/19/14 09:16 Revised: 11/24/14 15:40

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Fax (615) 758-5859

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Est. 1970

REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 24, 2014

ESC Sample # : L733021-09

Date Received : November 12, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-36

Project # : 200917

Collected By : Hanks
Collection Date : 11/10/14 12:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	280000	520	10000	ug/l		9056	11/18/14	10
Sulfate	510000	770	50000	ug/l		9056	11/18/14	10
Arsenic	74.	0.25	2.0	ug/l		6020	11/17/14	1
Cobalt	63.	0.26	2.0	ug/l		6020	11/17/14	1
Selenium	3.9	0.38	2.0	ug/l		6020	11/17/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/18/14	1
Iron	200	14.	100	ug/l		6010C	11/16/14	1
Iron,Dissolved	48.	14.	100	ug/l	J	6010C	11/17/14	1
Potassium	810	100	1000	ug/l	J	6010C	11/16/14	1
Sodium	770000	200	2000	ug/l		6010C	11/16/14	2

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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Reported: 11/19/14 09:16 Revised: 11/24/14 15:40

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L733021-01	WG754762	SAMP	Arsenic	R3005025	J
	WG754592	SAMP	Iron	R3004748	J
	WG754853	SAMP	Iron,Dissolved	R3004986	J
	WG754592	SAMP	Potassium	R3004748	J
L733021-03	WG754592	SAMP	Iron	R3004748	J
	WG754592	SAMP	Potassium	R3004748	J
L733021-04	WG754592	SAMP	Iron	R3004748	J
	WG754853	SAMP	Iron,Dissolved	R3004986	J
L733021-08	WG754762	SAMP	Cobalt	R3005025	J
L733021-09	WG754853	SAMP	Iron,Dissolved	R3004986	J
	WG754592	SAMP	Potassium	R3004748	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

Qualifier Report Information

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

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
11/24/14 at 15:40:06

TSR Signing Reports: 350
R5 - Desired TAT

MDL/RDL; Use ASG, COG, TLG not ICP on GW; Attach COC to back of report PDF; PPB

Sample: L733021-01 Account: DUNDUNNC Received: 11/12/14 09:00 Due Date: 11/19/14 00:00 RPT Date: 11/19/14 09:16

Sample: L733021-02 Account: DUNDUNNC Received: 11/12/14 09:00 Due Date: 11/19/14 00:00 RPT Date: 11/19/14 09:16
REDO for FEDICP - jeh 11/24/14
Sample: L733021-03 Account: DUNDUNNC Received: 11/12/14 09:00 Due Date: 11/19/14 00:00 RPT Date: 11/19/14 09:16

Sample: L733021-04 Account: DUNDUNNC Received: 11/12/14 09:00 Due Date: 11/19/14 00:00 RPT Date: 11/19/14 09:16

Sample: L733021-05 Account: DUNDUNNC Received: 11/12/14 09:00 Due Date: 11/19/14 00:00 RPT Date: 11/19/14 09:16

Sample: L733021-06 Account: DUNDUNNC Received: 11/12/14 09:00 Due Date: 11/19/14 00:00 RPT Date: 11/19/14 09:16

Sample: L733021-07 Account: DUNDUNNC Received: 11/12/14 09:00 Due Date: 11/19/14 00:00 RPT Date: 11/19/14 09:16

Sample: L733021-08 Account: DUNDUNNC Received: 11/12/14 09:00 Due Date: 11/19/14 00:00 RPT Date: 11/19/14 09:16

Sample: L733021-09 Account: DUNDUNNC Received: 11/12/14 09:00 Due Date: 11/19/14 00:00 RPT Date: 11/19/14 09:16

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Quality Assurance Report
Level II

L733021

November 24, 2014

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Iron	< .1	mg/l			WG754592	11/16/14 04:59
Potassium	< 1	mg/l			WG754592	11/16/14 04:59
Sodium	< 1	mg/l			WG754592	11/16/14 04:59
Iron,Dissolved	< .1	mg/l			WG754853	11/17/14 18:45
Arsenic	< .001	mg/l			WG754762	11/17/14 17:33
Cobalt	< .001	mg/l			WG754762	11/17/14 17:33
Selenium	< .001	mg/l			WG754762	11/17/14 17:33
Thallium	< .001	mg/l			WG754762	11/17/14 17:33
Chloride	< 1	mg/l			WG754804	11/18/14 09:04
Sulfate	< 5	mg/l			WG754804	11/18/14 09:04
Iron,Dissolved	< .1	mg/l			WG756416	11/24/14 06:25

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Sulfate	mg/l	340.	345.	2.00	20	L732747-08	WG754804
Sulfate	mg/l	110.	108.	1.00	20	L732949-16	WG754804

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Iron	mg/l	1	0.992	99.0	80-120	WG754592
Potassium	mg/l	10	10.2	102.	80-120	WG754592
Sodium	mg/l	10	10.1	101.	80-120	WG754592
Iron,Dissolved	mg/l	1	1.05	105.	80-120	WG754853
Arsenic	mg/l	.05	0.0451	90.0	85-115	WG754762
Cobalt	mg/l	.05	0.0493	99.0	85-115	WG754762
Selenium	mg/l	.05	0.0457	91.0	85-115	WG754762
Thallium	mg/l	.05	0.0473	95.0	85-115	WG754762
Chloride	mg/l	40	39.0	97.0	90-110	WG754804
Sulfate	mg/l	40	39.3	98.0	90-110	WG754804
Iron,Dissolved	mg/l	1	1.02	102.	80-120	WG756416

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Iron	mg/l	0.995	0.992	100.	80-120	0.0	20	WG754592
Potassium	mg/l	10.2	10.2	102.	80-120	0.0	20	WG754592
Sodium	mg/l	10.1	10.1	101.	80-120	0.0	20	WG754592
Iron,Dissolved	mg/l	1.05	1.05	104.	80-120	0.0	20	WG754853

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Cary, NC 27512

Quality Assurance Report
Level II

L733021

November 24, 2014

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Arsenic	mg/l	0.0461	0.0451	92.0	85-115	2.00	20	WG754762
Cobalt	mg/l	0.0505	0.0493	101.	85-115	2.00	20	WG754762
Selenium	mg/l	0.0438	0.0457	88.0	85-115	4.00	20	WG754762
Thallium	mg/l	0.0480	0.0473	96.0	85-115	2.00	20	WG754762
Chloride	mg/l	38.9	39.0	97.0	90-110	0.0	20	WG754804
Sulfate	mg/l	40.6	39.3	102.	90-110	3.00	20	WG754804
Iron,Dissolved	mg/l	1.03	1.02	103.	80-120	1.00	20	WG756416

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Iron	mg/l	1.01	0.0327	1	97.0	75-125	L733021-01	WG754592
Potassium	mg/l	10.9	0.868	10	100.	75-125	L733021-01	WG754592
Sodium	mg/l	187.	178.	10	91.0	75-125	L733021-01	WG754592
Iron,Dissolved	mg/l	1.08	0.0488	1	100.	75-125	L733021-01	WG754853
Arsenic	mg/l	0.0491	0.000310	.05	98.0	75-125	L733061-01	WG754762
Selenium	mg/l	0.0452	0.000435	.05	90.0	75-125	L733061-01	WG754762
Chloride	mg/l	50.2	0.128	50	100.	80-120	L732720-09	WG754804
Sulfate	mg/l	52.6	1.68	50	100.	80-120	L732720-09	WG754804
Iron,Dissolved	mg/l	3.98	3.03	1	94.0	75-125	L734953-02	WG756416

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Iron	mg/l	1.04	1.01	100.	75-125	3.00	20	L733021-01	WG754592
Potassium	mg/l	11.2	10.9	103.	75-125	2.00	20	L733021-01	WG754592
Sodium	mg/l	187.	187.	89.6	75-125	0.0	20	L733021-01	WG754592
Iron,Dissolved	mg/l	1.05	1.08	99.8	75-125	3.00	20	L733021-01	WG754853
Arsenic	mg/l	0.0489	0.0491	97.1	75-125	1.00	20	L733061-01	WG754762
Selenium	mg/l	0.0444	0.0452	87.9	75-125	2.00	20	L733061-01	WG754762
Chloride	mg/l	50.1	50.2	100.	80-120	0.0	20	L732720-09	WG754804
Sulfate	mg/l	51.5	52.6	99.6	80-120	2.00	20	L732720-09	WG754804
Iron,Dissolved	mg/l	3.97	3.98	93.2	75-125	0.0	20	L734953-02	WG756416

Post Spike

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L733021

November 24, 2014

Post Spike

Serial Dilution

Batch number /Run number / Sample number cross reference

WG754592: R3004748: L733021-01 02 03 04 05 06 09
WG754853: R3004986: L733021-01 02 03 04 05 06 09
WG754762: R3005025 R3005122: L733021-01 02 03 04 05 06 07 08 09
WG754804: R3005261: L733021-01 02 03 04 05 06 09
WG756416: R3006279: L733021-

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

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Quality Assurance Report
Level II

L733021

November 24, 2014

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

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

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

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

Company Name/Address:
Duncklee & Dunham
511 Keisler Dr.
Cary, North Carolina 27518

Billing Information:

Report to: **Matt Flinchum**

Email To: **matt@dunkleedunham.com**

Project Description: **Umicore Maxton Facility**

City/State Collected: **Maxton, NC**

Phone: **919-858-9898**
Fax: **919-858-9899**

Client Project # **200917**

Lab Project #

Collected by (print): Hanks

Site/Facility ID #

P.O. #

Collected by (signature): [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: Standard

Email? ___No ✓Yes
FAX? ✓No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

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Fax: 615-758-5859

L# L733621
C126
T:

Acctnum: DUNDUNNC
Template:
Prelogin:
TSR:
Cooler:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride & Sulfate x 9056:1 x 125ml HDPE-NoPres	As, Co, Se & Tl x 6020: 1 x 500ml HDPE-Nitric <2	K & Na x 6010B: combine w/ above	Total Fe x 6010B: combine w/ above	Dissolved Fe x 6010B: 1 x 500ml HDPE-NoPres		Co x 6020 only: 500 HDPE-Nitric <2				Rem./Contaminant	Sample # (lab only)
MW-2RRR	Grab	GW	—	11/10/14	0920	3	X	X	X	X	X							-01
MW-30	↓	↓	—	↓	1530	↓	X	X	X	X	X							-02
MW-31	↓	↓	—	↓	1010	↓	↓	↓	↓	↓	↓							-03
MW-32	↓	↓	—	↓	1635	↓	↓	↓	↓	↓	↓							-04
MW-34	↓	↓	—	↓	1110	↓	↓	↓	↓	↓	↓							-05
MW-35	↓	↓	—	↓	1740	↓	↓	↓	↓	↓	↓							-06
MW-35 DUP	↓	↓	—	↓	1741	1							X					-07
MW-35 EB	↓	↓	—	↓	1820	1							X					-08
MW-36	↓	↓	—	↓	1210	3	X	X	X	X	X							-09

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

pH _____ Temp _____
Flow _____ Other _____

Remarks:

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
[signature]	11/11/14	12:20	[signature]
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
[signature]	11/11/14	17:20	[signature]

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

Temp: 2.7 °C Bottles Received: 23

Date: 11/12/14 Time: 0100

Condition: (lab use only) JR3

COC Seal Intact: ✓ Y ___N ___NA

pH Checked: <2

NCF:

Divider
Page

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Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

Report Summary

Tuesday November 25, 2014

Report Number: L735231
Samples Received: 11/22/14
Client Project: 200917

Description: Umicore Maxton Facility

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

Entire Report Reviewed By: Jimmy Hunt

Jimmy Hunt , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 25, 2014

ESC Sample # : L735231-01

Date Received : November 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : WELL 7

Project # : 200917

Collected By : Flinchum
Collection Date : 11/21/14 12:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	10.	0.26	2.0	ug/l		6020	11/24/14	1
Iron	180	14.	100	ug/l		6010C	11/25/14	1
Iron,Dissolved	160	14.	100	ug/l		6010C	11/23/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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Reported: 11/25/14 14:26 Printed: 11/25/14 14:27

Summary of Remarks For Samples Printed
11/25/14 at 14:27:13

TSR Signing Reports: 350
R2 - Rush: Next Day

MDL/RDL; Use ASG, COG, TLG not ICP on GW; Attach COC to back of report PDF; PPB

Sample: L735231-01 Account: DUNDUNNC Received: 11/22/14 07:00 Due Date: 11/25/14 00:00 RPT Date: 11/25/14 14:26

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Matt Flinchum
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Quality Assurance Report
Level II

L735231

November 25, 2014

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Iron,Dissolved	< .1	mg/l			WG756225	11/23/14 12:58
Cobalt	< .001	mg/l			WG756227	11/24/14 16:18
Iron	< .1	mg/l			WG756359	11/25/14 05:53

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Iron,Dissolved	mg/l	1	1.01	101.	80-120	WG756225
Cobalt	mg/l	.05	0.0523	105.	85-115	WG756227
Iron	mg/l	1	1.02	102.	80-120	WG756359

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Iron,Dissolved	mg/l	1.05	1.01	105.	80-120	3.00	20	WG756225
Cobalt	mg/l	0.0536	0.0523	107.	85-115	3.00	20	WG756227
Iron	mg/l	1.08	1.02	108.	80-120	5.00	20	WG756359

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Iron,Dissolved	mg/l	1.03	0.0205	1	100.	75-125	L735230-01	WG756225

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Iron,Dissolved	mg/l	1.05	1.03	103.	75-125	2.00	20	L735230-01	WG756225

Post Spike

Serial Dilution

Batch number /Run number / Sample number cross reference

WG756225: R3006129: L735231-01
WG756227: R3006383: L735231-01
WG756359: R3006494: L735231-01

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

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Est. 1970

Duncklee and Dunham
Matt Flinchum
PO Box 639

Cary, NC 27512

Quality Assurance Report
Level II

L735231

November 25, 2014

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

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

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

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

Company Name/Address: Dunckle + Dunham, P.C. 511 Keister Drive Cary NC 27518

Billing Information: Same

Report to: Dave Dunckle, Matt Flinchum

Email To: daveedunckledunham.com, matte " " .com

Project Description: Umicore

City/State Collected: Maxton, NC

Phone: 919-858-9898

Fax: —

Client Project # 200917

Lab Project #

Collected by (print): Flinchum

Site/Facility ID #

P.O. #

Collected by (signature): [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: 11-24-14 (ASAP)

Email? ___No ✓Yes

FAX? ___No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

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Mount Juliet, TN 37122
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Phone: 800-767-5859
Fax: 615-758-5859

L# L735231

A162

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cobalt X6020	Total Iron X6010B	Total Dissolved Iron X6010B							Rem./Contaminant	Sample # (lab only)
Well #7	Grab	GW	X	11-21-14	1255	2	X	X	X								-01

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

Remarks: need lab results

pH _____ Temp _____

Flow _____ Other _____

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
[signature]	11-21-14	17:45	[signature]
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
[signature]	11/21/14	17:45	[signature]

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

Temp: 2.0 °C Bottles Received: 2

Date: 11-22-14 Time: 0700

Hold #

Condition: (lab use only) OK TOI

COC Seal Intact: ✓Y ___N ___NA

pH Checked: <2

NCF:

Divider
Page

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Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

Report Summary

Tuesday November 25, 2014

Report Number: L735230
Samples Received: 11/22/14
Client Project: 200917

Description: Umicore Maxton Facility

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

Entire Report Reviewed By: Jimmy Hunt

Jimmy Hunt , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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

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Fax (615) 758-5859

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Est. 1970

REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 25, 2014

ESC Sample # : L735230-01

Date Received : November 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : WELL 8

Project # : 200917

Collected By : Flinchum
Collection Date : 11/21/14 12:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	5.0	0.26	2.0	ug/l		6020	11/24/14	1
Iron	32.	14.	100	ug/l	J	6010C	11/25/14	1
Iron,Dissolved	20.	14.	100	ug/l	J	6010C	11/23/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC.
.
Reported: 11/25/14 14:26 Printed: 11/25/14 14:27

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L735230-01	WG756359	SAMP	Iron	R3006494	J
	WG756225	SAMP	Iron,Dissolved	R3006129	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

Qualifier Report Information

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

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
11/25/14 at 14:27:06

TSR Signing Reports: 350
R2 - Rush: Next Day

MDL/RDL; Use ASG, COG, TLG not ICP on GW; Attach COC to back of report PDF; PPB

Sample: L735230-01 Account: DUNDUNNC Received: 11/22/14 07:00 Due Date: 11/25/14 00:00 RPT Date: 11/25/14 14:26

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Duncklee and Dunham
Matt Flinchum
PO Box 639

Cary, NC 27512

Quality Assurance Report
Level II

L735230

November 25, 2014

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Iron,Dissolved	< .1	mg/l			WG756225	11/23/14 12:58
Cobalt	< .001	mg/l			WG756227	11/24/14 16:18
Iron	< .1	mg/l			WG756359	11/25/14 05:53

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Iron,Dissolved	mg/l	1	1.01	101.	80-120	WG756225
Cobalt	mg/l	.05	0.0523	105.	85-115	WG756227
Iron	mg/l	1	1.02	102.	80-120	WG756359

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Iron,Dissolved	mg/l	1.05	1.01	105.	80-120	3.00	20	WG756225
Cobalt	mg/l	0.0536	0.0523	107.	85-115	3.00	20	WG756227
Iron	mg/l	1.08	1.02	108.	80-120	5.00	20	WG756359

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Iron,Dissolved	mg/l	1.03	0.0205	1	100.	75-125	L735230-01	WG756225

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Iron,Dissolved	mg/l	1.05	1.03	103.	75-125	2.00	20	L735230-01	WG756225

Post Spike

Serial Dilution

Batch number /Run number / Sample number cross reference

WG756225: R3006129: L735230-01
WG756227: R3006383: L735230-01
WG756359: R3006494: L735230-01

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

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Matt Flinchum
PO Box 639

Cary, NC 27512

Quality Assurance Report
Level II

L735230

November 25, 2014

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

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

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

Company Name/Address: Dunckleé & Dunham, PC
511 Kaiser Drive Suite 102
Cary NC 27518

Billing Information: Same

Report to: matt flinchum, dave Dunckleé

Email To: matt@dunckleedunham.com
davee " " .com

Project Description: umicore

City/State Collected: Maxton, NC

Phone: 919-858-9898
Fax: —

Client Project # 200917

Lab Project #

Collected by (print): Flinchum

Site/Facility ID #

P.O. #

Collected by (signature): [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: 11-24-14 (ASAP)

Email? ___No ✓Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

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Mount Juliet, TN 37122
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Phone: 800-767-5859
Fax: 615-758-5859

L# L735230

A163

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cobalt X 6020	Total Iron X 6010B	Dissolved Iron X 6010B	Rem./Contaminant	Sample # (lab only)
Well #8	Grab	GW	X	11-21-14	1220	2	X	X	X		-01

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

Remarks: Need lab results as soon as possible.

pH _____ Temp _____
Flow _____ Other _____

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
[signature]	11-21-14	17:45	[signature]
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
[signature]	11/21/14	17:45	[signature]

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

Temp: 24 °C Bottles Received: 2

Date: 11-22-14 Time: 0700

Hold #

Condition: (lab use only) OK TDI

COC Seal Intact: ✓Y ___N ___NA

pH Checked: 12

NCF:

Divider
Page

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Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

Report Summary

Tuesday November 25, 2014

Report Number: L735232
Samples Received: 11/22/14
Client Project: 200917

Description: Umicore Maxton Facility

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

Entire Report Reviewed By: Jimmy Hunt

Jimmy Hunt , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

November 25, 2014

ESC Sample # : L735232-01

Date Received : November 22, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : WELL 7-8 TREATED

Project # : 200917

Collected By : Flinchum
Collection Date : 11/21/14 11:56

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	6.6	0.26	2.0	ug/l		6020	11/24/14	1
Iron	68.	14.	100	ug/l	J	6010C	11/25/14	1
Iron,Dissolved	62.	14.	100	ug/l	J	6010C	11/23/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC.
.
Reported: 11/25/14 14:26 Printed: 11/25/14 14:27

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L735232-01	WG756359	SAMP	Iron	R3006494	J
	WG756225	SAMP	Iron,Dissolved	R3006129	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

Qualifier Report Information

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

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

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Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
11/25/14 at 14:27:04

TSR Signing Reports: 350
R2 - Rush: Next Day

MDL/RDL; Use ASG, COG, TLG not ICP on GW; Attach COC to back of report PDF; PPB

Sample: L735232-01 Account: DUNDUNNC Received: 11/22/14 07:00 Due Date: 11/25/14 00:00 RPT Date: 11/25/14 14:26

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Duncklee and Dunham
Matt Flinchum
PO Box 639

Cary, NC 27512

Quality Assurance Report
Level II

L735232

November 25, 2014

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Iron,Dissolved	< .1	mg/l			WG756225	11/23/14 12:58
Cobalt	< .001	mg/l			WG756227	11/24/14 16:18
Iron	< .1	mg/l			WG756359	11/25/14 05:53

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Iron,Dissolved	mg/l	1	1.01	101.	80-120	WG756225
Cobalt	mg/l	.05	0.0523	105.	85-115	WG756227
Iron	mg/l	1	1.02	102.	80-120	WG756359

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Iron,Dissolved	mg/l	1.05	1.01	105.	80-120	3.00	20	WG756225
Cobalt	mg/l	0.0536	0.0523	107.	85-115	3.00	20	WG756227
Iron	mg/l	1.08	1.02	108.	80-120	5.00	20	WG756359

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Iron,Dissolved	mg/l	1.03	0.0205	1	100.	75-125	L735230-01	WG756225

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Iron,Dissolved	mg/l	1.05	1.03	103.	75-125	2.00	20	L735230-01	WG756225

Post Spike

Serial Dilution

Batch number /Run number / Sample number cross reference

WG756225: R3006129: L735232-01
WG756227: R3006383: L735232-01
WG756359: R3006494: L735232-01

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

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Quality Assurance Report
Level II

L735232

November 25, 2014

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

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Company Name/Address: Dunckle & Dunham, P.C. 511 Kistler Drive Suite 102 Cary, NC 27518

Billing Information: Same

Report to: dave dunckle, matt flinchum

Email To: daveedunckleedunham.com, matte " ", com

Project Description: Umicore

City/State Collected: Marion, NC

Phone: 919-858-9898

Fax:

Client Project #: 200917

Lab Project #:

Collected by (print): Flinchum

Site/Facility ID #:

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: 11-24-14 (ASAP)

Email? ___No ✓Yes

FAX? ✓No ___Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cobalt X6020	Total Iron X6010B	Total Dissolved Iron X6010B	Rem./Contaminant	Sample # (lab only)
~~Well~~ WMF											
Well #7,8 Treated	Grab	GW	X	11-21-14	1156	2	X	X	X		-01

Chain of Custody Page 1 of 1

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

L# L735232

A161

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

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

Remarks: Please Provide lab results as soon as possible

pH _____ Temp _____

Flow _____ Other _____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	212 WMF 11-21-14	17:45	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date: 11/21/14	Time: 17:45	Received for lab by: (Signature)

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

Temp: 2-4°C °C Bottles Received: 2

Date: 11-22-14 Time: 0700

Condition: (lab use only) TDI

COC Seal Intact: ___Y ___N ___NA

pH Checked: <2

NCF:

Divider
Page

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

December 04, 2014

Matt Flinchum
Duncklee & Dunham
511 Keisler Drive
Suite 102
Cary, NC 27518

RE: Project: Umicore
Pace Project No.: 92227812

Dear Matt Flinchum:
Enclosed are the analytical results for sample(s) received by the laboratory on December 02, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

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

Sincerely,

Angela M. Baioni

Angela Baioni
angela.baioni@pacelabs.com
Project Manager

Enclosures

cc: Mr. Jayson Kilcoyne, Duncklee & Dunham

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Umicore
Pace Project No.: 92227812

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: Umicore
Pace Project No.: 92227812

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92227812001	**Well #7**	EPA 6020	DRS	1	PASI-O

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ANALYTICAL RESULTS

Project: Umicore
Pace Project No.: 92227812

Sample: Well #7 **Lab ID: 92227812001** Collected: 11/21/14 13:00 Received: 12/02/14 11:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Cobalt	**9.7**	ug/L	4.0	1	12/03/14 17:24	12/04/14 09:02	7440-48-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Umicore
Pace Project No.: 92227812

QC Batch: MPRP/21746
QC Batch Method: EPA 3010
Analysis Method: EPA 6020
Analysis Description: 6020 MET
Associated Lab Samples: 92227812001

METHOD BLANK: 1071815
Matrix: Water
Associated Lab Samples: 92227812001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cobalt	ug/L	ND	4.0	12/04/14 08:00	

LABORATORY CONTROL SAMPLE: 1071816

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cobalt	ug/L	50	49.9	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1071817 1071818

Parameter	Units	92227329004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Cobalt	ug/L	2.9	50	50	48.9	52.4	92	99	75-125	7	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Umicore
Pace Project No.: 92227812

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Umicore
Pace Project No.: 92227812

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92227812001	**Well #7**	EPA 3010	MPRP/21746	EPA 6020	ICPM/8893

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Pace Analytical	Sample Condition Upon Receipt (SCUR)	Page 1 of 2
	Document Number: F-CHR-CS-003-rev.15	Issuing Authority: Pace Huntersville Quality Office

Client Name: Teridyne

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Optional
Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used: IR Gun T1401 Type of Ice: Wet Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor T1401 No Correction

Corrected Cooler Temp.: 1.0 °C Biological Tissue is Frozen: Yes No N/A

Date and Initials of person examining contents: PS 12/03/14

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: _____	☐Yes ☑No ☐N/A	12. no time/date on all samples
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	
Samples checked for dechlorination:	☑Yes ☐No ☐N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review:	DMG	Date:	12-3-14
SRF Review:	DMG	Date:	12-3-14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO# : 92227899

92227899

LAB USE ONLY
SAMPLE LOGIN NO.:_____

TEXIDYNE, INC.

P.O. BOX 1646, CLEMSON, SC 29633
915 W. MAIN ST., CENTRAL, SC 29630 (Shipping)
PH (864)639-6207 FAX (864)639-3207

CHAIN OF CUSTODY

PROGRAM AREA
- ☐ DRINKING WATER
- ☒ WASTEWATER
- ☐ GROUNDWATER
- ☐ SOIL/SLUDGE/SOLID
- ☐ OTHER

9222 7899

NAME: Texidyne, Inc

ADDRESS: P.O. BOX 1646, CLEMSON, SC 2963

Lisa Young
lisa.young@texidyne.com

SAMPLER'S SIGNATURE

SAMPLER'S NAME (PRINT)

FIELD DATA (GRAB)
pH:_____ DO: _____
Temp°C: _____ Chlorine: _____

FIELD DATA (COMP)
Temp°C: _____
Temp°C upon receipt at lab: _____

LAB USE ONLY Sample NO.	SAMPLE LOCATION	SAMPLE COLLECTION DATE: START / STOP	SAMPLE COLLECTION TIME: START / STOP	PRESERVATIVE (☐ Samples preserved within 15 min. of collection) HCl	HNO_3	NaOH	HCl	$Na_2S_2O_3$	ICE	COMPOSITE	GRAB	PLASTIC	GLASS	NO. OF CONTAINERS	SIZE OF CONTAINER	ANALYSIS REQUESTED	
	14-2402-1 Effluent WW Composite	12/01/14	1220						X	X		X		1	1 Liter	TSS SM 2540D	001
		12/02/14	1215		X					X		X		1	250 ml	Cadmium, Chromium, Copper, Lead, Nickel, Silver, Zinc EPA 6010	
	14-2402-2 Effluent WW Grab	12/02/14	1218			X					X	X		1	125 ml	Cyanide SM 4500-CN-E	002
				X							X		X	2	1 Liter	HEM Oil and Grease **AND** SGT-HEM TPH* (EPA 1664B) need to report separate	

RELINQUISHED BY: DATE/TIME: RECEIVED BY: DATE/TIME:

RELINQUISHED BY: DATE/TIME: RECEIVED BY: DATE/TIME:

RELINQUISHED BY: DATE/TIME: RECEIVED FOR LAB BY: DATE/TIME:

METHOD OF SHIPMENT: HAND ☐ UPS ☐ FED-EX ☒ OTHER:

SUB CONTRACT LAB ID: **Pace- E87627** RELINQUISHED BY: Lisa Young DATE/TIME: 12/2/14 - 1600

PARAMETER(S): RECEIVED BY: Patrick Lin / PACE DATE/TIME: 12/3/14 1045

COMMENTS: ***These are all GA samples**

☐ BOTTLE INTACT ☐ CLIENT NOTIFIED OF DEFICIENCIES
☐ PRESERVED
☐ CHILLED/ICED DATE NOTIFIED:

FLOW Start: Stop: Total Flow:

CUSTOMER P.O._____

9/12

Divider
Page

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

December 04, 2014

Matt Flinchum
Duncklee & Dunham
511 Keisler Drive
Suite 102
Cary, NC 27518

RE: Project: Umicore
Pace Project No.: 92227815

Dear Matt Flinchum:
Enclosed are the analytical results for sample(s) received by the laboratory on December 02, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

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

Sincerely,

Angela M. Baioni

Angela Baioni
angela.baioni@pacelabs.com
Project Manager

Enclosures

cc: Mr. Jayson Kilcoyne, Duncklee & Dunham

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Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Umicore
Pace Project No.: 92227815

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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(704)875-9092

SAMPLE ANALYTE COUNT

Project: Umicore
Pace Project No.: 92227815

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92227815001	**Well #8**	EPA 6020	DRS	1	PASI-O

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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Umicore
Pace Project No.: 92227815

Sample: Well #8 **Lab ID: 92227815001** Collected: 11/21/14 12:25 Received: 12/02/14 11:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Cobalt	**5.0**	ug/L	4.0	1	12/03/14 17:24	12/04/14 09:07	7440-48-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Umicore
Pace Project No.: 92227815

QC Batch: MPRP/21746
QC Batch Method: EPA 3010
Analysis Method: EPA 6020
Analysis Description: 6020 MET
Associated Lab Samples: 92227815001

METHOD BLANK: 1071815
Matrix: Water
Associated Lab Samples: 92227815001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cobalt	ug/L	ND	4.0	12/04/14 08:00	

LABORATORY CONTROL SAMPLE: 1071816

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cobalt	ug/L	50	49.9	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1071817 1071818

Parameter	Units	92227329004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Cobalt	ug/L	2.9	50	50	48.9	52.4	92	99	75-125	7	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Umicore
Pace Project No.: 92227815

DEFINITIONS

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ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

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SG - Silica Gel - Clean-Up

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

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Umicore
Pace Project No.: 92227815

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92227815001	**Well #8**	EPA 3010	MPRP/21746	EPA 6020	ICPM/8893

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92227815

Company Name/Address: Dunckleé & Dunham, P.C. 511 Keisler Drive Suite 102 Cary NC, 27518

Billing Information: Same

Report to: Matt Flinchum, Dave Dunckleé

Email To: dave@dunckleedunham.com, Matt@ " " .com

Project Description: Umicore

City/State Collected: Maxton, NC

Phone: 919-858-9898 Fax: —

Client Project # 200917

Lab Project #

Collected by (print): Flinchum

Site/Facility ID #

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: HOLD

Email? ___No ✓Yes

FAX? ✓No ___Yes

Analysis / Container / Preservative: Cobalt X (0.02)

Chain of Custody Page 1 of 1

ESC LAB 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# C163

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Rem./Contaminant	Sample # (lab only)
Well #8	Grab	GW	X	11-21-14	1225	1		001

WO#: 92227815

92227815

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other 526 7396 8473 01 007 pH ___ Temp ___

Remarks: Please HOLD these sample(s) until further notice. Flow ___ Other ___

Hold # 11-0103

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier	Condition: (lab use only)
	11-21-14	17:45			TD
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.2 °C Bottles Received: 1	COC Seal Intact: ✓Y ___N ___NA
Relinquished by: (Signature)	Date: 11/21/14	Time: 17:45	Received for lab by: (Signature)	Date: 11-22-14 Time: 0700	pH Checked: NCF:

12/2/14 1150 0.0T185

Pace Analytical	Document Name: Sample Condition Upon Receipt Form Document No.: F-FL-C-007 rev. 06	Document Revised: August 11, 2014 Issuing Authority: Pace Florida Quality Office

Sample Condition Upon Receipt Form (SCUR)

Table Number: _____

Client Name: ESC - PACE - NC Project # _____

Cooler: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other _____

Tracking # 6194495666107

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☒ Other _____

Date and Initials of person examining contents: 12/2/14 1050

Thermometer Used T185 Type of Ice: (Wet) Blue None

Cooler Temperature °C 0.0 (Visual) 0 (Correction Factor) 0.0 (Actual)

(Temp should be above freezing to 6°C). If below 0°C, then was sample frozen? ☐ Yes ☐ No

Receipt of samples satisfactory: ☐ Yes ☐ No

Rush TAT requested on COC:

If yes, then all conditions below were met:	If no, then mark box & describe issue (use comments area if necessary):
Chain of Custody Present	☐
Chain of Custody Filled Out	☐
Relinquished Signature & Sampler Name COC	☐
Samples Arrived within Hold Time	☐
Sufficient Volume	☐
Correct Containers Used	☐
Containers Intact	☐
Sample Labels match COC (sample IDs & date/time of collection)	☐
	No Labels: ☐ No Time/Date on Labels: ☐
All containers needing preservation are found to be in compliance with EPA recommendation.	☐
Headspace in VOA Vials (>6mm):	☐

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution (use back for additional comments): _____

Project Manager Review: AMB Date: 12-2-14

Finished Product Information Only

F. Sample ID: _____

Production Code: _____

Date/Time Opened: _____

Number of Unopened Bottles Remaining: _____

Size & Qty of Bottles Received

_____ x 5 Gal
_____ x 2.5 Gal
_____ x 1 Gal
_____ x 1 Liter
_____ x 500 mL
_____ x 250 mL
_____ x Other: _____

Extra Sample in Shed: Yes No

Divider
Page

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(704)875-9092

December 04, 2014

Matt Flinchum
Duncklee & Dunham
511 Keisler Drive
Suite 102
Cary, NC 27518

RE: Project: Umicore
Pace Project No.: 92227814

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Sincerely,

Angela M. Baioni

Angela Baioni
angela.baioni@pacelabs.com
Project Manager

Enclosures

cc: Mr. Jayson Kilcoyne, Duncklee & Dunham

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CERTIFICATIONS

Project: Umicore
Pace Project No.: 92227814

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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(704)875-9092

SAMPLE ANALYTE COUNT

Project: Umicore
Pace Project No.: 92227814

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92227814001	**Well #7,8-Treated**	EPA 6020	DRS	1	PASI-O

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ANALYTICAL RESULTS

Project: Umicore
Pace Project No.: 92227814

Sample: Well #7,8-Treated **Lab ID: 92227814001** Collected: 11/21/14 11:58 Received: 12/02/14 11:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Cobalt	**6.3**	ug/L	4.0	1	12/03/14 17:24	12/04/14 09:05	7440-48-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Umicore
Pace Project No.: 92227814

QC Batch: MPRP/21746
QC Batch Method: EPA 3010
Analysis Method: EPA 6020
Analysis Description: 6020 MET
Associated Lab Samples: 92227814001

METHOD BLANK: 1071815
Matrix: Water
Associated Lab Samples: 92227814001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cobalt	ug/L	ND	4.0	12/04/14 08:00	

LABORATORY CONTROL SAMPLE: 1071816

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cobalt	ug/L	50	49.9	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1071817 1071818

Parameter	Units	92227329004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Cobalt	ug/L	2.9	50	50	48.9	52.4	92	99	75-125	7	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: Umicore
Pace Project No.: 92227814

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Umicore
Pace Project No.: 92227814

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92227814001	**Well #7,8-Treated**	EPA 3010	MPRP/21746	EPA 6020	ICPM/8893

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Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: August 11, 2014
	Document No.: F-FL-C-007 rev. 06	Issuing Authority: Pace Florida Quality Office

Sample Condition Upon Receipt Form (SCUR)

Table Number: _____

Client Name: ESC - PACE - NC Project #: _____

Cooler: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other _____

Tracking # 6194 4956 6107

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☒ Other _____

Date and Initials of person examining contents: 12/2/14 1050

Thermometer Used 7185 Type of Ice: (Wet) Blue None

Cooler Temperature °C 0.0 (Visual) Ø (Correction Factor) 0.0 (Actual)

(Temp should be above freezing to 6°C). If below 0°C, then was sample frozen? ☐ Yes ☐ No

Receipt of samples satisfactory: ☐ Yes ☐ No Rush TAT requested on COC:

If yes, then all conditions below were met:	If no, then mark box & describe issue (use comments area if necessary):
Chain of Custody Present	☐
Chain of Custody Filled Out	☐
Relinquished Signature & Sampler Name COC	☐
Samples Arrived within Hold Time	☐
Sufficient Volume	☐
Correct Containers Used	☐
Containers Intact	☐
Sample Labels match COC (sample IDs & date/time of collection)	☐ No Labels: ☐ No Time/Date on Labels: ☐
All containers needing preservation are found to be in compliance with EPA recommendation.	☐
Headspace in VOA Vials (>6mm):	☐

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution (use back for additional comments): _____

Project Manager Review: AMB NMG Date: 12-3-14 / 12/3/14

Finished Product Information Only

P. Sample ID: _____

Production Code: _____

Date/Time Opened: _____

Number of Unopened Bottles Remaining: _____

Extra Sample In Shed: Yes No

Size & Qty of Bottles Received

_____ x 5 Gal
_____ x 2.5 Gal
_____ x 1 Gal
_____ x 1 Liter
_____ x 500 mL
_____ x 250 mL
_____ x Other: _____

WO# : 92227814

92227814

92227814

Company Name/Address: Dunckleé + Dunham, P.C.
511 Keisler Drive Suite 102
Cary, NC 27518

Billing Information: Same

Report to: Dave Dunckleé
Matt Flinchum

Email To: dave@dunckleedunham.com
matt@ " " .com

Project Description: Umicore

City/State Collected: Maxton, NC

Phone: 919-858-9898
Fax:

Client Project # 200917

Lab Project #

Collected by (print): Flinchum

Site/Facility ID #

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: HOLD

Email? ___No ✓Yes
FAX? ✓No ___Yes

Chain of Custody Page 1 of 1

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Fax: 615-758-5859

L# C164

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cr(VI) (EPA 218.6)	Rem./Contaminant	Sample # (lab only)
Well #7,8-Treated	Grab	GW	X	11-21-14	1158	1	X		001

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other 526 7396 8473 01 007

pH ___ Temp ___
Flow ___ Other ___

Remarks: Please HOLD until further notice.

Hold: 11-0104

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☒ Client
	11-21-14	17:45		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.4 °C Bottles Received:
Relinquished by: (Signature)	11/21/14	17:45	Received for lab by: (Signature)	Date: 11-22-14 Time: 0700

Condition: Tol (lab use only)
COC Seal Intact: ✓ Y ___ N ___ NA
pH Checked: <2
NCF:

SOP 12/2/14 1150 0.0 11/85

Divider
Page

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Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

Report Summary

Friday December 05, 2014

Report Number: L735518
Samples Received: 11/25/14
Client Project: 200917

Description: Umicore Maxton Facility

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

Entire Report Reviewed By: Jimmy Hunt

Jimmy Hunt , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

December 05, 2014

ESC Sample # : L735518-01

Date Received : November 25, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-28

Project # : 200917

Collected By : J. Hanks
Collection Date : 11/21/14 10:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	100	0.26	2.0	ug/l		6020	11/25/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Matt Flinchum
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December 05, 2014

ESC Sample # : L735518-02

Date Received : November 25, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-28B

Project # : 200917

Collected By : J. Hanks
Collection Date : 11/21/14 16:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	2.4	0.26	2.0	ug/l		6020	11/25/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Matt Flinchum
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Cary, NC 27512

December 05, 2014

ESC Sample # : L735518-03

Date Received : November 25, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-38

Project # : 200917

Collected By : J. Hanks
Collection Date : 11/24/14 11:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	91.	0.26	2.0	ug/l		6020	11/25/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

December 05, 2014

ESC Sample # : L735518-04

Date Received : November 25, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-38

Project # : 200917

Collected By : J. Hanks
Collection Date : 11/24/14 11:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	130000	100	2000	ug/l		9056	11/25/14	2
Nitrate	1200	23.	100	ug/l		9056	11/25/14	1
Nitrite	U	28.	100	ug/l		9056	11/25/14	1
Sulfate	20000	77.	5000	ug/l		9056	11/25/14	1
Alkalinity,Bicarbonate	U	2600	20000	ug/l		2320 B-	12/04/14	1
Alkalinity,Carbonate	U	2600	20000	ug/l		2320 B-	12/03/14	1
Ammonia Nitrogen	U	38.	250	ug/l		350.1	12/03/14	1
Phosphate,Ortho	U	9.0	25.	ug/l		4500P E	11/25/14	1
TOC (Total Organic Carbon)	380	100	1000	ug/l	J	9060A	11/26/14	1
Dissolved Solids	260000	2800	10000	ug/l		2540 C-	11/28/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/27/14	1
Selenium	1.7	0.38	2.0	ug/l	J	6020	11/27/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/27/14	1
Aluminum	U	35.	100	ug/l		6010C	12/02/14	1
Calcium	680	46.	1000	ug/l	J	6010C	12/02/14	1
Chromium	1.8	1.4	10.	ug/l	J	6010C	12/02/14	1
Iron	4100	14.	100	ug/l		6010C	12/02/14	1
Iron,Dissolved	2400	14.	100	ug/l		6010C	11/28/14	1
Magnesium	490	11.	1000	ug/l	J	6010C	12/02/14	1
Manganese	70.	1.2	10.	ug/l		6010C	12/02/14	1
Nickel	5.2	4.9	20.	ug/l	J	6010C	12/02/14	1
Potassium	450	100	1000	ug/l	J	6010C	12/02/14	1
Sodium	90000	98.	1000	ug/l		6010C	12/02/14	1
Zinc	U	5.9	50.	ug/l		6010C	12/02/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Matt Flinchum
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December 05, 2014

ESC Sample # : L735518-05

Date Received : November 25, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-38I

Project # : 200917

Collected By : J. Hanks
Collection Date : 11/24/14 14:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	250	1.3	10.	ug/l		6020	11/25/14	5

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

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December 05, 2014

ESC Sample # : L735518-06

Date Received : November 25, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-38I

Project # : 200917

Collected By : J. Hanks
Collection Date : 11/24/14 14:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	60000	52.	1000	ug/l		9056	11/25/14	1
Nitrate	1300	23.	100	ug/l		9056	11/25/14	1
Nitrite	U	28.	100	ug/l		9056	11/25/14	1
Sulfate	1500	77.	5000	ug/l	J	9056	11/25/14	1
Alkalinity,Bicarbonate	U	2600	20000	ug/l		2320 B-	12/04/14	1
Alkalinity,Carbonate	U	2600	20000	ug/l		2320 B-	12/04/14	1
Ammonia Nitrogen	78.	38.	250	ug/l	J	350.1	12/03/14	1
Phosphate,Ortho	U	9.0	25.	ug/l		4500P E	11/25/14	1
TOC (Total Organic Carbon)	300	100	1000	ug/l	J	9060A	11/26/14	1
Dissolved Solids	120000	2800	10000	ug/l		2540 C-	11/28/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/27/14	1
Selenium	0.75	0.38	2.0	ug/l	J	6020	11/27/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/27/14	1
Aluminum	400	35.	100	ug/l		6010C	12/02/14	1
Calcium	370	46.	1000	ug/l	J	6010C	12/02/14	1
Chromium	U	1.4	10.	ug/l		6010C	12/02/14	1
Iron	2300	14.	100	ug/l		6010C	12/02/14	1
Iron,Dissolved	2100	14.	100	ug/l		6010C	11/28/14	1
Magnesium	440	11.	1000	ug/l	J	6010C	12/02/14	1
Manganese	42.	1.2	10.	ug/l		6010C	12/02/14	1
Nickel	U	4.9	20.	ug/l		6010C	12/02/14	1
Potassium	330	100	1000	ug/l	J	6010C	12/02/14	1
Sodium	41000	98.	1000	ug/l		6010C	12/02/14	1
Zinc	U	5.9	50.	ug/l		6010C	12/02/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

December 05, 2014

ESC Sample # : L735518-07

Date Received : November 25, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-38B

Project # : 200917

Collected By : J. Hanks
Collection Date : 11/24/14 13:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	1.3	0.26	2.0	ug/l	J	6020	11/25/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

December 05, 2014

ESC Sample # : L735518-08

Date Received : November 25, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : MW-38B

Project # : 200917

Collected By : J. Hanks
Collection Date : 11/24/14 13:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	42000	52.	1000	ug/l		9056	11/25/14	1
Nitrate	800	23.	100	ug/l		9056	11/25/14	1
Nitrite	U	28.	100	ug/l		9056	11/25/14	1
Sulfate	5100	77.	5000	ug/l		9056	11/25/14	1
Alkalinity,Bicarbonate	U	2600	20000	ug/l		2320 B-	12/04/14	1
Alkalinity,Carbonate	U	2600	20000	ug/l		2320 B-	12/04/14	1
Ammonia Nitrogen	U	38.	250	ug/l		350.1	12/03/14	1
Phosphate,Ortho	U	9.0	25.	ug/l		4500P E	11/25/14	1
TOC (Total Organic Carbon)	720	100	1000	ug/l	J	9060A	11/29/14	1
Dissolved Solids	100000	2800	10000	ug/l		2540 C-	11/28/14	1
Arsenic	U	0.25	2.0	ug/l		6020	11/26/14	1
Selenium	0.59	0.38	2.0	ug/l	J	6020	11/26/14	1
Thallium	U	0.19	2.0	ug/l		6020	11/26/14	1
Aluminum	54.	35.	100	ug/l	J	6010C	12/02/14	1
Calcium	1200	46.	1000	ug/l		6010C	12/02/14	1
Chromium	U	1.4	10.	ug/l		6010C	12/02/14	1
Iron	680	14.	100	ug/l		6010C	12/02/14	1
Iron,Dissolved	680	14.	100	ug/l		6010C	11/28/14	1
Magnesium	960	11.	1000	ug/l	J	6010C	12/02/14	1
Manganese	22.	1.2	10.	ug/l		6010C	12/02/14	1
Nickel	U	4.9	20.	ug/l		6010C	12/02/14	1
Potassium	1600	100	1000	ug/l		6010C	12/02/14	1
Sodium	29000	98.	1000	ug/l		6010C	12/02/14	1
Zinc	U	5.9	50.	ug/l		6010C	12/02/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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.
Reported: 12/05/14 16:22 Printed: 12/05/14 16:54

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L735518-04	WG756924	SAMP	Selenium	R3006933	J
	WG757338	SAMP	Calcium	R3007765	J
	WG757338	SAMP	Chromium	R3007765	J
	WG757338	SAMP	Magnesium	R3007765	J
	WG757338	SAMP	Nickel	R3007765	J
	WG757338	SAMP	Potassium	R3007765	J
	WG756879	SAMP	TOC (Total Organic Carbon)	R3006873	J
L735518-06	WG756776	SAMP	Sulfate	R3006651	J
	WG756924	SAMP	Selenium	R3006933	J
	WG757338	SAMP	Calcium	R3007765	J
	WG757338	SAMP	Magnesium	R3007765	J
	WG757338	SAMP	Potassium	R3007765	J
	WG757470	SAMP	Ammonia Nitrogen	R3007949	J
	WG756879	SAMP	TOC (Total Organic Carbon)	R3006873	J
L735518-07	WG756744	SAMP	Cobalt	R3006625	J
L735518-08	WG756924	SAMP	Selenium	R3006933	J
	WG757338	SAMP	Aluminum	R3007765	J
	WG757338	SAMP	Magnesium	R3007765	J
	WG757293	SAMP	TOC (Total Organic Carbon)	R3007209	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

Qualifier Report Information

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

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

12065 Lebanon Rd.
Mt. Juliet, TN 37122
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Tax I.D. 62-0814289

Est. 1970

Duncklee and Dunham
Matt Flinchum
PO Box 639

Cary, NC 27512

Quality Assurance Report
Level II

L735518

December 05, 2014

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Phosphate,Ortho	< .025	mg/l			WG756782	11/25/14 14:36
Cobalt	< .001	mg/l			WG756744	11/25/14 21:31
Chloride	< 1	mg/l			WG756776	11/25/14 10:55
Nitrate	< .1	mg/l			WG756776	11/25/14 10:55
Nitrite	< .1	mg/l			WG756776	11/25/14 10:55
Sulfate	< 5	mg/l			WG756776	11/25/14 10:55
TOC (Total Organic Carbon)	< 1	mg/l			WG756879	11/25/14 22:54
Arsenic	< .001	mg/l			WG756924	11/26/14 22:04
Selenium	< .001	mg/l			WG756924	11/26/14 22:04
Thallium	< .001	mg/l			WG756924	11/26/14 22:04
Dissolved Solids	< 10	mg/l			WG756877	11/28/14 16:37
Iron,Dissolved	< .1	mg/l			WG757270	11/28/14 17:25
TOC (Total Organic Carbon)	< 1	mg/l			WG757293	11/29/14 07:20
Aluminum	< .1	mg/l			WG757338	12/02/14 12:44
Calcium	< 1	mg/l			WG757338	12/02/14 12:44
Chromium	< .01	mg/l			WG757338	12/02/14 12:44
Iron	< .1	mg/l			WG757338	12/02/14 12:44
Magnesium	< 1	mg/l			WG757338	12/02/14 12:44
Manganese	< .01	mg/l			WG757338	12/02/14 12:44
Nickel	< .02	mg/l			WG757338	12/02/14 12:44
Potassium	< 1	mg/l			WG757338	12/02/14 12:44
Sodium	< 1	mg/l			WG757338	12/02/14 12:44
Zinc	< .05	mg/l			WG757338	12/02/14 12:44
Ammonia Nitrogen	< .25	mg/l			WG757470	12/03/14 11:19

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Phosphate,Ortho	mg/l	0.0	0.0	0.0	20	L735518-04	WG756782
Nitrate	mg/l	0.0	0.0	0.0	20	L735554-04	WG756776
Sulfate	mg/l	37.0	36.6	0.0	20	L735554-04	WG756776
Chloride	mg/l	18.0	18.8	6.00	20	L735565-01	WG756776
Nitrate	mg/l	0.480	0.442	8.00	20	L735565-01	WG756776
Sulfate	mg/l	0.0	2.20	1.00	20	L735565-01	WG756776
TOC (Total Organic Carbon)	mg/l	12.1	12.0	0.830	20	L734652-03	WG756879
TOC (Total Organic Carbon)	mg/l	2.81	3.00	6.54	20	L735015-13	WG756879

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

Divider
Page

ENCO Laboratories

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102-A Woodwinds Industrial Court
Cary NC, 27511
Phone: 919.467.3090 FAX: 919.467.3515

Tuesday, December 9, 2014
Duncklee & Dunham, PC (DU009)
Attn: Matt Flinchum
511 Keisler Drive, Suite 102
Cary, NC 27518

RE: Laboratory Results for
Project Number: 200917, Project Name/Desc: Umicore
ENCO Workorder(s): C415443

Dear Matt Flinchum,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Wednesday, December 3, 2014.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Cary. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Chuck Smith

Project Manager

Enclosure(s)

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SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: Well-3 | **Lab ID: C415443-01** | **Sampled: 12/02/14 19:05** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 12:11
EPA 6020A	05/31/15		12/04/14	09:11	12/04/14 13:43

Client ID: Well-6 | **Lab ID: C415443-02** | **Sampled: 12/02/14 17:45** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 12:31
EPA 6020A	05/31/15		12/04/14	09:11	12/04/14 13:47

Client ID: Well-3,6 Treated | **Lab ID: C415443-03** | **Sampled: 12/02/14 18:20** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 12:34
EPA 6020A	05/31/15		12/04/14	09:11	12/04/14 13:50

Client ID: Well-7 | **Lab ID: C415443-04** | **Sampled: 12/02/14 16:35** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 12:36
EPA 6020A	05/31/15		12/04/14	09:11	12/04/14 13:54

Client ID: Well-8 | **Lab ID: C415443-05** | **Sampled: 12/02/14 14:25** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 12:39
EPA 6020A	05/31/15		12/04/14	09:11	12/04/14 13:58

Client ID: Well-7 | **Lab ID: C415443-06** | **Sampled: 12/02/14 16:35** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 524.2	12/16/14		12/05/14	09:58	12/05/14 14:23
EPA 552.2	12/16/14	12/17/14	12/03/14	15:16	12/04/14 15:50

Client ID: Well-7,-8 Treated | **Lab ID: C415443-07** | **Sampled: 12/02/14 15:05** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 12:41
EPA 6020A	05/31/15		12/04/14	09:11	12/04/14 13:17

Client ID: Well-3 Dissolved | **Lab ID: C415443-08** | **Sampled: 12/02/14 19:05** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 12:44

Client ID: Well-6 Dissolved | **Lab ID: C415443-09** | **Sampled: 12/02/14 17:45** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 13:03

Client ID: Well-3,6 Treated Dissolved | **Lab ID: C415443-10** | **Sampled: 12/02/14 18:20** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 13:05

Client ID: Well-7 Dissolved | **Lab ID: C415443-11** | **Sampled: 12/02/14 16:35** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 13:08

Client ID: Well-8 Dissolved | **Lab ID: C415443-12** | **Sampled: 12/02/14 14:25** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 13:10

Client ID: Well-7,-8 Treated Dissolved | **Lab ID: C415443-13** | **Sampled: 12/02/14 15:05** | **Received: 12/03/14 10:05**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010C	05/31/15		12/04/14	15:42	12/09/14 13:13

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SAMPLE DETECTION SUMMARY

Client ID: Well-3 **Lab ID: C415443-01**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Cobalt - Total	3.23		0.100	1.00	ug/L	EPA 6020A	
Iron - Total	79.8		22.0	50.0	ug/L	EPA 6010C	

Client ID: Well-6 **Lab ID: C415443-02**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Cobalt - Total	6.97		0.100	1.00	ug/L	EPA 6020A	
Iron - Total	346		22.0	50.0	ug/L	EPA 6010C	

Client ID: Well-3,6 Treated **Lab ID: C415443-03**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Cobalt - Total	4.19		0.100	1.00	ug/L	EPA 6020A	
Iron - Total	299		22.0	50.0	ug/L	EPA 6010C	

Client ID: Well-7 **Lab ID: C415443-04**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Cobalt - Total	8.91		0.100	1.00	ug/L	EPA 6020A	
Iron - Total	160		22.0	50.0	ug/L	EPA 6010C	

Client ID: Well-8 **Lab ID: C415443-05**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Cobalt - Total	4.59		0.100	1.00	ug/L	EPA 6020A	
Iron - Total	26.1	J	22.0	50.0	ug/L	EPA 6010C	

Client ID: Well-7,-8 Treated **Lab ID: C415443-07**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Cobalt - Total	6.41		0.100	1.00	ug/L	EPA 6020A	
Iron - Total	70.5		22.0	50.0	ug/L	EPA 6010C	

Client ID: Well-3 Dissolved **Lab ID: C415443-08**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Iron - Dissolved	65.1		22.0	50.0	ug/L	EPA 6010C	

Client ID: Well-6 Dissolved **Lab ID: C415443-09**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Iron - Dissolved	338		22.0	50.0	ug/L	EPA 6010C	

Client ID: Well-3,6 Treated Dissolved **Lab ID: C415443-10**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Iron - Dissolved	274		22.0	50.0	ug/L	EPA 6010C	

Client ID: Well-7 Dissolved **Lab ID: C415443-11**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Iron - Dissolved	156		22.0	50.0	ug/L	EPA 6010C	

Client ID: Well-7,-8 Treated Dissolved **Lab ID: C415443-13**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Iron - Dissolved	62.6		22.0	50.0	ug/L	EPA 6010C	

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ANALYTICAL RESULTS

Description: Well-3 | **Lab Sample ID:** C415443-01 | **Received:** 12/03/14 10:05
Matrix: Ground Water | **Sampled:** 12/02/14 19:05 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Cobalt [7440-48-4]^	**3.23**		ug/L	1	0.100	1.00	4L04009	EPA 6020A	12/04/14 13:43	VLO	
Iron [7439-89-6]^	**79.8**		ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 12:11	JDH	

Description: Well-6 | **Lab Sample ID:** C415443-02 | **Received:** 12/03/14 10:05
Matrix: Ground Water | **Sampled:** 12/02/14 17:45 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Cobalt [7440-48-4]^	**6.97**		ug/L	1	0.100	1.00	4L04009	EPA 6020A	12/04/14 13:47	VLO	
Iron [7439-89-6]^	**346**		ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 12:31	JDH	

Description: Well-3,6 Treated | **Lab Sample ID:** C415443-03 | **Received:** 12/03/14 10:05
Matrix: Drinking Water | **Sampled:** 12/02/14 18:20 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Cobalt [7440-48-4]^	**4.19**		ug/L	1	0.100	1.00	4L04009	EPA 6020A	12/04/14 13:50	VLO	
Iron [7439-89-6]^	**299**		ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 12:34	JDH	

Description: Well-7 | **Lab Sample ID:** C415443-04 | **Received:** 12/03/14 10:05
Matrix: Water | **Sampled:** 12/02/14 16:35 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Cobalt [7440-48-4]^	**8.91**		ug/L	1	0.100	1.00	4L04009	EPA 6020A	12/04/14 13:54	VLO	
Iron [7439-89-6]^	**160**		ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 12:36	JDH	

Description: Well-8 | **Lab Sample ID:** C415443-05 | **Received:** 12/03/14 10:05
Matrix: Ground Water | **Sampled:** 12/02/14 14:25 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Cobalt [7440-48-4]^	**4.59**		ug/L	1	0.100	1.00	4L04009	EPA 6020A	12/04/14 13:58	VLO	
Iron [7439-89-6]^	**26.1**	J	ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 12:39	JDH	

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ANALYTICAL RESULTS

Description: Well-7 | **Lab Sample ID:** C415443-06 | **Received:** 12/03/14 10:05
Matrix: Drinking Water | **Sampled:** 12/02/14 16:35 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Bromodichloromethane [75-27-4]^	0.00017	U	mg/L	1	0.00017	0.00050	4L05023	EPA 524.2	12/05/14 14:23	GLQ	
Bromoform [75-25-2]^	0.00022	U	mg/L	1	0.00022	0.00050	4L05023	EPA 524.2	12/05/14 14:23	GLQ	
Chloroform [67-66-3]^	0.00018	U	mg/L	1	0.00018	0.00050	4L05023	EPA 524.2	12/05/14 14:23	GLQ	
Dibromochloromethane [124-48-1]^	0.00017	U	mg/L	1	0.00017	0.00050	4L05023	EPA 524.2	12/05/14 14:23	GLQ	
Total Trihalomethanes^	0.00017	U	mg/L	1	0.00017	0.00050	4L05023	EPA 524.2	12/05/14 14:23	GLQ	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
1,2-Dichlorobenzene-d4	*49*	*1*	*50.0*	*97 %*	*70-130*	*4L05023*	*EPA 524.2*	*12/05/14 14:23*	*GLQ*	
4-Bromofluorobenzene	*49*	*1*	*50.0*	*97 %*	*70-130*	*4L05023*	*EPA 524.2*	*12/05/14 14:23*	*GLQ*	

Semivolatile Organic Compounds by GC

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Dibromoacetic Acid (DBAA) [631-64-1]^	0.00029	U	mg/L	1	0.00029	0.0010	4L03033	EPA 552.2	12/04/14 15:50	B1G	
Dichloroacetic Acid (DCAA) [79-43-6]^	0.00033	U	mg/L	1	0.00033	0.0010	4L03033	EPA 552.2	12/04/14 15:50	B1G	
Monobromoacetic Acid (MBAA) [79-08-3]^	0.00039	U	mg/L	1	0.00039	0.0010	4L03033	EPA 552.2	12/04/14 15:50	B1G	
Monochloroacetic Acid (MCAA) [79-11-8]^	0.00023	U	mg/L	1	0.00023	0.0020	4L03033	EPA 552.2	12/04/14 15:50	B1G	
Total Haloacetic Acids^	0.0020	U	mg/L	1	0.0020	0.0020	4L03033	EPA 552.2	12/04/14 15:50	B1G	
Trichloroacetic Acid (TCAA) [76-03-9]^	0.00024	U	mg/L	1	0.00024	0.0010	4L03033	EPA 552.2	12/04/14 15:50	B1G	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,3-Dibromopropionic Acid	*0.0042*	*1*	*0.00500*	*85 %*	*70-130*	*4L03033*	*EPA 552.2*	*12/04/14 15:50*	*B1G*	

Description: Well-7,-8 Treated | **Lab Sample ID:** C415443-07 | **Received:** 12/03/14 10:05
Matrix: Drinking Water | **Sampled:** 12/02/14 15:05 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Cobalt [7440-48-4]^	**6.41**		ug/L	1	0.100	1.00	4L04009	EPA 6020A	12/04/14 13:17	VLO	
Iron [7439-89-6]^	**70.5**		ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 12:41	JDH	

Description: Well-3 Dissolved | **Lab Sample ID:** C415443-08 | **Received:** 12/03/14 10:05
Matrix: Ground Water | **Sampled:** 12/02/14 19:05 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (Dissolved) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**65.1**		ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 12:44	JDH	

Description: Well-6 Dissolved | **Lab Sample ID:** C415443-09 | **Received:** 12/03/14 10:05
Matrix: Ground Water | **Sampled:** 12/02/14 17:45 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (Dissolved) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**338**		ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 13:03	JDH	

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ANALYTICAL RESULTS

Description: Well-3,6 Treated Dissolved | **Lab Sample ID:** C415443-10 | **Received:** 12/03/14 10:05
Matrix: Drinking Water | **Sampled:** 12/02/14 18:20 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (Dissolved) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**274**		ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 13:05	JDH	

Description: Well-7 Dissolved | **Lab Sample ID:** C415443-11 | **Received:** 12/03/14 10:05
Matrix: Water | **Sampled:** 12/02/14 16:35 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (Dissolved) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**156**		ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 13:08	JDH	

Description: Well-8 Dissolved | **Lab Sample ID:** C415443-12 | **Received:** 12/03/14 10:05
Matrix: Ground Water | **Sampled:** 12/02/14 14:25 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (Dissolved) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	22.0	U	ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 13:10	JDH	

Description: Well-7,-8 Treated Dissolved | **Lab Sample ID:** C415443-13 | **Received:** 12/03/14 10:05
Matrix: Drinking Water | **Sampled:** 12/02/14 15:05 | **Work Order:** C415443
Project: Umicore | **Sampled By:** Joshua Hanks

Metals (Dissolved) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**62.6**		ug/L	1	22.0	50.0	4L04033	EPA 6010C	12/09/14 13:13	JDH	

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QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 4L05023 - EPA 524.2

Blank (4L05023-BLK1) Prepared: 12/05/2014 09:58 Analyzed: 12/05/2014 13:52

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bromodichloromethane	0.00017	U	0.00050	mg/L							
Bromoform	0.00022	U	0.00050	mg/L							
Chloroform	0.00018	U	0.00050	mg/L							
Dibromochloromethane	0.00017	U	0.00050	mg/L							
Total Trihalomethanes	0.00017	U	0.00050	mg/L							
1,2-Dichlorobenzene-d4	*48*			*ug/L*	*50.0*		*96*	*70-130*			
4-Bromofluorobenzene	*49*			*ug/L*	*50.0*		*98*	*70-130*			

LCS (4L05023-BS1) Prepared: 12/05/2014 09:58 Analyzed: 12/05/2014 12:15

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bromodichloromethane	0.0046		0.00050	mg/L	0.00500		91	70-130			
Bromoform	0.0045		0.00050	mg/L	0.00500		89	70-130			
Chloroform	0.0046		0.00050	mg/L	0.00500		91	70-130			
Dibromochloromethane	0.0044		0.00050	mg/L	0.00500		87	70-130			
1,2-Dichlorobenzene-d4	*48*			*ug/L*	*50.0*		*95*	*70-130*			
4-Bromofluorobenzene	*49*			*ug/L*	*50.0*		*98*	*70-130*			

Semivolatile Organic Compounds by GC - Quality Control

Batch 4L03033 - Same SVOA

Blank (4L03033-BLK1) Prepared: 12/03/2014 15:16 Analyzed: 12/04/2014 12:38

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Dibromoacetic Acid (DBAA)	0.00029	U	0.0010	mg/L							
Dichloroacetic Acid (DCAA)	0.00033	U	0.0010	mg/L							
Monobromoacetic Acid (MBAA)	0.00039	U	0.0010	mg/L							
Monochloroacetic Acid (MCAA)	0.00023	U	0.0020	mg/L							
Total Haloacetic Acids	0.0020	U	0.0020	mg/L							
Trichloroacetic Acid (TCAA)	0.00024	U	0.0010	mg/L							
2,3-Dibromopropionic Acid	*0.0041*			*mg/L*	*0.00500*		*82*	*70-130*			

LCS (4L03033-BS1) Prepared: 12/03/2014 15:16 Analyzed: 12/04/2014 14:00

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Dibromoacetic Acid (DBAA)	0.0054		0.0010	mg/L	0.00500		108	70-130			
Dichloroacetic Acid (DCAA)	0.014		0.0010	mg/L	0.0150		97	70-130			
Monobromoacetic Acid (MBAA)	0.010		0.0010	mg/L	0.0100		101	70-130			
Monochloroacetic Acid (MCAA)	0.015		0.0020	mg/L	0.0150		103	70-130			
Trichloroacetic Acid (TCAA)	0.0046		0.0010	mg/L	0.00500		93	70-130			
2,3-Dibromopropionic Acid	*0.0048*			*mg/L*	*0.00500*		*95*	*70-130*			

Matrix Spike (4L03033-MS1) Prepared: 12/03/2014 15:16 Analyzed: 12/04/2014 14:36

Source: C415443-06

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Dibromoacetic Acid (DBAA)	0.0052		0.0010	mg/L	0.00500	0.00029 U	105	70-130			

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GC - Quality Control

Batch 4L03033 - Same SVOA - Continued

Matrix Spike (4L03033-MS1) Continued Prepared: 12/03/2014 15:16 Analyzed: 12/04/2014 14:36

Source: C415443-06

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Dichloroacetic Acid (DCAA)	0.013		0.0010	mg/L	0.0150	0.00033 U	86	70-130			
Monobromoacetic Acid (MBAA)	0.0093		0.0010	mg/L	0.0100	0.00039 U	93	70-130			
Monochloroacetic Acid (MCAA)	0.014		0.0020	mg/L	0.0150	0.00023 U	95	70-130			
Trichloroacetic Acid (TCAA)	0.0045		0.0010	mg/L	0.00500	0.00024 U	90	70-130			
2,3-Dibromopropionic Acid	*0.0045*			*mg/L*	*0.00500*		*90*	*70-130*			

Matrix Spike (4L03033-MS2) Prepared: 12/03/2014 15:16 Analyzed: 12/04/2014 15:13

Source: C415585-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Dibromoacetic Acid (DBAA)	0.0051		0.0010	mg/L	0.00500	0.00029 U	101	70-130			
Dichloroacetic Acid (DCAA)	0.025		0.0010	mg/L	0.0150	0.0096	103	70-130			
Monobromoacetic Acid (MBAA)	0.0096		0.0010	mg/L	0.0100	0.00039 U	96	70-130			
Monochloroacetic Acid (MCAA)	0.016		0.0020	mg/L	0.0150	0.00023 U	105	70-130			
Trichloroacetic Acid (TCAA)	0.0091		0.0010	mg/L	0.00500	0.0049	83	70-130			
2,3-Dibromopropionic Acid	*0.0045*			*mg/L*	*0.00500*		*90*	*70-130*			

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 4L04009 - EPA 3005A

Blank (4L04009-BLK1) Prepared: 12/04/2014 09:11 Analyzed: 12/04/2014 13:10

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Cobalt	0.100	U	1.00	ug/L							

LCS (4L04009-BS1) Prepared: 12/04/2014 09:11 Analyzed: 12/04/2014 13:14

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Cobalt	196		1.00	ug/L	200		98	80-120			

Matrix Spike (4L04009-MS1) Prepared: 12/04/2014 09:11 Analyzed: 12/04/2014 13:21

Source: C415443-07

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Cobalt	193		1.00	ug/L	200	6.41	93	75-125			

Matrix Spike Dup (4L04009-MSD1) Prepared: 12/04/2014 09:11 Analyzed: 12/04/2014 13:25

Source: C415443-07

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Cobalt	196		1.00	ug/L	200	6.41	95	75-125	2	20	

Post Spike (4L04009-PS1) Prepared: 12/04/2014 09:11 Analyzed: 12/04/2014 13:28

Source: C415443-07

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Cobalt	200		1.00	ug/L	200	6.41	97	80-120			

Batch 4L04033 - EPA 3005A

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QUALITY CONTROL DATA

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 4L04033 - EPA 3005A - Continued

Blank (4L04033-BLK1) Prepared: 12/04/2014 15:42 Analyzed: 12/09/2014 12:03

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	22.0	U	50.0	ug/L							

LCS (4L04033-BS1) Prepared: 12/04/2014 15:42 Analyzed: 12/09/2014 12:08

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	1070		50.0	ug/L	1000		107	80-120			

Matrix Spike (4L04033-MS1) Prepared: 12/04/2014 15:42 Analyzed: 12/09/2014 12:21

Source: C415443-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	1160		50.0	ug/L	1000	79.8	108	75-125			

Matrix Spike Dup (4L04033-MSD1) Prepared: 12/04/2014 15:42 Analyzed: 12/09/2014 12:24

Source: C415443-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	1130		50.0	ug/L	1000	79.8	105	75-125	2	20	

Post Spike (4L04033-PS1) Prepared: 12/04/2014 15:42 Analyzed: 12/09/2014 12:26

Source: C415443-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	1.03		0.0500	mg/L	1.00	0.0798	95	80-120			

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control

Batch 4L04033 - EPA 3005A

Blank (4L04033-BLK2) Prepared: 12/04/2014 15:42 Analyzed: 12/09/2014 12:06

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	22.0	U	50.0	ug/L							

LCS (4L04033-BS1) Prepared: 12/04/2014 15:42 Analyzed: 12/09/2014 12:08

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	1070		50.0	ug/L	1000		107	80-120			

Matrix Spike (4L04033-MS1) Prepared: 12/04/2014 15:42 Analyzed: 12/09/2014 12:21

Source: C415443-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	1160		50.0	ug/L	1000	79.8	108	75-125			

Matrix Spike Dup (4L04033-MSD1) Prepared: 12/04/2014 15:42 Analyzed: 12/09/2014 12:24

Source: C415443-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	1130		50.0	ug/L	1000	79.8	105	75-125	2	20	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control

Batch 4L04033 - EPA 3005A - Continued

Post Spike (4L04033-PS1) Prepared: 12/04/2014 15:42 Analyzed: 12/09/2014 12:26

Source: C415443-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	1.03		0.0500	mg/L	1.00	0.0798	95	80-120			

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

FLAGS/NOTES AND DEFINITIONS

B	The analyte was detected in the associated method blank.
D	The sample was analyzed at dilution.
J	The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content, where applicable.
U	The analyte was analyzed for but not detected to the level shown, adjusted for actual sample preparation data and moisture content, where applicable.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
MRL	Method Reporting Limit. The MRL is roughly equivalent to the practical quantitation limit (PQL) and is based on the low point of the calibration curve, when applicable, sample preparation factor, dilution factor, and, in the case of soil samples, moisture content.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence (85% or greater confidence) to make a "tentative identification".
P	Greater than 25% concentration difference was observed between the primary and secondary GC column. The lower concentration is reported.

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ENVIRONMENTAL CONSERVATION LABORATORIES CHAIN-OF-CUSTODY RECORD

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102-A Woodwinds Industrial Ct.
Cary, NC 27511
(919) 467-3090 Fax (919) 467-3515

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Client Name: Duncklee & Dunham, PC (DU009)	Project Number: 200917
Address: 511 Keisler Drive, Suite 102	Project Name/Desc: Umicore
City/ST/Zip: Cary, NC 27518	PO # / Billing Info:
Tel: (919) 858-9898 Fax:	Reporting Contact: Matt Flinchum
Sampler(s) Name, Affiliation (Print): Joshua Hanks	Billing Contact: Matt Flinchum
Sampler(s) Signature: [signature]	Site Location / Time Zone:

Requested Analyses: Co; Co,Fe; Fe/F; THM x 524.2; HAA x 552.2

Requested Turnaround Times

Note : Rush requests subject to acceptance by the facility

✓ Standard

X Expedited

Due __/__/__

Lab Workorder: C415443

Preservation (See Codes) (Combine as necessary)

Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers	Co	Co,Fe	Fe/F	THM x 524.2	HAA x 552.2	Sample Comments
	Well-3	12/2/2014	1905	Grab	GW	~~12~~	X	X	X			
	Well-6	↓	1745	↓	GW	~~12~~	X	X	X			
	Well-3,6 Treated		1820		DW ~~GW~~	~~12~~	X	X	X			
	Well-7		1635		GW	~~18~~	X	X	X	X	X	
	Well-8		1425		GW	2	X	X	X			
	Well-7,-8 Treated	↓	1505	↓	DW	2	X	X	X			

<-- Total # of Containers

Sample Kit Prepared By: [signature]	Date/Time: 12/1/14	Relinquished By: [signature]	Date/Time: 12/2/14 2100
Comments/Special Reporting Requirements: Need ~~&~~ Results back as soon as possible. ~~Everything else is standard TAT~~ ALL Results on 24 hour TAT.		Relinquished By: [signature]	Date/Time: 12/3/14 1005
		Relinquished By:	Date/Time:
		Cooler #'s & Temps on Receipt: C-899 2.6	

Received By: [signature]	Date/Time: 12/2/14 2100
Received By: [signature]	Date/Time: 12/3/14 1005
Received By:	Date/Time:
Condition Upon Receipt: X Acceptable ___ Unacceptable	

Matrix : GW-Groundwater SO-Soil DW-Drinking Water SE-Sediment SW-Surface Water WW-Wastewater A-Air O-Other (detail in comments) Preservation: I-Ice H-HCl N-HNO3 S-H2SO4 NO-NaOH O-Other (detail in comments)

Note : All samples submitted to ENCO Labs are in accordance with the terms and conditions listed on the reverse of this form, unless prior written agreements exist

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Est. 1970

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

Report Summary

Thursday December 11, 2014

Report Number: L736894
Samples Received: 12/04/14
Client Project: 200917

Description: Umicore Maxton Facility

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

Entire Report Reviewed By: Jimmy Hunt

Jimmy Hunt , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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Est. 1970

REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

December 11, 2014

ESC Sample # : L736894-01

Date Received : December 04, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : WELL-3

Project # : 200917

Collected By : Hanks
Collection Date : 12/02/14 19:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	3.7	0.26	2.0	ug/l		6020	12/04/14	1
Iron	69.	14.	100	ug/l	J	6010C	12/05/14	1
Iron,Dissolved	56.	14.	100	ug/l	J	6010C	12/04/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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Reported: 12/11/14 09:37 Printed: 12/11/14 09:37

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

December 11, 2014

ESC Sample # : L736894-02

Date Received : December 04, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : WELL-6

Project # : 200917

Collected By : Hanks
Collection Date : 12/02/14 17:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	7.2	0.26	2.0	ug/l		6020	12/04/14	1
Iron	320	14.	100	ug/l		6010C	12/05/14	1
Iron,Dissolved	310	14.	100	ug/l		6010C	12/04/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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.
Reported: 12/11/14 09:37 Printed: 12/11/14 09:37

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

December 11, 2014

ESC Sample # : L736894-03

Date Received : December 04, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : WELL-3-6 TREATED

Project # : 200917

Collected By : Hanks
Collection Date : 12/02/14 18:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	4.6	0.26	2.0	ug/l		6020	12/04/14	1
Iron	260	14.	100	ug/l		6010C	12/05/14	1
Iron,Dissolved	250	14.	100	ug/l		6010C	12/04/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

December 11, 2014

ESC Sample # : L736894-04

Date Received : December 04, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : WELL-7

Project # : 200917

Collected By : Hanks
Collection Date : 12/02/14 16:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	9.6	0.26	2.0	ug/l		6020	12/04/14	1
Iron	160	14.	100	ug/l		6010C	12/05/14	1
Iron,Dissolved	130	14.	100	ug/l		6010C	12/04/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

December 11, 2014

ESC Sample # : L736894-05

Date Received : December 04, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : WELL-8

Project # : 200917

Collected By : Hanks
Collection Date : 12/02/14 14:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	5.0	0.26	2.0	ug/l		6020	12/04/14	1
Iron	46.	14.	100	ug/l	J	6010C	12/05/14	1
Iron,Dissolved	19.	14.	100	ug/l	J	6010C	12/04/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

December 11,2014

ESC Sample # : L736894-06

Date Received : December 04, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : WELL-7-8 TREATED

Project # : 200917

Collected By : Hanks
Collection Date : 12/02/14 15:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cobalt	7.0	0.26	2.0	ug/l		6020	12/04/14	1
Iron	74.	14.	100	ug/l	J	6010C	12/05/14	1
Iron,Dissolved	56.	14.	100	ug/l	J	6010C	12/04/14	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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.
Reported: 12/11/14 09:37 Printed: 12/11/14 09:37

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REPORT OF ANALYSIS

Matt Flinchum
Duncklee and Dunham
PO Box 639
Cary, NC 27512

December 11,2014

ESC Sample # : L736894-07

Date Received : December 04, 2014
Description : Umicore Maxton Facility

Site ID : MAXTON, NC

Sample ID : WELL-7

Project : 200917

Collected By : Hanks
Collection Date : 12/02/14 16:35

Parameter	Result	Det. Limit	Units	Limit	Method	Date/Time	By	Dil
Chlorine,residual	0.15	0.10	mg/l		4500Cl	12/09/14 1316	KBC	1
Chloroform	BDL	0.00100	mg/l		524.2	12/08/14 1407	JAH	1
Bromodichloromethane	BDL	0.00100	mg/l		524.2	12/08/14 1407	JAH	1
Chlorodibromomethane	BDL	0.00100	mg/l		524.2	12/08/14 1407	JAH	1
Bromoform	BDL	0.00100	mg/l		524.2	12/08/14 1407	JAH	1
Total Trihalomethanes	BDL	0.00100	mg/l	0.0800	524.2	12/08/14 1407	JAH	1
Bromoacetic Acid	BDL	0.00100	mg/l		552.2	12/08/14 1934	HMH	1
Chloroacetic Acid	BDL	0.00200	mg/l		552.2	12/08/14 1934	HMH	1
Dibromoacetic Acid	BDL	0.00100	mg/l		552.2	12/08/14 1934	HMH	1
Dichloroacetic Acid	BDL	0.00100	mg/l		552.2	12/08/14 1934	HMH	1
Trichloroacetic Acid	BDL	0.00100	mg/l		552.2	12/08/14 1934	HMH	1
Total Haloacetic Acids	BDL	0.00100	mg/l	0.0600	552.2	12/08/14 1934	HMH	1

BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)
Limit - Maximum Contaminant Level as established by the US EPA
Note:
The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC.
.
Reported: 12/11/14 09:37 Printed: 12/11/14 09:37

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L736894-01	WG758115	SAMP	Iron	R3008327	J
	WG758144	SAMP	Iron,Dissolved	R3008230	J
L736894-05	WG758115	SAMP	Iron	R3008327	J
	WG758144	SAMP	Iron,Dissolved	R3008230	J
L736894-06	WG758115	SAMP	Iron	R3008327	J
	WG758144	SAMP	Iron,Dissolved	R3008230	J
L736894-07	WG758365	SAMP	Chlorine,residual	R3008897	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

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

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
12/11/14 at 09:37:33

TSR Signing Reports: 350
R2 - Rush: Next Day

MDL/RDL; Use ASG, COG, TLG not ICP on GW; Attach COC to back of report PDF; PPB

Sample: L736894-01 Account: DUNDUNNC Received: 12/04/14 09:30 Due Date: 12/05/14 00:00 RPT Date: 12/11/14 09:37

Sample: L736894-02 Account: DUNDUNNC Received: 12/04/14 09:30 Due Date: 12/05/14 00:00 RPT Date: 12/11/14 09:37

Sample: L736894-03 Account: DUNDUNNC Received: 12/04/14 09:30 Due Date: 12/05/14 00:00 RPT Date: 12/11/14 09:37

Sample: L736894-04 Account: DUNDUNNC Received: 12/04/14 09:30 Due Date: 12/05/14 00:00 RPT Date: 12/11/14 09:37

Sample: L736894-05 Account: DUNDUNNC Received: 12/04/14 09:30 Due Date: 12/05/14 00:00 RPT Date: 12/11/14 09:37

Sample: L736894-06 Account: DUNDUNNC Received: 12/04/14 09:30 Due Date: 12/05/14 00:00 RPT Date: 12/11/14 09:37

Sample: L736894-07 Account: DUNDUNNC Received: 12/04/14 09:30 Due Date: 12/11/14 00:00 RPT Date: 12/11/14 09:37

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Duncklee and Dunham
Matt Flinchum
PO Box 639

Cary, NC 27512

Quality Assurance Report
Level II

L736894

December 11, 2014

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Cobalt	< .001	mg/l			WG758116	12/04/14 16:20
Iron,Dissolved	< .1	mg/l			WG758144	12/04/14 14:50
Iron	< .1	mg/l			WG758115	12/05/14 03:59
Bromoacetic Acid	< .001	mg/l			WG758705	12/08/14 19:01
Chloroacetic Acid	< .002	mg/l			WG758705	12/08/14 19:01
Dibromoacetic Acid	< .001	mg/l			WG758705	12/08/14 19:01
Dichloroacetic Acid	< .001	mg/l			WG758705	12/08/14 19:01
Total Haloacetic Acids	< .001	mg/l			WG758705	12/08/14 19:01
Trichloroacetic Acid	< .001	mg/l			WG758705	12/08/14 19:01
Bromodichloromethane	< .001	mg/l			WG758715	12/08/14 11:10
Bromoform	< .001	mg/l			WG758715	12/08/14 11:10
Chlorodibromomethane	< .001	mg/l			WG758715	12/08/14 11:10
Chloroform	< .001	mg/l			WG758715	12/08/14 11:10
Total Trihalomethanes	< .001	mg/l			WG758715	12/08/14 11:10
Chlorine,residual	< .1	mg/l			WG758365	12/09/14 13:16

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Chlorine,residual	mg/l	0.150	0.150	0.0	20	L736894-07	WG758365

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Cobalt	mg/l	.05	0.0483	97.0	80-120	WG758116
Iron,Dissolved	mg/l	1	0.960	96.0	80-120	WG758144
Iron	mg/l	1	0.970	97.0	80-120	WG758115
Bromoacetic Acid	mg/l	.03	0.0286	95.3	70-130	WG758705
Chloroacetic Acid	mg/l	.03	0.0293	97.7	70-130	WG758705
Dibromoacetic Acid	mg/l	.03	0.0299	99.6	70-130	WG758705
Dichloroacetic Acid	mg/l	.03	0.0301	100.	70-130	WG758705
Trichloroacetic Acid	mg/l	.03	0.0326	109.	70-130	WG758705
Chlorine,residual	mg/l	2.27	2.30	101.	85-115	WG758365

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Cobalt	mg/l	0.0506	0.0483	101.	80-120	5.00	20	WG758116
Iron,Dissolved	mg/l	0.962	0.960	96.0	80-120	0.0	20	WG758144

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Matt Flinchum
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Cary, NC 27512

Quality Assurance Report
Level II

L736894

December 11, 2014

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Iron	mg/l	0.964	0.970	96.0	80-120	1.00	20	WG758115
Bromoacetic Acid	mg/l	0.0321	0.0286	107.	70-130	11.5	25	WG758705
Chloroacetic Acid	mg/l	0.0326	0.0293	109.	70-130	10.6	25	WG758705
Dibromoacetic Acid	mg/l	0.0325	0.0299	108.	70-130	8.53	25	WG758705
Dichloroacetic Acid	mg/l	0.0336	0.0301	112.	70-130	10.8	25	WG758705
Trichloroacetic Acid	mg/l	0.0359	0.0326	120.	70-130	9.71	25	WG758705
Chlorine,residual	mg/l	2.30	2.30	101.	85-115	0.0	20	WG758365

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Iron,Dissolved	mg/l	1.01	0.0561	1	96.0	75-125	L736894-01	WG758144
Iron	mg/l	1.03	0.0736	1	96.0	75-125	L736894-06	WG758115
Chlorine,residual	mg/l	2.40	0.150	2.27	99.0	80-120	L736894-07	WG758365

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Iron,Dissolved	mg/l	1.01	1.01	95.1	75-125	1.00	20	L736894-01	WG758144
Iron	mg/l	1.02	1.03	94.8	75-125	1.00	20	L736894-06	WG758115
Chlorine,residual	mg/l	2.40	2.40	99.1	80-120	0.0	20	L736894-07	WG758365

Serial Dilution

Batch number /Run number / Sample number cross reference

WG758116: R3008224: L736894-01 02 03 04 05 06
WG758144: R3008230: L736894-01 02 03 04 05 06
WG758115: R3008327: L736894-01 02 03 04 05 06
WG758705: R3008868 R3009120: L736894-07
WG758715: R3008896: L736894-07
WG758365: R3008897: L736894-07

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

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Duncklee and Dunham
Matt Flinchum
PO Box 639

Cary, NC 27512

Quality Assurance Report
Level II

L736894

December 11, 2014

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

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

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

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

Company Name/Address:
Duncklee & Dunham
511 Keisler Dr.
Cary, North Carolina 27518

Billing Information: Same

Report to: **Matt Flinchum**

Email To: dave@dunckleedunham.com
matt@dunckleedunham.com

Project Description: **Umicore Maxton Facility**

City/State Collected: **Maxton, NC**

Phone: **919-858-9898**
Fax: **919-858-9899**

Client Project # **200917**

Lab Project #

Collected by (print): Hanks

Site/Facility ID #

P.O. # 24hr TAT 12-5-14

Collected by (signature): [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: ~~Standard TAT~~

Email? ___No ✓Yes
FAX? ✓No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

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YOUR LAB OF CHOICE
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Mount Juliet, TN 37122
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Phone: 800-767-5859
Fax: 615-758-5859

L# L736894

D057

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Co x 6020: 500 HDPE-Nitric <2	Fe x 6010B: 500 HDPE-Nitric <2	Dissolved Fe: 500 HDPE-NoPres	THM x 524.2	HAA x 552.2	Residual Chlorine					Rem./Contaminant	Sample # (lab only)
Well-3	Grab	~~DW~~ GW	—	12/2/14	1905	3~~2~~	X	X	X									-01
Well-6	↓	GW	—	↓	1745	3~~2~~	X	↓	↓									02
Well-3,-6 Treated	↓	DW	—	↓	1815	3~~2~~	X	↓	↓									03
Well-7	↓	GW	—	↓	1635	11 ~~2~~	X	X	X	X	X	X						04/07
Well-8	↓	GW	—	↓	1425	3~~2~~	X	↓	↓									05
Well-7,-8 Treated	↓	DW	—	↓	1505	3~~2~~	X	↓	↓									06

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

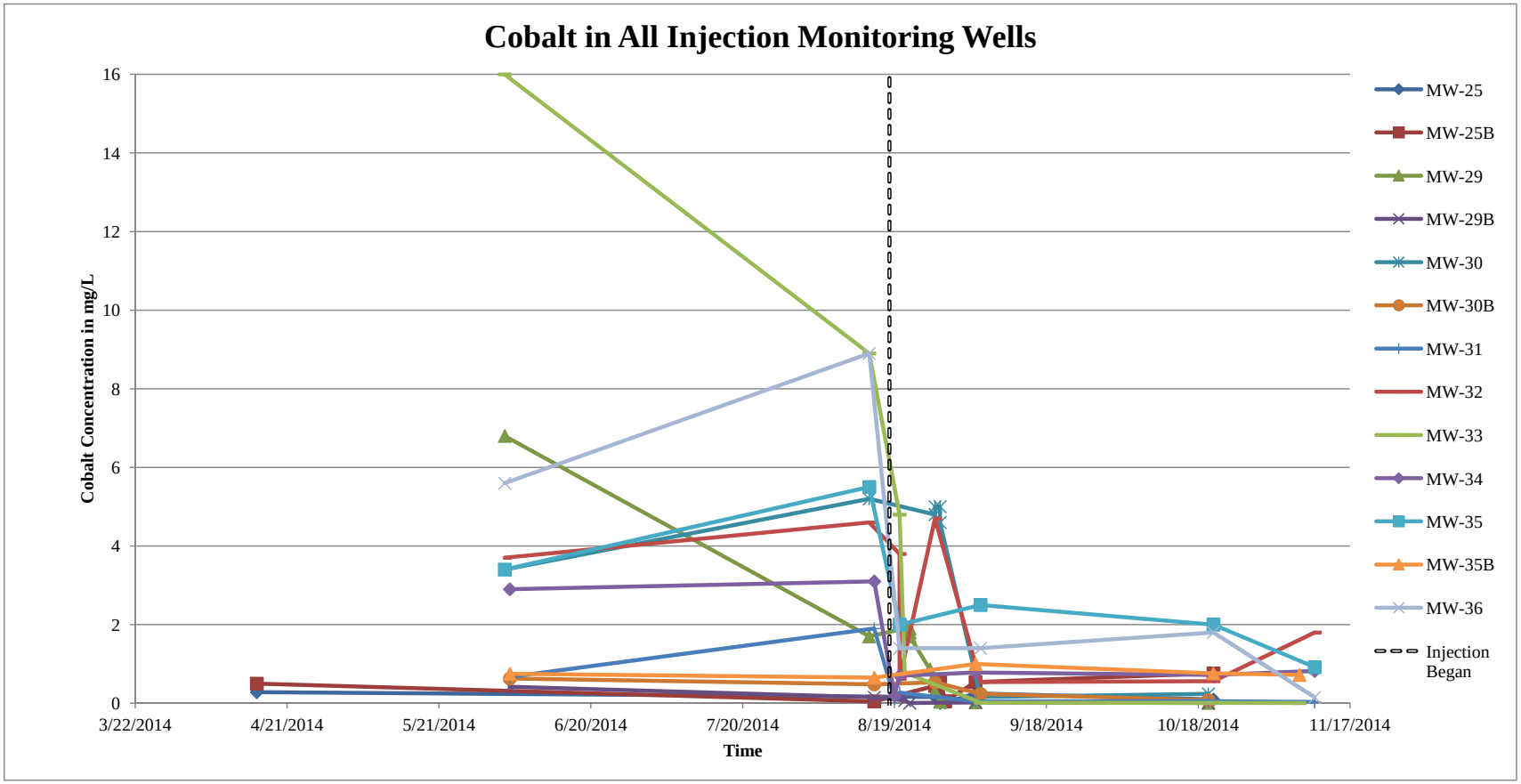
pH _____ Temp _____
Flow _____ Other _____

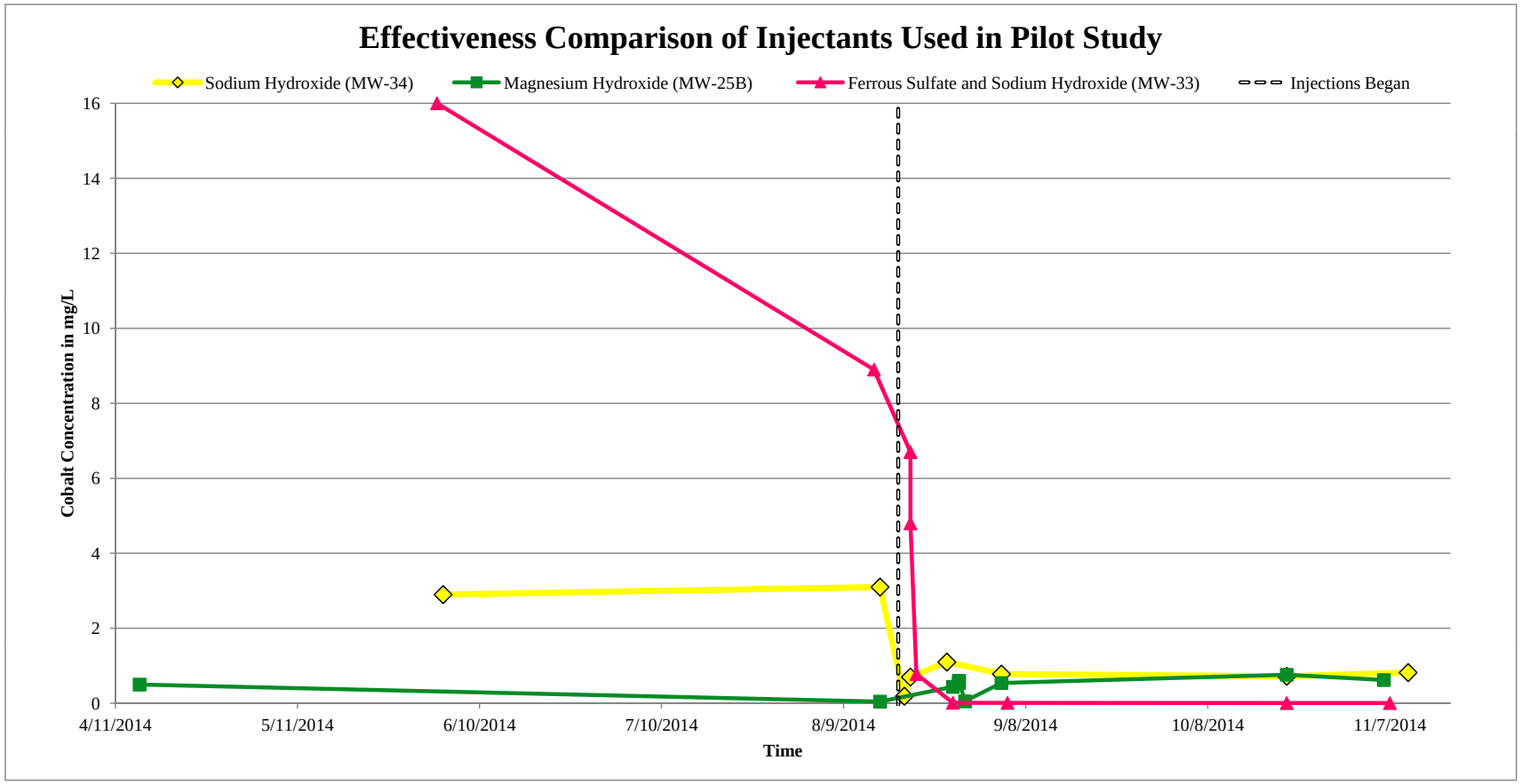
Remarks: Rush Results 24 hr TAT

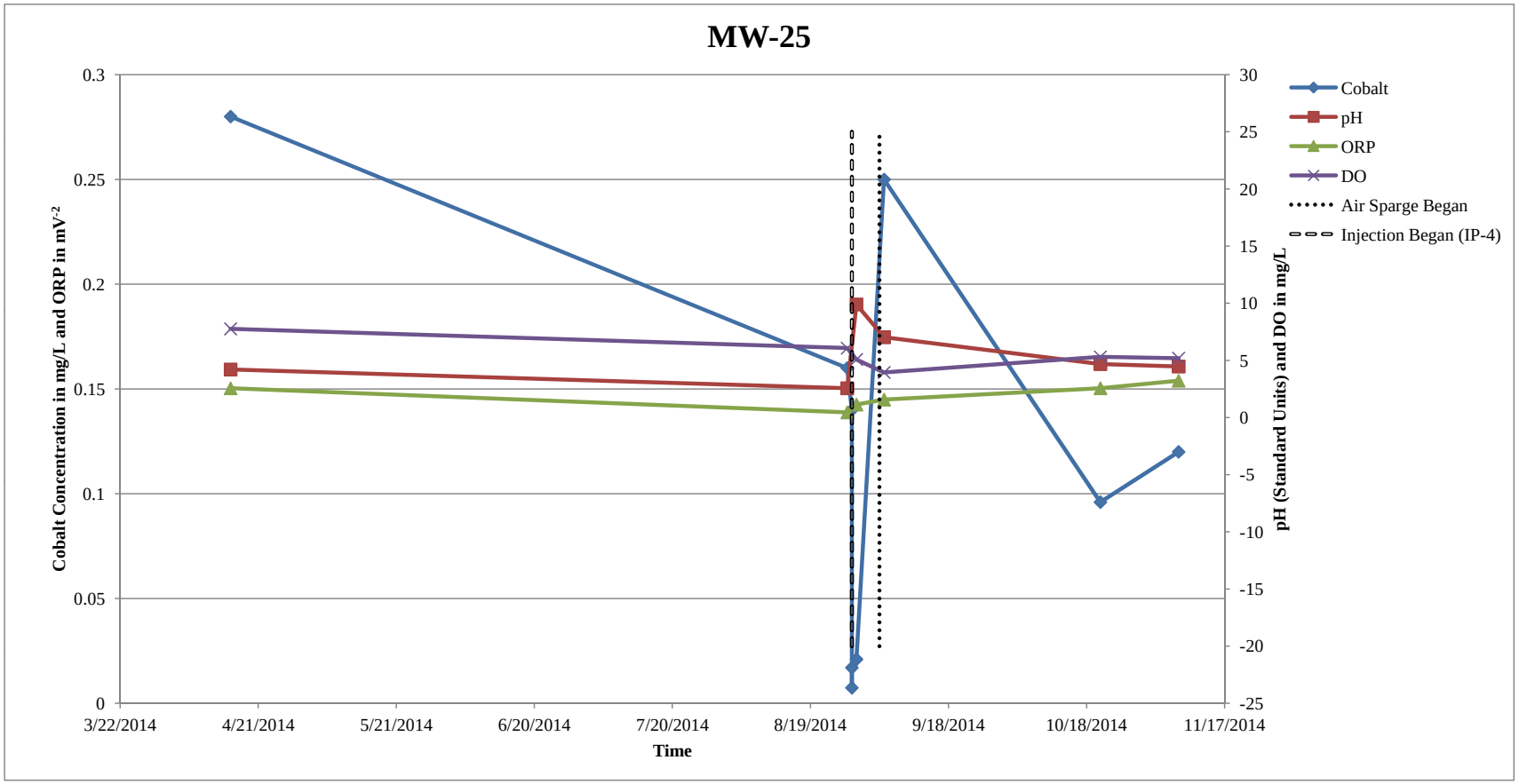
Hold #

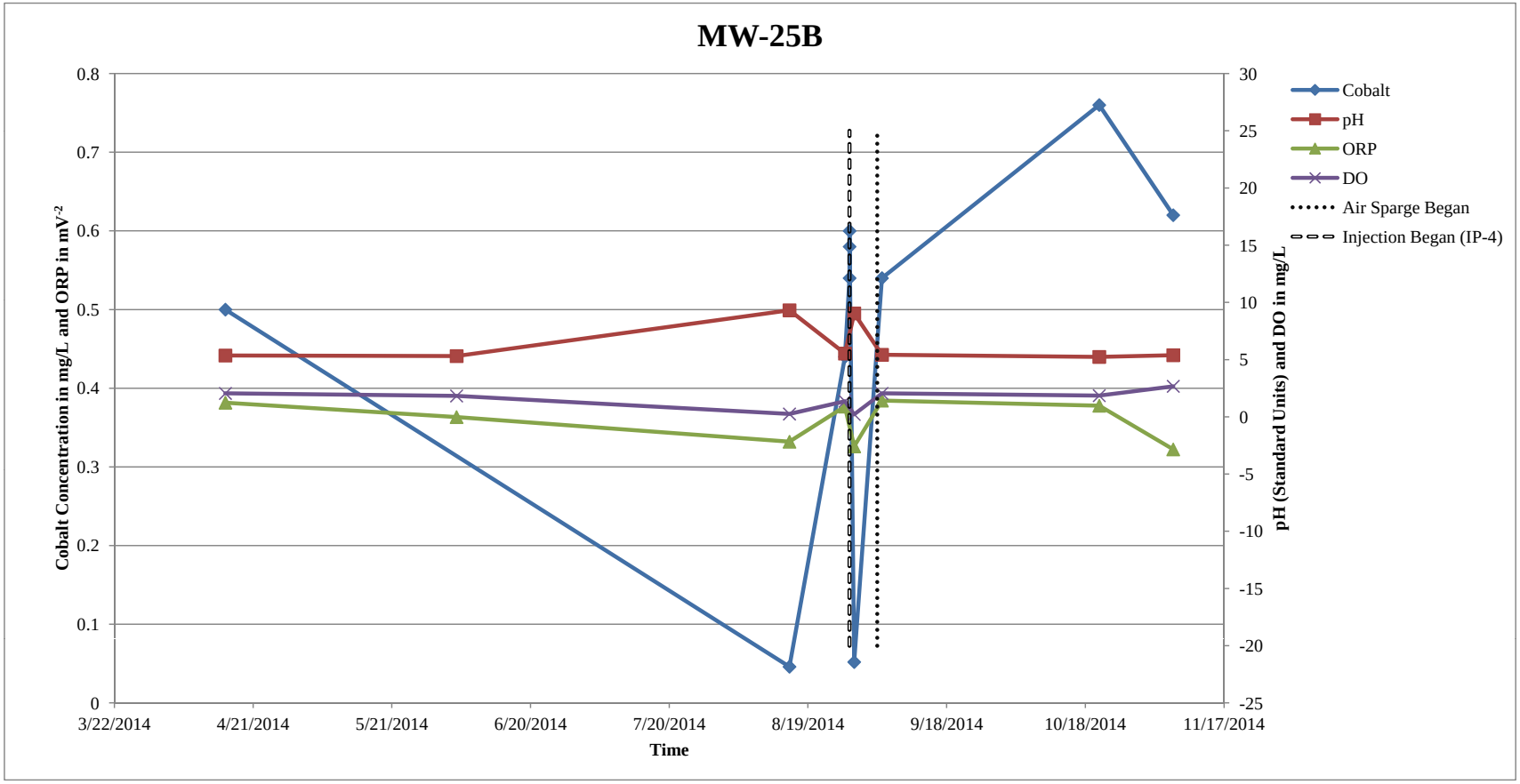
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☒ Sub	Condition: (lab use only)
[signature]	12/2/14	~~5:00~~ 2100 10MF	[signature]		K
Relinquished by : (Signature) [signature]	Date: 12/3/14	Time: 17:40	Received by: (Signature) [signature]	Temp: 2.1 °C Bottles Received: 26	COC Seal Intact: ✓Y ___N ___NA
Relinquished by : (Signature) [signature]	Date: 12/3/14	Time: 17:45	Received for lab by : (Signature) [signature]	Date: 12/4/14 Time: 0930	pH Checked: <2 NCF:

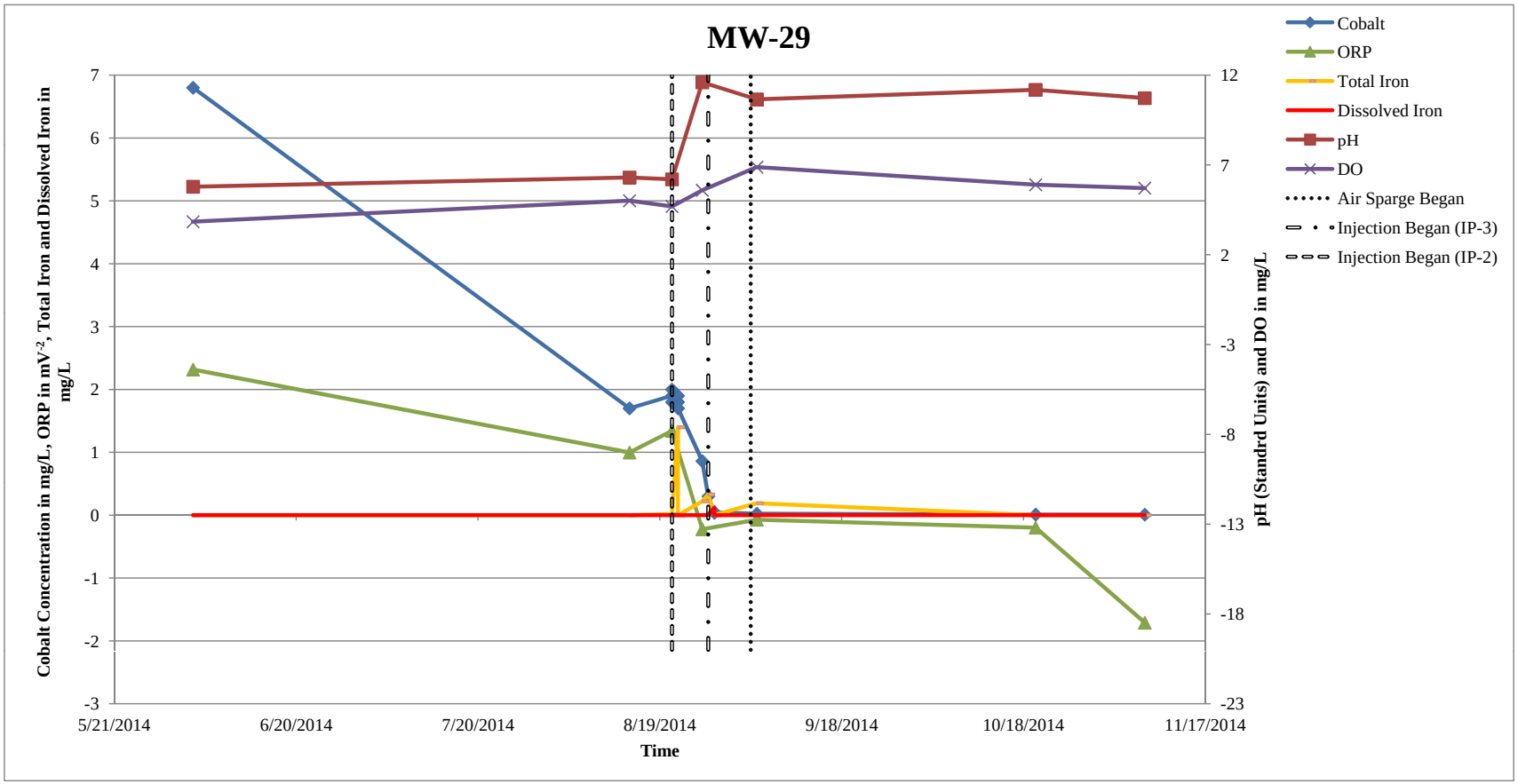
Appendix C

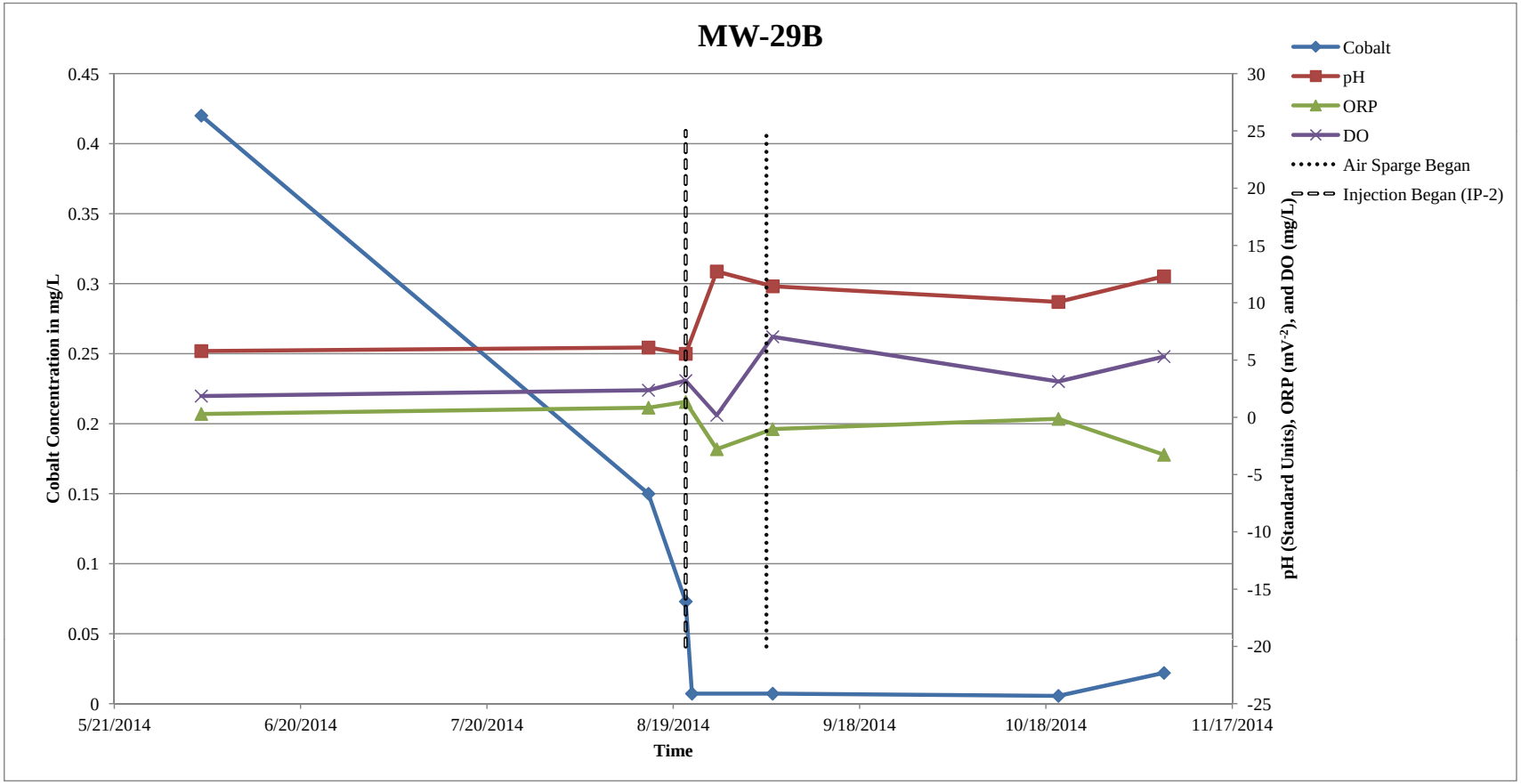

Cobalt in All Injection Monitoring Wells
Cobalt Concentration in mg/L
16
14
12
10
8
6
4
2
0
3/22/2014
4/21/2014
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Time
MW-25
MW-25B
MW-29
MW-29B
MW-30
MW-30B
MW-31
MW-32
MW-33
MW-34
MW-35
MW-35B
MW-36
Injection Began

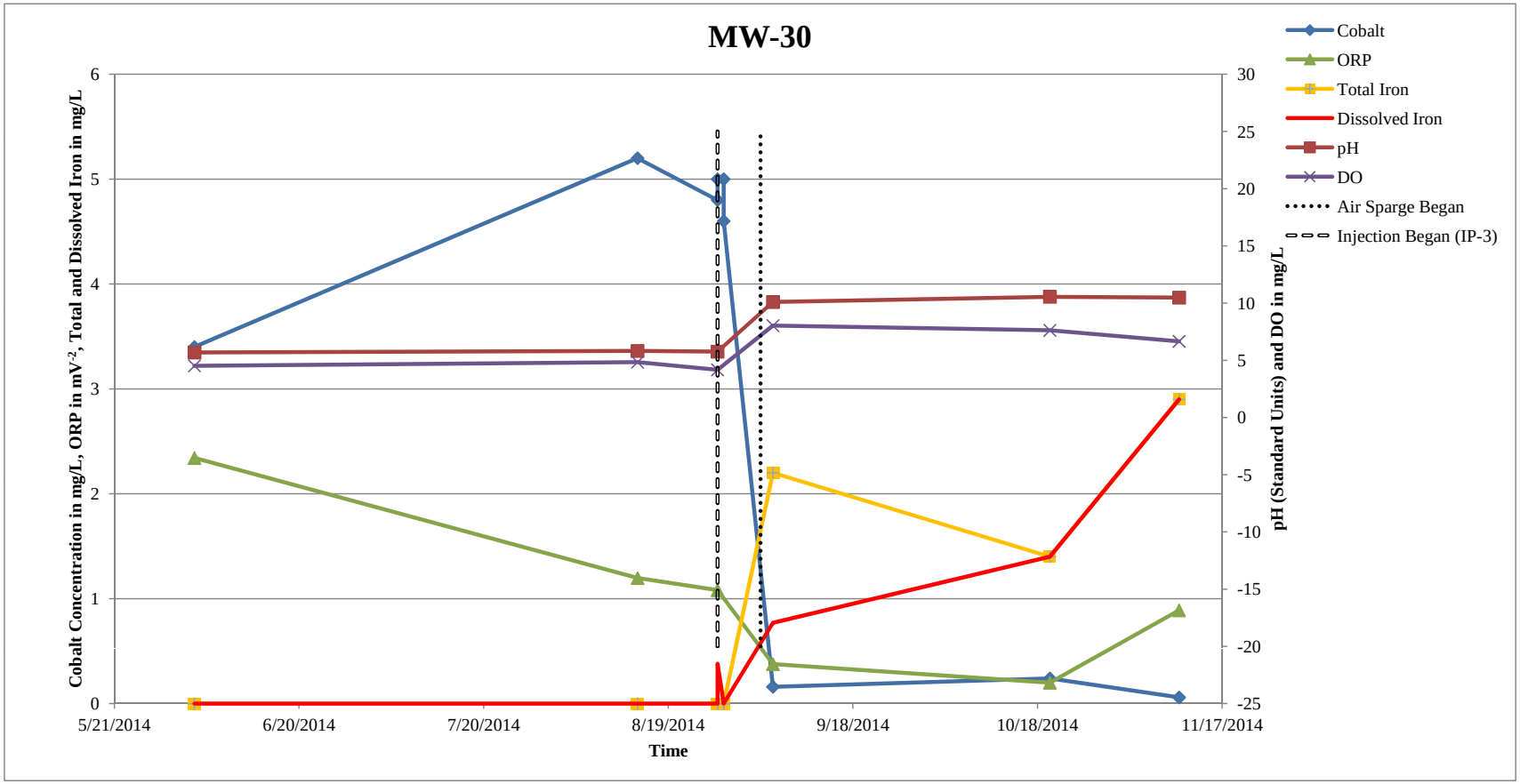

Effectiveness Comparison of Injectants Used in Pilot Study
Sodium Hydroxide (MW-34)
Magnesium Hydroxide (MW-25B)
Ferrous Sulfate and Sodium Hydroxide (MW-33)
Injections Began
Cobalt Concentration in mg/L
16
14
12
10
8
6
4
2
0
4/11/2014
5/11/2014
6/10/2014
7/10/2014
8/9/2014
9/8/2014
10/8/2014
11/7/2014
Time

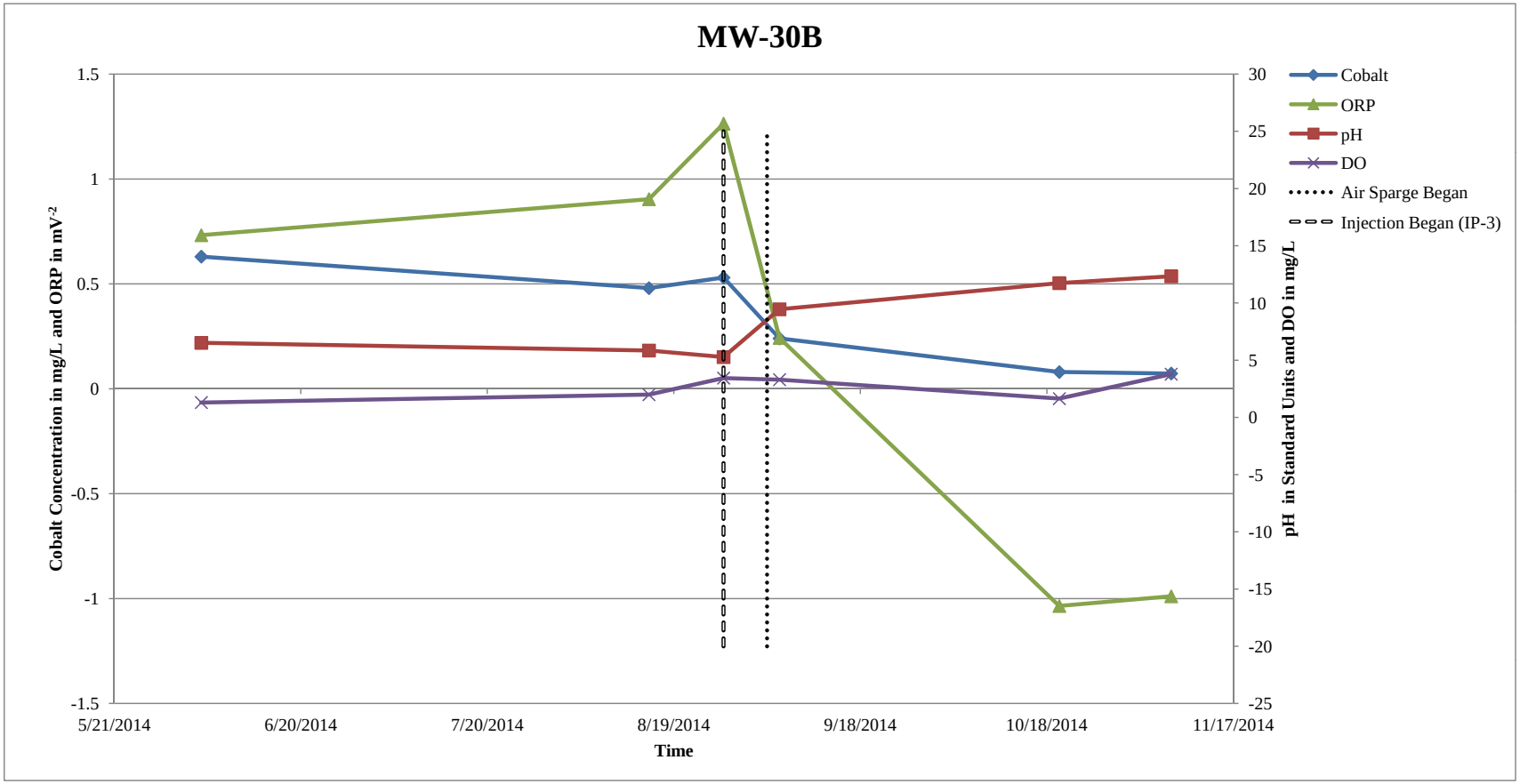

MW-25
Cobalt Concentration in mg/L and ORP in mV-2
pH (Standard Units) and DO in mg/L
Time
0.3
0.25
0.2
0.15
0.1
0.05
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
3/22/2014
4/21/2014
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
pH
ORP
DO
Air Sparge Began
Injection Began (IP-4)

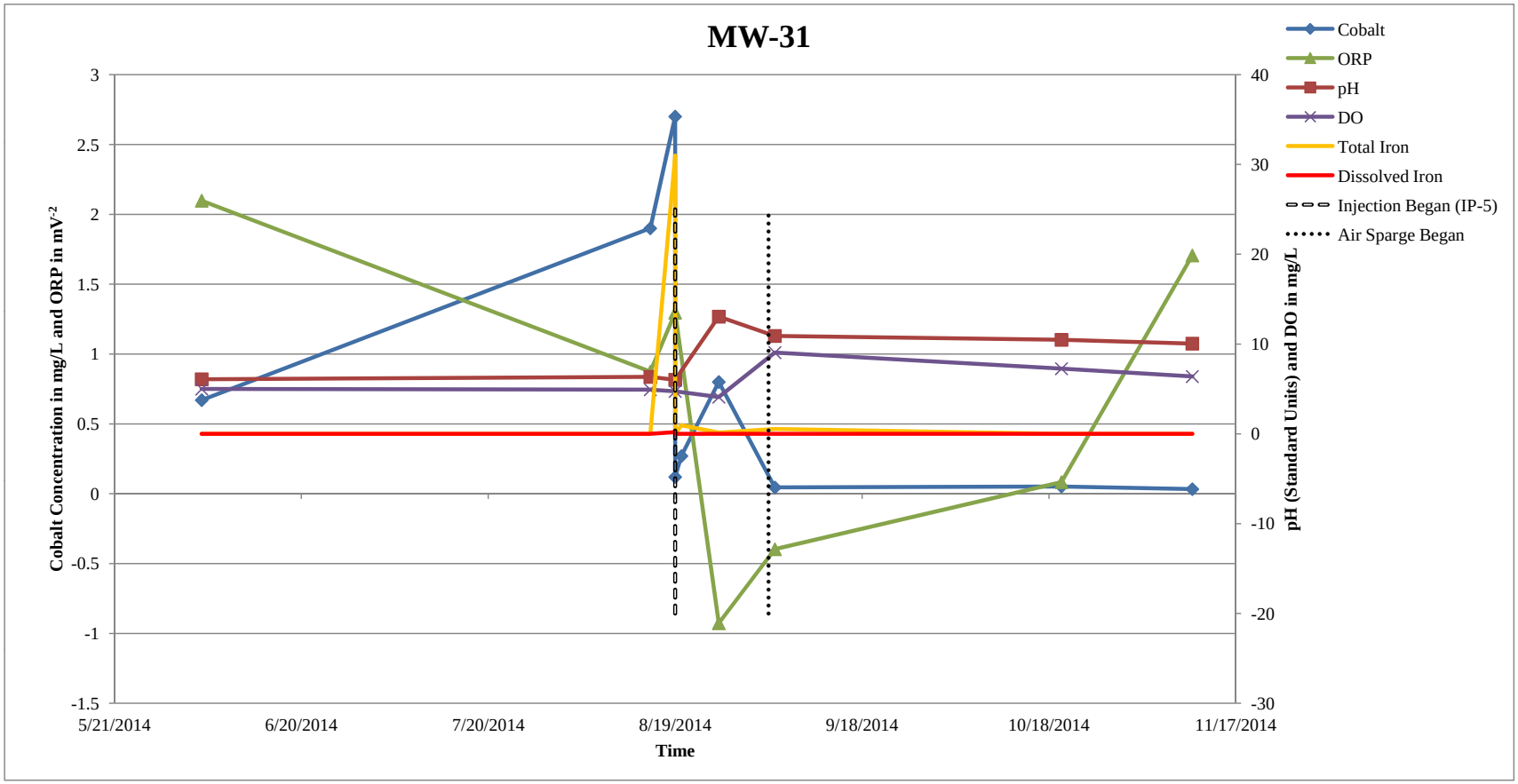

MW-25B
Cobalt Concentration in mg/L and ORP in mV-2
pH (Standard Units) and DO in mg/L
Time
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
3/22/2014
4/21/2014
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
pH
ORP
DO
Air Sparge Began
Injection Began (IP-4)

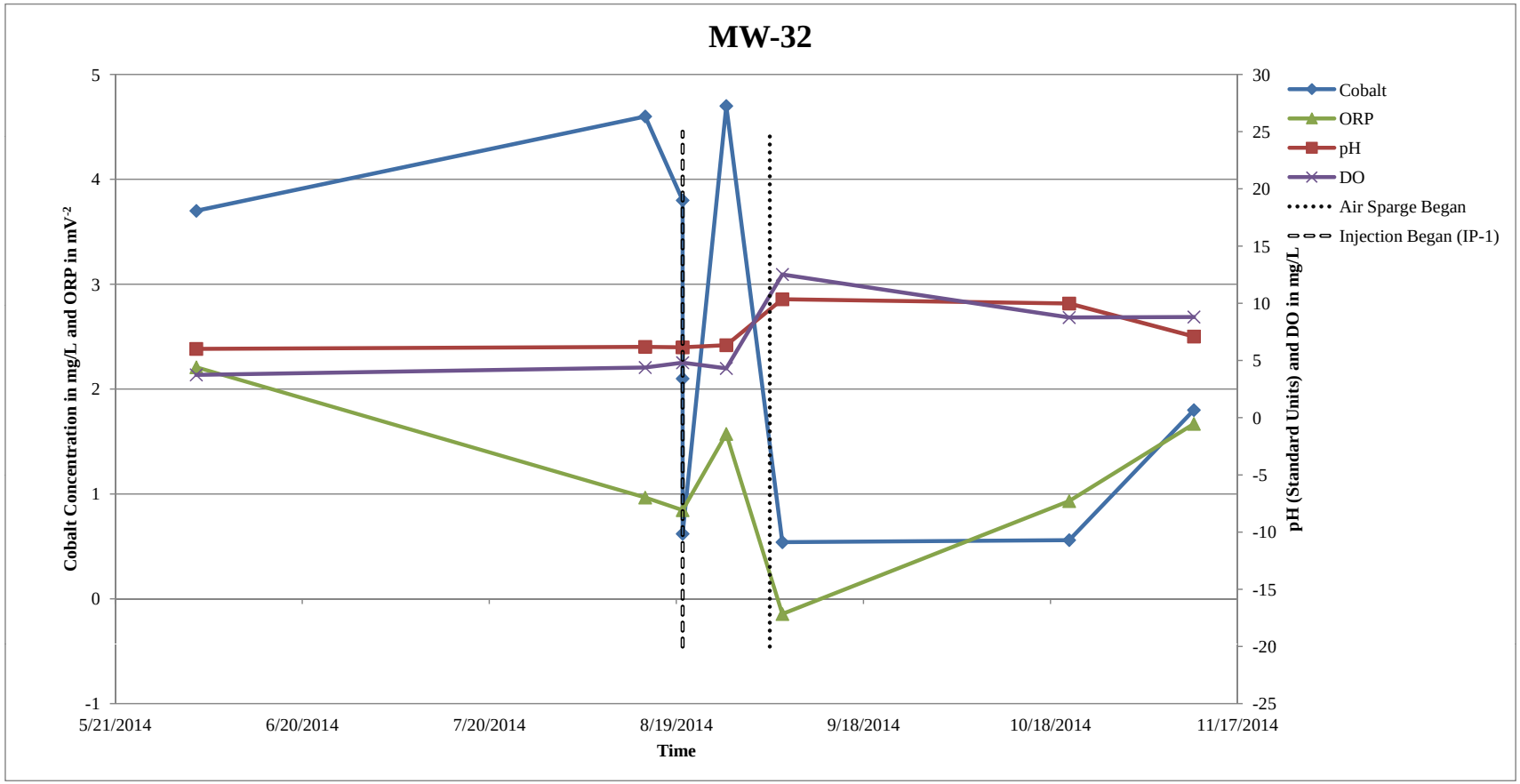

MW-29
Cobalt Concentration in mg/L, ORP in mV-2, Total Iron and Dissolved Iron in mg/L
pH (Standrd Units) and DO in mg/L
Time
7
6
5
4
3
2
1
0
-1
-2
-3
12
7
2
-3
-8
-13
-18
-23
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
ORP
Total Iron
Dissolved Iron
pH
DO
Air Sparge Began
Injection Began (IP-3)
Injection Began (IP-2)

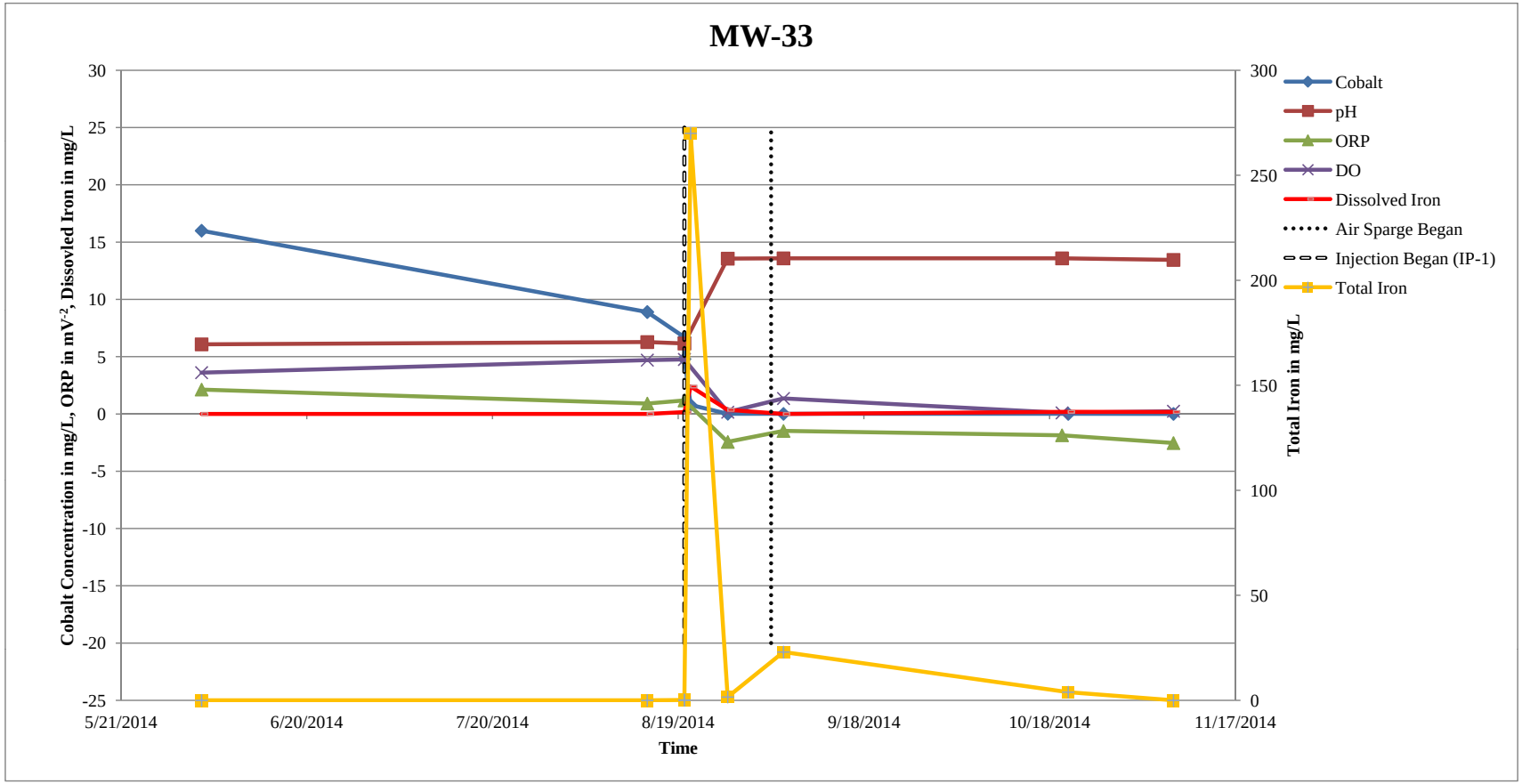

MW-29B
Cobalt
pH
ORP
DO
Air Sparge Began
Injection Began (IP-2)
Cobalt Concentration in mg/L
pH (Standard Units), ORP (mV-2), and DO (mg/L)
Time
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014

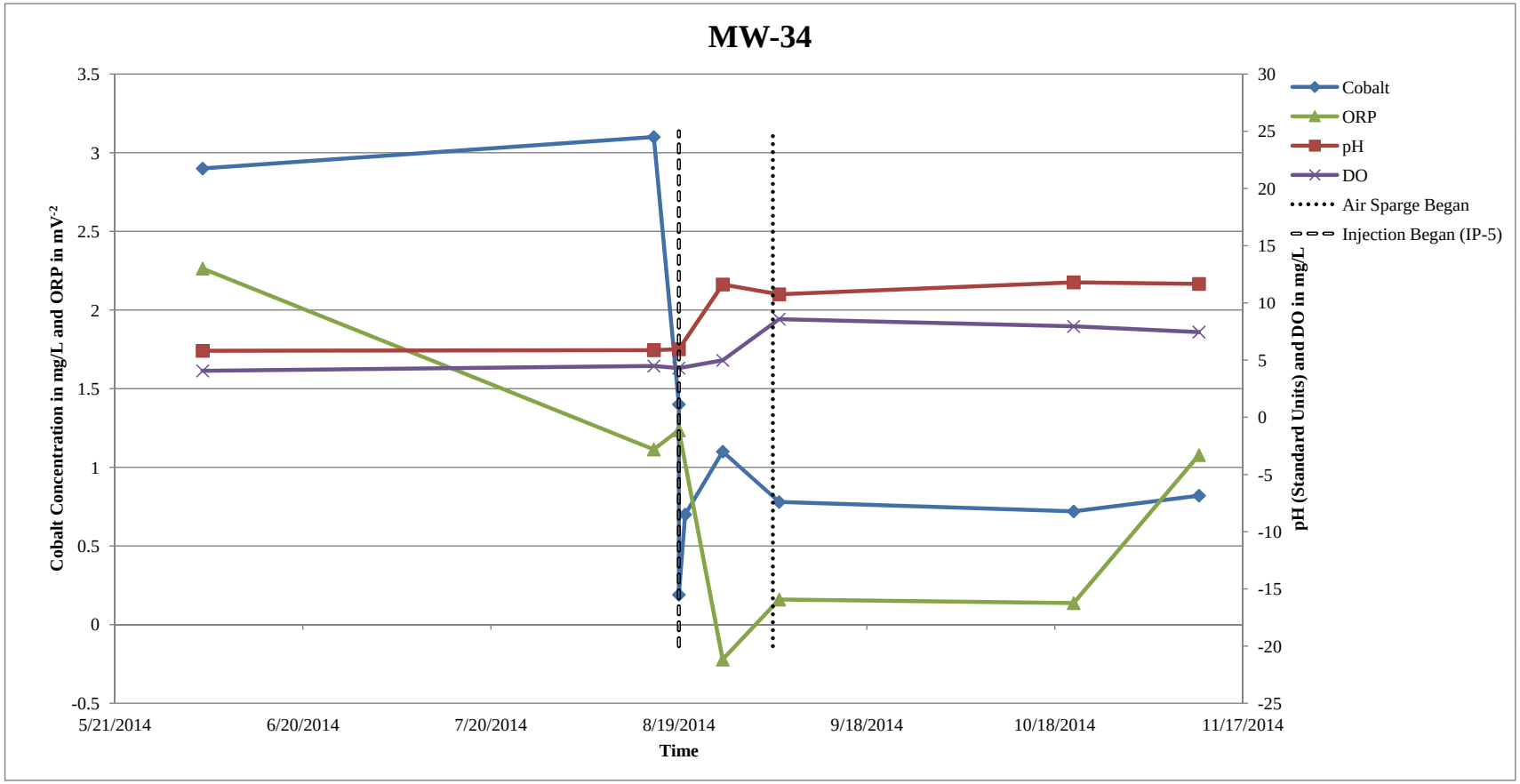

MW-30
Cobalt Concentration in mg/L, ORP in mV-2, Total and Dissolved Iron in mg/L
pH (Standard Units) and DO in mg/L
Time
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
ORP
Total Iron
Dissolved Iron
pH
DO
Air Sparge Began
Injection Began (IP-3)

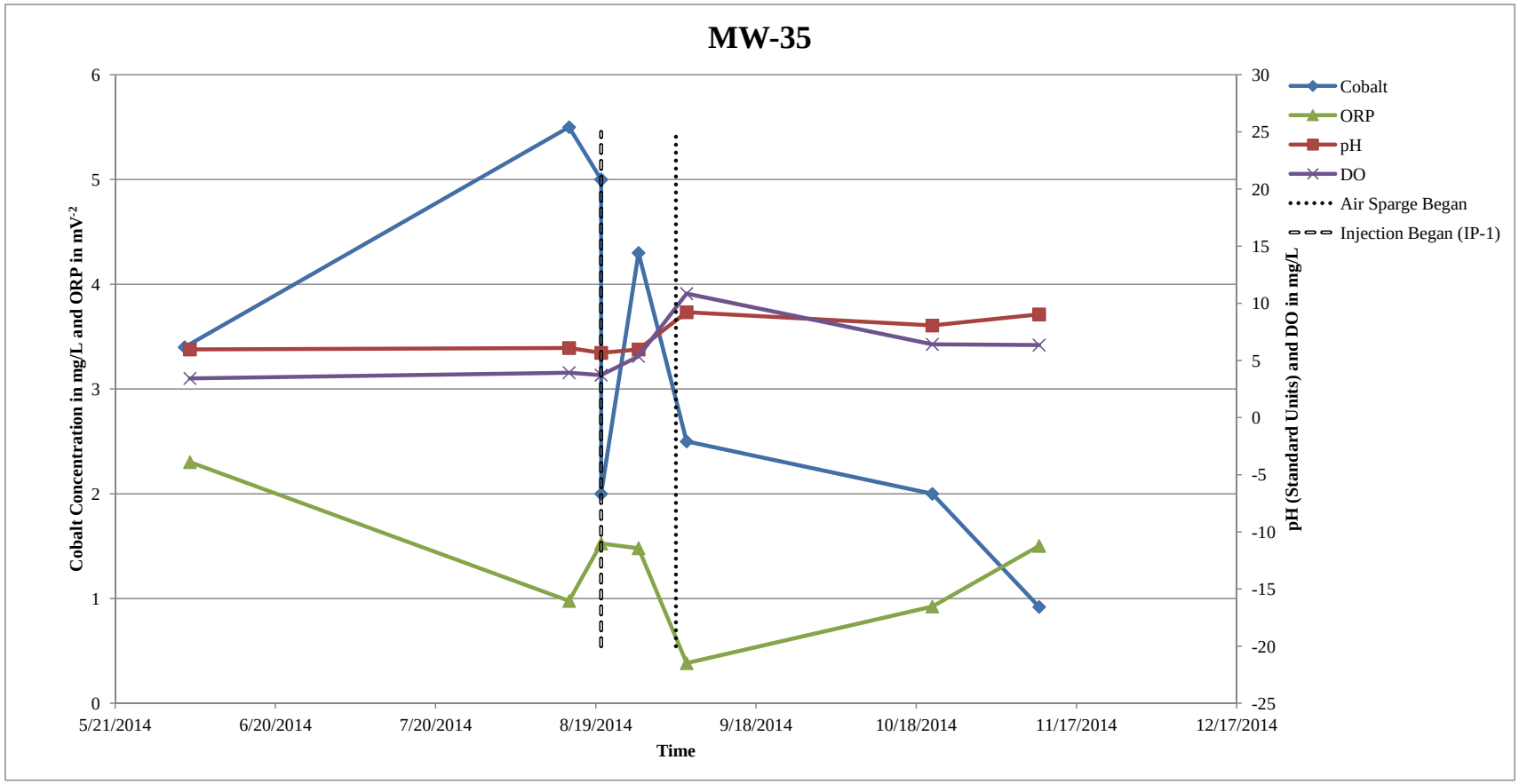

MW-30B
Cobalt Concentration in mg/L and ORP in mV-2
pH in Standard Units and DO in mg/L
Time
1.5
1
0.5
0
-0.5
-1
-1.5
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
ORP
pH
DO
Air Sparge Began
Injection Began (IP-3)

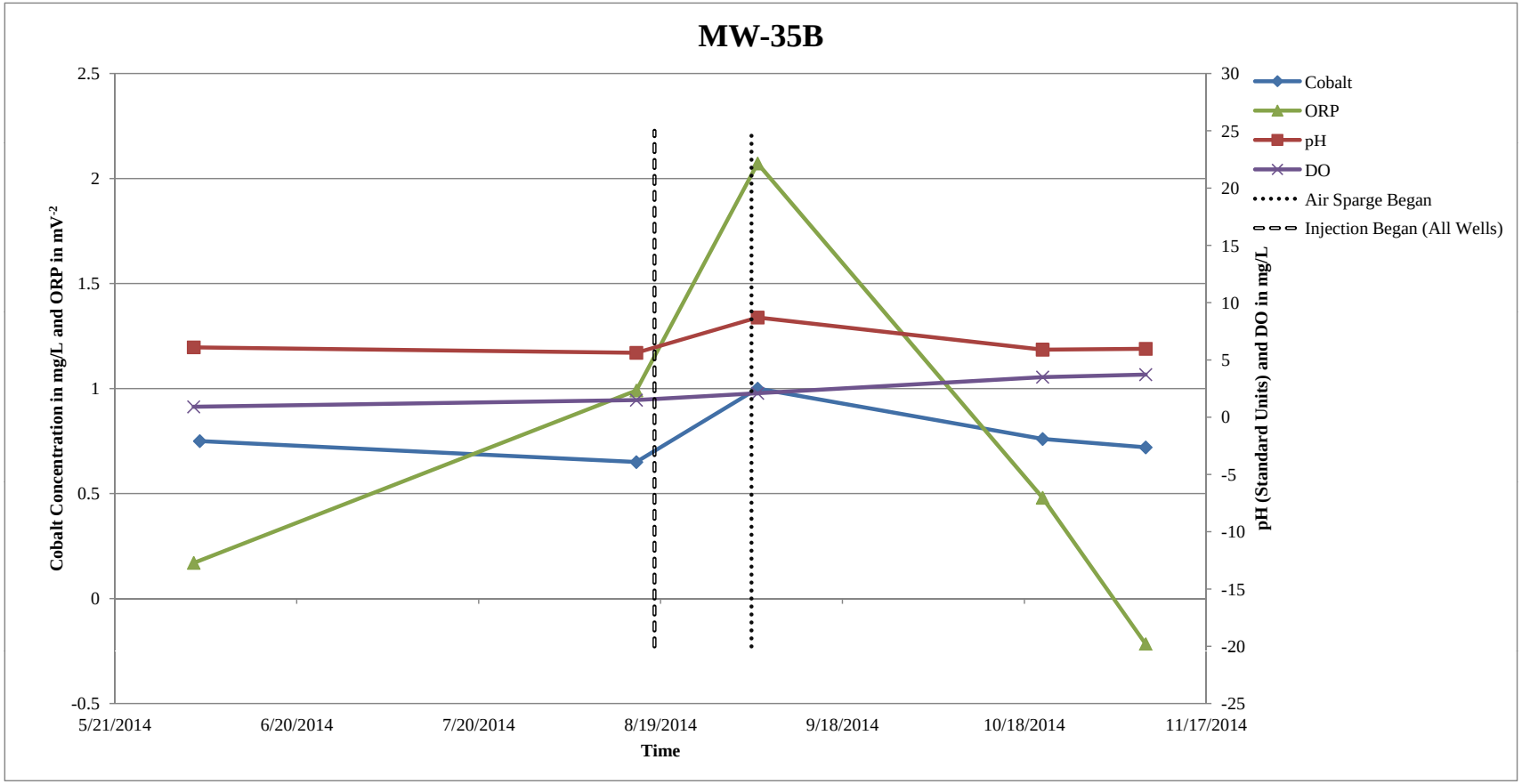

MW-31
Cobalt
ORP
pH
DO
Total Iron
Dissolved Iron
Injection Began (IP-5)
Air Sparge Began
Cobalt Concentration in mg/L and ORP in mV-2
pH (Standard Units) and DO in mg/L
Time
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
40
30
20
10
0
-10
-20
-30
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014

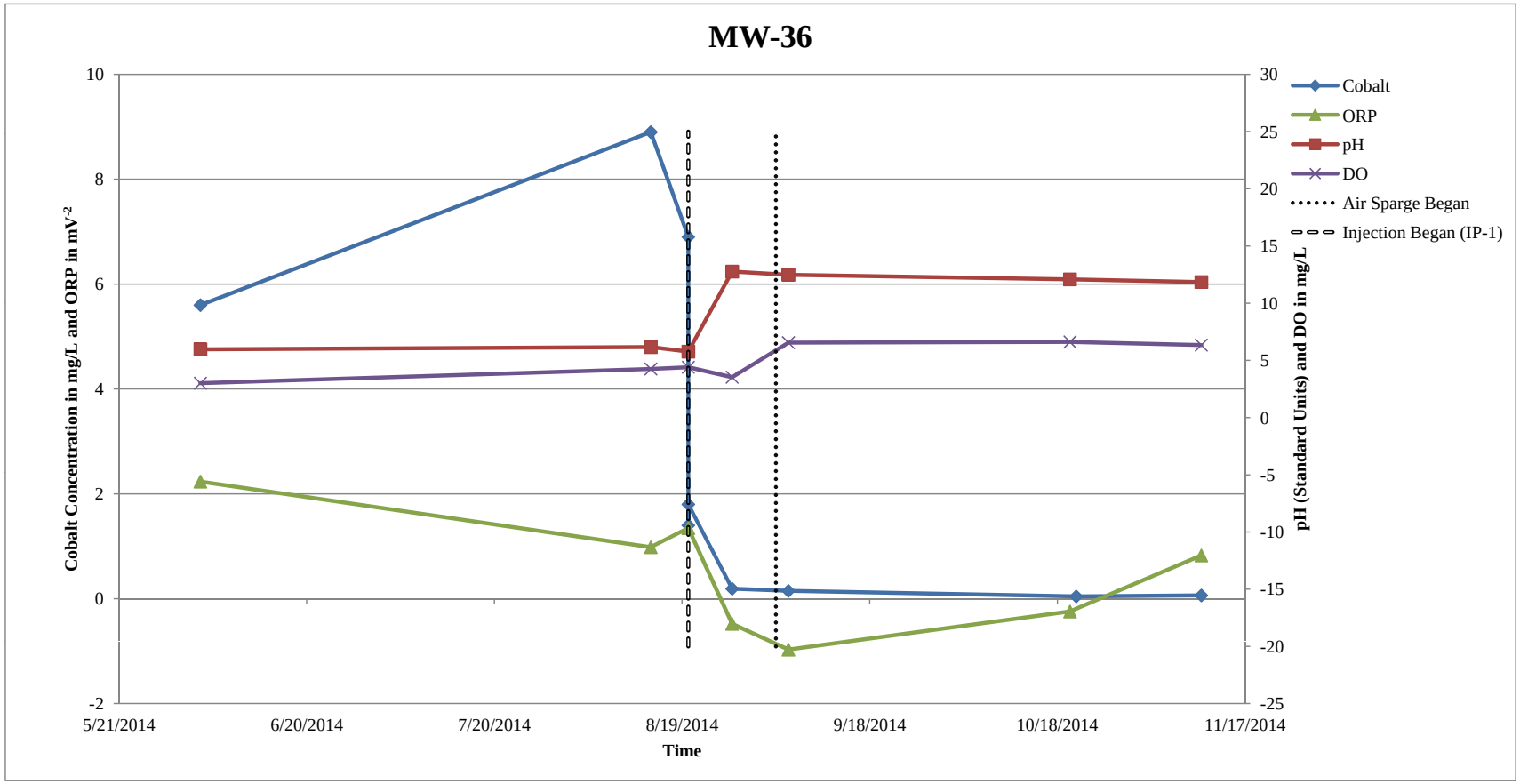

MW-32
Cobalt Concentration in mg/L and ORP in mV-2
pH (Standard Units) and DO in mg/L
Time
5
4
3
2
1
0
-1
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
ORP
pH
DO
Air Sparge Began
Injection Began (IP-1)


MW-33
Cobalt Concentration in mg/L, ORP in mV-2, Dissovled Iron in mg/L
Total Iron in mg/L
Time
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
300
250
200
150
100
50
0
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
pH
ORP
DO
Dissolved Iron
Air Sparge Began
Injection Began (IP-1)
Total Iron

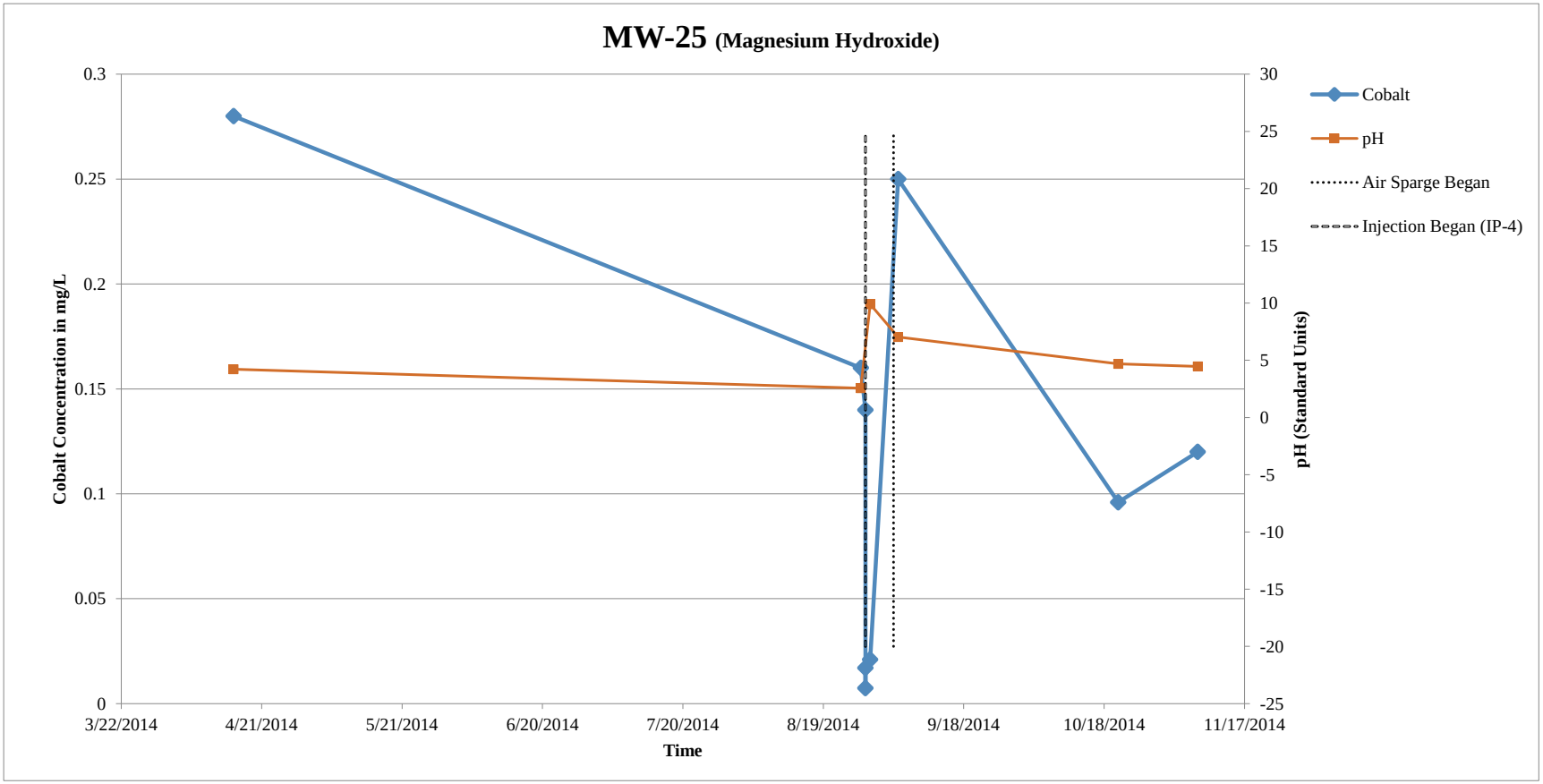

MW-34
Cobalt Concentration in mg/L and ORP in mV-2
pH (Standard Units) and DO in mg/L
Time
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
ORP
pH
DO
Air Sparge Began
Injection Began (IP-5)

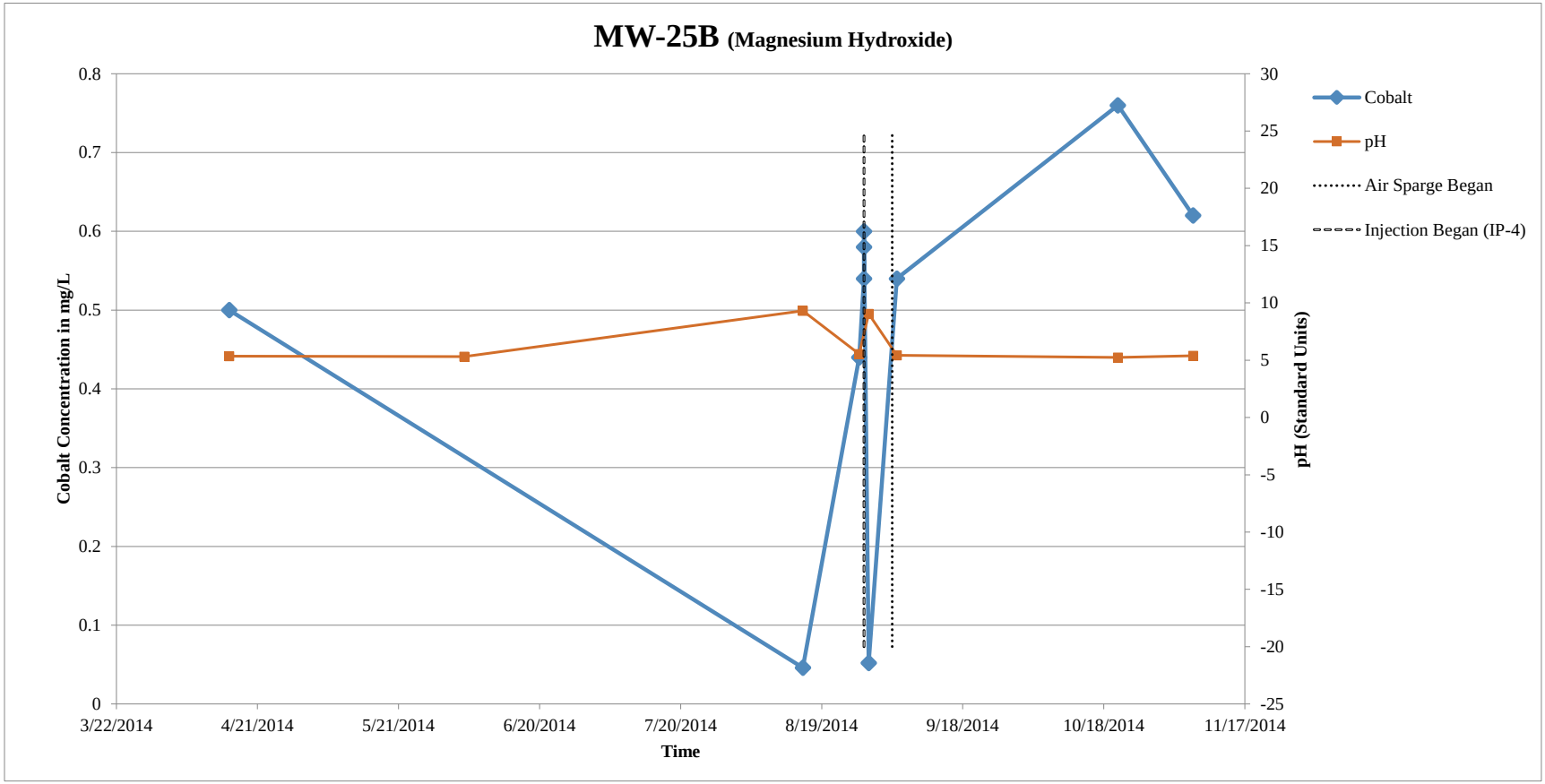

MW-35
Cobalt Concentration in mg/L and ORP in mV-2
pH (Standard Units) and DO in mg/L
Time
6
5
4
3
2
1
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
12/17/2014
Cobalt
ORP
pH
DO
Air Sparge Began
Injection Began (IP-1)

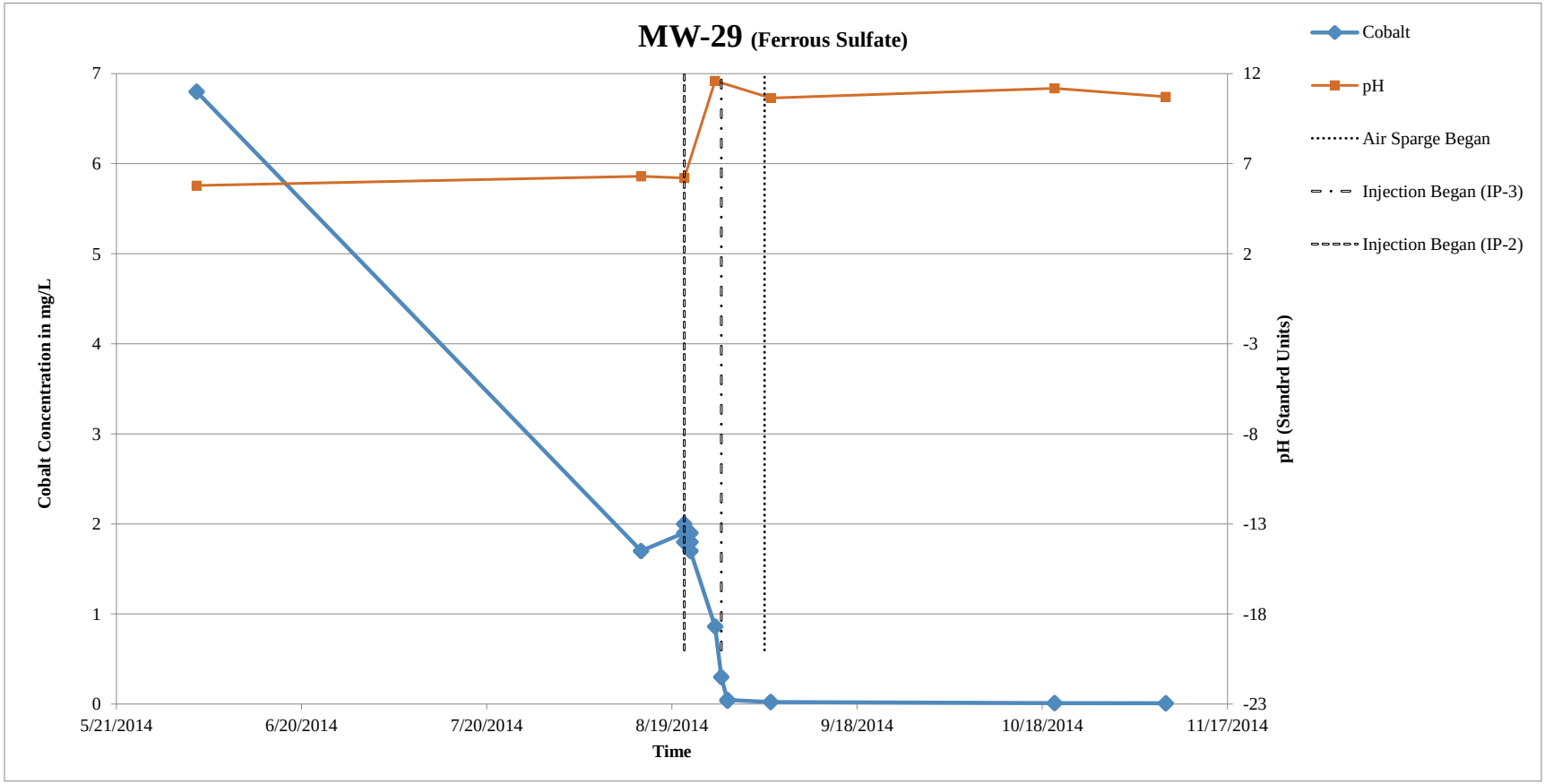

MW-35B
Cobalt Concentration in mg/L and ORP in mV-2
pH (Standard Units) and DO in mg/L
Time
2.5
2
1.5
1
0.5
0
-0.5
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
ORP
pH
DO
Air Sparge Began
Injection Began (All Wells)

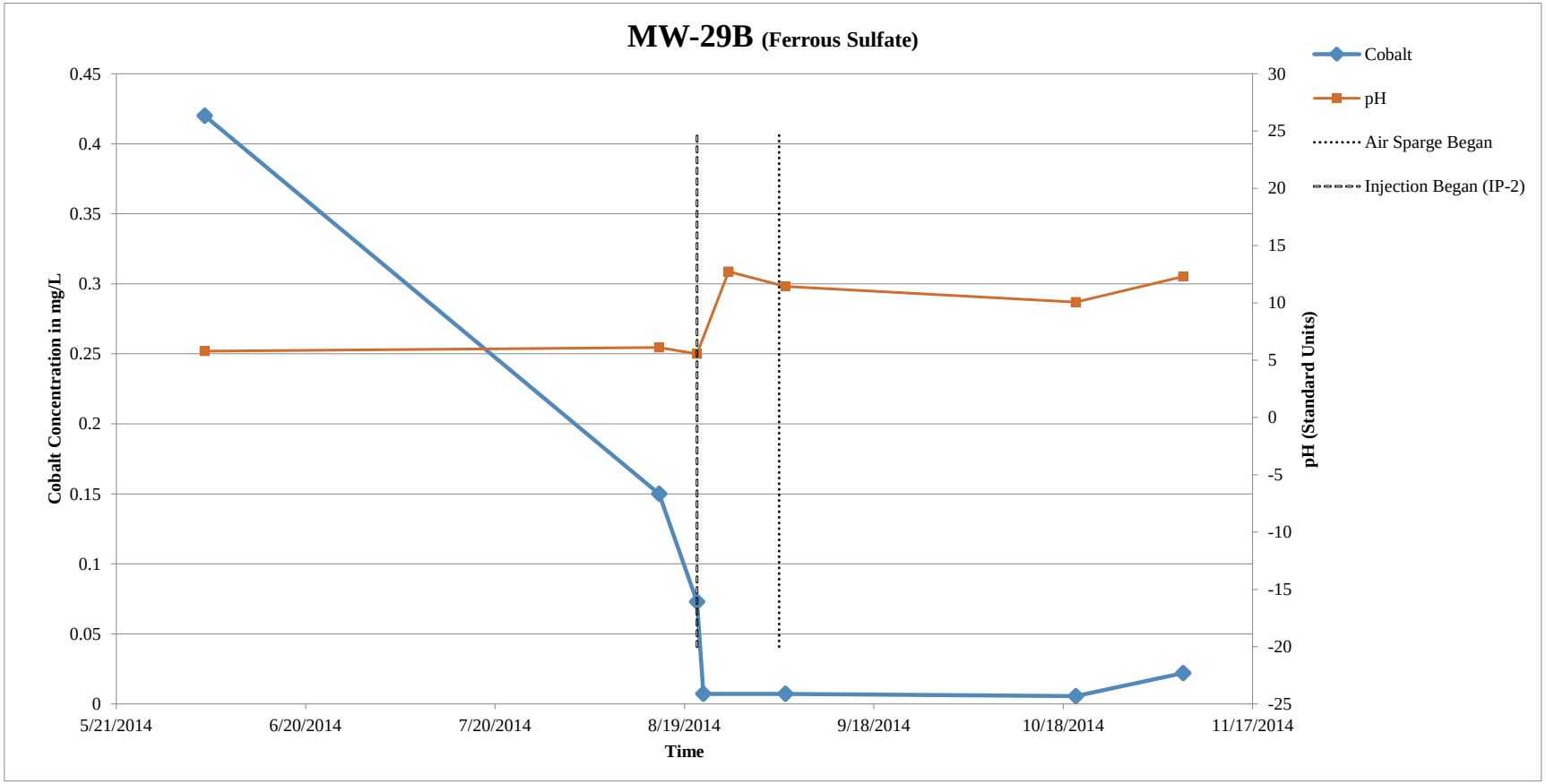

MW-36
Cobalt Concentration in mg/L and ORP in mV-2
pH (Standard Units) and DO in mg/L
Time
10
8
6
4
2
0
-2
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
ORP
pH
DO
Air Sparge Began
Injection Began (IP-1)

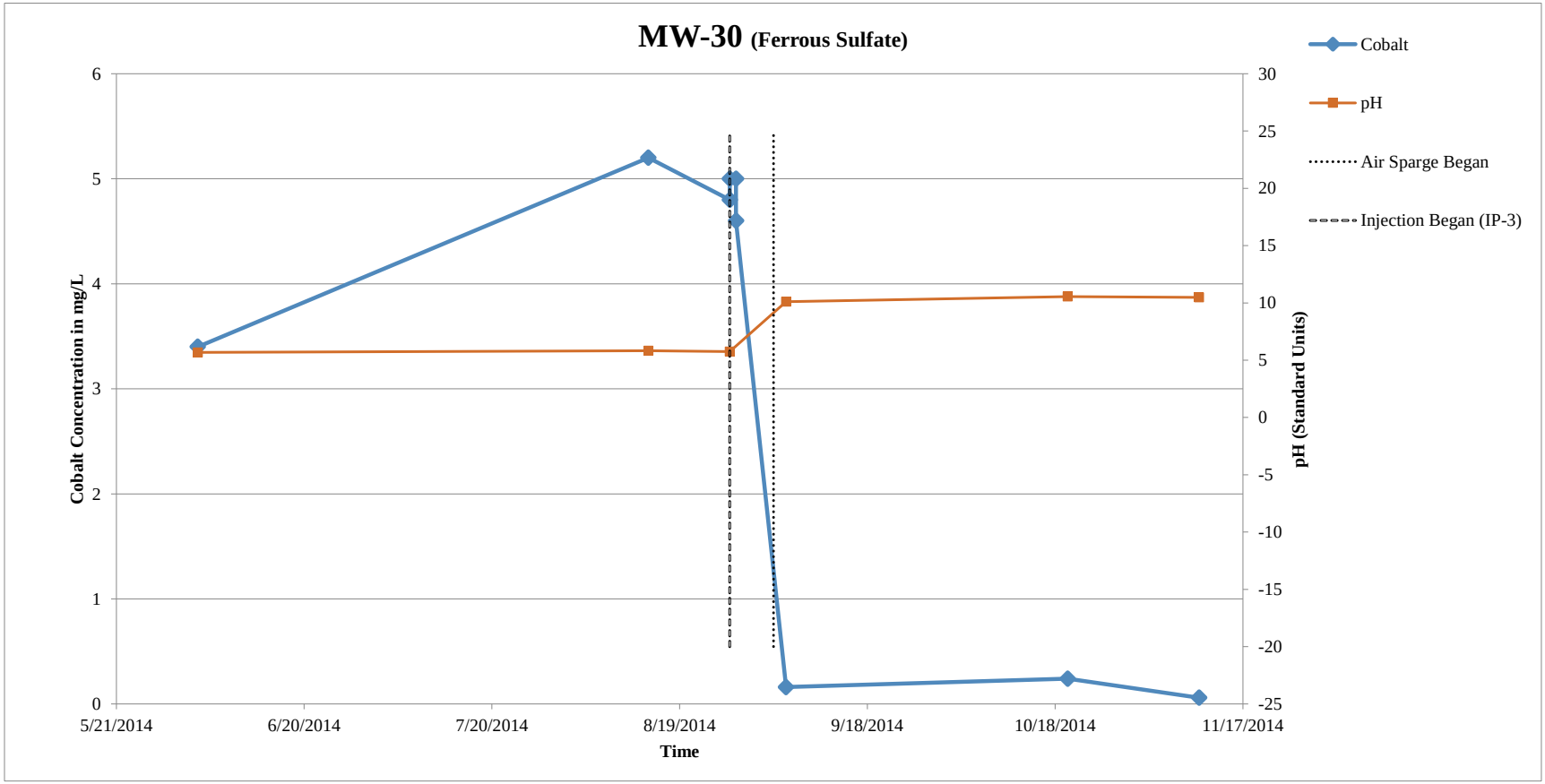
Divider
Page

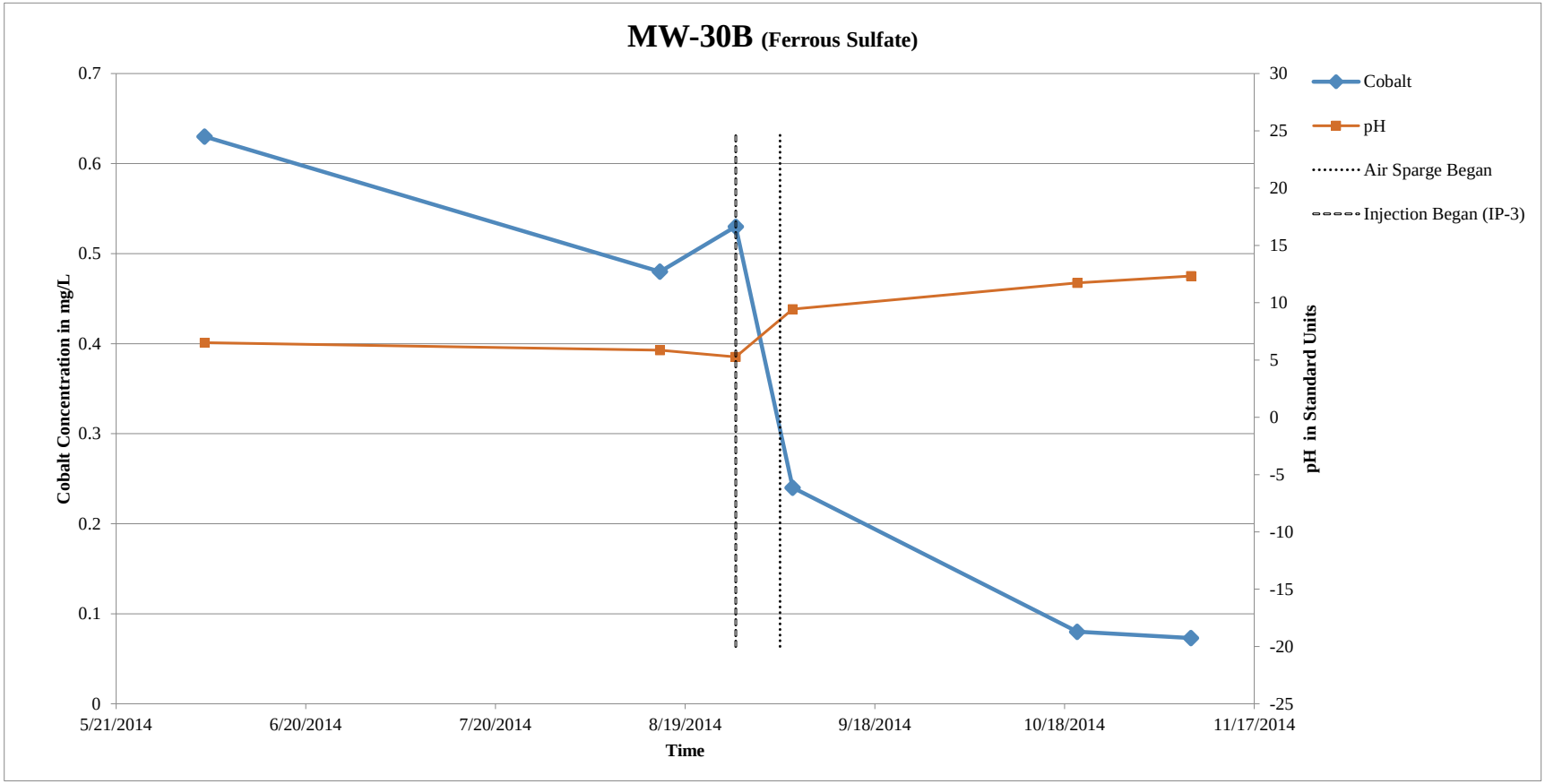

MW-25 (Magnesium Hydroxide)
Cobalt Concentration in mg/L
pH (Standard Units)
Time
0.3
0.25
0.2
0.15
0.1
0.05
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
3/22/2014
4/21/2014
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
pH
Air Sparge Began
Injection Began (IP-4)

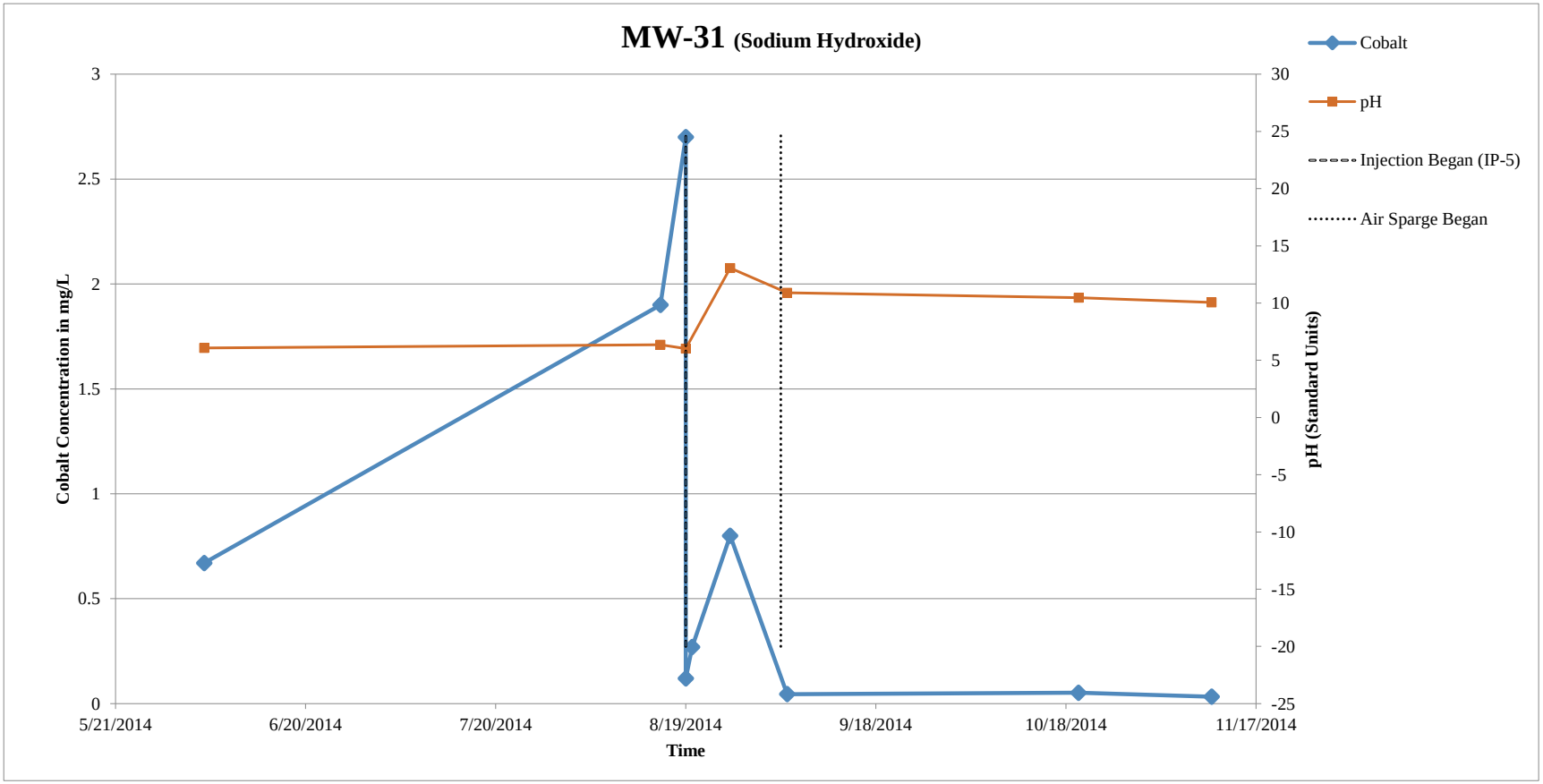

MW-25B (Magnesium Hydroxide)
Cobalt Concentration in mg/L
pH (Standard Units)
Time
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
3/22/2014
4/21/2014
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
pH
Air Sparge Began
Injection Began (IP-4)

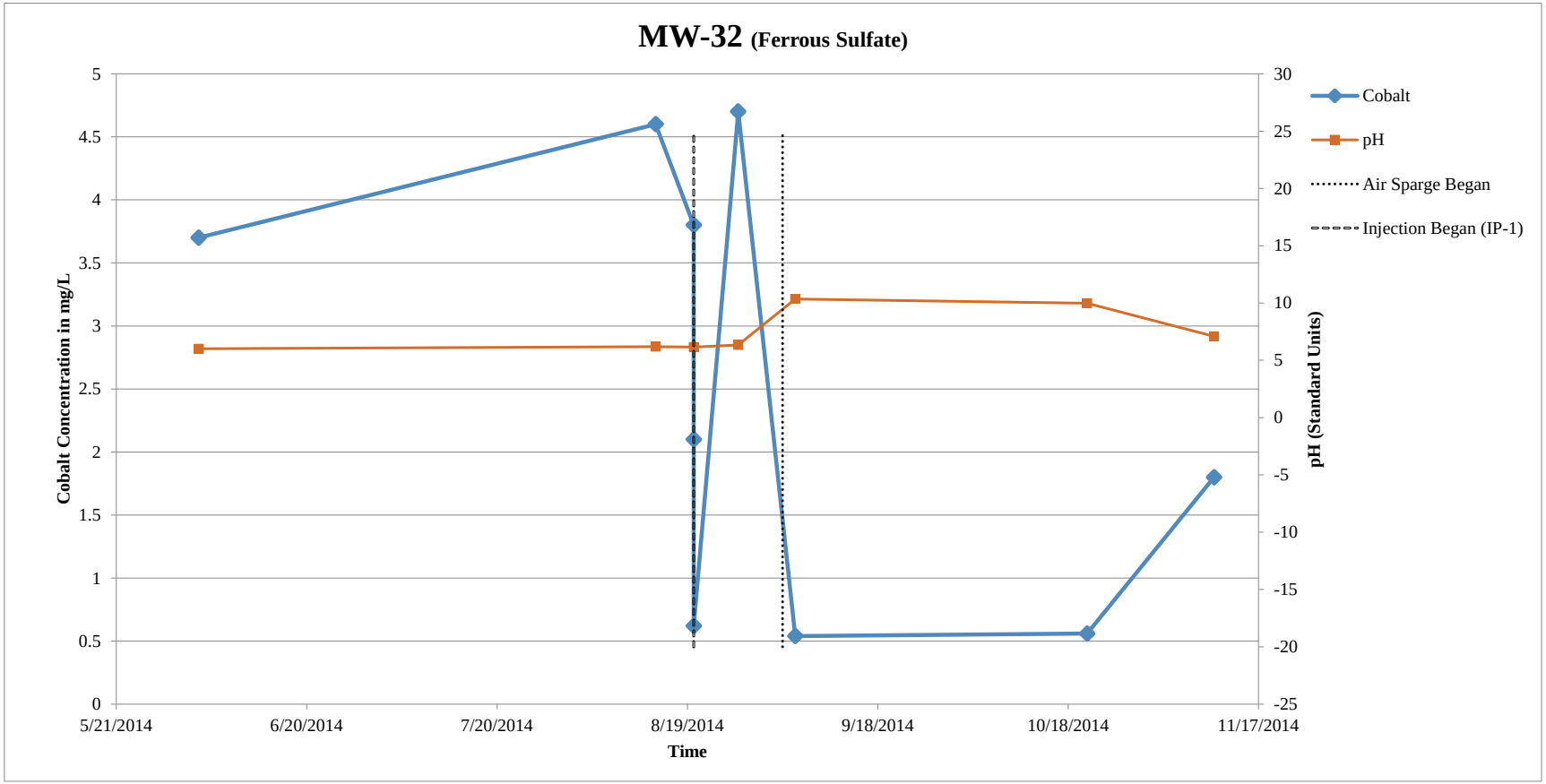

MW-29 (Ferrous Sulfate)
Cobalt Concentration in mg/L
pH (Standrd Units)
Time
7
6
5
4
3
2
1
0
12
7
2
-3
-8
-13
-18
-23
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
pH
Air Sparge Began
Injection Began (IP-3)
Injection Began (IP-2)

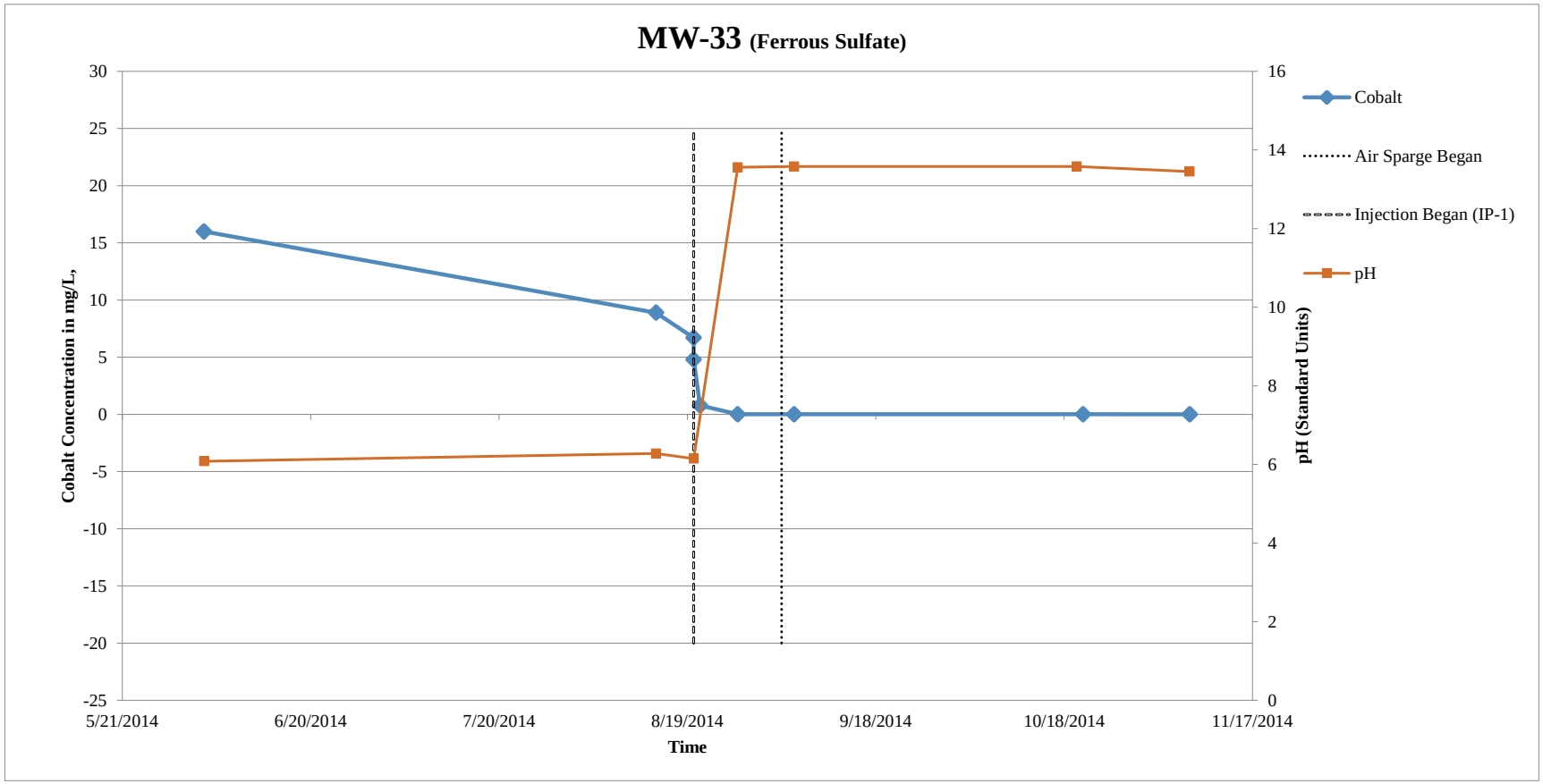

MW-29B (Ferrous Sulfate)
Cobalt
pH
Air Sparge Began
Injection Began (IP-2)
Cobalt Concentration in mg/L
pH (Standard Units)
Time
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014

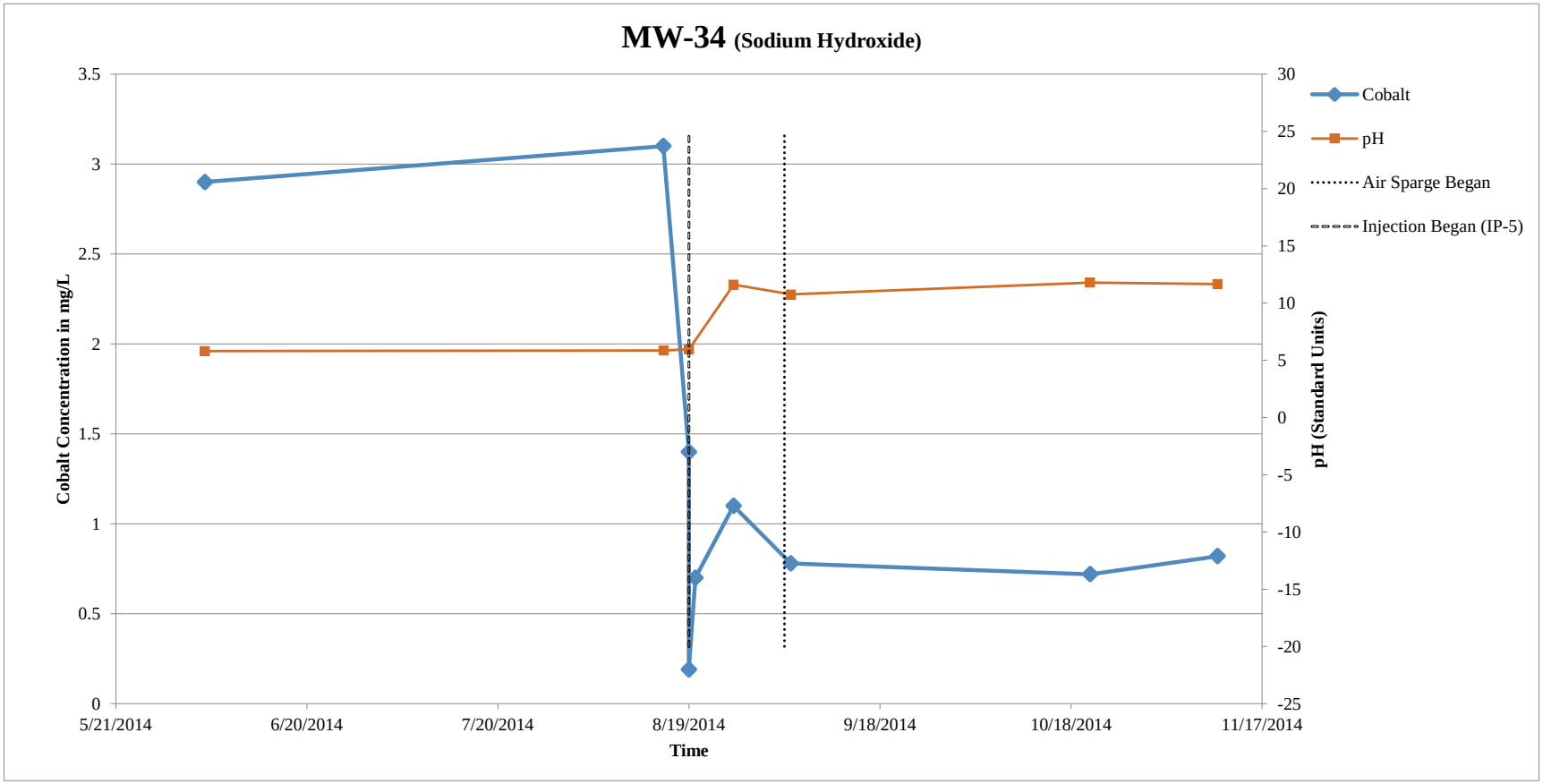

MW-30 (Ferrous Sulfate)
Cobalt
pH
Air Sparge Began
Injection Began (IP-3)
Cobalt Concentration in mg/L
pH (Standard Units)
Time
0
1
2
3
4
5
6
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014

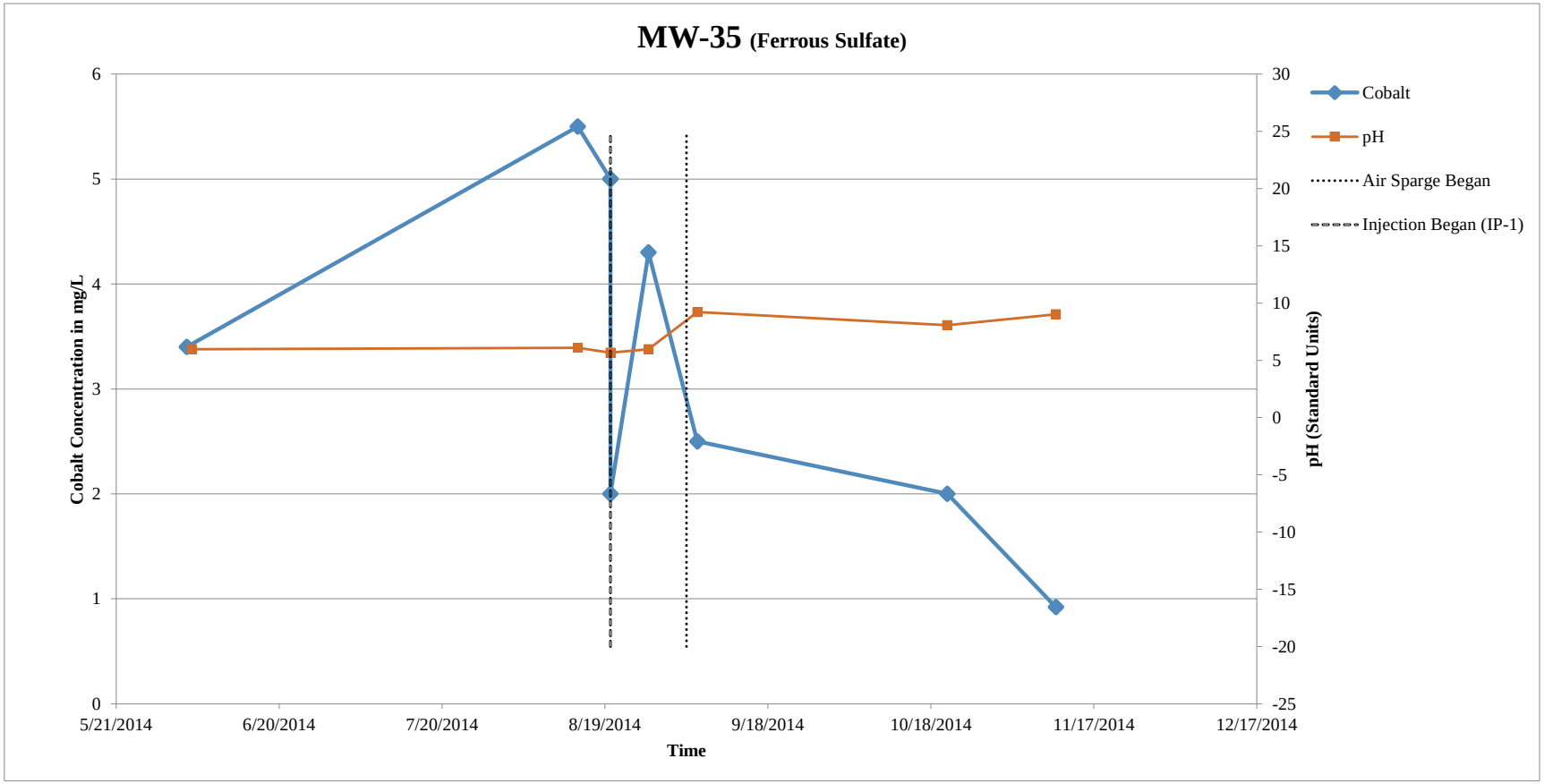

MW-30B (Ferrous Sulfate)
Cobalt Concentration in mg/L
pH in Standard Units
Time
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
pH
Air Sparge Began
Injection Began (IP-3)

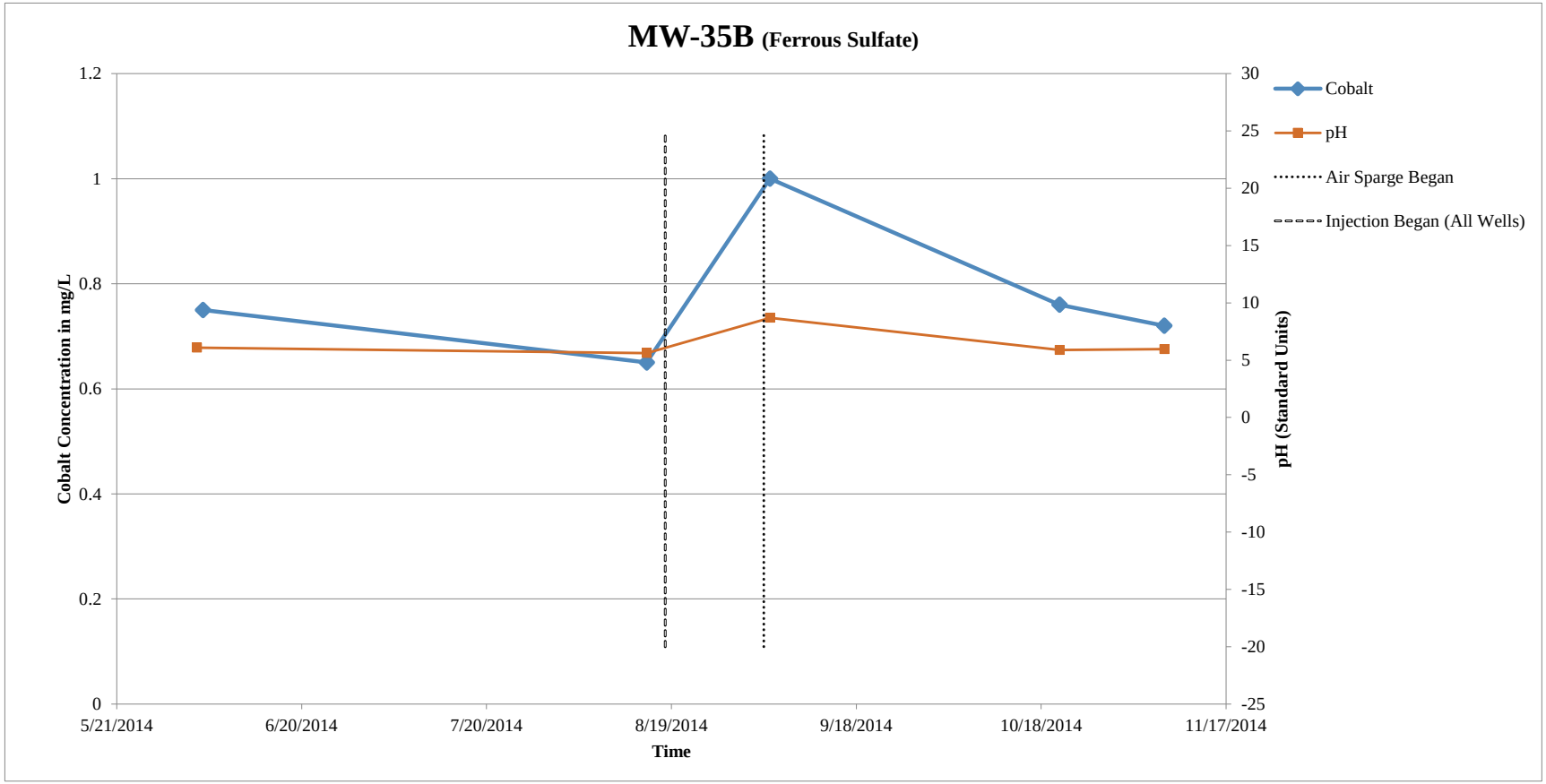

MW-31 (Sodium Hydroxide)
Cobalt
pH
Injection Began (IP-5)
Air Sparge Began
Cobalt Concentration in mg/L
pH (Standard Units)
Time
3
2.5
2
1.5
1
0.5
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014

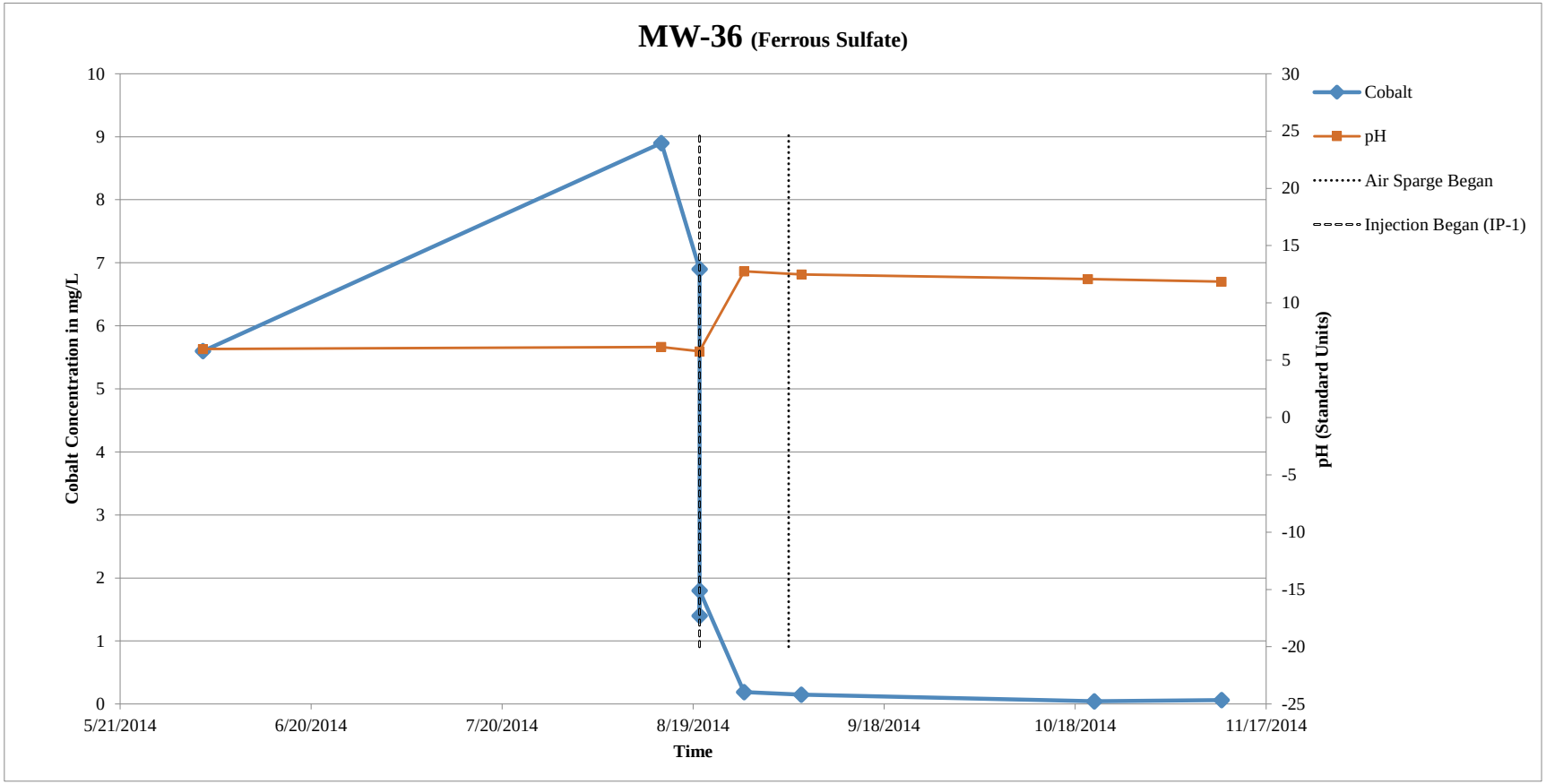

MW-32 (Ferrous Sulfate)
Cobalt Concentration in mg/L
pH (Standard Units)
Time
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
pH
Air Sparge Began
Injection Began (IP-1)


MW-33 (Ferrous Sulfate)
Cobalt Concentration in mg/L,
pH (Standard Units)
Time
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
16
14
12
10
8
6
4
2
0
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
Air Sparge Began
Injection Began (IP-1)
pH


MW-34 (Sodium Hydroxide)
Cobalt Concentration in mg/L
pH (Standard Units)
Time
3.5
3
2.5
2
1.5
1
0.5
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
pH
Air Sparge Began
Injection Began (IP-5)


MW-35 (Ferrous Sulfate)
Cobalt Concentration in mg/L
pH (Standard Units)
Time
0
1
2
3
4
5
6
-25
-20
-15
-10
-5
0
5
10
15
20
25
30
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
12/17/2014
Cobalt
pH
Air Sparge Began
Injection Began (IP-1)


MW-35B (Ferrous Sulfate)
Cobalt Concentration in mg/L
pH (Standard Units)
Time
1.2
1
0.8
0.6
0.4
0.2
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
pH
Air Sparge Began
Injection Began (All Wells)


MW-36 (Ferrous Sulfate)
Cobalt Concentration in mg/L
pH (Standard Units)
Time
10
9
8
7
6
5
4
3
2
1
0
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
5/21/2014
6/20/2014
7/20/2014
8/19/2014
9/18/2014
10/18/2014
11/17/2014
Cobalt
pH
Air Sparge Began
Injection Began (IP-1)

Appendix D

REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 1 OF 2
IHSB SITE NAME Umicore USA Inc. - Maxton, NC NONCD0002833
DATE & NAME OF DOCUMENT Qtly Status Rpt, Remedial Action Progress Rpt., and Work Plan Amend., 01/15/15
TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

REMEDIATING PARTY DOCUMENT CERTIFICATION STATEMENT (.0306(B)(2))

"I certify under penalty of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Ravila Gupta, Umicore USA Inc.
Name of Remediating Party

Signature of Remediating Party

1/16/15
Date

NOTARIZATION

North Carolina (Enter State)

Wake COUNTY

I, Cynthia E. Dietrich, a Notary Public of ~~said~~ Granville County and State, do hereby certify that Ravila Gupta did personally appear and sign before me this day, produced proper identification in the form of NC Driver License, was duly sworn or affirmed, and declared that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this 16th day of January, 2015.

Notary Public (signature)

My commission expires: 7/23/2015

(OFFICIAL SEAL)

CYNTHIA E. DIETRICH
NOTARY PUBLIC
GRANVILLE COUNTY
STATE OF NORTH CAROLINA
MY COMMISSION EXPIRES 7-23-2015

Document Certification Form No. DC - 1
(Revised 8/11)

REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 2 OF 2
IHSB SITE NAME Umicore USA Inc. - Maxton, NC NONCD0002833
DATE & NAME OF DOCUMENT Status Rpt, Remedial Action Progress Rpt, and Work Plan Amend., 01/15/15
TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

REGISTERED SITE MANAGER CERTIFICATION OF SIGNATURES

As the Registered Environmental Consultant for the Site for which this filing is made, I certify that the signatures included herewith are genuine and authentic original handwritten signatures and/or true, accurate, and complete copies of the genuine and authentic original handwritten signatures of the persons who purport to sign for this filing. I further certify that I have collected through reliable means the originals and/or copies of said signatures from the persons authorized to sign for this filing who, in fact, signed the originals thereof. Those persons and I understand and agree that any copies of signatures have the same legally binding effect as original handwritten signatures, and I certify that any person for whom I am submitting a copy of their signature has provided me with their express consent to submit said copy. Additionally, I certify that I am authorized to attest to the genuineness and authenticity of the signatures, both originals and any copies, being submitted herewith and that by signing below, I do in fact attest to the genuineness and authenticity of all the signatures, both originals and copies, being submitted for this filing.

David L. Duncklee
Name of Registered Site Manager

Signature of Registered Site Manager

1/20/15
Date

REGISTERED SITE MANAGER DOCUMENT CERTIFICATION STATEMENT (.0306(b)(1))

"I certify under penalty of law that I am personally familiar with the information contained in this submittal, including any and all supporting documents accompanying this certification, and that the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete and complies with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq, and the remedial action program Rules 15A NCAC 13C .0300. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

David L. Duncklee
Name of Registered Site Manager

Signature of Registered Site Manager

1/20/15
Date

NOTARIZATION

NC (Enter State)

Wake COUNTY

I, Krista Little, a Notary Public of said County and State, do hereby certify that David Lucsier Duncklee did personally appear and sign before me this day, produced proper identification in the form of NC Drivers License, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certifications is true and accurate, and he or she then signed these Certifications in my presence.

WITNESS my hand and official seal this 20th day of January, 2015.

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: 04/24/2018

KRISTA LITTLE
Notary Public
Johnston Co., North Carolina
My Commission Expires Apr. 24, 2018

Document Certification Form No. DC - II
(Revised 8/11)