BB&E
CONSULTING ENGINEERS & PROFESSIONALS

June 5, 2020

Mr. Mark Doolan
Project Coordinator
United States Environmental Protection Agency – Region VII (AWMD/WRAP)
11201 Renner Boulevard
Lenexa, KS 66219

Subject: Collis, Inc. (EPA ID No. IAD047303771)
Clinton, Iowa
Final 2020 First-Half Semi-Annual LTM Summary Report

Dear Mr. Doolan,

On behalf of Collis, Inc., BB&E, Inc. is pleased to submit a hardcopy of the *Final 2020 First-Half Semi-Annual Long-Term Monitoring Summary Report* for EPA review and approval.

If you have any questions concerning this document, or any other issues regarding this project, please call me at (248) 489-9636, Extension 308.

Sincerely,

Kacie Van Buskirk

Kacie Van Buskirk
Project Manager

Cc: Brian Calhoun, SSW Holding Company, Inc.

RCRA 6/5/2020

600665

Collis, Inc. – Semi-Annual Long Term Monitoring (LTM)
2020 First-Half Semi-Annual LTM Summary Report- FINAL

Report Date: June 5, 2020

D. Mark Doolan
U.S. Environmental Protection Agency
Air and Waste Management Division, WRAP Branch
11201 Renner Blvd.
Lenexa, KS 66219
913-551-7169

Site Name: Collis, Inc.
Clinton, Iowa
Corrective Measures Implementation - Long Term Monitoring
U.S. EPA ID #IAD047303771

Prepared by: Kacie Van Buskirk, BB&E, Inc.

BB&E, Inc. (BB&E) is pleased to provide this 2020 First-Half Semi-Annual Long-Term Monitoring (LTM) Summary Report. This report documents the first semi-annual LTM sampling event of 2020 conducted on April 20, 2020 through April 21, 2020 at the Collis Facility (Site) located at 2005 South 19th Street in Clinton, Clinton County, Iowa (**Figure 1** and **Figure 2**). The Site includes an industrial manufacturing plant and covers an area of approximately 12.5 acres. A detailed summary of the operational history of the site, environmental setting (e.g., land use, topography, site geology and hydrogeology), historic environmental investigations completed, and the sources and extents of known contamination can be found in the USEPA approved *Final Corrective Measures Study Report* (CMS), dated April 24, 2018 (BB&E, 2018).

The CMS includes recommendations for soil land use controls (LUCs)/institutional controls (ICs). Because contamination remains in groundwater on-site and off-site at concentrations exceeding United States Environmental Protection Agency Maximum Contaminant Level (U.S. EPA MCL) criteria, resource-use restrictions via on-site and off-site Environmental Restrictive Covenants (ERC's) were developed. The ERCs restrict impacted properties from residential use and prohibit groundwater access and consumption. As noted in the *Revised Final Corrective Measures Implementation – Long Term Monitoring Work Plan* (CMI-LTM WP; BB&E, 2019a), which was

submitted to, and approved by the U.S. EPA, the CMS included recommendations for LTM of groundwater, in addition to the ERC's, including semi-annual groundwater monitoring for five years. Following the five years of semi-annual LTM, an evaluation will be conducted to determine the effectiveness of the monitored natural attenuation (MNA) groundwater remedy. Additionally, due to residual contamination in subsurface soils (2-10 feet below ground surface [bgs]) above U.S. EPA screening levels, a Media Management Plan (MMP) was developed to protect construction workers from exposure to subsurface contamination (BB&E, 2017). The MMP includes inspection and maintenance requirements for the gravel lot located north and northeast of the main facility building; specifically, the gravel lot will be maintained as an effective barrier to protect against direct contact with impacted subsurface soils as a result of erosion and normal use of the gravel surface cover. The gravel lot is to be inspected semi-annually to determine if it is functioning as intended and if maintenance is required. The MMP was submitted to, and approved by the US EPA, and included inspection and maintenance requirements for the gravel lot located north and northeast of the main facility building.

On February 25-27, 2019, thirty-one monitoring wells and piezometers were abandoned at and in the vicinity of the Collis facility. The monitoring wells and piezometers that were abandoned were no longer utilized, and, as agreed upon during the October 24, 2018 meeting at Region 7 between the USEPA and Collis, were to be properly abandoned to minimize long-term environmental liabilities. Abandonment activities are documented in the *Final Summary Report for 2019 Monitoring Well Abandonment Activities* (BB&E, 2019b).

Following the February 2019 monitoring well abandonment activities, the CMI-LTM WP was revised, and approved by the USEPA on May 8, 2019, to the Revised Final CMI-LTM WP in order to reflect the changes in monitoring wells present at and in the vicinity of the Collis site.

This report has been prepared in accordance with the Revised Final CMI-LTM WP (BB&E, 2019a) and the *Quality Assurance Project Plan* (QAPP; BB&E, 2014).

The objectives for field activities completed during execution of the 2020 first-half semi-annual LTM event consisted of the following:

- Groundwater elevations were taken from relevant monitoring wells and piezometers, as defined in the Revised Final CMI-LTM WP, in order to develop potentiometric surface maps to continue to monitor and evaluate the extent of the groundwater interface with Manufacturer's Ditch and groundwater flow direction.
- Groundwater samples were collected for analysis to monitor concentrations of contaminants of concern over time.
- Groundwater monitoring was conducted to observe natural attenuation parameters and concentrations of chlorinated volatile organic compounds (CVOCs). MNA parameters included methane/ethane/ethene, iron, manganese, chloride, sulfate, nitrate and nitrite; these MNA parameters were selected in order to demonstrate the status of the MNA remedy at the Site.
- A gravel lot inspection was conducted in accordance with the 2017 MMP (BB&E, 2017) to identify areas where the gravel was worn down, erosion was occurring (e.g., deep potholes), animals were burrowing, and/or ponding was occurring, and determine if any maintenance of the lot was required.

2020 FIRST-HALF SEMI-ANNUAL LTM MONITORING SUMMARY

This 2020 first-half semi-annual LTM summary report contains a summary of groundwater analytical results (**Table 1**), a summary of groundwater elevation results (**Table 2**), groundwater field parameter readings (**Table 3**), Vapor Intrusion Screening Level (VISL) comparisons (**Table 4**), MNA results (**Table 5**), detections summary figures (**Figures 3**, **4**, **5**, and **6**), potentiometric surface maps (**Figures 7** and **8**), groundwater concentration trend graphs for key monitoring wells (**Graphs 1**, **2**, and **3**), laboratory analytical data (**Attachment A**), field notes/forms (**Attachment B**), and the gravel lot inspection (**Attachment C**).

The 2020 first-half semi-annual LTM activities are summarized below:

- Groundwater samples were collected from specific site monitoring wells, as described in the Revised Final CMI-LTM WP. Groundwater analytical results are summarized in **Table 1**, and sample locations are shown on **Figure 2**.

- Groundwater samples from the first saturated unit (a shallow unconfined aquifer) were collected from MW-38, MW-39, MW-50S, PZ-47 and PZ-48 and analyzed for volatile organic compounds (VOCs; U.S. EPA Method 8260).
- Groundwater samples from the second saturated unit (upper unconsolidated sediments and weathered bedrock) were collected from MW-34, MW-45, MW-47S, MW-50, and MW-56 and analyzed for VOCs (U.S. EPA Method 8260). Additionally, MW-34 was sampled and analyzed for MNA parameters (chloride, nitrate/nitrite, sulfate/sulfide, dissolved iron, dissolved manganese, methane, ethane, and ethene). Monitoring wells MW-34 and MW-45 were also sampled and analyzed for 1,4-dioxane (U.S. EPA Method 8260SIM).
- Groundwater samples from the third saturated unit (lower unconsolidated sediments and upper bedrock) were collected from MW-42 and MW-53 and analyzed for VOCs (U.S. EPA Method 8260), 1,4-dioxane (U.S. EPA Method 8260SIM), and MNA parameters (chloride, nitrate/nitrite, sulfate/sulfide, dissolved iron, dissolved manganese, methane, ethane, and ethene).
- A groundwater sample from the fourth saturated unit (bedrock) was collected from MW-43 and analyzed for VOCs (U.S. EPA Method 8260).

- Groundwater field parameters, including oxidation-reduction potential (ORP), dissolved oxygen (DO), specific conductivity, turbidity, and pH, were collected from monitoring wells during purging, and prior to sample collection, at approximately 5-minute intervals. Groundwater field parameters were collected to determine when stabilization had been achieved and a groundwater sample could be collected. A groundwater sample was collected when field parameters had stabilized for three successive readings or when 45 minutes of purging had been completed. Prior to sample collection, a final reading of the field parameters was recorded. The following stabilization criteria were used:
  - ± 0.1 Standard Unit (S.U.) for pH
  - ±3 percent (%) for specific conductance (millisiemens/centimeter [mS/cm])
  - ±10 millivolts (mV) for ORP
  - ±0.3 milligrams per liter (mg/L) for DO
  - ±0.5 Degrees Celsius (°C)
  - ±10% for turbidity values or less than (<) 50 Nephelometric Turbidity Units (NTUs)

Groundwater field parameters were used to enhance the dataset for evaluating the effectiveness of the MNA groundwater remedy in accordance with the *Natural Attenuation of Chlorinated Solvents in Groundwater: Principles and Practices* (Interstate Technology and Regulatory Council, 1999) guidance document.

- In accordance with the Revised Final CMI-LTM WP all purge water generated was disposed of directly at the waste water treatment plant inside the Collis Facility. All sampling gloves and other personal protective equipment were double-bagged and placed in an on-site municipal waste container for disposal.

DEVIATIONS FROM THE REVISED FINAL CMI-LTM WP

There were no deviations from the Revised Final CMI-LTM WP experienced during the 2020 first-half semi-annual LTM event conducted April 20, 2020 and April 21, 2020.

GROUNDWATER ELEVATION SUMMARY

Monitoring wells/piezometers that are screened in four different saturated units, as described in the Revised Final CMI-LTM WP, were gauged during the 2020 first-half semi-annual LTM event. Potentiometric surface maps for the first and second saturated units are included in this report as **Figures 7** and **8**. Potentiometric surface maps were not prepared for the third or fourth saturated units as only two and one data points, respectively, are available for these saturated units. A summary of groundwater elevation and flow information is summarized below:

- Historically, groundwater in the first saturated unit, a shallow unconfined aquifer, flows northwest to north-northwest. Groundwater in the first saturated unit appears to vent to Manufacturer's Ditch. As shown on **Figure 7**, the groundwater flow direction in the first saturated unit, was consistent with historic observations.
- Historically, groundwater in the second saturated unit, the upper unconsolidated sediments and weathered bedrock, flows northwest. As shown on **Figure 8**, the groundwater flow direction in the second saturated unit was consistent with historic observations.
- Historically, based on previous potentiometric surface maps, groundwater in the third saturated unit, the lower unconsolidated sediments and weathered bedrock, flows northwest.

- Upon removal of expansion plugs, various monitoring wells were noted to have water slowly flowing to the top and/or over the top of casing indicating artesian conditions consistent with historic observations. Wells exhibiting artesian conditions during the 2020 first-half semi-annual LTM event are identified on **Table 2**.

A summary of groundwater elevations is included as **Table 2** and field notes and forms are provided for reference in **Attachment B**.

GROUNDWATER ANALYTICAL RESULTS

As specified in the Revised Final CMI-LTM WP, groundwater analytical results were compared to U.S. EPA MCLs or the most recent Regional Screening Level (RSLs), if no MCL exists, for the purposes of evaluating the effectiveness of the MNA groundwater remedy. In addition to the MCL or RSL comparison, per the Revised Final CMI-LTM WP, shallow groundwater analytical results for VOCs were also compared to target groundwater concentrations for VISLs. VOC results from the first and second saturated units have been compared to VISL target groundwater concentrations for commercial exposure, calculated using the U.S. EPA VISL Calculator last updated May 2018 (U.S. EPA, 2018). A summary of groundwater analytical results is provided in **Table 1**. Groundwater analytical results compared to VISL target groundwater concentrations for the first and second saturated units are shown on **Table 4**.

All samples were analyzed by ALS Laboratory Group located in Holland, Michigan (a National Environmental Laboratory Accreditation Program [NELAP] approved lab). A complete set of laboratory results is provided in **Attachment A**. Field notes and sample log forms are provided for reference in **Attachment B**.

Laboratory analytical results are summarized below.

VOCs

First Saturated Unit: Monitoring wells MW-38, MW-39, MW-50S, PZ-47, and PZ-48 were sampled and analyzed for VOCs. VOCs detected above screening criteria included cis-1,2-Dichloroethene (DCE) and vinyl chloride (VC).

Cis-1,2-DCE was detected above the MCL in MW-38 and MW-39. VC was detected above the MCL and VISL target groundwater concentration in MW-38, MW-39, and MW-50S.

Analytical results for the first saturated unit are included on **Table 1, Table 4,** and **Figure 3**.

Second Saturated Unit: Monitoring wells MW-34, MW-45, MW-47S, MW-50, and MW-56 were sampled and analyzed for VOCs. VOCs detected above screening criteria included cis-1,2-DCE, trichloroethylene (TCE), and VC.

Cis-1,2-DCE was detected above the MCL in MW-45. VC was detected above both the MCL and VISL target groundwater concentration in MW-50, and just above the MCL in MW-45. TCE was detected above both the MCL and VISL target groundwater concentration in MW-34, and above the VISL target groundwater concentration in MW-45.

Additional detections of VOCs in the second saturated unit include a low-level detection of Acrolein (MW-56), below applicable USEPA MCLs or USEPA Tapwater RSLs.

Analytical results for the second saturated unit are included on **Table 1, Table 4,** and **Figure 4**. A groundwater concentration trend graph for MW-34 is included on **Graph 1**.

Third Saturated Unit: Monitoring wells MW-42 and MW-53 were sampled and analyzed for VOCs. VOCs detected above screening criteria included cis-1,2-DCE, TCE, and VC. All three parameters were detected above the MCL in MW-42. No parameters exceeded screening criteria in MW-53.

Additional detections of VOCs in the third saturated unit include low level detections of 1,1,2-trichloroethane (MW-42) and 1,2-dichloropropane (MW-42); all detections are below applicable USEPA MCLs or USEPA Tapwater RSLs. These VOCs have not historically been present at the site, and are not anticipated to be indicative of site conditions.

Per the Revised Final CMI-LTM WP, results from the third saturated unit were not compared to VISL target groundwater concentrations. Analytical results for the third saturated unit are included on **Table 1** and **Figure 5**. Groundwater concentration trend graphs for MW-42 and MW-53 are included on **Graph 2** and **Graph 3**, respectively.

Fourth Saturated Unit: Monitoring well MW-43 was sampled and analyzed for VOCs. There were no VOC detections exceeding the MCL.

Per the Revised Final CMI-LTM WP, results from the fourth saturated unit were not compared to VISL target groundwater concentrations. Analytical results for the fourth saturated unit are included on **Table 1** and **Figure 6**.

1,4-Dioxane

Select wells in the second and third saturated units were sampled for 1,4-dioxane. MW-34 and MW-45 (second saturated unit) and MW-42 and MW-53 (third saturated unit) were sampled for 1,4-dioxane; however, 1,4-dioxane was not detected in any of the groundwater samples during the 2020 first-half semi-annual LTM event. Analytical results are summarized in **Table 1**.

Vapor Intrusion

Groundwater samples collected from the first and second saturated unit were compared to VISL Target Groundwater Concentrations (**Table 4**). Sample results indicated that the first saturated unit had detections of VC that exceeded the VISL Target Groundwater Concentration and the second saturated unit had detections of TCE and VC that exceeded the VISL Target Groundwater Concentration; however, historic evaluation indicates that vapor intrusion is not a concern at the Site.

MONITORED NATURAL ATTENUATION (MNA) SUMMARY

MNA analyses was conducted during the 2020 first-half semi-annual LTM event in order to evaluate continued in-situ biodegradation via reductive dechlorination processes.

In accordance with the Revised Final CMI-LTM WP, MW-34, MW-42, and MW-53 were sampled for VOCs, MNA parameters (i.e., nitrate/nitrite, sulfate/sulfide, iron, manganese, methane, ethene, and ethane), and field parameters (dissolved oxygen [DO], oxidation reduction potential [ORP]), and pH). A detailed discussion of these parameters and relative favorability for in-situ biodegradation via reductive dechlorination is discussed below. A summary of environmental conditions supportive of reductive dechlorination for the three wells sampled during the 2020 first-half semi-annual LTM event has been included in **Table 5**.

Groundwater Field Parameters

DO is a measure of oxygen dissolved in a solution. Concentrations less than 0.5 mg/L are indicative of an environment potentially supportive of reductive dechlorination. All three wells (MW-34,

MW-42, and MW-53) had concentrations less than 0.5 mg/L (0.13, 0.12, and 0.21 mg/L, respectively), indicating favorable conditions for reductive dechlorination.

ORP is a measure of the electron activity and an indicator of the relative tendency of a solution to accept or transfer electrons. Favorable conditions for natural reductive dechlorination are less than 50 mV with less than -100 mV being optimal. Monitoring wells MW-42 and MW-53 had concentrations less than 50 mV (15.8 mV and -1.6 mV, respectively), indicating favorable conditions, while MW-34 had concentrations greater than 50 mV (77.9 mv).

The optimal pH range for microbial activity is between 5 and 9. Biological activity is not likely to occur if the pH is below 5 or above 9. All three wells (MW-34, MW-42, and MW-53) exhibited favorable conditions with pH levels of 6.95, 7.07, and 7.20 units, respectively.

Sulfate Anions

Sulfate concentrations are monitored to evaluate the presence of alternate electron acceptors for microbial respiration. Sulfate was detected in all three wells including MW-34 (69,000 µg/L), MW-42 (94,000 µg/L), and MW-53 (34,000 µg/L) at concentrations higher than the optimal level (<20,000 micrograms per liter [µg/L]) for microbial activity. High sulfate levels may compete with the reductive dechlorination pathway.

Iron

Dissolved iron (i.e., ferrous iron) was detected in MW-42 (61 µg/L) and MW-53 (240 µg/L), but concentrations did not indicate ideal conditions. Favorable concentrations of iron for in-situ reductive dechlorination are typically greater than (>) 1,000 µg/L. Iron was not detected in MW-34.

Nitrate/Nitrite

Nitrogen, measured as nitrate and nitrite, was not detected in MW-42 or MW-53 and was detected at a concentration of 770 ug/L in MW-34. These results are favorable, as favorable conditions are generally less than 1,000 µg/L.

Degradation-Daughter Products

Cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, and VC are degradation products of TCE. The presence of these degradation daughter products are positive indications that reductive dechlorination is occurring. VC is the intermediate degradation step prior to the generation of ethene, followed by ethane. All four daughter products (with the exception of 1,1-DCE in MW-34 and MW-53 and VC in MW-34) were observed in all three wells (MW-34, MW-42, and MW-53).

As specified in the Revised Final CMI-LTM WP, groundwater concentration trend graphs were created for key monitoring wells (MW-34, MW-42, and MW-53) in order to evaluate the historical concentration trends of TCE and the degradation-daughter products over time. These concentration trend graphs are included as **Graph 1**, **Graph 2**, and **Graph 3**.

Dissolved Gases

The presence of the degradation products ethene and ethane tend to indicate that the complete destruction of TCE via the reductive pathway is occurring. Ethene was detected in MW-42 (7.5 ug/L) and Ethane was only detected in MW-34 (8 µg/L) and MW-42 (15 ug/L). Elevated methane levels (>500 µg/L) are generally indicative of strong reducing conditions supportive of reductive dechlorination. Methane was detected in all three monitoring wells (MW-34, MW-42, and MW-53); however, concentrations were not suggestive of strong reducing conditions (>500 µg/L).

2020 FIRST-HALF SEMI-ANNUAL LTM EVENT CONCLUSIONS

VOCs

Based on the groundwater monitoring results from the 2020 first-half semi-annual LTM event, VOCs continue to exceed MCLs in certain wells as shown on **Table 1**. Specifically, cis-1,2-DCE, TCE and VC continue to be detected in groundwater above MCLs at the Site. **Figures 3**, **4**, **5**, and **6** show VOCs detected above MCLs for the 2020 first-half semi-annual LTM event.

In the first saturated unit, cis-1,2-DCE was detected above the MCL in two monitoring wells (MW-38 and MW-39) and VC was detected above the MCL in three monitoring wells (MW-38, MW-39, and MW-50S). In the second saturated unit, cis-1,2- DCE was detected above the MCL in MW-45, TCE was detected above the MCL in MW-34, and VC was detected above the MCL in two monitoring wells (MW-45 and MW-50). In the third saturated unit, cis-1,2-DCE, TCE, and VC were detected above the respective MCLs in MW-42. In the fourth saturated unit, there were

no VOC detections exceeding MCLs. The constituent 1,4-dioxane was not detected in any of the samples.

Monitored Natural Attenuation

Analytical results and groundwater field parameters from the 2020 first-half semi-annual LTM event were indicative of reductive dechlorination of TCE as evidenced by detections of TCE daughter products including trans-1,2-DCE, cis-1,2-DCE, 1,1-DCE, VC, ethene, ethane, and methane. Measured field parameters (ORP, pH, and DO) were also indicative of reducing conditions conducive to dechlorination.

GRAVEL LOT INSPECTION

As required by the MMP, the gravel lot was thoroughly graded in October 2017 and, at the request of EPA, a survey of the gravel lot was conducted on May 15, 2018 in order to establish a benchmark condition for which semi-annual inspections will be compared to. A figure showing the gravel lot area to be inspected is included in **Attachment C**.

In accordance with the MMP (BB&E, 2017), the 2020 first half semi-annual gravel lot inspection was conducted on April 21, 2020 to evaluate if it is functioning as intended (i.e., to protect against direct contact with impacted subsurface soils) and determine if any maintenance of the lot was required. The gravel lot was inspected for areas where the gravel had been worn down, and evidence of erosion, burrowing animals, poor drainage or ponding, and any deep potholes (areas with no gravel cover). There were no necessary repairs or areas identified where replacement of the gravel was necessary during the April 2020 inspection. In accordance with the MMP (BB&E, 2017), if repairs or replacement of the gravel cover are determined to be necessary during any future semi-annual inspections, repairs will be completed within 60 calendar days to continue to protect against exposure to underlying residual contaminants in the subsurface soils.

The inspection form and photographs taken during the inspection to document the overall condition of the gravel cover throughout the lot are included in **Attachment C**.

FINANCIAL ASSURANCE MECHANISM (FAM)

Based on LTM sampling results to date, site conditions remain unchanged, which does not warrant any updates to the FAM; therefore, the FAM remains unchanged since its preparation in 2018. The

FAM will be re-evaluated for potential updates following the 2021 first-half semi-annual sampling event.

RECOMMENDATIONS

Groundwater monitoring and gravel cap inspections are recommended to be continued on a semi-annual basis in accordance with the Revised Final CMI-LTM WP for a period of five years. The semi-annual LTM sampling and analysis will be conducted in accordance with the U.S. EPA approved QAPP (BB&E, 2014). Gravel cap inspections will be conducted in accordance with the MMP (BB&E, 2017). As noted above, following the five years of semi-annual sampling (estimated to be complete in the second-half of 2022), an evaluation will be conducted to determine the effectiveness of the MNA groundwater remedy. The evaluation results, with recommendations, will be submitted to U.S. EPA for review. The next semi-annual LTM event is currently scheduled for September 2020.

If you have any questions or comments regarding this report, please contact me at 248-489-9636 ext. 308 or kvanbuskirk@bbande.com.

Sincerely,

Kacie Van Buskirk

Kacie Van Buskirk
Project Manager
BB&E, Inc.

cc: Mr. Brian Calhoun – Collis/SSW
Mr. Charlie Denton – Barnes & Thornburg, LLP

Enclosures:

Figure 1 – Site Location Map
Figure 2 – Site Features Map
Figure 3 – Detections Summary First Saturated Unit April 2020
Figure 4 – Detections Summary Second Saturated Unit April 2020
Figure 5 – Detections Summary Third Saturated Unit April 2020
Figure 6 – Detections Summary Fourth Saturated Unit April 2020
Figure 7 – Potentiometric Surface Map First Saturated Unit April 2020
Figure 8 – Potentiometric Surface Map Second Saturated Unit April 2020

Table 1 – Groundwater Data Summary
Table 2 – Water Elevations Summary

Table 3 – Groundwater Field Parameter Readings
Table 4 – Vapor Intrusion Screening
Table 5 – LTM Groundwater MNA Results

Graph 1 – MW-34 Concentration Trends
Graph 2 – MW-42 Concentration Trends
Graph 3 – MW-53 Concentration Trends

Attachment A – Laboratory Analytical Data
Attachment B – Field Notes
Attachment C – Gravel Lot Inspection
Attachment D – Semi-Annual Certification for Compliance with LUCs/ICs

REFERENCES

BB&E, Inc. (BB&E), 2014. *Final RCRA Corrective Measures Activities Quality Assurance Project Plan*. August.

BB&E, 2017. *Final RCRA Corrective Measure Activities Media Management Plan.* December.

BB&E, 2018. *Final Corrective Measures Study Report.* April.

BB&E, 2019a. *Revised Final Corrective Measures Implementation – LTM Groundwater Monitoring Work Plan*. April.

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Interstate Technology and Regulatory Council, 1999. *Natural Attenuation of Chlorinated Solvents in Groundwater: Principles and Practices*. September.

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FIGURES

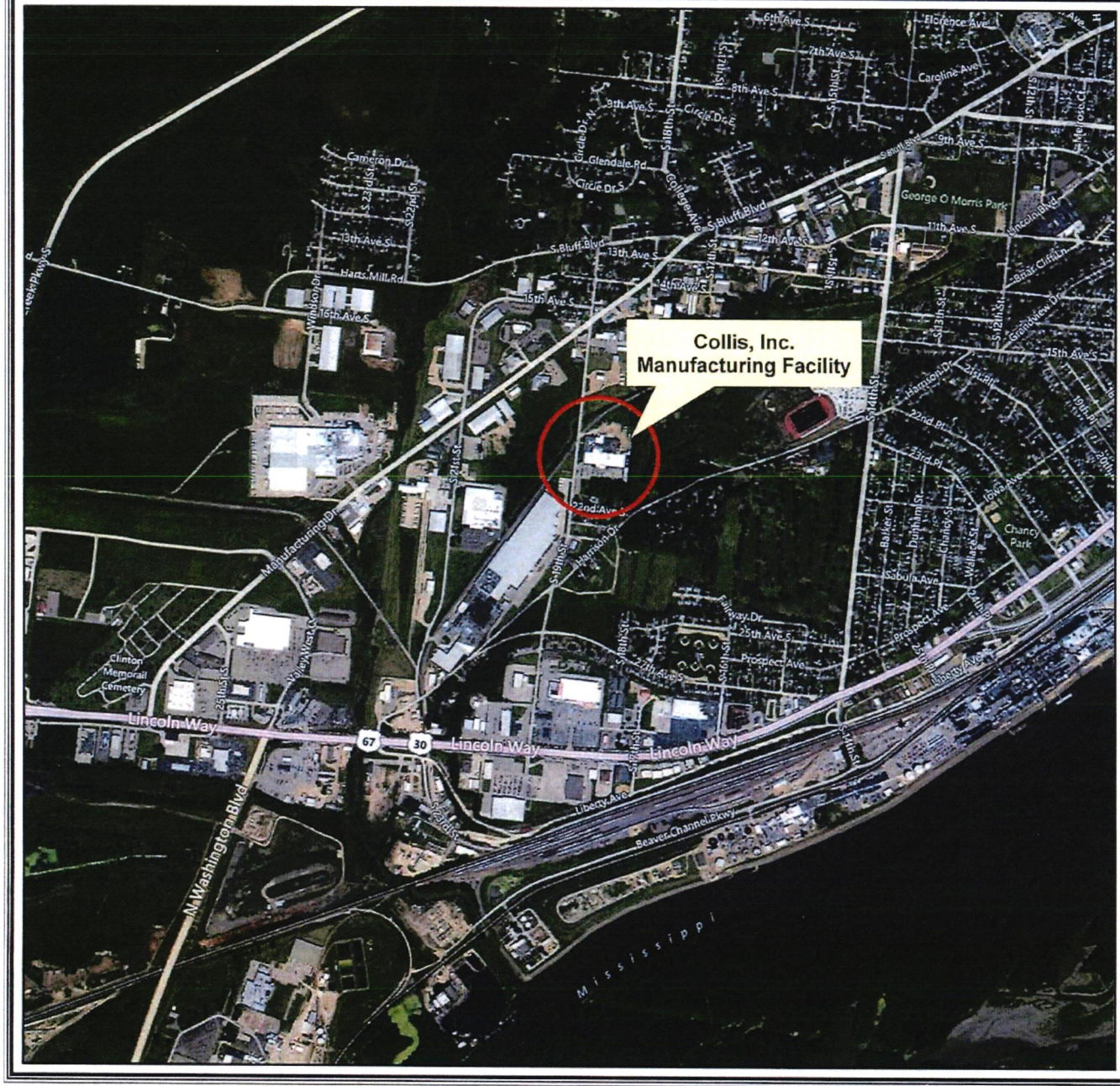

Figure 1

Site Location Map

Collis, Inc. Manufacturing Facility
Clinton, Iowa

NORTH

0 1,500 3,000
Feet

BB&E

JMP - 04/12/2012

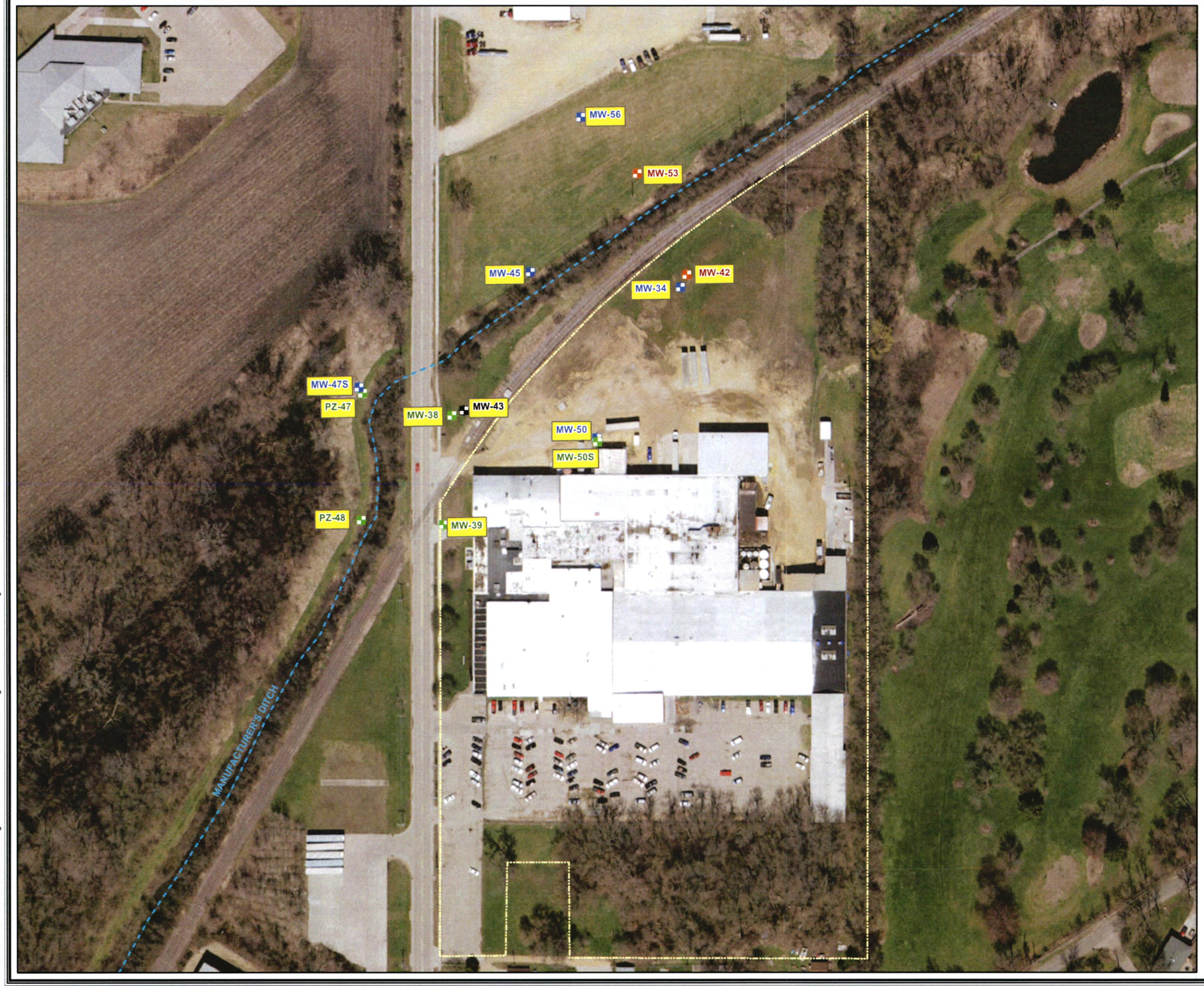

Figure 2

LTM Monitoring Well Locations

Collis, Inc. Manufacturing Facility
Clinton, Iowa

Legend:

- Manufacturer's Ditch
- Property Boundary (Approximate)

Monitoring Wells

- First Saturated Unit
- Second Saturated Unit
- Third Saturated Unit
- Fourth Saturated Unit
- LTM Monitoring Well

Note:
LTM = long term monitoring

NORTH

0 250 500
Feet

BB&E

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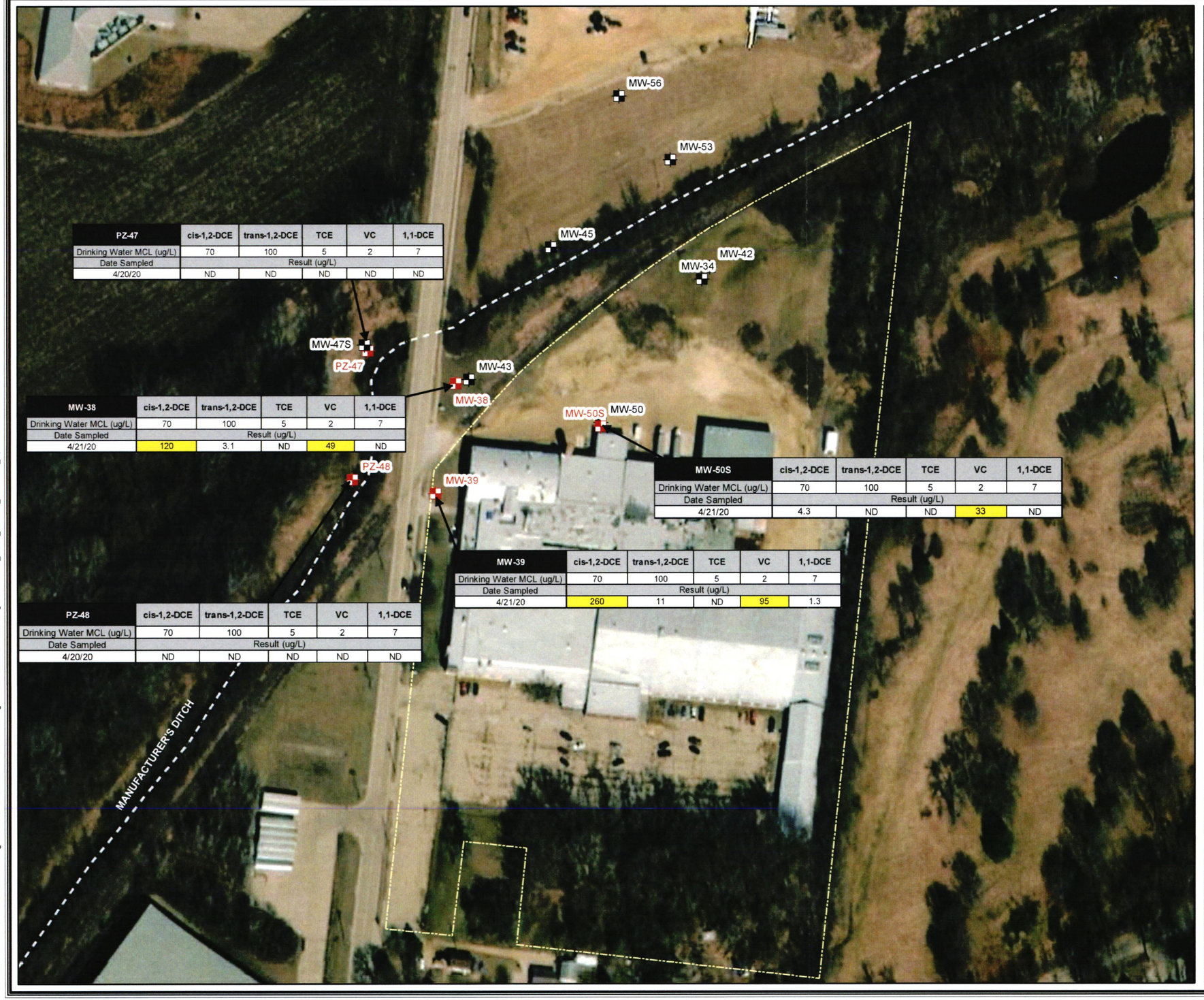

PZ-47	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE
Drinking Water MCL (ug/L)	70	100	5	2	7
Date Sampled	Result (ug/L)				
4/20/20	ND	ND	ND	ND	ND

MW-38	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE
Drinking Water MCL (ug/L)	70	100	5	2	7
Date Sampled	Result (ug/L)				
4/21/20	120	3.1	ND	49	ND

MW-50S	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE
Drinking Water MCL (ug/L)	70	100	5	2	7
Date Sampled	Result (ug/L)				
4/21/20	4.3	ND	ND	33	ND

MW-39	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE
Drinking Water MCL (ug/L)	70	100	5	2	7
Date Sampled	Result (ug/L)				
4/21/20	260	11	ND	95	1.3

PZ-48	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE
Drinking Water MCL (ug/L)	70	100	5	2	7
Date Sampled	Result (ug/L)				
4/20/20	ND	ND	ND	ND	ND

Figure 3

Detections Summary
First Saturated Unit
April 2020

Collis, Inc. Manufacturing Facility
Clinton, Iowa

Legend:

- Wells Sampled Unit 1
- Wells Not Sampled Unit 1
- Manufacturer's Ditch
- Property Boundary (Approximate)

NOTES:

1. Only results from monitoring wells/piezometers sampled during the Corrective Measures Implementation (CMI) Long Term Monitoring (LTM) are included on this figure.
2. Yellow highlighting indicates exceedance of United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL)

ND = not detected
µg/L = micrograms per liter
cis-1,2-DCE = cis-1,2-dichloroethene
trans-1,2-DCE = trans-1,2-dichloroethene
TCE = trichloroethylene
VC = vinyl chloride
1,1-DCE = 1,1-dichloroethene

NORTH

0 100 200
Feet

BB&E

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Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
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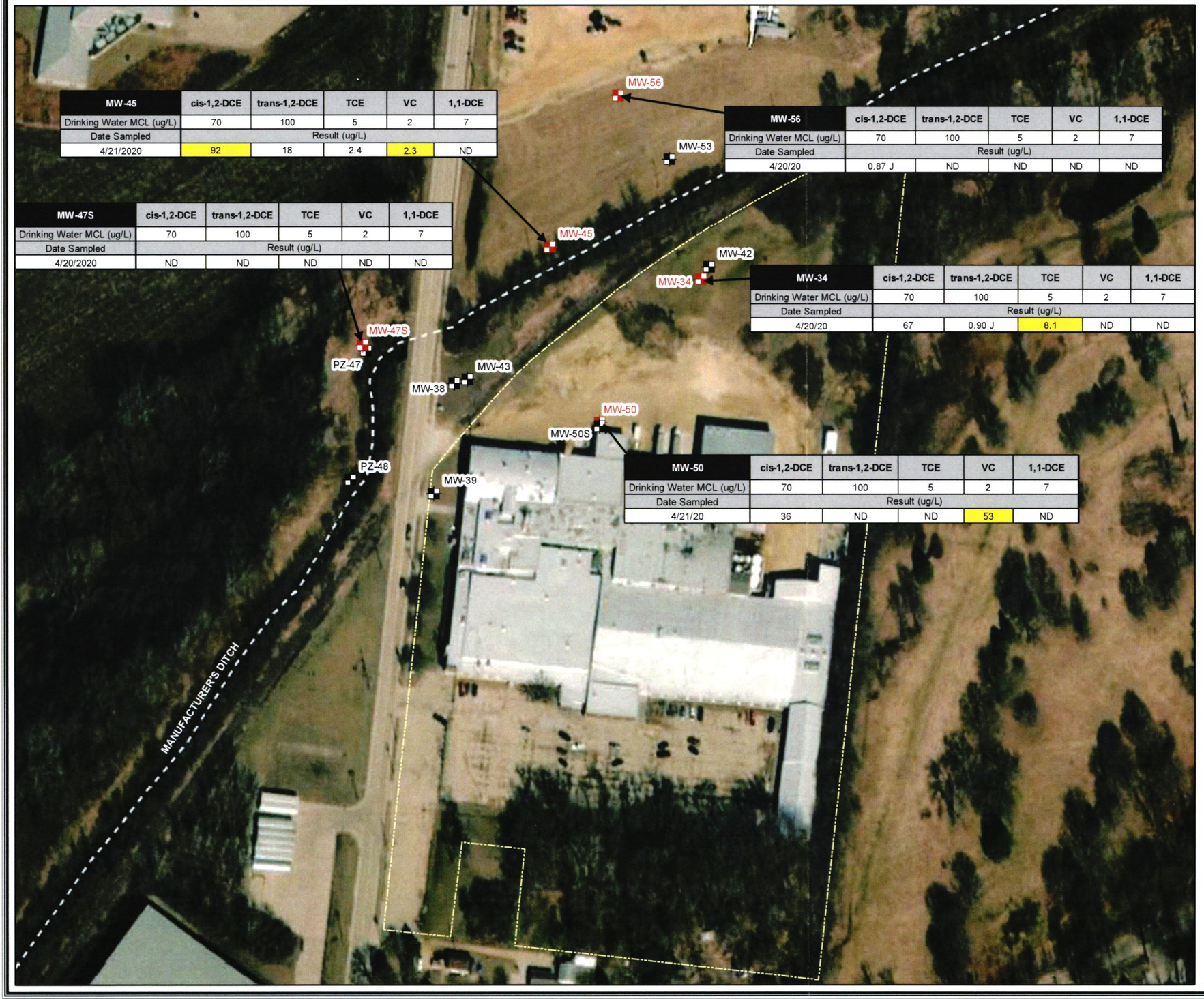

MW-45	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE
Drinking Water MCL (ug/L)	70	100	5	2	7
Date Sampled	Result (ug/L)				
4/21/2020	92	18	2.4	2.3	ND

MW-56	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE
Drinking Water MCL (ug/L)	70	100	5	2	7
Date Sampled	Result (ug/L)				
4/20/20	0.87 J	ND	ND	ND	ND

MW-47S	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE
Drinking Water MCL (ug/L)	70	100	5	2	7
Date Sampled	Result (ug/L)				
4/20/2020	ND	ND	ND	ND	ND

MW-34	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE
Drinking Water MCL (ug/L)	70	100	5	2	7
Date Sampled	Result (ug/L)				
4/20/20	67	0.90 J	8.1	ND	ND

MW-50	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE
Drinking Water MCL (ug/L)	70	100	5	2	7
Date Sampled	Result (ug/L)				
4/21/20	36	ND	ND	53	ND

Figure 4

Detections Summary
Second Saturated Unit
April 2020

Collis, Inc. Manufacturing Facility
Clinton, Iowa

Legend:

- Location Sampled
- Location Not Sampled
- Manufacturer's Ditch
- Property Boundary (Approximate)

NOTES:

1. Only results from monitoring wells sampled during the Corrective Measures Implementation (CMI) Long Term Monitoring (LTM) are included on this figure.
2. Yellow highlighting indicates exceedance of United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL)

ND = not detected
µg/L = micrograms per liter
cis-1,2-DCE = cis-1,2-dichloroethene
trans-1,2-DCE = trans-1,2-dichloroethene
TCE = trichloroethylene
VC = vinyl chloride
1,1-DCE = 1,1-dichloroethene

NORTH

0 100 200
Feet

BB&E

Document Path: H:\ITGIS\SSW\Collis\figures\02028033 - 2020 LTM Monitoring\2020 First semi-annual\Figure 4 - SSW_Collis_Results_2ndsatunit_April20.mxd

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MW-53	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE	Iron
Tapwater RSL (ug/L)	36.0	360	0.49	0.019	280	1,400
Drinking Water MCL (ug/L)	70	100	5	2	7	NA
Date Sampled	Result (ug/L)					
4/21/20	13	0.60 J	ND	1.4	ND	240

MW-42	cis-1,2-DCE	trans-1,2-DCE	TCE	VC	1,1-DCE	Iron
Tapwater RSL (ug/L)	36.0	360	0.49	0.019	280	1,400
Drinking Water MCL (ug/L)	70	100	5	2	7	NA
Date Sampled	Result (ug/L)					
4/20/2020	290	10	190	64	2.6	61 J

Figure 5

Detections Summary
Third Saturated Unit
April 2020

Collis, Inc. Manufacturing Facility
Clinton, Iowa

Legend:

- Location Sampled
- Location Not Sampled
- Manufacturer's Ditch
- Property Boundary (Approximate)

NOTES:

1. Only results from monitoring wells sampled during the Corrective Measures Implementation (CMI) Long Term Monitoring (LTM) are included on this figure.
2. Yellow highlighting indicates exceedance of the November 2019 United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL) or USEPA Tapwater Regional Screening Level (RSL) Criteria, if no MCL is available.

J = the reported value is an estimate
NA = not available
ND = not detected
µg/L = micrograms per liter
cis-1,2-DCE = cis-1,2-dichloroethene
trans-1,2-DCE = trans-1,2-dichloroethene
TCE = trichloroethylene
VC = vinyl chloride
1,1-DCE = 1,1-dichloroethene

NORTH

0 100 200
Feet

BB&E

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MW-43	cis-1,2-DCE	TCE	VC
Drinking Water MCL (ug/L)	70	5	2
Date Sampled	Result (ug/L)		
4/21/20	2.3	ND	1.0

Figure 6

Detections Summary
Fourth Saturated Unit
April 2020

Collis, Inc. Manufacturing Facility
Clinton, Iowa

Legend:

- Location Sampled
- Location Not Sampled
- Manufacturer's Ditch
- Property Boundary (Approximate)

NOTES:

1. Only results from monitoring wells sampled during the Corrective Measures Implementation (CMI) Long Term Monitoring (LTM) are included on this figure.
2. Yellow highlighting indicates exceedance of the November 2019 United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL).

ND = not detected
µg/L = micrograms per liter
cis-1,2-DCE = cis-1,2-dichloroethene
TCE = trichloroethene
VC = vinyl chloride

NORTH

0 100 200
Feet

BB&E

Document Path: H:\ITG\SSS\WCollis\figures\02028033 - 2020 LTM Monitoring\2020 First semi-annual\Figure 6 - SSW_Collis_Results_4thsaturnit_April20.mxd

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
KVB - 5/8/2020

Figure 7

Potentiometric Surface Map
First Saturated Unit
April 2020

Collis, Inc. Manufacturing Facility
Clinton, Iowa

Legend:

- Monitoring Well/Piezometer Location (Elevations included)
- Monitoring Well/Piezometer Location (Elevations excluded)
- Water Table Elevation (dashed where inferred)
- Groundwater Flow Direction
- Manufacturer's Ditch
- Property Boundary (Approximate)

NOTES:

1. Monitoring wells shaded in black were excluded from use in generating this potentiometric surface map due to belonging to a different hydrological unit.

2. Monitoring wells MW-42 and MW-53 are located in the third saturated unit and MW-43 belongs to the deep bedrock hydrological unit. A separate figure was not created for these hydrological units as data from two wells is inadequate for accurate creation of groundwater contours.

3. Due to limitations of software interpolation, this drawing is intended to be used as an overview of the general groundwater flow conditions at the site. Groundwater contours may not pass through the included monitoring wells due to the display of groundwater contours at a constant interval. Contour placement represents an interpolation between two or more monitoring wells with known water levels, observed at the time of sampling; therefore, contours are inferred.

4. Groundwater contours developed using ArcGIS Desktop 10.6 Spatial Analyst Extension.

NORTH

0 100 200

Feet

BB&E

Document Path: H:\ITG\SS\SWCollis\figures\02028033 - 2020 LTM Monitoring\2020 First semi-annual\Figure 7 - SSW_Collis_GWContours_1stsatunit_April20.mxd

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
KVB - 5/13/2020

Figure 8

Potentiometric Surface Map
Second Saturated Unit
April 2020

Collis, Inc. Manufacturing Facility
Clinton, Iowa

Legend:

- Monitoring Well/Piezometer Location (Elevations included)
- Monitoring Well/Piezometer Location (Elevations excluded)
- Potentiometric Surface (dashed where inferred)
- Groundwater Flow Direction
- Manufacturer's Ditch
- Property Boundary (Approximate)

NOTES:

1. Monitoring wells shaded in black were excluded from use in generating this potentiometric surface map either due to belonging to a different hydrological unit, or due to artesian flow conditions. Wells with artesian flow conditions in the second saturated unit are identified as MW-45 and MW-47S.

2. Monitoring wells MW-42 and MW-53 are located in the third saturated unit and MW-43 belongs to the deep bedrock hydrological unit. A separate figure was not created for these hydrological units as data from two wells is inadequate for accurate creation of groundwater contours.

3. Due to limitations of software interpolation, this drawing is intended to be used as an overview of the general groundwater flow conditions at the site. Groundwater contours may not pass through the included monitoring wells due to the display of groundwater contours at a constant interval. Contour placement represents an interpolation between two or more monitoring wells with known water levels, observed at the time of sampling; therefore, contours are inferred.

4. Groundwater contours developed using ArcGIS Desktop 10.6 Spatial Analyst Extension.

NORTH

0 100 200
Feet

BB&E

Document Path: H:\ITG\GIS\SSW\Collis\figures\02028033 - 2020 LTM Monitoring\2020 First semi-annual\Figure 8 - SSW_Collis_GWContours_2ndupperunit_April20.mxd

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
KVB - 5/13/2020

TABLES

TABLE 1
GROUNDWATER DATA SUMMARY
SSW COLLIS
CLINTON, IA

First Saturated Groundwater Unit										
MONITORING WELL	PARAMETERS (mg/L)	cis-1,2-DCE	trans-1,2-DCE	TCE	Vinyl Chloride	1,1-DCE	Lead	1,4-Dioxane	Methane	Ethane
	CAS #	156-59-2	156-60-5	79-01-6	75-01-4	75-35-4	7439-92-1	123-91-1	74-82-8	74-84-0
	EPA NOVEMBER 2019 RSL TAPWATER SCREENING CRITERIA (mg/L)	0.0360	0.360	0.00049	0.000019	0.280	0.015	0.00046	NA	NA
	EPA DRINKING WATER MCL (mg/L)	0.07	0.100	0.005	0.002	0.007	0.015	NA	NA	NA
MW-38	10/15/14	0.110	0.0070	ND	0.093	ND	NS	NS	NS	NS
	3/19/15	0.10	0.0052	ND	0.074	ND	NS	NS	NS	NS
	5/13/15	0.110	0.0053	ND	0.088	ND	NS	NS	NS	NS
	9/18/15	0.100	0.0055	ND	0.069	ND	NS	NS	NS	NS
	9/29/16	0.099	0.0054	ND	0.084	ND	NS	NS	NS	NS
	12/15/16	0.088	0.0032	ND	0.028	ND	NS	NS	NS	NS
	2/28/17	0.087	0.0032	ND	0.084	ND	NS	NS	NS	NS
	5/4/17	0.12	0.0077	ND	0.081	ND	NS	NS	NS	NS
	6/19/18	0.12	0.0052	ND	0.082	ND	NS	NS	NS	NS
	10/1/18	0.13	0.0056	ND	0.097	ND	NS	NS	NS	NS
	4/8/19	0.10	0.0032	ND	0.055	ND	NS	NS	NS	NS
	9/9/19	0.13	0.0036	ND	0.083	ND	NS	NS	NS	NS
	4/21/20	0.12	0.0031	ND	0.049	ND	NS	NS	NS	NS
MW-39	10/14/14	0.38	0.024	ND	0.16	0.0026	NS	NS	NS	NS
	3/19/15	0.3	0.017	ND	0.096	0.0018	NS	NS	NS	NS
	5/13/15	0.33	0.016	ND	0.11	0.0018	NS	NS	NS	NS
	9/18/15	0.25	0.016	ND	0.086	0.0019	NS	NS	NS	NS
	9/29/16	0.19	0.015	ND	0.082	0.0016	NS	NS	NS	NS
	12/15/16[1]	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/2/17	0.26	0.011	ND	0.065	0.0012	NS	NS	NS	NS
	5/4/17	0.27	0.016	ND	0.093	0.0019	NS	NS	NS	NS
	6/19/18	0.29	0.016	ND	0.085	0.0019	NS	NS	NS	NS
	6/19/18 DUP	0.26	0.016	ND	0.074	0.0021	NS	NS	NS	NS
	10/2/18	0.21	0.011	ND	0.058	0.0012	NS	NS	NS	NS
	4/9/19	0.21	0.0088	ND	0.075	0.001	NS	NS	NS	NS
	9/10/19	0.23	0.0110	ND	0.11	0.0015	NS	NS	NS	NS
	9/10/2019 DUP	0.24	0.0110	0.002	0.1	0.0016	NS	NS	NS	NS
	4/21/20	0.26	0.0110	ND	0.095	0.0013	NS	NS	NS	NS
MW-50S	10/13/14	ND	ND	ND	0.0068	ND	NS	NS	NS	NS
	3/18/15	0.0056	ND	ND	0.046	ND	NS	NS	NS	NS
	5/13/15	0.0079	ND	ND	0.072	ND	NS	NS	NS	NS
	9/17/15	0.0086	ND	ND	0.075	ND	NS	NS	NS	NS
	9/29/16	0.0068	ND	ND	0.042	ND	NS	NS	NS	NS
	12/15/16	0.0098	ND	ND	0.043	ND	NS	NS	NS	NS
	3/1/17	0.0084	ND	ND	0.025	ND	NS	NS	NS	NS
	3/1/17 DUP	0.0088	ND	ND	0.027	ND	NS	NS	NS	NS
	5/4/17	0.015	ND	ND	0.052	ND	NS	NS	NS	NS
	6/20/18	0.0081	ND	ND	0.045	ND	NS	NS	NS	NS
	10/2/18	0.0058	ND	ND	0.030	ND	NS	NS	NS	NS
	4/9/19	0.0077	ND	ND	0.037	ND	NS	NS	NS	NS
	9/9/19	0.0061	ND	ND	0.043	ND	NS	NS	NS	NS
	4/21/20	0.0043	ND	ND	0.033	ND	NS	NS	NS	NS
PZ-47	3/12/12	NS	NS	NS	NS	NS	3.9	NS	NS	NS
	6/12/12	NS	NS	NS	NS	NS	1.1	NS	NS	NS
	10/13/14[2]	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/16/15	NS	NS	NS	NS	NS	0.098	NS	NS	NS
	9/28/16	ND	ND	ND	ND	ND	NS	NS	NS	NS
	12/13/16	ND	ND	ND	ND	ND	NS	NS	NS	NS
	3/2/17	ND	ND	ND	ND	ND	NS	NS	NS	NS
	5/2/17	ND	ND	ND	ND	ND	NS	NS	NS	NS
	6/18/18	ND	ND	ND	ND	ND	NS	NS	NS	NS
	10/1/18	ND	ND	ND	ND	ND	NS	NS	NS	NS
	10/1/18 DUP	ND	ND	ND	ND	ND	NS	NS	NS	NS
	4/8/19	ND	ND	ND	ND	ND	NS	NS	NS	NS
	9/9/19	ND	ND	ND	ND	ND	NS	NS	NS	NS
	4/20/20	ND	ND	ND	ND	ND	NS	NS	NS	NS
PZ-48	9/28/16	ND	ND	ND	ND	ND	NS	NS	NS	NS
	12/13/16	ND	ND	ND	ND	ND	NS	NS	NS	NS
	3/2/17	ND	ND	ND	ND	ND	NS	NS	NS	NS
	5/2/17	ND	ND	ND	ND	ND	NS	NS	NS	NS
	6/18/18	ND	ND	ND	ND	ND	NS	NS	NS	NS
	10/1/18	ND	ND	ND	ND	ND	NS	NS	NS	NS
	4/8/19	ND	ND	ND	ND	ND	NS	NS	NS	NS
	9/9/19	ND	ND	ND	ND	ND	NS	NS	NS	NS
	4/20/20	ND	ND	ND	ND	ND	NS	NS	NS	NS

Notes:

Exceeds EPA Region VI Drinking Water MCLs or November 2019 (most current) Tapwater RSLs (Target Risk=1E-06, Hazard Quotient=0.1), if no MCL exist

[1] Not sampled due to inclement weather.

[2] PZ-47 was damaged and could not be sampled.

Only compounds that were detected in one or more samples are shown in the table.

Phase I, II, and III detections are also shown on this table. Phase I was conducted in March, June, September, and November 2012. Phase II was conducted October 2014, March, May, and September 2015. Phase III was conducted September and December 2016, February/March and May 2017. The 2018 first-semiannual LTM event was conducted June 2018 and the second semi-annual LTM event was conducted October 2018. The 2019 first semi-annual LTM event was conducted April and the second semi-annual LTM was conducted in September. The 2020 first semi-annual LTM event was conducted in April.

mg/L = milligrams per liter
CAS - unique numerical identifier assigned by Chemical Abstracts Service (CAS)
DCE - Dichloroethene
EPA - United States Environmental Protection Agency
MCL - Maximum Contaminant Level
MW - Monitoring Well
RSL - Regional Screening Level
NA - Not Available
ND - Non-Detect
NS - Not Sampled
PZ - Piezometer
TCE- Trichloroethene

TABLE 1
GROUNDWATER DATA SUMMARY
COLLIS, INC.
CLINTON, IA

Second Saturated Groundwater Unit															
MONITORING WELL	PARAMETERS (mg/L)	cis-1,2-DCE	trans-1,2-DCE	TCE	Vinyl Chloride	1,1-DCE	1,4-Dioxane	Methane	Ethane	Ethene	Iron	Manganese	Chloride	Sulfate	Nitrogen, Nitrate-Nitrite
	CAS #	156-59-2	156-60-5	79-01-6	75-01-4	75-35-4	123-91-1	74-82-8	74-84-0	74-85-1	7439-89-6	7439-96-5	10043-52-4	18785-72-3	NA
	EPA NOVEMBER 2019 RSL TAPWATER SCREENING CRITERIA (mg/L)	0.0360	0.360	0.00049	0.000019	0.280	0.00046	NA	NA	NA	1.40	NA	NA	NA	NA
	EPA DRINKING WATER MCL (mg/L)	0.07	0.100	0.00500	0.0020	0.007	NA	NA	NA	NA	NA	NA	NA	NA	10
MW-34	3/16/12	0.091	0.0033	0.0170	ND	ND	NS	0.13	0.011	NS	NS	NS	NS	NS	NS
	6/13/12	0.1	0.0037	0.0270	0.00690	ND	NS	NS	0.0024	NS	NS	NS	NS	NS	NS
	9/26/2012	0.039	0.0018	0.0200	ND	ND	NS	0.24	0.013	NS	NS	NS	NS	NS	NS
	11/30/12	0.033	0.0013	0.0160	ND	ND	NS	ND	ND	NS	NS	NS	NS	NS	NS
	10/17/14	0.084	0.0031	0.0230	0.00950	ND	ND	0.19	0.012	ND	0.14	0.33	72	69	0.028
	3/19/15	0.09	0.0029	0.0210	0.00670	ND	ND	0.15	0.011	ND	ND	0.27	68	78	0.12
	5/13/15	0.089	0.0026	0.0170	0.02000	ND	ND	0.28	0.017	0.00091 J	ND	0.29	78	78	ND
	9/17/15	0.11	0.0035	0.0280	0.00400	ND	0.00071	0.24	0.012	ND	0.02 J	0.44	68	75	0.019 J
	9/29/16	0.1	0.0035	0.0240	0.00460	ND	ND	0.38	0.02	ND	0.051 J	0.51	80	77	ND
	12/15/16	0.12	0.0036	0.0230	0.00230	ND	ND	0.21	0.011	ND	0.03 J	0.35	60	68	0.015 J
	12/15/2016 DUP	0.13	0.0036	0.0240	0.00260	ND	ND	0.22	0.011	ND	0.018 J	0.38	42	68	ND
	3/1/17	0.12	0.0021	0.0170	0.00270	0.00045 J	ND	0.18	0.012	ND	0.0059 J	0.074	77	74	0.033
	5/4/17	0.11	0.0040	0.0140	0.01500	ND	ND	0.32	0.02	ND	0.055 J	0.75	130	100	ND
	5/4/2017 DUP	0.12	0.0040	0.0130	0.01400	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/19/18	0.1	0.0024	0.0160	0.00240	ND	ND	0.23	0.016	ND	0.033 J	0.69	77	71	ND
	10/1/18	0.086	0.0031	0.0160	0.00150	0.00067 J	ND	0.19	0.017	0.0026 J	0.019 J	0.51	45	68	ND
	4/9/19	0.065	0.0010	0.0096	0.00066 J	ND	ND	0.044	ND	ND	ND	0.12	75	65	0.82
	9/10/19	0.12	0.0031	0.0130	0.00270	0.00084 J	ND	0.17	0.012	ND	ND	0.35	59	55	ND
	4/20/20	0.067	0.0009 J	0.0081	ND	ND	ND	0.028	0.008	ND	ND	0.26	84	69	0.77
MW-45	03/16/12	0.019	0.0011	0.00420	ND	ND	NS	ND	ND	NS	NS	NS	NS	NS	NS
	06/13/12	0.015	ND	0.00400	ND	ND	NS	NS	ND	NS	NS	NS	NS	NS	NS
	09/26/12	0.01	ND	0.00350	ND	ND	NS	0.025	ND	NS	NS	NS	NS	NS	NS
	11/30/12	0.01	ND	0.00400	ND	ND	NS	ND	ND	NS	NS	NS	NS	NS	NS
	10/16/14	0.032	0.0013	0.00520	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	03/18/15	0.011	ND	0.00360	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	05/12/15	0.02	0.00096 J	0.00590	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	09/15/15	0.023	ND	0.00460	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	09/28/16	0.084	0.0029	0.00530	0.00420	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/28/16 DUP	0.083	0.0028	0.00530	0.00420	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/14/16	0.031	ND	0.00310	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/14/16 DUP	0.035	ND	0.00430	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	02/28/17	0.019	0.00081 J	0.00480	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	05/04/17	0.067	0.00250	0.00620	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	06/19/18	0.048	0.0015	0.00420	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	10/2/18	0.04	0.0014	0.00400	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	4/8/19	0.087	0.0025	0.00400	0.0042	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	9/9/19	0.085	0.0019	0.00320	0.0047	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	4/21/20	0.092	0.0018	0.00240	0.0023	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

Exceeds EPA Region VI Drinking Water MCLs or November 2019 (most current) Tapwater RSLs (Target Risk=1E-06, Hazard Quotient=0.1), if no MCL exists.

[1] Not sampled due to inclement weather.

Only compounds that were detected in one or more samples are shown in the table.

Phase I, II, and III detections are also shown on this table. Phase I was conducted in March, June, September, and November 2012. Phase II was conducted October 2014, March, May, and September 2015. Phase III was conducted September and December 2016, February/March and May 2017. The 2018 first-semiannual LTM event was conducted June 2018 and the second semi-annual LTM event was conducted October 2018. The 2019 first semi-annual LTM event was conducted April and the second semi-annual LTM event was conducted in September. The 2020 first semi-annual LTM event was conducted in April.

mg/L = milligrams per liter
CAS - unique numerical identifier assigned by Chemical Abstracts Service (CAS)
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EPA - United States Environmental Protection Agency
MCL - Maximum Contaminant Level
MW - Monitoring Well
RSL - Regional Screening Level
NA - Not Available
ND - Non-Detect
NS - Not Sampled
PZ - Piezometer
TCE- Trichloroethene

TABLE 1
GROUNDWATER DATA SUMMARY
COLLIS, INC.
CLINTON, IA

Second Saturated Groundwater Unit															
MONITORING WELL	PARAMETERS (mg/L)	cis-1,2-DCE	trans-1,2-DCE	TCE	Vinyl Chloride	1,1-DCE	1,4-Dioxane	Methane	Ethane	Ethene	Iron	Manganese	Chloride	Sulfate	Nitrogen, Nitrate-Nitrite
	CAS #	156-59-2	156-60-5	79-01-6	75-01-4	75-35-4	123-91-1	74-82-8	74-84-0	74-85-1	7439-89-6	7439-96-5	10043-52-4	18785-72-3	NA
	EPA NOVEMBER 2019 RSL TAPWATER SCREENING CRITERIA (mg/L)	0.0360	0.360	0.00049	0.000019	0.280	0.00046	NA	NA	NA	1.40	NA	NA	NA	NA
	EPA DRINKING WATER MCL (mg/L)	0.07	0.100	0.00500	0.0020	0.007	NA	NA	NA	NA	NA	NA	NA	NA	10
MW-47S	5/5/10	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/14/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/14/14	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/16/15	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/11/15	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/15/15	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/28/16	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/15/16[1]	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/28/17	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/2/17	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/19/18	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/1/18	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/8/19	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/9/19	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/20/20	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-50	5/4/10	0.0468	ND	ND	0.0732	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/15/14	0.042	ND	ND	0.057	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/18/15	0.028	ND	ND	0.043	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/13/15	0.029	ND	ND	0.039	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/17/15	0.018	ND	ND	0.052	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/29/16	0.031	ND	ND	0.045	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/15/16	0.035	ND	ND	0.056	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/1/17	0.032	ND	ND	0.039	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/4/17	0.044	ND	ND	0.065	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/20/18	0.028	ND	ND	0.043	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/1/18	0.027	ND	ND	0.040	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/9/19	0.031	ND	ND	0.040	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/9/19	0.035	ND	ND	0.057	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/21/20	0.036	ND	ND	0.053	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-56	10/17/14	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	3/17/15	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	5/12/15	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	9/17/15	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS
	9/29/16	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/15/16[1]	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/28/17	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/2/17	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/19/18	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/2/18	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/8/19	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/8/2019 (DUP)	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/9/19	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/20/20	0.00087 J	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

Exceeds EPA Region VI Drinking Water MCLs or November 2019 (most current) Tapwater RSLs (Target Risk=1E-06, Hazard Quotient=0.1), if no MCL exists.

[1] Not sampled due to inclement weather.

Only compounds that were detected in one or more samples are shown in the table.

Phase I, II, and III detections are also shown on this table. Phase I was conducted in March, June, September, and November 2012. Phase II was conducted October 2014, March, May, and September 2015. Phase III was conducted September and December 2016, February/March and May 2017. The 2018 first-semiannual LTM event was conducted June 2018 and the second semi-annual LTM event was conducted October 2018. The 2019 first semi-annual LTM event was conducted April and the second semi-annual LTM event was conducted in September. The 2020 first semi-annual LTM event was conducted in April.

mg/L = milligrams per liter
CAS - unique numerical identifier assigned by Chemical Abstracts Service (CAS)
DCE - Dichloroethene
EPA - United States Environmental Protection Agency
MCL - Maximum Contaminant Level
MW - Monitoring Well
RSL - Regional Screening Level
NA - Not Available
ND - Non-Detect
NS - Not Sampled
PZ - Piezometer
TCE- Trichloroethene

TABLE 1
GROUNDWATER DATA SUMMARY
SSW COLLIS
CLINTON, IA

Third Saturated Groundwater Unit															
MONITORING WELL	PARAMETERS (mg/L)	cis-1,2-DCE	trans-1,2-DCE	TCE	Vinyl Chloride	1,1-DCE	1,4-Dioxane	Methane	Ethane	Ethene	Iron	Manganese	Chloride	Sulfate	Nitrogen, Nitrate-Nitrite
	CAS #	156-59-2	156-60-5	79-01-6	75-01-4	75-35-4	123-91-1	74-82-8	74-84-0	74-85-1	7439-89-6	7439-96-5	10043-52-4	18785-72-3	NA
	EPA NOVEMBER 2019 RSL TAPWATER SCREENING CRITERIA (mg/L)	0.0360	0.360	0.00049	0.000019	0.280	0.00046	NA	NA	NA	1.4	NA	NA	NA	NA
	EPA DRINKING WATER MCL (mg/L)	0.0700	0.10	0.0050	0.002	0.007	NA	NA	NA	NA	NA	NA	NA	NA	10
MW-42	3/16/12	0.190	0.0077	0.240	0.043	0.003	NS	0.22	0.007	NS	NS	NS	NS	NS	NS
	6/14/12	0.220	0.0076	0.290	0.04	0.0034	NS	NS	0.0028	NS	NS	NS	NS	NS	NS
	9/26/12	0.180	0.0074	0.170	0.045	0.0031	NS	ND	ND	NS	NS	NS	NS	NS	NS
	11/29/12	0.180	0.007	0.160	0.043	0.0034	NS	0.25	0.013	NS	NS	NS	NS	NS	NS
	10/16/14	0.181	0.0077	0.260	0.039	0.005	ND	0.30	0.014	ND	0.071	0.32	77	100	ND
	3/20/15	0.180	0.0063	0.160	0.029	0.003	ND	0.19	0.0068	0.00035 J	0.084	0.17	65	100	0.093
	5/13/15	0.230	0.006	0.160	0.026	0.0029	0.0098	0.21	0.0057	0.00045 J	0.093	0.26	60	97	ND
	9/15/15	0.330	0.0078	0.087	0.038	0.0031	0.0011	0.18	0.0054	ND	0.034	0.27	0.059	0.096	ND
	9/27/16	0.360	0.0095	0.240	0.032	0.0035	ND	0.25	0.0068	ND	0.11	0.30	60	110	ND
	12/13/16	0.350	0.0088	0.230	0.032	0.0035	ND	0.27	0.0077	ND	0.16	0.28	60	110	ND
	3/2/17	0.360	0.0082	0.270	0.027	0.003	ND	0.27	0.0068	ND	0.24	0.30	60	100	ND
	5/4/17	0.340	0.011	0.300	0.031	0.0034	ND	0.18	0.0041	0.00072 J	0.13	0.32	61	98	ND
	6/19/18	0.250	0.0078	0.180	0.037	0.0025	ND	0.260	0.012	0.0051	0.12	0.34	75	100	ND
	6/19/18 DUP	0.240	0.0092	0.190	0.032	0.0029	ND	0.240	0.011	0.0037 J	0.12	0.3	73	100	ND
	10/1/18	0.320	0.011	0.260	0.027	0.0035	ND	0.190	0.0091	0.0015 J	0.049 J	0.28	57	110	ND
	10/1/18 DUP	0.260	0.010	0.240	0.028	0.0036	ND	0.190	0.0097	0.0019 J	0.055 J	0.33	50	110	ND
	4/9/2019	0.280	0.016	0.250	0.047	0.0026	ND	0.310	ND	ND	0.1	0.29	68	100	ND
	4/9/2019 DUP	0.280	0.010	0.290	0.049	0.0026	ND	0.280	ND	ND	0.078 J	0.3	72	110	ND
	9/10/2019	0.260	0.0098	0.220	0.039	0.0036	ND	0.240	0.01	ND	0.17	0.31	67	99	ND
	4/20/2020	0.290	0.0099	0.250	0.059	0.003	ND	0.340	0.011	0.0074	ND	0.3	66	94	ND
	4/20/2020 DUP	0.250	0.01	0.190	0.064	0.0026	ND	0.230	0.011	0.0075	0.061 J	0.26	63	93	ND
MW-53	3/16/12	0.0240	0.0012	ND	ND	ND	NS	0.03	ND	NS	NS	NS	NS	NS	NS
	6/13/12	0.0180	ND	ND	0.0016	ND	NS	NS	ND	NS	NS	NS	NS	NS	NS
	9/26/12	0.0160	ND	ND	ND	ND	NS	ND	ND	NS	NS	NS	NS	NS	NS
	11/29/12	0.0031	ND	ND	ND	ND	NS	ND	ND	NS	NS	NS	NS	NS	NS
	10/13/14	0.0043	ND	ND	ND	ND	NS	0.026	ND	ND	0.24	0.18	30	56	ND
	3/17/15	0.0170	ND	ND	0.0016	ND	NS	0.025	ND	ND	0.024 J	0.049	25	44	ND
	5/12/15	0.0150	0.00075 J	ND	0.0014	ND	NS	0.023	ND	ND	0.46	0.048	24	40	ND
	9/16/15	0.0190	ND	ND	0.0014	ND	NS	0.03	ND	ND	0.11	0.048	23	44	0.011 J
	9/29/16	0.0170	ND	ND	ND	ND	ND	0.031	ND	ND	0.49	0.450	60	41	ND
	12/14/16	0.0067	ND	ND	ND	ND	ND	0.01	ND	ND	0.43	0.042	25	42	ND
	2/28/17	0.0064	0.00035 J	ND	0.00056 J	ND	ND	0.018	ND	ND	1.4	0.043	22	41	ND
	2/28/17 DUP	0.0070	0.00036 J	ND	0.00070 J	ND	ND	0.014	ND	ND	0.98	0.040	21	41	ND
	5/4/17	0.0074	ND	ND	ND	ND	ND	0.011	ND	ND	0.62	0.049	24	40	ND
	5/4/17 DUP	0.0076	ND	ND	ND	ND	ND	0.0098	ND	ND	0.52	0.048	23	39	ND
	6/19/18	0.0095	ND	ND	0.00085 J	ND	ND	0.013	ND	ND	0.32	0.049	22	37	ND
	10/2/18	0.0120	0.00067 J	ND	0.0012	ND	ND	0.019	0.0017 J	0.00071 J	0.096	0.049	30	35	ND
	4/8/19	0.0120	0.00059 J	ND	0.0012	ND	ND	0.021	ND	ND	0.18	0.045	23	35	ND
	9/9/19	0.0110	0.00056 J	ND	ND	ND	ND	0.012	ND	ND	0.27	0.048	18	35	ND
	9/9/2019 (DUP)	0.0110	0.00059 J	ND	ND	ND	ND	0.014	ND	ND	0.51	0.047	18	34	ND
	4/21/20	0.0130	0.00060 J	ND	0.0014	ND	ND	0.021	ND	ND	0.24	0.045	20	34	ND

Notes:

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EPA - United States Environmental Protection Agency
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RSL - Regional Screening Level
NA - Not Available
ND - Non-Detect
NS - Not Sampled
PZ - Piezometer
TCE- Trichloroethene

TABLE 1
GROUNDWATER DATA SUMMARY
SSW COLLIS
CLINTON, IA

Fourth Saturated Groundwater Unit				
MONITORING WELL	PARAMETERS (mg/L)	cis-1,2-DCE	TCE	Vinyl Chloride
	CAS #	156-59-2	79-01-6	75-01-4
	EPA NOVEMBER 2019 RSL TAPWATER SCREENING CRITERIA (mg/L)	0.0360	0.00049	0.000019
	EPA DRINKING WATER MCL (mg/L)	0.0700	0.005	0.002
MW-43	10/15/14	0.0068	ND	ND
	3/18/15	0.0056	ND	0.0015
	5/12/15	0.0019	ND	0.0019
	9/16/15	0.0013	ND	0.0039
	9/29/16	0.0045	ND	0.0022
	12/15/16	ND	ND	ND
	2/28/17	0.00058 J	ND	0.0027
	5/4/17	0.0049	ND	ND
	6/19/18	0.003	ND	0.0024
	10/1/18	0.0028	ND	0.0027
	4/8/19	0.0023	ND	ND
	9/9/19	0.0022	ND	ND
	4/21/20	0.0023	ND	0.0011
	4/21/2020 DUP	0.0023	ND	0.001

Notes:

Exceeds EPA Region VI Drinking Water MCLs or November 2019 (most current) Tapwater RSLs (Target Risk=1E-06, Hazard Quotient=0.1), if no MCL exists.

Only compounds that were detected in one or more samples are shown in the table.

Phase I, II, and III detections are also shown on this table. Phase I was conducted in March, June, September, and November 2012. Phase II was conducted October 2014, March, May, and September 2015. Phase III was conducted September and December 2016, February/March and May 2017. The 2018 first-semiannual LTM event was conducted June 2018 and the second semi-annual LTM event was conducted October 2018. The 2019 first semi-annual LTM event was conducted in April and the second semi-annual LTM event was conducted in September. The 2020 first semi-annual event was conducted in April.

mg/L = millograms per liter
CAS - unique numerical identifier assigned by Chemical Abstracts Service (CAS)
DCE - Dichloroethene
EPA - United States Environmental Protection Agency
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ND - Non-Detect
NS - Not Sampled
PZ - Piezometer
TCE- Trichloroethene

TABLE 2
WATER ELEVATION SUMMARY
2020 FIRST-SEMI ANNUAL LTM GROUNDWATER MONITORING
COLLIS, INC., CLINTON IOWA

Well ID	TOC ELEVATION (ft amsl)	Constructed Well Depth (ft bgs)	Nominal Screen Interval (ft bgs)	Time	DTW (from TOC)	Elevation (ft amsl)
Measurement Date:				4/20/20		
MW-34	589.29	31.6	25-30	1142	4.90	584.39
MW-38	585.47	9.95	5-10	1146	3.48	581.99
MW-39	587.47	13.91	9-14	1148	3.62	583.85
MW-42	589.25	50.2	42-47	1139	4.39	584.86
MW-43*	585.21	99.38	94.75-99.75	1145	0.0	585.21
MW-45*	582.41	25.59	19-24	1151	0.0	582.41
MW-47S*	583.17	17.93	13-18	1200	0.0	583.17
MW-50	587.27	24.77	20-25	1130	3.51	583.76
MW-50S	587.51	12.28	7.5-12.5	1133	3.32	584.19
MW-53*	582.73	52.24	45-50	1155	0.0	582.73
MW-56	582.33	30	25-30	1153	1.40	580.93
PZ-47	583.17	10.89	1-11	1159	1.70	581.47
PZ-48	584.27	10.65	1-11	1157	2.59	581.68

Notes:

* Artesian conditions identified

DTW - Depth to water

TOC - Top of casing

ft bgs - feet below ground surface

ft amsl - feet above mean sea level

Table 3
Groundwater Field Parameter Readings
2020 First Semi-Annual LTM Groundwater Monitoring
Collis Inc., Clinton, Iowa

Monitoring Well	Collection Date	Temperature (°C)	pH (S.U.)	Specific Conductivity (mS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)
PZ-47	9/28/16	17.61	6.61	0.962	0.38	5.3	-30.6
	12/13/16	7.61	6.65	1.05	6.13	1000	-79.6
	2/28/17*	NA	NA	NA	NA	NA	NA
	5/2/17	10.36	6.53	0.791	2.48	300	35.1
	6/18/2018	19.11	7.11	0.953	9.22	44.7	59.9
	10/1/2018	15.61	7.52	0.926	0.0	46.2	-76.5
	4/8/2019	7.17	6.26	0.644	2.97	7.6	24.8
	9/9/2019	16.16	6.88	0.807	0.42	11.7	-69.9
	4/20/2020	8.6	6.6	0.78	0.43	7	22.8
PZ-48	9/28/16	16.61	6.73	0.902	1.82	75.3	-1.8
	12/13/16	10.78	6.9	0.873	5.48	OOR	-270
	2/28/17	9.67	6.65	0.748	33.1	167	151.8
	5/2/17	11.76	6.77	0.595	4.08	5.45	79.2
	6/18/18	20.55	7.45	0.677	9.8	46.8	53.9
	10/1/18	16.76	7.48	0.631	3.18	44.2	24.2
	4/8/19	5.7	6.49	0.458	4.2	26.6	52
	9/9/19	16.77	7.2	0.566	0.98	37.7	-40.2
	4/20/2020	8.6	6.71	0.629	0.91	20.6	35.7
MW-34	9/29/16	14.76	7	1.183	0.12	1.75	-46.8
	12/15/16	11.7	7.08	0.999	2.55	1.8	228.6
	3/1/17	11.09	7.04	0.714	0.64	19	-33.2
	5/4/17	12.45	7.49	1.014	0.79	1.67	-11.9
	6/19/18	13.83	7.17	0.975	0.46	1.36	0.7
	10/1/18	15.04	7.84	0.835	0.9	2.4	-21.6
	4/9/19	11.71	6.9	0.875	1.59	1.37	51.6
	9/10/19	16.26	7.11	0.766	0.32	1.4	-65.7
	4/20/2020	11.4	6.95	1.01	0.13	5.1	77.9
MW-38	9/29/16	20.21	6.84	1.655	0.18	11	-81.4
	12/15/16	11.99	6.88	1.364	3.48	10.2	77
	2/28/17	9.2	6.48	1.092	0.23	10.9	-65.8
	5/4/17	12.08	7.13	1.588	0.99	2.6	-6.2
	6/19/18	15.28	6.91	1.642	0.44	5.17	-29.9
	10/1/18	19.28	7.34	1.857	0.34	26.4	-26.3
	4/8/19	9.11	6.7	1.176	1.7	3.01	21.8
	9/9/19	19.19	6.91	1.117	0.31	2.1	-42.7
	4/21/20	9.1	6.95	1.44	4.56	8.2	-27.6
MW-39	9/29/16	18.04	6.74	2.774	0.15	6.8	-76.5
	12/15/16	NS	NS	NS	NS	NS	NS
	3/2/17	12.99	6.76	2.035	0.55	18.1	-46.2
	5/4/17	14.36	6.98	2.614	1.18	71.5	-26
	6/19/18	15.26	6.84	2.656	0.58	5.07	-18.2
	10/2/18	16.8	7.38	2.45	0.02	6.5	-37.0
	4/9/19	13.52	6.6	1.965	0.63	0.92	-17.2
	9/10/19	17.7	6.82	2.011	0.23	2.2	-43.6
	4/21/20	13.6	6.73	2.41	0.6	1.58	-10.2
MW-42	9/27/16	15.06	6.68	1.027	0.17	1.29	-18.3
	12/13/16	9.9	7.13	1.085	1.44	3.3	-43.1
	3/2/17	11.29	7.11	0.784	0.57	1.34	-38.8
	5/4/17	13.66	7.44	1.047	1.26	0.9	-6.9
	6/19/18	14.25	7.16	1.111	0.31	4.49	37.2
	10/1/18	14.56	7.98	0.932	0.9	6.2	29.8
	4/9/19	13.11	7.03	0.883	2.59	1.36	-10.4
	9/10/19	16.05	7.19	0.851	0.39	1.0	-45.2
	4/20/2020	12.9	7.07	0.99	0.12	0.98	15.8
MW-43	9/29/16	14.99	7.45	0.667	0.13	11.2	-144.9
	12/15/16	11.56	7.65	0.639	0.56	1.0	-189.2
	2/28/17	13.21	7.8	0.478	0.36	4.82	-142.3
	5/4/17	13.1	7.61	0.655	0.79	1.43	-25.9
	6/19/18	17.39	7.6	0.654	0.55	2.71	-142.6
	10/1/18	15.33	8.47	0.549	0.32	4.5	-142.6
	4/8/19	14.57	7.35	0.57	0.7	1.59	-60.3
	9/9/19	17.89	7.76	0.537	0.13	1.0	-126.8
	4/21/20	12.6	7.27	0.639	0.11	0.0	1.3
MW-45	9/28/16	13.15	7.16	0.856	3.28	39	196.3
	12/14/16	9.95	7.11	0.863	0.5	18.4	165.2
	2/28/17	12.07	7.17	0.639	0.25	39.2	16.5
	5/4/17	11.75	7.4	0.838	0.71	6.9	9.1
	6/19/18	12.64	7.21	0.831	0.17	4.01	-1.5
	10/2/18	14.22	8.07	0.651	0.02	9.1	58.0
	4/8/19	11.52	6.88	0.671	3.05	10.6	71.9
	9/9/19	12.78	7.18	0.600	0.31	5.1	29.7
	4/21/20	10.8	7.32	0.800	7.52	51.7	72.6
MW-47s	9/28/16	12.77	6.97	0.736	1.02	10.6	-100
	12/15/16	NS	NS	NS	NS	NS	NS
	2/28/17	9.91	7.01	0.47	2.11	30.7	-51.1
	5/2/17	9.92	6.87	0.602	1.8	28.1	-62.8
	6/19/18	11.57	7.12	0.679	0.31	14.7	-68.8
	10/1/18	13.85	7.92	0.608	0	0.09	-39.0
	4/8/19	9.19	6.51	0.532	1.76	4.7	-64.2
	9/9/19	14.21	7.06	0.502	0.4	5.7	-96.2
	4/20/2020	9.5	7.31	0.638	9.26	51.7	-29.4

Table 3
Groundwater Field Parameter Readings
2020 First Semi-Annual LTM Groundwater Monitoring
Collis Inc., Clinton, Iowa

Monitoring Well	Collection Date	Temperature (°C)	pH (S.U.)	Specific Conductivity (mS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)
MW-50	9/29/16	15.87	6.95	2.422	0.2	9.19	-102.3
	12/15/16	13.75	6.82	2.529	0.4	1.43	-97.1
	3/1/17	12.55	6.99	1.931	0.48	15	-92.6
	5/4/17	13.54	7.23	2.496	1.18	1.03	-55.6
	6/20/18	13.75	7.04	2.53	0.5	4.62	-0.1
	10/1/18	14.77	7.71	0.1932	0.44	20.2	53.7
	4/9/19	12.59	6.89	1.99	0.99	4.62	-36.1
	9/9/19	15.56	7.04	1.805	0.18	1.3	-57.6
	4/21/20	12.3	6.99	2.28	0.11	9.6	-6.2
MW-50S	9/29/16	17.09	7.01	2.065	0.22	39.3	-105.2
	12/15/16	13.34	6.89	2.08	0.5	16.6	-99.8
	3/1/17	10.32	7.12	1.192	0.71	2.79	-29.1
	5/4/15	11.9	7.35	1.8	0.92	5.65	-82.8
	6/20/18	13.65	7.15	1.711	0.27	2.18	-14.3
	10/2/18	15.73	7.66	1.04	0.1	14.2	-8.0
	4/9/19	10.66	6.88	1.307	1.4	4.72	-12.8
	9/9/19	17.11	7.16	1.04	0.25	1.1	-74.4
	4/21/20	10.7	7.09	1.46	1.27	13.4	-36.8
MW-53	9/29/16	11.78	7.35	0.756	0.27	15.5	-96.1
	12/14/16	9.3	7.35	0.761	0.4	1	-75.5
	2/28/17	11.51	7.29	0.5444	0.29	6.53	-85.8
	5/4/17	11.97	7.55	0.735	0.6	1.2	-40.2
	6/19/18	13.69	7.35	0.724	0.22	1.66	-18.4
	10/2/18	11.1	8.11	0.559	0.07	9	-63.0
	4/8/19	12.19	7.06	0.596	3.71	2.06	-46.7
	9/9/19	12.48	7.36	0.521	0.21	2.1	-59.2
	4/21/20	11.1	7.2	0.7	0.21	5.81	-1.6
MW-56	9/29/16	13.16	6.95	0.739	1.54	75.3	-94.4
	12/15/16	NS	NS	NS	NS	NS	NS
	2/28/17	11.12	6.97	0.513	0.31	46	-93.5
	5/2/17	11.24	6.81	0.632	1.97	85.9	-101.2
	6/19/18	13.44	7.02	0.691	0.17	2.6	-72.2
	10/2/18	13.61	7.59	0.531	0.35	1.7	-73.0
	4/8/19	9.89	6.67	0.512	10.01	16.7	-36.0
	9/9/19	13.29	6.98	0.514	0.21	3.0	-106.7
	4/20/2020	10.5	6.71	0.675	1.22	11.7	-41.9

Notes:
* PZ-47 dried up before field parameters could be collected.
Phase III groundwater field parameters are included in the table. Phase III was conducted during Q3 and Q4 of 2016 and Q1 and Q2 of 2017
The 2018 first semi-annual (SA) long term monitoring (LTM) event was conducted in June 2018, the 2018 second SA LTM event was conducted in October 2018, and the 2019 first SA LTM event was conducted in April 2019. The 2020 first SA LTM was conducted April 2020.
Only wells included in the LTM are shown in the table
°C - Degrees Celsius
mg/L - milligram per liter
mS/cm - milliSiemens per centimeter
mV - millivolt
NM - Not Measured
NS - not sampled
NTU - Nephelometric Turbidity Unit
ORP - Oxidation Reduction Potential
S.U. - pH Standard Units
OOR - Out of Range on the turbidity meter (1000+NTU)

TABLE 4
VAPOR INTRUSION SCREENING
COLLIS, INC.
CLINTON, IA

	PARAMETERS (ug/L)	cis-1,2-DCE	trans-1,2-DCE	TCE	Vinyl Chloride	1,1-DCE
	CAS #	156-59-2	156-60-5	79-01-6	75-01-4	75-35-4
	VISL Target Groundwater Concentration (µg/L) TCR:10^{-6} THQ:0.1	NA	NA	1.9**	2.45	82.1
	VISL Target Groundwater Concentration (µg/L) TCR:10^{-5} THQ:1	NA	NA	19**	24.5	821
Monitoring Well	**Sample Date**	**First Saturated Groundwater Unit**				
MW-38	9/29/16	99	5.4	ND	84	ND
	12/15/16	88	3.2	ND	28	ND
	2/28/17	87	3.2	ND	84	ND
	5/4/17	120	7.7	ND	81	ND
	6/19/18	120	5.2	ND	82	ND
	10/1/18	130	5.6	ND	97	ND
	4/8/19	100	3.2	ND	55	ND
	9/9/19	130	3.6	ND	83	ND
	4/21/20	120	3.1	ND	49	ND
MW-39	9/29/16	190	15	ND	82	1.6
	12/15/2016*	NS	NS	NS	NS	NS
	3/2/17	260	11	ND	65	1.2
	5/4/17	270	16	ND	93	1.9
	6/19/18	290	16	ND	85	1.9
	6/19/18 DUP	260	16	ND	74	2.1
	10/2/18	210	11	ND	58	1.2
	4/9/19	210	8.8	ND	75	1.0
	9/10/19	230	11	ND	110	1.5
	9/10/2019 DUP	240	11	2	100	1.6
	4/21/20	260	11	ND	95	1.3
MW-50S	9/29/16	6.8	ND	ND	42	ND
	12/15/16	9.8	ND	ND	43	ND
	3/1/17	8.4	ND	ND	25	ND
	3/1/17 DUP	8.8	ND	ND	27	ND
	5/4/17	15	ND	ND	52	ND
	6/20/18	8.1	ND	ND	45	ND
	10/2/18	5.8	ND	ND	30	ND
	4/9/19	7.7	ND	ND	37	ND
	9/9/19	6.1	ND	ND	43	ND
	4/21/20	4.3	ND	ND	33	ND
PZ-47	9/28/16	ND	ND	ND	ND	ND
	12/13/16	ND	ND	ND	ND	ND
	3/2/17	ND	ND	ND	ND	ND
	5/2/17	ND	ND	ND	ND	ND
	6/18/18	ND	ND	ND	ND	ND
	10/1/18	ND	ND	ND	ND	ND
	10/1/18 DUP	ND	ND	ND	ND	ND
	4/8/19	ND	ND	ND	ND	ND
	9/9/19	ND	ND	ND	ND	ND
	4/20/20	ND	ND	ND	ND	ND
PZ-48	9/28/16	ND	ND	ND	ND	ND
	12/13/16	ND	ND	ND	ND	ND
	3/2/17	ND	ND	ND	ND	ND
	5/2/17	ND	ND	ND	ND	ND
	6/18/18	ND	ND	ND	ND	ND
	10/1/18	ND	ND	ND	ND	ND
	4/8/19	ND	ND	ND	ND	ND
	9/9/19	ND	ND	ND	ND	ND
	4/20/20	ND	ND	ND	ND	ND

Notes:

Exceeds VISL (Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1)

Exceeds VISL (Target Cancer Risk = 1E-05, Target Hazard Quotient = 1)

Phase III was conducted September and December 2016, February/March and May 2017. The 2018 first semi-annual LTM event was conducted June 2018. The 2018 second semi-annual LTM event was conducted October 2018. The 2019 first semi-annual LTM event was conducted April 2019 and the second semi-annual event was conducted in September 2019. The 2020 first semi-anual LTM was conducted in April.

* MW-39, MW-47S and MW-56 were not sampled during Q4 2016 (Phase III) due to inclement weather.

** TCE target groundwater concentrations for vapor intrusion screening were back calculated from the EPA Region 7 action levels for TCE in air: 6 ug/m3 for an eight-hour commercial/industrial work shift per EPA instructions provided in their letter comments to BB&E dated January 26, 2017.

VISL Target Groundwater Concentrations were calculated using the EPA Vapor Intrusion Screening Level Calculator for commercial exposure, updated May 2018. VISL comparisons were not included for the Third and Fourth Saturated Units.

Only compounds that were detected in one or more samples are shown in the table.

µg/L - micrograms per liter

CAS - unique numerical identifier assigned by Chemical Abstracts Service (CAS)

DCE - Dichloroethene

J- analyte is present at an estimated concentration between the MDL and Reporting Limit (RL)

LTM - Long Term Monitoring

MDL - Method Detection Limit

MW - Monitoring Well

NA - Not Available

ND - Non-Detect

NS - Not Sampled

PZ - Piezometer

TCE- Trichloroethene

TCR - target cancer risk

THQ - target hazard quotient

VISL - vapor intrusion screening level

TABLE 4
VAPOR INTRUSION SCREENING
COLLIS, INC.
CLINTON, IA

	PARAMETERS (ug/L)	cis-1,2-DCE	trans-1,2-DCE	TCE	Vinyl Chloride	1,1-DCE
	CAS #	156-59-2	156-60-5	79-01-6	75-01-4	75-35-4
	VISL Target Groundwater Concentration (µg/L) TCR:10^{-6} THQ:0.1	NA	NA	1.9**	2.45	82.1
	VISL Target Groundwater Concentration (µg/L) TCR:10^{-5} THQ:1	NA	NA	19**	24.5	821
Monitoring Well	**Sample Date**	**Second Saturated Groundwater Unit**				
MW-34	9/29/16	100	3.5	24	4.6	ND
	12/15/16	120	3.6	23	2.3	ND
	12/15/2016 DUP	130	3.6	24	2.6	ND
	3/1/17	120	2.1	17	2.7	0.45 J
	5/4/17	120	4.0	14	15	ND
	6/19/18	100	2.4	16	2.4	ND
	10/1/18	86	3.1	16	1.5	0.67 J
	4/9/19	65	1	9.6	0.66 J	ND
	9/10/19	120	3.1	13	2.7	0.84 J
	4/20/20	67	0.9	8.1	ND	ND
MW-45	9/28/16	84	9	5.3	4.2	ND
	12/14/16	31	ND	3.1	ND	ND
	12/14/2016 Dup	35	ND	4.3	ND	ND
	2/28/17	19	0.81 J	4.8	ND	ND
	5/4/17	67	2.5	6.2	ND	ND
	6/19/18	48	1.5	4.2	ND	ND
	10/2/18	40	1.4	4.0	ND	ND
	4/8/19	87	2.5	4.0	4.2	ND
	9/9/19	85	1.9	3.2	4.7	ND
	4/21/20	92	1.8	2.4	2.3	ND
MW-47S	9/28/16	ND	ND	ND	ND	ND
	12/15/16*	NS	NS	NS	NS	NS
	2/28/17	ND	ND	ND	ND	ND
	5/2/17	ND	ND	ND	ND	ND
	6/19/18	ND	ND	ND	ND	ND
	10/1/18	ND	ND	ND	ND	ND
	4/8/19	ND	ND	ND	ND	ND
	9/9/19	ND	ND	ND	ND	ND
	4/20/20	ND	ND	ND	ND	ND
MW-50	9/29/16	31	ND	ND	45	ND
	12/15/16	35	ND	ND	56	ND
	3/1/17	32	ND	ND	39	ND
	5/4/17	44	ND	ND	65	ND
	6/19/18	28	ND	ND	43	ND
	10/1/18	27	ND	ND	40	ND
	4/9/19	31	ND	ND	40	ND
	9/9/19	35	ND	ND	57	ND
	4/21/20	36	ND	ND	53	ND
MW-56	9/29/16	ND	ND	ND	ND	ND
	12/15/2016*	NS	NS	NS	NS	NS
	2/28/17	ND	ND	ND	ND	ND
	5/2/17	ND	ND	ND	ND	ND
	6/19/18	ND	ND	ND	ND	ND
	10/2/18	ND	ND	ND	ND	ND
	4/8/19	ND	ND	ND	ND	ND
	4/8/19 DUP	ND	ND	ND	ND	ND
	9/9/19	ND	ND	ND	ND	ND
	4/20/20	0.87 J	ND	ND	ND	ND

Notes:

Exceeds VISL (Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1)

Exceeds VISL (Target Cancer Risk = 1E-05, Target Hazard Quotient = 1)

Phase III was conducted September and December 2016, February/March and May 2017. The 2018 first semi-annual LTM event was conducted June 2018. The 2018 second semi-annual LTM event was conducted October 2018. The 2019 first semi-annual LTM event was conducted April 2019 and the second semi-annual event was conducted in September 2019. The 2020 first semi-annual LTM event was conducted in April

* MW-39, MW-47S and MW-56 were not sampled during Q4 2016 (Phase III) due to inclement weather.

** TCE target groundwater concentrations for vapor intrusion screening were back calculated from the EPA Region 7 action levels for TCE in air: 6 ug/m3 for an eight-hour commercial/industrial work shift per EPA instructions provided in their letter comments to BB&E dated January 26, 2017.

VISL Target Groundwater Concentrations were calculated using the EPA Vapor Intrusion Screening Level Calculator for commercial exposure, updated May 2018. VISL comparisons were not included for the Third and Fourth Saturated Units.

Only compounds that were detected in one or more samples are shown in the table.

µg/L - micrograms per liter

CAS - unique numerical identifier assigned by Chemical Abstracts Service (CAS)

DCE - Dichloroethene

J- analyte is present at an estimated concentration between the MDL and Reporting Limit (RL)

LTM - Long Term Monitoring

MDL - Method Detection Limit

MW - Monitoring Well

NA - Not Available

ND - Non-Detect

NS - Not Sampled

PZ - Piezometer

TCE- Trichloroethene

TCR - target cancer risk

THQ - target hazard quotient

VISL - vapor intrusion screening level

TABLE 5
LTM GROUNDWATER MNA RESULTS
COLLIS, Inc.
CLINTON, IA

	MW-34								
	Phase III Quarterly LTM				Semi-annual LTM				
Favorable Conditions*	**Q3 2016**	**Q4 2016**	**Q1 2017**	**Q2 2017**	**SA 1 2018**	**SA 2 2018**	**SA 1 2019**	**SA 2 2019**	**SA 1 2020**
DO (<0.5 mg/L)	0.12	2.55	0.64	0.79	0.46	0.9	1.59	0.32	0.13
ORP (<50 mV good; <-100 mV better)	-46.8	228.6	-33.2	-11.9	0.7	-21.7	51.6	-65.7	77.9
pH (5-9 S.U.)	7	7.08	7.04	7.49	7.17	7.48	6.9	7.11	6.95
Sulfate (<20,000 ug/L)	77,000	68,000	74,000	100,000	71,000	68,000	65,000	55,000	69,000
Iron (>1,000 ug/L)	51 J	18	5.9 J	55 J	33 J	19 J	ND	ND	ND
Nitrate/Nitrite (<1,000 ug/L)	ND	ND	33	ND	ND	ND	820	ND	770
Daughter Product: cis-1,2 DCE (ug/L)	100	130	120	120	100	86	65	120	67
Daughter Product: trans-1,2 DCE (ug/L)	3.5	3.6	2.1	4	2.4	3.1	1	3.1	0.9
Daughter Product: 1,1 DCE (ug/L)	ND	ND	0.45 J	ND	ND	0.67 J	ND	0.84 J	ND
Daughter Product: vinyl chloride (ug/L)	4.6	2.6	2.7	15	2.4	1.5	0.66 J	2.7	ND
Dissolved Gases: ethene (ug/L)	ND	ND	ND	ND	ND	2.6 J	ND	ND	ND
Dissolved Gases: ethane (ug/L)	20	11	12	20	16	17	ND	12	8
Dissolved Gases: methane (>500 ug/L)	380	220	180	320	230	190	44	170	28

Notes:
*Reference: Wiedemeier, et al., 1998, Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater.
MNA groundwater results shown are from Phase III LTM conducted quarterly 2016-2017; the 2018 first semi-annual (SA) LTM conducted June 2018; the 2018 second SA LTM conducted October 2018; the 2019 first SA LTM conducted April 2019 and the second SA LTM conducted September 2019; the 2020 first SA LTM conducted in April.
1,1 DCE = 1,1 dichloroethylene
cis-1,2 DCE = cis-1,2-dichloroethylene
DO = Dissolved Oxygen
J = analyte is present at an estimated concentration between the Method Detection Limit and Reporting Limit
LTM = Long Term Monitoring
MNA = Monitored Natural Attenuation
mg/L = milligrams per liter
mV = millivolt
ND = non-detect
NS = not sampled
SA = Semi-annual
S.U.= standard units
trans-1,2 DCE = trans-1,2-dichloroethylene
ug/L = micrograms per liter
Red = does not meet favorable conditions
Green = meets favorable conditions

TABLE 5
LTM GROUNDWATER MNA RESULTS
COLLIS, Inc.
CLINTON, IA

	MW-42								
	Phase III Quarterly LTM				Semi-annual LTM				
Favorable Conditions*	**Q3 2016**	**Q4 2016**	**Q1 2017**	**Q2 2017**	**SA 1 2018**	**SA 2 2018**	**SA 1 2019**	**SA 2 2019**	**SA 1 2020**
DO (<0.5 mg/L)	0.17	1.44	0.57	1.26	0.31	0.9	2.59	0.39	0.12
ORP (<50 mV good; <-100 mV better)	-18.3	-43.1	-38.8	-6.9	37.2	29.8	-10.4	-45.2	15.8
pH (5-9 S.U.)	6.68	7.13	7.11	7.44	7.16	7.98	7.03	7.19	7.07
Sulfate (<20,000 ug/L)	110,000	110,000	100,000	98,000	100,000	110,000	110,000	99,000	94,000
Iron (>1,000 ug/L)	300	160	240	130	120	55 J	100	170	61
Nitrate/Nitrite (<1,000 ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Daughter Product: cis-1,2 DCE (ug/L)	360	350	360	340	250	320	280	260	290
Daughter Product: trans-1,2 DCE (ug/L)	9.5	8.8	8.2	11	9.2	11	16	9.8	10
Daughter Product: 1,1 DCE (ug/L)	3.5	3.5	3	3.4	2.9	3.6	2.6	3.6	3
Daughter Product: vinyl chloride (ug/L)	32	32	27	31	37	28	49	39	64
Dissolved Gases: ethene (ug/L)	ND	ND	ND	0.72 J	5.1 J	1.9 J	ND	ND	7.5
Dissolved Gases: ethane (ug/L)	6.8	7.7	6.8	4.1	12	9.7	ND	10	11
Dissolved Gases: methane (>500 ug/L)	250	270	270	180	260	190	310	240	340

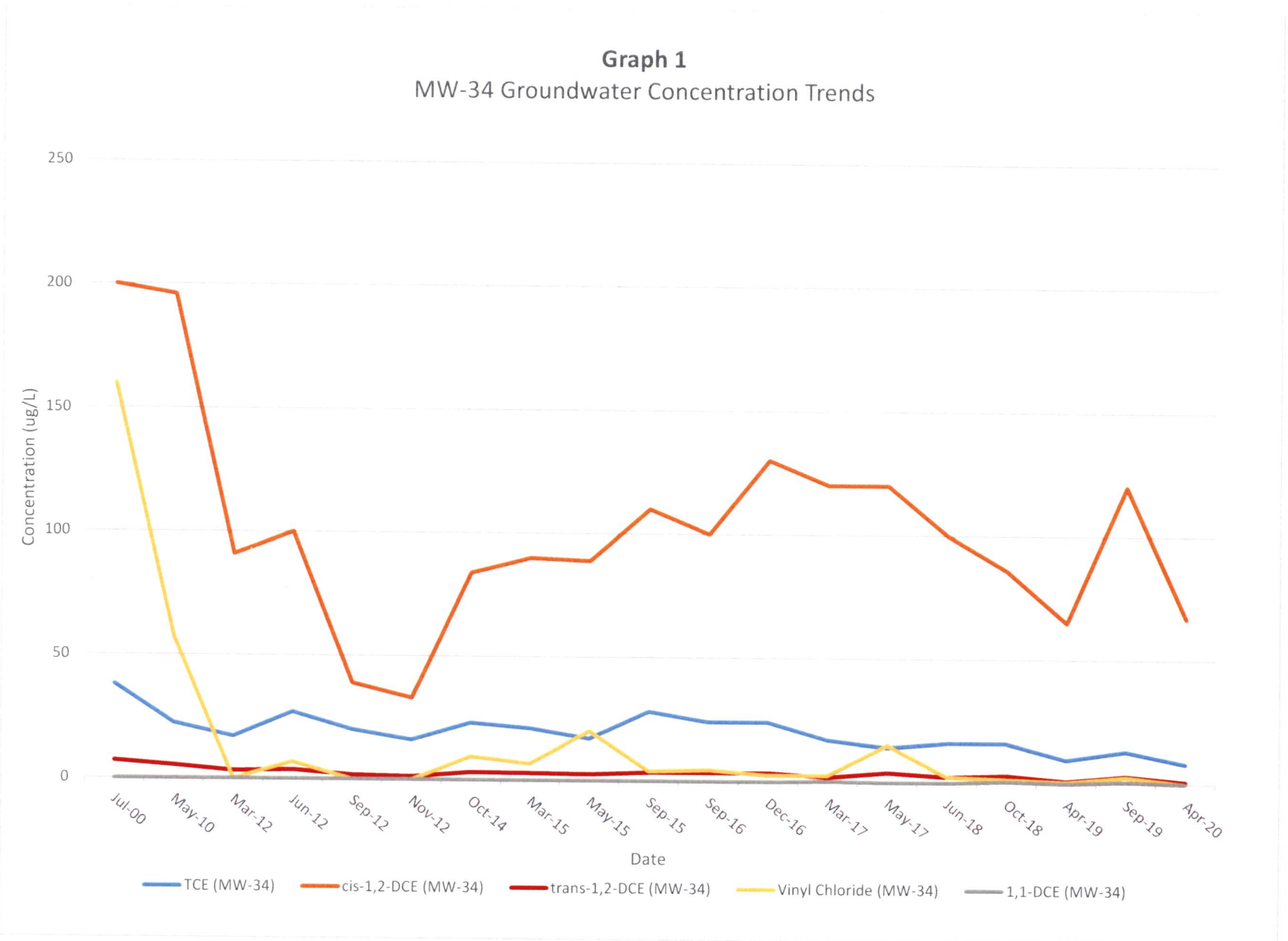
Notes:
*Reference: Wiedemeier, et al., 1998, Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater.
MNA groundwater results shown are from Phase III LTM conducted quarterly 2016-2017; the 2018 first semi-annual (SA) LTM conducted June 2018; the 2018 second SA LTM conducted October 2018; the 2019 first SA LTM conducted April 2019 and the second SA LTM conducted September 2019; the 2020 first SA LTM conducted in April.
1,1 DCE = 1,1 dichloroethylene
cis-1,2 DCE = cis-1,2-dichloroethylene
DO = Dissolved Oxygen
J = analyte is present at an estimated concentration between the Method Detection Limit and Reporting Limit
LTM = Long Term Monitoring
MNA = Monitored Natural Attenuation
mg/L = milligrams per liter
mV = millivolt
ND = non-detect
NS = not sampled
SA = Semi-annual
S.U.= standard units
trans-1,2 DCE = trans-1,2-dichloroethylene
ug/L = micrograms per liter
Red = does not meet favorable conditions
Green = meets favorable conditions

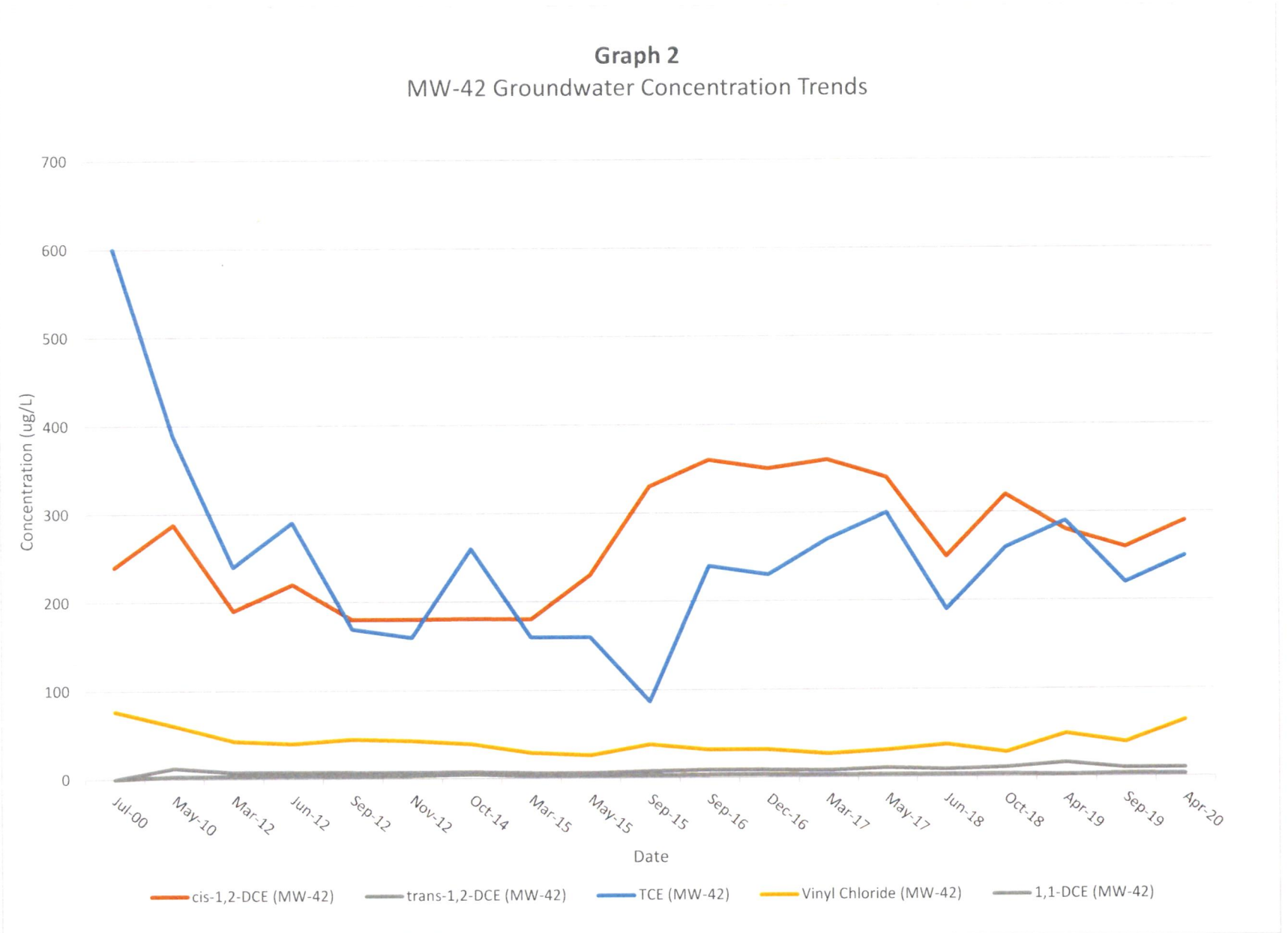
TABLE 5
LTM GROUNDWATER MNA RESULTS
COLLIS, Inc.
CLINTON, IA

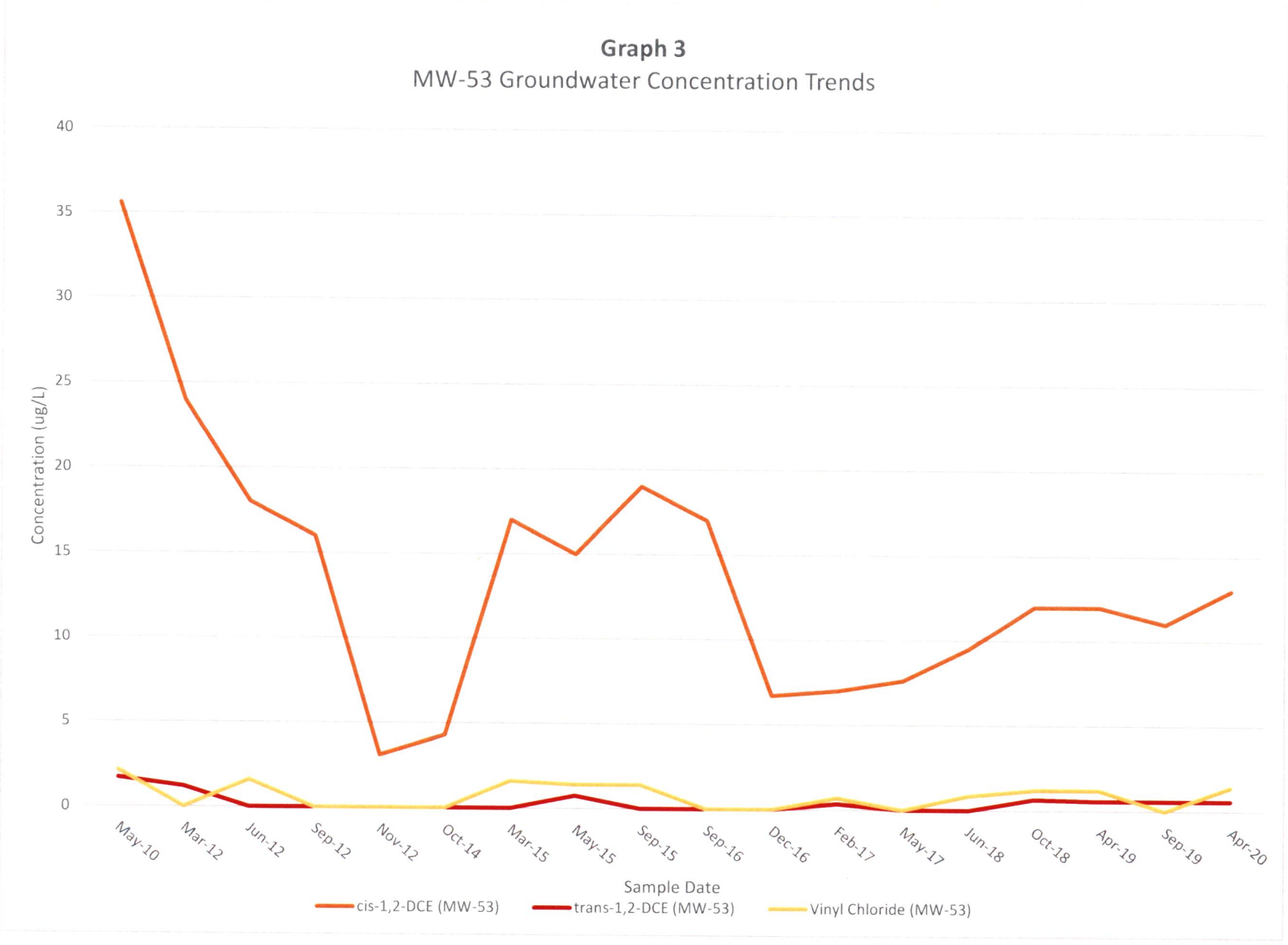
	MW-53								
	Phase III Quarterly LTM				Semi-annual LTM				
Favorable Conditions*	**Q3 2016**	**Q4 2016**	**Q1 2017**	**Q2 2017**	**SA 1 2018**	**SA 2 2018**	**SA 1 2019**	**SA 2 2019**	**SA 1 2020**
DO (<0.5 mg/L)	0.27	0.4	0.29	0.6	0.22	0.07	3.71	0.21	0.21
ORP (<50 mV good; <-100 mV better)	-96.1	-75.5	-85.8	-40.2	-18.4	-73	-46.1	-59.2	-1.6
pH (5-9 S.U.)	7.35	7.35	7.29	7.55	7.35	8.11	7.06	7.36	7.2
Sulfate (<20,000 ug/L)	41,000	42,000	41,000	40,000	37,000	35,000	35,000	35,000	34,000
Iron (>1,000 ug/L)	490	430	1,400	620	320	96	180	510	240
Nitrate/Nitrite (<1,000 ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Daughter Product: cis-1,2 DCE (ug/L)	17	6.7	7	7.6	9.5	12	12	11	13
Daughter Product: trans-1,2 DCE (ug/L)	ND	ND	0.36 J	ND	ND	0.67 J	0.59 J	0.59 J	0.60 J
Daughter Product: 1,1 DCE (ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Daughter Product: vinyl chloride (ug/L)	ND	ND	0.7 J	ND	0.85 J	1.2	1.2	ND	1.4
Dissolved Gases: ethene (ug/L)	ND	ND	ND	ND	ND	0.71 J	ND	ND	ND
Dissolved Gases: ethane (ug/L)	ND	ND	ND	ND	ND	1.7 J	ND	ND	ND
Dissolved Gases: methane (>500 ug/L)	31	10	18	11	13	19	21	14	21

Notes:
*Reference: Wiedemeier, et al., 1998, Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater.
MNA groundwater results shown are from Phase III LTM conducted quarterly 2016-2017; the 2018 first semi-annual (SA) LTM conducted June 2018; the 2018 second SA LTM conducted October 2018; the 2019 first SA LTM conducted April 2019 and the second SA LTM conducted September 2019; the 2020 first SA LTM conducted in April.
1,1 DCE = 1,1 dichloroethylene
cis-1,2 DCE = cis-1,2-dichloroethylene
DO = Dissolved Oxygen
J = analyte is present at an estimated concentration between the Method Detection Limit and Reporting Limit
LTM = Long Term Monitoring
MNA = Monitored Natural Attenuation
mg/L = milligrams per liter
mV = millivolt
ND = non-detect
NS = not sampled
SA = Semi-annual
S.U.= standard units
trans-1,2 DCE = trans-1,2-dichloroethylene
ug/L = micrograms per liter
Red = does not meet favorable conditions
Green = meets favorable conditions

GRAPHS


Graph 1
MW-34 Groundwater Concentration Trends
250
200
150
100
50
0
Concentration (ug/L)
Jul-00
May-10
Mar-12
Jun-12
Sep-12
Nov-12
Oct-14
Mar-15
May-15
Sep-15
Sep-16
Dec-16
Mar-17
May-17
Jun-18
Oct-18
Apr-19
Sep-19
Apr-20
Date
TCE (MW-34)
cis-1,2-DCE (MW-34)
trans-1,2-DCE (MW-34)
Vinyl Chloride (MW-34)
1,1-DCE (MW-34)


Graph 2
MW-42 Groundwater Concentration Trends
Concentration (ug/L)
700
600
500
400
300
200
100
0
Jul-00
May-10
Mar-12
Jun-12
Sep-12
Nov-12
Oct-14
Mar-15
May-15
Sep-15
Sep-16
Dec-16
Mar-17
May-17
Jun-18
Oct-18
Apr-19
Sep-19
Apr-20
Date
cis-1,2-DCE (MW-42)
trans-1,2-DCE (MW-42)
TCE (MW-42)
Vinyl Chloride (MW-42)
1,1-DCE (MW-42)


Graph 3
MW-53 Groundwater Concentration Trends
Concentration (ug/L)
40
35
30
25
20
15
10
5
0
May-10
Mar-12
Jun-12
Sep-12
Nov-12
Oct-14
Mar-15
May-15
Sep-15
Sep-16
Dec-16
Feb-17
May-17
Jun-18
Oct-18
Apr-19
Sep-19
Apr-20
Sample Date
cis-1,2-DCE (MW-53)
trans-1,2-DCE (MW-53)
Vinyl Chloride (MW-53)

ATTACHMENT A

LABORATORY ANALYTICAL DATA

06-May-2020

Kacie Van Buskirk
BB&E, Inc.
235 East Main Street
Suite 107
Northville, MI 48167

Re: **SSW Collis 2020 LTM Task 1** Work Order: **20041449**

Dear Kacie,

ALS Environmental received 18 samples on 23-Apr-2020 08:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 103.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: IA: 403

ALS Group, USA

Date: 06-May-20

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Work Order: **20041449**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
20041449-01	COL-GW-01	Groundwater		4/20/2020 12:25	4/23/2020 08:00	☐
20041449-02	COL-GW-02	Groundwater		4/20/2020 12:55	4/23/2020 08:00	☐
20041449-03	COL-GW-03	Groundwater		4/20/2020 13:40	4/23/2020 08:00	☐
20041449-04	COL-GW-04	Groundwater		4/20/2020 14:35	4/23/2020 08:00	☐
20041449-05	COL-GW-05	Groundwater		4/20/2020 14:35	4/23/2020 08:00	☐
20041449-06	COL-GW-06	Groundwater		4/20/2020 16:00	4/23/2020 08:00	☐
20041449-07	COL-GW-07	Groundwater		4/20/2020 16:50	4/23/2020 08:00	☐
20041449-08	COL-GW-08	Groundwater		4/21/2020 07:50	4/23/2020 08:00	☐
20041449-09	COL-GW-09	Groundwater		4/21/2020 08:30	4/23/2020 08:00	☐
20041449-10	COL-GW-10	Groundwater		4/21/2020 09:35	4/23/2020 08:00	☐
20041449-11	COL-GW-11	Groundwater		4/21/2020 10:15	4/23/2020 08:00	☐
20041449-12	COL-GW-12	Groundwater		4/21/2020 10:55	4/23/2020 08:00	☐
20041449-13	COL-GW-13	Groundwater		4/21/2020 11:30	4/23/2020 08:00	☐
20041449-14	COL-GW-14	Groundwater		4/21/2020 11:30	4/23/2020 08:00	☐
20041449-15	COL-GW-15	Groundwater		4/21/2020 12:15	4/23/2020 08:00	☐
20041449-16	EB	Water		4/21/2020 13:00	4/23/2020 08:00	☐
20041449-17	Trip Blank 1	Water		4/20/2020	4/23/2020 08:00	☐
20041449-18	Trip Blank 2	Water		4/21/2020	4/23/2020 08:00	☐

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Work Order: 20041449

Case Narrative

Samples for the above noted Work Order were received on 04/23/2020. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:

Batch R287342, Method gases_rsk175_w, Sample 20041449-04E MS/MSD: The MS/MSD recovery was outside of the control limit for Methane; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required.

Batch R287666, Method VOC_8260_W, Sample VLCSW1-200501: The LCS recovery was above the upper control limit for Methyl tert-butyl ether. All the sample results in the batch were non-detect. No qualification is required.

Batch R287669A, Method VOC_8260_W, Sample 20041449-04A MS/MSD: The MS/MSD recovery was above the upper control limit for Methyl tert-butyl ether. The corresponding result in the parent sample was non-detect, therefore no qualification is required.

Batch R287669A, Method VOC_8260_W, Sample 20041449-04A MSD: The RPD between the MS and MSD was outside the control limit for Bromomethane. The corresponding result in the parent sample should be considered estimated for this analyte.

Batch R287669A, Method VOC_8260_W, Sample 20041449-04A MSD: The MSD recoveries were outside of the control limits for 2-Butanone, 2-Hexanone, and 4-Methyl-2-pentanone. However, the MS recoveries and the RPDs between the MS and MSD were in control. No qualification is required for these analytes.

Batch R287669A, Method VOC_8260_W, Sample VLCSW2-200430: The LCS recovery was

above the upper control limit for Methyl tert-butyl ether. All the sample results in the batch were non-detect. No qualification is required.

Batch R287675A, Method VOC_8260_W, Sample 20041449-05A MS/MSD: The MS/MSD recoveries were above the upper control limits for Trichloroethene and cis-1,2-Dichloroethene. The corresponding results in the parent sample may be biased high for these analytes.

Batch R287783a, Method VOC_8260_W, Sample VLCSW1-200504: The LCS recovery was above the upper control limit for Methyl tert-butyl ether. All the sample results in the batch were non-detect. No qualification is required.

Metals:
No other deviations or anomalies were noted.

Wet Chemistry:

Batch R287230, Method S_9034_GW, Sample 20041449-04D MS/MSD: The MS/MSD recovery was above the upper control limit for Sulfide. The corresponding result in the parent sample may be biased high.

ALS Group, USA

Date: 06-May-20

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
WorkOrder: **20041449**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-01
Collection Date: 4/20/2020 12:25 PM

Work Order: 20041449
Lab ID: 20041449-01
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **SJB**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 08:43
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 08:43
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 08:43
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 08:43
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 08:43
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 08:43
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 08:43
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 08:43
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 08:43
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 08:43
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 08:43
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 08:43
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 08:43
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 08:43
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 08:43
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 08:43
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 08:43
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 08:43
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 08:43
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 08:43
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 08:43
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 08:43
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 08:43
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 08:43
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 08:43
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 08:43
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 08:43
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 08:43
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 08:43
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 08:43
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 08:43
Acetone	U		6.2	10	µg/L	1	5/1/2020 08:43
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 08:43
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 08:43
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 08:43
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 08:43
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 08:43
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 08:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-01
Collection Date: 4/20/2020 12:25 PM

Work Order: 20041449
Lab ID: 20041449-01
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 08:43
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 08:43
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 08:43
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 08:43
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 08:43
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 08:43
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 08:43
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 08:43
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 08:43
cis-1,2-Dichloroethene	U		0.42	1.0	µg/L	1	5/1/2020 08:43
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 08:43
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 08:43
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 08:43
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 08:43
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 08:43
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 08:43
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 08:43
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 08:43
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 08:43
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 08:43
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 08:43
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 08:43
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 08:43
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 08:43
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 08:43
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 08:43
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 08:43
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 08:43
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 08:43
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 08:43
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 08:43
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 08:43
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 08:43
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 08:43
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 08:43
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/1/2020 08:43
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 08:43
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 08:43
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 08:43
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 08:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-01
Collection Date: 4/20/2020 12:25 PM

Work Order: 20041449
Lab ID: 20041449-01
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 08:43
Vinyl chloride	U		0.53	1.0	µg/L	1	5/1/2020 08:43
Surr: 1,2-Dichloroethane-d4	*103*			*75-120*	*%REC*	1	5/1/2020 08:43
Surr: 4-Bromofluorobenzene	*98.2*			*80-110*	*%REC*	1	5/1/2020 08:43
Surr: Dibromofluoromethane	*101*			*85-115*	*%REC*	1	5/1/2020 08:43
Surr: Toluene-d8	*102*			*85-110*	*%REC*	1	5/1/2020 08:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-02
Collection Date: 4/20/2020 12:55 PM

Work Order: 20041449
Lab ID: 20041449-02
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **SJB**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 09:07
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 09:07
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 09:07
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 09:07
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 09:07
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 09:07
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 09:07
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 09:07
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 09:07
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 09:07
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 09:07
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 09:07
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 09:07
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 09:07
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 09:07
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 09:07
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 09:07
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 09:07
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 09:07
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 09:07
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 09:07
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 09:07
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 09:07
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 09:07
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 09:07
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 09:07
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 09:07
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 09:07
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 09:07
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 09:07
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 09:07
Acetone	U		6.2	10	µg/L	1	5/1/2020 09:07
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 09:07
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 09:07
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 09:07
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 09:07
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 09:07
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 09:07

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-02
Collection Date: 4/20/2020 12:55 PM

Work Order: 20041449
Lab ID: 20041449-02
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 09:07
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 09:07
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 09:07
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 09:07
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 09:07
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 09:07
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 09:07
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 09:07
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 09:07
cis-1,2-Dichloroethene	U		0.42	1.0	µg/L	1	5/1/2020 09:07
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 09:07
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 09:07
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 09:07
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 09:07
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 09:07
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 09:07
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 09:07
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 09:07
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 09:07
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 09:07
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 09:07
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 09:07
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 09:07
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 09:07
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 09:07
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 09:07
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 09:07
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 09:07
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 09:07
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 09:07
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 09:07
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 09:07
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 09:07
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 09:07
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 09:07
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/1/2020 09:07
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 09:07
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 09:07
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 09:07
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 09:07

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-02
Collection Date: 4/20/2020 12:55 PM

Work Order: 20041449
Lab ID: 20041449-02
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 09:07
Vinyl chloride	U		0.53	1.0	µg/L	1	5/1/2020 09:07
Surr: 1,2-Dichloroethane-d4	*101*			*75-120*	*%REC*	1	5/1/2020 09:07
Surr: 4-Bromofluorobenzene	*97.0*			*80-110*	*%REC*	1	5/1/2020 09:07
Surr: Dibromofluoromethane	*102*			*85-115*	*%REC*	1	5/1/2020 09:07
Surr: Toluene-d8	*97.3*			*85-110*	*%REC*	1	5/1/2020 09:07

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-03
Collection Date: 4/20/2020 01:40 PM

Work Order: 20041449
Lab ID: 20041449-03
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **SJB**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 09:31
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 09:31
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 09:31
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 09:31
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 09:31
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 09:31
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 09:31
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 09:31
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 09:31
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 09:31
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 09:31
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 09:31
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 09:31
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 09:31
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 09:31
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 09:31
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 09:31
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 09:31
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 09:31
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 09:31
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 09:31
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 09:31
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 09:31
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 09:31
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 09:31
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 09:31
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 09:31
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 09:31
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 09:31
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 09:31
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 09:31
Acetone	U		6.2	10	µg/L	1	5/1/2020 09:31
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 09:31
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 09:31
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 09:31
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 09:31
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 09:31
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 09:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-03
Collection Date: 4/20/2020 01:40 PM

Work Order: 20041449
Lab ID: 20041449-03
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 09:31
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 09:31
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 09:31
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 09:31
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 09:31
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 09:31
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 09:31
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 09:31
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 09:31
cis-1,2-Dichloroethene	U		0.42	1.0	µg/L	1	5/1/2020 09:31
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 09:31
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 09:31
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 09:31
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 09:31
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 09:31
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 09:31
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 09:31
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 09:31
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 09:31
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 09:31
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 09:31
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 09:31
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 09:31
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 09:31
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 09:31
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 09:31
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 09:31
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 09:31
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 09:31
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 09:31
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 09:31
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 09:31
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 09:31
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 09:31
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 09:31
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/1/2020 09:31
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 09:31
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 09:31
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 09:31
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 09:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-03
Collection Date: 4/20/2020 01:40 PM

Work Order: 20041449
Lab ID: 20041449-03
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 09:31
Vinyl chloride	U		0.53	1.0	µg/L	1	5/1/2020 09:31
Surr: 1,2-Dichloroethane-d4	*107*			*75-120*	*%REC*	1	5/1/2020 09:31
Surr: 4-Bromofluorobenzene	*99.8*			*80-110*	*%REC*	1	5/1/2020 09:31
Surr: Dibromofluoromethane	*103*			*85-115*	*%REC*	1	5/1/2020 09:31
Surr: Toluene-d8	*100*			*85-110*	*%REC*	1	5/1/2020 09:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-04
Collection Date: 4/20/2020 02:35 PM

Work Order: 20041449
Lab ID: 20041449-04
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER		Method: **RSK-175**					Analyst: **KYM**
Ethane	**11**		**1.5**	**5.0**	**µg/L**	1	4/24/2020 15:51
Ethene	**7.4**		**2.7**	**5.0**	**µg/L**	1	4/24/2020 15:51
Methane	**340**		**6.6**	**10**	**µg/L**	2	4/24/2020 16:16
METALS BY ICP-MS (DISSOLVED)		Method: **SW6020B**			Prep: FILTER / 5/5/20		Analyst: **STP**
Iron	U		0.050	0.080	mg/L	1	5/5/2020 14:56
Manganese	**0.30**		**0.0025**	**0.0050**	**mg/L**	1	5/5/2020 14:56
1,4-DIOXANE BY SELECT ION MONITORING		Method: **SW8260B**					Analyst: **SJB**
1,4-Dioxane	U		0.44	1.0	µg/L	1	4/24/2020 14:50
Surr: Toluene-d8	*104*			*74-124*	*%REC*	1	4/24/2020 14:50
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **SJB**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 09:55
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 09:55
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 09:55
1,1,2-Trichloroethane	**0.53**	J	**0.46**	**1.0**	**µg/L**	1	5/1/2020 09:55
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 09:55
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 09:55
1,1-Dichloroethene	**3.0**		**0.40**	**1.0**	**µg/L**	1	5/1/2020 09:55
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 09:55
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 09:55
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 09:55
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 09:55
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 09:55
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 09:55
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 09:55
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 09:55
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 09:55
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 09:55
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 09:55
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 09:55
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 09:55
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 09:55
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 09:55
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 09:55
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 09:55
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 09:55
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 09:55
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 09:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-04
Collection Date: 4/20/2020 02:35 PM

Work Order: 20041449
Lab ID: 20041449-04
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 09:55
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 09:55
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 09:55
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 09:55
Acetone	U		6.2	10	µg/L	1	5/1/2020 09:55
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 09:55
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 09:55
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 09:55
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 09:55
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 09:55
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 09:55
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 09:55
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 09:55
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 09:55
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 09:55
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 09:55
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 09:55
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 09:55
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 09:55
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 09:55
cis-1,2-Dichloroethene	**290**		**2.1**	**5.0**	**µg/L**	5	5/1/2020 17:07
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 09:55
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 09:55
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 09:55
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 09:55
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 09:55
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 09:55
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 09:55
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 09:55
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 09:55
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 09:55
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 09:55
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 09:55
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 09:55
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 09:55
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 09:55
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 09:55
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 09:55
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 09:55
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 09:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-04
Collection Date: 4/20/2020 02:35 PM

Work Order: 20041449
Lab ID: 20041449-04
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 09:55
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 09:55
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 09:55
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 09:55
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 09:55
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 09:55
trans-1,2-Dichloroethene	**9.9**		**0.48**	**1.0**	**µg/L**	1	5/1/2020 09:55
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 09:55
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 09:55
Trichloroethene	**250**		**2.2**	**5.0**	**µg/L**	5	5/1/2020 17:07
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 09:55
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 09:55
Vinyl chloride	**59**		**0.53**	**1.0**	**µg/L**	1	5/1/2020 09:55
Surr: 1,2-Dichloroethane-d4	*104*			*75-120*	*%REC*	1	5/1/2020 09:55
Surr: 1,2-Dichloroethane-d4	*117*			*75-120*	*%REC*	5	5/1/2020 17:07
Surr: 4-Bromofluorobenzene	*98.8*			*80-110*	*%REC*	1	5/1/2020 09:55
Surr: 4-Bromofluorobenzene	*96.0*			*80-110*	*%REC*	5	5/1/2020 17:07
Surr: Dibromofluoromethane	*102*			*85-115*	*%REC*	1	5/1/2020 09:55
Surr: Dibromofluoromethane	*106*			*85-115*	*%REC*	5	5/1/2020 17:07
Surr: Toluene-d8	*96.5*			*85-110*	*%REC*	1	5/1/2020 09:55
Surr: Toluene-d8	*103*			*85-110*	*%REC*	5	5/1/2020 17:07
ANIONS BY ION CHROMATOGRAPHY		Method: **SW9056A**					Analyst: **JDR**
Chloride	**66**		**6.2**	**20**	**mg/L**	20	4/29/2020 18:41
Sulfate	**94**		**1.1**	**20**	**mg/L**	20	4/29/2020 18:41
NITROGEN, NITRATE-NITRITE		Method: **E353.2 R2.0**					Analyst: **CAC**
Nitrogen, Nitrate-Nitrite	U		0.012	0.020	mg/L	1	4/24/2020 11:04
SULFIDE		Method: **SW9034**					Analyst: **RZM**
Sulfide	**4.2**		**0.42**	**1.0**	**mg/L**	1	4/24/2020 12:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-05
Collection Date: 4/20/2020 02:35 PM

Work Order: 20041449
Lab ID: 20041449-05
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			Method: **RSK-175**				Analyst: **KYM**
Ethane	**11**		**1.5**	**5.0**	**µg/L**	1	4/24/2020 14:31
Ethene	**7.5**		**2.7**	**5.0**	**µg/L**	1	4/24/2020 14:31
Methane	**230**		**6.6**	**10**	**µg/L**	2	4/24/2020 15:43
METALS BY ICP-MS (DISSOLVED)			Method: **SW6020B**		Prep: FILTER / 5/5/20		Analyst: **STP**
Iron	**0.061**	J	**0.050**	**0.080**	**mg/L**	1	5/5/2020 15:01
Manganese	**0.26**		**0.0025**	**0.0050**	**mg/L**	1	5/5/2020 15:01
1,4-DIOXANE BY SELECT ION MONITORING			Method: **SW8260B**				Analyst: **SJB**
1,4-Dioxane	U		0.44	1.0	µg/L	1	4/24/2020 15:06
Surr: Toluene-d8	*109*			*74-124*	*%REC*	1	4/24/2020 15:06
VOLATILE ORGANIC COMPOUNDS			Method: **SW8260C**				Analyst: **SJB**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 10:19
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 10:19
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 10:19
1,1,2-Trichloroethane	**0.61**	J	**0.46**	**1.0**	**µg/L**	1	5/1/2020 10:19
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 10:19
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 10:19
1,1-Dichloroethene	**2.6**		**0.40**	**1.0**	**µg/L**	1	5/1/2020 10:19
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 10:19
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 10:19
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 10:19
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 10:19
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 10:19
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 10:19
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 10:19
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 10:19
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 10:19
1,2-Dichloropropane	**0.51**	J	**0.48**	**1.0**	**µg/L**	1	5/1/2020 10:19
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 10:19
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 10:19
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 10:19
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 10:19
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 10:19
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 10:19
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 10:19
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 10:19
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 10:19
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 10:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-05
Collection Date: 4/20/2020 02:35 PM

Work Order: 20041449
Lab ID: 20041449-05
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 10:19
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 10:19
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 10:19
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 10:19
Acetone	U		6.2	10	µg/L	1	5/1/2020 10:19
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 10:19
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 10:19
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 10:19
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 10:19
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 10:19
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 10:19
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 10:19
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 10:19
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 10:19
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 10:19
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 10:19
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 10:19
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 10:19
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 10:19
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 10:19
cis-1,2-Dichloroethene	**250**		**2.1**	**5.0**	**µg/L**	5	5/1/2020 17:23
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 10:19
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 10:19
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 10:19
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 10:19
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 10:19
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 10:19
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 10:19
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 10:19
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 10:19
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 10:19
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 10:19
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 10:19
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 10:19
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 10:19
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 10:19
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 10:19
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 10:19
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 10:19
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 10:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-05
Collection Date: 4/20/2020 02:35 PM

Work Order: 20041449
Lab ID: 20041449-05
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 10:19
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 10:19
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 10:19
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 10:19
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 10:19
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 10:19
trans-1,2-Dichloroethene	**10**		**0.48**	**1.0**	**µg/L**	1	5/1/2020 10:19
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 10:19
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 10:19
Trichloroethene	**190**		**2.2**	**5.0**	**µg/L**	5	5/1/2020 17:23
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 10:19
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 10:19
Vinyl chloride	**64**		**0.53**	**1.0**	**µg/L**	1	5/1/2020 10:19
Surr: 1,2-Dichloroethane-d4	*104*			*75-120*	*%REC*	1	5/1/2020 10:19
Surr: 1,2-Dichloroethane-d4	*118*			*75-120*	*%REC*	5	5/1/2020 17:23
Surr: 4-Bromofluorobenzene	*99.2*			*80-110*	*%REC*	1	5/1/2020 10:19
Surr: 4-Bromofluorobenzene	*99.0*			*80-110*	*%REC*	5	5/1/2020 17:23
Surr: Dibromofluoromethane	*100*			*85-115*	*%REC*	1	5/1/2020 10:19
Surr: Dibromofluoromethane	*103*			*85-115*	*%REC*	5	5/1/2020 17:23
Surr: Toluene-d8	*98.1*			*85-110*	*%REC*	1	5/1/2020 10:19
Surr: Toluene-d8	*103*			*85-110*	*%REC*	5	5/1/2020 17:23
ANIONS BY ION CHROMATOGRAPHY			Method: **SW9056A**				Analyst: **JDR**
Chloride	**63**		**6.2**	**20**	**mg/L**	20	4/29/2020 20:36
Sulfate	**93**		**1.1**	**20**	**mg/L**	20	4/29/2020 20:36
NITROGEN, NITRATE-NITRITE			Method: **E353.2 R2.0**				Analyst: **CAC**
Nitrogen, Nitrate-Nitrite	U		0.012	0.020	mg/L	1	4/24/2020 13:16
SULFIDE			Method: **SW9034**				Analyst: **RZM**
Sulfide	U		0.42	1.0	mg/L	1	4/24/2020 12:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-06
Collection Date: 4/20/2020 04:00 PM

Work Order: 20041449
Lab ID: 20041449-06
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER		Method: **RSK-175**					Analyst: **KYM**
Ethane	**8.0**		**1.5**	**5.0**	**µg/L**	1	4/24/2020 14:34
Ethene	U		2.7	5.0	µg/L	1	4/24/2020 14:34
Methane	**28**		**3.3**	**5.0**	**µg/L**	1	4/24/2020 14:34
METALS BY ICP-MS (DISSOLVED)		Method: **SW6020B**		Prep: FILTER / 5/5/20			Analyst: **STP**
Iron	U		0.050	0.080	mg/L	1	5/5/2020 15:03
Manganese	**0.26**		**0.0025**	**0.0050**	**mg/L**	1	5/5/2020 15:03
1,4-DIOXANE BY SELECT ION MONITORING		Method: **SW8260B**					Analyst: **SJB**
1,4-Dioxane	U		0.44	1.0	µg/L	1	4/24/2020 15:22
Surr: Toluene-d8	*107*			*74-124*	*%REC*	1	4/24/2020 15:22
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **SJB**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 10:43
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 10:43
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 10:43
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 10:43
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 10:43
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 10:43
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 10:43
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 10:43
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 10:43
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 10:43
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 10:43
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 10:43
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 10:43
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 10:43
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 10:43
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 10:43
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 10:43
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 10:43
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 10:43
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 10:43
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 10:43
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 10:43
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 10:43
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 10:43
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 10:43
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 10:43
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 10:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

Date: *06-May-20*

ALS Group, USA

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-06
Collection Date: 4/20/2020 04:00 PM

Work Order: 20041449
Lab ID: 20041449-06
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
2-Methylnaphthalene		U	0.66	5.0	µg/L	1	5/1/2020 10:43
4-Chlorotoluene		U	0.31	1.0	µg/L	1	5/1/2020 10:43
4-Isopropyltoluene		U	0.10	1.0	µg/L	1	5/1/2020 10:43
4-Methyl-2-pentanone		U	0.52	1.0	µg/L	1	5/1/2020 10:43
Acetone		U	6.2	10	µg/L	1	5/1/2020 10:43
Acrolein		U	0.38	1.0	µg/L	1	5/1/2020 10:43
Acrylonitrile		U	0.50	1.0	µg/L	1	5/1/2020 10:43
Benzene		U	0.46	1.0	µg/L	1	5/1/2020 10:43
Benzyl chloride		U	0.34	1.0	µg/L	1	5/1/2020 10:43
Bromobenzene		U	0.38	1.0	µg/L	1	5/1/2020 10:43
Bromochloromethane		U	0.45	1.0	µg/L	1	5/1/2020 10:43
Bromodichloromethane		U	0.49	1.0	µg/L	1	5/1/2020 10:43
Bromoform		U	0.56	1.0	µg/L	1	5/1/2020 10:43
Bromomethane		U	0.90	1.0	µg/L	1	5/1/2020 10:43
Carbon disulfide		U	0.49	1.0	µg/L	1	5/1/2020 10:43
Carbon tetrachloride		U	0.40	1.0	µg/L	1	5/1/2020 10:43
Chlorobenzene		U	0.40	1.0	µg/L	1	5/1/2020 10:43
Chloroethane		U	0.68	1.0	µg/L	1	5/1/2020 10:43
Chloroform		U	0.46	1.0	µg/L	1	5/1/2020 10:43
Chloromethane		U	0.83	1.0	µg/L	1	5/1/2020 10:43
cis-1,2-Dichloroethene	**67**		**0.42**	**1.0**	**µg/L**	1	5/1/2020 10:43
cis-1,3-Dichloropropene		U	0.57	1.0	µg/L	1	5/1/2020 10:43
Dibromochloromethane		U	0.40	1.0	µg/L	1	5/1/2020 10:43
Dibromomethane		U	0.65	1.0	µg/L	1	5/1/2020 10:43
Dichlorodifluoromethane		U	0.68	1.0	µg/L	1	5/1/2020 10:43
Ethylbenzene		U	0.34	1.0	µg/L	1	5/1/2020 10:43
Hexachlorobutadiene		U	0.56	1.0	µg/L	1	5/1/2020 10:43
Hexachloroethane		U	0.45	1.0	µg/L	1	5/1/2020 10:43
Hexane		U	0.40	1.0	µg/L	1	5/1/2020 10:43
Iodomethane		U	2.0	5.0	µg/L	1	5/1/2020 10:43
Isopropylbenzene		U	0.35	1.0	µg/L	1	5/1/2020 10:43
m,p-Xylene		U	0.81	2.0	µg/L	1	5/1/2020 10:43
Methyl tert-butyl ether		U	0.45	1.0	µg/L	1	5/1/2020 10:43
Methylene chloride		U	0.86	5.0	µg/L	1	5/1/2020 10:43
Naphthalene		U	0.77	5.0	µg/L	1	5/1/2020 10:43
n-Butylbenzene		U	0.34	1.0	µg/L	1	5/1/2020 10:43
n-Propylbenzene		U	0.48	1.0	µg/L	1	5/1/2020 10:43
o-Xylene		U	0.31	1.0	µg/L	1	5/1/2020 10:43
p-Isopropyltoluene		U	0.26	1.0	µg/L	1	5/1/2020 10:43
sec-Butylbenzene		U	0.30	1.0	µg/L	1	5/1/2020 10:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-06
Collection Date: 4/20/2020 04:00 PM

Work Order: 20041449
Lab ID: 20041449-06
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 10:43
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 10:43
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 10:43
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 10:43
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 10:43
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 10:43
trans-1,2-Dichloroethene	**0.90**	J	**0.48**	**1.0**	**µg/L**	1	5/1/2020 10:43
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 10:43
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 10:43
Trichloroethene	**8.1**		**0.43**	**1.0**	**µg/L**	1	5/1/2020 10:43
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 10:43
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 10:43
Vinyl chloride	U		0.53	1.0	µg/L	1	5/1/2020 10:43
Surr: 1,2-Dichloroethane-d4	*102*			*75-120*	*%REC*	1	5/1/2020 10:43
Surr: 4-Bromofluorobenzene	*97.2*			*80-110*	*%REC*	1	5/1/2020 10:43
Surr: Dibromofluoromethane	*100*			*85-115*	*%REC*	1	5/1/2020 10:43
Surr: Toluene-d8	*99.6*			*85-110*	*%REC*	1	5/1/2020 10:43
ANIONS BY ION CHROMATOGRAPHY		Method: **SW9056A**					Analyst: **JDR**
Chloride	**84**		**5.0**	**16**	**mg/L**	16	4/29/2020 21:15
Sulfate	**69**		**0.23**	**4.0**	**mg/L**	4	4/29/2020 20:55
NITROGEN, NITRATE-NITRITE		Method: **E353.2 R2.0**					Analyst: **CAC**
Nitrogen, Nitrate-Nitrite	**0.77**		**0.012**	**0.020**	**mg/L**	1	4/24/2020 13:17
SULFIDE		Method: **SW9034**					Analyst: **RZM**
Sulfide	U		0.42	1.0	mg/L	1	4/24/2020 12:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-07
Collection Date: 4/20/2020 04:50 PM

Work Order: 20041449
Lab ID: 20041449-07
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
			Method: **SW8260C**				Analyst: **SJB**
VOLATILE ORGANIC COMPOUNDS							
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 11:08
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 11:08
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 11:08
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 11:08
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 11:08
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 11:08
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 11:08
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 11:08
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 11:08
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 11:08
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 11:08
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 11:08
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 11:08
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 11:08
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 11:08
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 11:08
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 11:08
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 11:08
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 11:08
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 11:08
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 11:08
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 11:08
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 11:08
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 11:08
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 11:08
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 11:08
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 11:08
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 11:08
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 11:08
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 11:08
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 11:08
Acetone	U		6.2	10	µg/L	1	5/1/2020 11:08
Acrolein	**0.46**	J	**0.38**	**1.0**	**µg/L**	1	5/1/2020 11:08
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 11:08
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 11:08
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 11:08
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 11:08
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 11:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-07
Collection Date: 4/20/2020 04:50 PM

Work Order: 20041449
Lab ID: 20041449-07
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 11:08
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 11:08
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 11:08
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 11:08
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 11:08
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 11:08
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 11:08
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 11:08
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 11:08
cis-1,2-Dichloroethene	**0.87**	J	**0.42**	**1.0**	**µg/L**	1	5/1/2020 11:08
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 11:08
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 11:08
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 11:08
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 11:08
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 11:08
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 11:08
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 11:08
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 11:08
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 11:08
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 11:08
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 11:08
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 11:08
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 11:08
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 11:08
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 11:08
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 11:08
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 11:08
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 11:08
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 11:08
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 11:08
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 11:08
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 11:08
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 11:08
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 11:08
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 11:08
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/1/2020 11:08
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 11:08
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 11:08
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 11:08
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 11:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-07
Collection Date: 4/20/2020 04:50 PM

Work Order: 20041449
Lab ID: 20041449-07
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 11:08
Vinyl chloride	U		0.53	1.0	µg/L	1	5/1/2020 11:08
Surr: 1,2-Dichloroethane-d4	*102*			*75-120*	*%REC*	1	5/1/2020 11:08
Surr: 4-Bromofluorobenzene	*98.4*			*80-110*	*%REC*	1	5/1/2020 11:08
Surr: Dibromofluoromethane	*99.8*			*85-115*	*%REC*	1	5/1/2020 11:08
Surr: Toluene-d8	*100*			*85-110*	*%REC*	1	5/1/2020 11:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-08
Collection Date: 4/21/2020 07:50 AM

Work Order: 20041449
Lab ID: 20041449-08
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
1,4-DIOXANE BY SELECT ION MONITORING		Method: **SW8260B**					Analyst: **SJB**
1,4-Dioxane	U		0.44	0.60	µg/L	1	4/24/2020 15:37
Surr: Toluene-d8	*100*			*74-124*	*%REC*	1	4/24/2020 15:37
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **SJB**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/4/2020 14:09
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/4/2020 14:09
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/4/2020 14:09
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/4/2020 14:09
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/4/2020 14:09
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/4/2020 14:09
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/4/2020 14:09
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/4/2020 14:09
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/4/2020 14:09
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/4/2020 14:09
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/4/2020 14:09
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/4/2020 14:09
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/4/2020 14:09
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/4/2020 14:09
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/4/2020 14:09
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/4/2020 14:09
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/4/2020 14:09
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/4/2020 14:09
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/4/2020 14:09
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/4/2020 14:09
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/4/2020 14:09
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/4/2020 14:09
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/4/2020 14:09
2-Butanone	U		0.52	5.0	µg/L	1	5/4/2020 14:09
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/4/2020 14:09
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/4/2020 14:09
2-Hexanone	U		0.59	5.0	µg/L	1	5/4/2020 14:09
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/4/2020 14:09
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/4/2020 14:09
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/4/2020 14:09
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/4/2020 14:09
Acetone	U		6.2	10	µg/L	1	5/4/2020 14:09
Acrolein	U		0.38	1.0	µg/L	1	5/4/2020 14:09
Acrylonitrile	U		0.50	1.0	µg/L	1	5/4/2020 14:09
Benzene	U		0.46	1.0	µg/L	1	5/4/2020 14:09

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-08
Collection Date: 4/21/2020 07:50 AM

Work Order: 20041449
Lab ID: 20041449-08
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Benzyl chloride	U		0.34	1.0	µg/L	1	5/4/2020 14:09
Bromobenzene	U		0.38	1.0	µg/L	1	5/4/2020 14:09
Bromochloromethane	U		0.45	1.0	µg/L	1	5/4/2020 14:09
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/4/2020 14:09
Bromoform	U		0.56	1.0	µg/L	1	5/4/2020 14:09
Bromomethane	U		0.90	1.0	µg/L	1	5/4/2020 14:09
Carbon disulfide	U		0.49	1.0	µg/L	1	5/4/2020 14:09
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/4/2020 14:09
Chlorobenzene	U		0.40	1.0	µg/L	1	5/4/2020 14:09
Chloroethane	U		0.68	1.0	µg/L	1	5/4/2020 14:09
Chloroform	U		0.46	1.0	µg/L	1	5/4/2020 14:09
Chloromethane	U		0.83	1.0	µg/L	1	5/4/2020 14:09
cis-1,2-Dichloroethene	**92**		**0.42**	**1.0**	**µg/L**	1	5/4/2020 14:09
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/4/2020 14:09
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/4/2020 14:09
Dibromomethane	U		0.65	1.0	µg/L	1	5/4/2020 14:09
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/4/2020 14:09
Ethylbenzene	U		0.34	1.0	µg/L	1	5/4/2020 14:09
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/4/2020 14:09
Hexachloroethane	U		0.45	1.0	µg/L	1	5/4/2020 14:09
Hexane	U		0.40	1.0	µg/L	1	5/4/2020 14:09
Iodomethane	U		2.0	5.0	µg/L	1	5/4/2020 14:09
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/4/2020 14:09
m,p-Xylene	U		0.81	2.0	µg/L	1	5/4/2020 14:09
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/4/2020 14:09
Methylene chloride	U		0.86	5.0	µg/L	1	5/4/2020 14:09
Naphthalene	U		0.77	5.0	µg/L	1	5/4/2020 14:09
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/4/2020 14:09
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/4/2020 14:09
o-Xylene	U		0.31	1.0	µg/L	1	5/4/2020 14:09
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/4/2020 14:09
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/4/2020 14:09
Styrene	U		0.33	1.0	µg/L	1	5/4/2020 14:09
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/4/2020 14:09
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/4/2020 14:09
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/4/2020 14:09
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/4/2020 14:09
Toluene	U		0.45	1.0	µg/L	1	5/4/2020 14:09
trans-1,2-Dichloroethene	**1.8**		**0.48**	**1.0**	**µg/L**	1	5/4/2020 14:09
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/4/2020 14:09

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-08
Collection Date: 4/21/2020 07:50 AM

Work Order: 20041449
Lab ID: 20041449-08
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/4/2020 14:09
Trichloroethene	**2.4**		**0.43**	**1.0**	**µg/L**	1	5/4/2020 14:09
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/4/2020 14:09
Vinyl acetate	U		0.83	5.0	µg/L	1	5/4/2020 14:09
Vinyl chloride	**2.3**		**0.53**	**1.0**	**µg/L**	1	5/4/2020 14:09
Surr: 1,2-Dichloroethane-d4	*99.0*			*75-120*	*%REC*	1	5/4/2020 14:09
Surr: 4-Bromofluorobenzene	*97.8*			*80-110*	*%REC*	1	5/4/2020 14:09
Surr: Dibromofluoromethane	*98.2*			*85-115*	*%REC*	1	5/4/2020 14:09
Surr: Toluene-d8	*99.8*			*85-110*	*%REC*	1	5/4/2020 14:09

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-09
Collection Date: 4/21/2020 08:30 AM

Work Order: 20041449
Lab ID: 20041449-09
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			Method: **RSK-175**				Analyst: **KYM**
Ethane	U		1.5	5.0	µg/L	1	4/24/2020 14:43
Ethene	U		2.7	5.0	µg/L	1	4/24/2020 14:43
Methane	**21**		**3.3**	**5.0**	**µg/L**	1	4/24/2020 14:43
METALS BY ICP-MS (DISSOLVED)			Method: **SW6020B**		Prep: FILTER / 5/5/20		Analyst: **STP**
Iron	**0.24**		**0.050**	**0.080**	**mg/L**	1	5/5/2020 15:08
Manganese	**0.045**		**0.0025**	**0.0050**	**mg/L**	1	5/5/2020 15:08
1,4-DIOXANE BY SELECT ION MONITORING			Method: **SW8260B**				Analyst: **SJB**
1,4-Dioxane	U		0.44	1.0	µg/L	1	4/24/2020 15:53
Surr: Toluene-d8	*98.9*			*74-124*	*%REC*	1	4/24/2020 15:53
VOLATILE ORGANIC COMPOUNDS			Method: **SW8260C**				Analyst: **JNS**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/2/2020 06:47
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/2/2020 06:47
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/2/2020 06:47
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/2/2020 06:47
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/2/2020 06:47
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/2/2020 06:47
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/2/2020 06:47
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/2/2020 06:47
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/2/2020 06:47
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/2/2020 06:47
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/2/2020 06:47
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/2/2020 06:47
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/2/2020 06:47
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/2/2020 06:47
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/2/2020 06:47
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/2/2020 06:47
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/2/2020 06:47
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/2/2020 06:47
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/2/2020 06:47
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/2/2020 06:47
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/2/2020 06:47
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/2/2020 06:47
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/2/2020 06:47
2-Butanone	U		0.52	5.0	µg/L	1	5/2/2020 06:47
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/2/2020 06:47
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/2/2020 06:47
2-Hexanone	U		0.59	5.0	µg/L	1	5/2/2020 06:47

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-09
Collection Date: 4/21/2020 08:30 AM

Work Order: 20041449
Lab ID: 20041449-09
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/2/2020 06:47
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/2/2020 06:47
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/2/2020 06:47
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/2/2020 06:47
Acetone	U		6.2	10	µg/L	1	5/2/2020 06:47
Acrolein	U		0.38	1.0	µg/L	1	5/2/2020 06:47
Acrylonitrile	U		0.50	1.0	µg/L	1	5/2/2020 06:47
Benzene	U		0.46	1.0	µg/L	1	5/2/2020 06:47
Benzyl chloride	U		0.34	1.0	µg/L	1	5/2/2020 06:47
Bromobenzene	U		0.38	1.0	µg/L	1	5/2/2020 06:47
Bromochloromethane	U		0.45	1.0	µg/L	1	5/2/2020 06:47
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/2/2020 06:47
Bromoform	U		0.56	1.0	µg/L	1	5/2/2020 06:47
Bromomethane	U		0.90	1.0	µg/L	1	5/2/2020 06:47
Carbon disulfide	U		0.49	1.0	µg/L	1	5/2/2020 06:47
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/2/2020 06:47
Chlorobenzene	U		0.40	1.0	µg/L	1	5/2/2020 06:47
Chloroethane	U		0.68	1.0	µg/L	1	5/2/2020 06:47
Chloroform	U		0.46	1.0	µg/L	1	5/2/2020 06:47
Chloromethane	U		0.83	1.0	µg/L	1	5/2/2020 06:47
cis-1,2-Dichloroethene	**13**		**0.42**	**1.0**	**µg/L**	1	5/2/2020 06:47
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/2/2020 06:47
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/2/2020 06:47
Dibromomethane	U		0.65	1.0	µg/L	1	5/2/2020 06:47
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/2/2020 06:47
Ethylbenzene	U		0.34	1.0	µg/L	1	5/2/2020 06:47
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/2/2020 06:47
Hexachloroethane	U		0.45	1.0	µg/L	1	5/2/2020 06:47
Hexane	U		0.40	1.0	µg/L	1	5/2/2020 06:47
Iodomethane	U		2.0	5.0	µg/L	1	5/2/2020 06:47
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/2/2020 06:47
m,p-Xylene	U		0.81	2.0	µg/L	1	5/2/2020 06:47
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/2/2020 06:47
Methylene chloride	U		0.86	5.0	µg/L	1	5/2/2020 06:47
Naphthalene	U		0.77	5.0	µg/L	1	5/2/2020 06:47
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/2/2020 06:47
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/2/2020 06:47
o-Xylene	U		0.31	1.0	µg/L	1	5/2/2020 06:47
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/2/2020 06:47
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/2/2020 06:47

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-09
Collection Date: 4/21/2020 08:30 AM

Work Order: 20041449
Lab ID: 20041449-09
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Styrene	U		0.33	1.0	µg/L	1	5/2/2020 06:47
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/2/2020 06:47
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/2/2020 06:47
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/2/2020 06:47
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/2/2020 06:47
Toluene	U		0.45	1.0	µg/L	1	5/2/2020 06:47
trans-1,2-Dichloroethene	**0.60**	J	**0.48**	**1.0**	**µg/L**	1	5/2/2020 06:47
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/2/2020 06:47
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/2/2020 06:47
Trichloroethene	U		0.43	1.0	µg/L	1	5/2/2020 06:47
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/2/2020 06:47
Vinyl acetate	U		0.83	5.0	µg/L	1	5/2/2020 06:47
Vinyl chloride	**1.4**		**0.53**	**1.0**	**µg/L**	1	5/2/2020 06:47
Surr: 1,2-Dichloroethane-d4	*101*			*75-120*	*%REC*	1	5/2/2020 06:47
Surr: 4-Bromofluorobenzene	*98.7*			*80-110*	*%REC*	1	5/2/2020 06:47
Surr: Dibromofluoromethane	*100*			*85-115*	*%REC*	1	5/2/2020 06:47
Surr: Toluene-d8	*97.6*			*85-110*	*%REC*	1	5/2/2020 06:47
ANIONS BY ION CHROMATOGRAPHY			Method: **SW9056A**				Analyst: **JDR**
Chloride	**20**		**0.62**	**2.0**	**mg/L**	2	4/29/2020 21:34
Sulfate	**34**		**0.11**	**2.0**	**mg/L**	2	4/29/2020 21:34
NITROGEN, NITRATE-NITRITE			Method: **E353.2 R2.0**				Analyst: **CAC**
Nitrogen, Nitrate-Nitrite	U		0.012	0.020	mg/L	1	4/24/2020 13:18
SULFIDE			Method: **SW9034**				Analyst: **RZM**
Sulfide	U		0.42	1.0	mg/L	1	4/24/2020 12:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-10
Collection Date: 4/21/2020 09:35 AM

Work Order: 20041449
Lab ID: 20041449-10
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **SJB**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 11:56
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 11:56
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 11:56
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 11:56
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 11:56
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 11:56
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 11:56
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 11:56
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 11:56
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 11:56
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 11:56
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 11:56
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 11:56
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 11:56
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 11:56
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 11:56
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 11:56
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 11:56
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 11:56
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 11:56
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 11:56
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 11:56
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 11:56
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 11:56
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 11:56
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 11:56
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 11:56
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 11:56
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 11:56
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 11:56
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 11:56
Acetone	U		6.2	10	µg/L	1	5/1/2020 11:56
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 11:56
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 11:56
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 11:56
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 11:56
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 11:56
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 11:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-10
Collection Date: 4/21/2020 09:35 AM

Work Order: 20041449
Lab ID: 20041449-10
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 11:56
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 11:56
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 11:56
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 11:56
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 11:56
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 11:56
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 11:56
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 11:56
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 11:56
cis-1,2-Dichloroethene	**36**		**0.42**	**1.0**	**µg/L**	1	5/1/2020 11:56
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 11:56
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 11:56
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 11:56
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 11:56
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 11:56
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 11:56
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 11:56
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 11:56
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 11:56
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 11:56
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 11:56
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 11:56
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 11:56
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 11:56
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 11:56
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 11:56
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 11:56
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 11:56
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 11:56
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 11:56
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 11:56
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 11:56
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 11:56
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 11:56
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 11:56
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/1/2020 11:56
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 11:56
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 11:56
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 11:56
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 11:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-10
Collection Date: 4/21/2020 09:35 AM

Work Order: 20041449
Lab ID: 20041449-10
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 11:56
Vinyl chloride	**53**		**0.53**	**1.0**	**µg/L**	1	5/1/2020 11:56
Surr: 1,2-Dichloroethane-d4	*104*			*75-120*	*%REC*	1	5/1/2020 11:56
Surr: 4-Bromofluorobenzene	*98.8*			*80-110*	*%REC*	1	5/1/2020 11:56
Surr: Dibromofluoromethane	*101*			*85-115*	*%REC*	1	5/1/2020 11:56
Surr: Toluene-d8	*98.0*			*85-110*	*%REC*	1	5/1/2020 11:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-11
Collection Date: 4/21/2020 10:15 AM

Work Order: 20041449
Lab ID: 20041449-11
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **SJB**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 12:20
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 12:20
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 12:20
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 12:20
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 12:20
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 12:20
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 12:20
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 12:20
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 12:20
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 12:20
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 12:20
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 12:20
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 12:20
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 12:20
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 12:20
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 12:20
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 12:20
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 12:20
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 12:20
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 12:20
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 12:20
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 12:20
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 12:20
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 12:20
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 12:20
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 12:20
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 12:20
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 12:20
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 12:20
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 12:20
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 12:20
Acetone	U		6.2	10	µg/L	1	5/1/2020 12:20
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 12:20
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 12:20
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 12:20
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 12:20
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 12:20
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 12:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-11
Collection Date: 4/21/2020 10:15 AM

Work Order: 20041449
Lab ID: 20041449-11
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 12:20
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 12:20
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 12:20
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 12:20
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 12:20
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 12:20
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 12:20
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 12:20
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 12:20
cis-1,2-Dichloroethene	**4.3**		**0.42**	**1.0**	**µg/L**	1	5/1/2020 12:20
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 12:20
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 12:20
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 12:20
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 12:20
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 12:20
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 12:20
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 12:20
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 12:20
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 12:20
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 12:20
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 12:20
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 12:20
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 12:20
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 12:20
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 12:20
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 12:20
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 12:20
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 12:20
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 12:20
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 12:20
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 12:20
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 12:20
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 12:20
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 12:20
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 12:20
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/1/2020 12:20
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 12:20
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 12:20
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 12:20
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 12:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-11
Collection Date: 4/21/2020 10:15 AM

Work Order: 20041449
Lab ID: 20041449-11
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 12:20
Vinyl chloride	**33**		**0.53**	**1.0**	**µg/L**	1	5/1/2020 12:20
Surr: 1,2-Dichloroethane-d4	*100*			*75-120*	*%REC*	1	5/1/2020 12:20
Surr: 4-Bromofluorobenzene	*99.4*			*80-110*	*%REC*	1	5/1/2020 12:20
Surr: Dibromofluoromethane	*98.2*			*85-115*	*%REC*	1	5/1/2020 12:20
Surr: Toluene-d8	*101*			*85-110*	*%REC*	1	5/1/2020 12:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-12
Collection Date: 4/21/2020 10:55 AM

Work Order: 20041449
Lab ID: 20041449-12
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **JNS**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 13:47
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 13:47
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 13:47
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 13:47
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 13:47
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 13:47
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 13:47
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 13:47
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 13:47
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 13:47
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 13:47
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 13:47
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 13:47
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 13:47
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 13:47
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 13:47
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 13:47
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 13:47
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 13:47
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 13:47
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 13:47
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 13:47
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 13:47
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 13:47
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 13:47
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 13:47
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 13:47
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 13:47
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 13:47
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 13:47
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 13:47
Acetone	U		6.2	10	µg/L	1	5/1/2020 13:47
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 13:47
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 13:47
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 13:47
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 13:47
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 13:47
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 13:47

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-12
Collection Date: 4/21/2020 10:55 AM

Work Order: 20041449
Lab ID: 20041449-12
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 13:47
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 13:47
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 13:47
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 13:47
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 13:47
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 13:47
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 13:47
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 13:47
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 13:47
cis-1,2-Dichloroethene	**120**		**2.1**	**5.0**	**µg/L**	5	5/1/2020 16:51
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 13:47
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 13:47
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 13:47
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 13:47
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 13:47
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 13:47
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 13:47
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 13:47
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 13:47
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 13:47
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 13:47
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 13:47
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 13:47
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 13:47
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 13:47
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 13:47
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 13:47
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 13:47
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 13:47
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 13:47
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 13:47
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 13:47
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 13:47
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 13:47
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 13:47
trans-1,2-Dichloroethene	**3.1**		**0.48**	**1.0**	**µg/L**	1	5/1/2020 13:47
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 13:47
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 13:47
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 13:47
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 13:47

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-12
Collection Date: 4/21/2020 10:55 AM

Work Order: 20041449
Lab ID: 20041449-12
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 13:47
Vinyl chloride	**49**		**0.53**	**1.0**	**µg/L**	1	5/1/2020 13:47
Surr: 1,2-Dichloroethane-d4	*100*			*75-120*	*%REC*	1	5/1/2020 13:47
Surr: 1,2-Dichloroethane-d4	*117*			*75-120*	*%REC*	5	5/1/2020 16:51
Surr: 4-Bromofluorobenzene	*98.4*			*80-110*	*%REC*	1	5/1/2020 13:47
Surr: 4-Bromofluorobenzene	*96.0*			*80-110*	*%REC*	5	5/1/2020 16:51
Surr: Dibromofluoromethane	*100*			*85-115*	*%REC*	1	5/1/2020 13:47
Surr: Dibromofluoromethane	*104*			*85-115*	*%REC*	5	5/1/2020 16:51
Surr: Toluene-d8	*98.5*			*85-110*	*%REC*	1	5/1/2020 13:47
Surr: Toluene-d8	*103*			*85-110*	*%REC*	5	5/1/2020 16:51

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-13
Collection Date: 4/21/2020 11:30 AM

Work Order: 20041449
Lab ID: 20041449-13
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **JNS**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 14:09
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 14:09
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 14:09
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 14:09
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 14:09
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 14:09
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 14:09
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 14:09
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 14:09
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 14:09
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 14:09
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 14:09
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 14:09
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 14:09
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 14:09
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 14:09
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 14:09
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 14:09
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 14:09
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 14:09
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 14:09
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 14:09
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 14:09
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 14:09
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 14:09
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 14:09
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 14:09
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 14:09
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 14:09
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 14:09
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 14:09
Acetone	U		6.2	10	µg/L	1	5/1/2020 14:09
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 14:09
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 14:09
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 14:09
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 14:09
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 14:09
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 14:09

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-13
Collection Date: 4/21/2020 11:30 AM

Work Order: 20041449
Lab ID: 20041449-13
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 14:09
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 14:09
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 14:09
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 14:09
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 14:09
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 14:09
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 14:09
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 14:09
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 14:09
cis-1,2-Dichloroethene	**2.3**		**0.42**	**1.0**	**µg/L**	1	5/1/2020 14:09
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 14:09
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 14:09
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 14:09
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 14:09
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 14:09
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 14:09
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 14:09
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 14:09
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 14:09
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 14:09
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 14:09
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 14:09
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 14:09
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 14:09
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 14:09
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 14:09
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 14:09
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 14:09
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 14:09
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 14:09
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 14:09
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 14:09
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 14:09
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 14:09
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 14:09
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/1/2020 14:09
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 14:09
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 14:09
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 14:09
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 14:09

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-13
Collection Date: 4/21/2020 11:30 AM

Work Order: 20041449
Lab ID: 20041449-13
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 14:09
Vinyl chloride	**1.1**		**0.53**	**1.0**	**µg/L**	1	5/1/2020 14:09
Surr: 1,2-Dichloroethane-d4	*102*			*75-120*	*%REC*	1	5/1/2020 14:09
Surr: 4-Bromofluorobenzene	*100*			*80-110*	*%REC*	1	5/1/2020 14:09
Surr: Dibromofluoromethane	*99.7*			*85-115*	*%REC*	1	5/1/2020 14:09
Surr: Toluene-d8	*98.4*			*85-110*	*%REC*	1	5/1/2020 14:09

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-14
Collection Date: 4/21/2020 11:30 AM

Work Order: 20041449
Lab ID: 20041449-14
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **JNS**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 14:31
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 14:31
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 14:31
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 14:31
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 14:31
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 14:31
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 14:31
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 14:31
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 14:31
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 14:31
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 14:31
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 14:31
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 14:31
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 14:31
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 14:31
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 14:31
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 14:31
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 14:31
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 14:31
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 14:31
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 14:31
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 14:31
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 14:31
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 14:31
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 14:31
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 14:31
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 14:31
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 14:31
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 14:31
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 14:31
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 14:31
Acetone	U		6.2	10	µg/L	1	5/1/2020 14:31
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 14:31
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 14:31
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 14:31
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 14:31
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 14:31
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 14:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-14
Collection Date: 4/21/2020 11:30 AM

Work Order: 20041449
Lab ID: 20041449-14
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 14:31
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 14:31
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 14:31
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 14:31
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 14:31
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 14:31
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 14:31
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 14:31
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 14:31
cis-1,2-Dichloroethene	**2.3**		**0.42**	**1.0**	**µg/L**	1	5/1/2020 14:31
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 14:31
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 14:31
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 14:31
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 14:31
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 14:31
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 14:31
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 14:31
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 14:31
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 14:31
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 14:31
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 14:31
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 14:31
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 14:31
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 14:31
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 14:31
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 14:31
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 14:31
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 14:31
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 14:31
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 14:31
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 14:31
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 14:31
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 14:31
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 14:31
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 14:31
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/1/2020 14:31
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 14:31
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 14:31
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 14:31
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 14:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-14
Collection Date: 4/21/2020 11:30 AM

Work Order: 20041449
Lab ID: 20041449-14
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 14:31
Vinyl chloride	**1.0**		**0.53**	**1.0**	**µg/L**	1	5/1/2020 14:31
Surr: 1,2-Dichloroethane-d4	*99.5*			*75-120*	*%REC*	1	5/1/2020 14:31
Surr: 4-Bromofluorobenzene	*99.3*			*80-110*	*%REC*	1	5/1/2020 14:31
Surr: Dibromofluoromethane	*97.8*			*85-115*	*%REC*	1	5/1/2020 14:31
Surr: Toluene-d8	*99.8*			*85-110*	*%REC*	1	5/1/2020 14:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-15
Collection Date: 4/21/2020 12:15 PM

Work Order: 20041449
Lab ID: 20041449-15
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **JNS**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 14:57
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 14:57
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 14:57
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 14:57
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 14:57
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 14:57
1,1-Dichloroethene	**1.3**		**0.40**	**1.0**	**µg/L**	1	5/1/2020 14:57
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 14:57
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 14:57
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 14:57
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 14:57
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 14:57
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 14:57
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 14:57
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 14:57
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 14:57
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 14:57
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 14:57
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 14:57
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 14:57
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 14:57
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 14:57
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 14:57
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 14:57
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 14:57
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 14:57
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 14:57
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 14:57
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 14:57
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 14:57
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 14:57
Acetone	U		6.2	10	µg/L	1	5/1/2020 14:57
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 14:57
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 14:57
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 14:57
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 14:57
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 14:57
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 14:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-15
Collection Date: 4/21/2020 12:15 PM

Work Order: 20041449
Lab ID: 20041449-15
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 14:57
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 14:57
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 14:57
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 14:57
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 14:57
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 14:57
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 14:57
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 14:57
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 14:57
cis-1,2-Dichloroethene	**260**		**2.1**	**5.0**	**µg/L**	5	5/1/2020 17:40
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 14:57
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 14:57
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 14:57
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 14:57
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 14:57
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 14:57
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 14:57
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 14:57
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 14:57
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 14:57
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 14:57
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 14:57
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 14:57
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 14:57
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 14:57
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 14:57
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 14:57
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 14:57
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 14:57
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 14:57
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 14:57
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 14:57
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 14:57
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 14:57
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 14:57
trans-1,2-Dichloroethene	**11**		**0.48**	**1.0**	**µg/L**	1	5/1/2020 14:57
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 14:57
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 14:57
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 14:57
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 14:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: COL-GW-15
Collection Date: 4/21/2020 12:15 PM

Work Order: 20041449
Lab ID: 20041449-15
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 14:57
Vinyl chloride	**95**		**0.53**	**1.0**	**µg/L**	1	5/1/2020 14:57
Surr: 1,2-Dichloroethane-d4	*98.6*			*75-120*	*%REC*	1	5/1/2020 14:57
Surr: 1,2-Dichloroethane-d4	*119*			*75-120*	*%REC*	5	5/1/2020 17:40
Surr: 4-Bromofluorobenzene	*96.0*			*80-110*	*%REC*	1	5/1/2020 14:57
Surr: 4-Bromofluorobenzene	*99.6*			*80-110*	*%REC*	5	5/1/2020 17:40
Surr: Dibromofluoromethane	*101*			*85-115*	*%REC*	1	5/1/2020 14:57
Surr: Dibromofluoromethane	*106*			*85-115*	*%REC*	5	5/1/2020 17:40
Surr: Toluene-d8	*99.2*			*85-110*	*%REC*	1	5/1/2020 14:57
Surr: Toluene-d8	*104*			*85-110*	*%REC*	5	5/1/2020 17:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: EB
Collection Date: 4/21/2020 01:00 PM

Work Order: 20041449
Lab ID: 20041449-16
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER		Method: **RSK-175**					Analyst: **KYM**
Ethane	U		1.5	5.0	µg/L	1	4/24/2020 14:48
Ethene	U		2.7	5.0	µg/L	1	4/24/2020 14:48
Methane	U		3.3	5.0	µg/L	1	4/24/2020 14:48
METALS BY ICP-MS (DISSOLVED)		Method: **SW6020B**			Prep: FILTER / 5/5/20		Analyst: **STP**
Iron	U		0.050	0.080	mg/L	1	5/5/2020 15:09
Manganese	U		0.0025	0.0050	mg/L	1	5/5/2020 15:09
1,4-DIOXANE BY SELECT ION MONITORING		Method: **SW8260B**					Analyst: **SJB**
1,4-Dioxane	U		0.44	1.0	µg/L	1	4/24/2020 16:09
Surr: Toluene-d8	*103*			*74-124*	*%REC*	1	4/24/2020 16:09
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **JNS**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 13:24
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 13:24
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 13:24
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 13:24
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 13:24
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 13:24
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 13:24
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 13:24
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 13:24
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 13:24
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 13:24
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 13:24
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 13:24
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 13:24
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 13:24
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 13:24
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 13:24
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 13:24
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 13:24
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 13:24
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 13:24
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 13:24
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 13:24
2-Butanone	**1.9**	J	**0.52**	**5.0**	**µg/L**	1	5/1/2020 13:24
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 13:24
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 13:24
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 13:24

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: EB
Collection Date: 4/21/2020 01:00 PM

Work Order: 20041449
Lab ID: 20041449-16
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 13:24
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 13:24
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 13:24
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 13:24
Acetone	U		6.2	10	µg/L	1	5/1/2020 13:24
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 13:24
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 13:24
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 13:24
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 13:24
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 13:24
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 13:24
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 13:24
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 13:24
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 13:24
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 13:24
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 13:24
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 13:24
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 13:24
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 13:24
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 13:24
cis-1,2-Dichloroethene	U		0.42	1.0	µg/L	1	5/1/2020 13:24
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 13:24
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 13:24
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 13:24
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 13:24
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 13:24
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 13:24
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 13:24
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 13:24
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 13:24
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 13:24
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 13:24
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 13:24
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 13:24
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 13:24
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 13:24
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 13:24
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 13:24
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 13:24
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 13:24

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: EB
Collection Date: 4/21/2020 01:00 PM

Work Order: 20041449
Lab ID: 20041449-16
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 13:24
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 13:24
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 13:24
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 13:24
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 13:24
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 13:24
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/1/2020 13:24
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 13:24
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 13:24
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 13:24
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 13:24
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 13:24
Vinyl chloride	U		0.53	1.0	µg/L	1	5/1/2020 13:24
Surr: 1,2-Dichloroethane-d4	*100*			*75-120*	*%REC*	1	5/1/2020 13:24
Surr: 4-Bromofluorobenzene	*101*			*80-110*	*%REC*	1	5/1/2020 13:24
Surr: Dibromofluoromethane	*97.5*			*85-115*	*%REC*	1	5/1/2020 13:24
Surr: Toluene-d8	*98.1*			*85-110*	*%REC*	1	5/1/2020 13:24
ANIONS BY ION CHROMATOGRAPHY			Method: **SW9056A**				Analyst: **JDR**
Chloride	**0.32**	J	**0.31**	**1.0**	**mg/L**	1	4/29/2020 22:12
Sulfate	U		0.057	1.0	mg/L	1	4/29/2020 22:12
NITROGEN, NITRATE-NITRITE			Method: **E353.2 R2.0**				Analyst: **CAC**
Nitrogen, Nitrate-Nitrite	U		0.012	0.020	mg/L	1	4/24/2020 13:19
SULFIDE			Method: **SW9034**				Analyst: **RZM**
Sulfide	U		0.42	1.0	mg/L	1	4/24/2020 12:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: Trip Blank 1
Collection Date: 4/20/2020

Work Order: 20041449
Lab ID: 20041449-17
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **JNS**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 13:02
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 13:02
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 13:02
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 13:02
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 13:02
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 13:02
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 13:02
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 13:02
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 13:02
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 13:02
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 13:02
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 13:02
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 13:02
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 13:02
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 13:02
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 13:02
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 13:02
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 13:02
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 13:02
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 13:02
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 13:02
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 13:02
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 13:02
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 13:02
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 13:02
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 13:02
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 13:02
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 13:02
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 13:02
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 13:02
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 13:02
Acetone	U		6.2	10	µg/L	1	5/1/2020 13:02
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 13:02
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 13:02
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 13:02
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 13:02
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 13:02
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 13:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: Trip Blank 1
Collection Date: 4/20/2020

Work Order: 20041449
Lab ID: 20041449-17
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 13:02
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 13:02
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 13:02
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 13:02
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 13:02
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 13:02
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 13:02
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 13:02
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 13:02
cis-1,2-Dichloroethene	U		0.42	1.0	µg/L	1	5/1/2020 13:02
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 13:02
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 13:02
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 13:02
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 13:02
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 13:02
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 13:02
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 13:02
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 13:02
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 13:02
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 13:02
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 13:02
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 13:02
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 13:02
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 13:02
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 13:02
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 13:02
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 13:02
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 13:02
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 13:02
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 13:02
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 13:02
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 13:02
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 13:02
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 13:02
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 13:02
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/1/2020 13:02
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 13:02
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 13:02
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 13:02
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 13:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: Trip Blank 1
Collection Date: 4/20/2020

Work Order: 20041449
Lab ID: 20041449-17
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 13:02
Vinyl chloride	U		0.53	1.0	µg/L	1	5/1/2020 13:02
Surr: 1,2-Dichloroethane-d4	*99.6*			*75-120*	*%REC*	1	5/1/2020 13:02
Surr: 4-Bromofluorobenzene	*99.4*			*80-110*	*%REC*	1	5/1/2020 13:02
Surr: Dibromofluoromethane	*98.5*			*85-115*	*%REC*	1	5/1/2020 13:02
Surr: Toluene-d8	*98.2*			*85-110*	*%REC*	1	5/1/2020 13:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: Trip Blank 2
Collection Date: 4/21/2020

Work Order: 20041449
Lab ID: 20041449-18
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **SJB**
1,1,1,2-Tetrachloroethane	U		0.38	1.0	µg/L	1	5/1/2020 05:06
1,1,1-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 05:06
1,1,2,2-Tetrachloroethane	U		0.40	1.0	µg/L	1	5/1/2020 05:06
1,1,2-Trichloroethane	U		0.46	1.0	µg/L	1	5/1/2020 05:06
1,1,2-Trichlorotrifluoroethane	U		0.52	1.0	µg/L	1	5/1/2020 05:06
1,1-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 05:06
1,1-Dichloroethene	U		0.40	1.0	µg/L	1	5/1/2020 05:06
1,1-Dichloropropene	U		0.37	1.0	µg/L	1	5/1/2020 05:06
1,2,3-Trichlorobenzene	U		0.42	1.0	µg/L	1	5/1/2020 05:06
1,2,3-Trichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 05:06
1,2,4-Trichlorobenzene	U		0.45	1.0	µg/L	1	5/1/2020 05:06
1,2,4-Trimethylbenzene	U		0.45	1.0	µg/L	1	5/1/2020 05:06
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/1/2020 05:06
1,2-Dibromoethane	U		0.41	1.0	µg/L	1	5/1/2020 05:06
1,2-Dichlorobenzene	U		0.32	1.0	µg/L	1	5/1/2020 05:06
1,2-Dichloroethane	U		0.44	1.0	µg/L	1	5/1/2020 05:06
1,2-Dichloropropane	U		0.48	1.0	µg/L	1	5/1/2020 05:06
1,3,5-Trichlorobenzene	U		0.31	1.0	µg/L	1	5/1/2020 05:06
1,3,5-Trimethylbenzene	U		0.65	1.0	µg/L	1	5/1/2020 05:06
1,3-Dichlorobenzene	U		0.33	1.0	µg/L	1	5/1/2020 05:06
1,3-Dichloropropane	U		0.40	1.0	µg/L	1	5/1/2020 05:06
1,4-Dichlorobenzene	U		0.35	1.0	µg/L	1	5/1/2020 05:06
2,2-Dichloropropane	U		0.52	1.0	µg/L	1	5/1/2020 05:06
2-Butanone	U		0.52	5.0	µg/L	1	5/1/2020 05:06
2-Chloroethyl vinyl ether	U		0.82	1.0	µg/L	1	5/1/2020 05:06
2-Chlorotoluene	U		0.36	1.0	µg/L	1	5/1/2020 05:06
2-Hexanone	U		0.59	5.0	µg/L	1	5/1/2020 05:06
2-Methylnaphthalene	U		0.66	5.0	µg/L	1	5/1/2020 05:06
4-Chlorotoluene	U		0.31	1.0	µg/L	1	5/1/2020 05:06
4-Isopropyltoluene	U		0.10	1.0	µg/L	1	5/1/2020 05:06
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/1/2020 05:06
Acetone	U		6.2	10	µg/L	1	5/1/2020 05:06
Acrolein	U		0.38	1.0	µg/L	1	5/1/2020 05:06
Acrylonitrile	U		0.50	1.0	µg/L	1	5/1/2020 05:06
Benzene	U		0.46	1.0	µg/L	1	5/1/2020 05:06
Benzyl chloride	U		0.34	1.0	µg/L	1	5/1/2020 05:06
Bromobenzene	U		0.38	1.0	µg/L	1	5/1/2020 05:06
Bromochloromethane	U		0.45	1.0	µg/L	1	5/1/2020 05:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: Trip Blank 2
Collection Date: 4/21/2020

Work Order: 20041449
Lab ID: 20041449-18
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.49	1.0	µg/L	1	5/1/2020 05:06
Bromoform	U		0.56	1.0	µg/L	1	5/1/2020 05:06
Bromomethane	U		0.90	1.0	µg/L	1	5/1/2020 05:06
Carbon disulfide	U		0.49	1.0	µg/L	1	5/1/2020 05:06
Carbon tetrachloride	U		0.40	1.0	µg/L	1	5/1/2020 05:06
Chlorobenzene	U		0.40	1.0	µg/L	1	5/1/2020 05:06
Chloroethane	U		0.68	1.0	µg/L	1	5/1/2020 05:06
Chloroform	U		0.46	1.0	µg/L	1	5/1/2020 05:06
Chloromethane	U		0.83	1.0	µg/L	1	5/1/2020 05:06
cis-1,2-Dichloroethene	U		0.42	1.0	µg/L	1	5/1/2020 05:06
cis-1,3-Dichloropropene	U		0.57	1.0	µg/L	1	5/1/2020 05:06
Dibromochloromethane	U		0.40	1.0	µg/L	1	5/1/2020 05:06
Dibromomethane	U		0.65	1.0	µg/L	1	5/1/2020 05:06
Dichlorodifluoromethane	U		0.68	1.0	µg/L	1	5/1/2020 05:06
Ethylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 05:06
Hexachlorobutadiene	U		0.56	1.0	µg/L	1	5/1/2020 05:06
Hexachloroethane	U		0.45	1.0	µg/L	1	5/1/2020 05:06
Hexane	U		0.40	1.0	µg/L	1	5/1/2020 05:06
Iodomethane	U		2.0	5.0	µg/L	1	5/1/2020 05:06
Isopropylbenzene	U		0.35	1.0	µg/L	1	5/1/2020 05:06
m,p-Xylene	U		0.81	2.0	µg/L	1	5/1/2020 05:06
Methyl tert-butyl ether	U		0.45	1.0	µg/L	1	5/1/2020 05:06
Methylene chloride	U		0.86	5.0	µg/L	1	5/1/2020 05:06
Naphthalene	U		0.77	5.0	µg/L	1	5/1/2020 05:06
n-Butylbenzene	U		0.34	1.0	µg/L	1	5/1/2020 05:06
n-Propylbenzene	U		0.48	1.0	µg/L	1	5/1/2020 05:06
o-Xylene	U		0.31	1.0	µg/L	1	5/1/2020 05:06
p-Isopropyltoluene	U		0.26	1.0	µg/L	1	5/1/2020 05:06
sec-Butylbenzene	U		0.30	1.0	µg/L	1	5/1/2020 05:06
Styrene	U		0.33	1.0	µg/L	1	5/1/2020 05:06
tert-Butyl alcohol	U		2.4	20	µg/L	1	5/1/2020 05:06
tert-Butylbenzene	U		0.39	1.0	µg/L	1	5/1/2020 05:06
Tetrachloroethene	U		0.39	1.0	µg/L	1	5/1/2020 05:06
Tetrahydrofuran	U		0.73	1.0	µg/L	1	5/1/2020 05:06
Toluene	U		0.45	1.0	µg/L	1	5/1/2020 05:06
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/1/2020 05:06
trans-1,3-Dichloropropene	U		0.38	1.0	µg/L	1	5/1/2020 05:06
trans-1,4-Dichloro-2-butene	U		0.58	2.0	µg/L	1	5/1/2020 05:06
Trichloroethene	U		0.43	1.0	µg/L	1	5/1/2020 05:06
Trichlorofluoromethane	U		0.52	1.0	µg/L	1	5/1/2020 05:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-May-20*

Client: BB&E, Inc.
Project: SSW Collis 2020 LTM Task 1
Sample ID: Trip Blank 2
Collection Date: 4/21/2020

Work Order: 20041449
Lab ID: 20041449-18
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Vinyl acetate	U		0.83	5.0	µg/L	1	5/1/2020 05:06
Vinyl chloride	U		0.53	1.0	µg/L	1	5/1/2020 05:06
Surr: 1,2-Dichloroethane-d4	*101*			*75-120*	*%REC*	1	5/1/2020 05:06
Surr: 4-Bromofluorobenzene	*96.8*			*80-110*	*%REC*	1	5/1/2020 05:06
Surr: Dibromofluoromethane	*97.4*			*85-115*	*%REC*	1	5/1/2020 05:06
Surr: Toluene-d8	*98.2*			*85-110*	*%REC*	1	5/1/2020 05:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-May-20

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287342** Instrument ID **GC5** Method: **RSK-175**

MBLK Sample ID: **MBLKW1-R287342** Units: **µg/L** Analysis Date: **4/24/2020 02:14 PM**

Client ID: Run ID: **GC5_200424A** SeqNo: **6375991** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	U	5.0	0	0	0		0			
Ethene	U	5.0	0	0	0		0			
Methane	U	5.0	0	0	0		0			

LCS Sample ID: **LCSW1-R287342** Units: **µg/L** Analysis Date: **4/24/2020 02:21 PM**

Client ID: Run ID: **GC5_200424A** SeqNo: **6375955** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	37.5	5.0	36.1	0	104	75-125	0			
Ethene	34.7	5.0	33.7	0	103	75-125	0			
Methane	20.9	5.0	19.2	0	109	75-125	0			

MS Sample ID: **20041449-04E MS** Units: **µg/L** Analysis Date: **4/24/2020 03:46 PM**

Client ID: **COL-GW-04** Run ID: **GC5_200424A** SeqNo: **6375981** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	45.66	5.0	36.1	11.17	95.5	75-125	0			
Ethene	40.57	5.0	33.7	7.372	98.5	75-125	0			

MS Sample ID: **20041449-04E MS** Units: **µg/L** Analysis Date: **4/24/2020 04:01 PM**

Client ID: **COL-GW-04** Run ID: **GC5_200424A** SeqNo: **6375986** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Methane	337.9	10	19.2	337.7	0.49	75-125	0			SO

MSD Sample ID: **20041449-04E MSD** Units: **µg/L** Analysis Date: **4/24/2020 03:48 PM**

Client ID: **COL-GW-04** Run ID: **GC5_200424A** SeqNo: **6375982** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	45.62	5.0	36.1	11.17	95.4	75-125	45.66	0.0789	20	
Ethene	40.52	5.0	33.7	7.372	98.4	75-125	40.57	0.118	20	

MSD Sample ID: **20041449-04E MSD** Units: **µg/L** Analysis Date: **4/24/2020 04:04 PM**

Client ID: **COL-GW-04** Run ID: **GC5_200424A** SeqNo: **6375987** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Methane	349.2	10	19.2	337.7	30	75-125	337.9	3.3	20	SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287342** Instrument ID **GC5** Method: **RSK-175**

The following samples were analyzed in this batch:

20041449-04E	20041449-05E	20041449-06E
20041449-09E	20041449-16E	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **155436** Instrument ID **ICPMS3** Method: **SW6020B** **(Dissolve)**

MBLK Sample ID: **MBLK-155436-155436** Units: **mg/L** Analysis Date: **5/5/2020 02:53 PM**
Client ID: Run ID: **ICPMS3_200505A** SeqNo: **6391363** Prep Date: **5/5/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	U	0.080								
Manganese	U	0.0050								

LCS Sample ID: **LCS-155436-155436** Units: **mg/L** Analysis Date: **5/5/2020 02:55 PM**
Client ID: Run ID: **ICPMS3_200505A** SeqNo: **6391364** Prep Date: **5/5/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	9.434	0.080	10	0	94.3	80-120	0			
Manganese	0.09206	0.0050	0.1	0	92.1	80-120	0			

MS Sample ID: **20041449-04BMS** Units: **mg/L** Analysis Date: **5/5/2020 03:47 PM**
Client ID: **COL-GW-04** Run ID: **ICPMS3_200505A** SeqNo: **6391532** Prep Date: **5/5/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	10.67	0.080	10	0.04385	106	75-125	0			
Manganese	0.4039	0.0050	0.1	0.304	99.9	75-125	0			

MSD Sample ID: **20041449-04BMSD** Units: **mg/L** Analysis Date: **5/5/2020 03:48 PM**
Client ID: **COL-GW-04** Run ID: **ICPMS3_200505A** SeqNo: **6391533** Prep Date: **5/5/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	10.59	0.080	10	0.04385	105	75-125	10.67	0.763	20	
Manganese	0.4069	0.0050	0.1	0.304	103	75-125	0.4039	0.739	20	

The following samples were analyzed in this batch:

20041449-04B	20041449-05B	20041449-06B
20041449-09B	20041449-16B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287308A** Instrument ID **VMS9** Method: **SW8260B**

MBLK Sample ID: **VBLKW2-200424-R287308A** Units: **µg/L** Analysis Date: **4/24/2020 01:34 PM**
Client ID: Run ID: **VMS9_200424A** SeqNo: **6375133** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	U	1.0								
Surr: Toluene-d8	*11.17*	0	*10*	0	*112*	*74-124*	0			

LCS Sample ID: **VLCSW1-200424-R287308A** Units: **µg/L** Analysis Date: **4/24/2020 12:47 PM**
Client ID: Run ID: **VMS9_200424A** SeqNo: **6375132** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	43.55	1.0	40	0	109	70-130	0			
Surr: Toluene-d8	*9.88*	0	*10*	0	*98.8*	*74-124*	0			

MS Sample ID: **20041449-04A MS** Units: **µg/L** Analysis Date: **4/24/2020 04:24 PM**
Client ID: **COL-GW-04** Run ID: **VMS9_200424A** SeqNo: **6375140** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	38.58	1.0	40	0	96.4	70-130	0			
Surr: Toluene-d8	*8.55*	0	*10*	0	*85.5*	*74-124*	0			

MSD Sample ID: **20041449-04A MSD** Units: **µg/L** Analysis Date: **4/24/2020 04:40 PM**
Client ID: **COL-GW-04** Run ID: **VMS9_200424A** SeqNo: **6375141** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	47.01	1.0	40	0	118	70-130	38.58	19.7	30	
Surr: Toluene-d8	*9.96*	0	*10*	0	*99.6*	*74-124*	8.55	*15.2*	*30*	

The following samples were analyzed in this batch:

20041449-04A	20041449-05A	20041449-06A
20041449-08B	20041449-09A	20041449-16A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287666** Instrument ID **VMS11** Method: **SW8260C**

MBLK Sample ID: **VBLKW1-200501-R287666** Units: **µg/L** Analysis Date: **5/1/2020 12:18 PM**
Client ID: Run ID: **VMS11_200501A** SeqNo: **6387725** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	U	1.0								
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,1-Dichloropropene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,3-Trichloropropane	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2,4-Trimethylbenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3,5-Trichlorobenzene	U	1.0								
1,3,5-Trimethylbenzene	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2,2-Dichloropropane	U	1.0								
2-Butanone	U	5.0								
2-Chloroethyl vinyl ether	U	1.0								
2-Chlorotoluene	U	1.0								
2-Hexanone	U	5.0								
2-Methylnaphthalene	U	5.0								
4-Chlorotoluene	U	1.0								
4-Isopropyltoluene	U	1.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Acrolein	U	1.0								
Acrylonitrile	U	1.0								
Benzene	U	1.0								
Benzyl chloride	U	1.0								
Bromobenzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287666** Instrument ID **VMS11** Method: **SW8260C**

Carbon tetrachloride	U	1.0					
Chlorobenzene	U	1.0					
Chloroethane	U	1.0					
Chloroform	U	1.0					
Chloromethane	U	1.0					
cis-1,2-Dichloroethene	U	1.0					
cis-1,3-Dichloropropene	U	1.0					
Dibromochloromethane	U	1.0					
Dibromomethane	U	1.0					
Dichlorodifluoromethane	U	1.0					
Ethylbenzene	U	1.0					
Hexachlorobutadiene	U	1.0					
Hexachloroethane	U	1.0					
Hexane	U	1.0					
Iodomethane	U	5.0					
Isopropylbenzene	U	1.0					
m,p-Xylene	U	2.0					
Methyl tert-butyl ether	U	1.0					
Methylene chloride	U	5.0					
Naphthalene	U	5.0					
n-Butylbenzene	U	1.0					
n-Propylbenzene	U	1.0					
o-Xylene	U	1.0					
p-Isopropyltoluene	U	1.0					
sec-Butylbenzene	U	1.0					
Styrene	U	1.0					
tert-Butyl alcohol	U	20					
tert-Butylbenzene	U	1.0					
Tetrachloroethene	U	1.0					
Tetrahydrofuran	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
trans-1,4-Dichloro-2-butene	U	2.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl acetate	U	5.0					
Vinyl chloride	U	1.0					
Surr: 1,2-Dichloroethane-d4	*19.88*	0	*20*	0	*99.4*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.64*	0	*20*	0	*98.2*	*80-110*	0
Surr: Dibromofluoromethane	*19.43*	0	*20*	0	*97.2*	*85-115*	0
Surr: Toluene-d8	*19.79*	0	*20*	0	*99*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287666** Instrument ID **VMS11** Method: **SW8260C**

LCS Sample ID: **VLCSW1-200501-R287666** Units: **µg/L** Analysis Date: **5/1/2020 11:12 AM**
Client ID: Run ID: **VMS11_200501A** SeqNo: **6387723** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.65	1.0	20	0	98.2	73-114	0			
1,1,1-Trichloroethane	20.65	1.0	20	0	103	75-130	0			
1,1,2,2-Tetrachloroethane	20.22	1.0	20	0	101	75-130	0			
1,1,2-Trichloroethane	19.78	1.0	20	0	98.9	75-125	0			
1,1-Dichloroethane	19.04	1.0	20	0	95.2	68-142	0			
1,1-Dichloroethene	20.39	1.0	20	0	102	70-145	0			
1,1-Dichloropropene	18.74	1.0	20	0	93.7	75-135	0			
1,2,3-Trichlorobenzene	20.92	1.0	20	0	105	70-140	0			
1,2,3-Trichloropropane	19.17	1.0	20	0	95.8	75-125	0			
1,2,4-Trichlorobenzene	20.1	1.0	20	0	100	70-135	0			
1,2,4-Trimethylbenzene	19.05	1.0	20	0	95.2	75-130	0			
1,2-Dibromo-3-chloropropane	19.3	1.0	20	0	96.5	60-130	0			
1,2-Dibromoethane	20.68	1.0	20	0	103	67-155	0			
1,2-Dichlorobenzene	18.65	1.0	20	0	93.2	70-130	0			
1,2-Dichloroethane	19.35	1.0	20	0	96.8	78-125	0			
1,2-Dichloropropane	19.18	1.0	20	0	95.9	75-125	0			
1,3,5-Trimethylbenzene	19.68	1.0	20	0	98.4	75-130	0			
1,3-Dichlorobenzene	18.98	1.0	20	0	94.9	75-130	0			
1,3-Dichloropropane	19.42	1.0	20	0	97.1	75-125	0			
1,4-Dichlorobenzene	18.69	1.0	20	0	93.4	75-130	0			
2,2-Dichloropropane	19.21	1.0	20	0	96	43-150	0			
2-Butanone	21.13	5.0	20	0	106	55-150	0			
2-Chlorotoluene	18.17	1.0	20	0	90.8	76-117	0			
2-Hexanone	22.57	5.0	20	0	113	60-135	0			
4-Chlorotoluene	18.89	1.0	20	0	94.4	80-125	0			
4-Isopropyltoluene	19.77	1.0	20	0	98.8	61-164	0			
4-Methyl-2-pentanone	28.75	1.0	20	0	144	77-178	0			
Acetone	22.08	10	20	0	110	60-160	0			
Acrylonitrile	18.77	1.0	20	0	93.8	60-140	0			
Benzene	19.78	1.0	20	0	98.9	70-130	0			
Bromobenzene	18.39	1.0	20	0	92	80-125	0			
Bromochloromethane	18.1	1.0	20	0	90.5	72-141	0			
Bromodichloromethane	19.85	1.0	20	0	99.2	75-125	0			
Bromoform	16.36	1.0	20	0	81.8	60-125	0			
Bromomethane	19.2	1.0	20	0	96	30-185	0			
Carbon disulfide	22.19	1.0	20	0	111	60-165	0			
Carbon tetrachloride	20.02	1.0	20	0	100	65-140	0			
Chlorobenzene	18.5	1.0	20	0	92.5	80-120	0			
Chloroethane	19.49	1.0	20	0	97.4	31-172	0			
Chloroform	18.41	1.0	20	0	92	66-135	0			
Chloromethane	18.06	1.0	20	0	90.3	46-148	0			
cis-1,2-Dichloroethene	19.53	1.0	20	0	97.6	75-134	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287666** Instrument ID **VMS11** Method: **SW8260C**

cis-1,3-Dichloropropene	19.61	1.0	20	0	98	70-130	0	
Dibromochloromethane	19.25	1.0	20	0	96.2	60-115	0	
Dibromomethane	19.96	1.0	20	0	99.8	79-126	0	
Dichlorodifluoromethane	18.85	1.0	20	0	94.2	20-120	0	
Ethylbenzene	19	1.0	20	0	95	76-123	0	
Hexachlorobutadiene	22.6	1.0	20	0	113	70-155	0	
Hexachloroethane	20.23	1.0	20	0	101	50-124	0	
Iodomethane	22.88	5.0	20	0	114	60-160	0	
Isopropylbenzene	18.94	1.0	20	0	94.7	80-127	0	
m,p-Xylene	36.94	2.0	40	0	92.4	75-130	0	
Methyl tert-butyl ether	25.82	1.0	20	0	129	68-129	0	S
Methylene chloride	18.1	5.0	20	0	90.5	72-125	0	
Naphthalene	20.21	5.0	20	0	101	55-160	0	
n-Butylbenzene	19.82	1.0	20	0	99.1	75-145	0	
n-Propylbenzene	18.72	1.0	20	0	93.6	76-116	0	
o-Xylene	18.9	1.0	20	0	94.5	76-127	0	
p-Isopropyltoluene	19.77	1.0	20	0	98.8	61-164	0	
sec-Butylbenzene	20.06	1.0	20	0	100	80-134	0	
Styrene	19.6	1.0	20	0	98	83-137	0	
tert-Butyl alcohol	109.3	20	100	0	109	70-130	0	
tert-Butylbenzene	19.14	1.0	20	0	95.7	70-130	0	
Tetrachloroethene	18.89	1.0	20	0	94.4	68-166	0	
Tetrahydrofuran	21.66	1.0	20	0	108	54-139	0	
Toluene	18.69	1.0	20	0	93.4	76-125	0	
trans-1,2-Dichloroethene	20.07	1.0	20	0	100	80-140	0	
trans-1,3-Dichloropropene	19.67	1.0	20	0	98.4	56-132	0	
trans-1,4-Dichloro-2-butene	16.24	2.0	20	0	81.2	46-118	0	
Trichloroethene	19.84	1.0	20	0	99.2	77-125	0	
Trichlorofluoromethane	15.31	1.0	20	0	76.6	60-140	0	
Vinyl chloride	19.06	1.0	20	0	95.3	50-136	0	
Surr: 1,2-Dichloroethane-d4	*20.19*	0	*20*	0	*101*	*75-120*	0	
Surr: 4-Bromofluorobenzene	*20.24*	0	*20*	0	*101*	*80-110*	0	
Surr: Dibromofluoromethane	*20.71*	0	*20*	0	*104*	*85-115*	0	
Surr: Toluene-d8	*19.96*	0	*20*	0	*99.8*	*85-110*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287666** Instrument ID **VMS11** Method: **SW8260C**

MS Sample ID: **20041872-02A MS** Units: **µg/L** Analysis Date: **5/1/2020 08:28 PM**
Client ID: Run ID: **VMS11_200501A** SeqNo: **6387746** Prep Date: **5/1/2020** DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	378	20	400	0	94.5	73-114	0			
1,1,1-Trichloroethane	403.4	20	400	0	101	75-130	0			
1,1,2,2-Tetrachloroethane	401.4	20	400	0	100	75-130	0			
1,1,2-Trichloroethane	393.4	20	400	0	98.4	75-125	0			
1,1-Dichloroethane	389.2	20	400	0	97.3	68-142	0			
1,1-Dichloroethene	442.2	20	400	0	111	70-145	0			
1,1-Dichloropropene	382	20	400	0	95.5	75-135	0			
1,2,3-Trichlorobenzene	369.8	20	400	0	92.4	70-140	0			
1,2,3-Trichloropropane	382	20	400	0	95.5	75-125	0			
1,2,4-Trichlorobenzene	362	20	400	0	90.5	70-135	0			
1,2,4-Trimethylbenzene	390	20	400	0	97.5	75-130	0			
1,2-Dibromo-3-chloropropane	353	20	400	0	88.2	60-130	0			
1,2-Dibromoethane	399.8	20	400	0	100	67-155	0			
1,2-Dichlorobenzene	379.8	20	400	0	95	70-130	0			
1,2-Dichloroethane	388	20	400	0	97	78-125	0			
1,2-Dichloropropane	379.2	20	400	0	94.8	75-125	0			
1,3,5-Trimethylbenzene	403	20	400	0	101	75-130	0			
1,3-Dichlorobenzene	390	20	400	0	97.5	75-130	0			
1,3-Dichloropropane	381.4	20	400	0	95.4	75-125	0			
1,4-Dichlorobenzene	372.8	20	400	0	93.2	75-130	0			
2,2-Dichloropropane	361	20	400	0	90.2	43-150	0			
2-Butanone	449	100	400	33.6	104	55-150	0			
2-Chlorotoluene	379	20	400	0	94.8	76-117	0			
2-Hexanone	428.6	100	400	0	107	60-135	0			
4-Chlorotoluene	388.4	20	400	0	97.1	80-125	0			
4-Isopropyltoluene	402.8	20	400	0	101	61-164	0			
4-Methyl-2-pentanone	569	20	400	0	142	77-178	0			
Acetone	501.2	200	400	123.8	94.4	60-160	0			
Acrylonitrile	404.4	20	400	0	101	60-140	0			
Benzene	393	20	400	0	98.2	70-130	0			
Bromobenzene	371.6	20	400	0	92.9	80-125	0			
Bromochloromethane	375.6	20	400	0	93.9	72-141	0			
Bromodichloromethane	377	20	400	0	94.2	75-125	0			
Bromoform	307.6	20	400	0	76.9	60-125	0			
Bromomethane	270.4	20	400	0	67.6	30-185	0			
Carbon disulfide	491.8	20	400	38.4	113	60-165	0			
Carbon tetrachloride	402.4	20	400	0	101	65-140	0			
Chlorobenzene	374.6	20	400	0	93.6	80-120	0			
Chloroethane	422.2	20	400	0	106	31-172	0			
Chloroform	376.4	20	400	0	94.1	66-135	0			
Chloromethane	379.8	20	400	0	95	46-148	0			
cis-1,2-Dichloroethene	392.4	20	400	0	98.1	75-134	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287666** Instrument ID **VMS11** Method: **SW8260C**

cis-1,3-Dichloropropene	368.2	20	400	0	92	70-130	0
Dibromochloromethane	344.2	20	400	0	86	60-115	0
Dibromomethane	382.4	20	400	0	95.6	79-126	0
Dichlorodifluoromethane	421.4	20	400	0	105	20-120	0
Ethylbenzene	398.4	20	400	0	99.6	76-123	0
Hexachlorobutadiene	396	20	400	0	99	70-155	0
Hexachloroethane	368.6	20	400	0	92.2	50-124	0
Iodomethane	441.4	100	400	0	110	60-160	0
Isopropylbenzene	400	20	400	0	100	80-127	0
m,p-Xylene	788.6	40	800	8.2	97.6	75-130	0
Methyl tert-butyl ether	491.2	20	400	0	123	68-129	0
Methylene chloride	367.4	100	400	0	91.8	72-125	0
Naphthalene	373.6	100	400	0	93.4	55-160	0
n-Butylbenzene	388.4	20	400	0	97.1	75-145	0
n-Propylbenzene	392.6	20	400	0	98.2	76-116	0
o-Xylene	396	20	400	0	99	76-127	0
p-Isopropyltoluene	402.8	20	400	0	101	61-164	0
sec-Butylbenzene	407.4	20	400	0	102	80-134	0
Styrene	394.8	20	400	0	98.7	83-137	0
tert-Butyl alcohol	2201	400	2000	0	110	70-130	0
tert-Butylbenzene	397.4	20	400	0	99.4	70-130	0
Tetrachloroethene	407.2	20	400	0	102	68-166	0
Tetrahydrofuran	471.2	20	400	0	118	54-139	0
Toluene	417.2	20	400	34.6	95.6	76-125	0
trans-1,2-Dichloroethene	414.8	20	400	0	104	80-140	0
trans-1,3-Dichloropropene	363.6	20	400	0	90.9	56-132	0
trans-1,4-Dichloro-2-butene	251.2	40	400	0	62.8	46-118	0
Trichloroethene	399.6	20	400	0	99.9	77-125	0
Trichlorofluoromethane	343.4	20	400	0	85.8	60-140	0
Vinyl chloride	415.6	20	400	0	104	50-136	0
Surr: 1,2-Dichloroethane-d4	*397.6*	0	*400*	0	*99.4*	*75-120*	0
Surr: 4-Bromofluorobenzene	*395*	0	*400*	0	*98.8*	*80-110*	0
Surr: Dibromofluoromethane	*401.6*	0	*400*	0	*100*	*85-115*	0
Surr: Toluene-d8	*399.6*	0	*400*	0	*99.9*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287666** Instrument ID **VMS11** Method: **SW8260C**

MSD Sample ID: **20041872-02A MSD** Units: **µg/L** Analysis Date: **5/1/2020 08:50 PM**
Client ID: Run ID: **VMS11_200501A** SeqNo: **6387747** Prep Date: **5/1/2020** DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	364.2	20	400	0	91	73-114	378	3.72	30	
1,1,1-Trichloroethane	391.2	20	400	0	97.8	75-130	403.4	3.07	30	
1,1,2,2-Tetrachloroethane	392.8	20	400	0	98.2	75-130	401.4	2.17	30	
1,1,2-Trichloroethane	373.4	20	400	0	93.4	75-125	393.4	5.22	30	
1,1-Dichloroethane	381.6	20	400	0	95.4	68-142	389.2	1.97	30	
1,1-Dichloroethene	429.2	20	400	0	107	70-145	442.2	2.98	30	
1,1-Dichloropropene	373.2	20	400	0	93.3	75-135	382	2.33	30	
1,2,3-Trichlorobenzene	366.2	20	400	0	91.6	70-140	369.8	0.978	30	
1,2,3-Trichloropropane	369	20	400	0	92.2	75-125	382	3.46	30	
1,2,4-Trichlorobenzene	353.4	20	400	0	88.4	70-135	362	2.4	30	
1,2,4-Trimethylbenzene	372.4	20	400	0	93.1	75-130	390	4.62	30	
1,2-Dibromo-3-chloropropane	368.2	20	400	0	92	60-130	353	4.22	30	
1,2-Dibromoethane	382.8	20	400	0	95.7	67-155	399.8	4.34	30	
1,2-Dichlorobenzene	365	20	400	0	91.2	70-130	379.8	3.97	30	
1,2-Dichloroethane	372	20	400	0	93	78-125	388	4.21	30	
1,2-Dichloropropane	374.4	20	400	0	93.6	75-125	379.2	1.27	30	
1,3,5-Trimethylbenzene	385.8	20	400	0	96.4	75-130	403	4.36	30	
1,3-Dichlorobenzene	373.2	20	400	0	93.3	75-130	390	4.4	30	
1,3-Dichloropropane	369.6	20	400	0	92.4	75-125	381.4	3.14	30	
1,4-Dichlorobenzene	368.2	20	400	0	92	75-130	372.8	1.24	30	
2,2-Dichloropropane	352	20	400	0	88	43-150	361	2.52	30	
2-Butanone	425.6	100	400	33.6	98	55-150	449	5.35	30	
2-Chlorotoluene	377.6	20	400	0	94.4	76-117	379	0.37	30	
2-Hexanone	423.2	100	400	0	106	60-135	428.6	1.27	30	
4-Chlorotoluene	375.4	20	400	0	93.8	80-125	388.4	3.4	30	
4-Isopropyltoluene	385	20	400	0	96.2	61-164	402.8	4.52	30	
4-Methyl-2-pentanone	538.2	20	400	0	135	77-178	569	5.56	30	
Acetone	498.8	200	400	123.8	93.8	60-160	501.2	0.48	30	
Acrylonitrile	399	20	400	0	99.8	60-140	404.4	1.34	30	
Benzene	379.4	20	400	0	94.8	70-130	393	3.52	30	
Bromobenzene	367.4	20	400	0	91.8	80-125	371.6	1.14	30	
Bromochloromethane	359.2	20	400	0	89.8	72-141	375.6	4.46	30	
Bromodichloromethane	367.8	20	400	0	92	75-125	377	2.47	30	
Bromoform	295.6	20	400	0	73.9	60-125	307.6	3.98	30	
Bromomethane	330	20	400	0	82.5	30-185	270.4	19.9	30	
Carbon disulfide	477.2	20	400	38.4	110	60-165	491.8	3.01	30	
Carbon tetrachloride	384	20	400	0	96	65-140	402.4	4.68	30	
Chlorobenzene	368.4	20	400	0	92.1	80-120	374.6	1.67	30	
Chloroethane	413.8	20	400	0	103	31-172	422.2	2.01	30	
Chloroform	371.4	20	400	0	92.8	66-135	376.4	1.34	30	
Chloromethane	379.4	20	400	0	94.8	46-148	379.8	0.105	30	
cis-1,2-Dichloroethene	393.6	20	400	0	98.4	75-134	392.4	0.305	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287666** Instrument ID **VMS11** Method: **SW8260C**

cis-1,3-Dichloropropene	352	20	400	0	88	70-130	368.2	4.5	30
Dibromochloromethane	341.6	20	400	0	85.4	60-115	344.2	0.758	30
Dibromomethane	380.4	20	400	0	95.1	79-126	382.4	0.524	30
Dichlorodifluoromethane	400.8	20	400	0	100	20-120	421.4	5.01	30
Ethylbenzene	379.6	20	400	0	94.9	76-123	398.4	4.83	30
Hexachlorobutadiene	393.4	20	400	0	98.4	70-155	396	0.659	30
Hexachloroethane	350	20	400	0	87.5	50-124	368.6	5.18	30
Iodomethane	426.4	100	400	0	107	60-160	441.4	3.46	30
Isopropylbenzene	387	20	400	0	96.8	80-127	400	3.3	30
m,p-Xylene	761.4	40	800	8.2	94.2	75-130	788.6	3.51	30
Methyl tert-butyl ether	471.6	20	400	0	118	68-129	491.2	4.07	30
Methylene chloride	372.4	100	400	0	93.1	72-125	367.4	1.35	30
Naphthalene	378.8	100	400	0	94.7	55-160	373.6	1.38	30
n-Butylbenzene	377	20	400	0	94.2	75-145	388.4	2.98	30
n-Propylbenzene	372.8	20	400	0	93.2	76-116	392.6	5.17	30
o-Xylene	380.4	20	400	0	95.1	76-127	396	4.02	30
p-Isopropyltoluene	385	20	400	0	96.2	61-164	402.8	4.52	30
sec-Butylbenzene	395.4	20	400	0	98.8	80-134	407.4	2.99	30
Styrene	390	20	400	0	97.5	83-137	394.8	1.22	30
tert-Butyl alcohol	2138	400	2000	0	107	70-130	2201	2.88	30
tert-Butylbenzene	381.2	20	400	0	95.3	70-130	397.4	4.16	30
Tetrachloroethene	392.4	20	400	0	98.1	68-166	407.2	3.7	30
Tetrahydrofuran	466.2	20	400	0	117	54-139	471.2	1.07	30
Toluene	401.6	20	400	34.6	91.8	76-125	417.2	3.81	30
trans-1,2-Dichloroethene	397	20	400	0	99.2	80-140	414.8	4.39	30
trans-1,3-Dichloropropene	347.6	20	400	0	86.9	56-132	363.6	4.5	30
trans-1,4-Dichloro-2-butene	257.6	40	400	0	64.4	46-118	251.2	2.52	30
Trichloroethene	386.8	20	400	0	96.7	77-125	399.6	3.26	30
Trichlorofluoromethane	330.2	20	400	0	82.6	60-140	343.4	3.92	30
Vinyl chloride	416.2	20	400	0	104	50-136	415.6	0.144	30
Surr: 1,2-Dichloroethane-d4	*386.4*	0	*400*	0	*96.6*	*75-120*	397.6	*2.86*	*30*
Surr: 4-Bromofluorobenzene	*401.2*	0	*400*	0	*100*	*80-110*	395	*1.56*	*30*
Surr: Dibromofluoromethane	*385.2*	0	*400*	0	*96.3*	*85-115*	401.6	*4.17*	*30*
Surr: Toluene-d8	*394.6*	0	*400*	0	*98.6*	*85-110*	399.6	*1.26*	*30*

The following samples were analyzed in this batch: 20041449-12A, 20041449-13A, 20041449-14A, 20041449-15A, 20041449-16A, 20041449-17A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287669A** Instrument ID **VMS6** Method: **SW8260C**

MBLK Sample ID: **VBLKW2-200430-R287669A** Units: **µg/L** Analysis Date: **5/1/2020 03:53 AM**
Client ID: Run ID: **VMS6_200430B** SeqNo: **6385193** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	U	1.0								
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,1-Dichloropropene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,3-Trichloropropane	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2,4-Trimethylbenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3,5-Trichlorobenzene	U	1.0								
1,3,5-Trimethylbenzene	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2,2-Dichloropropane	U	1.0								
2-Butanone	U	5.0								
2-Chloroethyl vinyl ether	U	1.0								
2-Chlorotoluene	U	1.0								
2-Hexanone	U	5.0								
2-Methylnaphthalene	U	5.0								
4-Chlorotoluene	U	1.0								
4-Isopropyltoluene	U	1.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Acrolein	U	1.0								
Acrylonitrile	U	1.0								
Benzene	U	1.0								
Benzyl chloride	U	1.0								
Bromobenzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287669A** Instrument ID **VMS6** Method: **SW8260C**

Carbon tetrachloride	U	1.0						
Chlorobenzene	U	1.0						
Chloroethane	U	1.0						
Chloroform	U	1.0						
Chloromethane	U	1.0						
cis-1,2-Dichloroethene	U	1.0						
cis-1,3-Dichloropropene	U	1.0						
Dibromochloromethane	U	1.0						
Dibromomethane	U	1.0						
Dichlorodifluoromethane	U	1.0						
Ethylbenzene	U	1.0						
Hexachlorobutadiene	0.7	1.0						J
Hexachloroethane	U	1.0						
Hexane	U	1.0						
Iodomethane	U	5.0						
Isopropylbenzene	U	1.0						
m,p-Xylene	U	2.0						
Methyl tert-butyl ether	U	1.0						
Methylene chloride	U	5.0						
Naphthalene	U	5.0						
n-Butylbenzene	U	1.0						
n-Propylbenzene	U	1.0						
o-Xylene	U	1.0						
p-Isopropyltoluene	U	1.0						
sec-Butylbenzene	U	1.0						
Styrene	U	1.0						
tert-Butyl alcohol	U	20						
tert-Butylbenzene	U	1.0						
Tetrachloroethene	U	1.0						
Tetrahydrofuran	U	1.0						
Toluene	U	1.0						
trans-1,2-Dichloroethene	U	1.0						
trans-1,3-Dichloropropene	0.4	1.0						J
trans-1,4-Dichloro-2-butene	U	2.0						
Trichloroethene	U	1.0						
Trichlorofluoromethane	U	1.0						
Vinyl acetate	U	5.0						
Vinyl chloride	U	1.0						
Surr: 1,2-Dichloroethane-d4	*20.58*	0	*20*	0	*103*	*75-120*	0	
Surr: 4-Bromofluorobenzene	*19.24*	0	*20*	0	*96.2*	*80-110*	0	
Surr: Dibromofluoromethane	*19.2*	0	*20*	0	*96*	*85-115*	0	
Surr: Toluene-d8	*19.79*	0	*20*	0	*99*	*85-110*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287669A** Instrument ID **VMS6** Method: **SW8260C**

LCS Sample ID: **VLCSW2-200430-R287669A** Units: **µg/L** Analysis Date: **5/1/2020 02:40 AM**
Client ID: Run ID: **VMS6_200430B** SeqNo: **6385192** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.74	1.0	20	0	93.7	73-114	0			
1,1,1-Trichloroethane	20.39	1.0	20	0	102	75-130	0			
1,1,2,2-Tetrachloroethane	20.58	1.0	20	0	103	75-130	0			
1,1,2-Trichloroethane	20.36	1.0	20	0	102	75-125	0			
1,1-Dichloroethane	20.23	1.0	20	0	101	68-142	0			
1,1-Dichloroethene	21.47	1.0	20	0	107	70-145	0			
1,1-Dichloropropene	19.34	1.0	20	0	96.7	75-135	0			
1,2,3-Trichlorobenzene	20.01	1.0	20	0	100	70-140	0			
1,2,3-Trichloropropane	19.18	1.0	20	0	95.9	75-125	0			
1,2,4-Trichlorobenzene	19.1	1.0	20	0	95.5	70-135	0			
1,2,4-Trimethylbenzene	19.31	1.0	20	0	96.6	75-130	0			
1,2-Dibromo-3-chloropropane	17.98	1.0	20	0	89.9	60-130	0			
1,2-Dibromoethane	21.79	1.0	20	0	109	67-155	0			
1,2-Dichlorobenzene	19.45	1.0	20	0	97.2	70-130	0			
1,2-Dichloroethane	20.41	1.0	20	0	102	78-125	0			
1,2-Dichloropropane	19.7	1.0	20	0	98.5	75-125	0			
1,3,5-Trimethylbenzene	19.15	1.0	20	0	95.8	75-130	0			
1,3-Dichlorobenzene	19.81	1.0	20	0	99	75-130	0			
1,3-Dichloropropane	19.49	1.0	20	0	97.4	75-125	0			
1,4-Dichlorobenzene	19.44	1.0	20	0	97.2	75-130	0			
2,2-Dichloropropane	17.06	1.0	20	0	85.3	43-150	0			
2-Butanone	21.8	5.0	20	0	109	55-150	0			
2-Chlorotoluene	19.57	1.0	20	0	97.8	76-117	0			
2-Hexanone	22.64	5.0	20	0	113	60-135	0			
4-Chlorotoluene	20.23	1.0	20	0	101	80-125	0			
4-Isopropyltoluene	19.89	1.0	20	0	99.4	61-164	0			
4-Methyl-2-pentanone	30.75	1.0	20	0	154	77-178	0			
Acetone	20.22	10	20	0	101	60-160	0			
Acrylonitrile	21.71	1.0	20	0	109	60-140	0			
Benzene	20.08	1.0	20	0	100	70-130	0			
Bromobenzene	18.68	1.0	20	0	93.4	80-125	0			
Bromochloromethane	19.09	1.0	20	0	95.4	72-141	0			
Bromodichloromethane	19.49	1.0	20	0	97.4	75-125	0			
Bromoform	18.17	1.0	20	0	90.8	60-125	0			
Bromomethane	23.06	1.0	20	0	115	30-185	0			
Carbon disulfide	22.93	1.0	20	0	115	60-165	0			
Carbon tetrachloride	19.64	1.0	20	0	98.2	65-140	0			
Chlorobenzene	19.45	1.0	20	0	97.2	80-120	0			
Chloroethane	18.22	1.0	20	0	91.1	31-172	0			
Chloroform	19.44	1.0	20	0	97.2	66-135	0			
Chloromethane	20.96	1.0	20	0	105	46-148	0			
cis-1,2-Dichloroethene	19.56	1.0	20	0	97.8	75-134	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287669A** Instrument ID **VMS6** Method: **SW8260C**

cis-1,3-Dichloropropene	19	1.0	20	0	95	70-130	0	
Dibromochloromethane	17.34	1.0	20	0	86.7	60-115	0	
Dibromomethane	20.32	1.0	20	0	102	79-126	0	
Dichlorodifluoromethane	19.91	1.0	20	0	99.6	20-120	0	
Ethylbenzene	20.1	1.0	20	0	100	76-123	0	
Hexachlorobutadiene	21.3	1.0	20	0	106	70-155	0	
Hexachloroethane	20.05	1.0	20	0	100	50-124	0	
Iodomethane	24.34	5.0	20	0	122	60-160	0	
Isopropylbenzene	20.43	1.0	20	0	102	80-127	0	
m,p-Xylene	39.98	2.0	40	0	100	75-130	0	
Methyl tert-butyl ether	25.88	1.0	20	0	129	68-129	0	S
Methylene chloride	19.52	5.0	20	0	97.6	72-125	0	
Naphthalene	20.15	5.0	20	0	101	55-160	0	
n-Butylbenzene	19.37	1.0	20	0	96.8	75-145	0	
n-Propylbenzene	20.07	1.0	20	0	100	76-116	0	
o-Xylene	20.42	1.0	20	0	102	76-127	0	
p-Isopropyltoluene	19.89	1.0	20	0	99.4	61-164	0	
sec-Butylbenzene	19.22	1.0	20	0	96.1	80-134	0	
Styrene	20.11	1.0	20	0	101	83-137	0	
tert-Butyl alcohol	106.5	20	100	0	107	70-130	0	
tert-Butylbenzene	19.01	1.0	20	0	95	70-130	0	
Tetrachloroethene	19.33	1.0	20	0	96.6	68-166	0	
Tetrahydrofuran	23.03	1.0	20	0	115	54-139	0	
Toluene	19.84	1.0	20	0	99.2	76-125	0	
trans-1,2-Dichloroethene	20.63	1.0	20	0	103	80-140	0	
trans-1,3-Dichloropropene	17.73	1.0	20	0	88.6	56-132	0	
trans-1,4-Dichloro-2-butene	16.55	2.0	20	0	82.8	46-118	0	
Trichloroethene	19.24	1.0	20	0	96.2	77-125	0	
Trichlorofluoromethane	14.98	1.0	20	0	74.9	60-140	0	
Vinyl chloride	19.35	1.0	20	0	96.8	50-136	0	
Surr: 1,2-Dichloroethane-d4	*20.27*	0	*20*	0	*101*	*75-120*	0	
Surr: 4-Bromofluorobenzene	*20.6*	0	*20*	0	*103*	*80-110*	0	
Surr: Dibromofluoromethane	*19.98*	0	*20*	0	*99.9*	*85-115*	0	
Surr: Toluene-d8	*20.16*	0	*20*	0	*101*	*85-110*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287669A** Instrument ID **VMS6** Method: **SW8260C**

MS Sample ID: **20041449-04A MS** Units: **µg/L** Analysis Date: **5/1/2020 12:45 PM**
Client ID: **COL-GW-04** Run ID: **VMS6_200430B** SeqNo: **6385486** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.49	1.0	20	0	97.4	73-114	0			
1,1,1-Trichloroethane	22.38	1.0	20	0	112	75-130	0			
1,1,2,2-Tetrachloroethane	22.12	1.0	20	0	111	75-130	0			
1,1,2-Trichloroethane	22.01	1.0	20	0.53	107	75-125	0			
1,1-Dichloroethane	21.94	1.0	20	0	110	68-142	0			
1,1-Dichloroethene	27.4	1.0	20	3	122	70-145	0			
1,1-Dichloropropene	21.99	1.0	20	0	110	75-135	0			
1,2,3-Trichlorobenzene	19.5	1.0	20	0	97.5	70-140	0			
1,2,3-Trichloropropane	20.52	1.0	20	0	103	75-125	0			
1,2,4-Trichlorobenzene	18.49	1.0	20	0	92.4	70-135	0			
1,2,4-Trimethylbenzene	20.25	1.0	20	0	101	75-130	0			
1,2-Dibromo-3-chloropropane	19.2	1.0	20	0	96	60-130	0			
1,2-Dibromoethane	22.66	1.0	20	0	113	67-155	0			
1,2-Dichlorobenzene	19.73	1.0	20	0	98.6	70-130	0			
1,2-Dichloroethane	21.29	1.0	20	0	106	78-125	0			
1,2-Dichloropropane	21.48	1.0	20	0	107	75-125	0			
1,3,5-Trimethylbenzene	20.75	1.0	20	0	104	75-130	0			
1,3-Dichlorobenzene	20.11	1.0	20	0	101	75-130	0			
1,3-Dichloropropane	20.49	1.0	20	0	102	75-125	0			
1,4-Dichlorobenzene	19.9	1.0	20	0	99.5	75-130	0			
2,2-Dichloropropane	15.98	1.0	20	0	79.9	43-150	0			
2-Butanone	27.75	5.0	20	0	139	55-150	0			
2-Chlorotoluene	20.51	1.0	20	0	103	76-117	0			
2-Hexanone	26.08	5.0	20	0	130	60-135	0			
4-Chlorotoluene	20.99	1.0	20	0	105	80-125	0			
4-Isopropyltoluene	21.16	1.0	20	0	106	61-164	0			
4-Methyl-2-pentanone	34.2	1.0	20	0	171	77-178	0			
Acetone	27.56	10	20	1.33	131	60-160	0			
Acrylonitrile	24.81	1.0	20	0	124	60-140	0			
Benzene	21.45	1.0	20	0	107	70-130	0			
Bromobenzene	19.61	1.0	20	0	98	80-125	0			
Bromochloromethane	20.75	1.0	20	0	104	72-141	0			
Bromodichloromethane	20.8	1.0	20	0	104	75-125	0			
Bromoform	18.45	1.0	20	0	92.2	60-125	0			
Bromomethane	11.78	1.0	20	0	58.9	30-185	0			
Carbon disulfide	26.78	1.0	20	0	134	60-165	0			
Carbon tetrachloride	21.57	1.0	20	0	108	65-140	0			
Chlorobenzene	20.14	1.0	20	0	101	80-120	0			
Chloroethane	28.97	1.0	20	0	145	31-172	0			
Chloroform	21.84	1.0	20	0	109	66-135	0			
Chloromethane	19.49	1.0	20	0	97.4	46-148	0			
cis-1,2-Dichloroethene	296.4	1.0	20	274.6	109	75-134	0			EO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287669A** Instrument ID **VMS6** Method: **SW8260C**

cis-1,3-Dichloropropene	18.51	1.0	20	0	92.6	70-130	0	
Dibromochloromethane	17.75	1.0	20	0	88.8	60-115	0	
Dibromomethane	20.82	1.0	20	0	104	79-126	0	
Dichlorodifluoromethane	22.63	1.0	20	0	113	20-120	0	
Ethylbenzene	21.39	1.0	20	0	107	76-123	0	
Hexachlorobutadiene	19.63	1.0	20	0	98.2	70-155	0	
Hexachloroethane	19.51	1.0	20	0	97.6	50-124	0	
Iodomethane	25.57	5.0	20	0	128	60-160	0	
Isopropylbenzene	22.19	1.0	20	0	111	80-127	0	
m,p-Xylene	42.44	2.0	40	0	106	75-130	0	
Methyl tert-butyl ether	27.13	1.0	20	0	136	68-129	0	S
Methylene chloride	20.12	5.0	20	0	101	72-125	0	
Naphthalene	19.81	5.0	20	0	99	55-160	0	
n-Butylbenzene	19.82	1.0	20	0	99.1	75-145	0	
n-Propylbenzene	21.96	1.0	20	0	110	76-116	0	
o-Xylene	21.45	1.0	20	0	107	76-127	0	
p-Isopropyltoluene	21.16	1.0	20	0	106	61-164	0	
sec-Butylbenzene	21.38	1.0	20	0	107	80-134	0	
Styrene	20.76	1.0	20	0	104	83-137	0	
tert-Butyl alcohol	120.1	20	100	0	120	70-130	0	
tert-Butylbenzene	20.88	1.0	20	0	104	70-130	0	
Tetrachloroethene	23.11	1.0	20	0	116	68-166	0	
Tetrahydrofuran	27.08	1.0	20	0	135	54-139	0	
Toluene	21.5	1.0	20	0	108	76-125	0	
trans-1,2-Dichloroethene	33.61	1.0	20	9.88	119	80-140	0	
trans-1,3-Dichloropropene	17.24	1.0	20	0.33	84.6	56-132	0	
trans-1,4-Dichloro-2-butene	13.02	2.0	20	0	65.1	46-118	0	
Trichloroethene	297.1	1.0	20	279	90.4	77-125	0	EO
Trichlorofluoromethane	18.13	1.0	20	0	90.6	60-140	0	
Vinyl chloride	84.42	1.0	20	58.95	127	50-136	0	
Surr: 1,2-Dichloroethane-d4	*20.2*	0	*20*	0	*101*	*75-120*	0	
Surr: 4-Bromofluorobenzene	*20.42*	0	*20*	0	*102*	*80-110*	0	
Surr: Dibromofluoromethane	*20.32*	0	*20*	0	*102*	*85-115*	0	
Surr: Toluene-d8	*20.08*	0	*20*	0	*100*	*85-110*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287669A** Instrument ID **VMS6** Method: **SW8260C**

MSD Sample ID: **20041449-04A MSD** Units: **µg/L** Analysis Date: **5/1/2020 01:09 PM**
Client ID: **COL-GW-04** Run ID: **VMS6_200430B** SeqNo: **6385487** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.39	1.0	20	0	97	73-114	19.49	0.514	30	
1,1,1-Trichloroethane	23.39	1.0	20	0	117	75-130	22.38	4.41	30	
1,1,2,2-Tetrachloroethane	22.97	1.0	20	0	115	75-130	22.12	3.77	30	
1,1,2-Trichloroethane	21.73	1.0	20	0.53	106	75-125	22.01	1.28	30	
1,1-Dichloroethane	23.14	1.0	20	0	116	68-142	21.94	5.32	30	
1,1-Dichloroethene	28.15	1.0	20	3	126	70-145	27.4	2.7	30	
1,1-Dichloropropene	22.8	1.0	20	0	114	75-135	21.99	3.62	30	
1,2,3-Trichlorobenzene	20.89	1.0	20	0	104	70-140	19.5	6.88	30	
1,2,3-Trichloropropane	21.74	1.0	20	0	109	75-125	20.52	5.77	30	
1,2,4-Trichlorobenzene	20.02	1.0	20	0	100	70-135	18.49	7.95	30	
1,2,4-Trimethylbenzene	20.7	1.0	20	0	104	75-130	20.25	2.2	30	
1,2-Dibromo-3-chloropropane	19.73	1.0	20	0	98.6	60-130	19.2	2.72	30	
1,2-Dibromoethane	23.19	1.0	20	0	116	67-155	22.66	2.31	30	
1,2-Dichlorobenzene	20.27	1.0	20	0	101	70-130	19.73	2.7	30	
1,2-Dichloroethane	22.23	1.0	20	0	111	78-125	21.29	4.32	30	
1,2-Dichloropropane	22.71	1.0	20	0	114	75-125	21.48	5.57	30	
1,3,5-Trimethylbenzene	21.39	1.0	20	0	107	75-130	20.75	3.04	30	
1,3-Dichlorobenzene	20.88	1.0	20	0	104	75-130	20.11	3.76	30	
1,3-Dichloropropane	21.2	1.0	20	0	106	75-125	20.49	3.41	30	
1,4-Dichlorobenzene	20.4	1.0	20	0	102	75-130	19.9	2.48	30	
2,2-Dichloropropane	16.24	1.0	20	0	81.2	43-150	15.98	1.61	30	
2-Butanone	30.24	5.0	20	0	151	55-150	27.75	8.59	30	S
2-Chlorotoluene	20.97	1.0	20	0	105	76-117	20.51	2.22	30	
2-Hexanone	27.67	5.0	20	0	138	60-135	26.08	5.92	30	S
4-Chlorotoluene	21.44	1.0	20	0	107	80-125	20.99	2.12	30	
4-Isopropyltoluene	21.56	1.0	20	0	108	61-164	21.16	1.87	30	
4-Methyl-2-pentanone	36.72	1.0	20	0	184	77-178	34.2	7.11	30	S
Acetone	27.95	10	20	1.33	133	60-160	27.56	1.41	30	
Acrylonitrile	25.65	1.0	20	0	128	60-140	24.81	3.33	30	
Benzene	22.11	1.0	20	0	111	70-130	21.45	3.03	30	
Bromobenzene	20.55	1.0	20	0	103	80-125	19.61	4.68	30	
Bromochloromethane	20.23	1.0	20	0	101	72-141	20.75	2.54	30	
Bromodichloromethane	21.49	1.0	20	0	107	75-125	20.8	3.26	30	
Bromoform	18.82	1.0	20	0	94.1	60-125	18.45	1.99	30	
Bromomethane	17.27	1.0	20	0	86.4	30-185	11.78	37.8	30	R
Carbon disulfide	27.02	1.0	20	0	135	60-165	26.78	0.892	30	
Carbon tetrachloride	22.29	1.0	20	0	111	65-140	21.57	3.28	30	
Chlorobenzene	20.76	1.0	20	0	104	80-120	20.14	3.03	30	
Chloroethane	23.11	1.0	20	0	116	31-172	28.97	22.5	30	
Chloroform	21.8	1.0	20	0	109	66-135	21.84	0.183	30	
Chloromethane	21.9	1.0	20	0	110	46-148	19.49	11.6	30	
cis-1,2-Dichloroethene	296.2	1.0	20	274.6	108	75-134	296.4	0.0608	30	EO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287669A** Instrument ID **VMS6** Method: **SW8260C**

cis-1,3-Dichloropropene	19.63	1.0	20	0	98.2	70-130	18.51	5.87	30	
Dibromochloromethane	18.07	1.0	20	0	90.4	60-115	17.75	1.79	30	
Dibromomethane	22.02	1.0	20	0	110	79-126	20.82	5.6	30	
Dichlorodifluoromethane	23.17	1.0	20	0	116	20-120	22.63	2.36	30	
Ethylbenzene	21.69	1.0	20	0	108	76-123	21.39	1.39	30	
Hexachlorobutadiene	21.27	1.0	20	0	106	70-155	19.63	8.02	30	
Hexachloroethane	20.3	1.0	20	0	102	50-124	19.51	3.97	30	
Iodomethane	28.93	5.0	20	0	145	60-160	25.57	12.3	30	
Isopropylbenzene	22.72	1.0	20	0	114	80-127	22.19	2.36	30	
m,p-Xylene	43.55	2.0	40	0	109	75-130	42.44	2.58	30	
Methyl tert-butyl ether	27.82	1.0	20	0	139	68-129	27.13	2.51	30	S
Methylene chloride	21.15	5.0	20	0	106	72-125	20.12	4.99	30	
Naphthalene	21.26	5.0	20	0	106	55-160	19.81	7.06	30	
n-Butylbenzene	20.7	1.0	20	0	104	75-145	19.82	4.34	30	
n-Propylbenzene	22.16	1.0	20	0	111	76-116	21.96	0.907	30	
o-Xylene	22.04	1.0	20	0	110	76-127	21.45	2.71	30	
p-Isopropyltoluene	21.56	1.0	20	0	108	61-164	21.16	1.87	30	
sec-Butylbenzene	21.63	1.0	20	0	108	80-134	21.38	1.16	30	
Styrene	21.29	1.0	20	0	106	83-137	20.76	2.52	30	
tert-Butyl alcohol	122.6	20	100	0	123	70-130	120.1	2.07	30	
tert-Butylbenzene	21.6	1.0	20	0	108	70-130	20.88	3.39	30	
Tetrachloroethene	22.67	1.0	20	0	113	68-166	23.11	1.92	30	
Tetrahydrofuran	26.71	1.0	20	0	134	54-139	27.08	1.38	30	
Toluene	21.38	1.0	20	0	107	76-125	21.5	0.56	30	
trans-1,2-Dichloroethene	34.29	1.0	20	9.88	122	80-140	33.61	2	30	
trans-1,3-Dichloropropene	17.37	1.0	20	0.33	85.2	56-132	17.24	0.751	30	
trans-1,4-Dichloro-2-butene	13.97	2.0	20	0	69.8	46-118	13.02	7.04	30	
Trichloroethene	299.6	1.0	20	279	103	77-125	297.1	0.838	30	EO
Trichlorofluoromethane	17.56	1.0	20	0	87.8	60-140	18.13	3.19	30	
Vinyl chloride	85.41	1.0	20	58.95	132	50-136	84.42	1.17	30	
Surr: 1,2-Dichloroethane-d4	*20.77*	0	*20*	0	*104*	*75-120*	20.2	*2.78*	*30*	
Surr: 4-Bromofluorobenzene	*20.34*	0	*20*	0	*102*	*80-110*	20.42	*0.393*	*30*	
Surr: Dibromofluoromethane	*20.45*	0	*20*	0	*102*	*85-115*	20.32	*0.638*	*30*	
Surr: Toluene-d8	*20.14*	0	*20*	0	*101*	*85-110*	20.08	*0.298*	*30*	

The following samples were analyzed in this batch:

20041449-01A	20041449-02A	20041449-03A
20041449-04A	20041449-05A	20041449-06A
20041449-07A	20041449-09A	20041449-10A
20041449-11A	20041449-18A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287675A** Instrument ID **VMS7** Method: **SW8260C**

MBLK Sample ID: **VBLKW1-200430-R287675A** Units: **µg/L** Analysis Date: **5/1/2020 01:42 PM**
Client ID: Run ID: **VMS7_200501A** SeqNo: **6387947** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	U	1.0								
Trichloroethene	U	1.0								
Surr: 1,2-Dichloroethane-d4	*23.3*	0	*20*	0	*116*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.39*	0	*20*	0	*97*	*80-110*	0			
Surr: Dibromofluoromethane	*21.39*	0	*20*	0	*107*	*85-115*	0			
Surr: Toluene-d8	*20.46*	0	*20*	0	*102*	*85-110*	0			

LCS Sample ID: **VLCSW1-200501-R287675A** Units: **µg/L** Analysis Date: **5/1/2020 12:52 PM**
Client ID: Run ID: **VMS7_200501A** SeqNo: **6387946** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	21.17	1.0	20	0	106	75-134	0			
Trichloroethene	18.07	1.0	20	0	90.4	77-125	0			
Surr: 1,2-Dichloroethane-d4	*22.76*	0	*20*	0	*114*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*20.76*	0	*20*	0	*104*	*80-110*	0			
Surr: Dibromofluoromethane	*20.92*	0	*20*	0	*105*	*85-115*	0			
Surr: Toluene-d8	*20.68*	0	*20*	0	*103*	*85-110*	0			

MS Sample ID: **20041449-05A MS** Units: **µg/L** Analysis Date: **5/1/2020 08:08 PM**
Client ID: **COL-GW-05** Run ID: **VMS7_200501A** SeqNo: **6387959** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	435.2	5.0	100	247.4	188	75-134	0			S
Trichloroethene	329.8	5.0	100	192.2	138	77-125	0			S
Surr: 1,2-Dichloroethane-d4	*116.8*	0	*100*	0	*117*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*104.4*	0	*100*	0	*104*	*80-110*	0			
Surr: Dibromofluoromethane	*108*	0	*100*	0	*108*	*85-115*	0			
Surr: Toluene-d8	*101.6*	0	*100*	0	*102*	*85-110*	0			

MSD Sample ID: **20041449-05A MSD** Units: **µg/L** Analysis Date: **5/1/2020 08:24 PM**
Client ID: **COL-GW-05** Run ID: **VMS7_200501A** SeqNo: **6387960** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	432.2	5.0	100	247.4	185	75-134	435.2	0.703	30	S
Trichloroethene	321.1	5.0	100	192.2	129	77-125	329.8	2.69	30	S
Surr: 1,2-Dichloroethane-d4	*117.8*	0	*100*	0	*118*	*75-120*	116.8	*0.767*	*30*	
Surr: 4-Bromofluorobenzene	*104.4*	0	*100*	0	*104*	*80-110*	104.4	*0*	*30*	
Surr: Dibromofluoromethane	*108.7*	0	*100*	0	*109*	*85-115*	108	*0.692*	*30*	
Surr: Toluene-d8	*104.6*	0	*100*	0	*105*	*85-110*	101.6	*2.81*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287675A** Instrument ID **VMS7** Method: **SW8260C**

The following samples were analyzed in this batch:

20041449-04A	20041449-05A	20041449-12A
20041449-13A	20041449-14A	20041449-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287720** Instrument ID **VMS11** Method: **SW8260C**

MBLK Sample ID: **VBLKW2-200501-R287720** Units: **µg/L** Analysis Date: **5/1/2020 11:47 PM**
Client ID: Run ID: **VMS11_200501B** SeqNo: **6387923** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	U	1.0								
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,1-Dichloropropene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,3-Trichloropropane	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2,4-Trimethylbenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3,5-Trichlorobenzene	U	1.0								
1,3,5-Trimethylbenzene	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2,2-Dichloropropane	U	1.0								
2-Butanone	U	5.0								
2-Chloroethyl vinyl ether	U	1.0								
2-Chlorotoluene	U	1.0								
2-Hexanone	U	5.0								
2-Methylnaphthalene	0.76	5.0								J
4-Chlorotoluene	U	1.0								
4-Isopropyltoluene	U	1.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Acrolein	U	1.0								
Acrylonitrile	U	1.0								
Benzene	U	1.0								
Benzyl chloride	U	1.0								
Bromobenzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287720** Instrument ID **VMS11** Method: **SW8260C**

Carbon tetrachloride	U	1.0					
Chlorobenzene	U	1.0					
Chloroethane	U	1.0					
Chloroform	U	1.0					
Chloromethane	U	1.0					
cis-1,2-Dichloroethene	U	1.0					
cis-1,3-Dichloropropene	U	1.0					
Dibromochloromethane	U	1.0					
Dibromomethane	U	1.0					
Dichlorodifluoromethane	U	1.0					
Ethylbenzene	U	1.0					
Hexachlorobutadiene	U	1.0					
Hexachloroethane	U	1.0					
Hexane	U	1.0					
Iodomethane	U	5.0					
Isopropylbenzene	U	1.0					
m,p-Xylene	U	2.0					
Methyl tert-butyl ether	U	1.0					
Methylene chloride	U	5.0					
Naphthalene	U	5.0					
n-Butylbenzene	U	1.0					
n-Propylbenzene	U	1.0					
o-Xylene	U	1.0					
p-Isopropyltoluene	U	1.0					
sec-Butylbenzene	U	1.0					
Styrene	U	1.0					
tert-Butyl alcohol	U	20					
tert-Butylbenzene	U	1.0					
Tetrachloroethene	U	1.0					
Tetrahydrofuran	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
trans-1,4-Dichloro-2-butene	U	2.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl acetate	U	5.0					
Vinyl chloride	U	1.0					
Surr: 1,2-Dichloroethane-d4	*19.99*	0	*20*	0	*100*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.67*	0	*20*	0	*98.4*	*80-110*	0
Surr: Dibromofluoromethane	*19.65*	0	*20*	0	*98.2*	*85-115*	0
Surr: Toluene-d8	*19.66*	0	*20*	0	*98.3*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287720** Instrument ID **VMS11** Method: **SW8260C**

LCS Sample ID: **VLCSW2-200501-R287720** Units: **µg/L** Analysis Date: **5/1/2020 10:41 PM**
Client ID: Run ID: **VMS11_200501B** SeqNo: **6387922** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.15	1.0	20	0	106	73-114	0			
1,1,1-Trichloroethane	21.5	1.0	20	0	108	75-130	0			
1,1,2,2-Tetrachloroethane	21.28	1.0	20	0	106	75-130	0			
1,1,2-Trichloroethane	21.28	1.0	20	0	106	75-125	0			
1,1-Dichloroethane	20.65	1.0	20	0	103	68-142	0			
1,1-Dichloroethene	21.9	1.0	20	0	110	70-145	0			
1,1-Dichloropropene	19.61	1.0	20	0	98	75-135	0			
1,2,3-Trichlorobenzene	20.8	1.0	20	0	104	70-140	0			
1,2,3-Trichloropropane	20.63	1.0	20	0	103	75-125	0			
1,2,4-Trichlorobenzene	20.14	1.0	20	0	101	70-135	0			
1,2,4-Trimethylbenzene	20.28	1.0	20	0	101	75-130	0			
1,2-Dibromo-3-chloropropane	19.48	1.0	20	0	97.4	60-130	0			
1,2-Dibromoethane	21.17	1.0	20	0	106	67-155	0			
1,2-Dichlorobenzene	20.2	1.0	20	0	101	70-130	0			
1,2-Dichloroethane	20.4	1.0	20	0	102	78-125	0			
1,2-Dichloropropane	20.72	1.0	20	0	104	75-125	0			
1,3,5-Trimethylbenzene	21.28	1.0	20	0	106	75-130	0			
1,3-Dichlorobenzene	20.71	1.0	20	0	104	75-130	0			
1,3-Dichloropropane	20.17	1.0	20	0	101	75-125	0			
1,4-Dichlorobenzene	20.13	1.0	20	0	101	75-130	0			
2,2-Dichloropropane	18.61	1.0	20	0	93	43-150	0			
2-Butanone	19.6	5.0	20	0	98	55-150	0			
2-Chlorotoluene	20.15	1.0	20	0	101	76-117	0			
2-Hexanone	21.13	5.0	20	0	106	60-135	0			
4-Chlorotoluene	20.63	1.0	20	0	103	80-125	0			
4-Isopropyltoluene	21.13	1.0	20	0	106	61-164	0			
4-Methyl-2-pentanone	28.21	1.0	20	0	141	77-178	0			
Acetone	22.18	10	20	0	111	60-160	0			
Acrylonitrile	20.17	1.0	20	0	101	60-140	0			
Benzene	20.88	1.0	20	0	104	70-130	0			
Bromobenzene	20.25	1.0	20	0	101	80-125	0			
Bromochloromethane	19.34	1.0	20	0	96.7	72-141	0			
Bromodichloromethane	21.6	1.0	20	0	108	75-125	0			
Bromoform	17.33	1.0	20	0	86.6	60-125	0			
Bromomethane	23.16	1.0	20	0	116	30-185	0			
Carbon disulfide	22.97	1.0	20	0	115	60-165	0			
Carbon tetrachloride	21.2	1.0	20	0	106	65-140	0			
Chlorobenzene	20.21	1.0	20	0	101	80-120	0			
Chloroethane	20.57	1.0	20	0	103	31-172	0			
Chloroform	20.12	1.0	20	0	101	66-135	0			
Chloromethane	19.86	1.0	20	0	99.3	46-148	0			
cis-1,2-Dichloroethene	20.36	1.0	20	0	102	75-134	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287720** Instrument ID **VMS11** Method: **SW8260C**

cis-1,3-Dichloropropene	20.08	1.0	20	0	100	70-130	0
Dibromochloromethane	19.86	1.0	20	0	99.3	60-115	0
Dibromomethane	21.2	1.0	20	0	106	79-126	0
Dichlorodifluoromethane	20.77	1.0	20	0	104	20-120	0
Ethylbenzene	20.67	1.0	20	0	103	76-123	0
Hexachlorobutadiene	21.11	1.0	20	0	106	70-155	0
Hexachloroethane	20.61	1.0	20	0	103	50-124	0
Iodomethane	23.15	5.0	20	0	116	60-160	0
Isopropylbenzene	21.02	1.0	20	0	105	80-127	0
m,p-Xylene	41.05	2.0	40	0	103	75-130	0
Methyl tert-butyl ether	25.57	1.0	20	0	128	68-129	0
Methylene chloride	19.17	5.0	20	0	95.8	72-125	0
Naphthalene	21.28	5.0	20	0	106	55-160	0
n-Butylbenzene	20.11	1.0	20	0	101	75-145	0
n-Propylbenzene	20.24	1.0	20	0	101	76-116	0
o-Xylene	20.64	1.0	20	0	103	76-127	0
p-Isopropyltoluene	21.13	1.0	20	0	106	61-164	0
sec-Butylbenzene	21.17	1.0	20	0	106	80-134	0
Styrene	21.29	1.0	20	0	106	83-137	0
tert-Butyl alcohol	114	20	100	0	114	70-130	0
tert-Butylbenzene	20.77	1.0	20	0	104	70-130	0
Tetrachloroethene	20.75	1.0	20	0	104	68-166	0
Tetrahydrofuran	23.99	1.0	20	0	120	54-139	0
Toluene	19.77	1.0	20	0	98.8	76-125	0
trans-1,2-Dichloroethene	21.26	1.0	20	0	106	80-140	0
trans-1,3-Dichloropropene	19.8	1.0	20	0	99	56-132	0
trans-1,4-Dichloro-2-butene	15.53	2.0	20	0	77.6	46-118	0
Trichloroethene	20.96	1.0	20	0	105	77-125	0
Trichlorofluoromethane	17.04	1.0	20	0	85.2	60-140	0
Vinyl chloride	21.21	1.0	20	0	106	50-136	0
Surr: 1,2-Dichloroethane-d4	*19.97*	0	*20*	0	*99.8*	*75-120*	0
Surr: 4-Bromofluorobenzene	*20.31*	0	*20*	0	*102*	*80-110*	0
Surr: Dibromofluoromethane	*20.33*	0	*20*	0	*102*	*85-115*	0
Surr: Toluene-d8	*19.8*	0	*20*	0	*99*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287720** Instrument ID **VMS11** Method: **SW8260C**

MS Sample ID: **20041796-02A MS** Units: **µg/L** Analysis Date: **5/2/2020 08:16 AM**
Client ID: Run ID: **VMS11_200501B** SeqNo: **6387944** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.47	1.0	20	0	102	73-114	0			
1,1,1-Trichloroethane	22.26	1.0	20	0	111	75-130	0			
1,1,2,2-Tetrachloroethane	20.72	1.0	20	0	104	75-130	0			
1,1,2-Trichloroethane	20.92	1.0	20	0	105	75-125	0			
1,1-Dichloroethane	20.95	1.0	20	0	105	68-142	0			
1,1-Dichloroethene	23.61	1.0	20	0	118	70-145	0			
1,1-Dichloropropene	20.97	1.0	20	0	105	75-135	0			
1,2,3-Trichlorobenzene	18.29	1.0	20	0	91.4	70-140	0			
1,2,3-Trichloropropane	19.97	1.0	20	0	99.8	75-125	0			
1,2,4-Trichlorobenzene	18.46	1.0	20	0	92.3	70-135	0			
1,2,4-Trimethylbenzene	20.59	1.0	20	0	103	75-130	0			
1,2-Dibromo-3-chloropropane	17.96	1.0	20	0	89.8	60-130	0			
1,2-Dibromoethane	21.34	1.0	20	0	107	67-155	0			
1,2-Dichlorobenzene	19.86	1.0	20	0	99.3	70-130	0			
1,2-Dichloroethane	21.05	1.0	20	0	105	78-125	0			
1,2-Dichloropropane	20.41	1.0	20	0	102	75-125	0			
1,3,5-Trimethylbenzene	21.53	1.0	20	0	108	75-130	0			
1,3-Dichlorobenzene	20.13	1.0	20	0	101	75-130	0			
1,3-Dichloropropane	20.34	1.0	20	0	102	75-125	0			
1,4-Dichlorobenzene	19.9	1.0	20	0	99.5	75-130	0			
2,2-Dichloropropane	16.01	1.0	20	0	80	43-150	0			
2-Butanone	23.02	5.0	20	0	115	55-150	0			
2-Chlorotoluene	20.52	1.0	20	0	103	76-117	0			
2-Hexanone	21.52	5.0	20	0	108	60-135	0			
4-Chlorotoluene	20.82	1.0	20	0	104	80-125	0			
4-Isopropyltoluene	20.7	1.0	20	0	104	61-164	0			
4-Methyl-2-pentanone	27.37	1.0	20	0	137	77-178	0			
Acetone	23.45	10	20	2.94	103	60-160	0			
Acrylonitrile	19.82	1.0	20	0	99.1	60-140	0			
Benzene	21.19	1.0	20	0	106	70-130	0			
Bromobenzene	20.04	1.0	20	0	100	80-125	0			
Bromochloromethane	19.15	1.0	20	0	95.8	72-141	0			
Bromodichloromethane	20.53	1.0	20	0	103	75-125	0			
Bromoform	16.04	1.0	20	0	80.2	60-125	0			
Bromomethane	16.15	1.0	20	0	80.8	30-185	0			
Carbon disulfide	23.47	1.0	20	0	117	60-165	0			
Carbon tetrachloride	21.45	1.0	20	0	107	65-140	0			
Chlorobenzene	20.55	1.0	20	0	103	80-120	0			
Chloroethane	22.21	1.0	20	0	111	31-172	0			
Chloroform	20.35	1.0	20	0	102	66-135	0			
Chloromethane	21.68	1.0	20	0	108	46-148	0			
cis-1,2-Dichloroethene	20.38	1.0	20	0	102	75-134	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287720** Instrument ID **VMS11** Method: **SW8260C**

cis-1,3-Dichloropropene	18.47	1.0	20	0	92.4	70-130	0
Dibromochloromethane	18.66	1.0	20	0	93.3	60-115	0
Dibromomethane	21	1.0	20	0	105	79-126	0
Dichlorodifluoromethane	22.59	1.0	20	0	113	20-120	0
Ethylbenzene	21.37	1.0	20	0	107	76-123	0
Hexachlorobutadiene	19.45	1.0	20	0	97.2	70-155	0
Hexachloroethane	19	1.0	20	0	95	50-124	0
Iodomethane	23.82	5.0	20	0	119	60-160	0
Isopropylbenzene	21.63	1.0	20	0	108	80-127	0
m,p-Xylene	42.19	2.0	40	0	105	75-130	0
Methyl tert-butyl ether	25.46	1.0	20	0	127	68-129	0
Methylene chloride	19.49	5.0	20	0	97.4	72-125	0
Naphthalene	18.77	5.0	20	0	93.8	55-160	0
n-Butylbenzene	19.19	1.0	20	0	96	75-145	0
n-Propylbenzene	20.61	1.0	20	0	103	76-116	0
o-Xylene	20.99	1.0	20	0	105	76-127	0
p-Isopropyltoluene	20.7	1.0	20	0	104	61-164	0
sec-Butylbenzene	21.58	1.0	20	0	108	80-134	0
Styrene	21.05	1.0	20	0	105	83-137	0
tert-Butyl alcohol	199	20	100	95.61	103	70-130	0
tert-Butylbenzene	20.97	1.0	20	0	105	70-130	0
Tetrachloroethene	22.21	1.0	20	0	111	68-166	0
Tetrahydrofuran	20.44	1.0	20	0	102	54-139	0
Toluene	20.58	1.0	20	0	103	76-125	0
trans-1,2-Dichloroethene	22.1	1.0	20	0	110	80-140	0
trans-1,3-Dichloropropene	18.39	1.0	20	0	92	56-132	0
trans-1,4-Dichloro-2-butene	11.57	2.0	20	0	57.8	46-118	0
Trichloroethene	21.95	1.0	20	0	110	77-125	0
Trichlorofluoromethane	18.45	1.0	20	0	92.2	60-140	0
Vinyl chloride	22.9	1.0	20	0	114	50-136	0
Surr: 1,2-Dichloroethane-d4	*19.93*	0	*20*	0	*99.6*	*75-120*	0
Surr: 4-Bromofluorobenzene	*20.14*	0	*20*	0	*101*	*80-110*	0
Surr: Dibromofluoromethane	*19.86*	0	*20*	0	*99.3*	*85-115*	0
Surr: Toluene-d8	*19.55*	0	*20*	0	*97.8*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287720** Instrument ID **VMS11** Method: **SW8260C**

DUP Sample ID: **20041796-01A DUP** Units: **µg/L** Analysis Date: **5/2/2020 07:54 AM**
Client ID: Run ID: **VMS11_200501B** SeqNo: **6387943** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	U	1.0	0	0	0		0	0	30	
1,1,1-Trichloroethane	U	1.0	0	0	0		0	0	30	
1,1,2,2-Tetrachloroethane	U	1.0	0	0	0		0	0	30	
1,1,2-Trichloroethane	U	1.0	0	0	0		0	0	30	
1,1,2-Trichlorotrifluoroethane	U	1.0	0	0	0		0	0	30	
1,1-Dichloroethane	U	1.0	0	0	0		0	0	30	
1,1-Dichloroethene	U	1.0	0	0	0		0	0	30	
1,1-Dichloropropene	U	1.0	0	0	0		0	0	30	
1,2,3-Trichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2,3-Trichloropropane	U	1.0	0	0	0		0	0	30	
1,2,4-Trichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2,4-Trimethylbenzene	U	1.0	0	0	0		0	0	30	
1,2-Dibromo-3-chloropropane	U	1.0	0	0	0		0	0	30	
1,2-Dibromoethane	U	1.0	0	0	0		0	0	30	
1,2-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2-Dichloroethane	U	1.0	0	0	0		0	0	30	
1,2-Dichloropropane	U	1.0	0	0	0		0	0	30	
1,3,5-Trichlorobenzene	U	1.0	0	0	0		0	0	30	
1,3,5-Trimethylbenzene	U	1.0	0	0	0		0	0	30	
1,3-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
1,3-Dichloropropane	U	1.0	0	0	0		0	0	30	
1,4-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
2,2-Dichloropropane	U	1.0	0	0	0		0	0	30	
2-Butanone	U	5.0	0	0	0		0	0	30	
2-Chloroethyl vinyl ether	U	1.0	0	0	0		0	0	30	
2-Chlorotoluene	U	1.0	0	0	0		0	0	30	
2-Hexanone	U	5.0	0	0	0		0	0	30	
2-Methylnaphthalene	3.75	5.0	0	0	0		0	0	30	J
4-Chlorotoluene	U	1.0	0	0	0		0	0	30	
4-Isopropyltoluene	U	1.0	0	0	0		0	0	30	
4-Methyl-2-pentanone	U	1.0	0	0	0		0	0	30	
Acetone	U	10	0	0	0		3.12	0	30	
Acrolein	U	1.0	0	0	0		0	0	30	
Acrylonitrile	U	1.0	0	0	0		0	0	30	
Benzene	U	1.0	0	0	0		0	0	30	
Benzyl chloride	U	1.0	0	0	0		0	0	30	
Bromobenzene	U	1.0	0	0	0		0	0	30	
Bromochloromethane	U	1.0	0	0	0		0	0	30	
Bromodichloromethane	U	1.0	0	0	0		0	0	30	
Bromoform	U	1.0	0	0	0		0	0	30	
Bromomethane	U	1.0	0	0	0		0	0	30	
Carbon disulfide	U	1.0	0	0	0		0	0	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287720** Instrument ID **VMS11** Method: **SW8260C**

Carbon tetrachloride	U	1.0	0	0	0		0	0	30
Chlorobenzene	U	1.0	0	0	0		0	0	30
Chloroethane	U	1.0	0	0	0		0	0	30
Chloroform	U	1.0	0	0	0		0	0	30
Chloromethane	U	1.0	0	0	0		0	0	30
cis-1,2-Dichloroethene	U	1.0	0	0	0		0.32	0	30
cis-1,3-Dichloropropene	U	1.0	0	0	0		0	0	30
Dibromochloromethane	U	1.0	0	0	0		0	0	30
Dibromomethane	U	1.0	0	0	0		0	0	30
Dichlorodifluoromethane	U	1.0	0	0	0		0	0	30
Ethylbenzene	U	1.0	0	0	0		0	0	30
Hexachlorobutadiene	U	1.0	0	0	0		0	0	30
Hexachloroethane	U	1.0	0	0	0		0	0	30
Hexane	U	1.0	0	0	0		0	0	30
Iodomethane	U	5.0	0	0	0		0	0	30
Isopropylbenzene	U	1.0	0	0	0		0	0	30
m,p-Xylene	U	2.0	0	0	0		0	0	30
Methyl tert-butyl ether	U	1.0	0	0	0		0	0	30
Methylene chloride	U	5.0	0	0	0		0	0	30
Naphthalene	U	5.0	0	0	0		0	0	30
n-Butylbenzene	U	1.0	0	0	0		0	0	30
n-Propylbenzene	U	1.0	0	0	0		0	0	30
o-Xylene	U	1.0	0	0	0		0	0	30
p-Isopropyltoluene	U	1.0	0	0	0		0	0	30
sec-Butylbenzene	U	1.0	0	0	0		0	0	30
Styrene	U	1.0	0	0	0		0	0	30
tert-Butyl alcohol	U	20	0	0	0		0	0	30
tert-Butylbenzene	U	1.0	0	0	0		0	0	30
Tetrachloroethene	U	1.0	0	0	0		0	0	30
Tetrahydrofuran	U	1.0	0	0	0		0	0	30
Toluene	U	1.0	0	0	0		0	0	30
trans-1,2-Dichloroethene	U	1.0	0	0	0		0	0	30
trans-1,3-Dichloropropene	U	1.0	0	0	0		0	0	30
trans-1,4-Dichloro-2-butene	U	2.0	0	0	0		0	0	30
Trichloroethene	U	1.0	0	0	0		0	0	30
Trichlorofluoromethane	U	1.0	0	0	0		0	0	30
Vinyl acetate	U	5.0	0	0	0		0	0	30
Vinyl chloride	U	1.0	0	0	0		0	0	30
Surr: 1,2-Dichloroethane-d4	*19.88*	0	*20*	0	*99.4*	*75-120*	19.74	*0.707*	*30*
Surr: 4-Bromofluorobenzene	*20.31*	0	*20*	0	*102*	*80-110*	19.94	*1.84*	*30*
Surr: Dibromofluoromethane	*19.59*	0	*20*	0	*98*	*85-115*	19.09	*2.59*	*30*
Surr: Toluene-d8	*19.64*	0	*20*	0	*98.2*	*85-110*	19.68	*0.203*	*30*

The following samples were analyzed in this batch: 20041449-09A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287783a** Instrument ID **VMS6** Method: **SW8260C**

MBLK Sample ID: **VBLKW1-200504-R287783a** Units: **µg/L** Analysis Date: **5/4/2020 12:56 PM**
Client ID: Run ID: **VMS6_200504A** SeqNo: **6390146** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	U	1.0								
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,1-Dichloropropene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,3-Trichloropropane	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2,4-Trimethylbenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3,5-Trichlorobenzene	U	1.0								
1,3,5-Trimethylbenzene	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2,2-Dichloropropane	U	1.0								
2-Butanone	U	5.0								
2-Chloroethyl vinyl ether	U	1.0								
2-Chlorotoluene	U	1.0								
2-Hexanone	U	5.0								
2-Methylnaphthalene	U	5.0								
4-Chlorotoluene	U	1.0								
4-Isopropyltoluene	U	1.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Acrolein	U	1.0								
Acrylonitrile	U	1.0								
Benzene	U	1.0								
Benzyl chloride	U	1.0								
Bromobenzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R287783a** Instrument ID **VMS6** Method: **SW8260C**

Carbon tetrachloride	U	1.0					
Chlorobenzene	U	1.0					
Chloroethane	U	1.0					
Chloroform	U	1.0					
Chloromethane	U	1.0					
cis-1,2-Dichloroethene	U	1.0					
cis-1,3-Dichloropropene	U	1.0					
Dibromochloromethane	U	1.0					
Dibromomethane	U	1.0					
Dichlorodifluoromethane	U	1.0					
Ethylbenzene	U	1.0					
Hexachlorobutadiene	U	1.0					
Hexachloroethane	U	1.0					
Hexane	U	1.0					
Iodomethane	U	5.0					
Isopropylbenzene	U	1.0					
m,p-Xylene	U	2.0					
Methyl tert-butyl ether	U	1.0					
Methylene chloride	U	5.0					
Naphthalene	U	5.0					
n-Butylbenzene	U	1.0					
n-Propylbenzene	U	1.0					
o-Xylene	U	1.0					
p-Isopropyltoluene	U	1.0					
sec-Butylbenzene	U	1.0					
Styrene	U	1.0					
tert-Butyl alcohol	U	20					
tert-Butylbenzene	U	1.0					
Tetrachloroethene	U	1.0					
Tetrahydrofuran	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
trans-1,4-Dichloro-2-butene	U	2.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl acetate	U	5.0					
Vinyl chloride	U	1.0					
Surr: 1,2-Dichloroethane-d4	*20*	0	*20*	0	*100*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.67*	0	*20*	0	*98.4*	*80-110*	0
Surr: Dibromofluoromethane	*19.91*	0	*20*	0	*99.6*	*85-115*	0
Surr: Toluene-d8	*19.2*	0	*20*	0	*96*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287783a** Instrument ID **VMS6** Method: **SW8260C**

LCS Sample ID: **VLCSW1-200504-R287783a** Units: **µg/L** Analysis Date: **5/4/2020 11:44 AM**
Client ID: Run ID: **VMS6_200504A** SeqNo: **6390145** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.25	1.0	20	0	96.2	73-114	0			
1,1,1-Trichloroethane	20.79	1.0	20	0	104	75-130	0			
1,1,2,2-Tetrachloroethane	21.61	1.0	20	0	108	75-130	0			
1,1,2-Trichloroethane	20.89	1.0	20	0	104	75-125	0			
1,1-Dichloroethane	22	1.0	20	0	110	68-142	0			
1,1-Dichloroethene	22.54	1.0	20	0	113	70-145	0			
1,1-Dichloropropene	20.01	1.0	20	0	100	75-135	0			
1,2,3-Trichlorobenzene	20.02	1.0	20	0	100	70-140	0			
1,2,3-Trichloropropane	20.29	1.0	20	0	101	75-125	0			
1,2,4-Trichlorobenzene	19.73	1.0	20	0	98.6	70-135	0			
1,2,4-Trimethylbenzene	19.76	1.0	20	0	98.8	75-130	0			
1,2-Dibromo-3-chloropropane	18.64	1.0	20	0	93.2	60-130	0			
1,2-Dibromoethane	22.38	1.0	20	0	112	67-155	0			
1,2-Dichlorobenzene	19.32	1.0	20	0	96.6	70-130	0			
1,2-Dichloroethane	21.74	1.0	20	0	109	78-125	0			
1,2-Dichloropropane	21.26	1.0	20	0	106	75-125	0			
1,3,5-Trimethylbenzene	20.18	1.0	20	0	101	75-130	0			
1,3-Dichlorobenzene	20.16	1.0	20	0	101	75-130	0			
1,3-Dichloropropane	19.88	1.0	20	0	99.4	75-125	0			
1,4-Dichlorobenzene	19.92	1.0	20	0	99.6	75-130	0			
2,2-Dichloropropane	21.81	1.0	20	0	109	43-150	0			
2-Butanone	29.65	5.0	20	0	148	55-150	0			
2-Chlorotoluene	19.7	1.0	20	0	98.5	76-117	0			
2-Hexanone	25.74	5.0	20	0	129	60-135	0			
4-Chlorotoluene	20.4	1.0	20	0	102	80-125	0			
4-Isopropyltoluene	20.52	1.0	20	0	103	61-164	0			
4-Methyl-2-pentanone	34.15	1.0	20	0	171	77-178	0			
Acetone	27.28	10	20	0	136	60-160	0			
Acrylonitrile	23.47	1.0	20	0	117	60-140	0			
Benzene	20.63	1.0	20	0	103	70-130	0			
Bromobenzene	19.83	1.0	20	0	99.2	80-125	0			
Bromochloromethane	21.45	1.0	20	0	107	72-141	0			
Bromodichloromethane	21.21	1.0	20	0	106	75-125	0			
Bromoform	19.7	1.0	20	0	98.5	60-125	0			
Bromomethane	19.66	1.0	20	0	98.3	30-185	0			
Carbon disulfide	25.39	1.0	20	0	127	60-165	0			
Carbon tetrachloride	20.05	1.0	20	0	100	65-140	0			
Chlorobenzene	20.02	1.0	20	0	100	80-120	0			
Chloroethane	19.02	1.0	20	0	95.1	31-172	0			
Chloroform	20.86	1.0	20	0	104	66-135	0			
Chloromethane	20.02	1.0	20	0	100	46-148	0			
cis-1,2-Dichloroethene	21.61	1.0	20	0	108	75-134	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287783a** Instrument ID **VMS6** Method: **SW8260C**

cis-1,3-Dichloropropene	20.99	1.0	20	0	105	70-130	0	
Dibromochloromethane	18.32	1.0	20	0	91.6	60-115	0	
Dibromomethane	21.11	1.0	20	0	106	79-126	0	
Dichlorodifluoromethane	19.56	1.0	20	0	97.8	20-120	0	
Ethylbenzene	19.94	1.0	20	0	99.7	76-123	0	
Hexachlorobutadiene	23.13	1.0	20	0	116	70-155	0	
Hexachloroethane	20.94	1.0	20	0	105	50-124	0	
Iodomethane	27.11	5.0	20	0	136	60-160	0	
Isopropylbenzene	20.39	1.0	20	0	102	80-127	0	
m,p-Xylene	40.31	2.0	40	0	101	75-130	0	
Methyl tert-butyl ether	30.25	1.0	20	0	151	68-129	0	S
Methylene chloride	20.92	5.0	20	0	105	72-125	0	
Naphthalene	18.85	5.0	20	0	94.2	55-160	0	
n-Butylbenzene	20.01	1.0	20	0	100	75-145	0	
n-Propylbenzene	20.42	1.0	20	0	102	76-116	0	
o-Xylene	21.04	1.0	20	0	105	76-127	0	
p-Isopropyltoluene	20.52	1.0	20	0	103	61-164	0	
sec-Butylbenzene	19.89	1.0	20	0	99.4	80-134	0	
Styrene	20.78	1.0	20	0	104	83-137	0	
tert-Butyl alcohol	116.1	20	100	0	116	70-130	0	
tert-Butylbenzene	19.17	1.0	20	0	95.8	70-130	0	
Tetrachloroethene	20.26	1.0	20	0	101	68-166	0	
Tetrahydrofuran	25.38	1.0	20	0	127	54-139	0	
Toluene	20.18	1.0	20	0	101	76-125	0	
trans-1,2-Dichloroethene	22.27	1.0	20	0	111	80-140	0	
trans-1,3-Dichloropropene	18.97	1.0	20	0	94.8	56-132	0	
trans-1,4-Dichloro-2-butene	20.1	2.0	20	0	100	46-118	0	
Trichloroethene	19.44	1.0	20	0	97.2	77-125	0	
Trichlorofluoromethane	14.66	1.0	20	0	73.3	60-140	0	
Vinyl chloride	18.98	1.0	20	0	94.9	50-136	0	
Surr: 1,2-Dichloroethane-d4	*20.3*	0	*20*	0	*102*	*75-120*	0	
Surr: 4-Bromofluorobenzene	*20.68*	0	*20*	0	*103*	*80-110*	0	
Surr: Dibromofluoromethane	*20.17*	0	*20*	0	*101*	*85-115*	0	
Surr: Toluene-d8	*19.57*	0	*20*	0	*97.8*	*85-110*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287783a** Instrument ID **VMS6** Method: **SW8260C**

MS Sample ID: **20041971-07A MS** Units: **µg/L** Analysis Date: **5/4/2020 10:10 PM**
Client ID: Run ID: **VMS6_200504A** SeqNo: **6390183** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.19	1.0	20	0	106	73-114	0			
1,1,1-Trichloroethane	25.87	1.0	20	1	124	75-130	0			
1,1,2,2-Tetrachloroethane	23.4	1.0	20	0	117	75-130	0			
1,1,2-Trichloroethane	23.2	1.0	20	0	116	75-125	0			
1,1-Dichloroethane	26.78	1.0	20	1.6	126	68-142	0			
1,1-Dichloroethene	27.37	1.0	20	0	137	70-145	0			
1,1-Dichloropropene	23.9	1.0	20	0	120	75-135	0			
1,2,3-Trichlorobenzene	19.22	1.0	20	0	96.1	70-140	0			
1,2,3-Trichloropropane	21.43	1.0	20	0	107	75-125	0			
1,2,4-Trichlorobenzene	19.31	1.0	20	0	96.6	70-135	0			
1,2,4-Trimethylbenzene	21.95	1.0	20	0	110	75-130	0			
1,2-Dibromo-3-chloropropane	18.97	1.0	20	0	94.8	60-130	0			
1,2-Dibromoethane	25.63	1.0	20	0	128	67-155	0			
1,2-Dichlorobenzene	21.77	1.0	20	0	109	70-130	0			
1,2-Dichloroethane	23.21	1.0	20	0	116	78-125	0			
1,2-Dichloropropane	23.63	1.0	20	0	118	75-125	0			
1,3,5-Trimethylbenzene	22.43	1.0	20	0	112	75-130	0			
1,3-Dichlorobenzene	21.91	1.0	20	0	110	75-130	0			
1,3-Dichloropropane	22.81	1.0	20	0	114	75-125	0			
1,4-Dichlorobenzene	21.58	1.0	20	0	108	75-130	0			
2,2-Dichloropropane	22.92	1.0	20	0	115	43-150	0			
2-Butanone	29.17	5.0	20	0	146	55-150	0			
2-Chlorotoluene	22.45	1.0	20	0	112	76-117	0			
2-Hexanone	25.6	5.0	20	0	128	60-135	0			
4-Chlorotoluene	22.71	1.0	20	0	114	80-125	0			
4-Isopropyltoluene	22.31	1.0	20	0	112	61-164	0			
4-Methyl-2-pentanone	34.42	1.0	20	0	172	77-178	0			
Acetone	26.91	10	20	1.83	125	60-160	0			
Acrylonitrile	24.71	1.0	20	0	124	60-140	0			
Benzene	23.61	1.0	20	0	118	70-130	0			
Bromobenzene	21.67	1.0	20	0	108	80-125	0			
Bromochloromethane	22.37	1.0	20	0	112	72-141	0			
Bromodichloromethane	23.15	1.0	20	0	116	75-125	0			
Bromoform	20.21	1.0	20	0	101	60-125	0			
Bromomethane	15.44	1.0	20	0	77.2	30-185	0			
Carbon disulfide	28.27	1.0	20	0	141	60-165	0			
Carbon tetrachloride	23.95	1.0	20	0	120	65-140	0			
Chlorobenzene	22.73	1.0	20	0	114	80-120	0			
Chloroethane	23.52	1.0	20	0	118	31-172	0			
Chloroform	23.63	1.0	20	0	118	66-135	0			
Chloromethane	20.5	1.0	20	0	102	46-148	0			
cis-1,2-Dichloroethene	25.11	1.0	20	1.58	118	75-134	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287783a** Instrument ID **VMS6** Method: **SW8260C**

cis-1,3-Dichloropropene	21.93	1.0	20	0	110	70-130	0	
Dibromochloromethane	19.39	1.0	20	0	97	60-115	0	
Dibromomethane	23.87	1.0	20	0	119	79-126	0	
Dichlorodifluoromethane	24.05	1.0	20	0	120	20-120	0	S
Ethylbenzene	23.73	1.0	20	0	119	76-123	0	
Hexachlorobutadiene	21.46	1.0	20	0	107	70-155	0	
Hexachloroethane	20.55	1.0	20	0	103	50-124	0	
Iodomethane	28.42	5.0	20	0	142	60-160	0	
Isopropylbenzene	23.86	1.0	20	0	119	80-127	0	
m,p-Xylene	46.86	2.0	40	0	117	75-130	0	
Methyl tert-butyl ether	29.93	1.0	20	0	150	68-129	0	S
Methylene chloride	23.14	5.0	20	0	116	72-125	0	
Naphthalene	19.49	5.0	20	0	97.4	55-160	0	
n-Butylbenzene	20.71	1.0	20	0	104	75-145	0	
n-Propylbenzene	23.21	1.0	20	0	116	76-116	0	S
o-Xylene	23.61	1.0	20	0	118	76-127	0	
p-Isopropyltoluene	22.31	1.0	20	0	112	61-164	0	
sec-Butylbenzene	22.56	1.0	20	0	113	80-134	0	
Styrene	23.56	1.0	20	0	118	83-137	0	
tert-Butyl alcohol	129.8	20	100	0	130	70-130	0	
tert-Butylbenzene	22.21	1.0	20	0	111	70-130	0	
Tetrachloroethene	25.16	1.0	20	0	126	68-166	0	
Tetrahydrofuran	28.03	1.0	20	0	140	54-139	0	S
Toluene	23.26	1.0	20	0	116	76-125	0	
trans-1,2-Dichloroethene	25.28	1.0	20	0	126	80-140	0	
trans-1,3-Dichloropropene	19.64	1.0	20	0	98.2	56-132	0	
trans-1,4-Dichloro-2-butene	17.35	2.0	20	0	86.8	46-118	0	
Trichloroethene	43.17	1.0	20	19.68	117	77-125	0	
Trichlorofluoromethane	19.34	1.0	20	0	96.7	60-140	0	
Vinyl chloride	22.78	1.0	20	0	114	50-136	0	
Surr: 1,2-Dichloroethane-d4	*19.28*	0	*20*	0	*96.4*	*75-120*	0	
Surr: 4-Bromofluorobenzene	*20.3*	0	*20*	0	*102*	*80-110*	0	
Surr: Dibromofluoromethane	*19.76*	0	*20*	0	*98.8*	*85-115*	0	
Surr: Toluene-d8	*20.04*	0	*20*	0	*100*	*85-110*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287783a** Instrument ID **VMS6** Method: **SW8260C**

DUP Sample ID: **20041971-06A DUP** Units: **µg/L** Analysis Date: **5/4/2020 09:46 PM**
Client ID: Run ID: **VMS6_200504A** SeqNo: **6390182** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	U	1.0	0	0	0		0	0	30	
1,1,1-Trichloroethane	1.26	1.0	0	0	0		1.21	4.05	30	
1,1,2,2-Tetrachloroethane	U	1.0	0	0	0		0	0	30	
1,1,2-Trichloroethane	U	1.0	0	0	0		0	0	30	
1,1,2-Trichlorotrifluoroethane	U	1.0	0	0	0		0	0	30	
1,1-Dichloroethane	1.59	1.0	0	0	0		1.4	12.7	30	
1,1-Dichloroethene	U	1.0	0	0	0		0	0	30	
1,1-Dichloropropene	U	1.0	0	0	0		0	0	30	
1,2,3-Trichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2,3-Trichloropropane	U	1.0	0	0	0		0	0	30	
1,2,4-Trichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2,4-Trimethylbenzene	U	1.0	0	0	0		0	0	30	
1,2-Dibromo-3-chloropropane	U	1.0	0	0	0		0	0	30	
1,2-Dibromoethane	U	1.0	0	0	0		0	0	30	
1,2-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2-Dichloroethane	U	1.0	0	0	0		0	0	30	
1,2-Dichloropropane	U	1.0	0	0	0		0	0	30	
1,3,5-Trichlorobenzene	U	1.0	0	0	0		0	0	30	
1,3,5-Trimethylbenzene	U	1.0	0	0	0		0	0	30	
1,3-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
1,3-Dichloropropane	U	1.0	0	0	0		0	0	30	
1,4-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
2,2-Dichloropropane	U	1.0	0	0	0		0	0	30	
2-Butanone	U	5.0	0	0	0		0	0	30	
2-Chloroethyl vinyl ether	U	1.0	0	0	0		0	0	30	
2-Chlorotoluene	U	1.0	0	0	0		0	0	30	
2-Hexanone	U	5.0	0	0	0		0	0	30	
2-Methylnaphthalene	U	5.0	0	0	0		0	0	30	
4-Chlorotoluene	U	1.0	0	0	0		0	0	30	
4-Isopropyltoluene	U	1.0	0	0	0		0	0	30	
4-Methyl-2-pentanone	U	1.0	0	0	0		0	0	30	
Acetone	U	10	0	0	0		1.45	0	30	
Acrolein	U	1.0	0	0	0		0	0	30	
Acrylonitrile	U	1.0	0	0	0		0	0	30	
Benzene	U	1.0	0	0	0		0	0	30	
Benzyl chloride	U	1.0	0	0	0		0	0	30	
Bromobenzene	U	1.0	0	0	0		0	0	30	
Bromochloromethane	U	1.0	0	0	0		0	0	30	
Bromodichloromethane	U	1.0	0	0	0		0	0	30	
Bromoform	U	1.0	0	0	0		0	0	30	
Bromomethane	U	1.0	0	0	0		0	0	30	
Carbon disulfide	U	1.0	0	0	0		0	0	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287783a** Instrument ID **VMS6** Method: **SW8260C**

Carbon tetrachloride	U	1.0	0	0	0		0	0	30
Chlorobenzene	U	1.0	0	0	0		0	0	30
Chloroethane	U	1.0	0	0	0		0	0	30
Chloroform	U	1.0	0	0	0		0	0	30
Chloromethane	U	1.0	0	0	0		0	0	30
cis-1,2-Dichloroethene	1.39	1.0	0	0	0		1.43	2.84	30
cis-1,3-Dichloropropene	U	1.0	0	0	0		0	0	30
Dibromochloromethane	U	1.0	0	0	0		0	0	30
Dibromomethane	U	1.0	0	0	0		0	0	30
Dichlorodifluoromethane	U	1.0	0	0	0		0	0	30
Ethylbenzene	U	1.0	0	0	0		0	0	30
Hexachlorobutadiene	U	1.0	0	0	0		0	0	30
Hexachloroethane	U	1.0	0	0	0		0	0	30
Hexane	U	1.0	0	0	0		0	0	30
Iodomethane	U	5.0	0	0	0		0	0	30
Isopropylbenzene	U	1.0	0	0	0		0	0	30
m,p-Xylene	U	2.0	0	0	0		0	0	30
Methyl tert-butyl ether	U	1.0	0	0	0		0.34	0	30
Methylene chloride	U	5.0	0	0	0		0	0	30
Naphthalene	U	5.0	0	0	0		0	0	30
n-Butylbenzene	U	1.0	0	0	0		0	0	30
n-Propylbenzene	U	1.0	0	0	0		0	0	30
o-Xylene	U	1.0	0	0	0		0	0	30
p-Isopropyltoluene	U	1.0	0	0	0		0	0	30
sec-Butylbenzene	U	1.0	0	0	0		0	0	30
Styrene	U	1.0	0	0	0		0	0	30
tert-Butyl alcohol	U	20	0	0	0		0	0	30
tert-Butylbenzene	U	1.0	0	0	0		0	0	30
Tetrachloroethene	U	1.0	0	0	0		0	0	30
Tetrahydrofuran	U	1.0	0	0	0		0	0	30
Toluene	U	1.0	0	0	0		0	0	30
trans-1,2-Dichloroethene	U	1.0	0	0	0		0	0	30
trans-1,3-Dichloropropene	U	1.0	0	0	0		0	0	30
trans-1,4-Dichloro-2-butene	U	2.0	0	0	0		0	0	30
Trichloroethene	17.96	1.0	0	0	0		18.38	2.31	30
Trichlorofluoromethane	U	1.0	0	0	0		0	0	30
Vinyl acetate	U	5.0	0	0	0		0	0	30
Vinyl chloride	U	1.0	0	0	0		0	0	30
Surr: 1,2-Dichloroethane-d4	*19.82*	0	*20*	0	*99.1*	*75-120*	19.99	*0.854*	*30*
Surr: 4-Bromofluorobenzene	*19.53*	0	*20*	0	*97.6*	*80-110*	19.7	*0.867*	*30*
Surr: Dibromofluoromethane	*20.23*	0	*20*	0	*101*	*85-115*	20.39	*0.788*	*30*
Surr: Toluene-d8	*19.53*	0	*20*	0	*97.6*	*85-110*	19.94	*2.08*	*30*

The following samples were analyzed in this batch: 20041449-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287193C** Instrument ID **LACHAT** Method: **E353.2 R2.0**

MBLK Sample ID: **MBLK NO32 2-R287193C** Units: **mg/L** Analysis Date: **4/24/2020 10:55 AM**
Client ID: Run ID: **LACHAT_200424B** SeqNo: **6372676** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	U	0.020								

LCS Sample ID: **LCS NO32 2-R287193C** Units: **mg/L** Analysis Date: **4/24/2020 10:25 AM**
Client ID: Run ID: **LACHAT_200424B** SeqNo: **6372484** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	2.631	0.020	2.5	0	105	80-120	0			

MS Sample ID: **20041400-04A MS** Units: **mg/L** Analysis Date: **4/24/2020 10:28 AM**
Client ID: Run ID: **LACHAT_200424B** SeqNo: **6372486** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	2.934	0.020	2.5	0.2805	106	75-125	0			

MS Sample ID: **20041449-04C MS** Units: **mg/L** Analysis Date: **4/24/2020 11:05 AM**
Client ID: **COL-GW-04** Run ID: **LACHAT_200424B** SeqNo: **6372684** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	2.637	0.020	2.5	-0.01137	106	75-125	0			

MSD Sample ID: **20041400-04A MSD** Units: **mg/L** Analysis Date: **4/24/2020 10:56 AM**
Client ID: Run ID: **LACHAT_200424B** SeqNo: **6372677** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	2.828	0.020	2.5	0.2805	102	75-125	2.934	3.68	20	

MSD Sample ID: **20041449-04C MSD** Units: **mg/L** Analysis Date: **4/24/2020 11:06 AM**
Client ID: **COL-GW-04** Run ID: **LACHAT_200424B** SeqNo: **6372685** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	2.632	0.020	2.5	-0.01137	106	75-125	2.637	0.19	20	

The following samples were analyzed in this batch:

20041449-04C	20041449-05C	20041449-06C
20041449-09C	20041449-16C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287230** Instrument ID **WETCHEM** Method: **SW9034**

MBLK Sample ID: **MB-R287230-R287230** Units: **mg/L** Analysis Date: **4/24/2020 12:00 PM**
Client ID: Run ID: **WETCHEM_200424K** SeqNo: **6373292** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	U	1.0								

LCS Sample ID: **LCS-R287230-R287230** Units: **mg/L** Analysis Date: **4/24/2020 12:00 PM**
Client ID: Run ID: **WETCHEM_200424K** SeqNo: **6373293** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	8.04	1.0	10.75	0	74.8	56-102	0			

MS Sample ID: **20041449-04DMS** Units: **mg/L** Analysis Date: **4/24/2020 12:00 PM**
Client ID: **COL-GW-04** Run ID: **WETCHEM_200424K** SeqNo: **6373295** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	20.04	1.0	10.75	4.2	147	56-102	0			S

MSD Sample ID: **20041449-04DMSD** Units: **mg/L** Analysis Date: **4/24/2020 12:00 PM**
Client ID: **COL-GW-04** Run ID: **WETCHEM_200424K** SeqNo: **6373296** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	19.68	1.0	10.75	4.2	144	56-102	20.04	1.81	10	S

The following samples were analyzed in this batch:

20041449-04D	20041449-05D	20041449-06D
20041449-09D	20041449-16D	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: BB&E, Inc.
Work Order: 20041449
Project: SSW Collis 2020 LTM Task 1

QC BATCH REPORT

Batch ID: **R287601** Instrument ID **IC3** Method: **SW9056A**

MBLK Sample ID: **CCB/MBLK-R287601** Units: **mg/L** Analysis Date: **4/29/2020 02:43 PM**
Client ID: Run ID: **IC3_200429A** SeqNo: **6383002** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	1.0								
Sulfate	U	1.0								

LCS Sample ID: **LCS-R287601** Units: **mg/L** Analysis Date: **4/29/2020 03:02 PM**
Client ID: Run ID: **IC3_200429A** SeqNo: **6383003** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.442	1.0	10	0	94.4	88-110	0			
Sulfate	9.772	1.0	10	0	97.7	90-110	0			

MS Sample ID: **20041449-04B MS** Units: **mg/L** Analysis Date: **4/29/2020 07:58 PM**
Client ID: **COL-GW-04** Run ID: **IC3_200429A** SeqNo: **6383016** Prep Date: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	268.4	20	200	66.23	101	88-110	0			
Sulfate	294.4	20	200	94.07	100	90-110	0			

MSD Sample ID: **20041449-04B MSD** Units: **mg/L** Analysis Date: **4/29/2020 08:17 PM**
Client ID: **COL-GW-04** Run ID: **IC3_200429A** SeqNo: **6383017** Prep Date: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	268.7	20	200	66.23	101	88-110	268.4	0.141	20	
Sulfate	294.3	20	200	94.07	100	90-110	294.4	0.053	20	

The following samples were analyzed in this batch:

20041449-04B	20041449-05B	20041449-06B
20041449-09B	20041449-16B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070

Chain of Custody Form

Page 1 of 2

COC ID: 192933

Houston, TX +1 281 530 5656
Middletown, PA +1 717 944 5541
Spring City, PA +1 610 948 4903
Salt Lake City, UT +1 801 266 7700
South Charleston, WV +1 304 356 3168
York, PA +1 717 505 5280

ALS Project Manager:

ALS Work Order #: 20041449

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	SSW Collis 20120 LTM Task 1	A	VOCs
Work Order		Project Number		B	Chloride, Nitrite, Sulfate
Company Name	BB&E, LLC	Bill To Company	BB&E, LLC	C	Dissolved Iron and Manganese
Send Report To	Kacie Van Buskirk	Invoice Attn	Accounts Payable	D	Sulfide
Address	235 East Main Street Suite 107	Address	235 East Main Street Suite 107	E	Methane, Ethane, Ethene
				F	1,4-Dioxane
City/State/Zip	Northville, MI 48167	City/State/Zip	Northville, MI 48167	G	Nitrate
Phone	(248) 489-9636	Phone	(248) 489-9636	H	
Fax	(248) 489-9646	Fax	(248) 489-9646	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	COL-GW-01	4/20/20	1225	GW	1	3	X										
2	COL-GW-02	4/20/20	1255	GW	1	3	X										
3	COL-GW-03	4/20/20	1340	GW	1	3	X										
4	COL-GW-04	4/20/20	1435	GW	1,2,7	12	X	X	X	X	X	X	X				
4	COL-GW-04 MS/MSD	4/20/20	1435	GW	1,2,7	24	X	X	X	X	X	X	X				
5	COL-GW-05	4/20/20	1435	GW	1,2,7	12	X	X	X	X	X	X	X				
6	COL-GW-06	4/20/20	1600	GW	1,2,7	12	X	X	X	X	X	X	X				
7	COL-GW-07	4/20/20	1650	GW	1	3	X										
8	COL-GW-08	4/21/20	0750	GW	1	6	X					X					
9	COL-GW-09	4/21/20	0830	GW	1,2,7	12	X	X	X	X	X	X	X				

Sampler(s) Please Print & Sign: [signature]

Shipment Method: Fedex

Required Turnaround Time: (Check Box) [X] Std 10 WK Days [ ] 5 WK Days [ ] Other [ ] 2 WK Days [ ] 24 Hour

Results Due Date:

Relinquished by:	Date:	Time:	Received by:
Relinquished by: FED EX	Date: 4/23/20	Time: 0800	Received by (Laboratory): FED EX [signature]
Logged by (Laboratory): DFS	Date: 4/23/20	Time: 0830	Checked by (Laboratory): [signature]

Notes:

Cooler ID	Cooler Temp.
SR1	2.8°C
PH20	3.4°C

QC Package: (Check One Box Below)
[ ] Level II Std QC
[ ] Level III Std QC/Raw Data
[ ] Level IV SW846/CLP
[ ] Other
[ ] TRRP Checklist
[ ] TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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Chain of Custody Form

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COC ID: 192934

Houston, TX +1 281 530 5656 | Spring City, PA +1 610 948 4903 | South Charleston, WV +1 304 356 3168 | Middletown, PA +1 717 944 5541 | Salt Lake City, UT +1 801 266 7700 | York, PA +1 717 505 5280

ALS Project Manager:

ALS Work Order #: 20041449

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	SSW Collis 201201 TM Task 1	A	VOCs
Work Order		Project Number		B	Chloride, Nitrite, Sulfate
Company Name	BR&E LLC	Bill To Company	BR&E LLC	C	Dissolved Iron and Manganese
Send Report To	Kacie van Buskirk	Invoice Attn	Accounts Payable	D	Sulfide
Address	245 East Main Street Suite 107	Address	245 East Main Street Suite 107	E	Methane, Ethane, Ethene
				F	1,4-Dioxane
City/State/Zip	Northville, MI 48167	City/State/Zip	Northville, MI 48167	G	Nitrate
Phone	(248) 489-9636	Phone	(248) 489-9636	H	
Fax	(248) 489-9646	Fax	(248) 489-9646	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
10	COL-GW-10	4/21/20	0935	GW	1	3	X										
11	COL-GW-11	4/21/20	1015	GW	1	3	X										
12	COL-GW-12	4/21/20	1055	GW	1	3	X										
13	COL-GW-13	4/21/20	1130	GW	1	3	X										
14	COL-GW-14	4/21/20	1130	GW	1	3	X										
15	COL-GW-15	4/21/20	1215	GW	1	3	X										
16	EB	4/21/20	1300	GW	1,2,7	12	X	X	X	X	X	X	X				
8																	
9																	
10																	

Sampler(s) Please Print & Sign:

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) [X] Std 10 WK Days [ ] 5 WK Days [ ] 2 WK Days [ ] 24 Hour [ ] Other

Results Due Date:

Relinquished by: Date: Time: Received by: FED EX

Relinquished by: FED EX Date: 4/23/20 Time: 0800 Received by (Laboratory):

Logged by (Laboratory): DFS Date: 4/23/20 Time: 0830 Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp.
SR4	2.8°C
pH20	3.4°C

QC Package: (Check One Box Below)
[ ] Level II Std QC
[ ] Level III Std QC/Raw Data
[ ] Level IV SW846/CLP
[ ] Other
[ ] TRRP Checklist
[ ] TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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ALS Group, USA

Sample Receipt Checklist

Client Name: **BBE**

Date/Time Received: **23-Apr-20 08:00**

Work Order: **20041449**

Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 23-Apr-20 (Date)

Reviewed by: Chad Whelton (eSignature) 23-Apr-20 (Date)

Matrices: Groundwater

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.8/2.8, 3.4/3.4 c		SR1
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	4/23/2020 9:15:26 AM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

ATTACHMENT B

FIELD NOTES

BB&E
CONSULTING ENGINEERS & PROFESSIONALS
235 E. Main St, Suite 107 Northville, MI 48167
p 248.489.9636 f 248.489.9646

4/20/20
1100 KVB onsite
1115 Cal check equipment/static water levels
1200 commence purge @ MW-47S
1225 Sample MW-47S (COL-GW-01) for VOCs
1240 commence purge @ PZ-47
1255 Sample PZ-47 (COL-GW-02) for VOCs
1320 commence purge @ PZ-48
1340 Sample PZ-48 (COL-GW-03) for VOCs
1410 commence purge @ MW-42
1435 Sample MW-42 (COL-GW-04) MW-42 DUP (COL-GW-05) and COL-GW-04 MS/MSD for VOCs, MNA, 1,4-dioxane
1540 commence purge @ MW-34
1600 Sample MW-34 (COL-GW-06) for VOCs, MNA, 1,4-dioxane
1630 commence purge @ MW-56
1650 sample MW-56 (COL-GW-07) for VOCs
1715 cal check equipment
1730 KVB offsite

FIELD NOTES

Project SSW Collis LTM first semi-annual 2020

Date 4/20/20

Field Rep. KVB

Page 1 of ___

BB&E
CONSULTING ENGINEERS & PROFESSIONALS
235 E. Main St, Suite 107 Northville, MI 48167
p 248.489.9636 f 248.489.9646

0645 KVB onsite
0650 Calibrate equipment
0720 commence purge @ MW-45
0750 Sample MW-45 (COL-GW-08) for VOCs and 1-4, dioxane
0810 Commence purge @ MW-53
0830 Sample MW-53 (COL-GW-09) for VOCs, 1,4-dioxane, MNA
0845 Dump ~ 20 gal purge water @ WWTP in collis facility
0900 commence purge @ MW-50
0935 Sample MW-50 (COL-GW-10) for VOCs
0945 Commence purge @ MW-50s
1015 Sample MW-50s (COL-GW-11) for VOCs
1035 commence purge @ MW-38
1055 Sample MW-38 (COL-GW-12) for VOCs
1110 commence purge @ MW-43
1130 Sample MW-43 (COL-GW-13) and MW-43 DUP (COL-GW-14) for VOCs
1150 commence purge @ MW-39
1215 Sample MW-39 (COL-GW-15) for VOCs
1300 Collect Equipment blank (EB) for VOCs, MNA, 1,4-dioxane from bladder
1315 Cal check equipment
1336 Dump ~ 15 gal purge water @ WWTP in facility
1375 KVB offsite

FIELD NOTES

Project SSW Collis LTM first semi-annual 2020

Date 4/21/20

Field Rep. KVB

Page ___ of ___

Equipment Calibration Daily Log

BB&E

Date:	4/20/20	Project Name:	LTM SA1 2020
Project#:	02028025 Task 3	Recorded by:	KVB

WATER QUALITY METER	Model: YSI Equipment ID#:				Morning Calibration/ Check	Evening Check (one point only)	Additional Calib/Check (if needed)
	Parameter	Standard	Exp Date	Lot#	Time: 1115	Time: 1715	Time:
First Point Calibration (Auto)	pH	7.0	12/21	96L 432	Initials: 7.0	Value: 7.07	
	Turbidity (NTU)	0.01	1/22	NA	0.02	Value: 0.04	
	Conductivity (mS/cm)	1.413	12/20	96L 652	1.413	Value: 1.416	
	ORP (mV)	220	10/26	064570	220	Value: 221	
	DO (mg/L)	8.9-9. (ambient air)	NA	NA	8.91	Value: 8.91	
Second Point Calibration	pH	4.0	01/22	06A 042	Initials: 4.0	Value: 4.10	
	Turbidity (NTU)	20	1/22	NA	20	Value: 21.2	
	Conductivity (mS/cm)					Value:	
Third Point Calibration	pH	10.0	12/21	96L 648	Initials: 10.0	Value: 10.16	
	Turbidity	100	1/22	NA	100	Value: 102	
	Turbidity	800	1/22	NA	797	799	

Turbidity Meter Model and Equipment ID: Grotech 6801

Additional Remarks: _____

Equipment Calibration Daily Log

BB&E

Date:	4/21/20	Project Name:	LTM SA1 2020
Project#:	02028025 Task 3	Recorded by:	KVB

WATER QUALITY METER	Model: YSI Equipment ID#:				Morning Calibration/ Check	Evening Check (one point only)	Additional Calib/Check (if needed)
	Parameter	Standard	Exp Date	Lot#	Time: 0645	Time: 1315	Time:
First Point Calibration (Auto)	pH	7.0	12/21	96L 432	Initials: 7.01	Value: 7.06	
	Turbidity (NTU)	0.01	1/22	NA	0.02	Value: 0.03	
	Conductivity (mS/cm)	1.413	12/20	96L 652	1.414	Value: 1.417	
	ORP	220	10/20	064 570	220	Value: 221.2	
	DO (mg/L)	8.9-9. (ambient air)	NA	NA	8.91	Value: 8.91	
Second Point Calibration	pH	4.0	01/22	064 042	Initials: 4.0	Value: 4.06	
	Turbidity (NTU)	20	1/22	NA	20.9	Value: 21.2	
	Conductivity (mS/cm)					Value:	
Third Point Calibration	pH	10.0	12/21	96L 648	Initials: 10.02	Value: 10.04	
	Turbidity	100	1/22	NA	101	Value: 101	

Turbidity Meter Model and Equipment ID: Geotech 800 1/22 NA 802 803

Additional Remarks:

MONITOR WELL STATIC WATER LEVEL FORM

Project Name: LTM SA 1 20120
Water Level Indicator ID # _____
LOCATION: SSW Collis, Clinton Iowa

DATE: 4/ 20 /20
Field Book # _____
Page # 1__ of _1___

Monitor Well Number	Total Well Depth	Well Screen Length	Time	Depth to Static Water Level
MW-38	9.95	5 ft	1140	3.48
MW-39	13.91	5 ft	1148	3.62
MW-50S	12.28	5 ft	1133	3.32
PZ-47	10.89	10 ft	1159	1.70
PZ-48	10.65	10 ft	1159	2.59
MW-34	31.6	5 ft	1142	4.90
MW-45	25.59	5 ft	1151	0.0
MW-47S	17.93	5 ft	~~1145~~	0.0
MW-50	24.77	5 ft	1130	3.51
MW-56	30	5 ft	1153	1.40
MW-42	50.2	5 ft	1139	4.39
MW-53	52.24	5 ft	1155	0.0
MW-43	99.38	5 ft	1145	0.0

Note: total well depth to be measured at time of gauging.
Comments: _____
Sampler___ KVB_____ Observer _____

Monitoring Well Sample Collection Form

BB&E

LOCATION	Site: SSW Collis	Welll ID: MW-47S	Date: 4/20/20
	Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW-01	Recorded by: KVB
	Weather Conditions & Barometric Pressure: 50°F, Sun, 30.01 inHg		

EQUIPMENT	Purging Equipment: bladder	Water Level Indicator: Geotech	PID Type/ID#: NA
	Water Quality Meter Type and #: YSI	Sampling Equipment: bladder	Turbidimeter and #: Geotech

WELL INFO	Casing ID (in): 2in	Well Volume: ~2.86 gal	Condition of Well: Good
	Initial Depth to Water (ft): 0.0	Total Volume Purged: ~3 gal	Water in Well Vault? NO
	Total Well Depth (ft): 17.93	Depth of Pump Intake (ft): 4ft from bottom	Well Mouth PID (ppm): NA
	Water Column Thickness (ft): 17.93	Immiscible Layer: Yes (No)	Ambient PID (ppm): NA
	Remarks:		

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	2.0	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	0.16	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate ~~(Lpm)~~ mLpm	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/20/20	1200	00	na	250	9.8	6.61	0.662	7.12	36.6	49.9	Clear
	1205	0.0	na	250	9.5	6.94	0.657	8.99	31.7	9.0	Clear
	1210	0.0	na	250	9.4	7.08	0.650	9.46	61.3	-7.2	
	1215	0.0	na	250	9.4	7.22	0.648	9.20	58.6	-21.6	
	1220	0.0	na	250	9.5	7.30	0.639	9.30	55.2	-27.3	
	1225	0.0	na	250	9.5	7.31	0.638	9.26	51.7	-29.4	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings
Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/20/20 1225	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	3	40mL	VOA	HCl	N	Pump	—	—	VOCs
	~~3~~	40mL	VOA	HCl	N	Pump	—	—	1,4-Dioxane
ALS 192933	~~2~~	40mL	VOA	HCl	N	Pump	—	—	Methane, Ethane, Ethene (MNAs)
	~~1~~	250mL	Plastic	H2SO4	N	Pump	—	—	Nitrite/Nitrate (MNAs)
	~~1~~	500mL	Plastic		N	Pump	—	—	Chloride, Sulfate, Metals (MNAs)
	~~1~~	500mL	Plastic	ZnAc	N	Pump	—	—	Sulfide (MNAs)

Monitoring Well Sample Collection Form

BB&E

LOCATION	Site: SSW Collis	Welll ID: ~~MW~~ PZ-47		Date: 4/20/20	
	Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW-02		Recorded by: KVB	
	Weather Conditions & Barometric Pressure: 50°F, sun, 30.01 inHg				
EQUIPMENT	Purging Equipment: peristaltic	Water Level Indicator: Geotech		PID Type/ID#: NA	
	Water Quality Meter Type and #: YSI	Sampling Equipment: Peristaltic		Turbidimeter and #: Geotech	
WELL INFO	Casing ID (in): 1in	Well Volume: ~0.3676 gal		Condition of Well: Good	
	Initial Depth to Water (ft): 1.70	Total Volume Purged: ~2 gal		Water in Well Vault? no	
	Total Well Depth (ft): 10.89	Depth of Pump Intake (ft): 6 ft from bottom		Well Mouth PID (ppm): NA	
	Water Column Thickness (ft): 9.19	Immiscible Layer: Yes No		Ambient PID (ppm): NA	
	Remarks:				

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	2.0	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Cas ng Volume (gal/lin ft) [b]:	0.04	0.09	0.16	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/20/20	1240	NA	NA	150	8.7	6.62	0.93	0.21	27.6	1.2	purge
	1245	na	na	150	8.6	6.53	0.80	0.42	8.3	20.9	
	1250	na	na	150	8.6	6.59	0.79	0.43	6.1	21.5	
	1255	na	na	150	8.6	6.60	0.78	0.43	7.0	22.8	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings

Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/20/20 1255	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	3	40mL	VOA	HCl	N	Pump	—	—	VOCs
	~~3~~	40mL	VOA	HCl	N	Pump	—	—	1,4-Dioxane
	~~2~~	40mL	VOA	HCl	N	Pump	—	—	Methane, Ethane, Ethene (MNAs)
ALS 192933	~~1~~	250mL	Plastic	H2SO4	N	Pump	—	—	Nitrite/Nitrate (MNAs)
	~~1~~	500mL	Plastic		N	Pump	—	—	Chloride, Sulfate, Metals (MNAs)
	~~1~~	500mL	Plastic	ZnAc	N	Pump	—	—	Sulfide (MNAs)

Monitoring Well Sample Collection Form

BB&E

LOCATION	Site: SSW Collis	Well ID: PZ-48	Date: 4/20 /20
	Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW- 03	Recorded by: KVB
	Weather Conditions & Barometric Pressure: 50°F, Sun, 30.01 inHg		

EQUIPMENT	Purging Equipment: peristaltic	Water Level Indicator: Geotech	PID Type/ID#: NA
	Water Quality Meter Type and #: YSI	Sampling Equipment: peristaltic	Turbidimeter and #: Geotech

WELL INFO	Casing ID (in): 1in	Well Volume: ~0.32 gal	Condition of Well: Good
	Initial Depth to Water (ft): 2.59	Total Volume Purged: ~2 gal	Water in Well Vault? NO
	Total Well Depth (ft): 10.65	Depth of Pump Intake (ft): 4 ft from bottom	Well Mouth PID (ppm): NA
	Water Column Thickness (ft): 8.06	Immiscible Layer: Yes (No)	Ambient PID (ppm): NA
	Remarks:		

CASING INFO											
Casing ID (in) [a]:	(1.0)	1.5	2.0	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	0.16	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/20 /20	1320	na	na	150	8.4	6.74	0.628	4.3	174	28.5	Clear
	1325	na	na	150	8.2	6.65	0.626	1.25	104	36.8	
	1330	na	na	150	8.3	6.68	0.626	1.06	45.8	37.0	
	1335	na	na	150	8.6	6.70	0.628	0.95	23.5	34.1	
	1340	na	na	150	8.4	6.71	0.629	0.91	20.6	35.7	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings
Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/20/20 1340	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	(3)	40mL	VOA	HCl	N	Pump	–	–	VOCs
	~~3~~	40mL	VOA	HCl	N	Pump	–	–	1,4-Dioxane
ALS 192933	~~2~~	40mL	VOA	HCl	N	Pump	–	–	Methane, Ethane, Ethene (MNAs)
	~~1~~	250mL	Plastic	H2SO4	N	Pump	–	–	Nitrite/Nitrate (MNAs)
	~~1~~	500mL	Plastic		N	Pump	–	–	Chloride, Sulfate, Metals (MNAs)
	~~1~~	500mL	Plastic	ZnAc	N	Pump	–	–	Sulfide (MNAs)

Monitoring Well Sample Collection Form

BB&E

LOCATION	Site: SSW Collis	Welll ID: MW-42		Date: 4/20/20	
	Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW-04		Recorded by: KVB	
	Weather Conditions & Barometric Pressure: 50°F, sun, 30.01 inHg				
EQUIPMENT	Purging Equipment: Peristaltic	Water Level Indicator: Geotech		PID Type/ID#: NA	
	Water Quality Meter Type and #: YSI	Sampling Equipment: Peristaltic		Turbidimeter and #: Geotech	
WELL INFO	Casing ID (in): 2in	Well Volume: ~7.32gal		Condition of Well: Good	
	Initial Depth to Water (ft): 4.39	Total Volume Purged: ~4gal		Water in Well Vault? No	
	Total Well Depth (ft): 50.2	Depth of Pump Intake (ft): 44ft from bottom		Well Mouth PID (ppm): NA	
	Water Column Thickness (ft): 45.81	Immiscible Layer: Yes (No)		Ambient PID (ppm): NA	
	Remarks: Obstruction in well prohibits use of bladder pump				

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	(2.0)	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	(0.16)	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/20/20	1410	4.51	na	200	13.1	7.05	1.00	0.24	1.60	39.8	Clear
	1415	4.52	na	200	13.1	7.16	1.00	0.15	1.45	23.4	
	1420	4.57	na	200	12.9	7.08	1.00	0.12	1.11	13.9	
	1425	4.57	na	200	12.9	7.07	1.00	0.11	0.98	16.2	
	1430	4.58	na	200	12.9	7.00	1.00	0.10	0.99	14.7	
	1435	4.58	na	200	12.9	7.07	0.98	0.12	0.98	15.8	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings

Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/20/20 1435	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	3	40mL	VOA	HCl	N	Pump	3	6	VOCs
	3	40mL	VOA	HCl	N	Pump	3	6	1,4-Dioxane
	2	40mL	VOA	HCl	N	Pump	3	6	Methane, Ethane, Ethene (MNAs)
ALS 192933	1	250mL	Plastic	H2SO4	N	Pump	1	2	Nitrite/Nitrate (MNAs)
	1	500mL	Plastic		N	Pump	1	2	Chloride, Sulfate, Metals (MNAs)
	1	500mL	Plastic	ZnAc	N	Pump	1	2	Sulfide (MNAs)

*Collect MW-42 Dup (COL-GW-05) and COL-GW-04 MS/MSD

Monitoring Well Sample Collection Form

BB&E

LOCATION			
Site: SSW Collis	Welll ID: MW-34	Date: 4/20/20
Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW- 06	Recorded by: KVB
Weather Conditions & Barometric Pressure: 50°F, sun, 30.01 inHg		

EQUIPMENT		
Purging Equipment: peristaltic	Water Level Indicator: Geotech	PID Type/ID#: NA
Water Quality Meter Type and #: YSI	Sampling Equipment: peristaltic	Turbidimeter and #: Geotech

WELL INFO		
Casing ID (in): 2in	Well Volume: ~4.3 gal	Condition of Well: Good
Initial Depth to Water (ft): 4.96	Total Volume Purged: ~3 gal	Water in Well Vault? No
Total Well Depth (ft): 31.6	Depth of Pump Intake (ft): 4ft from bottom	Well Mouth PID (ppm): NA
Water Column Thickness (ft): 26.7	Immiscible Layer: Yes (No)	Ambient PID (ppm): NA
Remarks: Obstruction in well prohibits use of bladder pump		

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	2.0	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	0.16	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/20/20	1540	4.92	na	200	11.3	6.88	1.01	0.37	6.8	90.0	clear
	1545	4.95	na	200	11.3	6.97	1.01	0.16	5.2	81.8	
	1550	4.95	na	200	11.3	6.94	1.01	0.10	4.8	76.2	
	1555	4.96	na	200	11.4	6.95	1.01	0.11	4.6	78.1	
	1600	4.96	na	200	11.4	6.95	1.01	0.13	5.1	77.9	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings
Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/20/20 1600	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	3	40mL	VOA	HCl	N	Pump	—	—	VOCs
	3	40mL	VOA	HCl	N	Pump	—	—	1,4-Dioxane
ALS 192933	3	40mL	VOA	HCl	N	Pump	—	—	Methane, Ethane, Ethene (MNAs)
	1	250mL	Plastic	H2SO4	N	Pump	—	—	Nitrite/Nitrate (MNAs)
	1	500mL	Plastic		N	Pump	—	—	Chloride, Sulfate, Metals (MNAs)
	1	500mL	Plastic	ZnAc	N	Pump	—	—	Sulfide (MNAs)

Monitoring Well Sample Collection Form

BB&E

LOCATION	Site: SSW Collis	Welll ID: MW-54	Date: 4/20/20
	Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW- 07	Recorded by: KVB
	Weather Conditions & Barometric Pressure: 50°f, sun, 30.01 in Hg		

EQUIPMENT	Purging Equipment: bladder	Water Level Indicator:	PID Type/ID#: NA
	Water Quality Meter Type and #: YSI	Sampling Equipment: bladder	Turbidimeter and #: Geotech

WELL INFO	Casing ID (in): 2in	Well Volume: ~4.5 gal	Condition of Well: Good
	Initial Depth to Water (ft): 1.40	Total Volume Purged: ~3 gal	Water in Well Vault? NO
	Total Well Depth (ft): 30.0	Depth of Pump Intake (ft): 4 ft from bottom	Well Mouth PID (ppm): NA
	Water Column Thickness (ft): 28.60	Immiscible Layer: Yes No	Ambient PID (ppm): NA
	Remarks:		

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	2.0	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	0.16	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/20/20	1630	1.68	na	200	10.6	6.61	0.673	1.15	17.8	-19.7	Clear
	1635	1.80	na	200	10.5	6.69	0.674	0.20	17.6	-37.9	
	1640	1.88	na	200	10.5	6.70	0.674	1.16	16.2	-39.6	
	1645	1.89	na	200	10.5	6.71	0.674	1.20	12.9	-41.2	
	1650	1.89	na	200	10.5	6.71	0.675	1.22	11.7	-41.9	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings

Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/20/20 1650	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	3	40mL	VOA	HCl	N	Pump	—	—	VOCs
	~~3~~	40mL	VOA	HCl	N	Pump	—	—	1,4-Dioxane
	~~2~~	40mL	VOA	HCl	N	Pump	—	—	Methane, Ethane, Ethene (MNAs)
ALS 192933	1	250mL	Plastic	H2SO4	N	Pump	—	—	Nitrite/Nitrate (MNAs)
	1	500mL	Plastic		N	Pump	—	—	Chloride, Sulfate, Metals (MNAs)
	1	500mL	Plastic	ZnAc	N	Pump	—	—	Sulfide (MNAs)

Monitoring Well Sample Collection Form

BB&E

LOCATION	Site: SSW Collis	Welll ID: MW-15	Date: 4/21/20
	Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW-08	Recorded by: KVB
	Weather Conditions & Barometric Pressure: 37°F, Sun, 29.97 inHg		
EQUIPMENT	Purging Equipment: bladder	Water Level Indicator: Geotech	PID Type/ID#: NA
	Water Quality Meter Type and #: YSI	Sampling Equipment: bladder	Turbidimeter and #: Geotech
WELL INFO	Casing ID (in): 2in	Well Volume: ~4 gal	Condition of Well: Good
	Initial Depth to Water (ft): 0.0	Total Volume Purged: ~5 gal	Water in Well Vault? NO
	Total Well Depth (ft): 25.59	Depth of Pump Intake (ft): 24ft from bottom	Well Mouth PID (ppm): NA
	Water Column Thickness (ft): 25.59	Immiscible Layer: Yes (No)	Ambient PID (ppm): NA
	Remarks:		

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	(2.0)	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	(0.16)	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/21/20	0726	0.0	na	250	10.5	7.12	0.81	3.70	129	110.3	clear
	0725	0.0	na	250	10.5	7.32	0.81	10.85	133	96.2	
	0730	0.0	na	250	10.6	7.39	0.80	10.06	81.4	85.0	
	0735	0.0	na	250	10.7	7.38	0.80	8.82	66.9	80.8	
	0740	0.0	na	250	10.7	7.36	0.80	8.59	57.6	77.4	
	0745	0.0	na	250	10.8	7.33	0.80	7.76	52.3	74.7	
	0750	0.0	na	250	10.8	7.32	0.80	7.52	51.7	72.6	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings
Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/21/20 0750	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #: 192933	(3)	40mL	VOA	HCl	N	Pump	—	—	VOCs
	(3)	40mL	VOA	HCl	N	Pump	—	—	1,4-Dioxane
ALS	~~2~~	40mL	VOA	HCl	N	Pump	—	—	Methane, Ethane, Ethene (MNAs)
	~~1~~	250mL	Plastic	H2SO4	N	Pump	—	—	Nitrite/Nitrate (MNAs)
	~~1~~	500mL	Plastic		N	Pump	—	—	Chloride, Sulfate, Metals (MNAs)
	~~1~~	500mL	Plastic	ZnAc	N	Pump	—	—	Sulfide (MNAs)

Monitoring Well Sample Collection Form

BB&E

LOCATION	Site: SSW Collis	Welll ID: MW-53	Date: 4/21 /20
	Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW- 09	Recorded by: KVB
	Weather Conditions & Barometric Pressure: 37°F, sun, 29.97 inHg		

EQUIPMENT	Purging Equipment: bladder	Water Level Indicator: geotech	PID Type/ID#: NA
	Water Quality Meter Type and #: YSI	Sampling Equipment: bladder	Turbidimeter and #: Geotech

WELL INFO	Casing ID (in): 2in	Well Volume: ~8.3gal	Condition of Well: Good
	Initial Depth to Water (ft): 0.0	Total Volume Purged: ~5gal	Water in Well Vault? NO
	Total Well Depth (ft): 52.24	Depth of Pump Intake (ft): 4ft from bottom	Well Mouth PID (ppm): NA
	Water Column Thickness (ft): 52.24	Immiscible Layer: Yes (No)	Ambient PID (ppm): NA
	Remarks:		

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	(2.0)	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	(0.16)	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/21/20	0810	0.0	na	250	11.0	7.24	0.70	0.17	9.47	35.1	Clear
↓	0815	0.0	na	250	11.1	7.20	0.70	0.20	8.21	25.2	↓
	0820	0.0	na	250	11.1	7.21	0.70	0.22	6.58	12.9	
	0825	0.0	na	250	11.1	7.20	0.70	0.20	5.62	0.0	
↓	0830	0.0	na	250	11.1	7.20	0.70	0.21	5.81	-1.6	↓

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings
Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/21/20 0830	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	3	40mL	VOA	HCl	N	Pump	—	—	VOCs
	3	40mL	VOA	HCl	N	Pump	—	—	1,4-Dioxane
	2	40mL	VOA	HCl	N	Pump	—	—	Methane, Ethane, Ethene (MNAs)
ALS 1G2933	1	250mL	Plastic	H2SO4	N	Pump	—	—	Nitrite/Nitrate (MNAs)
	1	500mL	Plastic		N	Pump	—	—	Chloride, Sulfate, Metals (MNAs)
	1	500mL	Plastic	ZnAc	N	Pump	—	—	Sulfide (MNAs)

Monitoring Well Sample Collection Form

BB&E

LOCATION	Site: SSW Collis	Welll ID: MW-50	Date: 4/2/ /20
	Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW- 10	Recorded by: KVB
	Weather Conditions & Barometric Pressure: 40°F, sun, 29.98 inHg		

EQUIPMENT	Purging Equipment: bladder	Water Level Indicator: Geotech	PID Type/ID#: NA
	Water Quality Meter Type and #: YSI	Sampling Equipment: bladder	Turbidimeter and #: Geotech

WELL INFO	Casing ID (in): 2 in	Well Volume: ~3.4 gal	Condition of Well: Good
	Initial Depth to Water (ft): 3.51	Total Volume Purged: ~6 gal	Water in Well Vault? NO
	Total Well Depth (ft): 24.77	Depth of Pump Intake (ft): 4 ft from bottom	Well Mouth PID (ppm): NA
	Water Column Thickness (ft): 21.26	Immiscible Layer: Yes (No)	Ambient PID (ppm): NA
	Remarks:		

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	2.0	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	0.16	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/2/ /20	0900	3.67	na	250	10.6	7.03	1.30	2.39	34.4	45.0	Clear
	0905	3.66	na	750	11.5	6.96	1.91	4.21	16.8	40.6	
	0910	3.66	na	250	11.6	7.00	1.92	4.67	17.2	38.6	
	0915	3.66	na	250	11.9	6.96	2.10	1.40	12.6	25.6	
	0920	3.66	na	250	12.0	6.99	2.24	0.25	10.8	11.9	
	0925	3.66	na	250	12.2	6.99	2.27	0.28	10.4	3.4	
	0930	3.66	na	250	12.3	6.99	2.28	0.14	10.0	-8.4	
	0935	3.66	na	250	12.3	6.99	2.28	0.11	9.6	-6.2	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings

Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/2/20 0935	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	3	40mL	VOA	HCl	N	Pump	—	—	VOCs
	~~3~~	40mL	VOA	HCl	N	Pump	—	—	1,4-Dioxane
ALS 192934	~~2~~	40mL	VOA	HCl	N	Pump	—	—	Methane, Ethane, Ethene (MNAs)
	~~1~~	250mL	Plastic	H2SO4	N	Pump	—	—	Nitrite/Nitrate (MNAs)
	~~1~~	500mL	Plastic		N	Pump	—	—	Chloride, Sulfate, Metals (MNAs)
	~~1~~	500mL	Plastic	ZnAc	N	Pump	—	—	Sulfide (MNAs)

Monitoring Well Sample Collection Form

BB&E

LOCATION	Site: SSW Collis	Welll ID: MW-50S	Date: 4/21/20
	Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW- 11	Recorded by: KVB
	Weather Conditions & Barometric Pressure: 45°F, sun, 30.01 inHg		

EQUIPMENT	Purging Equipment: bladder	Water Level Indicator:	PID Type/ID#: NA
	Water Quality Meter Type and #: YSI	Sampling Equipment: bladder	Turbidimeter and #: Geotech

WELL INFO	Casing ID (in): 2in	Well Volume: ~1.4 gal	Condition of Well: Good
	Initial Depth to Water (ft): 3.32	Total Volume Purged: ~5 gal	Water in Well Vault? NO
	Total Well Depth (ft): 12.28	Depth of Pump Intake (ft): 6 ft from bottom	Well Mouth PID (ppm): NA
	Water Column Thickness (ft): 8.96	Immiscible Layer: Yes (No)	Ambient PID (ppm): NA
	Remarks:		

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	2.0	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	0.16	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/21/20	0945	3.40	na	250	10.4	6.93	0.81	0.77	17.5	-1.3	clear
	0950	3.40	na	250	10.5	6.92	1.03	1.19	15.9	0.5	
	0955	3.40	na	250	10.7	7.04	1.31	1.30	12.2	-11.5	
	1000	3.42	na	250	10.6	7.08	1.36	1.27	14.6	-20.3	
	1005	3.42	na	250	10.7	7.09	1.42	1.28	14.9	-27.4	
	1010	3.42	na	250	10.7	7.09	1.45	1.26	12.7	-33.2	
	1015	3.42	na	250	10.7	7.09	1.46	1.27	13.4	-36.8	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings
Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/21/20 1015	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	3	40mL	VOA	HCl	N	Pump	—	—	VOCs
	~~3~~	40mL	VOA	HCl	N	Pump	—	—	1,4-Dioxane
	~~2~~	40mL	VOA	HCl	N	Pump	—	—	Methane, Ethane, Ethene (MNAs)
ALS 192934	~~1~~	250mL	Plastic	H2SO4	N	Pump	—	—	Nitrite/Nitrate (MNAs)
	~~1~~	500mL	Plastic		N	Pump	—	—	Chloride, Sulfate, Metals (MNAs)
	~~1~~	500mL	Plastic	ZnAc	N	Pump	—	—	Sulfide (MNAs)

Monitoring Well Sample Collection Form

BB&E

LOCATION	Site: SSW Collis	Welll ID: MW-38	Date: 4/21/20
	Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW-12	Recorded by: KVB
	Weather Conditions & Barometric Pressure: 45°F, Sun 30.01 inHg		
EQUIPMENT	Purging Equipment: bladder	Water Level Indicator: Geotech	PID Type/ID#: NA
	Water Quality Meter Type and #: YSI	Sampling Equipment: bladder	Turbidimeter and #: Geotech
WELL INFO	Casing ID (in): 2in	Well Volume: ~1gal	Condition of Well: Good
	Initial Depth to Water (ft): 3.48	Total Volume Purged: ~4gal	Water in Well Vault? NO
	Total Well Depth (ft): 9.95	Depth of Pump Intake (ft): 6 ft from bottom	Well Mouth PID (ppm): NA
	Water Column Thickness (ft): 6.47	Immiscible Layer: Yes No	Ambient PID (ppm): NA
	Remarks:		

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	2.0	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	0.16	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/21/20	1035	3.48	na	250	9.1	6.86	1.48	5.73	62.1	-15.0	clear
	1040	3.56	na	250	9.1	6.94	1.45	4.85	23.4	-19.0	
	1045	3.56	na	250	9.1	6.95	1.45	4.67	13.3	-22.4	
	1050	3.54	na	250	9.1	6.95	1.44	4.49	10.6	-26.6	
	1055	3.50	na	250	9.1	6.95	1.44	4.56	8.2	-27.6	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings

Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/21/20 1055	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	3	40mL	VOA	HCl	N	Pump	—	—	VOCs
	~~3~~	40mL	VOA	HCl	N	Pump	—	—	1,4-Dioxane
ALS 192934	~~2~~	40mL	VOA	HCl	N	Pump	—	—	Methane, Ethane, Ethene (MNAs)
	~~1~~	250mL	Plastic	H2SO4	N	Pump	—	—	Nitrite/Nitrate (MNAs)
	~~1~~	500mL	Plastic		N	Pump	—	—	Chloride, Sulfate, Metals (MNAs)
	1	500mL	Plastic	ZnAc	N	Pump	—	—	Sulfide (MNAs)

Monitoring Well Sample Collection Form

BB&E

LOCATION	Site: SSW Collis	Welll ID: MW-43	Date: 4/9 /20
	Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW-13	Recorded by: KVB
	Weather Conditions & Barometric Pressure: 48°F, sun, 30.01 inHg		
EQUIPMENT	Purging Equipment: bladder	Water Level Indicator: Geotech 878	PID Type/ID#: NA
	Water Quality Meter Type and #: YSI	Sampling Equipment: bladder	Turbidimeter and #: Geotech
WELL INFO	Casing ID (in): 2in	Well Volume: ~16 gal	Condition of Well: Good
	Initial Depth to Water (ft): 0.0	Total Volume Purged: ~4 gal	Water in Well Vault? No
	Total Well Depth (ft): 99.38	Depth of Pump Intake (ft): Lift from bottom	Well Mouth PID (ppm): NA
	Water Column Thickness (ft): 99.38	Immiscible Layer: Yes (No)	Ambient PID (ppm): NA
	Remarks:		

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	(2.0)	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	(0.16)	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/9/20	1110	0.0	na	250	12.5	7.16	0.639	0.12	0.02	-50.8	Clear
	1115	0.0	na	250	12.5	7.19	0.639	0.09	0.02	-6.7	
	1120	0.0	na	250	12.6	7.21	0.640	0.07	0.02	1.3	
	1125	0.0	na	250	12.6	7.25	0.640	0.13	0.02	7.5	
	1130	0.0	na	250	12.6	7.27	0.639	0.11	0.02	1.3	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings
Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/21/20 1130	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	(3)	40mL	VOA	HCl	N	Pump	(3)	–	VOCs
	~~3~~	40mL	VOA	HCl	N	Pump	–	–	1,4-Dioxane
ALS 192934	~~2~~	40mL	VOA	HCl	N	Pump	–	–	Methane, Ethane, Ethene (MNAs)
	~~1~~	250mL	Plastic	H2SO4	N	Pump	–	–	Nitrite/Nitrate (MNAs)
	~~1~~	500mL	Plastic		N	Pump	–	–	Chloride, Sulfate, Metals (MNAs)
	~~1~~	500mL	Plastic	ZnAc	N	Pump	–	–	Sulfide (MNAs)

* Collect VOC Dup (COL-GW-14)

Monitoring Well Sample Collection Form

BB&E

LOCATION			
Site: SSW Collis	Welll ID: MW-39	Date: 4/ 21/20
Project: #: LTM SA1 2020 SSW Collis	Sample ID: COL-GW- 15	Recorded by: KVB
Weather Conditions & Barometric Pressure: 48°F, Sun, 30.01 inHg		

EQUIPMENT		
Purging Equipment: bladder	Water Level Indicator: Geotech	PID Type/ID#: NA
Water Quality Meter Type and #: YSI	Sampling Equipment: bladder	Turbidimeter and #: Geotech

WELL INFO		
Casing ID (in): 2in	Well Volume: ~1.6 gal	Condition of Well: Good
Initial Depth to Water (ft): 3.62	Total Volume Purged: ~4 gal	Water in Well Vault? No
Total Well Depth (ft): 13.91	Depth of Pump Intake (ft): 4ft from bottom	Well Mouth PID (ppm): NA
Water Column Thickness (ft): 10.29	Immiscible Layer: Yes (No)	Ambient PID (ppm): NA
Remarks:		

CASING INFO											
Casing ID (in) [a]:	1.0	1.5	2.0	2.2	3.0	4.0	4.3	5.0	6.0	7.0
Unit Casing Volume (gal/lin ft) [b]:	0.04	0.09	0.16	0.20	0.37	0.65	0.75	1.0	1.5	2.0

Date	Time (24 hr)	Water Level (FTOC)	Volume Removed (L)	Pumping Rate (Lpm)	Temp (C)	pH	Cond (mS/cm)	DO (mg/L)	Turb (NTU)	ORP (mv)	Remarks (odor, clarity, etc)
4/21/20	1150	3.71	na	250	13.6	6.75	2.35	1.45	2.65	11.1	clear
	1155	3.77	na	250	13.5	6.64	2.44	0.26	1.82	9.6	
	1200	3.77	na	250	13.6	6.70	2.43	0.48	1.59	-0.8	
	1205	3.77	na	250	13.6	6.72	2.42	0.65	1.47	-6.3	
	1210	3.79	na	250	13.6	6.72	2.42	0.63	1.66	-9.1	
	1215	3.79	na	250	13.6	6.73	2.41	0.60	1.58	-10.2	

Pump Rate: <=0.5 L/min Drawdown: <0.33 ft Measurements: 5 mins Stabilization for 3 consecutive readings

Stabilization: +/-0.5C, +/-0.1 pH, +/-3% Cond, +/- 0.3 mg/L DO, +/-10% Tub (or < 50 NTU), +/- 10 mV ORP

Sample Date/Time: 4/21/20 1215	# of Containers	Container Volume	Container Material	Preservative	Filter (Y/N)	Pump, Bailer, Foot Valve	Duplicate (# of Containers)	MS/MSD (# of Containers)	Parameter(s) and Analytical Method
Laboratory and Chain-of-Custody #:	3	40mL	VOA	HCl	N	Pump	—	—	VOCs
	~~3~~	40mL	VOA	HCl	N	Pump	—	—	1,4-Dioxane
	~~2~~	40mL	VOA	HCl	N	Pump	—	—	Methane, Ethane, Ethene (MNAs)
ALS 192934	~~1~~	250mL	Plastic	H2SO4	N	Pump	—	—	Nitrite/Nitrate (MNAs)
	~~1~~	500mL	Plastic		N	Pump	—	—	Chloride, Sulfate, Metals (MNAs)
	~~1~~	500mL	Plastic	ZnAc	N	Pump	—	—	Sulfide (MNAs)

ATTACHMENT C

GRAVEL LOT INSPECTION

SEMI-ANNUAL INSPECTION RECORD
Media Management Plan
Collis, Inc. Property
Clinton, Iowa

Inspection performed by: Kacie Van Buskirk

Date: 4/21/20

Weather: 45-of, sun

1) **Gravel Truck Lot**

See attached figure for area to be inspected. Inspect gravel condition and list observations below. Take photographs showing overall condition of the lot and gravel coverage, including close-up photographs detailing specific observations.

1) Inspect for evidence of excessive erosion. If excessive erosion is observed, document necessary corrective measures (e.g., regrading, placement of new gravel, etc.).

None noted

2) Inspect for evidence of burrowing animals. If evidence of burrowing animals observed, document necessary corrective measures (e.g., filling of burrow holes, etc.).

None noted

3) Inspect for areas of poor drainage or ponding. If evidence of poor drainage or ponding are observed, document necessary corrective measures (e.g., regrading, placement of new gravel, etc.).

None noted

4) Inspect for bare areas (either no gravel cover or no vegetation). If bare areas are observed, document necessary corrective measures (e.g., placement of new gravel).

None noted

Additional/Other Maintenance needed? Yes____ No X

Location/explanation:

Corrective measures must be completed within **60 days** of discovery (weather permitting) and documented evidence of corrective measures implementation must be provided to BB&E as part of the certification process.

Follow-up Inspection (after repair):

Performed by: _____

Date: _____

Attachment C
Gravel Lot Inspection
April 2020

Photo 1

Photo 2

Attachment C
Gravel Lot Inspection
April 2020

Photo 3

Photo 4

Attachment C
Gravel Lot Inspection
April 2020

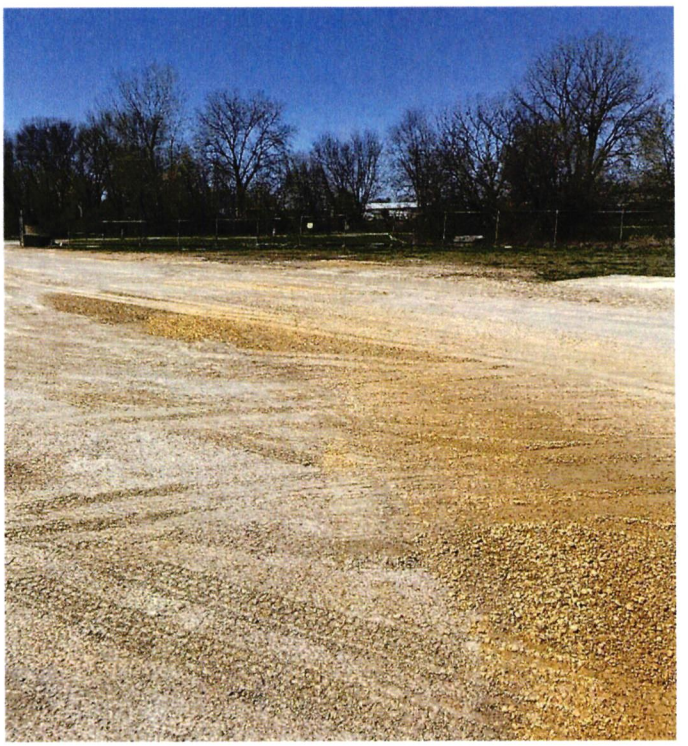

Photo 5

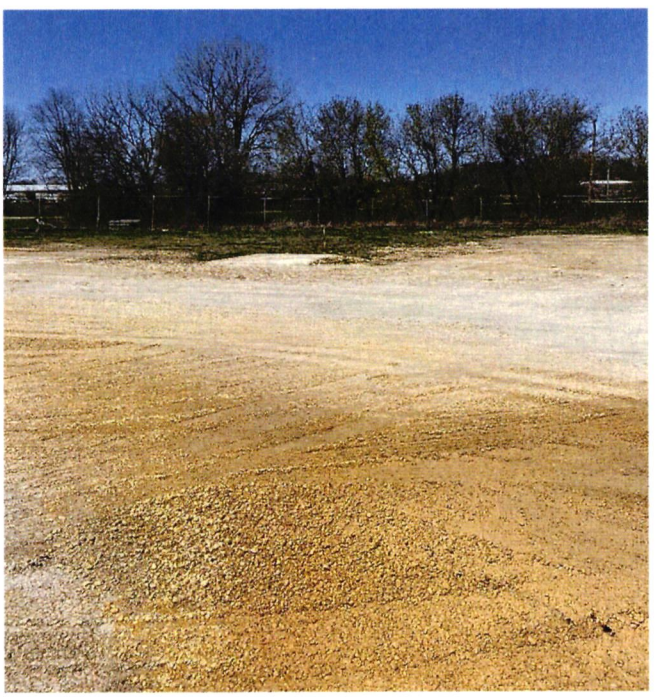

Photo 6

Attachment C
Gravel Lot Inspection
April 2020

Photo 7

Photo 8

Attachment C
Gravel Lot Inspection
April 2020

Photo 9

ATTACHMENT D

SEMI-ANNUAL CERTIFICATION FOR COMPLIANCE WITH LUCs/ICs

SSW Holding
COMPANY, LLC
Delivering Innovation to Unexpected Spaces

May 28, 2020

D. Mark Doolan
U.S Environmental Protection Agency
Air and Waste Management Division, WRAP Branch
11201 Renner Blvd.
Lenexa, KS 66219
913-551-7169

RE: Collis, Inc Semi-Annual Certification for Compliance with LUCs/ICs for first half 2020
USEPA Reference ID No. IAD047303771

As a condition of the Environmental Restrictive Covenant (ERC) entered into between the United States Environmental Protection Agency (USEPA), SSW Realty Iowa, LLC, and Collis, Inc (Collis), Collis is required to provide the USEPA Project Coordinator with a written Annual Report describing compliance with the implementation of Land Use Controls (LUCs)/Institutional Controls (ICs) for soil and groundwater at the Collis property, as detailed in the ERC. To verify the implementation of LUCs/ICs at the Collis property, we have decided to provide these reports on a semi-annual basis along with our Long-Term Monitoring Groundwater Reports. The first half 2020 semi-annual inspection was conducted on April 21, 2020.

1. Status of compliance with land use or resource use restrictions, including institutional controls, as stated in the ERC:
    - The property is not being utilized for residential purposes
    - There has been no construction or use of wells or other devices on the property for the extraction of groundwater to be used for consumption, irrigation, or any other purpose.
    - There has been no in-situ treatment of the groundwater to expedite groundwater remediation.
    - There has been no excavation or subsurface activity greater than two (2) feet below ground surface at the property.
    - The gravel lot has been inspected and maintained on a semi-annual basis.
    - No activities were conducted that would interfere with the function of or obstruct access to any groundwater monitoring wells, vapor pins, and/or monitoring devices located on the property.
    - No new structures planned for human occupancy were built on the property.

2. Any other relevant information regarding other activities or matters at the Collis facility that affect or may affect the implementation of the requirements of the ERC:
    - None noted

This concludes our Semi-Annual Certification Report for first half 2020; if you have questions feel free to contact me at (517) 227-6118.

Sincerely,

Brian Calhoun
Corporate Safety & Environmental Director
SSW Holding Company, LLC
176 West Colon Road Coldwater, MI 49036
(517) 227-6118
bcalhoun@sswholding.net

BB&E

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