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Mr. David Mattison
North Carolina Department of Environmental Quality
Division of Waste Management – Superfund Section
217 West Jones Street
Raleigh, North Carolina 27699-1646

Subject:
Revised 2015 Groundwater Monitoring Report
Former Virginia-Carolina Chemical Corporation Site
Wadesboro, North Carolina

Date:
April 1, 2016

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ARCADIS G&M of North Carolina, Inc.

NC Engineering License # C-1869

Dear Mr. Mattison:

On behalf of ExxonMobil Environmental Services Company (EMES), Arcadis G&M of North Carolina, Inc. (Arcadis) has prepared this Groundwater Monitoring Report (Report) for the former Virginia-Carolina Chemical Corporation (VCC) Site located in Wadesboro, North Carolina (the Site). This Report has been prepared to document the activities and results associated with the April 2015 groundwater sampling event, which was performed in accordance with a letter dated December 18, 2014 presenting the *Proposed 2015 Groundwater Monitoring Event*. The following activities were conducted:

- Depth to water measurements were taken at 11 monitoring wells; and
- Groundwater sampling was performed at 11 monitoring wells.

The former Wadesboro facility was operated by the Virginia-Carolina Chemical Company as a fertilizer manufacturing facility from 1908 to 1945. During that time, lead-lined acid chambers were used to store acid used in the production of superphosphate fertilizers. The operational history of the Site is unknown from 1945 to 1980. The Site was purchased by Mr. Carl Weston in 1980 and has been unused for approximately 30 years. Former facility buildings and structures have since been removed, and the Site is currently wooded and heavily vegetated. Previous remedial activities have included the initial site characterization (Site Characterization Report; BBL, 2001), removal of approximately 7,000 tons of soil (Removal Action Completion Report; BBL, 2003), and ongoing post-removal groundwater monitoring activities (2004 to present).

On April 22, 2015, all 11 groundwater monitoring wells were gauged with a hand-held water-level meter to measure the depth to groundwater relative to surveyed reference points on the monitoring well casings. Water-level elevations were calculated by comparing the depth to water-level measurements and the surveyed measuring point elevations. Monitoring well specifications are presented on **Table 1**, and water-level elevations are presented on **Table 2**. A potentiometric surface map was prepared using the April 2015 groundwater measurements collected at the Site monitoring wells, and is presented as **Figure 1**. As shown on the shallow groundwater potentiometric surface map, groundwater generally flows from the northeast to the southwest and from east to west across the Site.

On April 22 and 23, 2015, groundwater samples were collected from the 11 shallow monitoring wells. Prior to sampling, each monitoring well was purged until field indicator parameters (turbidity, temperature, specific conductance, pH, oxidation-reduction potential [ORP], and dissolved oxygen [DO]) were stabilized for three consecutive readings. Water quality parameter data collected prior to sampling are presented on **Table 3**. Groundwater sampling logs are included in **Attachment 1**.

Groundwater sampling activities were conducted in accordance with the United States Environmental Protection Agency (USEPA) Region 4 *Field Branches Quality System and Technical Procedures*. Groundwater samples were collected using low-flow (minimal drawdown) technique and dedicated high-density polyethylene tubing. Filtered (0.45 micrometer) and unfiltered groundwater samples were collected at each monitoring well and contained in pre-preserved, laboratory-provided containers. Immediately following groundwater sample collection, the samples were packaged on ice in coolers and shipped under chain-of-custody by an overnight courier to TestAmerica Laboratories, Inc. of Nashville, Tennessee. The samples were analyzed for:

- Alkalinity via Standard Method 2320B;
- Total Organic Carbon (TOC) via USEPA Method 9060A;
- Nitrate (NO_3) via USEPA Method 353.2;
- Sulfate (SO_4) via USEPA Method 300.0;
- Methane (CH_4) via Method RSK-175; and

- Total and dissolved cadmium, copper, iron, manganese, nickel, and zinc via USEPA Method 6020.

A summary of the April 2015 groundwater monitoring results is presented in **Table 3**, and results are posted on **Figures 2 and 3.** The laboratory report is included as **Attachment 2**. **Table 4** presents a summary of current and historical groundwater analytical results.

Groundwater Metals Results

Laboratory analytical results for the metal constituents of concern (COCs, i.e., cadmium, copper, iron, manganese, nickel, and zinc) were compared to the North Carolina Groundwater Standards, as promulgated under Chapter 2L, Title 15A of the North Carolina Administrative Code (NC 2L Standards). The April 2015 groundwater results indicate:

- Cadmium concentrations exceeded the NC 2L Standard (0.002 mg/L) in groundwater samples from source area monitoring wells WA-MW-1 (0.0198 mg/L total and 0.0172 mg/L dissolved), WA-MW-2 (0.0102 mg/L total and 0.0105 mg/L dissolved), and WA-MW-9 (0.00625 mg/L total and 0.00602 mg/L dissolved), and from downgradient well WA-MW-7 (0.00461 mg/L total and 0.00448 mg/L dissolved).

- Copper concentrations were less than the 1 mg/L NC 2L Standard at all of the monitoring locations.

- Iron concentrations exceeded the NC 2L Standard (0.3 mg/L) in groundwater samples from source area monitoring wells WA-MW-2 (17.6 mg/L total and 14.7 mg/L dissolved) and WA-MW-9 (42.5 mg/L total and 33.5 mg/L dissolved), and from downgradient monitoring wells WA-MW-3 (34.8 mg/L total and 34 mg/L dissolved) and WA-MW-7 (1.03 mg/L total; dissolved did not exceed).

- Manganese concentrations exceeded the NC 2L Standard (0.05 mg/L) in the groundwater samples from source area monitoring wells WA-MW-1 (36.5 mg/L total and 37.5 mg/L dissolved), WA-MW-2 (6.06 mg/L total and 5.8 mg/L dissolved), WA-MW-9 (3.69 mg/L total and 3.8 mg/L dissolved), and WA-MW-10 (0.372 mg/L total and 0.332 mg/L dissolved), and from downgradient monitoring wells WA-MW-3 (7.64J mg/L total and 8.54J mg/L

dissolved), WA-MW-6 (0.119 mg/L total and 0.0819 mg/L dissolved), WA-MW-7 (4.45 mg/L total and 4 mg/L dissolved), WA-MW-8 (0.475 mg/L total and 0.526 mg/L dissolved), and cross-gradient monitoring well WA-MW-11 (3.03 mg/L total and 2.82 mg/L dissolved).

- Nickel concentrations exceeded the NC 2L Standard (0.1 mg/L) in groundwater samples from source area monitoring wells WA-MW-1 (0.514 mg/L total and 0.516 mg/L dissolved) and WA-MW-2 (0.15 mg/L total and 0.123 mg/L dissolved).

- Zinc concentrations exceeded the NC 2L Standard (1 mg/L) in groundwater samples from source area monitoring wells WA-MW-1 (2.7 mg/L total and 3.05 mg/L dissolved), WA-MW-2 (3 mg/L total and 2.95 mg/L dissolved), and WA-MW-9 (4.23 mg/L total and 4.34 mg/L dissolved), and from downgradient wells WA-MW-3 (1.05J mg/L total and 1.02 mg/L dissolved) and WA-MW-7 (1.53J mg/L total and 1.57 mg/L dissolved).

Background monitoring wells WA-MW-4 and WA-MW-5, were the only two wells without exceedances of the NC 2L Standards.

Field Parameter Data

Groundwater pH measured in April 2015 ranged from 4.09 pH units at monitoring well WA-MW-2, located near the former source area, to 7.86 pH units at downgradient monitoring well WA-MW-3. The lowest groundwater pH values at the Site were measured at wells WA-MW-1 (4.21 pH units), WA-MW-2 (4.09 pH units) and WA-MW-9 (4.20 pH units), near or within the former source area, while higher pH values (comparable to those at background wells WA-MW-4 and WA-MW-5) were measured at wells located cross-gradient and downgradient from the former source area, i.e., WA-MW-3 (7.86 pH units), WA-MW-6 (6.86 pH units), WA-MW-7 (5.83 pH units), and WA-MW-8 (6.52 pH units), indicating that pH returns to a condition comparable to background within a relatively short distance. Vertically, low groundwater pH has been delineated at the Site at monitoring well WA-MW-10 (pH 6.87), which is co-located with WA-MW-9 (pH 4.2) and screened in the deeper groundwater zone.

Water quality parameters including specific conductivity, DO, and ORP varied across the Site. In general, higher specific conductivity readings occurred at monitoring wells located near the former source area (i.e., WA-MW-1 and WA-MW-9), corresponding with the higher concentrations of dissolved metals in this area. The DO readings at

monitoring wells near the former source area (WA-MW-1, WA-MW-2, WA-MW-3, and WA-MW-9) and downgradient/cross-gradient (WA-MW-6, WA-MW-7, WA-MW-8, WA-MW-10, and WA-MW-11) were less than 1 mg/L, while DO measurements at background monitoring wells WA-MW-4 and WA-MW-5 were 2.99 and 1.07 mg/L, respectively. These data suggest consumption of oxygen and the presence of anaerobic (reducing) conditions within the former source area. The ORP readings in Site groundwater ranged between 78 (WA-MW-8) and 299 mV (WA-MW-2), suggesting potential for mildly reducing to mildly oxidizing conditions.

Additional Geochemical Parameter Data

Additional parameters, including alkalinity, nitrate, total/dissolved manganese, total/dissolved iron, sulfate, methane, and TOC were analyzed to better understand the geochemical conditions present in groundwater at the Site.

- Alkalinity concentrations ranged from below detection at source area monitoring wells WA-MW-1, WA-MW-2 and WA-MW-9, and downgradient monitoring well WA-MW-11, to 372 mg/L at background well WA-MW-5 and 331 mg/L at WA-MW-10, which is screened in the deeper groundwater zone. Non-detect alkalinity concentrations measured at monitoring locations in the former source area indicate that pH buffering capacity has been consumed, consistent with the lower groundwater pH and higher metals concentrations observed in this area.

- Nitrate was analyzed as an indicator of redox conditions in groundwater. Nitrate concentrations ranged from below detection at WA-MW-2 and WA-MW-9 in the former source area to 32.7 mg/L at cross-gradient monitoring well WA-MW-11. The lowest nitrate concentrations (less than 1 mg/L) were measured at WA-MW-2, WA-MW-3, WA-MW-5, WA-MW-6, WA-MW-9, and WA-MW-10, suggesting at least mildly reducing groundwater conditions within the impacted area and downgradient.

- Total/dissolved manganese and iron were also analyzed as indicators of redox conditions in Site groundwater. The manganese concentrations measured in groundwater samples collected at the Site were almost entirely present in the dissolved (reduced) form, indicating at least mildly-reducing conditions. Iron was also found to be present primarily in the dissolved form at monitoring locations within and downgradient from the former source area (e.g., WA-MW-2, WA-MW-3, and WA-MW-9), suggesting iron-reducing conditions in groundwater at these locations.

- Sulfate concentrations in groundwater ranged from 136 mg/L and 292 mg/L at background monitoring wells WA-MW-4 and WA-MW-5 to 4,120 mg/L at WA-MW-1, located in the former source area. Sulfate may be used as an electron acceptor for microbial respiration by sulfate-reducing bacteria; this process produces sulfide as a byproduct, facilitating the formation of low-solubility sulfide minerals, which can reduce concentrations of dissolved metals in groundwater. The sulfate concentrations measured at downgradient wells WA-MW-6 (691 mg/L) and WA-MW-7 (787 mg/L) were an order of magnitude lower than the concentration measured at WA-MW-9 (1,810 mg/L) near the former acid chambers, suggesting that microbial sulfate reduction may be occurring to some extent in the downgradient portions of the plume.

- Methane concentrations in Site groundwater were generally below detection (i.e., 0.005 U); however, methane was detected at WA-MW-1, WA-MW-3, WA-MW-6, and WA-MW-7 (ranging from 0.00292 J mg/L at WA-MW-1 to 0.0343 mg/L at WA-MW-7), suggesting that strongly-reducing methanogenic conditions may be present in some areas.

- Total organic carbon (TOC) was analyzed as an indicator of the availability of organic carbon in Site groundwater to support microbial processes, such as sulfate reduction. Total organic carbon concentrations ranged from 2.64 mg/L at WA-MW-4 to 7.66 mg/L at WA-MW-1, and suggest available organic carbon to support microbial processes.

Conclusions

Overall, the data collected at the Site during the April 2015 groundwater monitoring event indicates that concentrations of the six metal COCs (cadmium, copper, iron, manganese, nickel and zinc) are generally consistent with or lower than historical results. In addition, groundwater quality at the Site improves within a short distance downgradient and cross-gradient from the former source area, as well as with depth. The more moderate pH conditions downgradient from the former source area likely result in decreased solubility of iron and manganese (i.e., precipitation as metal hydroxides in the geologic formation), and increased adsorption of the COC metals onto formation solids.

Based on the groundwater conditions observed at the Site, EMES proposes to continue monitoring of COC metals on an annual basis. The next groundwater monitoring and sampling event is proposed for April 2016.

If you have any questions regarding the content of this submittal, please let me know.

Sincerely,

Arcadis G&M of North Carolina, Inc.

Kirstyn R White

Kirstyn White, P.E.
Senior Environmental Engineer

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Table 1 – Monitoring Well Construction Details
Table 2 – Groundwater Elevations
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Figure 1 – Groundwater Potentiometric Surface Map – April 2015
Figure 2 – Groundwater Analytical Results - Metals
Figure 3 – Groundwater Analytical Results – Geochemical and Water Quality Parameters

Attachments:
Attachment 1 – Groundwater Sampling Logs
Attachment 2 – Laboratory Analytical Report

Copies:
Bruce Frink, EMES (electronic copy)
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Matthew Pelton, Arcadis (electronic copy)
File: 85671

Tables

Table 1
Monitoring Well Construction Details
2015 Groundwater Monitoring Report
Former Virginia-Carolina Chemical Corporation Site
Wadesboro, North Carolina

Monitoring Well ID	Installation Date	Borehole Total Depth (feet bgs)	Total Depth of Well (feet bgs)	Screen Length (feet)	Well Casing Diameter (inches)	Well Screen Slot Size (inches)	Elevation (feet amsl)				Well Completion
							TOC	Ground Surface	Top of Screen	Bottom of Screen	
WA-MW-1	04/17/01	40.00	35.00	25	2	0.01	373.12	370.14	358.1	348.1	Above Grade
WA-MW-2	04/17/01	40.00	23.00	15	2	0.01	366.76	362.77	341.8	331.8	Above Grade
WA-MW-3	04/17/01	38.00	26.00	15	2	0.01	364.16	361.79	341.2	331.2	Above Grade
WA-MW-4	11/17/10	32.50	29.00	15	2	0.01	373.75	370.08	356.2	346.2	Above Grade
WA-MW-5	11/17/10	27.00	25.00	15	2	0.01	372.99	369.35	361.0	351.0	Above Grade
WA-MW-6	09/29/11	22.00	22.00	15	2	0.01	358.18	355.06	351.2	341.2	Above Grade
WA-MW-7	09/29/11	23.00	22.00	15	2	0.01	354.18	350.88	346.2	336.2	Above Grade
WA-MW-8	09/28/11	23.00	22.00	15	2	0.01	360.49	356.56	352.5	342.5	Above Grade
WA-MW-9	09/26/11	23.50	22.00	15	2	0.01	366.69	363.56	358.2	348.2	Above Grade
WA-MW-10	09/27/11	53.00	52.00	10	2	0.01	366.37	363.38	323.4	313.4	Above Grade
WA-MW-11	09/28/11	23.00	22.00	15	2	0.01	358.78	355.83	350.8	340.8	Above Grade

Notes:

TOC - top of PVC casing

ft amsl - feet above mean sea level

Top of casing and ground surface elevations were surveyed based on National American Vertical Datum (NAVD 29).

Groundwater monitoring well locations were surveyed based on North American Datum (NAD 83).

Table 2
Groundwater Elevations
2015 Groundwater Monitoring Report
Former Virginia-Carolina Chemical Corporation Site
Wadesboro, North Carolina

Monitoring Well ID	Top of Casing (ft amsl)	Ground Surface Elevation (ft amsl)	Depth to Groundwater 04/22/15 (ft btoc)	Groundwater Elevation 04/22/15 (ft amsl)
WA-MW-1	373.12	370.14	5.15	367.97
WA-MW-2	366.76	362.77	5.60	361.16
WA-MW-3	364.16	361.79	9.18	354.98
WA-MW-4	373.75	370.08	13.80	359.95
WA-MW-5	372.99	369.35	5.40	367.59
WA-MW-6	358.18	355.06	4.00	354.18
WA-MW-7	354.18	350.88	3.25	350.93
WA-MW-8	360.49	356.56	7.77	352.72
WA-MW-9	366.69	363.56	4.81	361.88
WA-MW-10	366.37	363.38	7.38	358.99
WA-MW-11	358.78	355.83	3.25	355.53

Notes:

bgs - below ground surface

ft btoc - feet below top of casing

ft amsl - feet above mean sea level

Top of casing and ground surface elevations based on National American Vertical Datum (NAVD 29).

Groundwater monitoring well locations based on North American Datum (NAD 83).

Table 3
2015 Groundwater Analytical Results and Field Parameter Measurements
2015 Groundwater Monitoring Report
VCC - Wadesboro, North Carolina

Analyte	NC 2L Groundwater Standards	Units	Concentration in Sample: WA-MW-1 4/23/2015	WA-MW-2 4/23/2015	WA-MW-3 4/22/2015	WA-MW-4 4/23/2015	WA-MW-5 4/23/2015	WA-MW-6 4/22/2015	WA-MW-7 4/22/2015	WA-MW-8 4/22/2015	WA-MW-9 4/23/2015	WA-MW-10 4/23/2015	WA-MW-11 4/22/2015
Inorganics - Total													
Cadmium	0.002	mg/L	0.0198	0.0102 [0.0103]	0.000673 J	0.001 U	0.001 U	0.001 U	0.00461	0.001 U	0.00625	0.001 U	0.00175
Copper	1	mg/L	0.166 J	0.504 [0.532]	0.01 U	0.000509 J	0.000827 J	0.000925 J	0.129	0.000567 J	0.514	0.000602 J	0.0219
Iron	0.3	mg/L	0.234 J	17.6 [19.4]	34.8	0.0453	0.0248 J	0.0838	1.03	0.1	42.5	0.104	0.0536 J
Manganese	0.05	mg/L	36.5	6.06 [6.71]	7.64 J	0.0362	0.00244	0.119	4.45	0.475	3.69	0.372	3.03
Nickel	0.1	mg/L	0.514	0.15 [0.153]	0.0729	0.00512	0.000939 J	0.00773	0.027	0.0122	0.0753	0.00133 J	0.0545
Zinc	1	mg/L	2.7	3 [3.36]	1.05 J	0.025 U	0.025 U	0.113 J	1.53 J	0.0511 J	4.23	0.025 U	0.19 J
Inorganics - Dissolved													
Cadmium	0.002	mg/L	0.0172	0.0105 [0.0104]	0.000615 J	0.001 U	0.001 U	0.000467 J	0.00448	0.001 U	0.00602	0.001 U	0.00159
Copper	1	mg/L	0.0887	0.412 [0.41]	0.002 U	0.002 U	0.000619 J	0.002 UB	0.082	0.002 UB	0.342	0.000827 J	0.0182
Iron	0.3	mg/L	0.0723	14.7 [14.8]	34	0.025 U	0.0147 J	0.025 U	0.0745	0.025 U	33.5	0.025 U	0.0152 J
Manganese	0.05	mg/L	37.5	5.8 [6.12]	8.54 J	0.00971	0.00335	0.0819	4	0.526	3.8	0.332	2.82
Nickel	0.1	mg/L	0.516	0.123 [0.122]	0.0725	0.00405	0.00064 J	0.0106	0.0263	0.0156	0.0629	0.00132 J	0.0528
Zinc	1	mg/L	3.05	2.95 [3.06]	1.02	0.025 U	0.025 U	0.157 J	1.57	0.0523	4.34	0.025 U	0.177
Geochemical													
Alkalinity	- -	mg/L	10 U	10 U [10 U]	25.5	54.8	372	148	133	159	10 U	331	10 U
Methane	- -	mg/L	0.00292 J	0.005 U [0.005 U]	0.0221	0.005 U	0.005 U	0.0187	0.0343	0.005 U	0.005 U	0.005 U	0.005 U
Nitrate	10	mg/L	4.49	0.1 U [0.1 U]	0.151	7.44	0.546	0.469	4.21	4.36	0.1 U	0.322	32.7
Sulfate	250	mg/L	4120	1460 [1630]	1730	136	292	691	787	374	1810	1550	693
Total Organic Carbon	- -	mg/L	7.66	4.13 [4.07]	4.07	2.64	3.55	6.14	3.29	3.77	5.94	3.61	6.84
Water Quality													
Dissolved Oxygen	- -	mg/L	0.37	0.25	0.35	2.99	1.07	0.26	0.21	0.7	0.2	0.26	0.38
ORP	- -	mV	230.9	299	113.5	199.8	172.8	113.3	99	78	259	139	180
pH	- -	SU	4.21	4.09	7.86	5.65	6.79	6.86	5.83	6.52	4.2	6.87	4.95
Specific Conductivity	- -	mS/cm	3.486	1.522	2.166	0.618	1.648	1.528	1.77	1.117	3.118	2.788	1.216
Temperature	- -	°C	15.2	13.68	16.91	14.11	14.1	18.69	17.3	16.69	15.95	16.47	16.27
Turbidity	- -	NTU	5.44	3	18.5	3.06	2.91	9.5	33	8	22	13	30

Notes:
U - not detected
J - estimated value
UB - non-detect due to blank contamination
mg/L - milligrams per liter
mV - millivolt
SU - standard units
mS/cm - millisiemens per centimeter
°C - degrees Celsius
NTU - nephelometric turbidity units
Duplicate sample concentrations are in brackets
Shaded values exceed the NC 2L Groundwater Standards.

Table 4
Summary of Historical Groundwater Analytical Results and Field Parameter Measurements
2015 Groundwater Monitoring Report
VCC - Wadesboro, North Carolina

Analyte	NC 2L Groundwater Standard	Units	Concentration in Sample: MW-1 2/7/2008	MW-1 1/6/2009	MW-1 11/23/2010	WA-MW-1 10/14/2011	WA-MW-1 4/23/2015	MW-2 2/7/2008	MW-2 1/6/2009	MW-2 11/23/2010	WA-MW-2 10/17/2011	WA-MW-2 4/23/2015
Inorganics												
Cadmium	0.002	mg/L	0.01	0.021	0.013 [0.012]	0.1 U	0.0198	0.027	0.027	0.022	0.0107	0.0102 [0.0103]
Copper	1	mg/L	0.16	0.201	0.143 UB [0.108 UB]	1 U	0.166 J	3.37	3.16	2.52	1.33	0.504 [0.532]
Iron	0.3	mg/L	2.34	0.431 J	0.5 U [0.5 U]	5 UJ	0.234 J	23.8	100	14.7	7.6	17.6 [19.4]
Manganese	0.05	mg/L	43.3	47.4	32.7 [27.4]	33.8	36.5	44.5	28.7	45.2	10.7	6.06 [6.71]
Nickel	0.1	mg/L	0.571	0.641	0.409 [0.359]	1 U	0.514	0.734	0.621	0.55	0.524	0.15 [0.153]
Zinc	1	mg/L	3.46	3.31	2.18 UB [1.94 UB]	3.19 J	2.7	10.5	9.85	6.21 UB	3.41	3 [3.36]
Inorganics-filtered												
Cadmium	0.002	mg/L	0.01 U	0.02	0.014 [0.012]	0.1 U	0.0172	0.017	0.031	0.024	0.0107	0.0105 [0.0104]
Copper	1	mg/L	0.143	0.246	0.14 [0.146]	1 U	0.0887	3.31	3.72	2.75	1.35	0.412 [0.41]
Iron	0.3	mg/L	1.54 J	0.28 U	0.5 U [0.5 U]	5 U	0.0723	22.5 J	117	2.02	8.22	14.7 [14.8]
Manganese	0.05	mg/L	40.8	50	24.4 [23.7]	33.7	37.5	43.4	33.7	42.1	10.4	5.8 [6.12]
Nickel	0.1	mg/L	0.518	0.689	0.393 [0.381]	0.53 J	0.516	0.686	0.737	0.597	0.54	0.123 [0.122]
Zinc	1	mg/L	3.18	3.7	2.16 UB [2.1 UB]	3.33 J	3.05	10.2	11.7	6.96 UB	3.36	2.95 [3.06]
Miscellaneous												
Alkalinity	- -	mg/L	NA	NA	10 U [10 U]	1000 U	10 U	NA	NA	10 U	10 U	10 U [10 U]
Methane	- -	mg/L	NA	NA	NA [NA]	NA	0.00292 J	NA	NA	NA	NA	0.005 U [0.005 U]
Nitrate	10	mg/L	NA	NA	5.13 [4.49]	3.84 J	4.49	NA	NA	0.312	0.259	0.1 U [0.1 U]
Sulfate	250	mg/L	NA	NA	2440 [2420]	3710	4120	NA	NA	2700	4100	1460 [1630]
Total Organic Carbon	- -	mg/L	NA	NA	7.25 [7.05]	8.28 J	7.66	NA	NA	4.89	4.11	4.13 [4.07]
Water Quality												
Dissolved Oxygen	- -	mg/L	NA	NA	4.34	0.76	0.37	NA	NA	2.65	0.59	0.25
ORP	- -	mV	NA	NA	40.2	167.2	230.9	NA	NA	406.1	364.4	299
pH	- -	SU	NA	NA	4.01	3.44	4.21	NA	NA	3.66	3.07	4.09
Specific Conductivity	- -	mS/cm	NA	NA	3.495	3.316	3.486	NA	NA	3.983	4.79	1.522
Temperature	- -	°C	NA	NA	18.08	17.14	15.2	NA	NA	17.23	21.09	13.68
Turbidity	- -	NTU	NA	NA	0	7.97	5.44	NA	NA	70	4.02	3

Notes:
U - not detected
J - estimated value
UB - non-detect due to blank contamination
mg/L - milligrams per liter
mV - millivolt
SU - standard units
mS/cm - millisiemens per centimeter
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2015 Groundwater Monitoring Report
VCC - Wadesboro, North Carolina

Analyte	NC 2L Groundwater Standard	Units	Concentration in Sample: MW-3 2/8/2008	MW-3 1/6/2009	MW-3 11/23/2010	WA-MW-3 10/17/2011	WA-MW-3 4/22/2015	MW-4 11/23/2010	WA-MW-4 10/14/2011	WA-MW-4 4/23/2015
Inorganics										
Cadmium	0.002	mg/L	0.0034 [0.025]	0.0012	0.001 U	0.0025 [0.0024]	0.000673 J	0.001 U	0.0014	0.001 U
Copper	1	mg/L	0.01 U [3.33]	0.0035 U	0.01 U	0.01 U [0.01 U]	0.01 U	0.01 U	0.01 U	0.000509 J
Iron	0.3	mg/L	0.992 [23.1]	91.7	8.6	66.2 [61.5]	34.8	0.05 U	0.589 J	0.0453
Manganese	0.05	mg/L	6.19 [44]	6.29	6.56 UB	8.01 [7.42]	7.64 J	0.773	0.201 J	0.0362
Nickel	0.1	mg/L	0.059 [0.724]	0.573	0.0177	0.0817 [0.0762]	0.0729	0.01 U	0.01 U	0.00512
Zinc	1	mg/L	0.429 [10.4]	0.416	0.294 UB	1.12 [1.04]	1.05 J	0.05 UB	0.05 U	0.025 U
Inorganics-filtered										
Cadmium	0.002	mg/L	0.0024 [0.016]	0.026	0.001 U	0.0023 [0.0025]	0.000615 J	0.001 U	0.001 U	0.001 U
Copper	1	mg/L	0.01 U [3.29]	3.01	0.01 U	0.01 UJ [0.01 UJ]	0.002 U	0.01 U	0.01 U	0.002 U
Iron	0.3	mg/L	0.676 J [23 J]	10.5	0.05 U	54 [54.8]	34	0.05 U	0.05 U	0.025 U
Manganese	0.05	mg/L	6.09 [42.8]	6.42	5.81	7.66 [7.77]	8.54 J	0.734	0.255 J	0.00971
Nickel	0.1	mg/L	0.0541 [0.677]	0.603	0.0162	0.0805 [0.0802]	0.0725	0.01 U	0.01 U	0.00405
Zinc	1	mg/L	0.426 [10.1]	0.399	0.248 UB	1.05 [1.08]	1.02	0.05 U	0.05 U	0.025 U
Miscellaneous										
Alkalinity	- -	mg/L	NA	NA	211	63.6 [63]	25.5	187	183	54.8
Methane	- -	mg/L	NA	NA	NA	NA [NA]	0.0221	NA	NA	0.005 U
Nitrate	10	mg/L	NA	NA	4.53	0.1 U [0.1 U]	0.151	10.1 EJ	9.29 J	7.44
Sulfate	250	mg/L	NA	NA	1360	1560 [1750]	1730	123	111	136
Total Organic Carbon	- -	mg/L	NA	NA	3.42	3.76 [3.8]	4.07	3.82	2.49	2.64
Water Quality										
Dissolved Oxygen	- -	mg/L	NA	NA	1.32	0.21	0.35	4.48	0.54	2.99
ORP	- -	mV	NA	NA	34.4	0.5	113.5	91.5	27.3	199.8
pH	- -	SU	NA	NA	6.23	5.08	7.86	6.62	6.4	5.65
Specific Conductivity	- -	mS/cm	NA	NA	2.863	2.522	2.166	0.851	0.907	0.618
Temperature	- -	°C	NA	NA	19.47	19.71	16.91	18.35	18.37	14.11
Turbidity	- -	NTU	NA	NA	17.6	29.8	18.5	3.98	27.7	3.06

Notes:
U - not detected
J - estimated value
UB - non-detect due to blank contamination
mg/L - milligrams per liter
mV - millivolt
SU - standard units
mS/cm - millisiemens per centimeter
°C - degrees Celsius
NTU - nephelometric turbidity units
Duplicate sample concentrations are in brackets
Shaded values exceed the NC 2L Groundwater Standards.

Table 4
Summary of Historical Groundwater Analytical Results and Field Parameter Measurements
2015 Groundwater Monitoring Report
VCC - Wadesboro, North Carolina

Analyte	NC 2L Groundwater Standard	Units	Concentration in Sample: MW-5 11/23/2010	WA-MW-5 9/28/2011	WA-MW-5 4/23/2015	WA-MW-6 10/13/2011	WA-MW-6 4/22/2015	WA-MW-7 10/13/2011	WA-MW-7 4/22/2015	WA-MW-8 12/6/2011	WA-MW-8 4/22/2015
Inorganics											
Cadmium	0.002	mg/L	0.001 U	0.001 U [0.001 U]	0.001 U	0.001 U	0.001 U	0.0013 [0.0013]	0.00461	0.001 U [0.001 U]	0.001 U
Copper	1	mg/L	0.01 U	0.01 U [0.01 U]	0.000827 J	0.01 U	0.000925 J	0.0202 [0.0196]	0.129	0.01 U [0.01 U]	0.000567 J
Iron	0.3	mg/L	0.05 U	0.05 U [0.05 U]	0.0248 J	0.0965 UB	0.0838	0.52 [0.473]	1.03	0.0363 J [0.132]	0.1
Manganese	0.05	mg/L	0.116 UB	0.208 [0.174]	0.00244	0.558 J	0.119	0.887 [0.92]	4.45	0.0725 [0.0776]	0.475
Nickel	0.1	mg/L	0.01 U	0.01 U [0.01 U]	0.000939 J	0.01 U	0.00773	0.01 U [0.01 U]	0.027	0.01 U [0.01 U]	0.0122
Zinc	1	mg/L	0.05 UB	0.05 U [0.05 U]	0.025 U	0.05 U	0.113 J	0.333 [0.347]	1.53 J	0.05 U [0.05 U]	0.0511 J
Inorganics-filtered											
Cadmium	0.002	mg/L	0.001 U	0.001 U [0.001 U]	0.001 U	0.001 U	0.000467 J	0.0013 [0.0014]	0.00448	0.001 U [0.001 U]	0.001 U
Copper	1	mg/L	0.01 U	0.01 U [0.01 U]	0.000619 J	0.01 U	0.002 UB	0.0162 [0.016]	0.082	0.01 U [0.01 U]	0.002 UB
Iron	0.3	mg/L	0.05 U	0.05 U [0.05 U]	0.0147 J	0.05 U	0.025 U	0.05 U [0.05 U]	0.0745	0.05 U [0.05 U]	0.025 U
Manganese	0.05	mg/L	0.015 U	0.174 J [0.169]	0.00335	0.646 J	0.0819	0.887 [0.931]	4	0.0766 [0.0779]	0.526
Nickel	0.1	mg/L	0.01 U	0.01 U [0.01 U]	0.00064 J	0.01 U	0.0106	0.01 U [0.01 U]	0.0263	0.01 U [0.01 U]	0.0156
Zinc	1	mg/L	0.05 U	0.05 U [0.05 U]	0.025 U	0.05 U	0.157 J	0.331 [0.336]	1.57	0.05 U [0.05 U]	0.0523
Miscellaneous											
Alkalinity	- -	mg/L	270	374 J [379]	372	175	148	189 [195]	133	280 [286]	159
Methane	- -	mg/L	NA	NA [NA]	0.005 U	NA	0.0187	NA [NA]	0.0343	NA [NA]	0.005 U
Nitrate	10	mg/L	1.26	1.14 J [1.2 J]	0.546	3.96	0.469	6.1 [6.09]	4.21	12.9 [12.8]	4.36
Sulfate	250	mg/L	97.7	189 [188]	292	561	691	517 [517]	787	77.8 [78.5]	374
Total Organic Carbon	- -	mg/L	5.48	4.57 [4.27]	3.55	4.15	6.14	1.9 [1.99]	3.29	2.81 [2.83]	3.77
Water Quality											
Dissolved Oxygen	- -	mg/L	7.43	3.84	1.07	4.4	0.26	1.66	0.21	4.21	0.7
ORP	- -	mV	147.2	-60.9	172.8	-11.4	113.3	22.1	99	52.7	78
pH	- -	SU	6.74	6.8	6.79	5.91	6.86	6.58	5.83	6.74	6.52
Specific Conductivity	- -	mS/cm	1.164	1.637	1.648	1.455	1.528	1.576	1.77	0.91	1.117
Temperature	- -	°C	18.26	21.63	14.1	20.5	18.69	21.17	17.3	19.31	16.69
Turbidity	- -	NTU	0.66	1.28	2.91	2.87	9.5	19.5	33	19.8	8

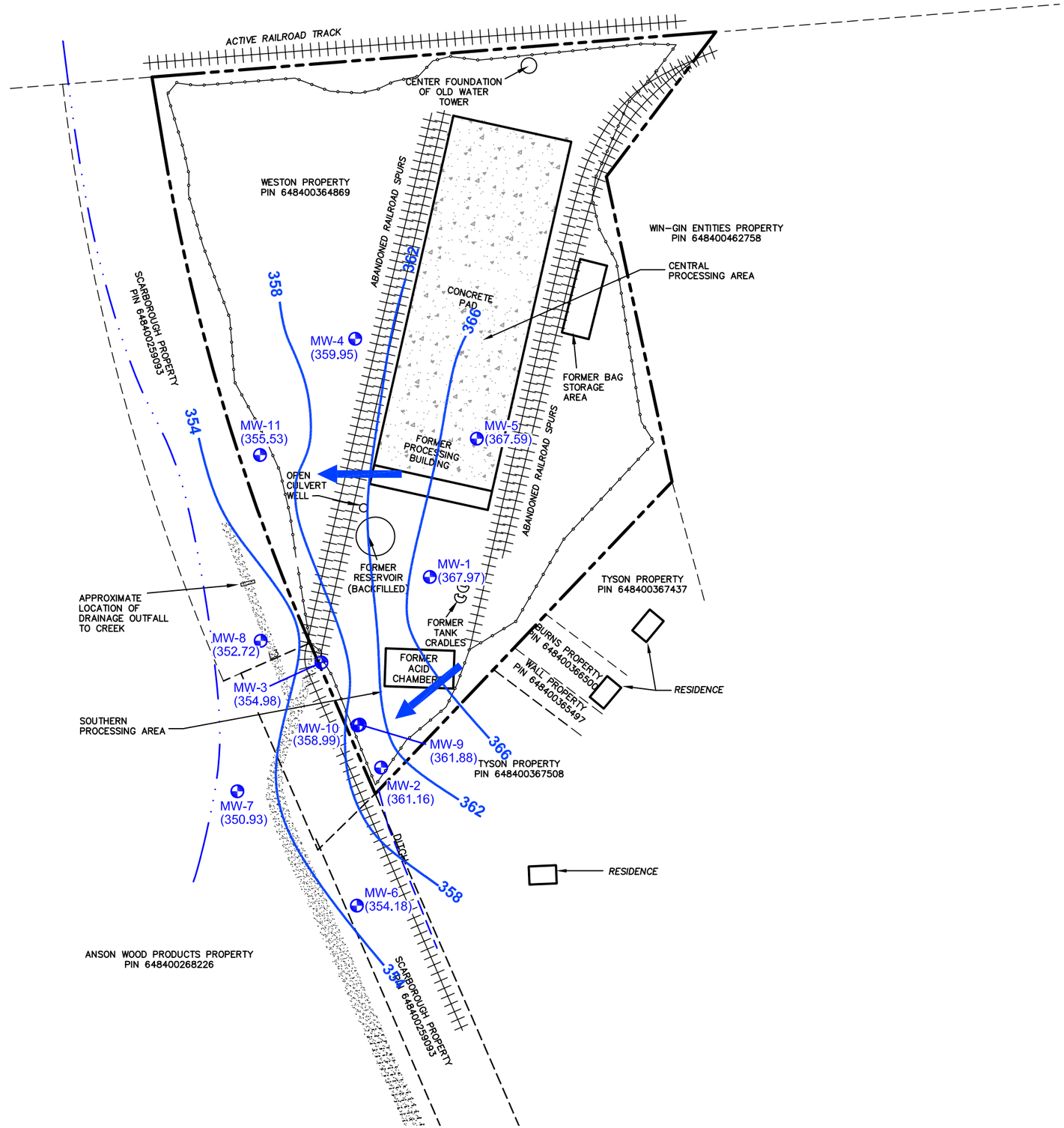
Notes:
U - not detected
J - estimated value
UB - non-detect due to blank contamination
mg/L - milligrams per liter
mV - millivolt
SU - standard units
mS/cm - millisiemens per centimeter
°C - degrees Celsius
NTU - nephelometric turbidity units
Duplicate sample concentrations are in brackets
Shaded values exceed the NC 2L Groundwater Standards.

Table 4
Summary of Historical Groundwater Analytical Results and Field Parameter Measurements
2015 Groundwater Monitoring Report
VCC - Wadesboro, North Carolina

Analyte	NC 2L Groundwater Standard	Units	Concentration in Sample: WA-MW-9 10/17/2011	WA-MW-9 4/23/2015	WA-MW-10 10/17/2011	WA-MW-10 4/23/2015	WA-MW-11 10/14/2011	WA-MW-11 4/22/2015
Inorganics								
Cadmium	0.002	mg/L	0.33	0.00625	0.001 U	0.001 U	0.001 U [0.001 U]	0.00175
Copper	1	mg/L	39.6	0.514	0.01 U	0.000602 J	0.01 U [0.01 U]	0.0219
Iron	0.3	mg/L	726	42.5	0.288	0.104	0.0969 J [0.516 J]	0.0536 J
Manganese	0.05	mg/L	273	3.69	0.215	0.372	0.339 [0.356]	3.03
Nickel	0.1	mg/L	2.51	0.0753	0.01 U	0.00133 J	0.01 U [0.01 U]	0.0545
Zinc	1	mg/L	158	4.23	0.05 U	0.025 U	0.05 U [0.05 U]	0.19 J
Inorganics-filtered								
Cadmium	0.002	mg/L	0.33	0.00602	0.001 U	0.001 U	0.001 U [0.001 U]	0.00159
Copper	1	mg/L	38.7	0.342	0.01 UJ	0.000827 J	0.01 U [0.01 U]	0.0182
Iron	0.3	mg/L	724	33.5	0.0696	0.025 U	0.05 U [0.05 U]	0.0152 J
Manganese	0.05	mg/L	269	3.8	0.2	0.332	0.323 [0.322]	2.82
Nickel	0.1	mg/L	2.45	0.0629	0.01 U	0.00132 J	0.01 U [0.01 U]	0.0528
Zinc	1	mg/L	156	4.34	0.05 U	0.025 U	0.05 U [0.05 U]	0.177
Miscellaneous								
Alkalinity	- -	mg/L	10 U	10 U	375 J	331	52.7 [51.4]	10 U
Methane	- -	mg/L	NA	0.005 U	NA	0.005 U	NA [NA]	0.005 U
Nitrate	10	mg/L	20 UJ	0.1 U	0.796 J	0.322	6.76 J [6.73 J]	32.7
Sulfate	250	mg/L	19700	1810	1240	1550	83.3 [81.3]	693
Total Organic Carbon	- -	mg/L	15.5	5.94	4.15	3.61	1 U [1 U]	6.84
Water Quality								
Dissolved Oxygen	- -	mg/L	0.31	0.2	0.57	0.26	0.58	0.38
ORP	- -	mV	374.5	259	96.9	139	65.7	180
pH	- -	SU	2.97	4.2	6.72	6.87	5.74	4.95
Specific Conductivity	- -	mS/cm	17.275	3.118	2.535	2.788	0.426	1.216
Temperature	- -	°C	20.83	15.95	20.45	16.47	18.55	16.27
Turbidity	- -	NTU	3.4	22	10.19	13	4.82	30

Notes:
U - not detected
J - estimated value
UB - non-detect due to blank contamination
mg/L - milligrams per liter
mV - millivolt
SU - standard units
mS/cm - millisiemens per centimeter
°C - degrees Celsius
NTU - nephelometric turbidity units
Duplicate sample concentrations are in brackets
Shaded values exceed the NC 2L Groundwater Standards.

Figures



LEGEND:

- BUILDING
- TANK
- RAILROAD
- DITCH
- STREAM
- ADJACENT PROPERTY LINE
- PROPERTY LINE
- CHAIN LINK FENCE
- ACCESS ROAD
- MW-1 — PERMANENT MONITORING WELL LOCATION
- GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR
- (367.97) — GROUNDWATER POTENTIOMETRIC SURFACE ELEVATION (IN FEET ABOVE MEAN SEA LEVEL)
- GROUNDWATER FLOW DIRECTION

NOTES:

1. BASE MAP BY JAMES R. HARRINGTON AND ASSOCIATES AT A SCALE OF 1" = 100' SUPPLEMENTED BY BBL WITH FEATURES DIGITIZED FROM A DRAWING ENTITLED "FIGURE 3 – SAMPLING LOCATION MAP" BY TETRA TECH EMI (2000).
2. PROPERTY OWNER INFORMATION PROVIDED BY ANSON COUNTY GIS WEBSITE ON MAY 13, 2015.
3. ALL PERMANENT WELL LOCATIONS WERE SURVEYED IN OCTOBER 2011 BY ARCADIS.

0 150' 300'
GRAPHIC SCALE

EXXONMOBIL
VCC - WADESBORO, NORTH CAROLINA
2015 GROUNDWATER MONITORING REPORT

GROUNDWATER POTENTIOMETRIC SURFACE MAP - APRIL 2015

ARCADIS

FIGURE
1

CITY: SYRACUSE, NY DIV/GROUP: IMDV/CAD DB/LD: L.POSENAUER PM:(Reqd) LYR:(Opt)ON=*;OFF=*REF*
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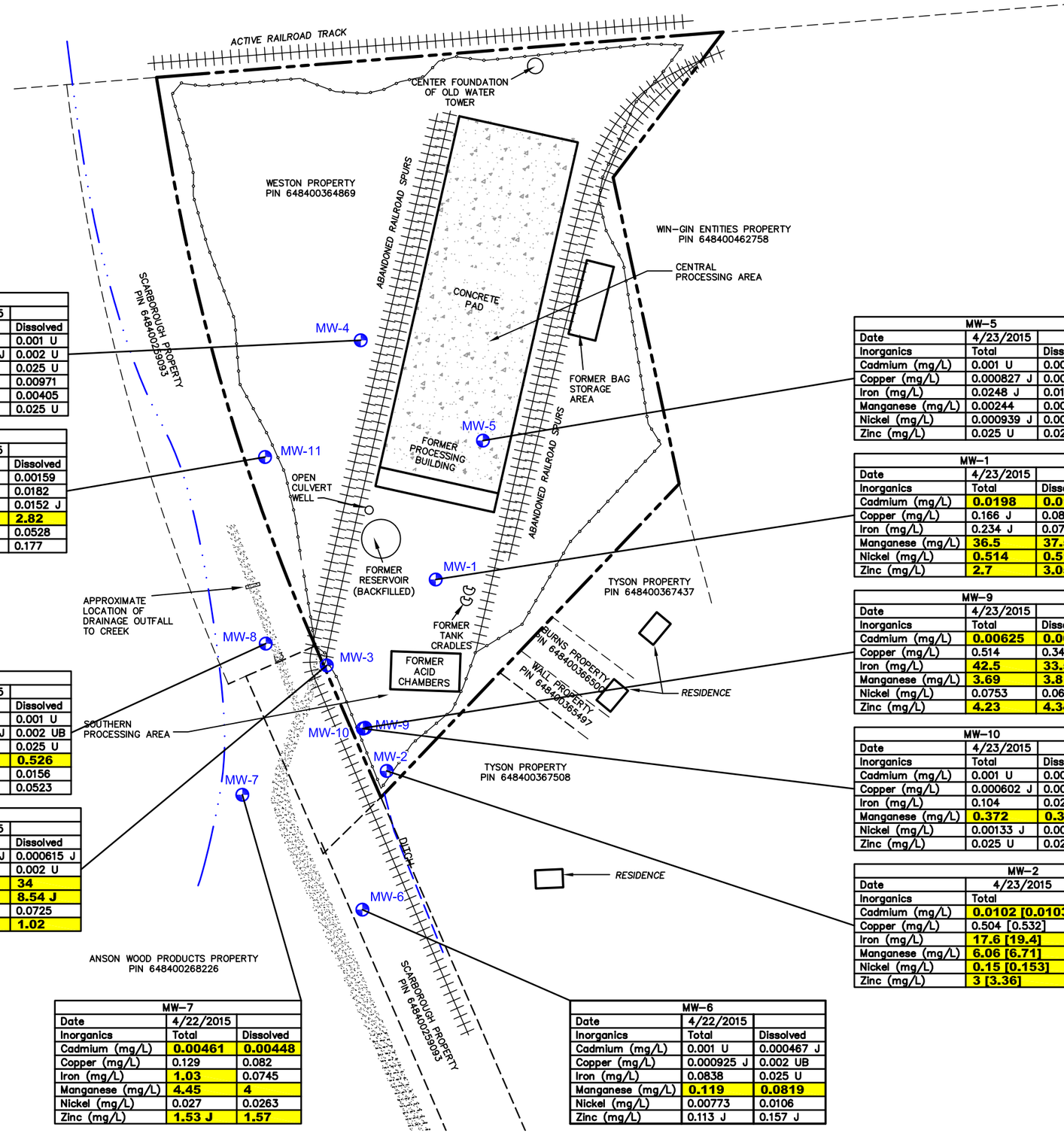

MW-4		
Date	4/23/2015	
Inorganics	Total	Dissolved
Cadmium (mg/L)	0.001 U	0.001 U
Copper (mg/L)	0.000509 J	0.002 U
Iron (mg/L)	0.0453	0.025 U
Manganese (mg/L)	0.0362	0.00971
Nickel (mg/L)	0.00512	0.00405
Zinc (mg/L)	0.025 U	0.025 U

MW-11		
Date	4/22/2015	
Inorganics	Total	Dissolved
Cadmium (mg/L)	0.00175	0.00159
Copper (mg/L)	0.0219	0.0182
Iron (mg/L)	0.0536 J	0.0152 J
Manganese (mg/L)	3.03	2.82
Nickel (mg/L)	0.0545	0.0528
Zinc (mg/L)	0.19 J	0.177

MW-8		
Date	4/23/2015	
Inorganics	Total	Dissolved
Cadmium (mg/L)	0.001 U	0.001 U
Copper (mg/L)	0.000567 J	0.002 UB
Iron (mg/L)	0.1	0.025 U
Manganese (mg/L)	0.475	0.526
Nickel (mg/L)	0.0122	0.0156
Zinc (mg/L)	0.0511 J	0.0523

MW-3		
Date	4/22/2015	
Inorganics	Total	Dissolved
Cadmium (mg/L)	0.000673 J	0.000615 J
Copper (mg/L)	0.01 U	0.002 U
Iron (mg/L)	34.8	34
Manganese (mg/L)	7.64 J	8.54 J
Nickel (mg/L)	0.0729	0.0725
Zinc (mg/L)	1.05 J	1.02

MW-7		
Date	4/22/2015	
Inorganics	Total	Dissolved
Cadmium (mg/L)	0.00461	0.00448
Copper (mg/L)	0.129	0.082
Iron (mg/L)	1.03	0.0745
Manganese (mg/L)	4.45	4
Nickel (mg/L)	0.027	0.0263
Zinc (mg/L)	1.53 J	1.57

MW-6		
Date	4/22/2015	
Inorganics	Total	Dissolved
Cadmium (mg/L)	0.001 U	0.000467 J
Copper (mg/L)	0.000925 J	0.002 UB
Iron (mg/L)	0.0838	0.025 U
Manganese (mg/L)	0.119	0.0819
Nickel (mg/L)	0.00773	0.0106
Zinc (mg/L)	0.113 J	0.157 J

MW-5		
Date	4/23/2015	
Inorganics	Total	Dissolved
Cadmium (mg/L)	0.001 U	0.001 U
Copper (mg/L)	0.000827 J	0.000619 J
Iron (mg/L)	0.0248 J	0.0147 J
Manganese (mg/L)	0.00244	0.00335
Nickel (mg/L)	0.000939 J	0.00064 J
Zinc (mg/L)	0.025 U	0.025 U

MW-1		
Date	4/23/2015	
Inorganics	Total	Dissolved
Cadmium (mg/L)	0.0198	0.0172
Copper (mg/L)	0.166 J	0.0887
Iron (mg/L)	0.234 J	0.0723
Manganese (mg/L)	36.5	37.5
Nickel (mg/L)	0.514	0.516
Zinc (mg/L)	2.7	3.05

MW-9		
Date	4/23/2015	
Inorganics	Total	Dissolved
Cadmium (mg/L)	0.00625	0.00602
Copper (mg/L)	0.514	0.342
Iron (mg/L)	42.5	33.5
Manganese (mg/L)	3.69	3.8
Nickel (mg/L)	0.0753	0.0629
Zinc (mg/L)	4.23	4.34

MW-10		
Date	4/23/2015	
Inorganics	Total	Dissolved
Cadmium (mg/L)	0.001 U	0.001 U
Copper (mg/L)	0.000602 J	0.000827 J
Iron (mg/L)	0.104	0.025 U
Manganese (mg/L)	0.372	0.332
Nickel (mg/L)	0.00133 J	0.00132 J
Zinc (mg/L)	0.025 U	0.025 U

MW-2		
Date	4/23/2015	
Inorganics	Total	Dissolved
Cadmium (mg/L)	0.0102 [0.0103]	0.0105 [0.0104]
Copper (mg/L)	0.504 [0.532]	0.412 [0.41]
Iron (mg/L)	17.6 [19.4]	14.7 [14.8]
Manganese (mg/L)	6.06 [6.71]	5.8 [6.12]
Nickel (mg/L)	0.15 [0.153]	0.123 [0.122]
Zinc (mg/L)	3 [3.36]	2.95 [3.06]

LEGEND:

- BUILDING
- TANK
- RAILROAD
- DITCH
- STREAM
- ADJACENT PROPERTY LINE
- PROPERTY LINE
- CHAIN LINK FENCE
- ACCESS ROAD
- MW-1 PERMANENT MONITORING WELL LOCATION

NOTES:

1. BASE MAP BY JAMES R. HARRINGTON AND ASSOCIATES AT A SCALE OF 1" = 100' SUPPLEMENTED BY BBL WITH FEATURES DIGITIZED FROM A DRAWING ENTITLED "FIGURE 3 – SAMPLING LOCATION MAP" BY TETRA TECH EMI (2000).
2. PROPERTY OWNER INFORMATION PROVIDED BY ANSON COUNTY GIS WEBSITE ON MAY 13, 2015.
3. ALL PERMANENT WELL LOCATIONS WERE SURVEYED IN OCTOBER 2011 BY ARCADIS.
4. SHADED RESULTS INDICATE EXCEEDANCES OF THE 15A NORTH CAROLINA ADMINISTRATIVE CODE 2L .0202 GROUNDWATER STANDARDS
5. J = ESTIMATED VALUE.
6. U = ANALYTE WAS NOT DETECTED ABOVE THE REPORTING LIMIT SHOWN.
7. UB = NON–DETECT DUE TO BLANK CONTAMINATE
8. [ ] = FIELD DUPLICATE RESULTS.
9. MG/L = MILLIGRAMS PER LITER.

0 150' 300'
GRAPHIC SCALE

EXXONMOBIL
VCC - WADESBORO, NORTH CAROLINA
2015 GROUNDWATER MONITORING REPORT

GROUNDWATER ANALYTICAL RESULTS - METALS

ARCADIS

FIGURE
2

CITY: SYRACUSE, NY DIV/GROUP: IMDV/CAD DBILD: LPOSENAUER PM:(Reqd) LYR:(Opt)ON=*;OFF=*REF* PAGESETUP: --- PLOTSTYLETABLE: --- PLOTTED: 7/8/2015 3:12 PM BY: POSENAUER, LISA
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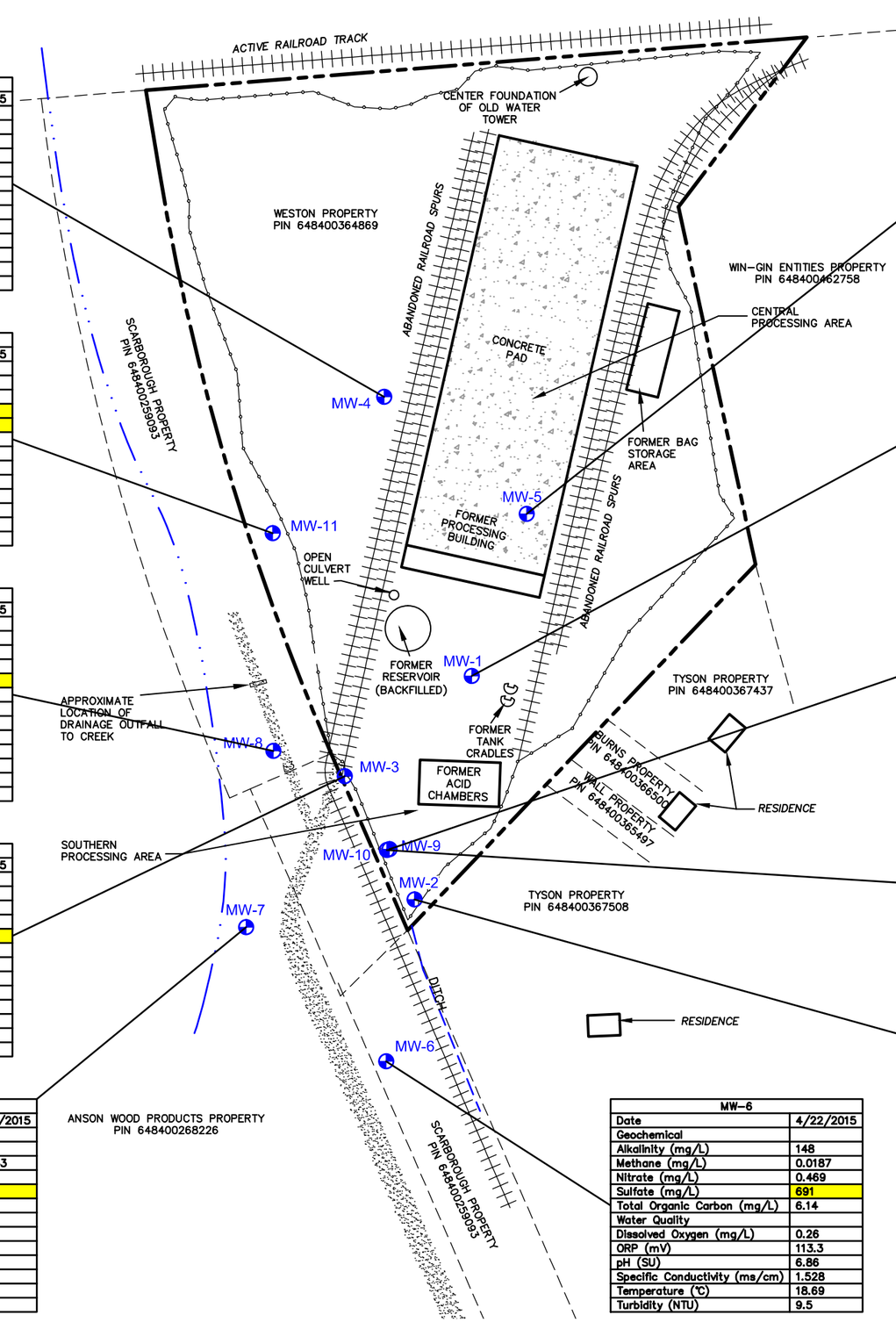

MW-4	
Date	4/23/2015
Geochemical	
Alkalinity (mg/L)	54.8
Methane (mg/L)	0.005 U
Nitrate (mg/L)	7.44
Sulfate (mg/L)	136
Total Organic Carbon (mg/L)	2.64
Water Quality	
Dissolved Oxygen (mg/L)	2.99
ORP (mV)	199.8
pH (SU)	5.65
Specific Conductivity (ms/cm)	0.618
Temperature (°C)	14.11
Turbidity (NTU)	3.06

MW-11	
Date	4/23/2015
Geochemical	
Alkalinity (mg/L)	10 U
Methane (mg/L)	0.005 U
Nitrate (mg/L)	32.7
Sulfate (mg/L)	693
Total Organic Carbon (mg/L)	6.84
Water Quality	
Dissolved Oxygen (mg/L)	0.38
ORP (mV)	180
pH (SU)	4.95
Specific Conductivity (ms/cm)	1.216
Temperature (°C)	16.27
Turbidity (NTU)	30

MW-8	
Date	4/22/2015
Geochemical	
Alkalinity (mg/L)	159
Methane (mg/L)	0.005 U
Nitrate (mg/L)	4.36
Sulfate (mg/L)	374
Total Organic Carbon (mg/L)	3.77
Water Quality	
Dissolved Oxygen (mg/L)	0.7
ORP (mV)	78
pH (SU)	6.52
Specific Conductivity (ms/cm)	1.117
Temperature (°C)	16.69
Turbidity (NTU)	8

MW-3	
Date	4/22/2015
Geochemical	
Alkalinity (mg/L)	25.5
Methane (mg/L)	0.0221
Nitrate (mg/L)	0.151
Sulfate (mg/L)	1730
Total Organic Carbon (mg/L)	4.07
Water Quality	
Dissolved Oxygen (mg/L)	0.35
ORP (mV)	113.5
pH (SU)	7.86
Specific Conductivity (ms/cm)	2.166
Temperature (°C)	16.91
Turbidity (NTU)	18.5

MW-7	
Date	4/22/2015
Geochemical	
Alkalinity (mg/L)	133
Methane (mg/L)	0.0343
Nitrate (mg/L)	4.21
Sulfate (mg/L)	787
Total Organic Carbon (mg/L)	3.29
Water Quality	
Dissolved Oxygen (mg/L)	0.21
ORP (mV)	99
pH (SU)	5.83
Specific Conductivity (ms/cm)	1.77
Temperature (°C)	17.3
Turbidity (NTU)	33

MW-6	
Date	4/22/2015
Geochemical	
Alkalinity (mg/L)	148
Methane (mg/L)	0.0187
Nitrate (mg/L)	0.469
Sulfate (mg/L)	691
Total Organic Carbon (mg/L)	6.14
Water Quality	
Dissolved Oxygen (mg/L)	0.26
ORP (mV)	113.3
pH (SU)	6.86
Specific Conductivity (ms/cm)	1.528
Temperature (°C)	18.69
Turbidity (NTU)	9.5

MW-5	
Date	4/23/2015
Geochemical	
Alkalinity (mg/L)	372
Methane (mg/L)	0.005 U
Nitrate (mg/L)	0.546
Sulfate (mg/L)	292
Total Organic Carbon (mg/L)	3.55
Water Quality	
Dissolved Oxygen (mg/L)	1.07
ORP (mV)	172.8
pH (SU)	6.79
Specific Conductivity (ms/cm)	1.648
Temperature (°C)	14.1
Turbidity (NTU)	2.91

MW-1	
Date	4/23/2015
Geochemical	
Alkalinity (mg/L)	10 U
Methane (mg/L)	0.00292 J
Nitrate (mg/L)	4.49
Sulfate (mg/L)	4120
Total Organic Carbon (mg/L)	7.66
Water Quality	
Dissolved Oxygen (mg/L)	0.37
ORP (mV)	230.9
pH (SU)	4.21
Specific Conductivity (ms/cm)	3.486
Temperature (°C)	15.2
Turbidity (NTU)	5.44

MW-9	
Date	4/23/2015
Geochemical	
Alkalinity (mg/L)	10 U
Methane (mg/L)	0.005 U
Nitrate (mg/L)	0.1 U
Sulfate (mg/L)	1810
Total Organic Carbon (mg/L)	5.94
Water Quality	
Dissolved Oxygen (mg/L)	0.2
ORP (mV)	259
pH (SU)	4.2
Specific Conductivity (ms/cm)	3.118
Temperature (°C)	15.95
Turbidity (NTU)	22

MW-10	
Date	4/23/2015
Geochemical	
Alkalinity (mg/L)	331
Methane (mg/L)	0.005 U
Nitrate (mg/L)	0.322
Sulfate (mg/L)	1550
Total Organic Carbon (mg/L)	3.61
Water Quality	
Dissolved Oxygen (mg/L)	0.26
ORP (mV)	139
pH (SU)	6.87
Specific Conductivity (ms/cm)	2.788
Temperature (°C)	16.47
Turbidity (NTU)	13

MW-2	
Date	4/23/2015
Geochemical	
Alkalinity (mg/L)	10 U [10 U]
Methane (mg/L)	0.005 U [0.005 U]
Nitrate (mg/L)	0.1 U [0.1 U]
Sulfate (mg/L)	1460 [1630]
Total Organic Carbon (mg/L)	4.13 [4.07]
Water Quality	
Dissolved Oxygen (mg/L)	0.25
ORP (mV)	299
pH (SU)	4.09
Specific Conductivity (ms/cm)	1.522
Temperature (°C)	13.68
Turbidity (NTU)	3

LEGEND:

- BUILDING
- TANK
- RAILROAD
- DITCH
- STREAM
- ADJACENT PROPERTY LINE
- PROPERTY LINE
- CHAIN LINK FENCE
- ACCESS ROAD
- MW-1 PERMANENT MONITORING WELL LOCATION

NOTES:

1. BASE MAP BY JAMES R. HARRINGTON AND ASSOCIATES AT A SCALE OF 1" = 100' SUPPLEMENTED BY BBL WITH FEATURES DIGITIZED FROM A DRAWING ENTITLED "FIGURE 3 – SAMPLING LOCATION MAP" BY TETRA TECH EMI (2000).
2. PROPERTY OWNER INFORMATION PROVIDED BY ANSON COUNTY GIS WEBSITE ON MAY 13, 2015.
3. ALL PERMANENT WELL LOCATIONS WERE SURVEYED IN OCTOBER 2011 BY ARCADIS.
4. WATER QUALITY PARAMETERS WERE COLLECTED USING A YSI 556 DURING PURGING ACTIVITIES. THESE DATA ARE THE LAST READINGS TAKEN PRIOR TO SAMPLING.
5. SHADED RESULTS INDICATE EXCEEDANCES OF THE 15A NORTH CAROLINA ADMINISTRATIVE CODE 2L .0202 GROUNDWATER STANDARDS.
6. J = ESTIMATED VALUE.
7. U = ANALYTE WAS NOT DETECTED ABOVE THE REPORTING LIMIT SHOWN.
8. [ ] = FIELD DUPLICATE RESULTS.
9. MG/L = MILLIGRAMS PER LITER.
10. °C = DEGREES CELSIUS.
11. mS/cm = MICROSIEMENS PER CENTIMETER.
12. mV = MILLIVOLTS.
13. NTU = NEPHELOMETRIC TURBIDITY UNITS.
14. SU = STANDARD UNITS.

0 150' 300'

GRAPHIC SCALE

EXXONMOBIL
VCC - WADESBORO, NORTH CAROLINA
2015 GROUNDWATER MONITORING REPORT

GROUNDWATER ANALYTICAL RESULTS - GEOCHEMICAL AND WATER QUALITY PARAMETERS

ARCADIS

FIGURE
3

CITY: SYRACUSE, NY DIV/GROUP: IMDV/CAD DB/LD: L.POSENAUER PM:(Reqd) LYR:(Opt)ON=*;OFF=*REF* PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 7/15/2015 9:58 AM BY: POSENAUER, LISA
C:\ENVCAD\SYRACUSE\ACT\B0085671\15020008\DWG\2015GWMR\85671C03.dwg LAYOUT: 3 SAVED: 7/15/2015 9:56 AM ACADVER: 19.1S (LMS TECH)
XREFS: 85671X00 85671X01 IMAGES:

Attachment 1

Groundwater Sampling Logs

ARCADIS

Groundwater Sample Log

Project No. B0085671-1502 | Well ID WM-MW-01 | Date 4-23-15

Project Name/Location VCC Wadesboro, NC | Weather 65°, sunny

Measuring Pt. Description btoc | Screen Setting (ft-bgs) 10'-35' | Casing Diameter (in.) 2 | Well Material X PVC ___ SS ___ Other

Total Depth (ft-btoc) 37.67 | Static Water Level (ft-btoc) 5.15' | Water Column in Well 32.52 | Gallons in Well 5.3

Calc.Gallons Purged | Pump Intake (ft-btoc) 25' | Purge Method: PDB ___ Bladder ___ Disp. Bailer ___ Peristaltic X | Sample Method Low Flow

Gallons Purged 1.5 | MP Elevation

Sample Time: Label 1232 | Replicate/ Code No. NA | Pump On/Off 1132/1305

Sampled by: D. Rhodes

Time	Minutes Elapsed	Rate ml/min	Depth to Water (ft) TOC	Temp. (°C)	Sp.Cond. (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Appearance Color	Appearance Odor
1137	5	100	5.95	14.70	3.445	1.84	4.40	216.5	7.30	Clear	None
1142	10	100	6.30	14.83	3.466	0.85	4.27	218.7	4.52	Clear	None
1147	15	100	6.68	15.14	3.464	0.82	4.26	220.9	4.98	Clear	None
1152	20	100	7.06	15.25	3.468	0.67	4.26	221.3	3.89	Clear	None
1157	25	100	7.31	15.25	3.478	0.64	4.25	224.0	3.45	Clear	None
1202	30	100	7.59	15.21	3.484	0.47	4.25	226.2	3.81	Clear	None
1207	35	100	7.91	15.22	3.481	0.46	4.22	226.9	4.32	Clear	None
1212	40	100	8.04	15.19	3.481	0.45	4.21	227.6	5.16	Clear	None
1217	45	100	8.35	15.21	3.486	0.38	4.22	229.2	5.30	Clear	None
1227	55	100	8.58	15.21	3.486	0.37	4.21	229.7	5.92	Clear	None
1232	60	100	8.72	15.20	3.486	0.37	4.21	230.9	5.44	Clear	None

Constituents Sampled	Container	Number	Preservative
TOC	250 ml Amber glass	1	H_2SO_4
Nitrate Nitrite as N	250 ml plastic	1	H_2SO_4
Cu, Cd, Fe, Mn, Ni, Zn	250 ml plastic	1	HNO_3
Cu, Cd, Fe, Mn, Ni, Zn - Dissolved	250 ml plastic	1	HNO_3
Methane	40 ml VOA clear	3	HCL
pH, Alkalinity, Sulfate	250 ml plastic	3	None

Well Information

Well Location:

Condition of Well: Good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes

Well Locked at Departure: Yes

Key Number To Well:

NOTES: Dissolved sample collected through 0.45 micron filter

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

ARCADIS

Groundwater Sample Log

Project No. B008567.1502 | Well ID WA-MW-02 | Date 4-23-15

Project Name/Location Wadesboro VCC / NC | Weather Clear 70°F

Measuring Pt. Description TOC | Screen Setting (ft-bgs) TOC 14.95-24.95 | Casing Diameter (in.) 2 | Well Material X PVC ___ SS ___ Other

Total Depth (ft-btoc) 24.95 | Static Water Level (ft-btoc) 5.60 | Water Column in Well 19.4 | Gallons in Well 3.2

Calc.Gallons Purged ___ | Pump Intake (ft-btoc) 20.0 | Purge Method: PDB ___ Bladder ___ Disp. Bailer ___ Peristaltic X | Sample Method Low Flow

Gallons Purged 2.5 | MP Elevation ___

Sample Time: Label 0935 | Replicate/ Code No. WA-QAQC-DUP-01 | Pump On/Off 0830/1010

Sampled by: B. Lovgren

Time	Minutes Elapsed	Rate ml/min	Depth to Water (ft) TOC	Temp. (°C)	Sp.Cond. (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Appearance Color	Appearance Odor
0835	5	120	6.55	13.57	1.537	1.89	4.01	199	11	Colorless	None
0840	10	120	7.03	13.59	1.357	1.10	4.01	206	10	↓	↓
0845	15	120	7.50	13.62	1.280	0.81	4.03	199	6	↓	↓
0850	20	120	7.90	13.56	1.252	0.61	4.06	216	8	↓	↓
0855	25	120	8.20	13.55	1.244	0.49	4.08	236	7	↓	↓
0900	30	120	8.40	13.57	1.258	0.43	4.09	246	5	↓	↓
0905	35	120	8.65	13.59	1.298	0.39	4.09	258	5	↓	↓
0910	40	120	8.85	13.63	1.340	0.35	4.10	266	4	↓	↓
0915	45	120	9.00	13.67	1.389	0.30	4.09	286	4	↓	↓
0920	50	120	9.20	13.69	1.448	0.28	4.10	294	4	↓	↓
0925	55	120	9.30	13.69	1.487	0.26	4.10	298	4	↓	↓
0930	60	120	9.41	13.68	1.522	0.25	4.09	299	3	↓	↓

Constituents Sampled	Container	Number	Preservative
Methane	40ml vials	3	HCl
Nitrate	250ml plastic	1	H_2SO_4
TOC	250ml glass	1	H_2SO_4
Sulfate	250ml plastic	1	4°C
Alkalinity	250ml plastic	1	4°C
pH	250ml plastic	1	4°C
Cu, Cd, Fe, Mn, Ni, Zn	250ml plastic	1	HNO_3
Diss Cd, Fe, Mn, Ni, Zn	250ml plastic	1	HNO_3

Well Information

Well Location: ___ | Well Locked at Arrival: Yes

Condition of Well: Good | Well Locked at Departure: Yes

Well Completion: Flush Mount / Stick Up | Key Number To Well: ___

NOTES: 0730 collected WA-QAQC-EB-02 (Equipment Blank) by pumping lab supplied DI water through new tubing and filled above bottles. Dissolved sample collected through 0.45 micron filter

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sample Log

Project No. B0085671.1502 | Well ID WA-MW-03 | Date 4-22-15

Project Name/Location VCC Wadesboro, NC | Weather 70°, Sunny

Measuring Pt. Description btoc | Screen Setting (ft-bgs) 11'-26' | Casing Diameter (in.) 2 | Well Material ✓ PVC ___ SS ___ Other

Total Depth (ft-btoc) 28.95' | Static Water Level (ft-btoc) 9.15' | Water Column in Well 19.8 | Gallons in Well 3.2

Calc.Gallons Purged ___ | Pump Intake (ft-btoc) 20' | Purge Method: PDB ___ Bladder ___ Disp. Bailer ___ Peristaltic X | Sample Method Low Flow

Gallons Purged 1.8 | MP Elevation ___

Sample Time: Label 1635 | Replicate/ Code No. N/A | Pump On/Off 1530 / 1705

Sampled by: D. Rhodes

Time	Minutes Elapsed	Rate ml/min	Depth to Water (ft) TOC	Temp. (°C)	Sp.Cond. (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Appearance Color	Appearance Odor
1540	10	100	10.08	17.11	2.169	0.70	9.79	125.0	32.9	Clear	None
1545	15	100	10.60	17.32	2.169	0.66	8.99	119.7	28.0	Clear	None
1550	20	100	11.05	17.30	2.167	0.53	8.58	115.4	26.4	Clear	None
1555	25	100	11.27	17.50	2.173	0.51	7.37	115.4	23.6	Clear	None
1600	30	100	11.47	17.47	2.166	0.44	7.26	115.3	24.1	Clear	None
1605	35	100	11.82	17.13	2.166	0.42	7.70	115.9	25.8	Clear	None
1610	40	100	12.10	17.01	2.168	0.39	8.27	115.3	24.4	Clear	None
1615	45	100	12.38	16.91	2.165	0.39	8.28	114.7	26.1	Clear	None
1620	50	100	12.60	16.95	2.164	0.37	7.86	113.9	20.4	Clear	None
1625	55	100	12.79	16.91	2.165	0.37	7.87	113.6	19.5	Clear	None
1630	60	100	13.00	16.93	2.166	0.37	7.87	113.4	18.9	Clear	None
1635	65	100	13.19	16.91	2.166	0.35	7.86	113.5	18.5	Clear	None

Constituents Sampled	Container	Number	Preservative
~~Nitrate~~ Nitrate Nitrite as N	250 ml plastic	1	H_2SO_4
TOC	250 ml Amber glass	1	H_2SO_4
Cu, Co, Fe, Mn, Ni, Zn	250 ml plastic	1	HNO_3
Cu, Co, Fe, Mn, Ni, Zn - Dissolved	250 ml plastic	1	HNO_3
pH, Alkalinity, Sulfate	250 ml plastic	3	None
methane	40 ml VOA clear	3	HCL

Well Information

Well Location: ___ | Well Locked at Arrival: Yes

Condition of Well: Good | Well Locked at Departure: Yes

Well Completion: Flush Mount / Stick Up | Key Number To Well: ___

NOTES: Dissolved sample collected through 0.45 micron filter

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sample Log

Project No. B0085671.1502 | Well ID WA-MW-04 | Date 4-23-15

Project Name/Location VCC Wadesboro, NC | Weather 60°, Sunny

Measuring Pt. Description btoc | Screen Setting (ft-bgs) 14'-29' | Casing Diameter (in.) 2 | Well Material ✓ PVC ___ SS ___ Other

Total Depth (ft-btoc) 33.10' | Static Water Level (ft-btoc) 13.85' | Water Column in Well 19.3 | Gallons in Well 3.1

Calc. Gallons Purged | Pump Intake (ft-btoc) 25' | Purge Method: PDB ___ Bladder ___ Disp. Bailer ___ Peristaltic X | Sample Method Low Flow

Gallons Purged 1.0 | MP Elevation

Sample Time: Label 0845 | Replicate/ Code No. NA | Pump On/Off 0800/0925

Sampled by: D. Rhodes

Time	Minutes Elapsed	Rate ml/min	Depth to Water (ft) TOC	Temp. (°C)	Sp.Cond. (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Appearance Color	Appearance Odor
0805	5	100	14.65	14.08	0.637	3.32	5.53	200.1	3.03	Clear	None
0810	10	100	14.90	14.05	0.635	3.15	5.55	194.9	3.11	Clear	None
0815	15	100	15.25	13.99	0.631	2.98	5.55	197.3	3.87	Clear	None
0820	20	100	15.55	14.01	0.629	2.97	5.58	206.8	3.41	Clear	None
0825	25	100	15.98	14.02	0.621	3.27	5.61	208.5	2.85	Clear	None
0830	30	100	16.28	14.07	0.619	3.08	5.64	206.8	3.49	Clear	None
0835	35	100	16.76	14.10	0.618	3.01	5.64	202.3	3.26	Clear	None
0840	40	100	16.79	14.10	0.618	3.05	5.65	200.0	3.39	Clear	None
0845	45	100	16.79	14.11	0.618	2.99	5.65	199.8	3.06	Clear	None

Constituents Sampled	Container	Number	Preservative
TOC	250 ml Amber Glass	1	H_2SO_4
Nitrate Nitrite as N	250 ml plastic	1	H_2SO_4
Cu, Cd, Fe, Mn, Ni, Zn	250 ml plastic	1	HNO_3
Cu, Cd, Fe, Mn, Ni, Zn - Dissolved	250 ml plastic	1	HNO_3
pH, Sulfate, Alkalinity	250 ml plastic	3	None
Methane	40 ml VOA clear	3	HCL

Well Information

Well Location:

Condition of Well: Good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes

Well Locked at Departure: Yes

Key Number To Well:

NOTES: Dissolved metals sample filtered through 0.45 micron filter

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

ARCADIS

Groundwater Sample Log

Project No. B0085671.1502 | Well ID WA-MW-05 | Date 4-23-15

Project Name/Location VCC Wadesboro, NC | Weather 60°, Sunny

Measuring Pt. Description btoc | Screen Setting (ft-bgs) 10'-25' | Casing Diameter (in.) 2 | Well Material ✓ PVC / SS / Other

Total Depth (ft-btoc) 28.10' | Static Water Level (ft-btoc) 5.38' | Water Column in Well 22.7 | Gallons in Well 3.7

Calc.Gallons Purged | Pump Intake (ft-btoc) 20' | Purge Method: PDB / Bladder / Disp. Bailer / Peristaltic X | Sample Method Low Flow

Gallons Purged 1.0 | MP Elevation | Pump On/Off 0950/1100

Sample Time: Label 1030 | Replicate/ Code No. NA | Sampled by: D. Rhodes

Time	Minutes Elapsed	Rate ml/min	Depth to Water (ft) TOC	Temp. (°C)	Sp.Cond. (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Appearance Color	Appearance Odor
0955	5	100	5.87	14.06	1.618	2.52	6.62	190.2	5.40	Clear	None
1000	10	100	6.80	14.07	1.632	1.82	6.67	187.5	5.78	Clear	None
1005	15	100	7.26	14.10	1.641	1.31	6.72	183.1	3.78	Clear	None
1010	20	100	7.91	14.06	1.646	1.21	6.75	179.4	3.45	Clear	None
1015	25	100	8.45	14.10	1.646	1.14	6.77	176.4	3.36	Clear	None
1020	30	100	9.11	14.08	1.648	1.11	6.79	173.8	2.70	Clear	None
1025	35	100	9.61	14.10	1.648	1.08	6.79	172.9	2.73	Clear	None
1030	40	100	10.10	14.10	1.648	1.07	6.79	172.8	2.91	Clear	None

Constituents Sampled	Container	Number	Preservative
TOC	250 ml Amber glass	1	H_2SO_4
Nitrate Nitrite as N	250 ml plastic	1	H_2SO_4
Cu, Cd, Fe, Mn, Ni, Zn	250 ml plastic	1	HNO_3
Cu, Cd, Fe, Mn, Ni, Zn - Dissolved	250 ml plastic	1	HNO_3
Methane	40 ml VOA clear	3	HCL
pH, Alkalinity, sulfate	250 ml plastic	3	None

Well Information

Well Location:

Condition of Well: Good.

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes

Well Locked at Departure: Yes

Key Number To Well:

NOTES: Dissolved metals sampled through 0.45 micron filter.

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sample Log

Project No. B0035671.1502 | Well ID WA-MW-06 | Date 4-22-15

Project Name/Location VCC Wadesboro, NC | Weather 70°, sunny

Measuring Pt. Description btoc | Screen Setting (ft-bgs) 5'-20' | Casing Diameter (in.) 2 | Well Material ✓ PVC ___ SS ___ Other

Total Depth (ft-btoc) 25.30' | Static Water Level (ft-btoc) 4.00 | Water Column in Well 21.3 | Gallons in Well 3.5

Calc.Gallons Purged | Pump Intake (ft-btoc) 20' | Purge Method: PDB ___ Bladder ___ Disp. Bailer ___ Peristaltic X | Sample Method Low Flow

Gallons Purged 1.5 | MP Elevation

Sample Time: Label 1340 | Replicate/Code No. MS/MSD | Pump On/Off 1245/1455

Sampled by: D. Rhodes

Time	Minutes Elapsed	Rate ml/min	Depth to Water (ft) TOC	Temp. (°C)	Sp.Cond. (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Appearance Color	Appearance Odor
1250	5	100	4.92	18.06	1.542	0.66	7.54	277.5	12.9	Clear	None
1255	10	100	5.50	18.53	1.538	0.51	7.26	284.5	10.4	Clear	None
1300	15	100	6.11	19.04	1.537	0.32	6.99	228.1	11.6	Clear	None
1305	20	100	6.56	18.52	1.537	0.26	7.12	176.2	12.5	Clear	None
1310	25	100	7.02	18.31	1.532	0.30	7.06	141.8	11.1	Clear	None
1315	30	100	7.48	18.70	1.528	0.26	7.00	116.6	10.3	Clear	None
1320	35	100	7.72	16.73	1.529	0.25	6.85	114.6	11.6	Clear	None
1325	40	100	8.02	18.71	1.527	0.25	6.85	112.4	10.3	Clear	None
1330	45	100	8.30	18.70	1.529	0.24	6.86	112.2	11.2	Clear	None
1335	50	100	8.41	18.73	1.529	0.26	6.85	109.7	10.7	Clear	None
1340	55	100	8.42	18.67	1.528	0.26	6.86	113.3	9.50	Clear	None

Constituents Sampled	Container	Number	Preservative
TOC	250 ml Amber glass	1	H_2SO_4
Nitrate/Nitrite as N	250 ml plastic	1	H_2SO_4
Cu, Cd, Fe, Mn, Ni, Zn	250 ml plastic	1	HNO_3
Cu, Cd, Fe, Mn, Ni, Zn - Dissolved	250 ml plastic	1	HNO_3
Alkalinity, pH, Sulfide	250 ml plastic	3	None
Methane	40 ml clear VOA	3	HCL

Well Information

Well Location:

Condition of Well: Good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes

Well Locked at Departure: Yes

Key Number To Well:

NOTES: Collected bottle ~~sets~~ for MS/MSD — 30 Total bottles
Dissolved sample collected through 0.45 micron filter.

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sample Log

Started Pumping @ 1250

Project No. B00 85671.1502 | Well ID WA-MW-07 | Date 4-22-15

Project Name/Location Wadesboro, NC | Weather Clear 70°F

Measuring Pt. Description TOC | Screen Setting (ft-~~bgs~~ TOC) 15.25-25.25 | Casing Diameter (in.) 2 | Well Material X PVC ___ SS ___ Other

Total Depth (ft-~~bloc~~ TOC) 25.25 | Static Water Level (ft-bloc) 3.25 | Water Column in Well 22 | Gallons in Well 3.6

Calc.Gallons Purged | Pump Intake (ft-~~bloc~~ TOC) 20.0 | Purge Method: PDB ___ Bladder ___ Disp. Bailer ___ Peristaltic X | Sample Method Low Flow

Gallons Purged 2.0 | MP Elevation | Pump On/Off 1250/1410

Sample Time: Label 1345 | Replicate/ Code No.

Sampled by: B. Lovgren

Time	Minutes Elapsed	Rate ml/min	Depth to Water (ft) TOC	Temp. (°C)	Sp.Cond. (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Appearance Color	Appearance Odor
1255	5	110	3.60	18.54	2.120	2.07	5.52	174	99	Colorless	None
1300	10	110	3.80	18.75	2.111	1.03	5.30	166	82	↓	↓
1305	15	110	4.03	18.59	2.095	0.64	5.00	155	80	↓	↓
1310	20	110	4.20	18.21	2.053	0.45	4.99	148	75	↓	↓
1315	25	110	4.40	18.52	2.015	0.32	5.15	138	65	↓	↓
1320	30	110	4.65	18.27	1.964	0.27	5.31	128	56	↓	↓
1325	35	110	4.75	18.18	1.878	0.25	5.43	120	51	↓	↓
1330	40	110	4.93	18.01	1.852	0.23	5.58	112	47	↓	↓
1335	45	110	5.10	17.75	1.813	0.22	5.73	107	39	↓	↓
1340	50	110	5.20	17.33	1.791	0.21	5.78	102	36	↓	↓
1345	55	110	5.32	17.30	1.770	0.21	5.83	99	33	↓	↓

Constituents Sampled	Container	Number	Preservative
Methane	3-40ml vials	3	HCl
Nitrate	1-250ml plastic	1	H_2SO_4
TOC	1-250ml glass	1	H_2SO_4
Cu, Cd, Fe, Mn, Ni, Zn	1-250ml plastic	1	HNO_3
Diss Cu, Cd, Fe, Mn, Ni, Zn	1-250ml plastic	1	HNO_3
Sulfate	1-250ml plastic	1	4°c
Alkalinity	1-250ml plastic	1	4°c
pH	1-250ml plastic	1	4°c

Well Information

Well Location:

Condition of Well: Good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes

Well Locked at Departure: Yes

Key Number To Well:

NOTES 1220 Collected WA-QAQC-EB-01 (Equipment Blank) by pumping laboratory supplied DI water through new poly tubing. Dissolved sample collected through 0.45 micron filter.

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

ARCADIS

Groundwater Sample Log

Project No. B0085671.1582 | Well ID WA-MW-08 | Date 4-22-15

Project Name/Location Wadesboro VCC, NC | Weather Clear 70°F

Measuring Pt. Description TOC | Screen Setting (ft-~~bgs~~ TOC) 15.80-25.80 | Casing Diameter (in.) 2 | Well Material X PVC ___ SS ___ Other

Total Depth (ft-btoc) 25.80 | Static Water Level (ft-btoc) 7.77 | Water Column in Well 18.0 | Gallons in Well 2.9

Calc.Gallons Purged ___ | Pump Intake (ft-~~btoc~~ TOC) 20.0' | Purge Method: PDB ___ Bladder ___ Disp. Bailer ___ Peristaltic X | Sample Method Low Flow

Gallons Purged 2.0 | MP Elevation ___

Sample Time: Label 1505 | Replicate/ Code No. ___ | Pump On/Off 1420/1520

Sampled by: B. Lovgren

Time	Minutes Elapsed	Rate ml/min	Depth to Water (ft) TOC	Temp. (°C)	Sp.Cond. (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Appearance Color	Appearance Odor
1425	5	120	8.70	16.68	1.111	1.53	6.59	95	15	Colorless	None
1430	10	110	8.80	16.42	1.109	1.03	6.55	90	13	↓	↓
1435	15	110	8.85	17.30	1.108	0.81	6.55	87	17	↓	↓
1440	20	110	8.81	17.42	1.108	0.71	6.56	83	18	↓	↓
1445	25	120	8.85	16.86	1.108	0.70	6.56	81	15	↓	↓
1450	30	180	8.85	16.75	1.105	0.64	6.51	79	14	↓	↓
1455	35	180	8.87	16.55	1.117	0.75	6.51	78	9	↓	↓
1500	40	170	8.90	16.69	1.117	0.70	6.52	78	8	↓	↓

Constituents Sampled	Container	Number	Preservative
Methane	40 ml vial	3	HCl
Nitrate	250 ml plastic	1	H_2SO_4
TOC	250 ml glass	1	H_2SO_4
Cu, Cd, Fe, Mn, Ni, Zn	250 ml plastic	1	HNO_3
Diss Cu, Cd, Fe, Mn, Ni, Zn	250 ml plastic	1	HNO_3
Sulfate	250 ml plastic	1	4°C
Alkalinity	250 ml plastic	1	4°C
pH	250 ml plastic	1	4°C

Well Information

Well Location: ___ | Well Locked at Arrival: Yes

Condition of Well: Good | Well Locked at Departure: Yes

Well Completion: Flush Mount / Stick Up | Key Number To Well: ___

NOTES: Dissolved sample collected through 0.45 micron filter

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" - 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sample Log

Project No. B0085671.1002 | Well ID WA-MW-09 | Date 4-23-15

Project Name/Location Wadesboro, NC | Weather 65° Sunny

Measuring Pt. Description TOC | Screen Setting (ft-bgs) 5-20 | Casing Diameter (in.) 2 | Well Material X PVC ___ SS ___ Other

Total Depth (ft-btoc) 24.05 | Static Water Level (ft-btoc) 4.81 | Water Column in Well 19.24 | Gallons in Well 3.1

Calc. Gallons Purged ___ | Pump Intake (ft-btoc) 20.0 | Purge Method: PDB ___ Bladder ___ Disp. Bailer ___ Peristaltic X | Sample Method Low Flow

Gallons Purged 2.0 | MP Elevation ___

Sample Time: Label 1240 | Replicate/ Code No. | Pump On/Off 1150/1300

Sampled by: B. Lovgren

Time	Minutes Elapsed	Rate ml/min	Depth to Water (ft) TOC	Temp. (°C)	Sp.Cond. (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Appearance Color	Appearance Odor
1155	5	120	6.15	16.20	5.177	1.05	3.95	180	34	Colorless	None
1200	10	120	6.90	16.24	4.877	0.70	3.83	237	29	↓	↓
1205	15	120	7.40	16.43	4.527	0.39	3.80	268	20	↓	↓
1210	20	120	7.55	16.32	4.200	0.29	3.80	275	19	↓	↓
1215	25	120	7.70	15.99	3.828	0.21	3.81	278	19	↓	↓
1220	30	120	7.95	15.75	3.400	0.19	3.87	271	18	↓	↓
1225	35	120	8.20	15.82	3.282	0.18	3.92	269	18	↓	↓
1230	40	120	8.35	15.87	3.238	0.18	3.98	264	20	↓	↓
1235	45	120	8.50	15.95	3.118	0.20	4.20	259	22	↓	↓

Constituents Sampled	Container	Number	Preservative
Methane	40ml vials	3	HCl
Nitrate	250ml plastic	1	H_2SO_4
TOC	250ml glass	1	H_2SO_4
Sulfate	250ml plastic	1	4°C
Alkalinity	250ml plastic	1	4°C
pH	250ml plastic	1	4°C
Cu Cd Fe, Mn, Ni, Zn	250ml plastic	1	HNO_3
Diss Cd, Fe, Mn, Ni, Zn	250ml plastic	1	HNO_3

Well Information

Well Location: ___ | Well Locked at Arrival: Yes

Condition of Well: Good | Well Locked at Departure: Yes

Well Completion: Flush Mount / Stick Up | Key Number To Well: ___

NOTES: Dissolved sample collected through 0.45 micron filter

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

ARCADIS

Groundwater Sample Log

Project No. B0085671.1602 | Well ID WA-MW-10 | Date 4-23-15

Project Name/Location Wadsboro VCC NC | Weather 65° Sunny

Measuring Pt. Description TOC | Screen Setting (ft-~~bgs~~ TOC) -55.20 | Casing Diameter (in.) 2 | Well Material X PVC ___ SS ___ Other

Total Depth (ft-btoc) 55.20 | Static Water Level (ft-btoc) 7.38 | Water Column in Well 47.8 | Gallons in Well 7.8

Calc.Gallons Purged | Pump Intake (ft-btoc) 52.5' | Purge Method: PDB ___ Bladder ___ Disp. Bailer ___ Peristaltic X | Sample Method Low Flow

Gallons Purged 2.0 | MP Elevation | Pump On/Off 1020/1130

Sample Time: Label 1110 | Replicate/ Code No.

Sampled by: B. Lovgren

Time	Minutes Elapsed	Rate ml/min	Depth to Water (ft) TOC	Temp. (°C)	Sp.Cond. (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Appearance Color	Appearance Odor
1025	5	120	8.20	14.92	2.762	5.46	6.63	166	25.7	Colorless	None
1030	10	120	8.85	15.09	2.795	1.09	6.78	159	20.7	↓	↓
1035	15	120	9.45	15.12	2.805	0.66	6.87	151	15	↓	↓
1040	20	120	9.90	15.21	2.806	0.51	6.90	149	14	↓	↓
1045	25	120	10.25	15.31	2.801	0.41	6.92	147	16	↓	↓
1050	30	120	10.55	15.84	2.794	0.36	6.92	144	15	↓	↓
1055	35	120	10.85	16.23	2.794	0.30	6.92	141	15	↓	↓
1100	40	120	11.15	16.35	2.792	0.27	6.90	139	14	↓	↓
1105	45	120		16.47	2.788	0.26	6.87	139	13	↓	↓

Constituents Sampled	Container	Number	Preservative
Methane	40ml vials	3	HCl
Nitrate	250ml plastic	1	H_2SO_4
TOC	250ml Glass	1	H_2SO_4
Sulfate	250ml plastic	1	4°C
Alkalinity	250ml plastic	1	4°C
pH	250ml plastic	1	4°C
Cu, Cd, Fe, Mn, Ni, Zn	250ml plastic	1	HNO_3
Diss Cu, Cd, Fe, Mn, Ni, Zn	250ml plastic	1	HNO_3

Well Information

Well Location:

Condition of Well: Good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes

Well Locked at Departure: Yes

Key Number To Well:

NOTES: Dissolved Sample collected through 0.45 micron filter

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

ARCADIS

Groundwater Sample Log

Project No. B0085671/1502 | Well ID WA-MW-11 | Date 4-22-15

Project Name/Location UCC Wadesboro, NC | Weather Clear 70°F

Measuring Pt. Description TOC | Screen Setting (ft-~~bgs~~ TOC) 15.35-25.35 | Casing Diameter (in.) 2 | Well Material X PVC ___ SS ___ Other

Total Depth (ft-btoc) 25.35 | Static Water Level (ft-btoc) 3.25 | Water Column in Well 22.1 | Gallons in Well 3.6

Calc.Gallons Purged ___ | Pump Intake (ft-btoc) 20.0 | Purge Method: PDB ___ Bladder ___ Disp. Bailer ___ Peristaltic X | Sample Method Low Flow

Gallons Purged 2.5 | MP Elevation ___

Sample Time: Label 1640 | Replicate/ Code No. | Pump On/Off 1540 / 1655

Sampled by: B. Lovgren

Time	Minutes Elapsed	Rate ml/min	Depth to Water (ft) TOC	Temp. (°C)	Sp.Cond. (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Appearance Color	Appearance Odor
1545	5	125	3.40	17.09	1.335	1.56	5.04	135	101	Colorless	None
1550	10	125	4.10	16.99	1.331	0.93	4.93	142	90	↓	↓
1555	15	125	4.40	16.64	1.325	0.68	4.91	149	75	↓	↓
1600	20	125	4.80	16.70	1.315	0.55	4.92	156	63	↓	↓
1605	25	125	5.00	16.65	1.300	0.54	4.91	162	58	↓	↓
1610	30	125	5.20	16.36	1.282	0.47	4.91	165	47	↓	↓
1615	35	125	5.38	16.25	1.265	0.44	4.92	174	41	↓	↓
1620	40	125	5.50	16.48	1.242	0.40	4.92	177	38	↓	↓
1625	45	125	5.55	16.48	1.227	0.39	4.94	176	29	↓	↓
1630	50	125	5.60	16.44	1.226	0.40	4.94	179	32	↓	↓
1635	55	125	5.65	16.27	1.216	0.38	4.95	180	30	↓	↓

Constituents Sampled	Container	Number	Preservative
Methane	40 mL vial HCl	3	HCl
Nitrate	250 ml plastic	1	H_2SO_4
TOC	250 ml glass	1	H_2SO_4
Cu, Cd, Fe, Mn, Ni, Zn	250 ml plastic	1	HNO_3
Diss Cu, Cd, Fe, Mn, Ni, Zn	250 ml plastic	1	HNO_3
Sulfate	250 ml plastic	1	4°C
Alkalinity	250 mL plastic	1	4°C
pH	250 ml plastic	1	4°C

Well Information

Well Location: ___ | Well Locked at Arrival: Yes

Condition of Well: Good | Well Locked at Departure: Yes

Well Completion: Flush Mount / Stick Up | Key Number To Well: ___

NOTES: Dissolved sample collected through 0.45 micron filter

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Attachment 2

Laboratory Analytical Report

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-77081-1
Client Project/Site: VCC Wadesboro

For:
ARCADIS U.S., Inc.
801 Corporate Center Drive
Suite 300
Raleigh, North Carolina 27607-5073

Attn: Kirstyn White

Authorized for release by:
5/6/2015 3:55:21 PM

Heather Wagner, Project Manager I
(615)301-5763
heather.wagner@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-77081-1	WA-QAQC-EB-01	Water	04/22/15 12:20	04/23/15 08:40
490-77081-2	WA-MW-06	Water	04/22/15 13:40	04/23/15 08:40
490-77081-3	WA-MW-07	Water	04/22/15 13:45	04/23/15 08:40
490-77081-4	WA-MW-08	Water	04/22/15 15:05	04/23/15 08:40
490-77081-5	WA-MW-03	Water	04/22/15 16:35	04/23/15 08:40
490-77081-6	WA-MW-11	Water	04/22/15 16:40	04/23/15 08:40

Job ID: 490-77081-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-77081-1

Comments
No additional comments.

Receipt
The samples were received on 4/23/2015 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperatures of the 2 coolers at receipt time were 3.2º C and 3.3º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Field Service / Mobile Lab
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method(s) 353.2: The matrix spike (MS) recovery for 243755 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Client Sample ID: WA-QAQC-EB-01

Lab Sample ID: 490-77081-1

Date Collected: 04/22/15 12:20

Matrix: Water

Date Received: 04/23/15 08:40

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**0.0164**		0.00500	0.00250	mg/L			05/04/15 14:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*97*		*62 - 124*		*05/04/15 14:12*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.00	0.600	mg/L			04/25/15 03:02	1

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/23/15 16:45	04/27/15 18:45	1
Copper	ND		0.00200	0.000500	mg/L		04/23/15 16:45	04/27/15 18:45	1
Iron	ND		0.0250	0.0100	mg/L		04/23/15 16:45	04/27/15 18:45	1
Manganese	ND		0.00200	0.000500	mg/L		04/23/15 16:45	04/27/15 18:45	1
Nickel	ND		0.00200	0.000500	mg/L		04/23/15 16:45	04/27/15 18:45	1
Zinc	ND		0.0250	0.0100	mg/L		04/23/15 16:45	04/27/15 18:45	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/24/15 09:18	04/27/15 19:51	1
Copper	**0.000649**	**J**	0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 19:51	1
Iron	ND		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 19:51	1
Manganese	**0.000658**	**J**	0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 19:51	1
Nickel	ND		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 19:51	1
Zinc	ND		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 19:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.100	0.0300	mg/L			04/23/15 18:03	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/23/15 15:01	1
Total Organic Carbon	ND		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	ND		0.100	0.0300	mg/L			04/23/15 15:01	1
Alkalinity	ND		10.0	5.00	mg/L			04/25/15 20:32	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Client Sample ID: WA-MW-06

Lab Sample ID: 490-77081-2

Date Collected: 04/22/15 13:40

Matrix: Water

Date Received: 04/23/15 08:40

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.0187		0.00500	0.00250	mg/L			05/04/15 14:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*101*		*62 - 124*		*05/04/15 14:17*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	691		10.0	6.00	mg/L			04/25/15 04:02	10

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/23/15 16:45	04/27/15 16:42	1
Copper	0.000925	J	0.00200	0.000500	mg/L		04/23/15 16:45	04/27/15 16:42	1
Iron	0.0838		0.0250	0.0100	mg/L		04/23/15 16:45	04/27/15 16:42	1
Manganese	0.119		0.00200	0.000500	mg/L		04/23/15 16:45	04/27/15 16:42	1
Nickel	0.00773		0.00200	0.000500	mg/L		04/23/15 16:45	04/27/15 16:42	1
Zinc	0.113	F1 F2	0.0250	0.0100	mg/L		04/23/15 16:45	04/27/15 16:42	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.000467	J	0.00100	0.000400	mg/L		04/24/15 09:18	04/27/15 19:26	1
Copper	0.000514	J	0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 19:26	1
Iron	ND		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 19:26	1
Manganese	0.0819		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 19:26	1
Nickel	0.0106		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 19:26	1
Zinc	0.157		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 19:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.469		0.100	0.0300	mg/L			04/23/15 18:00	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/23/15 14:57	1
Total Organic Carbon	6.14		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	0.469		0.100	0.0300	mg/L			04/23/15 14:57	1
Alkalinity	148		10.0	5.00	mg/L			04/25/15 20:52	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Client Sample ID: WA-MW-07

Lab Sample ID: 490-77081-3

Date Collected: 04/22/15 13:45

Matrix: Water

Date Received: 04/23/15 08:40

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.0343		0.00500	0.00250	mg/L			05/04/15 14:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*101*		*62 - 124*		*05/04/15 14:33*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	787		10.0	6.00	mg/L			04/25/15 04:43	10

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.00461		0.00100	0.000400	mg/L		04/23/15 16:31	04/24/15 18:15	1
Copper	0.129		0.0100	0.00250	mg/L		04/23/15 16:31	04/27/15 12:48	5
Iron	1.03		0.125	0.0500	mg/L		04/23/15 16:31	04/27/15 12:48	5
Manganese	4.45		0.0100	0.00250	mg/L		04/23/15 16:31	04/27/15 12:48	5
Nickel	0.0270		0.00200	0.000500	mg/L		04/23/15 16:31	04/24/15 18:15	1
Zinc	1.53		0.0250	0.0100	mg/L		04/23/15 16:31	04/24/15 18:15	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.00448		0.00100	0.000400	mg/L		04/24/15 09:18	04/27/15 19:56	1
Copper	0.0820		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 19:56	1
Iron	0.0745		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 19:56	1
Manganese	4.00		0.0200	0.00500	mg/L		04/24/15 09:18	04/28/15 11:35	10
Nickel	0.0263		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 19:56	1
Zinc	1.57		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 19:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	4.21		0.100	0.0300	mg/L			04/23/15 18:03	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/23/15 15:02	1
Total Organic Carbon	3.29		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	4.21		0.100	0.0300	mg/L			04/23/15 15:02	1
Alkalinity	133		10.0	5.00	mg/L			04/25/15 21:03	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Client Sample ID: WA-MW-08

Lab Sample ID: 490-77081-4

Date Collected: 04/22/15 15:05

Matrix: Water

Date Received: 04/23/15 08:40

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/04/15 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*98*		*62 - 124*		*05/04/15 14:36*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**374**		1.00	0.600	mg/L			04/25/15 05:03	1

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/23/15 16:31	04/24/15 18:20	1
Copper	**0.000567**	**J**	0.00200	0.000500	mg/L		04/23/15 16:31	04/27/15 12:53	1
Iron	**0.100**		0.0250	0.0100	mg/L		04/23/15 16:31	04/27/15 12:53	1
Manganese	**0.475**		0.00200	0.000500	mg/L		04/23/15 16:31	04/27/15 12:53	1
Nickel	**0.0122**		0.00200	0.000500	mg/L		04/23/15 16:31	04/24/15 18:20	1
Zinc	**0.0511**		0.0250	0.0100	mg/L		04/23/15 16:31	04/24/15 18:20	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/24/15 09:18	04/27/15 20:01	1
Copper	**0.000626**	**J**	0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 20:01	1
Iron	ND		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 20:01	1
Manganese	**0.526**		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 20:01	1
Nickel	**0.0156**		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 20:01	1
Zinc	**0.0523**		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 20:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**4.36**		0.100	0.0300	mg/L			04/23/15 18:04	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/23/15 15:04	1
Total Organic Carbon	**3.77**		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	**4.36**		0.100	0.0300	mg/L			04/23/15 15:04	1
Alkalinity	**159**		10.0	5.00	mg/L			04/25/15 21:09	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Client Sample ID: WA-MW-03

Lab Sample ID: 490-77081-5

Date Collected: 04/22/15 16:35

Matrix: Water

Date Received: 04/23/15 08:40

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.0221		0.00500	0.00250	mg/L			05/04/15 14:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*106*		*62 - 124*		*05/04/15 14:38*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1730		10.0	6.00	mg/L			04/25/15 06:03	10

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.000673	J	0.00100	0.000400	mg/L		04/23/15 16:31	04/24/15 18:25	1
Copper	ND		0.0100	0.00250	mg/L		04/23/15 16:31	04/27/15 12:58	5
Iron	34.8		0.125	0.0500	mg/L		04/23/15 16:31	04/27/15 12:58	5
Manganese	7.64		0.0100	0.00250	mg/L		04/23/15 16:31	04/27/15 12:58	5
Nickel	0.0729		0.00200	0.000500	mg/L		04/23/15 16:31	04/24/15 18:25	1
Zinc	1.05		0.0250	0.0100	mg/L		04/23/15 16:31	04/24/15 18:25	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.000615	J	0.00100	0.000400	mg/L		04/24/15 09:18	04/27/15 20:17	1
Copper	ND		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 20:17	1
Iron	34.0		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 20:17	1
Manganese	8.54		0.0200	0.00500	mg/L		04/24/15 09:18	04/28/15 11:40	10
Nickel	0.0725		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 20:17	1
Zinc	1.02		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 20:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.151		0.100	0.0300	mg/L			04/23/15 18:05	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/23/15 15:05	1
Total Organic Carbon	4.07		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	0.151		0.100	0.0300	mg/L			04/23/15 15:05	1
Alkalinity	25.5		10.0	5.00	mg/L			04/25/15 21:13	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Client Sample ID: WA-MW-11

Lab Sample ID: 490-77081-6

Date Collected: 04/22/15 16:40

Matrix: Water

Date Received: 04/23/15 08:40

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/04/15 14:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*109*		*62 - 124*		*05/04/15 14:40*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**693**		5.00	3.00	mg/L			04/25/15 07:23	5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	**0.00175**		0.00100	0.000400	mg/L		04/23/15 16:31	04/24/15 18:30	1
Copper	**0.0219**		0.0100	0.00250	mg/L		04/23/15 16:31	04/27/15 13:13	5
Iron	**0.0536**	**J**	0.125	0.0500	mg/L		04/23/15 16:31	04/27/15 13:13	5
Manganese	**3.03**		0.0100	0.00250	mg/L		04/23/15 16:31	04/27/15 13:13	5
Nickel	**0.0545**		0.00200	0.000500	mg/L		04/23/15 16:31	04/24/15 18:30	1
Zinc	**0.190**		0.0250	0.0100	mg/L		04/23/15 16:31	04/24/15 18:30	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	**0.00159**		0.00100	0.000400	mg/L		04/24/15 09:18	04/27/15 20:22	1
Copper	**0.0182**		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 20:22	1
Iron	**0.0152**	**J**	0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 20:22	1
Manganese	**2.82**		0.0200	0.00500	mg/L		04/24/15 09:18	04/28/15 11:45	10
Nickel	**0.0528**		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 20:22	1
Zinc	**0.177**		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 20:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**32.7**		1.00	0.300	mg/L			04/24/15 15:52	10
Nitrite as N	ND		0.100	0.0300	mg/L			04/23/15 15:06	1
Total Organic Carbon	**6.84**		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	**32.7**		0.100	0.0300	mg/L			04/23/15 15:06	1
Alkalinity	ND		10.0	5.00	mg/L			04/25/15 21:17	1

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 490-245612/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 245612

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/04/15 10:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*105*		*62 - 124*		*05/04/15 10:54*	*1*

Lab Sample ID: LCS 490-245612/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 245612

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			0.279	0.2957		mg/L		106	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Acetylene (Surr)	*101*		*62 - 124*

Lab Sample ID: LCSD 490-245612/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 245612

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane			0.279	0.2953		mg/L		106	80 - 120	0	33

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Acetylene (Surr)	*102*		*62 - 124*

Lab Sample ID: 490-77081-2 MS — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 245612

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane	0.0187		0.279	0.2721		mg/L		91	46 - 142		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Acetylene (Surr)	*100*		*62 - 124*

Lab Sample ID: 490-77081-2 MSD — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 245612

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	0.0187		0.279	0.2616		mg/L		87	46 - 142	4	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Acetylene (Surr)	*99*		*62 - 124*

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-243826/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243826

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.00	0.600	mg/L			04/25/15 02:22	1

Lab Sample ID: LCS 490-243826/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243826

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	100	100.3		mg/L		100	90 - 110

Lab Sample ID: 490-77081-2MS — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243826

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	683	E	100	651.5	E 4	mg/L		-32	80 - 120

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 490-243485/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243997 — **Prep Batch: 243485**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/23/15 16:31	04/24/15 17:08	1
Nickel	ND		0.00200	0.000500	mg/L		04/23/15 16:31	04/24/15 17:08	1
Zinc	ND		0.0250	0.0100	mg/L		04/23/15 16:31	04/24/15 17:08	1

Lab Sample ID: MB 490-243485/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244214 — **Prep Batch: 243485**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	ND		0.00200	0.000500	mg/L		04/23/15 16:31	04/27/15 12:12	1
Iron	ND		0.0250	0.0100	mg/L		04/23/15 16:31	04/27/15 12:12	1
Manganese	ND		0.00200	0.000500	mg/L		04/23/15 16:31	04/27/15 12:12	1

Lab Sample ID: LCS 490-243485/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243997 — **Prep Batch: 243485**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.0500	0.04726		mg/L		95	80 - 120
Nickel	0.500	0.4712		mg/L		94	80 - 120
Zinc	0.500	0.4500		mg/L		90	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 490-243485/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244214 — **Prep Batch: 243485**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Copper	0.250	0.2239		mg/L		90	80 - 120
Iron	1.00	0.9916		mg/L		99	80 - 120
Manganese	0.500	0.5108		mg/L		102	80 - 120

Lab Sample ID: 490-77093-E-2-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243997 — **Prep Batch: 243485**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND	F1	0.0500	0.04999		mg/L		100	75 - 125
Nickel	0.00370	J F1	0.500	0.4954		mg/L		98	75 - 125
Zinc	ND	F1	0.500	0.5185		mg/L		104	75 - 125

Lab Sample ID: 490-77093-E-2-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244214 — **Prep Batch: 243485**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Copper	0.00508		0.250	0.2209		mg/L		86	75 - 125
Iron	2.56	F1	1.00	4.132	F1	mg/L		158	75 - 125
Manganese	0.671		0.500	1.087		mg/L		83	75 - 125

Lab Sample ID: 490-77093-E-2-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243997 — **Prep Batch: 243485**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND	F1	0.0500	0.04938		mg/L		99	75 - 125	1	20
Nickel	0.00370	J F1	0.500	0.5015		mg/L		100	75 - 125	1	20
Zinc	ND	F1	0.500	0.5280		mg/L		106	75 - 125	2	20

Lab Sample ID: 490-77093-E-2-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244214 — **Prep Batch: 243485**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper	0.00508		0.250	0.2274		mg/L		89	75 - 125	3	20
Iron	2.56	F1	1.00	4.318	F1	mg/L		176	75 - 125	4	20
Manganese	0.671		0.500	1.110		mg/L		88	75 - 125	2	20

Lab Sample ID: MB 490-243492/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244215 — **Prep Batch: 243492**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/23/15 16:45	04/27/15 16:27	1
Copper	ND		0.00200	0.000500	mg/L		04/23/15 16:45	04/27/15 16:27	1
Iron	ND		0.0250	0.0100	mg/L		04/23/15 16:45	04/27/15 16:27	1
Manganese	ND		0.00200	0.000500	mg/L		04/23/15 16:45	04/27/15 16:27	1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 490-243492/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244215 — **Prep Batch: 243492**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		0.00200	0.000500	mg/L		04/23/15 16:45	04/27/15 16:27	1
Zinc	ND		0.0250	0.0100	mg/L		04/23/15 16:45	04/27/15 16:27	1

Lab Sample ID: LCS 490-243492/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244215 — **Prep Batch: 243492**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.100	0.09915		mg/L		99	80 - 120
Copper	0.100	0.09937		mg/L		99	80 - 120
Iron	1.00	0.9979		mg/L		100	80 - 120
Manganese	0.100	0.09967		mg/L		100	80 - 120
Nickel	0.100	0.09876		mg/L		99	80 - 120
Zinc	0.100	0.09338		mg/L		93	80 - 120

Lab Sample ID: LCSD 490-243492/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244215 — **Prep Batch: 243492**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	0.100	0.09656		mg/L		97	80 - 120	3	20
Copper	0.100	0.1011		mg/L		101	80 - 120	2	20
Iron	1.00	1.099		mg/L		110	80 - 120	10	20
Manganese	0.100	0.1082		mg/L		108	80 - 120	8	20
Nickel	0.100	0.09648		mg/L		96	80 - 120	2	20
Zinc	0.100	0.09040		mg/L		90	80 - 120	3	20

Lab Sample ID: 490-77081-2 MS — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244215 — **Prep Batch: 243492**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		0.100	0.1001		mg/L		100	75 - 125
Copper	0.000925	J	0.100	0.09307		mg/L		92	75 - 125
Iron	0.0838		1.00	0.9873		mg/L		90	75 - 125
Manganese	0.119		0.100	0.2183		mg/L		100	75 - 125
Nickel	0.00773		0.100	0.1084		mg/L		101	75 - 125
Zinc	0.113	F1 F2	0.100	0.2165		mg/L		104	75 - 125

Lab Sample ID: 490-77081-2 MSD — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244215 — **Prep Batch: 243492**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		0.100	0.1000		mg/L		100	75 - 125	0	20
Copper	0.000925	J	0.100	0.09119		mg/L		90	75 - 125	2	20
Iron	0.0838		1.00	0.9935		mg/L		91	75 - 125	1	20
Manganese	0.119		0.100	0.2121		mg/L		93	75 - 125	3	20
Nickel	0.00773		0.100	0.1070		mg/L		99	75 - 125	1	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 490-77081-2 MSD — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244215 — **Prep Batch: 243492**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Zinc	0.113	F1 F2	0.100	0.1761	F1 F2	mg/L		63	75 - 125	21	20

Lab Sample ID: MB 490-243562/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 244215 — **Prep Batch: 243562**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/24/15 09:18	04/27/15 19:15	1
Copper	ND		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 19:15	1
Iron	ND		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 19:15	1
Manganese	ND		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 19:15	1
Nickel	ND		0.00200	0.000500	mg/L		04/24/15 09:18	04/27/15 19:15	1
Zinc	ND		0.0250	0.0100	mg/L		04/24/15 09:18	04/27/15 19:15	1

Lab Sample ID: LCS 490-243562/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 244215 — **Prep Batch: 243562**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.100	0.1006		mg/L		101	80 - 120
Copper	0.100	0.09761		mg/L		98	80 - 120
Iron	1.00	0.9700		mg/L		97	80 - 120
Manganese	0.100	0.09811		mg/L		98	80 - 120
Nickel	0.100	0.09914		mg/L		99	80 - 120
Zinc	0.100	0.09662		mg/L		97	80 - 120

Lab Sample ID: 490-77081-2 MS — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 244215 — **Prep Batch: 243562**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.000467	J	0.100	0.09833		mg/L		98	75 - 125
Copper	0.000514	J	0.100	0.08773		mg/L		87	75 - 125
Iron	ND		1.00	0.9429		mg/L		94	75 - 125
Manganese	0.0819		0.100	0.1890		mg/L		107	75 - 125
Nickel	0.0106		0.100	0.1090		mg/L		98	75 - 125
Zinc	0.157		0.100	0.2664		mg/L		110	75 - 125

Lab Sample ID: 490-77081-2 MSD — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 244215 — **Prep Batch: 243562**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	0.000467	J	0.100	0.09998		mg/L		100	75 - 125	2	20
Copper	0.000514	J	0.100	0.08853		mg/L		88	75 - 125	1	20
Iron	ND		1.00	0.9417		mg/L		94	75 - 125	0	20
Manganese	0.0819		0.100	0.1897		mg/L		108	75 - 125	0	20
Nickel	0.0106		0.100	0.1105		mg/L		100	75 - 125	1	20
Zinc	0.157		0.100	0.2695		mg/L		113	75 - 125	1	20

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Method: 353.2 - Nitrogen, Nitrite

Lab Sample ID: MB 490-243441/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243441

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.100	0.0300	mg/L			04/23/15 14:53	1

Lab Sample ID: LCS 490-243441/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243441

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrite as N			3.00	3.163		mg/L		105	90 - 110		

Lab Sample ID: LCSD 490-243441/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243441

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N			3.00	3.170		mg/L		106	90 - 110	0	20

Lab Sample ID: 490-77081-2 MS — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243441

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrite as N	ND		3.00	3.109		mg/L		104	90 - 110		

Lab Sample ID: 490-77081-2 MSD — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243441

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	ND		3.00	3.109		mg/L		104	90 - 110	0	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 490-243509/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243509

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.100	0.0300	mg/L			04/23/15 17:57	1

Lab Sample ID: LCS 490-243509/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243509

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N			0.996	0.9900		mg/L		99	90 - 110		

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCSD 490-243509/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243509

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N			0.996	0.9880		mg/L		99	90 - 110	0	20

Lab Sample ID: 490-77081-2 MS — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243509

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N	0.469		0.996	1.476		mg/L		101	90 - 110		

Lab Sample ID: 490-77081-2 MSD — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243509

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.469		0.996	1.477		mg/L		101	90 - 110	0	20

Lab Sample ID: MB 490-243755/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 15:45	1

Lab Sample ID: LCS 490-243755/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N			0.996	0.9770		mg/L		98	90 - 110		

Lab Sample ID: LCSD 490-243755/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N			0.996	0.9760		mg/L		98	90 - 110	0	20

Lab Sample ID: 490-77158-F-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N	ND		0.996	0.9670		mg/L		97	90 - 110		

Lab Sample ID: 490-77158-F-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	ND		0.996	0.9640		mg/L		97	90 - 110	0	20

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Lab Sample ID: 490-77158-F-7 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N	ND	F1	0.996	0.8240	F1	mg/L		83	90 - 110		

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 490-244347/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244347

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.00	0.500	mg/L			04/27/15 14:05	1

Lab Sample ID: LCS 490-244347/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244347

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			10.0	9.983		mg/L		100	90 - 110		

Lab Sample ID: 490-77081-2 MS — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244347

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	6.14		20.0	25.17		mg/L		95	75 - 122		

Lab Sample ID: 680-111814-A-11 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244347

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	4.94		20.0	23.78		mg/L		94	75 - 122		

Lab Sample ID: 680-111814-A-11 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244347

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	4.94		20.0	23.30		mg/L		92	75 - 122	2	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-244393/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244393

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10.0	5.00	mg/L			04/25/15 18:23	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 490-244393/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244393

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity			100	99.74		mg/L		100	90 - 110		

Lab Sample ID: LCSD 490-244393/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244393

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	100.0		mg/L		100	90 - 110	0	20

Lab Sample ID: 490-77081-2 DU — **Client Sample ID: WA-MW-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244393

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	148			149.1		mg/L				0.6	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

GC VOA

Analysis Batch: 245612

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-1	WA-QAQC-EB-01	Total/NA	Water	RSK-175	
490-77081-2	WA-MW-06	Total/NA	Water	RSK-175	
490-77081-2 MS	WA-MW-06	Total/NA	Water	RSK-175	
490-77081-2 MSD	WA-MW-06	Total/NA	Water	RSK-175	
490-77081-3	WA-MW-07	Total/NA	Water	RSK-175	
490-77081-4	WA-MW-08	Total/NA	Water	RSK-175	
490-77081-5	WA-MW-03	Total/NA	Water	RSK-175	
490-77081-6	WA-MW-11	Total/NA	Water	RSK-175	
LCS 490-245612/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 490-245612/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 490-245612/3	Method Blank	Total/NA	Water	RSK-175	

HPLC/IC

Analysis Batch: 243826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-1	WA-QAQC-EB-01	Total/NA	Water	300.0	
490-77081-2	WA-MW-06	Total/NA	Water	300.0	
490-77081-2MS	WA-MW-06	Total/NA	Water	300.0	
490-77081-3	WA-MW-07	Total/NA	Water	300.0	
490-77081-4	WA-MW-08	Total/NA	Water	300.0	
490-77081-5	WA-MW-03	Total/NA	Water	300.0	
490-77081-6	WA-MW-11	Total/NA	Water	300.0	
LCS 490-243826/4	Lab Control Sample	Total/NA	Water	300.0	
MB 490-243826/3	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 243485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-3	WA-MW-07	Total/NA	Water	3010A	
490-77081-4	WA-MW-08	Total/NA	Water	3010A	
490-77081-5	WA-MW-03	Total/NA	Water	3010A	
490-77081-6	WA-MW-11	Total/NA	Water	3010A	
490-77093-E-2-B MS	Matrix Spike	Total/NA	Water	3010A	
490-77093-E-2-C MSD	Matrix Spike Duplicate	Total/NA	Water	3010A	
LCS 490-243485/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 490-243485/1-A	Method Blank	Total/NA	Water	3010A	

Prep Batch: 243492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-1	WA-QAQC-EB-01	Total/NA	Water	3010A	
490-77081-2	WA-MW-06	Total/NA	Water	3010A	
490-77081-2 MS	WA-MW-06	Total/NA	Water	3010A	
490-77081-2 MSD	WA-MW-06	Total/NA	Water	3010A	
LCS 490-243492/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 490-243492/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
MB 490-243492/1-A	Method Blank	Total/NA	Water	3010A	

Metals (Continued)

Prep Batch: 243562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-1	WA-QAQC-EB-01	Dissolved	Water	3005A	
490-77081-2	WA-MW-06	Dissolved	Water	3005A	
490-77081-2 MS	WA-MW-06	Dissolved	Water	3005A	
490-77081-2 MSD	WA-MW-06	Dissolved	Water	3005A	
490-77081-3	WA-MW-07	Dissolved	Water	3005A	
490-77081-4	WA-MW-08	Dissolved	Water	3005A	
490-77081-5	WA-MW-03	Dissolved	Water	3005A	
490-77081-6	WA-MW-11	Dissolved	Water	3005A	
LCS 490-243562/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 490-243562/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 243997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-3	WA-MW-07	Total/NA	Water	6020	243485
490-77081-4	WA-MW-08	Total/NA	Water	6020	243485
490-77081-5	WA-MW-03	Total/NA	Water	6020	243485
490-77081-6	WA-MW-11	Total/NA	Water	6020	243485
490-77093-E-2-B MS	Matrix Spike	Total/NA	Water	6020	243485
490-77093-E-2-C MSD	Matrix Spike Duplicate	Total/NA	Water	6020	243485
LCS 490-243485/2-A	Lab Control Sample	Total/NA	Water	6020	243485
MB 490-243485/1-A	Method Blank	Total/NA	Water	6020	243485

Analysis Batch: 244214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-3	WA-MW-07	Total/NA	Water	6020	243485
490-77081-4	WA-MW-08	Total/NA	Water	6020	243485
490-77081-5	WA-MW-03	Total/NA	Water	6020	243485
490-77081-6	WA-MW-11	Total/NA	Water	6020	243485
490-77093-E-2-B MS	Matrix Spike	Total/NA	Water	6020	243485
490-77093-E-2-C MSD	Matrix Spike Duplicate	Total/NA	Water	6020	243485
LCS 490-243485/2-A	Lab Control Sample	Total/NA	Water	6020	243485
MB 490-243485/1-A	Method Blank	Total/NA	Water	6020	243485

Analysis Batch: 244215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-1	WA-QAQC-EB-01	Dissolved	Water	6020	243562
490-77081-1	WA-QAQC-EB-01	Total/NA	Water	6020	243492
490-77081-2	WA-MW-06	Dissolved	Water	6020	243562
490-77081-2	WA-MW-06	Total/NA	Water	6020	243492
490-77081-2 MS	WA-MW-06	Dissolved	Water	6020	243562
490-77081-2 MS	WA-MW-06	Total/NA	Water	6020	243492
490-77081-2 MSD	WA-MW-06	Dissolved	Water	6020	243562
490-77081-2 MSD	WA-MW-06	Total/NA	Water	6020	243492
490-77081-3	WA-MW-07	Dissolved	Water	6020	243562
490-77081-4	WA-MW-08	Dissolved	Water	6020	243562
490-77081-5	WA-MW-03	Dissolved	Water	6020	243562
490-77081-6	WA-MW-11	Dissolved	Water	6020	243562
LCS 490-243492/2-A	Lab Control Sample	Total/NA	Water	6020	243492
LCS 490-243562/2-A	Lab Control Sample	Total Recoverable	Water	6020	243562
LCSD 490-243492/3-A	Lab Control Sample Dup	Total/NA	Water	6020	243492
MB 490-243492/1-A	Method Blank	Total/NA	Water	6020	243492

Metals (Continued)

Analysis Batch: 244215 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 490-243562/1-A	Method Blank	Total Recoverable	Water	6020	243562

Analysis Batch: 244422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-3	WA-MW-07	Dissolved	Water	6020	243562
490-77081-5	WA-MW-03	Dissolved	Water	6020	243562
490-77081-6	WA-MW-11	Dissolved	Water	6020	243562

General Chemistry

Analysis Batch: 243441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-1	WA-QAQC-EB-01	Total/NA	Water	353.2	
490-77081-2	WA-MW-06	Total/NA	Water	353.2	
490-77081-2 MS	WA-MW-06	Total/NA	Water	353.2	
490-77081-2 MSD	WA-MW-06	Total/NA	Water	353.2	
490-77081-3	WA-MW-07	Total/NA	Water	353.2	
490-77081-4	WA-MW-08	Total/NA	Water	353.2	
490-77081-5	WA-MW-03	Total/NA	Water	353.2	
490-77081-6	WA-MW-11	Total/NA	Water	353.2	
LCS 490-243441/4	Lab Control Sample	Total/NA	Water	353.2	
LCSD 490-243441/5	Lab Control Sample Dup	Total/NA	Water	353.2	
MB 490-243441/3	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 243509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-1	WA-QAQC-EB-01	Total/NA	Water	353.2	
490-77081-2	WA-MW-06	Total/NA	Water	353.2	
490-77081-2 MS	WA-MW-06	Total/NA	Water	353.2	
490-77081-2 MSD	WA-MW-06	Total/NA	Water	353.2	
490-77081-3	WA-MW-07	Total/NA	Water	353.2	
490-77081-4	WA-MW-08	Total/NA	Water	353.2	
490-77081-5	WA-MW-03	Total/NA	Water	353.2	
LCS 490-243509/5	Lab Control Sample	Total/NA	Water	353.2	
LCSD 490-243509/6	Lab Control Sample Dup	Total/NA	Water	353.2	
MB 490-243509/4	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 243755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-6	WA-MW-11	Total/NA	Water	353.2	
490-77158-F-1 MS	Matrix Spike	Total/NA	Water	353.2	
490-77158-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	353.2	
490-77158-F-7 MS	Matrix Spike	Total/NA	Water	353.2	
LCS 490-243755/5	Lab Control Sample	Total/NA	Water	353.2	
LCSD 490-243755/6	Lab Control Sample Dup	Total/NA	Water	353.2	
MB 490-243755/4	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 244347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-1	WA-QAQC-EB-01	Total/NA	Water	9060A	

General Chemistry (Continued)

Analysis Batch: 244347 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-2	WA-MW-06	Total/NA	Water	9060A	
490-77081-2 MS	WA-MW-06	Total/NA	Water	9060A	
490-77081-3	WA-MW-07	Total/NA	Water	9060A	
490-77081-4	WA-MW-08	Total/NA	Water	9060A	
490-77081-5	WA-MW-03	Total/NA	Water	9060A	
490-77081-6	WA-MW-11	Total/NA	Water	9060A	
680-111814-A-11 MS	Matrix Spike	Total/NA	Water	9060A	
680-111814-A-11 MSD	Matrix Spike Duplicate	Total/NA	Water	9060A	
LCS 490-244347/4	Lab Control Sample	Total/NA	Water	9060A	
MB 490-244347/1	Method Blank	Total/NA	Water	9060A	

Analysis Batch: 244393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-1	WA-QAQC-EB-01	Total/NA	Water	SM 2320B	
490-77081-2	WA-MW-06	Total/NA	Water	SM 2320B	
490-77081-2 DU	WA-MW-06	Total/NA	Water	SM 2320B	
490-77081-3	WA-MW-07	Total/NA	Water	SM 2320B	
490-77081-4	WA-MW-08	Total/NA	Water	SM 2320B	
490-77081-5	WA-MW-03	Total/NA	Water	SM 2320B	
490-77081-6	WA-MW-11	Total/NA	Water	SM 2320B	
LCS 490-244393/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-244393/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
MB 490-244393/3	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 244708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-1	WA-QAQC-EB-01	Total/NA	Water	Nitrate by calc	
490-77081-2	WA-MW-06	Total/NA	Water	Nitrate by calc	
490-77081-3	WA-MW-07	Total/NA	Water	Nitrate by calc	
490-77081-4	WA-MW-08	Total/NA	Water	Nitrate by calc	
490-77081-5	WA-MW-03	Total/NA	Water	Nitrate by calc	
490-77081-6	WA-MW-11	Total/NA	Water	Nitrate by calc	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Client Sample ID: WA-QAQC-EB-01

Lab Sample ID: 490-77081-1
Date Collected: 04/22/15 12:20
Matrix: Water
Date Received: 04/23/15 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245612	05/04/15 14:12	JML	TAL NSH
Total/NA	Analysis	300.0		1	243826	04/25/15 03:02	CLN	TAL NSH
Dissolved	Prep	3005A			243562	04/24/15 09:18	TSC	TAL NSH
Dissolved	Analysis	6020		1	244215	04/27/15 19:51	JBD	TAL NSH
Total/NA	Prep	3010A			243492	04/23/15 16:45	TSC	TAL NSH
Total/NA	Analysis	6020		1	244215	04/27/15 18:45	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243441	04/23/15 15:01	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243509	04/23/15 18:03	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244708	04/23/15 15:01	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244393	04/25/15 20:32	PHB	TAL NSH

Client Sample ID: WA-MW-06

Lab Sample ID: 490-77081-2
Date Collected: 04/22/15 13:40
Matrix: Water
Date Received: 04/23/15 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245612	05/04/15 14:17	JML	TAL NSH
Total/NA	Analysis	300.0		10	243826	04/25/15 04:02	CLN	TAL NSH
Dissolved	Prep	3005A			243562	04/24/15 09:18	TSC	TAL NSH
Dissolved	Analysis	6020		1	244215	04/27/15 19:26	JBD	TAL NSH
Total/NA	Prep	3010A			243492	04/23/15 16:45	TSC	TAL NSH
Total/NA	Analysis	6020		1	244215	04/27/15 16:42	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243441	04/23/15 14:57	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243509	04/23/15 18:00	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244708	04/23/15 14:57	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244393	04/25/15 20:52	PHB	TAL NSH

Client Sample ID: WA-MW-07

Lab Sample ID: 490-77081-3
Date Collected: 04/22/15 13:45
Matrix: Water
Date Received: 04/23/15 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245612	05/04/15 14:33	JML	TAL NSH
Total/NA	Analysis	300.0		10	243826	04/25/15 04:43	CLN	TAL NSH
Dissolved	Prep	3005A			243562	04/24/15 09:18	TSC	TAL NSH
Dissolved	Analysis	6020		1	244215	04/27/15 19:56	JBD	TAL NSH
Dissolved	Prep	3005A			243562	04/24/15 09:18	TSC	TAL NSH
Dissolved	Analysis	6020		10	244422	04/28/15 11:35	JBD	TAL NSH
Total/NA	Prep	3010A			243485	04/23/15 16:31	TSC	TAL NSH

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Client Sample ID: WA-MW-07 — Lab Sample ID: 490-77081-3

Date Collected: 04/22/15 13:45 — **Matrix: Water**
Date Received: 04/23/15 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6020		1	243997	04/24/15 18:15	JBD	TAL NSH
Total/NA	Prep	3010A			243485	04/23/15 16:31	TSC	TAL NSH
Total/NA	Analysis	6020		5	244214	04/27/15 12:48	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243441	04/23/15 15:02	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243509	04/23/15 18:03	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244708	04/23/15 15:02	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244393	04/25/15 21:03	PHB	TAL NSH

Client Sample ID: WA-MW-08 — Lab Sample ID: 490-77081-4

Date Collected: 04/22/15 15:05 — **Matrix: Water**
Date Received: 04/23/15 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245612	05/04/15 14:36	JML	TAL NSH
Total/NA	Analysis	300.0		1	243826	04/25/15 05:03	CLN	TAL NSH
Dissolved	Prep	3005A			243562	04/24/15 09:18	TSC	TAL NSH
Dissolved	Analysis	6020		1	244215	04/27/15 20:01	JBD	TAL NSH
Total/NA	Prep	3010A			243485	04/23/15 16:31	TSC	TAL NSH
Total/NA	Analysis	6020		1	243997	04/24/15 18:20	JBD	TAL NSH
Total/NA	Prep	3010A			243485	04/23/15 16:31	TSC	TAL NSH
Total/NA	Analysis	6020		1	244214	04/27/15 12:53	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243441	04/23/15 15:04	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243509	04/23/15 18:04	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244708	04/23/15 15:04	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244393	04/25/15 21:09	PHB	TAL NSH

Client Sample ID: WA-MW-03 — Lab Sample ID: 490-77081-5

Date Collected: 04/22/15 16:35 — **Matrix: Water**
Date Received: 04/23/15 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245612	05/04/15 14:38	JML	TAL NSH
Total/NA	Analysis	300.0		10	243826	04/25/15 06:03	CLN	TAL NSH
Dissolved	Prep	3005A			243562	04/24/15 09:18	TSC	TAL NSH
Dissolved	Analysis	6020		1	244215	04/27/15 20:17	JBD	TAL NSH
Dissolved	Prep	3005A			243562	04/24/15 09:18	TSC	TAL NSH
Dissolved	Analysis	6020		10	244422	04/28/15 11:40	JBD	TAL NSH
Total/NA	Prep	3010A			243485	04/23/15 16:31	TSC	TAL NSH
Total/NA	Analysis	6020		1	243997	04/24/15 18:25	JBD	TAL NSH
Total/NA	Prep	3010A			243485	04/23/15 16:31	TSC	TAL NSH

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Client Sample ID: WA-MW-03

Lab Sample ID: 490-77081-5

Date Collected: 04/22/15 16:35
Matrix: Water
Date Received: 04/23/15 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6020		5	244214	04/27/15 12:58	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243441	04/23/15 15:05	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243509	04/23/15 18:05	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244708	04/23/15 15:05	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244393	04/25/15 21:13	PHB	TAL NSH

Client Sample ID: WA-MW-11

Lab Sample ID: 490-77081-6

Date Collected: 04/22/15 16:40
Matrix: Water
Date Received: 04/23/15 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245612	05/04/15 14:40	JML	TAL NSH
Total/NA	Analysis	300.0		5	243826	04/25/15 07:23	CLN	TAL NSH
Dissolved	Prep	3005A			243562	04/24/15 09:18	TSC	TAL NSH
Dissolved	Analysis	6020		1	244215	04/27/15 20:22	JBD	TAL NSH
Dissolved	Prep	3005A			243562	04/24/15 09:18	TSC	TAL NSH
Dissolved	Analysis	6020		10	244422	04/28/15 11:45	JBD	TAL NSH
Total/NA	Prep	3010A			243485	04/23/15 16:31	TSC	TAL NSH
Total/NA	Analysis	6020		1	243997	04/24/15 18:30	JBD	TAL NSH
Total/NA	Prep	3010A			243485	04/23/15 16:31	TSC	TAL NSH
Total/NA	Analysis	6020		5	244214	04/27/15 13:13	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243441	04/23/15 15:06	MJA	TAL NSH
Total/NA	Analysis	353.2		10	243755	04/24/15 15:52	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244708	04/23/15 15:06	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244393	04/25/15 21:17	PHB	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL NSH
300.0	Anions, Ion Chromatography	MCAWW	TAL NSH
6020	Metals (ICP/MS)	SW846	TAL NSH
353.2	Nitrogen, Nitrite	MCAWW	TAL NSH
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL NSH
9060A	Organic Carbon, Total (TOC)	SW846	TAL NSH
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL NSH
SM 2320B	Alkalinity	SM	TAL NSH

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77081-1

Laboratory: TestAmerica Nashville

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	A2LA		NA: NELAP & A2LA	12-31-15
A2LA	ISO/IEC 17025		0453.07	12-31-15
Alaska (UST)	State Program	10	UST-087	10-31-15
Arizona	State Program	9	AZ0473	05-05-16
Arkansas DEQ	State Program	6	88-0737	04-25-16
California	State Program	9	2938	10-31-16
Connecticut	State Program	1	PH-0220	12-31-15
Florida	NELAP	4	E87358	06-30-15
Illinois	NELAP	5	200010	12-09-15
Iowa	State Program	7	131	04-01-16
Kansas	NELAP	7	E-10229	05-31-15
Kentucky (UST)	State Program	4	19	06-30-15
Kentucky (WW)	State Program	4	90038	12-31-15
Louisiana	NELAP	6	30613	06-30-15
Maryland	State Program	3	316	03-31-16
Massachusetts	State Program	1	M-TN032	06-30-15
Minnesota	NELAP	5	047-999-345	12-31-15
Mississippi	State Program	4	N/A	06-30-15
Montana (UST)	State Program	8	NA	02-24-20
Nevada	State Program	9	TN00032	07-31-15
New Hampshire	NELAP	1	2963	10-09-15
New Jersey	NELAP	2	TN965	06-30-15
New York	NELAP	2	11342	03-31-16
North Carolina (WW/SW)	State Program	4	387	12-31-15
North Dakota	State Program	8	R-146	06-30-15
Ohio VAP	State Program	5	CL0033	10-16-15
Oklahoma	State Program	6	9412	08-31-15
Oregon	NELAP	10	TN200001	04-27-16
Pennsylvania	NELAP	3	68-00585	06-30-15
Rhode Island	State Program	1	LAO00268	12-30-15
South Carolina	State Program	4	84009 (001)	02-28-16
South Carolina (DW)	State Program	4	84009 (002)	02-23-17
Tennessee	State Program	4	2008	02-23-17
Texas	NELAP	6	T104704077	08-31-15
USDA	Federal		S-48469	10-30-16
Utah	NELAP	8	TN00032	07-31-15
Virginia	NELAP	3	460152	06-14-15
Washington	State Program	10	C789	07-19-15
West Virginia DEP	State Program	3	219	02-28-16
Wisconsin	State Program	5	998020430	08-31-15
Wyoming (UST)	A2LA	8	453.07	12-31-15

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

490-77081 Chain of Custody

COOLER RECEIPT FORM

Cooler Received/Opened On 4/23/2015 @ 8:40

1. Tracking # 0156 (last 4 digits, FedEx)

Courier: Fed-ex IR Gun ID 17960358

2. Temperature of rep. sample or temp blank when opened: 3.2 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: 2 front + back

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) EZA

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) MDM

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) MDM

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) MDM

I certify that I attached a label with the unique LIMS number to each container (intial) MDM

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

BIS = Broken in shipment

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

Loc. 490
77081

COOLER RECEIPT FORM

Cooler Received/Opened On 4/23/2015 @ 0840

1. Tracking # 9575 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID 12080142

2. Temperature of rep. sample or temp blank when opened: 3.3 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: one front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) DA

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) MDM

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) MDM

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) MDM

I certify that I attached a label with the unique LIMS number to each container (intial) MDM

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment

Loc: 490
77081

5/6/2015

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Nashville Division
2960 Foster Creighton
Nashville, TN 37204
Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

ExxonMobil

Consultant Name: ARCADIS Cary - Exxon (10141)
Address: 801 Corporate Center Dr, Suite 300
City/State/Zip: Raleigh, NC 27607
ExxonMobil Project Mgr:
Consultant Project Mgr: Kirstyn White
Consultant Telephone Number: 919-469-1952 Fax No.: 919-469-5676
Sampler Name: (Print) Don Rhodes / Brian Lovgren
Sampler Signature:

TA Account #: 49001238 PO: B0085671.1501
Invoice To: Arcadis - Accounts Payable
Report To: Kirstyn White
Project Name: VCC Wadesboro
Retail # (MRN #):
Major Project (AFE#):
Site Address
City, State, Zip Lynchburg, VA
Regulatory District (CA)

Preservative: Methanol; Sodium Bisulfate; HCl (Blue Label); NaOH (Orange Label); H_2SO_4 Plastic (Yellow Label); H_2SO_4 Glass(Yellow Label); HNO_3 (Red Label); None (Black Label)
Matrix: Groundwater; Wastewater; Drinking Water; Sludge; Soil; Other (specify)
Analyze For: 6020 Cd, Cu, Fe, Mn, Ni, Zn; 6020 dissolved Cd, Cu, Fe, Mn, Ni, Zn; 353.2 Nitrate; 300.0 Sulfate; Alkalinity; TOC; pH; Methane

	Sample ID or Field ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Methanol	Sodium Bisulfate	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass(Yellow Label)	HNO_3 (Red Label)	None (Black Label)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify)	6020 Cd, Cu, Fe, Mn, Ni, Zn	6020 dissolved Cd, Cu, Fe, Mn, Ni, Zn	353.2 Nitrate	300.0 Sulfate	Alkalinity	TOC	pH	Methane	RUSH TAT (Pre-Schedule) *	TAT request (in Bus. Days)	Fax Results (yes or no)	Due Date of Report
1	WA-~~QA~~ EB-01	4-22-15	1220	10	X		X			X		X	X	X								1	1	1	1	1	1	1	3				
2	WA-MW-06	4-22-15	1340	30	X		X			X		X	X	X								3	3	3	3	3	3	3	9				
3	WA-MW-07	4-22-15	1345	10	X		X			X		X	X	X								1	1	1	1	1	1	1	3				
4	WA-MW-08	4-22-15	1505	10	X		X			X		X	X	X								1	1	1	1	1	1	1	3				
5	WA-MW-03	4-22-15	1635	10	X		X			X		X	X	X								1	1	1	1	1	1	1	3				
6	WA-MW-11	4-22-15	1640	10	X		X			X		X	X	X								1	1	1	1	1	1	1	3				

Comments/Special Instructions:
WA-MW-06 collected MS/MSD

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	4-22-15	1735	FedEx	4-22-15	1735
Relinquished by:	Date	Time	Received by TestAmerica:	Date	Time
			[signature] TAA	4-23-15	0840

Laboratory Comments:
Temperature Upon Receipt: 3.2/3.3c
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2 Level 3 Level 4 Other
* It will be the responsibility of ExxonMobil or its consultant to notify the TestAmerica Project Manager by phone or fax that a rush sample will be submitted.
TA Project Manager: _____ Date: _____

1 2 3 4 5 6 7 8 9 10 11 12 13

Wagner, Heather

From: White, Kirstyn [Kirstyn.White@arcadis-us.com]
Sent: Friday, April 24, 2015 11:48 AM
To: Wagner, Heather
Subject: RE: TestAmerica Sample Login Confirmation files from 490-77081 VCC Wadesboro
Follow Up Flag: Follow up
Flag Status: Red

Heather –

Good afternoon. Can you please cancel the pH analysis for all samples associated with 490-77081? You will be receiving more samples today from the Wadesboro site and I need the same thing done to those. We did pH in the field and do not want the laboratory to analyze for that.

Please let me know if you have any questions.

Thanks,
Kirstyn

From: Wagner, Heather [mailto:heather.wagner@testamericainc.com]
Sent: Friday, April 24, 2015 12:01 PM
To: White, Kirstyn
Subject: TestAmerica Sample Login Confirmation files from 490-77081 VCC Wadesboro

Hello,

Attached please find the Sample Confirmation files for job 490-77081; VCC Wadesboro

Please feel free to contact me if you have any questions.

Thank you.

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

HEATHER WAGNER
Project Manager I

TestAmerica Nashville
THE LEADER IN ENVIRONMENTAL TESTING

Tel: 615.301.5763

Reference: [215882]
Attachments: 3

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 490-77081-1

Login Number: 77081
List Number: 1
Creator: McBride, Mike

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.2/3.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-77158-1
Client Project/Site: VCC Wadesboro

For:
ARCADIS U.S., Inc.
801 Corporate Center Drive
Suite 300
Raleigh, North Carolina 27607-5073

Attn: Kirstyn White

Authorized for release by:
5/8/2015 3:42:13 PM

Heather Wagner, Project Manager I
(615)301-5763
heather.wagner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-77158-1	WA-QAQC-EB-02	Ground Water	04/23/15 07:30	04/24/15 08:30
490-77158-2	WA-MW-04	Ground Water	04/23/15 08:45	04/24/15 08:30
490-77158-3	WA-MW-02	Ground Water	04/23/15 09:35	04/24/15 08:30
490-77158-4	WA-MW-05	Ground Water	04/23/15 10:30	04/24/15 08:30
490-77158-5	WA-MW-10	Ground Water	04/23/15 11:10	04/24/15 08:30
490-77158-6	WA-MW-01	Ground Water	04/23/15 12:32	04/24/15 08:30
490-77158-7	WA-MW-09	Ground Water	04/23/15 12:40	04/24/15 08:30
490-77158-8	WA-QAQC-Dup-01	Ground Water	04/23/15 00:01	04/24/15 08:30

Job ID: 490-77158-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-77158-1

Comments
No additional comments.

Receipt
The samples were received on 4/24/2015 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.4º C and 2.0º C.

HPLC/IC
Method(s) 300.0: Due to the high concentration of sulfate the matrix spike / matrix spike duplicate (MS/MSD) for244504 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Field Service / Mobile Lab
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method(s) SM 2320B: Method 2320B is an automated titration of an unaltered sample to an electrometrically determined end point of pH 4.5 and then to 4.2. The following sample had an initial pH of less than 4.2: WA-MW-02 (490-77158-3), WA-MW-01 (490-77158-6), WA-QAQC-Dup-01 (490-77158-8).

Method(s) 353.2: The matrix spike (MS) recovery for 243755 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Qualifiers

GC VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-QAQC-EB-02

Lab Sample ID: 490-77158-1

Date Collected: 04/23/15 07:30

Matrix: Ground Water

Date Received: 04/24/15 08:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/05/15 16:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*110*		*62 - 124*		*05/05/15 16:22*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.00	0.600	mg/L			04/30/15 02:52	1

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/27/15 09:12	04/29/15 13:08	1
Copper	ND		0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:08	1
Iron	ND		0.0250	0.0100	mg/L		04/27/15 09:12	04/29/15 13:08	1
Manganese	ND		0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:08	1
Nickel	ND		0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:08	1
Zinc	ND		0.0250	0.0100	mg/L		04/27/15 09:12	04/29/15 13:08	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/27/15 09:53	04/28/15 17:28	1
Copper	ND		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 17:28	1
Iron	ND		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 17:28	1
Manganese	ND		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 17:28	1
Nickel	ND		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 17:28	1
Zinc	ND		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 17:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 15:48	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 12:39	1
Total Organic Carbon	ND		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	ND		0.100	0.0300	mg/L			04/24/15 12:39	1
Alkalinity	ND		10.0	5.00	mg/L			04/25/15 21:21	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-MW-04

Date Collected: 04/23/15 08:45
Date Received: 04/24/15 08:30

Lab Sample ID: 490-77158-2

Matrix: Ground Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/05/15 16:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*103*		*62 - 124*		*05/05/15 16:26*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**136**		1.00	0.600	mg/L			04/30/15 03:12	1

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/27/15 09:12	04/29/15 13:13	1
Copper	**0.000509**	**J**	0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:13	1
Iron	**0.0453**		0.0250	0.0100	mg/L		04/27/15 09:12	04/29/15 13:13	1
Manganese	**0.0362**		0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:13	1
Nickel	**0.00512**		0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:13	1
Zinc	ND		0.0250	0.0100	mg/L		04/27/15 09:12	04/29/15 13:13	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/27/15 09:53	04/28/15 17:53	1
Copper	ND		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 17:53	1
Iron	ND		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 17:53	1
Manganese	**0.00971**		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 17:53	1
Nickel	**0.00405**		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 17:53	1
Zinc	ND		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 17:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**7.44**		0.200	0.0600	mg/L			04/24/15 16:03	2
Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 12:43	1
Total Organic Carbon	**2.64**		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	**7.44**		0.100	0.0300	mg/L			04/24/15 12:43	1
Alkalinity	**54.8**		10.0	5.00	mg/L			04/25/15 21:26	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-MW-02

Lab Sample ID: 490-77158-3

Date Collected: 04/23/15 09:35

Matrix: Ground Water

Date Received: 04/24/15 08:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/05/15 16:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*108*		*62 - 124*		*05/05/15 16:30*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1460**		10.0	6.00	mg/L			04/29/15 05:20	10

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	**0.0102**		0.00100	0.000400	mg/L		04/27/15 09:12	04/29/15 13:24	1
Copper	**0.504**		0.0200	0.00500	mg/L		04/27/15 09:12	04/29/15 13:19	10
Iron	**17.6**		0.250	0.100	mg/L		04/27/15 09:12	04/29/15 13:19	10
Manganese	**6.06**		0.0200	0.00500	mg/L		04/27/15 09:12	04/29/15 13:19	10
Nickel	**0.150**		0.0200	0.00500	mg/L		04/27/15 09:12	04/29/15 13:19	10
Zinc	**3.00**		0.250	0.100	mg/L		04/27/15 09:12	04/29/15 13:19	10

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	**0.0105**		0.00100	0.000400	mg/L		04/27/15 09:53	04/28/15 17:58	1
Copper	**0.412**		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 17:58	1
Iron	**14.7**		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 17:58	1
Manganese	**5.80**		0.0200	0.00500	mg/L		04/27/15 09:53	04/29/15 11:21	10
Nickel	**0.123**		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 17:58	1
Zinc	**2.95**		0.250	0.100	mg/L		04/27/15 09:53	04/29/15 11:21	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 15:55	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 12:44	1
Total Organic Carbon	**4.13**		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	ND		0.100	0.0300	mg/L			04/24/15 12:44	1
Alkalinity	ND		10.0	5.00	mg/L			04/25/15 21:29	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-MW-05

Lab Sample ID: 490-77158-4

Date Collected: 04/23/15 10:30

Matrix: Ground Water

Date Received: 04/24/15 08:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/05/15 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*97*		*62 - 124*		*05/05/15 16:37*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**292**		10.0	6.00	mg/L			04/29/15 05:41	10

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/27/15 09:12	04/29/15 13:29	1
Copper	**0.000827**	**J**	0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:29	1
Iron	**0.0248**	**J**	0.0250	0.0100	mg/L		04/27/15 09:12	04/29/15 13:29	1
Manganese	**0.00244**		0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:29	1
Nickel	**0.000939**	**J**	0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:29	1
Zinc	ND		0.0250	0.0100	mg/L		04/27/15 09:12	04/29/15 13:29	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/27/15 09:53	04/28/15 18:03	1
Copper	**0.000619**	**J**	0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:03	1
Iron	**0.0147**	**J**	0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 18:03	1
Manganese	**0.00335**		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:03	1
Nickel	**0.000640**	**J**	0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:03	1
Zinc	ND		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 18:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.546**		0.100	0.0300	mg/L			04/24/15 15:56	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 12:46	1
Total Organic Carbon	**3.55**		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	**0.546**		0.100	0.0300	mg/L			04/24/15 12:46	1
Alkalinity	**372**		10.0	5.00	mg/L			04/25/15 21:35	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-MW-10

Lab Sample ID: 490-77158-5

Date Collected: 04/23/15 11:10
Date Received: 04/24/15 08:30

Matrix: Ground Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/05/15 16:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*99*		*62 - 124*		*05/05/15 16:39*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1550**		10.0	6.00	mg/L			04/29/15 06:02	10

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/27/15 09:12	04/29/15 13:34	1
Copper	**0.000602**	**J**	0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:34	1
Iron	**0.104**		0.0250	0.0100	mg/L		04/27/15 09:12	04/29/15 13:34	1
Manganese	**0.372**		0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:34	1
Nickel	**0.00133**	**J**	0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 13:34	1
Zinc	ND		0.0250	0.0100	mg/L		04/27/15 09:12	04/29/15 13:34	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/27/15 09:53	04/28/15 18:19	1
Copper	**0.000827**	**J**	0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:19	1
Iron	ND		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 18:19	1
Manganese	**0.332**		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:19	1
Nickel	**0.00132**	**J**	0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:19	1
Zinc	ND		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 18:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.322**		0.100	0.0300	mg/L			04/24/15 15:57	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 12:47	1
Total Organic Carbon	**3.61**		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	**0.322**		0.100	0.0300	mg/L			04/24/15 12:47	1
Alkalinity	**331**		10.0	5.00	mg/L			04/29/15 22:05	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-MW-01

Lab Sample ID: 490-77158-6

Date Collected: 04/23/15 12:32
Date Received: 04/24/15 08:30

Matrix: Ground Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.00292	J	0.00500	0.00250	mg/L			05/06/15 13:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*112*		*62 - 124*		*05/06/15 13:15*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4120		10.0	6.00	mg/L			04/29/15 06:23	10

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.0198		0.0100	0.00400	mg/L		04/27/15 09:12	04/29/15 13:44	10
Copper	0.166	J	0.200	0.0500	mg/L		04/27/15 09:12	04/29/15 13:39	100
Iron	0.234	J	0.250	0.100	mg/L		04/27/15 09:12	04/29/15 13:44	10
Manganese	36.5		0.200	0.0500	mg/L		04/27/15 09:12	04/29/15 13:39	100
Nickel	0.514		0.200	0.0500	mg/L		04/27/15 09:12	04/29/15 13:39	100
Zinc	2.70		2.50	1.00	mg/L		04/27/15 09:12	04/29/15 13:39	100

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.0172		0.00100	0.000400	mg/L		04/27/15 09:53	04/28/15 18:24	1
Copper	0.0887		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:24	1
Iron	0.0723		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 18:24	1
Manganese	37.5		0.200	0.0500	mg/L		04/27/15 09:53	04/29/15 11:26	100
Nickel	0.516		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:24	1
Zinc	3.05		0.250	0.100	mg/L		04/27/15 09:53	04/29/15 11:31	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	4.49		0.100	0.0300	mg/L			04/24/15 15:58	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 12:48	1
Total Organic Carbon	7.66		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	4.49		0.100	0.0300	mg/L			04/24/15 12:48	1
Alkalinity	ND		10.0	5.00	mg/L			04/29/15 22:14	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-MW-09

Lab Sample ID: 490-77158-7

Date Collected: 04/23/15 12:40

Matrix: Ground Water

Date Received: 04/24/15 08:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/06/15 13:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*98*		*62 - 124*		*05/06/15 13:19*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1810**		10.0	6.00	mg/L			04/29/15 06:44	10

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	**0.00625**		0.00100	0.000400	mg/L		04/27/15 09:12	04/29/15 14:15	1
Copper	**0.514**		0.0200	0.00500	mg/L		04/27/15 09:12	04/29/15 13:49	10
Iron	**42.5**		0.250	0.100	mg/L		04/27/15 09:12	04/29/15 13:49	10
Manganese	**3.69**		0.0200	0.00500	mg/L		04/27/15 09:12	04/29/15 13:49	10
Nickel	**0.0753**		0.0200	0.00500	mg/L		04/27/15 09:12	04/29/15 13:49	10
Zinc	**4.23**		0.250	0.100	mg/L		04/27/15 09:12	04/29/15 13:49	10

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	**0.00602**		0.00100	0.000400	mg/L		04/27/15 09:53	04/28/15 18:29	1
Copper	**0.342**		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:29	1
Iron	**33.5**		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 18:29	1
Manganese	**3.80**		0.0200	0.00500	mg/L		04/27/15 09:53	04/29/15 11:36	10
Nickel	**0.0629**		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:29	1
Zinc	**4.34**		0.250	0.100	mg/L		04/27/15 09:53	04/29/15 11:36	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND	F1	0.100	0.0300	mg/L			04/24/15 16:01	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 12:50	1
Total Organic Carbon	**5.94**		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	ND		0.100	0.0300	mg/L			04/24/15 12:50	1
Alkalinity	ND		10.0	5.00	mg/L			04/29/15 22:18	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-QAQC-Dup-01

Lab Sample ID: 490-77158-8

Date Collected: 04/23/15 00:01

Matrix: Ground Water

Date Received: 04/24/15 08:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/05/15 16:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*111*		*62 - 124*		*05/05/15 16:41*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1630**		10.0	6.00	mg/L			04/29/15 07:05	10

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	**0.0103**		0.00100	0.000400	mg/L		04/27/15 09:12	04/29/15 14:20	1
Copper	**0.532**		0.0200	0.00500	mg/L		04/27/15 09:12	04/29/15 14:05	10
Iron	**19.4**		0.250	0.100	mg/L		04/27/15 09:12	04/29/15 14:05	10
Manganese	**6.71**		0.0200	0.00500	mg/L		04/27/15 09:12	04/29/15 14:05	10
Nickel	**0.153**		0.0200	0.00500	mg/L		04/27/15 09:12	04/29/15 14:05	10
Zinc	**3.36**		0.250	0.100	mg/L		04/27/15 09:12	04/29/15 14:05	10

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	**0.0104**		0.00100	0.000400	mg/L		04/27/15 09:53	04/28/15 18:34	1
Copper	**0.410**		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:34	1
Iron	**14.8**		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 18:34	1
Manganese	**6.12**		0.0200	0.00500	mg/L		04/27/15 09:53	04/29/15 11:41	10
Nickel	**0.122**		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 18:34	1
Zinc	**3.06**		0.250	0.100	mg/L		04/27/15 09:53	04/29/15 11:41	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 16:02	1
Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 12:51	1
Total Organic Carbon	**4.07**		1.00	0.500	mg/L			04/27/15 14:05	1
Nitrate as N	ND		0.100	0.0300	mg/L			04/24/15 12:51	1
Alkalinity	ND		10.0	5.00	mg/L			04/28/15 21:35	1

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 490-245889/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 245889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/05/15 11:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*116*		*62 - 124*		*05/05/15 11:51*	*1*

Lab Sample ID: LCS 490-245889/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 245889

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			0.279	0.2784		mg/L		100	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Acetylene (Surr)	*120*		*62 - 124*

Lab Sample ID: 180-43400-N-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 245889

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane	4.21	E	0.279	4.194	E 4	mg/L		-6	46 - 142		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Acetylene (Surr)	*95*		*62 - 124*

Lab Sample ID: 180-43400-N-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 245889

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	4.21	E	0.279	4.156	E 4	mg/L		-19	46 - 142	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Acetylene (Surr)	*96*		*62 - 124*

Lab Sample ID: MB 490-246137/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246137

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.00500	0.00250	mg/L			05/06/15 10:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*120*		*62 - 124*		*05/06/15 10:39*	*1*

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 490-246137/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246137

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			0.279	0.2868		mg/L		103	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Acetylene (Surr)	*116*		*62 - 124*

Lab Sample ID: LCSD 490-246137/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246137

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane			0.279	0.2903		mg/L		104	80 - 120	1	33

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Acetylene (Surr)	*118*		*62 - 124*

Lab Sample ID: 490-77253-E-4 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246137

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane	0.00593		0.279	0.2489		mg/L		87	46 - 142		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Acetylene (Surr)	*103*		*62 - 124*

Lab Sample ID: 490-77253-E-4 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246137

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	0.00593		0.279	0.2487		mg/L		87	46 - 142	0	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Acetylene (Surr)	*104*		*62 - 124*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-244504/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244504

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1.806		1.00	0.600	mg/L			04/29/15 03:56	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-244504/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244504

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	100	96.05		mg/L		96	90 - 110

Lab Sample ID: MB 490-244844/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244844

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.00	0.600	mg/L			04/30/15 02:12	1

Lab Sample ID: LCS 490-244844/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244844

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	100	109.1		mg/L		109	90 - 110

Lab Sample ID: 490-77158-2 MS — **Client Sample ID: WA-MW-04**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 244844

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	136		100	231.6		mg/L		95	80 - 120

Lab Sample ID: 490-77158-2 MSD — **Client Sample ID: WA-MW-04**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 244844

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	136		100	223.4		mg/L		87	80 - 120	4	20

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 490-244016/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244823 — **Prep Batch: 244016**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/27/15 09:12	04/29/15 12:02	1
Copper	ND		0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 12:02	1
Iron	ND		0.0250	0.0100	mg/L		04/27/15 09:12	04/29/15 12:02	1
Manganese	ND		0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 12:02	1
Nickel	ND		0.00200	0.000500	mg/L		04/27/15 09:12	04/29/15 12:02	1
Zinc	ND		0.0250	0.0100	mg/L		04/27/15 09:12	04/29/15 12:02	1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 490-244016/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244823 — **Prep Batch: 244016**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.100	0.1017		mg/L		102	80 - 120
Copper	0.100	0.1068		mg/L		107	80 - 120
Iron	1.00	1.049		mg/L		105	80 - 120
Manganese	0.100	0.1005		mg/L		101	80 - 120
Nickel	0.100	0.09909		mg/L		99	80 - 120
Zinc	0.100	0.09100		mg/L		91	80 - 120

Lab Sample ID: 490-77136-B-1-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244823 — **Prep Batch: 244016**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		0.100	0.09884		mg/L		99	75 - 125
Copper	0.00108	J	0.100	0.09706		mg/L		96	75 - 125
Iron	1.39		1.00	2.368		mg/L		98	75 - 125
Manganese	3.33	E	0.100	3.453	E 4	mg/L		120	75 - 125
Nickel	0.0116		0.100	0.1061		mg/L		95	75 - 125
Zinc	ND		0.100	0.09661		mg/L		97	75 - 125

Lab Sample ID: 490-77136-B-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244823 — **Prep Batch: 244016**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		0.100	0.09819		mg/L		98	75 - 125	1	20
Copper	0.00108	J	0.100	0.09741		mg/L		96	75 - 125	0	20
Iron	1.39		1.00	2.350		mg/L		96	75 - 125	1	20
Manganese	3.33	E	0.100	3.414	E 4	mg/L		81	75 - 125	1	20
Nickel	0.0116		0.100	0.1068		mg/L		95	75 - 125	1	20
Zinc	ND		0.100	0.09650		mg/L		97	75 - 125	0	20

Lab Sample ID: MB 490-244038/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 244515 — **Prep Batch: 244038**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000400	mg/L		04/27/15 09:53	04/28/15 17:17	1
Copper	ND		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 17:17	1
Iron	ND		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 17:17	1
Manganese	ND		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 17:17	1
Nickel	ND		0.00200	0.000500	mg/L		04/27/15 09:53	04/28/15 17:17	1
Zinc	ND		0.0250	0.0100	mg/L		04/27/15 09:53	04/28/15 17:17	1

Lab Sample ID: LCS 490-244038/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 244515 — **Prep Batch: 244038**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.100	0.09710		mg/L		97	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 490-244038/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 244515 — **Prep Batch: 244038**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Copper	0.100	0.09200		mg/L		92	80 - 120
Iron	1.00	0.9736		mg/L		97	80 - 120
Manganese	0.100	0.09180		mg/L		92	80 - 120
Nickel	0.100	0.08925		mg/L		89	80 - 120
Zinc	0.100	0.08836		mg/L		88	80 - 120

Lab Sample ID: 490-77158-1 MS — **Client Sample ID: WA-QAQC-EB-02**
Matrix: Ground Water — **Prep Type: Dissolved**
Analysis Batch: 244515 — **Prep Batch: 244038**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		0.100	0.09357		mg/L		94	75 - 125
Copper	ND		0.100	0.09071		mg/L		91	75 - 125
Iron	ND		1.00	0.9687		mg/L		97	75 - 125
Manganese	ND		0.100	0.09197		mg/L		92	75 - 125
Nickel	ND		0.100	0.08668		mg/L		87	75 - 125
Zinc	ND		0.100	0.08572		mg/L		86	75 - 125

Lab Sample ID: 490-77158-1 MSD — **Client Sample ID: WA-QAQC-EB-02**
Matrix: Ground Water — **Prep Type: Dissolved**
Analysis Batch: 244515 — **Prep Batch: 244038**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		0.100	0.09193		mg/L		92	75 - 125	2	20
Copper	ND		0.100	0.09263		mg/L		93	75 - 125	2	20
Iron	ND		1.00	0.9551		mg/L		96	75 - 125	1	20
Manganese	ND		0.100	0.08961		mg/L		90	75 - 125	3	20
Nickel	ND		0.100	0.08513		mg/L		85	75 - 125	2	20
Zinc	ND		0.100	0.09718		mg/L		97	75 - 125	13	20

Method: 353.2 - Nitrogen, Nitrite

Lab Sample ID: MB 490-243676/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243676

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 12:35	1

Lab Sample ID: LCS 490-243676/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243676

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	3.00	3.159		mg/L		105	90 - 110

Method: 353.2 - Nitrogen, Nitrite (Continued)

Lab Sample ID: LCSD 490-243676/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243676

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N			3.00	3.159		mg/L		105	90 - 110	0	20

Lab Sample ID: 490-77158-1 MS — **Client Sample ID: WA-QAQC-EB-02**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 243676

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrite as N	ND		3.00	3.159		mg/L		105	90 - 110		

Lab Sample ID: 490-77158-1 MSD — **Client Sample ID: WA-QAQC-EB-02**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 243676

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	ND		3.00	3.176		mg/L		106	90 - 110	1	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 490-243755/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.100	0.0300	mg/L			04/24/15 15:45	1

Lab Sample ID: LCS 490-243755/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N			0.996	0.9770		mg/L		98	90 - 110		

Lab Sample ID: LCSD 490-243755/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N			0.996	0.9760		mg/L		98	90 - 110	0	20

Lab Sample ID: 490-77158-1 MS — **Client Sample ID: WA-QAQC-EB-02**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N	ND		0.996	0.9670		mg/L		97	90 - 110		

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: 490-77158-1 MSD — **Client Sample ID: WA-QAQC-EB-02**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	ND		0.996	0.9640		mg/L		97	90 - 110	0	20

Lab Sample ID: 490-77158-7 MS — **Client Sample ID: WA-MW-09**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 243755

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	ND	F1	0.996	0.8240	F1	mg/L		83	90 - 110

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 490-244347/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244347

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.00	0.500	mg/L			04/27/15 14:05	1

Lab Sample ID: LCS 490-244347/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244347

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.983		mg/L		100	90 - 110

Lab Sample ID: 490-77081-F-2 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244347

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.14		20.0	25.17		mg/L		95	75 - 122

Lab Sample ID: 680-111814-A-11 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244347

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	4.94		20.0	23.78		mg/L		94	75 - 122

Lab Sample ID: 680-111814-A-11 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244347

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	4.94		20.0	23.30		mg/L		92	75 - 122	2	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-244393/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244393

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10.0	5.00	mg/L			04/25/15 18:23	1

Lab Sample ID: LCS 490-244393/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244393

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	99.74		mg/L		100	90 - 110

Lab Sample ID: LCSD 490-244393/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244393

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	100	100.0		mg/L		100	90 - 110	0	20

Lab Sample ID: 490-77081-G-2 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244393

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	148		149.1		mg/L		0.6	20

Lab Sample ID: MB 490-244713/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244713

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10.0	5.00	mg/L			04/28/15 20:20	1

Lab Sample ID: LCS 490-244713/6 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244713

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	96.04		mg/L		96	90 - 110

Lab Sample ID: LCSD 490-244713/7 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244713

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	100	96.72		mg/L		97	90 - 110	1	20

Lab Sample ID: 490-77254-B-13 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 244713

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	740		743.2		mg/L		0.4	20

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Lab Sample ID: 490-77254-J-8 DU
Matrix: Water
Analysis Batch: 244713

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	1720			1708		mg/L				0.9	20

Lab Sample ID: MB 490-244981/3
Matrix: Water
Analysis Batch: 244981

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10.0	5.00	mg/L			04/29/15 21:03	1

Lab Sample ID: LCS 490-244981/4
Matrix: Water
Analysis Batch: 244981

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity			100	96.59		mg/L		97	90 - 110		

Lab Sample ID: LCSD 490-244981/5
Matrix: Water
Analysis Batch: 244981

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	99.38		mg/L		99	90 - 110	3	20

Lab Sample ID: 490-77158-5 DU
Matrix: Ground Water
Analysis Batch: 244981

Client Sample ID: WA-MW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	331			326.9		mg/L				1	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

GC VOA

Analysis Batch: 245889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-43400-N-1 MS	Matrix Spike	Total/NA	Water	RSK-175	
180-43400-N-1 MSD	Matrix Spike Duplicate	Total/NA	Water	RSK-175	
490-77158-1	WA-QAQC-EB-02	Total/NA	Ground Water	RSK-175	
490-77158-2	WA-MW-04	Total/NA	Ground Water	RSK-175	
490-77158-3	WA-MW-02	Total/NA	Ground Water	RSK-175	
490-77158-4	WA-MW-05	Total/NA	Ground Water	RSK-175	
490-77158-5	WA-MW-10	Total/NA	Ground Water	RSK-175	
490-77158-8	WA-QAQC-Dup-01	Total/NA	Ground Water	RSK-175	
LCS 490-245889/4	Lab Control Sample	Total/NA	Water	RSK-175	
MB 490-245889/3	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 246137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-6	WA-MW-01	Total/NA	Ground Water	RSK-175	
490-77158-7	WA-MW-09	Total/NA	Ground Water	RSK-175	
490-77253-E-4 MS	Matrix Spike	Total/NA	Water	RSK-175	
490-77253-E-4 MSD	Matrix Spike Duplicate	Total/NA	Water	RSK-175	
LCS 490-246137/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 490-246137/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 490-246137/3	Method Blank	Total/NA	Water	RSK-175	

HPLC/IC

Analysis Batch: 244504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-3	WA-MW-02	Total/NA	Ground Water	300.0	
490-77158-4	WA-MW-05	Total/NA	Ground Water	300.0	
490-77158-5	WA-MW-10	Total/NA	Ground Water	300.0	
490-77158-6	WA-MW-01	Total/NA	Ground Water	300.0	
490-77158-7	WA-MW-09	Total/NA	Ground Water	300.0	
490-77158-8	WA-QAQC-Dup-01	Total/NA	Ground Water	300.0	
LCS 490-244504/4	Lab Control Sample	Total/NA	Water	300.0	
MB 490-244504/3	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 244844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-1	WA-QAQC-EB-02	Total/NA	Ground Water	300.0	
490-77158-2	WA-MW-04	Total/NA	Ground Water	300.0	
490-77158-2 MS	WA-MW-04	Total/NA	Ground Water	300.0	
490-77158-2 MSD	WA-MW-04	Total/NA	Ground Water	300.0	
LCS 490-244844/4	Lab Control Sample	Total/NA	Water	300.0	
MB 490-244844/3	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 244016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77136-B-1-B MS	Matrix Spike	Total/NA	Water	3010A	
490-77136-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	3010A	
490-77158-1	WA-QAQC-EB-02	Total/NA	Ground Water	3010A	

Metals (Continued)

Prep Batch: 244016 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-2	WA-MW-04	Total/NA	Ground Water	3010A	
490-77158-3	WA-MW-02	Total/NA	Ground Water	3010A	
490-77158-4	WA-MW-05	Total/NA	Ground Water	3010A	
490-77158-5	WA-MW-10	Total/NA	Ground Water	3010A	
490-77158-6	WA-MW-01	Total/NA	Ground Water	3010A	
490-77158-7	WA-MW-09	Total/NA	Ground Water	3010A	
490-77158-8	WA-QAQC-Dup-01	Total/NA	Ground Water	3010A	
LCS 490-244016/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 490-244016/1-A	Method Blank	Total/NA	Water	3010A	

Prep Batch: 244038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-1	WA-QAQC-EB-02	Dissolved	Ground Water	3005A	
490-77158-1 MS	WA-QAQC-EB-02	Dissolved	Ground Water	3005A	
490-77158-1 MSD	WA-QAQC-EB-02	Dissolved	Ground Water	3005A	
490-77158-2	WA-MW-04	Dissolved	Ground Water	3005A	
490-77158-3	WA-MW-02	Dissolved	Ground Water	3005A	
490-77158-4	WA-MW-05	Dissolved	Ground Water	3005A	
490-77158-5	WA-MW-10	Dissolved	Ground Water	3005A	
490-77158-6	WA-MW-01	Dissolved	Ground Water	3005A	
490-77158-7	WA-MW-09	Dissolved	Ground Water	3005A	
490-77158-8	WA-QAQC-Dup-01	Dissolved	Ground Water	3005A	
LCS 490-244038/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 490-244038/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 244515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-1	WA-QAQC-EB-02	Dissolved	Ground Water	6020	244038
490-77158-1 MS	WA-QAQC-EB-02	Dissolved	Ground Water	6020	244038
490-77158-1 MSD	WA-QAQC-EB-02	Dissolved	Ground Water	6020	244038
490-77158-2	WA-MW-04	Dissolved	Ground Water	6020	244038
490-77158-3	WA-MW-02	Dissolved	Ground Water	6020	244038
490-77158-4	WA-MW-05	Dissolved	Ground Water	6020	244038
490-77158-5	WA-MW-10	Dissolved	Ground Water	6020	244038
490-77158-6	WA-MW-01	Dissolved	Ground Water	6020	244038
490-77158-7	WA-MW-09	Dissolved	Ground Water	6020	244038
490-77158-8	WA-QAQC-Dup-01	Dissolved	Ground Water	6020	244038
LCS 490-244038/2-A	Lab Control Sample	Total Recoverable	Water	6020	244038
MB 490-244038/1-A	Method Blank	Total Recoverable	Water	6020	244038

Analysis Batch: 244823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77136-B-1-B MS	Matrix Spike	Total/NA	Water	6020	244016
490-77136-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	6020	244016
490-77158-1	WA-QAQC-EB-02	Total/NA	Ground Water	6020	244016
490-77158-2	WA-MW-04	Total/NA	Ground Water	6020	244016
490-77158-3	WA-MW-02	Dissolved	Ground Water	6020	244038
490-77158-3	WA-MW-02	Total/NA	Ground Water	6020	244016
490-77158-3	WA-MW-02	Total/NA	Ground Water	6020	244016
490-77158-4	WA-MW-05	Total/NA	Ground Water	6020	244016
490-77158-5	WA-MW-10	Total/NA	Ground Water	6020	244016

Metals (Continued)

Analysis Batch: 244823 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-6	WA-MW-01	Dissolved	Ground Water	6020	244038
490-77158-6	WA-MW-01	Dissolved	Ground Water	6020	244038
490-77158-6	WA-MW-01	Total/NA	Ground Water	6020	244016
490-77158-6	WA-MW-01	Total/NA	Ground Water	6020	244016
490-77158-7	WA-MW-09	Dissolved	Ground Water	6020	244038
490-77158-7	WA-MW-09	Total/NA	Ground Water	6020	244016
490-77158-7	WA-MW-09	Total/NA	Ground Water	6020	244016
490-77158-8	WA-QAQC-Dup-01	Dissolved	Ground Water	6020	244038
490-77158-8	WA-QAQC-Dup-01	Total/NA	Ground Water	6020	244016
490-77158-8	WA-QAQC-Dup-01	Total/NA	Ground Water	6020	244016
LCS 490-244016/2-A	Lab Control Sample	Total/NA	Water	6020	244016
MB 490-244016/1-A	Method Blank	Total/NA	Water	6020	244016

General Chemistry

Analysis Batch: 243676

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-1	WA-QAQC-EB-02	Total/NA	Ground Water	353.2	
490-77158-1 MS	WA-QAQC-EB-02	Total/NA	Ground Water	353.2	
490-77158-1 MSD	WA-QAQC-EB-02	Total/NA	Ground Water	353.2	
490-77158-2	WA-MW-04	Total/NA	Ground Water	353.2	
490-77158-3	WA-MW-02	Total/NA	Ground Water	353.2	
490-77158-4	WA-MW-05	Total/NA	Ground Water	353.2	
490-77158-5	WA-MW-10	Total/NA	Ground Water	353.2	
490-77158-6	WA-MW-01	Total/NA	Ground Water	353.2	
490-77158-7	WA-MW-09	Total/NA	Ground Water	353.2	
490-77158-8	WA-QAQC-Dup-01	Total/NA	Ground Water	353.2	
LCS 490-243676/4	Lab Control Sample	Total/NA	Water	353.2	
LCSD 490-243676/5	Lab Control Sample Dup	Total/NA	Water	353.2	
MB 490-243676/3	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 243755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-1	WA-QAQC-EB-02	Total/NA	Ground Water	353.2	
490-77158-1 MS	WA-QAQC-EB-02	Total/NA	Ground Water	353.2	
490-77158-1 MSD	WA-QAQC-EB-02	Total/NA	Ground Water	353.2	
490-77158-2	WA-MW-04	Total/NA	Ground Water	353.2	
490-77158-3	WA-MW-02	Total/NA	Ground Water	353.2	
490-77158-4	WA-MW-05	Total/NA	Ground Water	353.2	
490-77158-5	WA-MW-10	Total/NA	Ground Water	353.2	
490-77158-6	WA-MW-01	Total/NA	Ground Water	353.2	
490-77158-7	WA-MW-09	Total/NA	Ground Water	353.2	
490-77158-7 MS	WA-MW-09	Total/NA	Ground Water	353.2	
490-77158-8	WA-QAQC-Dup-01	Total/NA	Ground Water	353.2	
LCS 490-243755/5	Lab Control Sample	Total/NA	Water	353.2	
LCSD 490-243755/6	Lab Control Sample Dup	Total/NA	Water	353.2	
MB 490-243755/4	Method Blank	Total/NA	Water	353.2	

General Chemistry (Continued)

Analysis Batch: 244347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-F-2 MS	Matrix Spike	Total/NA	Water	9060A	
490-77158-1	WA-QAQC-EB-02	Total/NA	Ground Water	9060A	
490-77158-2	WA-MW-04	Total/NA	Ground Water	9060A	
490-77158-3	WA-MW-02	Total/NA	Ground Water	9060A	
490-77158-4	WA-MW-05	Total/NA	Ground Water	9060A	
490-77158-5	WA-MW-10	Total/NA	Ground Water	9060A	
490-77158-6	WA-MW-01	Total/NA	Ground Water	9060A	
490-77158-7	WA-MW-09	Total/NA	Ground Water	9060A	
490-77158-8	WA-QAQC-Dup-01	Total/NA	Ground Water	9060A	
680-111814-A-11 MS	Matrix Spike	Total/NA	Water	9060A	
680-111814-A-11 MSD	Matrix Spike Duplicate	Total/NA	Water	9060A	
LCS 490-244347/4	Lab Control Sample	Total/NA	Water	9060A	
MB 490-244347/1	Method Blank	Total/NA	Water	9060A	

Analysis Batch: 244393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77081-G-2 DU	Duplicate	Total/NA	Water	SM 2320B	
490-77158-1	WA-QAQC-EB-02	Total/NA	Ground Water	SM 2320B	
490-77158-2	WA-MW-04	Total/NA	Ground Water	SM 2320B	
490-77158-3	WA-MW-02	Total/NA	Ground Water	SM 2320B	
490-77158-4	WA-MW-05	Total/NA	Ground Water	SM 2320B	
LCS 490-244393/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-244393/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
MB 490-244393/3	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 244710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-1	WA-QAQC-EB-02	Total/NA	Ground Water	Nitrate by calc	
490-77158-2	WA-MW-04	Total/NA	Ground Water	Nitrate by calc	
490-77158-3	WA-MW-02	Total/NA	Ground Water	Nitrate by calc	
490-77158-4	WA-MW-05	Total/NA	Ground Water	Nitrate by calc	
490-77158-5	WA-MW-10	Total/NA	Ground Water	Nitrate by calc	
490-77158-6	WA-MW-01	Total/NA	Ground Water	Nitrate by calc	
490-77158-7	WA-MW-09	Total/NA	Ground Water	Nitrate by calc	
490-77158-8	WA-QAQC-Dup-01	Total/NA	Ground Water	Nitrate by calc	

Analysis Batch: 244713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-8	WA-QAQC-Dup-01	Total/NA	Ground Water	SM 2320B	
490-77254-B-13 DU	Duplicate	Total/NA	Water	SM 2320B	
490-77254-J-8 DU	Duplicate	Total/NA	Water	SM 2320B	
LCS 490-244713/6	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-244713/7	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
MB 490-244713/5	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 244981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-77158-5	WA-MW-10	Total/NA	Ground Water	SM 2320B	
490-77158-5 DU	WA-MW-10	Total/NA	Ground Water	SM 2320B	
490-77158-6	WA-MW-01	Total/NA	Ground Water	SM 2320B	
490-77158-7	WA-MW-09	Total/NA	Ground Water	SM 2320B	

General Chemistry (Continued)

Analysis Batch: 244981 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 490-244981/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-244981/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
MB 490-244981/3	Method Blank	Total/NA	Water	SM 2320B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-QAQC-EB-02

Lab Sample ID: 490-77158-1
Date Collected: 04/23/15 07:30
Matrix: Ground Water
Date Received: 04/24/15 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245889	05/05/15 16:22	JML	TAL NSH
Total/NA	Analysis	300.0		1	244844	04/30/15 02:52	CLN	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		1	244515	04/28/15 17:28	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH
Total/NA	Analysis	6020		1	244823	04/29/15 13:08	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243676	04/24/15 12:39	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243755	04/24/15 15:48	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244710	04/24/15 12:39	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244393	04/25/15 21:21	PHB	TAL NSH

Client Sample ID: WA-MW-04

Lab Sample ID: 490-77158-2
Date Collected: 04/23/15 08:45
Matrix: Ground Water
Date Received: 04/24/15 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245889	05/05/15 16:26	JML	TAL NSH
Total/NA	Analysis	300.0		1	244844	04/30/15 03:12	CLN	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		1	244515	04/28/15 17:53	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH
Total/NA	Analysis	6020		1	244823	04/29/15 13:13	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243676	04/24/15 12:43	MJA	TAL NSH
Total/NA	Analysis	353.2		2	243755	04/24/15 16:03	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244710	04/24/15 12:43	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244393	04/25/15 21:26	PHB	TAL NSH

Client Sample ID: WA-MW-02

Lab Sample ID: 490-77158-3
Date Collected: 04/23/15 09:35
Matrix: Ground Water
Date Received: 04/24/15 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245889	05/05/15 16:30	JML	TAL NSH
Total/NA	Analysis	300.0		10	244504	04/29/15 05:20	CLN	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		1	244515	04/28/15 17:58	JBD	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		10	244823	04/29/15 11:21	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-MW-02

Lab Sample ID: 490-77158-3

Date Collected: 04/23/15 09:35
Matrix: Ground Water
Date Received: 04/24/15 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6020		10	244823	04/29/15 13:19	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH
Total/NA	Analysis	6020		1	244823	04/29/15 13:24	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243676	04/24/15 12:44	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243755	04/24/15 15:55	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244710	04/24/15 12:44	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244393	04/25/15 21:29	PHB	TAL NSH

Client Sample ID: WA-MW-05

Lab Sample ID: 490-77158-4

Date Collected: 04/23/15 10:30
Matrix: Ground Water
Date Received: 04/24/15 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245889	05/05/15 16:37	JML	TAL NSH
Total/NA	Analysis	300.0		10	244504	04/29/15 05:41	CLN	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		1	244515	04/28/15 18:03	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH
Total/NA	Analysis	6020		1	244823	04/29/15 13:29	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243676	04/24/15 12:46	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243755	04/24/15 15:56	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244710	04/24/15 12:46	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244393	04/25/15 21:35	PHB	TAL NSH

Client Sample ID: WA-MW-10

Lab Sample ID: 490-77158-5

Date Collected: 04/23/15 11:10
Matrix: Ground Water
Date Received: 04/24/15 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245889	05/05/15 16:39	JML	TAL NSH
Total/NA	Analysis	300.0		10	244504	04/29/15 06:02	CLN	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		1	244515	04/28/15 18:19	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH
Total/NA	Analysis	6020		1	244823	04/29/15 13:34	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243676	04/24/15 12:47	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243755	04/24/15 15:57	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244710	04/24/15 12:47	BMC	TAL NSH

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-MW-10

Lab Sample ID: 490-77158-5

Date Collected: 04/23/15 11:10
Matrix: Ground Water
Date Received: 04/24/15 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2320B		1	244981	04/29/15 22:05	PHB	TAL NSH

Client Sample ID: WA-MW-01

Lab Sample ID: 490-77158-6

Date Collected: 04/23/15 12:32
Matrix: Ground Water
Date Received: 04/24/15 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	246137	05/06/15 13:15	JML	TAL NSH
Total/NA	Analysis	300.0		10	244504	04/29/15 06:23	CLN	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		1	244515	04/28/15 18:24	JBD	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		100	244823	04/29/15 11:26	JBD	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		10	244823	04/29/15 11:31	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH
Total/NA	Analysis	6020		100	244823	04/29/15 13:39	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH
Total/NA	Analysis	6020		10	244823	04/29/15 13:44	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243676	04/24/15 12:48	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243755	04/24/15 15:58	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244710	04/24/15 12:48	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244981	04/29/15 22:14	PHB	TAL NSH

Client Sample ID: WA-MW-09

Lab Sample ID: 490-77158-7

Date Collected: 04/23/15 12:40
Matrix: Ground Water
Date Received: 04/24/15 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	246137	05/06/15 13:19	JML	TAL NSH
Total/NA	Analysis	300.0		10	244504	04/29/15 06:44	CLN	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		1	244515	04/28/15 18:29	JBD	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		10	244823	04/29/15 11:36	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH
Total/NA	Analysis	6020		10	244823	04/29/15 13:49	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH
Total/NA	Analysis	6020		1	244823	04/29/15 14:15	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243676	04/24/15 12:50	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243755	04/24/15 16:01	MJA	TAL NSH

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Client Sample ID: WA-MW-09

Lab Sample ID: 490-77158-7

Date Collected: 04/23/15 12:40
Matrix: Ground Water
Date Received: 04/24/15 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244710	04/24/15 12:50	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244981	04/29/15 22:18	PHB	TAL NSH

Client Sample ID: WA-QAQC-Dup-01

Lab Sample ID: 490-77158-8

Date Collected: 04/23/15 00:01
Matrix: Ground Water
Date Received: 04/24/15 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	245889	05/05/15 16:41	JML	TAL NSH
Total/NA	Analysis	300.0		10	244504	04/29/15 07:05	CLN	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		1	244515	04/28/15 18:34	JBD	TAL NSH
Dissolved	Prep	3005A			244038	04/27/15 09:53	TSC	TAL NSH
Dissolved	Analysis	6020		10	244823	04/29/15 11:41	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH
Total/NA	Analysis	6020		10	244823	04/29/15 14:05	JBD	TAL NSH
Total/NA	Prep	3010A			244016	04/27/15 09:12	TSC	TAL NSH
Total/NA	Analysis	6020		1	244823	04/29/15 14:20	JBD	TAL NSH
Total/NA	Analysis	353.2		1	243676	04/24/15 12:51	MJA	TAL NSH
Total/NA	Analysis	353.2		1	243755	04/24/15 16:02	MJA	TAL NSH
Total/NA	Analysis	9060A		1	244347	04/27/15 14:05	JAB	TAL NSH
Total/NA	Analysis	Nitrate by calc		1	244710	04/24/15 12:51	BMC	TAL NSH
Total/NA	Analysis	SM 2320B		1	244713	04/28/15 21:35	PHB	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL NSH
300.0	Anions, Ion Chromatography	MCAWW	TAL NSH
6020	Metals (ICP/MS)	SW846	TAL NSH
353.2	Nitrogen, Nitrite	MCAWW	TAL NSH
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL NSH
9060A	Organic Carbon, Total (TOC)	SW846	TAL NSH
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL NSH
SM 2320B	Alkalinity	SM	TAL NSH

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: VCC Wadesboro

TestAmerica Job ID: 490-77158-1

Laboratory: TestAmerica Nashville

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	A2LA		NA: NELAP & A2LA	12-31-15
A2LA	ISO/IEC 17025		0453.07	12-31-15
Alaska (UST)	State Program	10	UST-087	10-31-15
Arizona	State Program	9	AZ0473	05-05-16
Arkansas DEQ	State Program	6	88-0737	04-25-16
California	State Program	9	2938	10-31-16
Connecticut	State Program	1	PH-0220	12-31-15
Florida	NELAP	4	E87358	06-30-15
Illinois	NELAP	5	200010	12-09-15
Iowa	State Program	7	131	04-01-16
Kansas	NELAP	7	E-10229	05-31-15
Kentucky (UST)	State Program	4	19	06-30-15
Kentucky (WW)	State Program	4	90038	12-31-15
Louisiana	NELAP	6	30613	06-30-15
Maryland	State Program	3	316	03-31-16
Massachusetts	State Program	1	M-TN032	06-30-15
Minnesota	NELAP	5	047-999-345	12-31-15
Mississippi	State Program	4	N/A	06-30-15
Montana (UST)	State Program	8	NA	02-24-20
Nevada	State Program	9	TN00032	07-31-15
New Hampshire	NELAP	1	2963	10-09-15
New Jersey	NELAP	2	TN965	06-30-15
New York	NELAP	2	11342	03-31-16
North Carolina (WW/SW)	State Program	4	387	12-31-15
North Dakota	State Program	8	R-146	06-30-15
Ohio VAP	State Program	5	CL0033	10-16-15
Oklahoma	State Program	6	9412	08-31-15
Oregon	NELAP	10	TN200001	04-27-16
Pennsylvania	NELAP	3	68-00585	06-30-15
Rhode Island	State Program	1	LAO00268	12-30-15
South Carolina	State Program	4	84009 (001)	02-28-16
South Carolina (DW)	State Program	4	84009 (002)	12-16-17
Tennessee	State Program	4	2008	02-23-17
Texas	NELAP	6	T104704077	08-31-15
USDA	Federal		S-48469	10-30-16
Utah	NELAP	8	TN00032	07-31-15
Virginia	NELAP	3	460152	06-14-15
Washington	State Program	10	C789	07-19-15
West Virginia DEP	State Program	3	219	02-28-16
Wisconsin	State Program	5	998020430	08-31-15
Wyoming (UST)	A2LA	8	453.07	12-31-15

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-77158 Chain of Custody

Cooler Received/Opened On 4/24/2015 @ 8:30

1. Tracking # 9954 (last 4 digits, FedEx)

Courier: Fed-ex IR Gun ID 17960358

2. Temperature of rep. sample or temp blank when opened: 0.4 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: 2 front + back

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) EZA

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) AJH

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AJH

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) AJH

I certify that I attached a label with the unique LIMS number to each container (intial) AJH

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 6/24/09

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

Loc: 490
77158

COOLER RECEIPT FORM

Cooler Received/Opened On 4/24/2015 @ 0830

1. Tracking # 0009 (last 4 digits, FedEx)

Courier: Fed-ex IR Gun ID 17960357

2. Temperature of rep. sample or temp blank when opened: 2.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 Front / 1 Back

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) AOH

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AOH

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) AOH

I certify that I attached a label with the unique LIMS number to each container (intial) AOH

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 11/28/12

Loc: 490
77158

TestAmerica THE LEADER IN ENVIRONMENTAL TESTING

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Toll Free: 800-765-0980
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ExxonMobil

Consultant Name: ARCADIS Cary - Exxon (10141)
Address: 801 Corporate Center Dr, Suite 300
City/State/Zip: Raleigh, NC 27607
ExxonMobil Project Mgr:
Consultant Project Mgr: Kirstyn White
Consultant Telephone Number: 919-469-1952 Fax No.: 919-469-5676
Sampler Name: (Print) Dan Rhodes / Brian Lovgren
Sampler Signature:

TA Account #: 49001238 PO: B0085671.1501
Invoice To: Arcadis - Accounts Payable
Report To: Kirstyn White
Project Name: VCC Wadesboro
Retail # (MRN #):
Major Project (AFE#):
Site Address
City, State, Zip Lynchburg, VA
Regulatory District (CA)

Sample ID or Field ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass(Yellow Label)	HNO_3 (Red Label)	None (Black Label)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	6020 Cd, Cu, Fe, Mn, Ni, Zn	6020 dissolvedCd, Cu, Fe, Mn, Ni, Zn	353.2 Nitrate	300.0 Sulfate	Alkalinity	TOC	pH	Methane	RUSH TAT (Pre-Schedule)*	TAT request (in Bus. Days)	Fax Results (yes or no)	Due Date of Report
WA-QAQC-EB-02	4-23-15	0730	10	X					X		X	X	X		X						1	1	1	1	1	1	1	3				
WA-MW-04	4-23-15	0845	10	X					X		X	X	X		X						1	1	1	1	1	1	1	3				
WA-MW-02	4-23-15	0935	10	X					X		X	X	X		X						1	1	1	1	1	1	1	3				
WA-MW-05	4-23-15	1030	10	X					X		X	X	X		X						1	1	1	1	1	1	1	3				
WA-MW-10	4-23-15	1110	10	X					X		X	X	X		X						1	1	1	1	1	1	1	3				
WA-MW-01	4-23-15	1232	10	X					X		X	X	X		X						1	1	1	1	1	1	1	3				
WA-MW-09	4-23-15	1240	10	X					X		X	X	X		X						1	1	1	1	1	1	1	3				
WA-QAQC-Dup-01	4-23-15	NR	10	X					X		X	X	X		X						1	1	1	1	1	1	1	3				

Comments/Special Instructions:

Laboratory Comments:
Temperature Upon Receipt: 0.4
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2 Level 3 Level 4 Other

Relinquished by:	Date	Time	Received by:	Date	Time
	4-23-15	1600	FedEx	4-23-15	1600
Relinquished by:	Date	Time	Received by TestAmerica:	Date	Time
				4/24/15	8:30

* It will be the responsibility of ExxonMobil or its consultant to notify the TestAmerica Project Manager by phone or fax that a rush sample will be submitted.
TA Project Manager: Date:

Wagner, Heather

From: White, Kirstyn [Kirstyn.White@arcadis-us.com]
Sent: Friday, April 24, 2015 11:48 AM
To: Wagner, Heather
Subject: RE: TestAmerica Sample Login Confirmation files from 490-77081 VCC Wadesboro
Follow Up Flag: Follow up
Flag Status: Red

Heather –

Good afternoon. Can you please cancel the pH analysis for all samples associated with 490-77081? You will be receiving more samples today from the Wadesboro site and I need the same thing done to those. We did pH in the field and do not want the laboratory to analyze for that.

Please let me know if you have any questions.

Thanks,
Kirstyn

From: Wagner, Heather [mailto:heather.wagner@testamericainc.com]
Sent: Friday, April 24, 2015 12:01 PM
To: White, Kirstyn
Subject: TestAmerica Sample Login Confirmation files from 490-77081 VCC Wadesboro

Hello,

Attached please find the Sample Confirmation files for job 490-77081; VCC Wadesboro

Please feel free to contact me if you have any questions.

Thank you.

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

HEATHER WAGNER
Project Manager I

TestAmerica Nashville
THE LEADER IN ENVIRONMENTAL TESTING

Tel: 615.301.5763

Reference: [215882]
Attachments: 3

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 490-77158-1

Login Number: 77158
List Number: 1
Creator: Huskey, Adam

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	