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Subject: Delavan Spray Technologies Site, Bamberg SC - Deep Groundwater Delineation Tech Memo

Cynde,

I have attached the Deep Groundwater Delineation Technical Memorandum for the Delavan Spray Technologies Site in Bamberg, South Carolina, for your review. A hard copy of this document will also be sent to you via FedEx. If you have any questions, please feel free to contact me.

Best regards,
Leslee

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MEMORANDUM

TO: Cynde Devlin, SCDHEC

FROM: Leslee J. Alexander, AECOM

COPY: William Penn, Raytheon Technologies Corporation
Melinda Washington, Delavan Spray Technologies
Conan Fitzgerald, AECOM
AECOM Project File 60314964/60590866

RE: Deep Groundwater Delineation Technical Memorandum
Delavan Spray LLC
Bamberg, South Carolina
VCC 13-4762-RP

DATE: June 10, 2020

RECEIVED
JUN 17 2020
SITE ASSESSMENT,
REMEDIATION, &
REVITALIZATION

This *Deep Groundwater Delineation Technical Memorandum* documents environmental investigation activities completed for the Delavan Spray Technologies Site ("Delavan"), a Delavan Spray LLC manufacturing facility located at 4334 Main Highway in Bamberg, South Carolina. The memorandum has been prepared by AECOM Technical Services, Inc. (AECOM) on behalf of Delavan Spray LLC, a Collins Aerospace company. This memorandum provides a brief background, followed by a summary of activities completed and the results of the investigation.

1.0 Background

Following the *Post Remedial Investigation (RI) Report* (AECOM, May 2016), the South Carolina Department of Health and Environmental Control (SCDHEC) requested a work plan to delineate site-related constituents of concern (COCs) in the shallow (surficial) and deep (limestone) groundwater beneath the site. The *Groundwater Delineation Work Plan* (AECOM, September 2016), which included groundwater screening with temporary wells and permanent monitoring well installation, was approved by SCDHEC in correspondence dated October 31, 2016, and was implemented between March 27, 2017 and May 10, 2017. The results of the investigation, which are documented in the Groundwater Delineation Report (AECOM, June 2017), confirmed the presence of tetrachloroethene (PCE) concentrations greater than the maximum contaminant level (MCL) in the limestone aquifer monitoring wells ~3,200 feet south/southwest of the Site.

SCDHEC approved the *Groundwater Delineation Report* in correspondence dated June 26, 2017 and agreed with the report's recommendation that additional delineation was needed for PCE in the limestone aquifer south/southwest of the monitoring well network. The *Limestone Aquifer Assessment Work Plan* was submitted to SCDHEC on October 13, 2017 to address these recommendations. Delavan and AECOM participated in a conference call with SCDHEC on June 27, 2018 to discuss potential next steps and revisions to the additional assessment activities proposed in the *Limestone Aquifer Assessment Work Plan* (AECOM, October 2017). The revised work plan was submitted on August 27, 2018 and approved in

correspondence from SCDHEC dated September 20, 2018. This technical memorandum summarizes the work plan implementation and results.

2.0 Pre-Investigation Activities

Pre-investigation activities consisted of the following:

- Obtaining well installation permits from SCDHEC;
- Securing access to drilling locations; and
- Utility clearance of each monitoring well location.

The monitoring wells permit application was submitted as an attachment to the work plan (AECOM, August 2018). SCDHEC provided the permit in correspondence dated September 20, 2018, which also documented their approval of the revised work plan.

The four monitoring well locations proposed for the deep limestone aquifer were located off-Site; therefore, access agreements were obtained from each property owner prior to the installation of the monitoring wells. The final location for each well is shown on Figure 1 and was determined based on accessibility and input from each property owner. After obtaining off-Site property access and prior to conducting intrusive sampling activities, the South Carolina One-Call public utility service was contacted to mark public utilities at the well locations and vicinity. GEL Geophysics, LLC, a private utility locator from Charleston, South Carolina, was contracted to confirm the one-call markings and to mark the location of potential private subsurface utilities in the area of the proposed sampling locations.

3.0 Investigation Activities

Between November 18th and 25th, 2019, the following assessment activities were completed:

- Soil boring and monitoring well installation,
- Monitoring well development,
- Groundwater sampling,
- Slug testing,
- Equipment decontamination,
- Investigation-derived waste (IDW) management, and
- Surveying.

These activities are described in the section below.

Monitoring Well Drilling

Cascade Drilling, from New Ellenton, South Carolina, provided drilling services for the groundwater delineation. A track-mounted Geoprobe® 8140LC sonic rig was used to advance each boring to the target depth. The sonic rig utilized a 6-inch diameter outer casing and a 4-inch diameter inner core barrel. Soil samples were extruded from the inner core barrel into plastic sleeves for lithological logging and soil screening by an AECOM geologist. Soil samples were screened for organic vapors using a MiniRAE 2000 hand-held volatile organic compound (VOC) monitor (i.e., a photoionization detector [PID]). Boreholes were logged in accordance with Section 2.3 of the *Limestone Aquifer Assessment Work Plan* (AECOM, October 2017). Lithologic details, organic vapor screening results, and other observations were recorded by the AECOM geologist on the Test Boring Reports included in Attachment A.

Monitoring Well Installation

Based on the lithologic and organic vapor screening, four Type III monitoring wells were drilled and installed to depths of approximately 64 to 79 feet below ground surface (bgs) to provide long-term monitoring of the groundwater plume (Figure 1). In accordance with the SCDHEC-approved work plan, the outer sonic casing served as a temporary surface casing, providing a sufficient seal for the upper surficial aquifer during drilling and subsequent limestone aquifer well installation.

Each monitoring well was installed through the center of the sonic core barrel and was constructed of 2-inch diameter, schedule 40 polyvinylchloride (PVC) casing and 10 feet of 0.010-inch machine slotted PVC screen. Filter sand was placed into the annular space of each well to approximately two feet or more above the top of the well screen. A pelletized bentonite clay seal with a minimum thickness of two feet was placed in the annular space above the filter sand and hydrated with potable water, as needed. As the filter sand and bentonite clay were added, the core barrels were pulled from the borehole to ensure the annulus was completely filled. Depths to sand and bentonite were monitored with a weighted tape measure as the installation progressed. A neat cement-bentonite grout was then injected from above the bentonite seal to land surface via a tremie pipe as the core barrel was pulled.

The surface completions for the Type III monitoring wells were finished with a steel above-ground casing and a locking well cap. The steel casings were set into a two-foot by two-foot square by 6-inch thick concrete pad. The monitoring well construction details are provided in the Monitoring Well Construction Diagrams in Attachment A and are summarized in Table 1.

Well Development

Upon installation, the groundwater monitoring wells were developed so that they produced representative groundwater samples. The monitoring wells were developed by AECOM personnel by surging and pumping with an electric submersible pump. Groundwater indicator parameters (e.g., pH, temperature, specific conductance, dissolved oxygen [DO], oxidation-reduction potential [ORP] and turbidity) were measured using a YSI 556 water quality meter and recorded on AECOM Monitoring Well Development logs included

in Attachment A. Development of monitoring wells continued until parameters were stabilized to within approximately 10% (0.2 s.u. for pH) and the turbidity of the water was reduced as much as possible.

Groundwater Sampling

Following well development, groundwater samples were collected from each new monitoring well using low flow/low stress sampling methods in accordance with Section 2.9 of the *Limestone Aquifer Assessment Work Plan* (AECOM, October 2017). Groundwater sampling was completed using a peristaltic pump and a YSI 556 water quality meter equipped with a flow-through cell was utilized for field parameter measurement.

Groundwater samples were kept chilled on ice to approximately 4 degrees Celsius and under chain-of-custody protocol until they were shipped to the analytical laboratory. Groundwater samples were analyzed for target compound list (TCL) VOCs by USEPA Method 8260B, methane, ethane, and ethene by USEPA Method RSK 147, nitrate, nitrite, and sulfate by USEPA Method 9056, and total organic carbon (TOC) by USEPA Method 5310. All groundwater samples were analyzed by SGS North American Inc., a National Environmental Lab Accreditation Program (NELAP) -accredited laboratory and State of South Carolina certified laboratory located in Orlando, Florida.

To provide quantitative data on the precision and accuracy of the sampling and analysis program, quality assurance and quality control (QA/QC) samples were collected in accordance with Section 2.11 of the *Limestone Aquifer Assessment Work Plan* (AECOM, October 2017). One field duplicate, one matrix spike/matrix spike duplicate (MS/MSD), and one trip blank were collected to meet the QA/QC requirements.

Groundwater sampling details for each well were recorded on the Field Data Logs for Groundwater Sampling included in Attachment A. Laboratory analytical data are provided in Attachment B and the sample results are discussed in Section 4.0 below.

Slug Testing

Slug tests were performed in the newly installed limestone monitoring wells MW-33D, MW-34D, MW-35D, and MW-36D in order to evaluate hydrologic properties of limestone aquifer at the new well locations. Falling and rising head slug tests were conducted using a solid PVC cylinder (aka, “slug”). Falling head tests were conducted by quickly inserting a decontaminated, solid PVC slug into the well, observing an instantaneous rise in the water level, and monitoring the water level as it declined downward toward the static level. Rising head tests were conducted by quickly removing the slug from a well and monitoring the water level as it rose up toward the static level. Due to the rapid response in the newly installed wells, rising head slug test were also conducted using a submersible pump to induce rapid drawdown in each well and then monitoring the subsequent water level return to static.

Prior to initiating the test, the static water level in the well was measured with an electronic water level meter and recorded. A decontaminated pressure transducer was then lowered at least 8 to10 feet below the static water level or within one foot of the bottom of the well. The static water level was again measured and recorded and the measurement was repeated until water level equilibrium was verified (i.e., two equal

readings taken at least five minutes apart). The slug was then attached to clean, new synthetic rope. The falling head test was initiated by instantaneously lowering the cylinder into the well, resulting in an immediate water level rise. The data logger was activated to measure the declining (falling) water levels. When the water level had returned to static conditions, the rising head slug test was conducted. For the rising head test, the data logger was activated as the cylinder was instantaneously removed from the well (resulting in an immediate water level decline) and the rising water levels were measured. Water levels were monitored until they were within 10 percent of their original static level. Multiple tests were conducted on each well to ensure a representative test result.

Once the PVC slug was removed and the water level returned to static, new polyethylene tubing was attached to the submersible pump and it was inserted into the well until it was located a few feet above the pressure transducer. A check valve was also installed between the pump and the tubing to prevent backflow down the tubing into the well. Once the water level returned to static after the pump installation, flow was initiated, and the well was pumped as quickly as possible to drawdown the water level in the well. The pump was then turned off and the water level in the well was recorded as it returned to static.

Slug test data are provided in Attachment C and the results are discussed in Section 4.0 below

Equipment Decontamination

Single-use, factory cleaned sampling equipment was used when possible. Water interface probes and pumps were washed with a detergent (e.g. Liqui-Nox®) and rinsed with de-ionized (DI) water between monitoring wells. Water quality meters and flow-through cells were rinsed with DI water between sampling locations, and thoroughly washed with detergent and DI water at the end of the day. Core barrels were decontaminated using a high-pressure steam-cleaner between each boring.

IDW Management

Waste materials consisting of decontamination water, well development/purge water, and soils from drilling activities were designated as investigation-derived waste (IDW). Personal protective equipment was consolidated and disposed daily as non-hazardous solid waste in municipal trash collection containers.

Soil and groundwater IDW were containerized in Department of Transportation (DOT) compliant 55-gallon steel drums, labeled, and temporarily staged at a designated location on the Delavan Spray Technologies Site until receipt of characterization analysis. Details for each drum, including dates filled and media contained, were recorded on the IDW Management Form included in Attachment A.

For characterization and disposal purposes, drums of IDW soil were sampled for Toxicity Characteristic Leaching Procedure (TCLP) VOCs by USEPA Method 8260B, TCLP semi-volatile organic compounds (SVOCs) by USEPA Method 8270D, and TCLP Priority Pollutant Metals by USEPA Methods 6010C and 7470B. Drums of well development/purge water were sampled for TCL VOCs (USEPA Method 8260B), TCL SVOCs (USEPA Method 8270D), and Priority Pollutant Metals (USEPA Methods 6010C and 7470B). All IDW characterization samples were analyzed by SGS North America, Inc. Analytical data for

characterization samples are provided in Attachment B and the results are discussed in Section 4.0 below. Following receipt of IDW characterization and monitoring well groundwater sampling data, Delavan facility personnel coordinator transportation and disposal of the IDW drums with their disposal contractor.

Surveying

Following the well installation activities, the top of casing elevation, land surface elevation, and the horizontal locations of the new monitoring wells were surveyed on December 5, 2020 by an AECOM professional land surveyor licensed in South Carolina. Horizontal locations were reported in South Carolina State Plane Coordinates referenced to the North American Datum of 1983 (NAD83) to the nearest 0.01 foot. Ground surface elevations and well top of casing measuring point elevations were referenced to the North American Vertical Datum of 1988 (NAVD88) to the nearest 0.01 foot. Survey data is provided for each monitoring well in Table 1.

4.0 Investigation Results

Findings from the Limestone Aquifer delineation activities are summarized in the paragraphs below.

Drilling Observations

Soil lithologies encountered during drilling activities for off-site monitoring wells MW-33D through MW-36D (Figure 1) were similar to those previously observed beneath the site and off-site areas. Typical for the surficial aquifer in the Site vicinity, sand mixed with varying amounts of silt and/or clay was observed in each boring from the ground surface to depths ranging between 10 ft bgs (MW-36D) and 42.5 ft bgs (MW-34D). During previous work at the site, the surficial aquifer deposits have been encountered to depths of approximately 25 ft to 35 ft bgs.

Below the surficial aquifer deposits, pale yellow to pale brown limestone (Limestone 1) was encountered to depths of 34 ft to 51.5 ft bgs and consisted primarily of sand and small shells with occasional cemented shells and limestone fragments. This unit has previously been referred to as a coquina limestone in the RI Work Plan (Hart and Hickman, August 2013) and previous reports, and has been observed to depths of approximately 38 ft to 48 ft bgs.

A second limestone unit (Limestone 2), which was white with predominantly coarser-grained sand, larger shells and limestone fragments, and some moderately- to well-cemented zones, was encountered beneath the pale-yellow limestone. This lower limestone unit correlates to the unit described previously as a “fossiliferous limestone” (Hart and Hickman, August 2013) and reportedly extended to an approximate depth of 60 ft bgs. In borings MW-33D through MW-36D, the white limestone unit extended to the bottom of the borings, at total depths of 64 ft to 84 ft bgs.

Beneath the “fossiliferous limestone” (Limestone 2), Hart and Hickman (August 2013) described a calcareous clayey sandstone extending to an unknown depth in MW-3D1 and characterized by loose to moderately-cemented, fine to medium sand particles. The sandstone was not encountered in the borings for MW-33D through MW-36D. However, a fining of the grain size in the white limestone was observed at a depth of approximately 67 ft to 74 ft in MW-33D and MW-35D and below 77 ft in MW-34D. In the case of MW-33D, MW-34D and MW-35D, the sand-sized particles were predominantly shells and/or calcareous in origin as opposed to silica-derived. It is uncertain if this represents a facies change between MW-3D1 and MW-15D1 in the facility vicinity and the down-gradient area near the newly installed monitoring wells, or if the cemented ”sandstone” previously described was actually finer-grained cemented limestone that was mis-characterized in the field.

Groundwater Sampling Results

Following installation and development, groundwater samples from monitoring wells MW-33D through MW-MW-36D were analyzed for VOCs and monitored natural attenuation (MNA) parameters (i.e., methane, ethane, ethane, nitrate, nitrite, sulfate, and total organic carbon). Groundwater analytical data packages are presented in Attachment B and sampling results for new groundwater monitoring wells are presented in Table 2 and discussed briefly below.

PCE and its degradation products (trichloroethene [TCE], cis-1,2-dichloroethene [cis-1,2-DCE], and vinyl chloride) were not detected in any of the new limestone aquifer monitoring wells (Table 2). The PCE results were contoured with the fall 2019 semi-annual groundwater monitoring results (Figure 2) and the resulting isoconcentration contour map illustrates that the new wells complete the delineation of PCE to below the MCL (5 micrograms per liter [µg/L]) in the limestone aquifer downgradient of the Delavan Facility.

Chloroform was detected at low, estimated concentrations in two of the monitoring wells, MW-34D and MW-36D. As documented in the *Fall 2014 Semi-Annual Groundwater Monitoring Report* (AECOM, January 2015), chloroform has been shown to be present in the potable water source at the facility, which was used as the water source for drilling operations. Toluene was also detected at low concentrations in each groundwater sample and in the associated trip blank. Toluene has not been detected in any off-site monitoring well south of Main Hwy (Figure 1 and Appendix D of the *Fall 2019 Semi-Annual Groundwater Monitoring Report,* AECOM, February 2020) and is not attributed to past site activities.

Results of field parameters and MNA parameters were within the ranges previously reported for limestone aquifer. As summarized in the inset table below, pH, ORP, sulfate, and TOC are all within favorable ranges for anaerobic biodegradation (USEPA, 1998). Dissolved oxygen levels were elevated in a few of the wells but, given the ORP values are indicative of reducing conditions, the dissolved oxygen readings may be artificially higher due to aeration caused by surging during the well development.

Analysis	Minimum	Maximum	Average	Optimal Range for Anaerobic Biodegradation Processes*
pH (S.U.)	7.61	7.89	7.79	5 < pH < 9 - Optimal range for reductive pathway 5 > pH >9 - Outside optimal range for reductive pathway
Dissolved Oxygen (mg/L)	0.14	0.86	0.50	<0.5 mg/L - Tolerated, suppresses the reductive pathway at higher concentrations >5 mg/L - Not tolerated; however, VC may be oxidized aerobically
ORP (mV)	-204.9	-4.8	-84.6	<50 millivolts (mV) - Reductive pathway possible <-100mV - Reductive pathway likely
Nitrate (µg/L)	ND	1,300	-	<1,000 µg/L - At higher concentrations may compete with reductive pathway
Nitrite (µg/L)	ND	340	-	
Sulfate (µg/L)	2,200	4,400	3,375	<20,000 µg/L - At higher concentrations may compete with reductive pathway
TOC (µg/L)	440	660	565	>20,000 µg/L - Carbon and energy source; drives dechlorination; can be natural or anthropogenic
Methane (µg/L)	0.68	3.1	1.5	<500 µg/L - VC oxidizes >500 µg/L - Ultimate reductive daughter product, VC Accumulates
Ethane (µg/L)	ND	0.6	-	>10 µg/L - Daughter product of VC/ethene
Ethene (µg/L)	ND	ND	-	>10 µg/L - Daughter product of VC/ethene

* - from the *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water* (USEPA, 1998).
ND - not detected

Field duplicate and trip blank results are presented in Tables 3 and 4, respectively, and the data validation report (DAR) is included in Attachment B. Detections of toluene in samples were qualified "/B/T" due to the presence of the analyte in the associated trip blank sample. Detections of TOC in samples associated with batch GP34002 were qualified "/B/K" due to the presence of the analyte in the associated method blank sample, indicating TOC is not considered site-related per USEPA data evaluation guidance. The data validation process did not result in the rejection of any data. Therefore, the data associated with this event should be considered compliant and adequate for its intended use.

IDW Results

Results of the IDW characterization samples are compared to the USEPA Toxicity Characteristic values (40CFR§261.24 Toxicity Characteristic, July 1, 2007) in Table 5. The analytical data show that the solid and aqueous IDW were non-hazardous. The IDW analytical data were provided to Delavan's Environment, Health, and Safety (EHS) Manager for waste profiling and disposal.

Slug Test Results

Slug test data were analyzed using Aqtesolv® version 4.5 – Professional (Duffield, 2007), a commercially available software package, and the methods of Bouwer and Rice (1976), Bouwer (1989), Springer and Gelhar (1991), and Hyder and others (1994). The Bouwer and Rice technique is valid for water table or confined aquifers with partially- or fully-penetrating wells and was used for all shallow wells where slug tests were conducted at the Site. The Springer and Gelhar solution extends the Bouwer and Rice method to include inertial effects in the test well and accounts for oscillatory water-level response sometimes observed

in aquifers of high hydraulic conductivity. Since some of the limestone aquifer monitoring wells exhibited an oscillatory response, the Springer and Gelhar solution was used to analyze slug tests from these wells. The KGS method (Hyder and others, 1994) was used for wells that did not exhibit and oscillatory response but where the response was too rapid to use Bouwer and Rice (i.e., there were too few points in the "recommended head range"). The Bouwer and Rice method was used to analyze slug tests from select deeper aquifer monitoring wells where sufficient data were available within recommended head range, as described below.

In certain situations, the data from the wells exhibit what is known as the "double straight-line effect" in response to a slug test. Graphs of slug test data exhibiting this effect are concave-up, and the multiple "straight-line" portions of the graph can lead to erroneous matching. Butler (1998) recommends matching to a normalized head (i.e., displacement at any given time divided by the initial displacement) range of 0.20 to 0.30 to increase the reliability of matching when using Bouwer and Rice. This correction is incorporated in the Aqtesolv® software package and was utilized for the analyses included in Attachment C. The recommended head range is distinguished by horizontal dotted lines on the graphs in Attachment C and was utilized as a guide for wells exhibiting the "double straight-line effect".

Table C-1 in Attachment C summarizes the slug test results. The estimated horizontal hydraulic conductivity values from the newly installed limestone aquifer monitoring wells ranged from 45.22 feet per day (ft/day) in MW-33D to 121.6 ft/day in MW-36D, with a geometric mean of 85.57 ft/day ft/day. These values are within the range of those previously estimated for deeper aquifer wells in the Site vicinity (10.7 ft/day to 161 ft/day; AECOM, October 2017).

Conceptual Site Model Update

Using the additional information gained during the Deep Groundwater Delineation activities, updated cross-sections were created to illustrate the current understanding of the conceptual site model (CSM). As shown in Figure 3, the deposits of sands, clays, and silts that comprise the surficial aquifer encompass the top 20 to 40 ft of soil beneath the site. Hydraulic conductivity values estimated from this unit range from 0.215 ft/day to 0.701 ft/day (AECOM, October 2017). The highest concentrations of PCE detected have been in monitoring wells in the immediate vicinity of the facility near the former PCE degreasers (near MW-19 and MW-20) and the former PCE UST (near MW-21; cross-section A-A', Figure 3).

Although the primary flow direction in the surficial aquifer is to the west/southwest towards Half Moon Branch, groundwater impacted with PCE also migrates into the limestone aquifer beneath the facility. While further vertical migration is limited by the cemented "sandstone" in the vicinity of MW-3D1, PCE impacted groundwater has migrated at least 5,000 feet to the south/southwest in the limestone aquifer, which is highly conductive to groundwater flow, with estimated hydraulic conductivities ranging from 10.7 ft/day to 161 ft/day and a geometric mean hydraulic conductivity of 62.7 ft/day (AECOM, May 2016; October 2017; and this report).

Groundwater concentrations of PCE decrease below the detection limit before they reach newly installed monitoring wells MW-34D, MW-35D and MW-36D (cross-sections A-A' and B-B', Figure 3), approximately

6,500 feet south of the Delavan Facility. Based on the detected PCE concentrations in off-site limestone aquifer monitoring wells and the detected PCE concentration (2.4 µg/L; AECOM, February 2018) in the a surface water sample from Lemon Creek at Highway 601 (approximately 500 feet south of MW-36D), limestone aquifer groundwater impacted with PCE appears to discharge to Lemon Creek (and/or the lower reaches of Half Moon Branch near the confluence with Lemon Creek), which limits further migration in the limestone aquifer.

5.0 Upcoming Work

Multiple phases of investigation work have been completed since the RI (AECOM, July 2014), resulting in the delineation of site-related COCs in surficial aquifer and limestone aquifer groundwater. However, additional work needs to be done to fully characterize the magnitude of the impacts beneath the Delavan Facility near former source areas, such as the former PCE degreasers (near MW-19 and MW-20), the former PCE underground storage tank (UST; near MW-21) and the former PCE secondary containment area (near MW-1; Figure 1). This additional data will be instrumental to evaluate and design a successful remedy to address residual contamination at the site. To meet this need, a Pre-Pilot Study High Resolution Source Characterization Work Plan (AECOM, February 2019) was submitted, which leverages membrane interface probe / hydraulic profiling tool (MiHPT) technology to provide detailed information related to chlorinated VOC impacts in “hot spots” beneath and immediately adjacent to the Facility building. SCDHEC approved the work plan in correspondence dated March 1, 2019 and the work, originally scheduled for spring 2020, had to be postponed due to health concerns related to COVID-19. Delavan and AECOM are currently working with the subcontractors to schedule the work for early summer 2020.

Based on their review of the Fall 2019 Semi-Annual Monitoring Report (AECOM, February 2020) and discussion during a February 25, 2020 meeting between SCDHEC, Raytheon Technologies (formerly United Technologies Corporation), and AECOM, SCDHEC requested sampling of the unnamed tributary to Lemon Creek (SCDHEC, March 2020). A plan was proposed to sample four surface water locations, including the unnamed tributary to Lemon Creek (AECOM, March 2020). SCDHEC approved the plan (SCDHEC, April 2020) and it was implemented during the April 2020 semi-annual groundwater monitoring. Sample results are pending and will be included in the upcoming monitoring report, expected to be submitted in June 2020.

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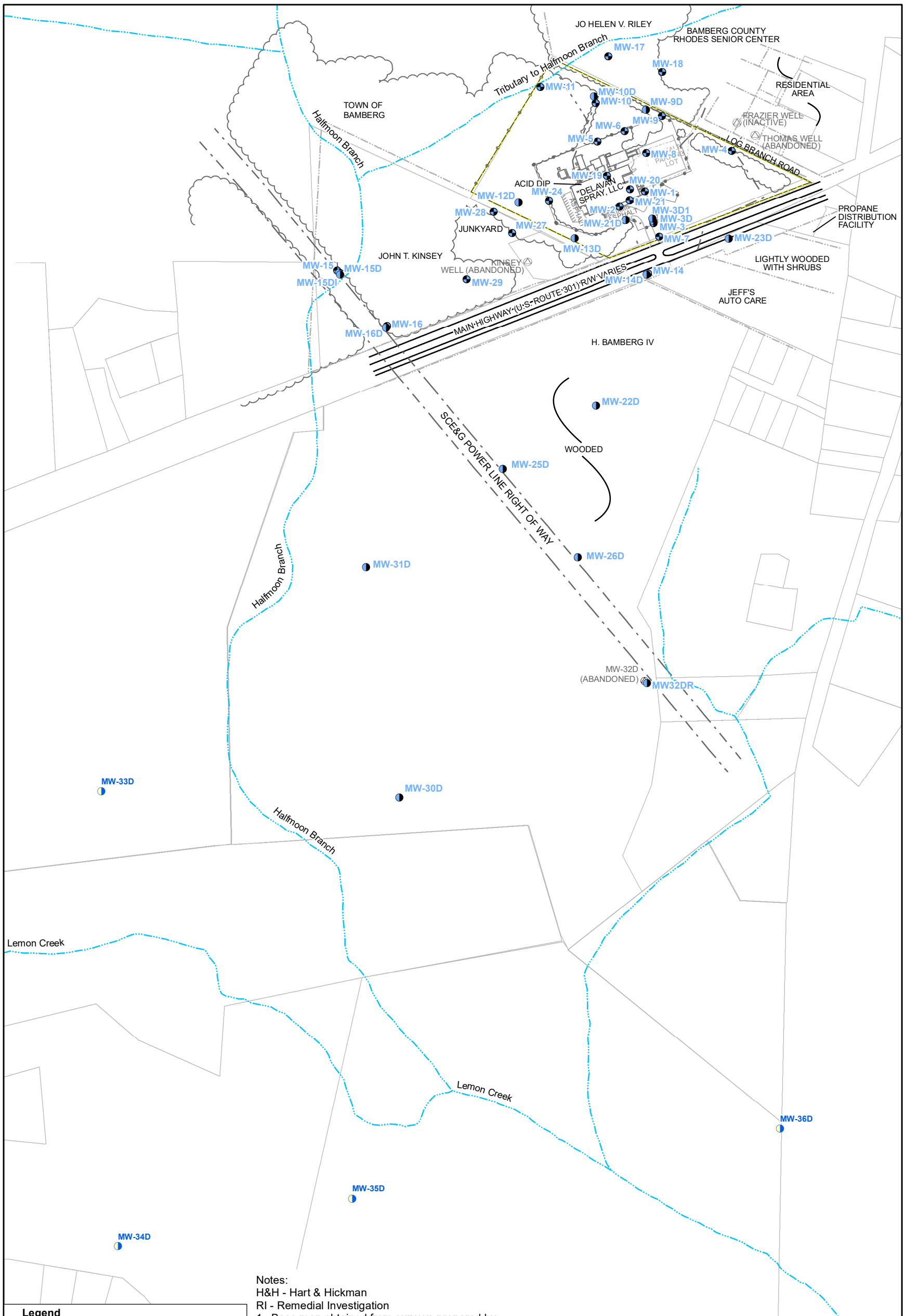
SCDHEC, April 7, 2020. Correspondence Re: Delavan Spray Technology Site, Surface Water Sampling Plan Correspondence dated March 25, 2020, Bamberg County, File #51778

Springer, R.K. and L.W. Gelhar, 1991. Characterization of large-scale aquifer heterogeneity in glacial outwash by analysis of slug tests with oscillatory response, Cape Cod, Massachusetts, *U.S. Geol. Surv. Water Res. Invest. Rep. 91-4034*, pp. 36-40.

USEPA, 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water

Figures



Legend

- ABANDONED OR INACTIVE WELL
- NEW DEEP WELL - SAMPLED IN NOVEMBER 2019
- DEEP WELL - SAMPLED IN OCTOBER 2019
- SHALLOW WELL - SAMPLED IN OCTOBER 2019
- DRAINAGE
- FENCE LINE
- PROPERTY BOUNDRY
- OVERHEAD POWER LINE
- ROAD
- SANITARY SEWER LINE
- STORM DRAIN
- SUBJECT PROPERTY BOUNDRY

Notes:
H&H - Hart & Hickman
RI - Remedial Investigation

1. Base map obtained from surveys prepared by Edisto Engineers & Surveyors, Inc. (dated 6/3/2011 and 4/14/2014) and from Work Plan maps provided by H&H (August 2013).
2. 2012 sample locations were surveyed on 8/28/2012 and RI sample locations were surveyed on 3/20/2014. Post RI assessment locations were surveyed on 1/26/2016. Groundwater delineation locations were surveyed on 5/10/2017. Limestone aquifer delineation locations were surveyed on 12/5/2019.
3. Surface water flowlines from a geodatabase "NHDH_SC.gdb" obtained from the USGS, National Hydrography Dataset.

0 250 500 750 Feet

N

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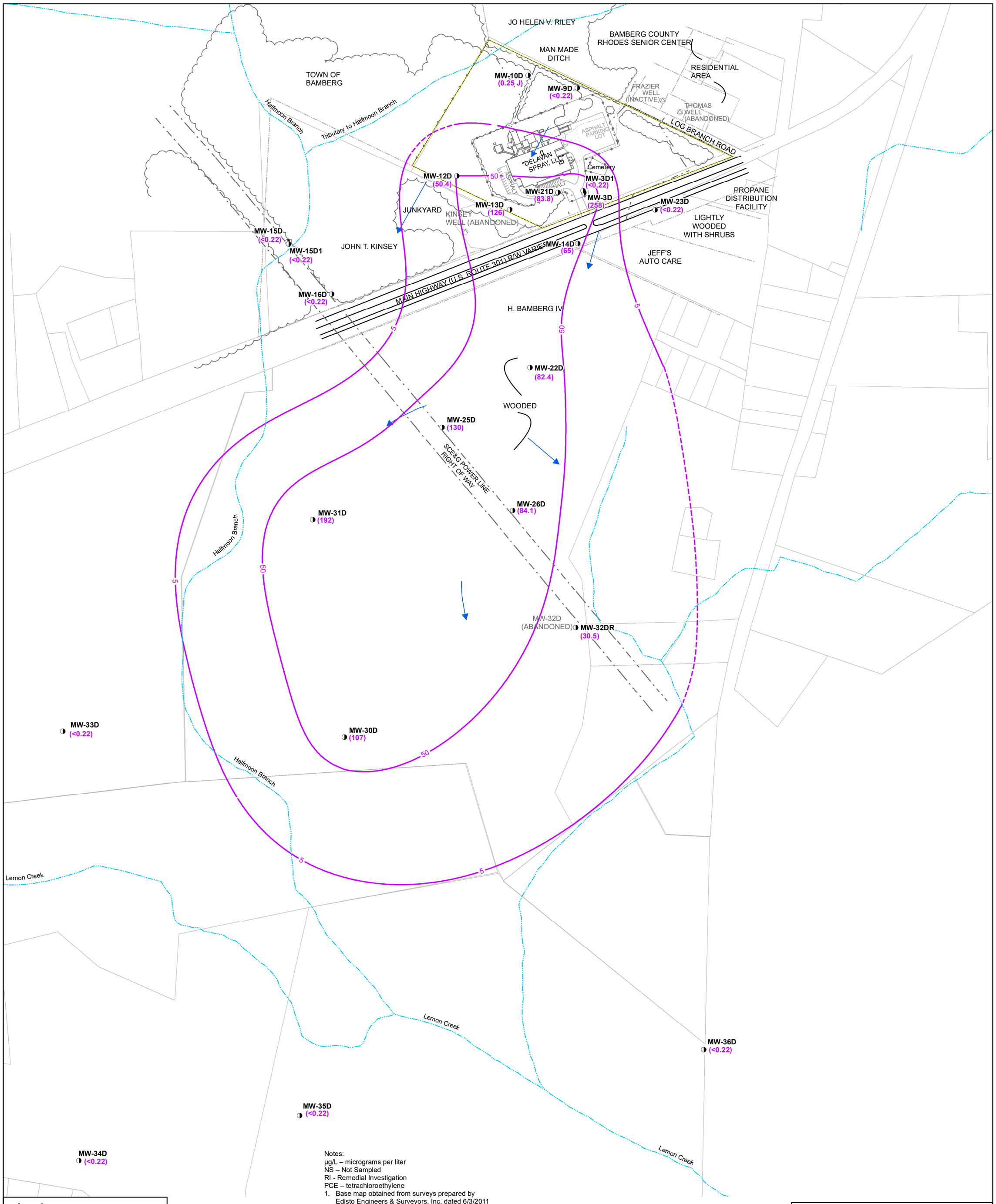
Delavan Spray Technologies Site
Bamberg, South Carolina

Monitoring Well Location Map

Project No.	Prepared by	Date	
60601883	R. Stubblefield	January 2020	Figure 1

Path: \\USGRN1FP001\Data\Projects\60314964 - Bamberg\900-CAD-GIS\920 GIS-Graphics\Maps\Maps January 2020\Figure 3 Monitoring Well Locations.mxd



Legend

- (<0.22) PCE CONCENTRATION IN GROUNDWATER (µg/L) OCTOBER/NOVEMBER 2019
- ABANDONED OR INACTIVE WELL
- DEEP WELL
- PCE IN SHALLOW GROUNDWATER (µg/L)
- INFERRED GROUNDWATER FLOW DIRECTION
- DRAINAGE
- FENCE LINE
- PROPERTY BOUNDRY
- OVERHEAD POWER LINE
- ROAD
- SANITARY SEWER LINE
- STORM DRAIN LINE
- SUBJECT PROPERTY BOUNDRY

Notes:
µg/L – micrograms per liter
NS – Not Sampled
RI - Remedial Investigation
PCE – tetrachloroethylene

1. Base map obtained from surveys prepared by Edisto Engineers & Surveyors, Inc. dated 6/3/2011 and 4/14/2014. RI sample locations were surveyed on 3/20/2014. Post RI assessment locations were surveyed on 1/26/2016. Groundwater delineation locations were surveyed 5/10/17. Limestone aquifer delineation locations were surveyed on 12/5/2019.
2. Data was contoured using log and anti-log grid math and kriging gridding method in Surfer 12.
3. Half the detection limit was used to contour results reported below the detection limit.
4. Monitoring wells MW-33D, MW-34D, MW-35D, and MW-36D sampled in November 2019. All PCE concentrations were <0.22 µg/L.
5. Surface water flowlines from a geodatabase "NHDH_SC.gdb" obtained from the USGS, National Hydrography Dataset.

N

0 250 500 750 Feet

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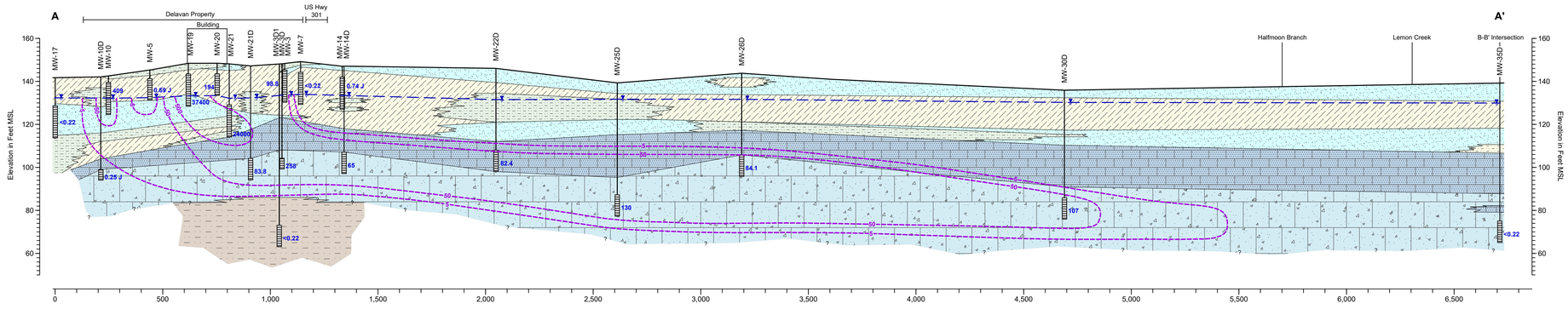
Delavan Spray Technologies Site
Bamberg, South Carolina

PCE Concentrations in Limestone Aquifer Groundwater - October/November 2019

Project No.	Prepared by	Date	
60601883	R. Stubblefield	January 2020	Figure 2

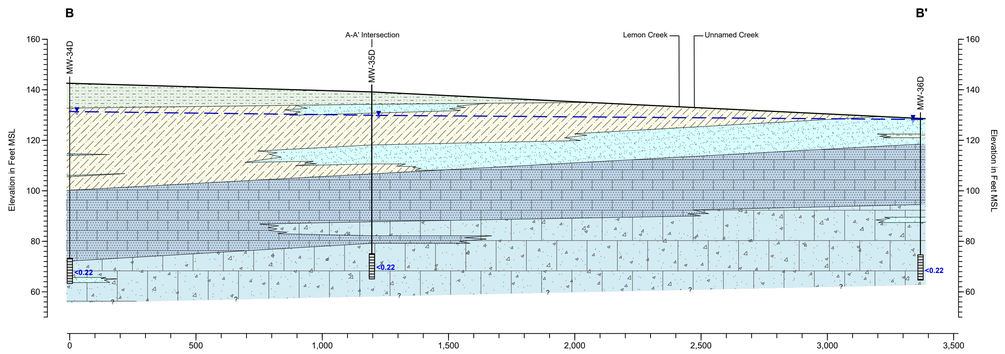
Path: \\USGRN1FP001\Data\Projects\60314964 - Bamberg\900-CAD-GIS\920 GIS-Graphics\Maps\Maps January 2020\Figure 12 DeepPCE.mxd



Cross-Section A-A'

0 150 300 600 900
HORIZONTAL SCALE IN FEET

0 15 30 60 90
VERTICAL SCALE IN FEET
Vertical Exaggeration = 10.0X



Cross-Section B-B'

0 150 300 600 900
HORIZONTAL SCALE IN FEET

0 15 30 60 90
VERTICAL SCALE IN FEET
Vertical Exaggeration = 10.0X

Legend

Monitoring Well Data

MW-35D — Well ID

Groundwater Elevation

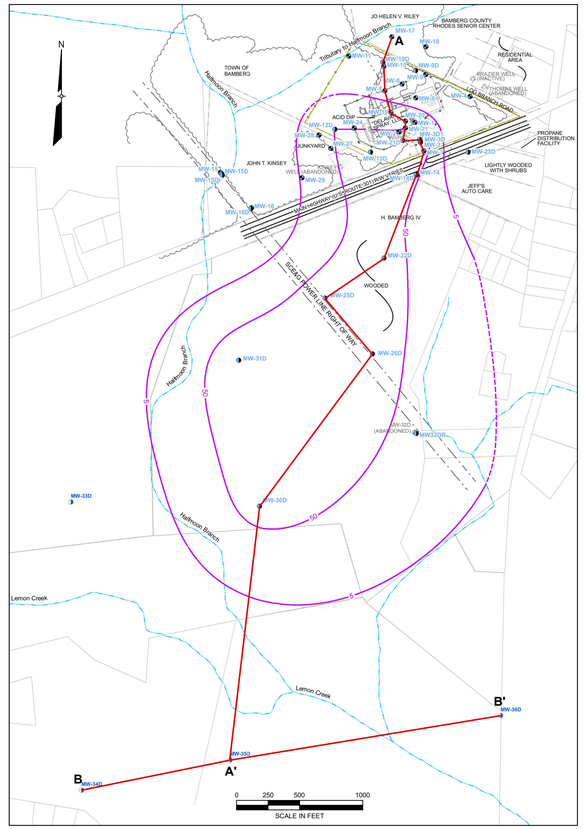
PCE Contour

65 October/November 2019 PCE Concentration (µg/L)

Well Screen

Lithology

- Clayey Sand/Sandy Clay and Clay
- Silt and Sandy Silt/Silty Sand
- Sand
- Pale Yellow Limestone, Sand and Small-Size Shell Hash
- White Limestone, Fossils and Larger Shell Fragments, Some Cementation
- Clayey Sandstone



KEY MAP

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Cross-Section A-A' and Cross-Section B-B'

Delavan Spray Technologies Site
Bamberg, South Carolina

PROJECT NO.	DRAWN BY	DATE	
60590866	RJS	April 2020	Figure 2

Tables

Table 1
New Monitoring Well Construction Details
Delavan Spray Technologies Site
Bamberg, South Carolina

Well Number	Northing[1]	Easting[1]	Date Installed	Installed By	Equipment	Ground Surface Elevation[2] (ft MSL)	Top of Casing Elevation[2] (ft MSL)	Stick-up Height (ft)	Well Diameter (Inches)	Casing Type	Total Depth (ft bgs)	Classification	Surface Casing Depth (ft bgs)	Screen Interval (ft bgs)
MW-33D	524374.0762	1983244.145	11/20/2019	AECOM / Cascade Drilling	Geoprobe 8140LC (Soinc)	142.14	144.79	2.65	2	PVC	74.39	Deep	NA[3]	64.09 - 74.02
MW-34D	522094.6577	1983329.007	11/19/2019	AECOM / Cascade Drilling	Geoprobe 8140LC (Soinc)	142.70	145.71	3.01	2	PVC	79.78	Deep	NA[3]	69.44 - 79.40
MW-35D	522333.3569	1984500.874	11/19/2019	AECOM / Cascade Drilling	Geoprobe 8140LC (Soinc)	139.26	141.95	2.69	2	PVC	74.56	Deep	NA[3]	64.25 - 74.18
MW-36D	522684.1082	1986644.707	11/21/2019	AECOM / Cascade Drilling	Geoprobe 8140LC (Soinc)	128.57	130.93	2.37	2	PVC	64.29	Deep	NA[3]	53.99 - 63.92

Notes:

bgs - below ground surface

ft - feet

ft MSL - feet above mean sea level

NA - not applicable

[1] - Horizontal coordinates are referenced to the State Plane Coordinate System and the North American Datum of 1983 (NAD 83).

[2] - Vertical locations are referenced to the North American Vertical Datum of 1988 (NAVD 88).

[3] - The outer geoprobe casing was used as a temporary surface casing during advancement of the borehole and well installation.

Table 2
Summary of Analytical Results in Groundwater
Delavan Spray Technologies Site
Bamberg, South Carolina

Sample ID		MW-33D		MW-34D		MW-35D		MW-36D	
Lab Sample ID	USEPA	FA70346-3		FA70346-6		FA70346-2		FA70346-5	
Date Collected	MCL	11/25/2019		11/25/2019		11/25/2019		11/25/2019	
Volatile Organic Compounds by Method 8260B (µg/L)									
1,1,1-Trichloroethane	200	< 0.25		< 0.25		< 0.25		< 0.25	
1,1,2,2-Tetrachloroethane	—	< 0.3		< 0.3		< 0.3		< 0.3	
1,1,2-Trichloroethane	5	< 0.47		< 0.47		< 0.47		< 0.47	
1,1-Dichloroethane	—	< 0.34		< 0.34		< 0.34		< 0.34	
1,1-Dichloroethylene	7	< 0.32		< 0.32		< 0.32		< 0.32	
1,2-Dichloroethane	5	< 0.31		< 0.31		< 0.31		< 0.31	
1,2-Dichloropropane	5	< 0.43		< 0.43		< 0.43		< 0.43	
2-Butanone (MEK)	—	< 2		< 2		< 2		< 2	
2-Hexanone	—	< 2		< 2		< 2		< 2	
4-Methyl-2-pentanone (MIBK)	—	< 1		< 1		< 1		< 1	
Acetone	—	< 10		< 10		< 10		< 10	
Benzene	5	< 0.31		< 0.31		< 0.31		< 0.31	
Bromodichloromethane	80 [1]	< 0.24		< 0.24		< 0.24		< 0.24	
Bromoform	80 [1]	< 0.41		< 0.41		< 0.41		< 0.41	
Carbon Disulfide	—	< 0.53		< 0.53		< 0.53		< 0.53	
Carbon Tetrachloride	5	< 0.36		< 0.36		< 0.36		< 0.36	
Chlorobenzene	100	< 0.2		< 0.2		< 0.2		< 0.2	
Chloroethane	—	< 0.67		< 0.67		< 0.67		< 0.67	
Chloroform	80 [1]	< 0.3		**0.88**	**J//**	< 0.3		**0.61**	**J//**
cis-1,2-Dichloroethylene	70	< 0.28		< 0.28		< 0.28		< 0.28	
cis-1,3-Dichloropropene	—	< 0.29		< 0.29		< 0.29		< 0.29	
Dibromochloromethane	80 [1]	< 0.28		< 0.28		< 0.28		< 0.28	
Ethylbenzene	700	< 0.36		< 0.36		< 0.36		< 0.36	
Methyl Bromide	—	< 0.59		< 0.59		< 0.59		< 0.59	
Methyl Chloride	—	< 0.5		< 0.5		< 0.5		< 0.5	
Methylene Chloride	5	< 2		< 2		< 2		< 2	
Styrene	100	< 0.22		< 0.22		< 0.22		< 0.22	
Tetrachloroethylene	5	< 0.22		< 0.22		< 0.22		< 0.22	
Toluene	1000	**1**	**/B/T**	**1.1**	**/B/T**	**1.2**	**/B/T**	**0.78**	**J/B/T**
trans-1,2-Dichloroethylene	100	< 0.22		< 0.22		< 0.22		< 0.22	
trans-1,3-Dichloropropene	—	< 0.21		< 0.21		< 0.21		< 0.21	
Trichloroethylene	5	< 0.35		< 0.35		< 0.35		< 0.35	
Vinyl Chloride	2	< 0.41		< 0.41		< 0.41		< 0.41	
Xylene (total)	10000	< 0.72		< 0.72		< 0.72		< 0.72	
Total Organic Carbon by Method 5310 (mg/L)									
Total Organic Carbon	—	**0.55**	**J/B/K**	**0.61**	**J/B/K**	**0.44**	**J/B/K**	**0.66**	**J/B/K**
Nitrate, Nitrite, Sulfate by Method 9056 (mg/L)									
Nitrogen, Nitrate	10000	**1.3**		**0.28**		**0.65**		< 0.05	
Nitrogen, Nitrite	1000	**0.34**		< 0.05		< 0.05		< 0.05	
Sulfate	250000 [2]	**2.2**		**4.4**		**4.1**		**2.8**	
Ethane, Ethene, Methane by Method RSK147 (ug/L)									
Ethane	—	< 0.32		**0.36**	**J//**	< 0.32		**0.6**	**J//**
Ethene	—	< 0.43		< 0.43		< 0.43		< 0.43	
Methane	—	**0.91**		**1.4**		**0.68**		**3.1**	

Notes:
µg/L - micrograms per liter (parts per billion)

Table 3
Summary of Field Duplicate Samples
Delavan Spray Technologies Site
Bamberg, South Carolina

Sample ID	MW-33D	MW-33D-A	Relative
Lab Sample ID	FA70346-3	FA70346-4	Percent
Date Collected	11/25/2019	11/25/2019	Difference
Volatile Organic Compounds by Method 8260B (µg/L)			
1,1,1-Trichloroethane	< 0.25	< 0.25	NC
1,1,2,2-Tetrachloroethane	< 0.3	< 0.3	NC
1,1,2-Trichloroethane	< 0.47	< 0.47	NC
1,1-Dichloroethane	< 0.34	< 0.34	NC
1,1-Dichloroethylene	< 0.32	< 0.32	NC
1,2-Dichloroethane	< 0.31	< 0.31	NC
1,2-Dichloropropane	< 0.43	< 0.43	NC
2-Butanone (MEK)	< 2	< 2	NC
2-Hexanone	< 2	< 2	NC
4-Methyl-2-pentanone (MIBK)	< 1	< 1	NC
Acetone	< 10	< 10	NC
Benzene	< 0.31	< 0.31	NC
Bromodichloromethane	< 0.24	< 0.24	NC
Bromoform	< 0.41	< 0.41	NC
Carbon Disulfide	< 0.53	< 0.53	NC
Carbon Tetrachloride	< 0.36	< 0.36	NC
Chlorobenzene	< 0.2	< 0.2	NC
Chloroethane	< 0.67	< 0.67	NC
Chloroform	< 0.3	< 0.3	NC
cis-1,2-Dichloroethylene	< 0.28	< 0.28	NC
cis-1,3-Dichloropropene	< 0.29	< 0.29	NC
Dibromochloromethane	< 0.28	< 0.28	NC
Ethylbenzene	< 0.36	< 0.36	NC
Methyl Bromide	< 0.59	< 0.59	NC
Methyl Chloride	< 0.5	< 0.5	NC
Methylene Chloride	< 2	< 2	NC
Styrene	< 0.22	< 0.22	NC
Tetrachloroethylene	< 0.22	< 0.22	NC
Toluene	**1 /B/T**	**0.8 J/B/T**	NC
trans-1,2-Dichloroethylene	< 0.22	< 0.22	NC
trans-1,3-Dichloropropene	< 0.21	< 0.21	NC
Trichloroethylene	< 0.35	< 0.35	NC
Vinyl Chloride	< 0.41	< 0.41	NC
Xylene (total)	< 0.72	< 0.72	NC

Notes:
-A - Indicates a field duplicate sample.
NC - Not Calculated
µg/L - micrograms per liter (parts per billion)
Bold font and shading indicate the concentration is detected.
See Table 6 for explanation of data qualifiers.

Table 4
Summary of Trip Blank Results
Delavan Spray Technologies Site
Bamberg, South Carolina

Sample ID	TRIP BLANK
Lab Sample ID	FA70346-1
Date Collected	11/25/2019
Volatile Organic Compounds by Method 8260B (µg/L)	
1,1,1-Trichloroethane	< 0.25
1,1,2,2-Tetrachloroethane	< 0.3
1,1,2-Trichloroethane	< 0.47
1,1-Dichloroethane	< 0.34
1,1-Dichloroethylene	< 0.32
1,2-Dichloroethane	< 0.31
1,2-Dichloropropane	< 0.43
2-Butanone (MEK)	< 2
2-Hexanone	< 2
4-Methyl-2-pentanone (MIBK)	< 1
Acetone	< 10
Benzene	< 0.31
Bromodichloromethane	< 0.24
Bromoform	< 0.41
Carbon Disulfide	< 0.53
Carbon Tetrachloride	< 0.36
Chlorobenzene	< 0.2
Chloroethane	< 0.67
Chloroform	< 0.3
cis-1,2-Dichloroethylene	< 0.28
cis-1,3-Dichloropropene	< 0.29
Dibromochloromethane	< 0.28
Ethylbenzene	< 0.36
Methyl Bromide	< 0.59
Methyl Chloride	< 0.5
Methylene Chloride	< 2
Styrene	< 0.22
Tetrachloroethylene	< 0.22
Toluene	**1.9**
trans-1,2-Dichloroethylene	< 0.22
trans-1,3-Dichloropropene	< 0.21
Trichloroethylene	< 0.35
Vinyl Chloride	< 0.41
Xylene (total)	< 0.72

Notes:
µg/L - micrograms per liter (parts per billion)
Bold font and shading indicate the concentration is detected.

Table 5
Summary of IDW Results
Delavan Spray Technologies Site
Bamberg, South Carolina

Sample ID	USEPA	AQUEOUS IDW			SOIL IDW	
Lab Sample ID	Toxicity	FA70346-8			FA70346-7	
Date Collected	Characteristic	11/25/2019			11/25/2019	
Volatile Organic Compounds by Method 8260B (µg/L)						
1,1,1-Trichloroethane	—	<	0.25			NA
1,1,2,2-Tetrachloroethane	—	<	0.3			NA
1,1,2-Trichloroethane	—	<	0.47			NA
1,1-Dichloroethane	—	<	0.34			NA
1,1-Dichloroethylene	700	<	0.32		<	3.2
1,2-Dichloroethane	500	<	0.31			**29.8**
1,2-Dichloropropane	—	<	0.43			NA
1,4-Dichlorobenzene	7500		NA		<	2.6
2-Butanone (MEK)	200,000	<	2		<	20
2-Hexanone	—	<	2			NA
4-Methyl-2-pentanone (MIBK)	—	<	1			NA
Acetone	—	<	10			NA
Benzene	500	<	0.31		<	3.1
Bromodichloromethane	—	<	0.24			NA
Bromoform	—	<	0.41			NA
Carbon Disulfide	—	<	0.53			NA
Carbon Tetrachloride	500	<	0.36		<	3.6
Chlorobenzene	100,000	<	0.2		<	2
Chloroethane	—	<	0.67			NA
Chloroform	6,000		**0.88**	**J//**	<	3
cis-1,2-Dichloroethylene	—	<	0.28			NA
cis-1,3-Dichloropropene	—	<	0.29			NA
Dibromochloromethane	—	<	0.28			NA
Ethylbenzene	—	<	0.36			NA
Methyl Bromide	—	<	0.59			NA
Methyl Chloride	—	<	0.5			NA
Methylene Chloride	—	<	2			NA
Styrene	—	<	0.22			NA
Tetrachloroethylene	700	<	0.22		<	2.2
Toluene	—		**0.81**	**J/B/T**		NA
trans-1,2-Dichloroethylene	—	<	0.22			NA
trans-1,3-Dichloropropene	—	<	0.21			NA
Trichloroethylene	500	<	0.35		<	3.5
Vinyl Chloride	200	<	0.41		<	4.1
Xylene (total)	—	<	0.72			NA
Semivolatile Organic Compounds by Method 8270D (µg/L)						
1,2,4-Trichlorobenzene	—	<	1.1	/M/D		NA
1,2-Dichlorobenzene	—	<	0.5	/M/D		NA
1,3-Dichlorobenzene	—	<	0.5	/M/D		NA
1,4-Dichlorobenzene	7,500	<	0.5	/M/D	<	5
2,2'-Oxybis(1-chloropropane)	—	<	0.75	/M/D		NA
2,4,5-Trichlorophenol	400,000	<	0.73	/J/i	<	7.4
2,4,6-Trichlorophenol	2,000	<	0.74	/J/i	<	7.5
2,4-Dichlorophenol	—	<	0.83	/J/i		NA
2,4-Dimethylphenol	—	<	0.73	/J/i		NA
2,4-Dinitrophenol	—	<	5	/J/i		NA
2,4-Dinitrotoluene	130	<	0.8		<	8.1
2,6-Dinitrotoluene	—	<	0.71			NA
2-Chloronaphthalene	—	<	0.5			NA
2-Chlorophenol	—	<	0.62	/J/i		NA
2-Methylnaphthalene	—	<	0.59			NA
2-Methylphenol	200,000	<	0.55	/J/i	<	5.6
2-Nitroaniline	—	<	1.8			NA
2-Nitrophenol	—	<	0.84	/J/i		NA
3&4-Methylphenol	200,000	<	0.97	/J/i	<	9.8
3,3'-Dichlorobenzidine	—	<	0.64	/M/Dm		NA
3-Nitroaniline	—	<	0.87			NA
4,6-Dinitro-o-cresol	—	<	2	/J/i		NA
4-Bromophenyl Phenyl Ether	—	<	0.84			NA
4-Chloro-3-methyl Phenol	—	<	0.59	/J/i		NA
4-Chloroaniline	—	<	0.62			NA
4-Chlorophenyl Phenyl Ether	—	<	0.53			NA
4-Nitroaniline	—	<	1.2			NA

Table 5
Summary of IDW Results
Delavan Spray Technologies Site
Bamberg, South Carolina

Semivolatile Organic Compounds by Method 8270D (µg/L)							
4-Nitrophenol	—	<	5	/J/i		NA	
Acenaphthene	—	<	0.62			NA	
Acenaphthylene	—	<	0.63			NA	
Anthracene	—	<	0.79			NA	
Benzo(a)anthracene	—	<	0.75			NA	
Benzo(a)pyrene	—	<	0.78			NA	
Benzo(b)fluoranthene	—	<	0.77			NA	
Benzo(g,h,i)perylene	—	<	0.81			NA	
Benzo(k)fluoranthene	—	<	0.85			NA	
Benzoic Acid	—	<	9.9			NA	
Benzyl Alcohol	—	<	0.61	/J/i		NA	
bis(2-Chloroethoxy)methane	—	<	0.8	/M/D		NA	
bis(2-Chloroethyl)ether	—	<	0.72	/M/D		NA	
bis(2-Ethylhexyl)phthalate	—	<	0.99			NA	
Butyl Benzyl Phthalate	—	<	0.99			NA	
Carbazole	—	<	0.59	/J/i		NA	
Chrysene	—	<	0.84			NA	
Di-n-butyl Phthalate	—	<	0.99			NA	
Di-n-octyl Phthalate	—	<	0.99			NA	
Dibenzo(a,h)anthracene	—	<	0.8			NA	
Dibenzofuran	—	<	0.6			NA	
Diethyl Phthalate	—	<	0.99			NA	
Dimethyl Phthalate	—	<	0.99			NA	
Fluoranthene	—	<	0.55			NA	
Fluorene	—	<	0.69			NA	
Hexachlorobenzene	130	<	0.69		<	6.9	
Hexachlorobutadiene	500	<	0.5	/M/D	<	5	
Hexachlorocyclopentadiene	—	<	1.8	/M/D		NA	
Hexachloroethane	3,000	<	1.6	/M/D	<	16	
Indeno(1,2,3-cd)pyrene	—	<	0.71			NA	
Isophorone	—	<	0.77			NA	
N-Nitrosodi-n-propylamine	—	<	0.66	/M/D		NA	
N-Nitrosodiphenylamine	—	<	0.8			NA	
Naphthalene	—	<	0.5	/M/D		NA	
Nitrobenzene	2,000	<	0.92		<	9.3	
Pentachlorophenol	100,000	<	5	/J/i	<	50	
Phenanthrene	—	<	0.86			NA	
Phenol	—	<	0.5	/J/i		NA	
Pyrene	—	<	0.68			NA	
Pyridine	5000		NA		<	20	
Metals by Method 6010C/7470B (µg/L)							
Antimony	—	<	1			NA	
Arsenic	5,000	<	1.3		<	13	
Barium	100,000		NA			**89**	**J//**
Beryllium	—	<	0.2			NA	
Cadmium	1,000	<	0.2		<	2	
Chromium	5,000		**1.6**	**J//**	<	10	
Copper	—	<	1			NA	
Lead	5,000	<	1.1		<	11	
Nickel	—	<	0.4			NA	
Selenium	1,000		**3.8**	**J//**		**31**	**J//**
Silver	5,000	<	0.7		<	7	
Thallium	—	<	1.4			NA	
Zinc	—		**11.6**	**J//**		NA	
Mercury by Method 7470 (µg/L)							
Mercury	200	<	0.03		<	0.5	

Notes:
— - No Standard
IDW - Investigation Derived Waste
µg/L - micrograms per liter (parts per billion)
USEPA Toxicity Characteristic - United States Environmental Protection Agency Maximum Concentration of Contaminants for the Toxicity Characteristic (40CFR§261.24 Toxicity Characteristic, July 1, 2007).
Bold font and shading indicates the analyte was detected.
See Table 6 for explanation of data qualifiers.

Table 6
Definitions of Data Qualifiers
Delavan Spray Technologies Site
Bamberg, South Carolina

Modifier	Description
<	Indicates not detected at the reporting limit indicated.
"/"	Separates the laboratory added data qualifiers from the validation data qualifiers. The laboratory added data qualifiers precede the first "/." The result qualifiers follow the first "/," and the analysis qualifiers follow the second "/." The result qualifiers are a product of the data validation process, and the analysis qualifiers define the type of QC excursion.

Laboratory Data Qualifiers

Qualifier	Description
J	Estimated concentration above the method detection limit and below the reporting limit.

Result Data Qualifiers

Qualifier	Description
B	The analyte was found in an associated blank as well as in the sample.
J	The quantitation is an estimation.
M	A matrix effect was present.

Analysis Data Qualifiers

Qualifier	Description
D	Percent difference of matrix spike duplicate exceeded established criteria.
i	Surrogate recovery below the lower limit.
K	An analyte detected in the sample at a concentration less than or equal to five times the concentration detected in the associated method blank. Professional judgment must be used to determine if the detect is site-related.
m	Matrix spike recovery below established criteria.
M	Matrix spike recovery above established criteria.
T	Detected in the associated trip blank.

Attachment A

Field Forms

AECOM

Americas

Daily Tailgate Meeting

S3AM-209-FM5

Instructions: Conduct meeting prior to sending crews to individual tasks. Require attendance of all AECOM employees and subcontractors. Invite personnel from simultaneous operations for coordination purposes. Review scope of work and briefly discuss required and applicable topics. **This meeting is a daily refresher, not a full orientation**. Task-specific discussions associated with Task Hazard Assessment (THA) follow this meeting at the task location immediately before individual task is started.

AECOM Supervisor Name: Leslee Alexander
Phone Number:

AECOM SH&E Rep. Name: M. Rockwell
Phone Number: 919 356 5438

Meeting Leader: M. Rockwell

Date: 11 | 18 | 19 | **Project Name/Location:** UTC Delavan | **Project Number:** 60570866

Today's Scope of Work:
Well installation / MOB day

Muster Point Location:	First Aid Kit Location:	Fire Extinguisher Location:	Spill Kit Location:
front of property	Vehicles	equipment	rig

1. Required Topics

- [x] Fitness for Duty requirements, all sign in / sign out
- [x] Required training (incl. task specific) completed and current
- [x] SH&E Plan onsite - understood, reviewed, signed by all (incl. scope, preplanning hazard assessments / risk registers, controls, procedures, requirements, etc.)
- [x] Task Hazard Assessments (THAs) are to be reviewed and completed for each task immediately prior to conducting
- [x] STOP WORK Right & Responsibility- all task changes/changed conditions re-assess with THA
- [x] Requirement to report to supervisor any injury, illness, damage, near miss, unsafe act / condition
- [x] Emergency Response Plan – including muster point, first aid kit, fire extinguisher, clinic/hospital location
- [x] Personal Protective Equipment (PPE) - Required items per hazard assessments in good condition / in use by all
- [x] Equipment/machinery inspected (documented as required) and in good condition - operators properly trained/certified
- [x] Work area set up and demarcation/ barricades in place to protect workers, site staff, and the public
- [ ] Required checklists/records available, understood (describe):
- [ ] Lessons Learned / SH&E improvements (describe):

2. Discuss if Applicable to Today's Work

Check [✓] as reviewed or mark [■] as not applicable

- [✓] Biological/ Chemical / Electrical Hazards
- [✓] Ergonomics - Lifting, Body Position
- [■] Lock Out/ Tag Out
  Short Service Employees - visual identifier and mentor/ oversight assignment
- [■] Simultaneous/ Neighbouring Operations
- [✓] Slip/ Trip/ Fall Hazards
- [✓] Specialized PPE Needs
- [✓] Traffic Control
- [✓] Waste Management/ Decontamination
- [✓] Weather Hazards / Heat Stress / Cold Stress
- [✓] Subcontractor Requirements (e.g., JHAs, THAs, procedures, reporting, etc.)
- [■] Work Permits / Plans required (e.g., Fall Protection, Confined Space, Hot Work, Critical Lifts, etc.), in place, understood (identify/attach):
- [ ] Other Topics (describe/attach):
- [ ] Client specific requirements (describe):

3. Daily Check Out by Site Supervisor

Describe incidents, near misses, observations or Stop Work interventions from today:	Describe Lessons Learned/ Improvement Areas from today:

The site is being left in a safe condition and work crew checked out as fit unless otherwise specified as above.

Site Supervisor Name	Signature	Date / Time (at end of day / shift)
Marian Rockwell	M. Rockwell	11/18/19 1730

Worker Acknowledgement / Sign In Sign Out sheets applicable to this meeting are on reverse and, if applicable, attached.

All employees:

- **STOP WORK if concerned / uncertain about safety / hazard or additional precaution is not recorded on the THA.**
- **Be alert and communicate any changes in personnel or conditions at the worksite to the supervisor.**
- **Reassess task, hazards, & mitigations on an ongoing basis; amend the THA if needed.**

SITE WORKERS (including AECOM Contractors and Subcontractors): Your signature below means that you understand:

* The requirement to participate in creating, reviewing, & updating hazard assessments (THA) applicable to your task(s).
* The hazards & control measures associated with each task you are about to perform.
* The permit to work requirements applicable to the work you are about to perform (if it includes permitted activities).
* That no tasks or work is to be performed without a hazard assessment.
* Your authority & obligation to "Stop Work" intervene, speak up/ listen up.

Your initials (right columns) certify that you arrived & departed fit for duty, & have reported all incidents/near misses; meaning:

* You are physically and mentally fit for duty and have inspected your required PPE to ensure satisfactory condition.
* You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
* You are aware of your responsibility to immediately report any illness, injury (regardless of where or when it occurred), or impairment/fatigue issue to the AECOM Supervisor.
* You signed out as fit / uninjured unless you have otherwise informed the AECOM Supervisor.

Print Name & Company	Signature	Initials & Sign In Time	Initials & Sign Out Time
Phillip Bradley Cascade	Phillip Bradley	In & Fit 9:49 PB	Out & Fit 1730 PB
J. HALL Cascade	JH	In & Fit 9:49 JH	Out & Fit 1730 JH
Chuck Suddeth AECOM	Charles K Suddeth	In & Fit 9:49 CKS	Out & Fit 1725 CKS
Mike Rodrigues CASCADE	Mike Rodrigues	In & Fit 9:49 MMR	Out & Fit 1730 MR
Marian Rockwell AECOM	Marian Rockwell	In & Fit 0949 MR	Out & Fit 1736
Michael Geddings Cascade	Michael Geddings	In & Fit 12:52 MG	Out & Fit 1730
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit

(Attach additional Site Worker sign-in/out sheets if needed) Identify number of attached sheets: _____

SITE VISITOR / SITE REPRESENTATIVE

Name	Company Name	Arrival Time	Departure Time	Signature

AECOM

WORKER SIGN ON

NAME (Please Print) SIGNATURE

I participated in the development and understand the content of this Task Hazard Assessment.

NAME (Please Print)	SIGNATURE
Phillip Bradley	Phillip Bradley
J. HALL	
Chuck Suddeth	Charles K Suddeth
Michael Rodrigues	
Marian Rockwell	
Michael Geddings	

VISITOR SIGN ON

NAME (Please Print)	SIGNATURE	TIME

Risk Rating Matrix

Probability	Severity				
	5 - Catastrophic	4 – Critical	3 – Major	2 – Moderate	1 - Minor
5 – Frequent	25	20	15	10	5
4 – Probable	20	16	12	8	4
3 – Occasional	15	12	9	6	3
2 – Remote	10	8	6	4	2
1 - Improbable	5	4	3	2	1

Risk Rating (Probability x Severity)	Risk Acceptance Authority
1 to 4 (Low)	Risk is tolerable, manage at local level
5 to 9 (Medium)	Risk requires approval by Operations Lead/Supervisor & Safety Manager
10 to 25 (High)	Risk requires the approval of the Operations Manager & Safety Director

Severity – Potential Consequences				
	People	Property Damage	Environmental Impact	Public Image/Reputation
Catastrophic	Fatality, Multiple Major Incidents	>$1M USD, Structural collapse	Offsite impact requiring remediation	Government intervention
Critical	Permanent impairment, Long term injury/illness	>$250K to $1M USD	Onsite impact requiring remediation	Media intervention
Major	Lost/Restricted Work	> $10K to $250K USD	Release at/above reportable limit	Owner intervention
Moderate	Medical Treatment	> $1K to $10K USD	Release below reportable limit	Community or local attention
Minor	First Aid	</=$1K USD	Small chemical release contained onsite	Individual complaint

Probability		
Frequent	Expected to occur during task/activity	9/10
Probable	Likely to occur during task/activity	1/10
Occasional	May occur during the task/activity	1/100
Remote	Unlikely to occur during task/activity	1/1,000
Improbable	Highly unlikely to occur, but possible during task/activity	1/10,000

Task Hazard Assessment Follow-Up/Review.

	Initial
First Break	
Lunch Break	
Second Break	

Emergency Meeting / Assembly Area

front of property

Emergency Contact #

911

Emergency Radio Channel

Area is safe and housekeeping completed at the end of task/shift.

Supervisor (print name) Marian Rockwell

Signature

AECOM

Americas

Task Hazard Assessment

S3AM-209-FM6

Customer UTC	Permit No.
Location Bamberg, SC (Delaware)	Job No. 60590806
Description of Task Well installation	Date 10/8/19

Basic Task Steps (explain how the task will be carried out)	Hazards (identify all hazards and potential hazards)	Risk (initial)	Precautions (describe how that hazard will be controlled)	Risk (final)	Initials
See THA for Sonic Drilling and MOB/deMOB					
			Highest Risk Index		

Review and attach to Tailgate Meeting as required. Number and attach additional pages if necessary.

Worker/Visitor acknowledgement and review of this content on back of this document.

Risk Matrix on Reverse

Originator Mariah Rockwell (Print Name) — (Signature)

Supervisor Mariah Rockwell (Print Name) — (Signature)

THIS FORM IS TO BE KEPT ON JOB SITE.

AECOM

Americas

Daily Tailgate Meeting

S3AM-209-FM5

Instructions: Conduct meeting prior to sending crews to individual tasks. Require attendance of all AECOM employees and subcontractors. Invite personnel from simultaneous operations for coordination purposes. Review scope of work and briefly discuss required and applicable topics. **This meeting is a daily refresher, not a full orientation.** Task-specific discussions associated with Task Hazard Assessment (THA) follow this meeting at the task location immediately before individual task is started.

AECOM Supervisor Name: Leslie Alexand
Phone Number:

AECOM SH&E Rep. Name: M. Rockwell
Phone Number: 919 356 5438

Meeting Leader: M. Rockwell

Date: 11/19/19 | **Project Name/Location:** UTC Delavan | **Project Number:** 60590866

Today's Scope of Work:
well installation

Muster Point Location:	First Aid Kit Location:	Fire Extinguisher Location:	Spill Kit Location:
front of property	vehicles	equipment	rig

1. Required Topics

- [x] Fitness for Duty requirements, all sign in / sign out
- [x] Required training (incl. task specific) completed and current
- [x] SH&E Plan onsite - understood, reviewed, signed by all (incl. scope, preplanning hazard assessments / risk registers, controls, procedures, requirements, etc.)
- [x] Task Hazard Assessments (THAs) are to be reviewed and completed for each task immediately prior to conducting
- [x] STOP WORK Right & Responsibility- all task changes/changed conditions re-assess with THA
- [x] Requirement to report to supervisor any injury, illness, damage, near miss, unsafe act / condition
- [x] Emergency Response Plan – including muster point, first aid kit, fire extinguisher, clinic/hospital location
- [x] Personal Protective Equipment (PPE) - Required items per hazard assessments in good condition / in use by all
- [x] Equipment/machinery inspected (documented as required) and in good condition - operators properly trained/certified
- [x] Work area set up and demarcation/ barricades in place to protect workers, site staff, and the public
- [ ] Required checklists/records available, understood (describe):
- [ ] Lessons Learned / SH&E improvements (describe):

2. Discuss if Applicable to Today's Work

Check [✓] as reviewed or mark [■] as not applicable

- [✓] Biological/ Chemical / Electrical Hazards
- [✓] Ergonomics - Lifting, Body Position
- [■] Lock Out/ Tag Out
- Short Service Employees - visual identifier and mentor/ oversight assignment
- [■] Simultaneous/ Neighbouring Operations
- [✓] Slip/ Trip/ Fall Hazards
- [■] Specialized PPE Needs
- [✓] Traffic Control
- [✓] Waste Management/ Decontamination
- [✓] Weather Hazards / Heat Stress / Cold Stress
- [✓] Subcontractor Requirements (e.g., JHAs, THAs, procedures, reporting, etc.)
- [■] Work Permits / Plans required (e.g., Fall Protection, Confined Space, Hot Work, Critical Lifts, etc.); in place, understood (identify/attach):
- [ ] Other Topics (describe/attach):
- [ ] Client specific requirements (describe):

3. Daily Check Out by Site Supervisor

Describe incidents, near misses, observations or Stop Work interventions from today:	Describe Lessons Learned/ Improvement Areas from today:

The site is being left in a safe condition and work crew checked out as fit unless otherwise specified as above.

Site Supervisor Name	Signature	Date / Time (at end of day / shift)
Mariah Rockwell		11/19/19 1650

Worker Acknowledgement / Sign In Sign Out sheets applicable to this meeting are on reverse and, if applicable, attached.

All employees:

- **STOP WORK if concerned / uncertain about safety / hazard or additional precaution is not recorded on the THA.**
- **Be alert and communicate any changes in personnel or conditions at the worksite to the supervisor.**
- **Reassess task, hazards, & mitigations on an ongoing basis; amend the THA if needed.**

SITE WORKERS (including AECOM Contractors and Subcontractors): Your signature below means that you understand:

* The requirement to participate in creating, reviewing, & updating hazard assessments (THA) applicable to your task(s).
* The hazards & control measures associated with each task you are about to perform.
* The permit to work requirements applicable to the work you are about to perform (if it includes permitted activities).
* That no tasks or work is to be performed without a hazard assessment.
* Your authority & obligation to "Stop Work" intervene, speak up/ listen up.

Your initials (right columns) certify that you arrived & departed fit for duty, & have reported all incidents/near misses; meaning:

* You are physically and mentally fit for duty and have inspected your required PPE to ensure satisfactory condition.
* You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
* You are aware of your responsibility to immediately report any illness, injury (regardless of where or when it occurred), or impairment/fatigue issue to the AECOM Supervisor.
* You signed out as fit / uninjured unless you have otherwise informed the AECOM Supervisor.

Print Name & Company	Signature	Initials & Sign In Time	Initials & Sign Out Time
Mariah Rockwell AECOM		In & Fit 0810 MR	Out & Fit 1645 MR
Chuck Sudderth AECOM		In & Fit 0810 CKS	Out & Fit 1130 CKS
J. HALL Cascade		In & Fit 0800	Out & Fit 400
Michael Gellings Cascade		In & Fit 0800	Out & Fit 400
Michael Rodriguez, Cascade		In & Fit 0800	Out & Fit 1645
Phillip Bradley Cascade		In & Fit 0800	Out & Fit 1645
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit

(Attach additional Site Worker sign-in/out sheets if needed) Identify number of attached sheets: _____

SITE VISITOR / SITE REPRESENTATIVE

Name	Company Name	Arrival Time	Departure Time	Signature

AECOM

Americas

Task Hazard Assessment

S3AM-209-FM6

Customer UTC	Permit No.
Location Bamberg	Job No. 60590864
Description of Task well install	Date 11/19/19

Basic Task Steps (explain how the task will be carried out)	Hazards (identify all hazards and potential hazards)	Risk (initial)	Precautions (describe how that hazard will be controlled)	Risk (final)	Initials
See THA for Sonic Drilling					
			Highest Risk Index		

Review and attach to Tailgate Meeting as required. Number and attach additional pages if necessary.

Worker/Visitor acknowledgement and review of this content on back of this document.

Risk Matrix on Reverse

Originator Marida Rockwell (Print Name) — Signature

Supervisor Mariah Rockwell (Print Name) — Signature

THIS FORM IS TO BE KEPT ON JOB SITE.

AECOM

WORKER SIGN ON

NAME (Please Print)	SIGNATURE
I participated in the development and understand the content of this Task Hazard Assessment.	
Mariah Rockwell	
Chuck Sudderth	
J. Hall	
Michael Gallegos	
Michael Rodriguez	
Phillip Bradley	

VISITOR SIGN ON

NAME (Please Print)	SIGNATURE	TIME

Risk Rating Matrix

Probability	Severity				
	5 - Catastrophic	4 – Critical	3 – Major	2 – Moderate	1 - Minor
5 – Frequent	25	20	15	10	5
4 – Probable	20	16	12	8	4
3 – Occasional	15	12	9	6	3
2 – Remote	10	8	6	4	2
1 - Improbable	5	4	3	2	1

Risk Rating (Probability x Severity)	Risk Acceptance Authority
1 to 4 (Low)	Risk is tolerable, manage at local level
5 to 9 (Medium)	Risk requires approval by Operations Lead/Supervisor & Safety Manager
10 to 25 (High)	Risk requires the approval of the Operations Manager & Safety Director

Severity – Potential Consequences				
	People	Property Damage	Environmental Impact	Public Image/Reputation
Catastrophic	Fatality, Multiple Major Incidents	>$1M USD, Structural collapse	Offsite impact requiring remediation	Government intervention
Critical	Permanent impairment, Long term injury/illness	>$250K to $1M USD	Onsite impact requiring remediation	Media intervention
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Moderate	Medical Treatment	> $1K to $10K USD	Release below reportable limit	Community or local attention
Minor	First Aid	</=$1K USD	Small chemical release contained onsite	Individual complaint

Probability		
Frequent	Expected to occur during task/activity	9/10
Probable	Likely to occur during task/activity	1/10
Occasional	May occur during the task/activity	1/100
Remote	Unlikely to occur during task/activity	1/1,000
Improbable	Highly unlikely to occur, but possible during task/activity	1/10,000

Task Hazard Assessment Follow-Up/Review.

	Initial
First Break	
Lunch Break	
Second Break	

Emergency Meeting / Assembly Area

front of property

Emergency Contact #

911

Emergency Radio Channel

Area is safe and housekeeping completed at the end of task/shift.

Supervisor (print name) Mariah Rockwell

Signature

AECOM

Americas

Daily Tailgate Meeting

S3AM-209-FM5

Instructions: Conduct meeting prior to sending crews to individual tasks. Require attendance of all AECOM employees and subcontractors. Invite personnel from simultaneous operations for coordination purposes. Review scope of work and briefly discuss required and applicable topics. **This meeting is a daily refresher, not a full orientation.** Task-specific discussions associated with Task Hazard Assessment (THA) follow this meeting at the task location immediately before individual task is started.

AECOM Supervisor Name: Leslee Alexander
Phone Number:
AECOM SH&E Rep. Name: M. Rockwell
Phone Number: 919 356 5438
Meeting Leader: M. Rockwell

Date: 11/20/19 | **Project Name/Location:** UTC Delaware | **Project Number:** 60594866

Today's Scope of Work: well installation w/ Sonic Rig

Muster Point Location:	First Aid Kit Location:	Fire Extinguisher Location:	Spill Kit Location:
front of property	vehicles	equipment	rig

1. Required Topics

- [x] Fitness for Duty requirements, all sign in / sign out
- [x] Required training (incl. task specific) completed and current
- [x] SH&E Plan onsite - understood, reviewed, signed by all (incl. scope, preplanning hazard assessments / risk registers, controls, procedures, requirements, etc.)
- [x] Task Hazard Assessments (THAs) are to be reviewed and completed for each task immediately prior to conducting
- [x] STOP WORK Right & Responsibility- all task changes/changed conditions re-assess with THA
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- [x] Personal Protective Equipment (PPE) - Required items per hazard assessments in good condition / in use by all
- [x] Equipment/machinery inspected (documented as required) and in good condition - operators properly trained/certified
- [x] Work area set up and demarcation/ barricades in place to protect workers, site staff, and the public
- [ ] Required checklists/records available, understood (describe):
- [ ] Lessons Learned / SH&E improvements (describe):

2. Discuss if Applicable to Today's Work

Check [✓] as reviewed or mark [■] as not applicable

- [✓] Biological/ Chemical / Electrical Hazards
- [✓] Ergonomics - Lifting, Body Position
- [■] Lock Out/ Tag Out
- Short Service Employees - visual identifier and mentor/ oversight assignment
- [■] Simultaneous/ Neighbouring Operations
- [✓] Slip/ Trip/ Fall Hazards
- [■] Specialized PPE Needs
- [✓] Traffic Control
- [✓] Waste Management/ Decontamination
- [✓] Weather Hazards / Heat Stress / Cold Stress
- [✓] Subcontractor Requirements (e.g., JHAs, THAs, procedures, reporting, etc.)
- [■] Work Permits / Plans required (e.g., Fall Protection, Confined Space, Hot Work, Critical Lifts, etc.); in place, understood (identify/attach):
- [ ] Other Topics (describe/attach):
- [ ] Client specific requirements (describe):

3. Daily Check Out by Site Supervisor

Describe incidents, near misses, observations or Stop Work interventions from today:	Describe Lessons Learned/ Improvement Areas from today:

The site is being left in a safe condition and work crew checked out as fit unless otherwise specified as above.

Site Supervisor Name	Signature	Date / Time (at end of day / shift)
Marian Rockwell	M Rockwell	11/20/19 1640

Worker Acknowledgement / Sign In Sign Out sheets applicable to this meeting are on reverse and, if applicable, attached.

All employees:

- **STOP WORK if concerned / uncertain about safety / hazard or additional precaution is not recorded on the THA.**
- **Be alert and communicate any changes in personnel or conditions at the worksite to the supervisor.**
- **Reassess task, hazards, & mitigations on an ongoing basis; amend the THA if needed.**

SITE WORKERS (including AECOM Contractors and Subcontractors): Your signature below means that you understand:

* The requirement to participate in creating, reviewing, & updating hazard assessments (THA) applicable to your task(s).
* The hazards & control measures associated with each task you are about to perform.
* The permit to work requirements applicable to the work you are about to perform (if it includes permitted activities).
* That no tasks or work is to be performed without a hazard assessment.
* Your authority & obligation to "Stop Work" intervene, speak up/ listen up.

Your initials (right columns) certify that you arrived & departed fit for duty, & have reported all incidents/near misses; meaning:

* You are physically and mentally fit for duty and have inspected your required PPE to ensure satisfactory condition.
* You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
* You are aware of your responsibility to immediately report any illness, injury (regardless of where or when it occurred), or impairment/fatigue issue to the AECOM Supervisor.
* You signed out as fit / uninjured unless you have otherwise informed the AECOM Supervisor.

Print Name & Company	Signature	Initials & Sign In Time	Initials & Sign Out Time
Mariah Rockwell AECOM		In & Fit 0800 MR	Out & Fit 1630 MR
J. Hall Cascade		In & Fit 0800	Out & Fit 1630
Mike Rodrigues CASCADE		In & Fit 0800 MR	Out & Fit 1630 MR
Phillip Bradley Cascade		In & Fit 0800 PB	Out & Fit 1630 PB
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit

(Attach additional Site Worker sign-in/out sheets if needed) Identify number of attached sheets: _____

SITE VISITOR / SITE REPRESENTATIVE

Name	Company Name	Arrival Time	Departure Time	Signature

AECOM

Americas

Task Hazard Assessment

S3AM-209-FM6

Customer	UTC	Permit No.	
Location	Bamberg, SC (UTC Delavan)	Job No.	60590866
Description of Task	well installation	Date	11/20/19

Basic Task Steps (explain how the task will be carried out)	Hazards (identify all hazards and potential hazards)	Risk (initial)	Precautions (describe how that hazard will be controlled)	Risk (final)	Initials
See THA for 'sonic Drilling'					
			Highest Risk Index		

Review and attach to Tailgate Meeting as required. Number and attach additional pages if necessary.

Worker/Visitor acknowledgement and review of this content on back of this document.

Originator: Mariah Rockwell (Print Name) — Signature

Supervisor: Mariah Rockwell (Print Name) — Signature

Risk Matrix on Reverse

THIS FORM IS TO BE KEPT ON JOB SITE.

AECOM

WORKER SIGN ON

NAME (Please Print) SIGNATURE

I participated in the development and understand the content of this Task Hazard Assessment.

Mariah Rockwell
J HALL
Michael Rodriguez
Phillip Bradley

VISITOR SIGN ON

NAME (Please Print) SIGNATURE TIME

Risk Rating Matrix

Probability	Severity				
	5 - Catastrophic	4 – Critical	3 – Major	2 – Moderate	1 - Minor
5 – Frequent	25	20	16	10	5
4 – Probable	20	16	12	8	4
3 – Occasional	15	12	9	6	3
2 – Remote	10	8	6	4	2
1 - Improbable	5	4	3	2	1

Risk Rating (Probability x Severity)	Risk Acceptance Authority
1 to 4 (Low)	Risk is tolerable, manage at local level
5 to 9 (Medium)	Risk requires approval by Operations Lead/Supervisor & Safety Manager
10 to 25 (High)	Risk requires the approval of the Operations Manager & Safety Director

Severity – Potential Consequences				
	People	Property Damage	Environmental Impact	Public Image/Reputation
Catastrophic	Fatality, Multiple Major Incidents	>$1M USD, Structural collapse	Offsite impact requiring remediation	Government intervention
Critical	Permanent impairment, Long term injury/illness	>$250K to $1M USD	Onsite impact requiring remediation	Media intervention
Major	Lost/Restricted Work	> $10K to $250K USD	Release at/above reportable limit	Owner intervention
Moderate	Medical Treatment	> $1K to $10K USD	Release below reportable limit	Community or local attention
Minor	First Aid	</=$1K USD	Small chemical release contained onsite	Individual complaint

Probability		
Frequent	Expected to occur during task/activity	9/10
Probable	Likely to occur during task/activity	1/10
Occasional	May occur during the task/activity	1/100
Remote	Unlikely to occur during task/activity	1/1,000
Improbable	Highly unlikely to occur, but possible during task/activity	1/10,000

Task Hazard Assessment Follow-Up/Review.

	Initial
First Break	
Lunch Break	
Second Break	

Emergency Meeting / Assembly Area: front of property

Emergency Contact #: 911

Emergency Radio Channel:

Area is safe and housekeeping completed at the end of task/shift.

Supervisor (print name) Mariah Rockwell

Signature

AECOM

Americas

Daily Tailgate Meeting

S3AM-209-FM5

Instructions: Conduct meeting prior to sending crews to individual tasks. Require attendance of all AECOM employees and subcontractors. Invite personnel from simultaneous operations for coordination purposes. Review scope of work and briefly discuss required and applicable topics. **This meeting is a daily refresher, not a full orientation.** Task-specific discussions associated with Task Hazard Assessment (THA) follow this meeting at the task location immediately before individual task is started.

AECOM Supervisor Name: LesLee Alexander
Phone Number:

AECOM SH&E Rep. Name: M. Rockwell
Phone Number: 919-356-5438

Meeting Leader: M. Rockwell

Date: 11/21/19 | **Project Name/Location:** UTC Delavan | **Project Number:** 60590866

Today's Scope of Work:
Well installation @ MW-33D

Muster Point Location:	First Aid Kit Location:	Fire Extinguisher Location:	Spill Kit Location:
front of property	Vehicle	equipment	Rig

1. Required Topics

- [x] Fitness for Duty requirements, all sign in / sign out
- [x] Required training (incl. task specific) completed and current
- [x] SH&E Plan onsite - understood, reviewed, signed by all (incl. scope, preplanning hazard assessments / risk registers, controls, procedures, requirements, etc.)
- [x] Task Hazard Assessments (THAs) are to be reviewed and completed for each task immediately prior to conducting
- [x] STOP WORK Right & Responsibility- all task changes/changed conditions re-assess with THA
- [x] Requirement to report to supervisor any injury, illness, damage, near miss, unsafe act / condition
- [x] Emergency Response Plan – including muster point, first aid kit, fire extinguisher, clinic/hospital location
- [x] Personal Protective Equipment (PPE) - Required items per hazard assessments in good condition / in use by all
- [x] Equipment/machinery inspected (documented as required) and in good condition - operators properly trained/certified
- [x] Work area set up and demarcation/ barricades in place to protect workers, site staff, and the public
- [ ] Required checklists/records available, understood (describe):
- [ ] Lessons Learned / SH&E improvements (describe):

2. Discuss if Applicable to Today's Work

Check [✓] as reviewed or mark [■] as not applicable

- [✓] [ ] Biological/ Chemical / Electrical Hazards
- [✓] [ ] Ergonomics - Lifting, Body Position
- [ ] [■] Lock Out/ Tag Out
- Short Service Employees - visual identifier and mentor/ oversight assignment
- [ ] [■] Simultaneous/ Neighbouring Operations
- [✓] [ ] Slip/ Trip/ Fall Hazards
- [ ] [■] Specialized PPE Needs
- [✓] [ ] Traffic Control
- [✓] [ ] Waste Management/ Decontamination
- [✓] [ ] Weather Hazards / Heat Stress / Cold Stress
- [✓] [ ] Subcontractor Requirements (e.g., JHAs, THAs, procedures, reporting, etc.)
- [ ] [■] Work Permits / Plans required (e.g., Fall Protection, Confined Space, Hot Work, Critical Lifts, etc.), in place, understood (identify/attach):
- [ ] [ ] Other Topics (describe/attach):
- [ ] [ ] Client specific requirements (describe):

3. Daily Check Out by Site Supervisor

Describe incidents, near misses, observations or Stop Work interventions from today:	Describe Lessons Learned/ Improvement Areas from today:

The site is being left in a safe condition and work crew checked out as fit unless otherwise specified as above.

Site Supervisor Name	Signature	Date / Time (at end of day / shift)
M. Rockwell	M. Rockwell	11/21/19

Worker Acknowledgement / Sign In Sign Out sheets applicable to this meeting are on reverse and, if applicable, attached.

All employees:

- **STOP WORK if concerned / uncertain about safety / hazard or additional precaution is not recorded on the THA.**
- **Be alert and communicate any changes in personnel or conditions at the worksite to the supervisor.**
- **Reassess task, hazards, & mitigations on an ongoing basis; amend the THA if needed.**

SITE WORKERS (including AECOM Contractors and Subcontractors): Your signature below means that you understand:

* The requirement to participate in creating, reviewing, & updating hazard assessments (THA) applicable to your task(s).
* The hazards & control measures associated with each task you are about to perform.
* The permit to work requirements applicable to the work you are about to perform (if it includes permitted activities).
* That no tasks or work is to be performed without a hazard assessment.
* Your authority & obligation to "Stop Work" intervene, speak up/ listen up.

Your initials (right columns) certify that you arrived & departed fit for duty, & have reported all incidents/near misses; meaning:

* You are physically and mentally fit for duty and have inspected your required PPE to ensure satisfactory condition.
* You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
* You are aware of your responsibility to immediately report any illness, injury (regardless of where or when it occurred), or impairment/fatigue issue to the AECOM Supervisor.
* You signed out as fit / uninjured unless you have otherwise informed the AECOM Supervisor.

Print Name & Company	Signature	Initials & Sign In Time	Initials & Sign Out Time
Mariah Rockwell AECOM		In & Fit 0800 MR	Out & Fit 1700 MR
J. Hall Cascade		In & Fit 0800	Out & Fit 1700
Phillip Bradley Cascade		In & Fit 0800 PB	Out & Fit 1700 PB
Mike Rodriguez Cascade		In & Fit 0800	Out & Fit 1700
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit

(Attach additional Site Worker sign-in/out sheets if needed) Identify number of attached sheets: _____

SITE VISITOR / SITE REPRESENTATIVE

Name	Company Name	Arrival Time	Departure Time	Signature

AECOM

Americas

Task Hazard Assessment

S3AM-209-FM6

Customer UTC	**Permit No.**
Location Bamberg, SC (UTC Delaware)	**Job No.** 60590866
Description of Task well installation	**Date** 11/21/19

Basic Task Steps (explain how the task will be carried out)	Hazards (identify all hazards and potential hazards)	Risk (initial)	Precautions (describe how that hazard will be controlled)	Risk (final)	Initials
See THA for Sonic Drilling					
			Highest Risk Index		

Review and attach to Tailgate Meeting as required. Number and attach additional pages if necessary.

Worker/Visitor acknowledgement and review of this content on back of this document.

Risk Matrix on Reverse

Originator Mariah Rockwell (Print Name) — (Signature)

Supervisor Mariah Rockwell (Print Name) — (Signature)

THIS FORM IS TO BE KEPT ON JOB SITE.

AECOM

WORKER SIGN ON

NAME (Please Print) SIGNATURE

I participated in the development and understand the content of this Task Hazard Assessment.

Mariah Rockwell
Phillip Bradley
J. Hall
Mike Rodrigues

VISITOR SIGN ON

NAME (Please Print) SIGNATURE TIME

Risk Rating Matrix

Probability	Severity				
	5 - Catastrophic	4 – Critical	3 – Major	2 – Moderate	1 - Minor
5 – Frequent	25	20	15	10	5
4 – Probable	20	16	12	8	4
3 – Occasional	15	12	9	6	3
2 – Remote	10	8	6	4	2
1 - Improbable	5	4	3	2	1

Risk Rating (Probability x Severity)	Risk Acceptance Authority
1 to 4 (Low)	Risk is tolerable, manage at local level
5 to 9 (Medium)	Risk requires approval by Operations Lead/Supervisor & Safety Manager
10 to 25 (High)	Risk requires the approval of the Operations Manager & Safety Director

Severity – Potential Consequences				
	People	Property Damage	Environmental Impact	Public Image/Reputation
Catastrophic	Fatality, Multiple Major Incidents	>$1M USD, Structural collapse	Offsite impact requiring remediation	Government intervention
Critical	Permanent impairment, Long term injury/illness	>$250K to $1M USD	Onsite impact requiring remediation	Media intervention
Major	Lost/Restricted Work	> $10K to $250K USD	Release at/above reportable limit	Owner intervention
Moderate	Medical Treatment	> $1K to $10K USD	Release below reportable limit	Community or local attention
Minor	First Aid	</=$1K USD	Small chemical release contained onsite	Individual complaint

Probability		
Frequent	Expected to occur during task/activity	9/10
Probable	Likely to occur during task/activity	1/10
Occasional	May occur during the task/activity	1/100
Remote	Unlikely to occur during task/activity	1/1,000
Improbable	Highly unlikely to occur, but possible during task/activity	1/10,000

Task Hazard Assessment Follow-Up/Review.

	Initial
First Break	
Lunch Break	
Second Break	

Emergency Meeting / Assembly Area

front of property

Emergency Contact #

911

Emergency Radio Channel

Area is safe and housekeeping completed at the end of task/shift.

Supervisor (print name) Mariah Rockwell

Signature

AECOM

Americas

Daily Tailgate Meeting

S3AM-209-FM5

Instructions: Conduct meeting prior to sending crews to individual tasks. Require attendance of all AECOM employees and subcontractors. Invite personnel from simultaneous operations for coordination purposes. Review scope of work and briefly discuss required and applicable topics. **This meeting is a daily refresher, not a full orientation.** Task-specific discussions associated with Task Hazard Assessment (THA) follow this meeting at the task location immediately before individual task is started.

AECOM Supervisor Name: Lesice Alexander
Phone Number:

AECOM SH&E Rep. Name: M. Rockwell
Phone Number: 919-356-5438

Meeting Leader: M. Rockwell

Date: 11/22/19 | **Project Name/Location:** UTC Delaware | **Project Number:** 60590846

Today's Scope of Work:

grout, surface completions, cleanup, deMOB

Muster Point Location:	First Aid Kit Location:	Fire Extinguisher Location:	Spill Kit Location:
front of property	vehicles	equipment	rig

1. Required Topics

- [x] Fitness for Duty requirements, all sign in / sign out
- [x] Required training (incl. task specific) completed and current
- [x] SH&E Plan onsite - understood, reviewed, signed by all (incl. scope, preplanning hazard assessments / risk registers, controls, procedures, requirements, etc.)
- [x] Task Hazard Assessments (THAs) are to be reviewed and completed for each task immediately prior to conducting
- [x] STOP WORK Right & Responsibility- all task changes/changed conditions re-assess with THA
- [x] Requirement to report to supervisor any injury, illness, damage, near miss, unsafe act / condition
- [x] Emergency Response Plan – including muster point, first aid kit, fire extinguisher, clinic/hospital location
- [x] Personal Protective Equipment (PPE) - Required items per hazard assessments in good condition / in use by all
- [x] Equipment/machinery inspected (documented as required) and in good condition - operators properly trained/certified
- [x] Work area set up and demarcation/ barricades in place to protect workers, site staff, and the public
- [ ] Required checklists/records available, understood (describe):
- [ ] Lessons Learned / SH&E improvements (describe):

2. Discuss if Applicable to Today's Work

Check [✓] as reviewed or mark [■] as not applicable

- [✓] [ ] Biological/ Chemical / Electrical Hazards
- [✓] [ ] Ergonomics - Lifting, Body Position
- [ ] [■] Lock Out/ Tag Out
- Short Service Employees - visual identifier and mentor/ oversight assignment
- [ ] [■] Simultaneous/ Neighbouring Operations
- [✓] [ ] Slip/ Trip/ Fall Hazards
- [✓] [ ] Specialized PPE Needs
- [✓] [ ] Traffic Control
- [✓] [ ] Waste Management/ Decontamination
- [✓] [ ] Weather Hazards / Heat Stress / Cold Stress
- [✓] [ ] Subcontractor Requirements (e.g., JHAs, THAs, procedures, reporting, etc.)
- [ ] [■] Work Permits / Plans required (e.g., Fall Protection, Confined Space, Hot Work, Critical Lifts, etc.); in place, understood (identify/attach):
- [ ] [ ] Other Topics (describe/attach):
- [ ] [ ] Client specific requirements (describe):

3. Daily Check Out by Site Supervisor

Describe incidents, near misses, observations or Stop Work interventions from today:	Describe Lessons Learned/ Improvement Areas from today:

The site is being left in a safe condition and work crew checked out as fit unless otherwise specified as above.

Site Supervisor Name	Signature	Date / Time (at end of day / shift)
Marcus Rockwell		11/22/19 1740

Worker Acknowledgement / Sign In Sign Out sheets applicable to this meeting are on reverse and, if applicable, attached.

AECOM

All employees:

- **STOP WORK if concerned / uncertain about safety / hazard or additional precaution is not recorded on the THA.**
- **Be alert and communicate any changes in personnel or conditions at the worksite to the supervisor.**
- **Reassess task, hazards, & mitigations on an ongoing basis; amend the THA if needed.**

SITE WORKERS (including AECOM Contractors and Subcontractors): Your signature below means that you understand:

* The requirement to participate in creating, reviewing, & updating hazard assessments (THA) applicable to your task(s).
* The hazards & control measures associated with each task you are about to perform.
* The permit to work requirements applicable to the work you are about to perform (if it includes permitted activities).
* That no tasks or work is to be performed without a hazard assessment.
* Your authority & obligation to "Stop Work" intervene, speak up/ listen up.

Your initials (right columns) certify that you arrived & departed fit for duty, & have reported all incidents/near misses; meaning:

* You are physically and mentally fit for duty and have inspected your required PPE to ensure satisfactory condition.
* You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
* You are aware of your responsibility to immediately report any illness, injury (regardless of where or when it occurred), or impairment/fatigue issue to the AECOM Supervisor.
* You signed out as fit / uninjured unless you have otherwise informed the AECOM Supervisor.

Print Name & Company	Signature	Initials & Sign In Time	Initials & Sign Out Time
Mariah Rockwell AECOM		In & Fit 0745 MR	Out & Fit 1100 MR
Phillip Bradley Cascade		In & Fit 0745 PB	Out & Fit 1745 PB
Mike Rodrigues Cascade		In & Fit 0745 MR	Out & Fit 1745 MR
Randy Morgan		In & Fit RM	Out & Fit 1745 RM
Randy Morgan AECOM		In & Fit RM	Out & Fit 1200 RM
Mike Rodrigues Cascade		In & Fit 8:00 MR	Out & Fit 1200 MR
Phillip Bradley Cascade		In & Fit 8:00 PB	Out & Fit 1200 PB
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit

11-22-2019

11-23-19

(Attach additional Site Worker sign-in/out sheets if needed) Identify number of attached sheets: _____

SITE VISITOR / SITE REPRESENTATIVE

Name	Company Name	Arrival Time	Departure Time	Signature

AECOM

Americas

Task Hazard Assessment

S3AM-209-FM6

Customer UTC	Permit No.
Location Bamberg, SC (Delavan)	Job No. 605908966
Description of Task demoB, clean up, surface completion	Date 11-22-19

Basic Task Steps (explain how the task will be carried out)	Hazards (identify all hazards and potential hazards)	Risk (initial)	Precautions (describe how that hazard will be controlled)	Risk (final)	Initials
see deMOB THA and grouting and surface completion					
			Highest Risk Index		

Review and attach to Tailgate Meeting as required. Number and attach additional pages if necessary.

Worker/Visitor acknowledgement and review of this content on back of this document.

Risk Matrix on Reverse

Originator Mariah Rockwell (Print Name) — Signature

Supervisor Mariah Rockwell (Print Name) — Signature

THIS FORM IS TO BE KEPT ON JOB SITE.

AECOM

WORKER SIGN ON

NAME (Please Print)	SIGNATURE
Mariah Rockwell	[signature]
Phillip Bradley	[signature]
Mehmet Rodriguez	[signature]

I participated in the development and understand the content of this Task Hazard Assessment.

Risk Rating Matrix

Probability	Severity: 5 - Catastrophic	4 – Critical	3 – Major	2 – Moderate	1 - Minor
5 – Frequent	25	20	15	10	5
4 – Probable	20	16	12	8	4
3 – Occasional	15	12	9	6	3
2 – Remote	10	8	6	4	2
1 - Improbable	5	4	3	2	1

Risk Rating (Probability x Severity)	Risk Acceptance Authority
1 to 4 (Low)	Risk is tolerable, manage at local level
5 to 9 (Medium)	Risk requires approval by Operations Lead/Supervisor & Safety Manager
10 to 25 (High)	Risk requires the approval of the Operations Manager & Safety Director

Severity – Potential Consequences

	People	Property Damage	Environmental Impact	Public Image/Reputation
Catastrophic	Fatality, Multiple Major Incidents	>$1M USD, Structural collapse	Offsite impact requiring remediation	Government intervention
Critical	Permanent impairment, Long term injury/illness	>$250K to $1M USD	Onsite impact requiring remediation	Media intervention
Major	Lost/Restricted Work	> $10K to $250K USD	Release at/above reportable limit	Owner intervention
Moderate	Medical Treatment	> $1K to $10K USD	Release below reportable limit	Community or local attention
Minor	First Aid	<=$1K USD	Small chemical release contained onsite	Individual complaint

Probability

Frequent	Expected to occur during task/activity	9/10
Probable	Likely to occur during task/activity	1/10
Occasional	May occur during the task/activity	1/100
Remote	Unlikely to occur during task/activity	1/1,000
Improbable	Highly unlikely to occur, but possible during task/activity	1/10,000

VISITOR SIGN ON

NAME (Please Print)	SIGNATURE	TIME

Task Hazard Assessment Follow-Up/Review.

	Initial
First Break	
Lunch Break	
Second Break	

Emergency Meeting / Assembly Area: Vehicles

Emergency Contact #: 911

Emergency Radio Channel:

Area is safe and housekeeping completed at the end of task/shift.

Supervisor (print name) Mariah Rockwell

Signature Mariah Rockwell

AECOM

Americas

Daily Tailgate Meeting

S3AM-209-FM5

Instructions: Conduct meeting prior to sending crews to individual tasks. Require attendance of all AECOM employees and subcontractors. Invite personnel from simultaneous operations for coordination purposes. Review scope of work and briefly discuss required and applicable topics. **This meeting is a daily refresher, not a full orientation.** Task-specific discussions associated with Task Hazard Assessment (THA) follow this meeting at the task location immediately before individual task is started.

AECOM Supervisor Name: Leslie Alexander
Phone Number:

AECOM SH&E Rep. Name: Mariah Rockwell
Phone Number: 919-356-5428

Meeting Leader: M. Rockwell

Date: 11/25/19 | **Project Name/Location:** UTC Delaware | **Project Number:** 60590866

Today's Scope of Work:
slug testing

Muster Point Location:	First Aid Kit Location:	Fire Extinguisher Location:	Spill Kit Location:
front of property	vehicle	vehicle	vehicle

1. Required Topics

- [x] Fitness for Duty requirements, all sign in / sign out
- [x] Required training (incl. task specific) completed and current
- [x] SH&E Plan onsite - understood, reviewed, signed by all (incl. scope, preplanning hazard assessments / risk registers, controls, procedures, requirements, etc.)
- [x] Task Hazard Assessments (THAs) are to be reviewed and completed for each task immediately prior to conducting
- [x] STOP WORK Right & Responsibility- all task changes/changed conditions re-assess with THA
- [x] Requirement to report to supervisor any injury, illness, damage, near miss, unsafe act / condition
- [x] Emergency Response Plan – including muster point, first aid kit, fire extinguisher, clinic/hospital location
- [x] Personal Protective Equipment (PPE) - Required items per hazard assessments in good condition / in use by all
- [x] Equipment/machinery inspected (documented as required) and in good condition - operators properly trained/certified
- [x] Work area set up and demarcation/ barricades in place to protect workers, site staff, and the public
- [ ] Required checklists/records available, understood (describe):
- [ ] Lessons Learned / SH&E improvements (describe):

2. Discuss if Applicable to Today's Work

Check [x] as reviewed or mark [■] as not applicable

- [x] [ ] Biological/ Chemical / Electrical Hazards
- [x] [ ] Ergonomics - Lifting, Body Position
- [ ] [■] Lock Out/ Tag Out
- Short Service Employees - visual identifier and mentor/ oversight assignment
- [ ] [■] Simultaneous/ Neighbouring Operations
- [x] [ ] Slip/ Trip/ Fall Hazards
- [x] [ ] Specialized PPE Needs
- [x] [ ] Traffic Control
- [x] [ ] Waste Management/ Decontamination
- [x] [ ] Weather Hazards / Heat Stress / Cold Stress
- [ ] [■] Subcontractor Requirements (e.g., JHAs, THAs, procedures, reporting, etc.)
- [ ] [■] Work Permits / Plans required (e.g., Fall Protection, Confined Space, Hot Work, Critical Lifts, etc.); in place, understood (identify/attach):
- [ ] [ ] Other Topics (describe/attach):
- [x] [ ] Client specific requirements (describe):
  see HASP

3. Daily Check Out by Site Supervisor

Describe incidents, near misses, observations or Stop Work interventions from today:	Describe Lessons Learned/ Improvement Areas from today:

The site is being left in a safe condition and work crew checked out as fit unless otherwise specified as above.

Site Supervisor Name	Signature	Date / Time (at end of day / shift)
Mariah Rockwell		11/25/19 1745

Worker Acknowledgement / Sign In Sign Out sheets applicable to this meeting are on reverse and, if applicable, attached.

All employees:

- **STOP WORK if concerned / uncertain about safety / hazard or additional precaution is not recorded on the THA.**
- **Be alert and communicate any changes in personnel or conditions at the worksite to the supervisor.**
- **Reassess task, hazards, & mitigations on an ongoing basis; amend the THA if needed.**

SITE WORKERS (including AECOM Contractors and Subcontractors): Your signature below means that you understand:

* The requirement to participate in creating, reviewing, & updating hazard assessments (THA) applicable to your task(s).
* The hazards & control measures associated with each task you are about to perform.
* The permit to work requirements applicable to the work you are about to perform (if it includes permitted activities).
* That no tasks or work is to be performed without a hazard assessment.
* Your authority & obligation to "Stop Work" intervene, speak up/ listen up.

Your initials (right columns) certify that you arrived & departed fit for duty, & have reported all incidents/near misses; meaning:

* You are physically and mentally fit for duty and have inspected your required PPE to ensure satisfactory condition.
* You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
* You are aware of your responsibility to immediately report any illness, injury (regardless of where or when it occurred), or impairment/fatigue issue to the AECOM Supervisor.
* You signed out as fit / uninjured unless you have otherwise informed the AECOM Supervisor.

Print Name & Company	Signature	Initials & Sign In Time	Initials & Sign Out Time
Mariah Rockwell AECOM		In & Fit MR 1000	Out & Fit MR 1745
Leslee Alexander AECOM		In & Fit 1000 LA	Out & Fit 1745
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit

(Attach additional Site Worker sign-in/out sheets if needed) Identify number of attached sheets: _____

SITE VISITOR / SITE REPRESENTATIVE

Name	Company Name	Arrival Time	Departure Time	Signature

Photo / Flame-Ionization Detector Calibration Certificate

AECOM

Cal Standard

PID Isobutylene	Lot #	Expiration	Post-Cal Reading	Acceptable Range
100 ppm	MB1-248-100	12-2022	100.6	98 - 102

FID Methane	Lot #	Expiration	Post-Cal Reading	Acceptable Range
100 ppm		N/A		98 - 102

Pump Flow mL/min	Acceptable Range
360	350 - 450

Model MINI Rae 3K **S/N** 592-920986
Lamp 10.6

Project Name: UTL

Project #: 60590866

Calibrated By: [illegible] Date of Calibration: 11-14-19

Signed: [signature]

AECOM

FIELD INSTRUMENT CALIBRATION LOG

Project Name: UTC Delavan
Project Number: 60590866
Calibrated By: C. Swdoth
Signature:

~~YSI 556 SN~~: Mini Rae 3000 SN 592-920986
Turbidity Meter Model/SN:
Additional Equipment SN:
Date: 11/18/19

Operation Notes:
1) Turn meter on in Run mode and allow to warm up 10 to 15 minutes prior to calibration.
2) Observe DO % for 2-3 minutes when meter is initially turned on. The unit should display decreasing values until it is stabilized near 100%.
3) If the meter does not stabilize at/near 100%, indicates the DO sensor requires maintenance.

These values should be keyed in when calibrating a water quality meter. Be sure to use the temperature of the standards, not ambient temperature; and be sure the temperature sensor is submerged in the solution.

Table 1: Calibration Values At Various Temperatures

Temp. C	pH 4	pH 7	pH 10	Conductivity	ORP
5	4.00	7.07	10.19	896.00	257.00
10	4.00	7.06	10.16	1020.00	250.50
15	4.00	7.04	10.10	1147.00	244.00
20	4.00	7.02	10.05	1278.00	237.50
25	4.00	7.01	10.01	1413.00	231.00
30	4.00	6.99	9.96	1548.00	224.50

mm Hg = millimeters of mercury. Note that the YSI 556 uses this information ONLY when the DO calibration is being done. After calibration is complete it no longer corrects for pressure change. Verify the meter is correct for your altitude when calibrating.

Table 2: Atmospheric Pressure / Altitude Table

Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)
0	760	1126	730	2290	699
278	752	1413	722	2587	692
558	745	1703	714	2887	684
841	737	1995	707	3190	676

Table 3: DO % Saturation Vs. Temperature

Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO
15	10.084	20	9.092	25	8.263	30	7.559	35	6.950
16	9.870	21	8.915	26	8.113	31	7.430	36	6.837
17	9.665	22	8.743	27	7.968	32	7.305	37	6.727
18	9.467	23	8.578	28	7.827	33	7.183	38	6.620
19	9.276	24	8.418	29	7.691	34	7.065	39	6.515

YSI 556 Calibration

Parameter	Before Calibration	After Calibration	Time	Units
Barametric Pressure				mmHg
Temperature (Saturated Air)				C
Temperature (Calibration Solution)				C
DO				mg/L
pH 7				SU
pH 4				SU
pH 10				SU
Specific Conductance				mS/cm
ORP				mV

MicroTPW Calibration

Calibrations performed 0.02, 10, and 1,000 NTU	Calibrations accepted: Yes No (circle one)

Calibrated to ambient air and 100 ppm isobutylene. Reading = 100.0 ppm

AECOM

FIELD INSTRUMENT CALIBRATION LOG

Project Name: UTC Delaware
Project Number: 60390666
Calibrated By: M. Rockwell
Signature:

~~YSI 556 SN:~~ Mini RAE 3000 SN 592-92098b
Turbidity Meter Model/SN:
Additional Equipment SN:
Date: 11/19/19

Operation Notes:
1) Turn meter on in Run mode and allow to warm up 10 to 15 minutes prior to calibration.
2) Observe DO % for 2-3 minutes when meter is initially turned on. The unit should display decreasing values until it is stabilized near 100%.
3) If the meter does not stabilize at/near 100%, indicates the DO sensor requires maintenance.

These values should be keyed in when calibrating a water quality meter. Be sure to use the temperature of the standards, not ambient temperature; and be sure the temperature sensor is submerged in the solution.

Table 1: Calibration Values At Various Temperatures

Temp. C	pH 4	pH 7	pH 10	Conductivity	ORP
5	4.00	7.07	10.19	896.00	257.00
10	4.00	7.06	10.16	1020.00	250.50
15	4.00	7.04	10.10	1147.00	244.00
20	4.00	7.02	10.05	1278.00	237.50
25	4.00	7.01	10.01	1413.00	231.00
30	4.00	6.99	9.96	1548.00	224.50

mm Hg = millimeters of mercury. Note that the YSI 556 uses this information ONLY when the DO calibration is being done. After calibration is complete it no longer corrects for pressure change. Verify the meter is correct for your altitude when calibrating.

Table 2: Atmospheric Pressure / Altitude Table

Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)
0	760	1126	730	2290	699
278	752	1413	722	2587	692
558	745	1703	714	2887	684
841	737	1995	707	3190	676

Table 3: DO % Saturation Vs. Temperature

Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO
15	10.084	20	9.092	25	8.263	30	7.559	35	6.950
16	9.870	21	8.915	26	8.113	31	7.430	36	6.837
17	9.665	22	8.743	27	7.968	32	7.305	37	6.727
18	9.467	23	8.578	28	7.827	33	7.183	38	6.620
19	9.276	24	8.418	29	7.691	34	7.065	39	6.515

YSI 556 Calibration

Parameter	Before Calibration	After Calibration	Time	Units
Barametric Pressure				mmHg
Temperature (Saturated Air)				C
Temperature (Calibration Solution)				C
DO				mg/L
pH 7				SU
pH 4				SU
pH 10				SU
Specific Conductance				mS/cm
ORP				mV

~~MicroTPW Calibration~~

Calibrations performed 0.02, 10, and 1,000 NTU	Calibrations accepted:	Yes (circle one) No

Calibrated to ambient air and 100ppm gas Reading = 100.0 ppm

AECOM

FIELD INSTRUMENT CALIBRATION LOG

Project Name: UTC Delaware
Project Number: 60590864
Calibrated By: M. Rockwell
Signature: M. Rockwell

~~YSI 556 SN:~~ Mini Rae 3 zero SN 592-9209876
Turbidity Meter Model/SN:
Additional Equipment SN:
Date: 11/20/19

Operation Notes:
1) Turn meter on in Run mode and allow to warm up 10 to 15 minutes prior to calibration.
2) Observe DO % for 2-3 minutes when meter is initially turned on. The unit should display decreasing values until it is stabilized near 100%.
3) If the meter does not stabilize at/near 100%, indicates the DO sensor requires maintenance.

These values should be keyed in when calibrating a water quality meter. Be sure to use the temperature of the standards, not ambient temperature; and be sure the temperature sensor is submerged in the solution.

Table 1: Calibration Values At Various Temperatures

Temp. C	pH 4	pH 7	pH 10	Conductivity	ORP
5	4.00	7.07	10.19	896.00	257.00
10	4.00	7.06	10.16	1020.00	250.50
15	4.00	7.04	10.10	1147.00	244.00
20	4.00	7.02	10.05	1278.00	237.50
25	4.00	7.01	10.01	1413.00	231.00
30	4.00	6.99	9.96	1548.00	224.50

mm Hg = millimeters of mercury. Note that the YSI 556 uses this information ONLY when the DO calibration is being done. After calibration is complete it no longer corrects for pressure change. Verify the meter is correct for your altitude when calibrating.

Table 2: Atmospheric Pressure / Altitude Table

Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)
0	760	1126	730	2290	699
278	752	1413	722	2587	692
558	745	1703	714	2887	684
841	737	1995	707	3190	676

Table 3: DO % Saturation Vs. Temperature

Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO
15	10.084	20	9.092	25	8.263	30	7.559	35	6.950
16	9.870	21	8.915	26	8.113	31	7.430	36	6.837
17	9.665	22	8.743	27	7.968	32	7.305	37	6.727
18	9.467	23	8.578	28	7.827	33	7.183	38	6.620
19	9.276	24	8.418	29	7.691	34	7.065	39	6.515

YSI 556 Calibration

Parameter	Before Calibration	After Calibration	Time	Units
Barametric Pressure				mmHg
Temperature (Saturated Air)				C
Temperature (Calibration Solution)				C
DO				mg/L
pH 7				SU
pH 4				SU
pH 10				SU
Specific Conductance				mS/cm
ORP				mV

MicroTPW Calibration

Calibrations performed 0.02, 10, and 1,000 NTU	Calibrations accepted: (Yes) No (circle one)

Calibrated w/ ambient air and 100ppm gas Reading = 100.0ppm

AECOM

FIELD INSTRUMENT CALIBRATION LOG

Project Name: UTC Delaware
Project Number: 60590866
Calibrated By: M. Rockwell
Signature: M. Rockwell

YSI Model/SN: Mini Rae 3000 SN 592-920986
Turbidity Meter Model/SN:
Additional Equipment SN:
Date: 10/21/19

Operation Notes:
1) Turn meter on in Run mode and allow to warm up 10 to 15 minutes prior to calibration.
2) Observe DO % for 2-3 minutes when meter is initially turned on. The unit should display decreasing values until it is stabilized near 100%.
3) If the meter does not stabilize at/near 100%, indicates the DO sensor requires maintenance.

These values should be keyed in when calibrating a water quality meter. Be sure to use the temperature of the standards, not ambient temperature; and be sure the temperature sensor is submerged in the solution.

Table 1: Calibration Values At Various Temperatures

Temp. C	pH 4	pH 7	pH 10	Conductivity	ORP
5	4.00	7.07	10.19	896.00	257.00
10	4.00	7.06	10.16	1020.00	250.50
15	4.00	7.04	10.10	1147.00	244.00
20	4.00	7.02	10.05	1278.00	237.50
25	4.00	7.01	10.01	1413.00	231.00
30	4.00	6.99	9.96	1548.00	224.50

mm Hg = millimeters of mercury. Note that the YSI 556 uses this information ONLY when the DO calibration is being done. After calibration is complete it no longer corrects for pressure change. Verify the meter is correct for your altitude when calibrating.

Table 2: Atmospheric Pressure / Altitude Table

Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)
0	760	1126	730	2290	699
278	752	1413	722	2587	692
558	745	1703	714	2887	684
841	737	1995	707	3190	676

Table 3: DO % Saturation Vs. Temperature

Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO
15	10.084	20	9.092	25	8.263	30	7.559	35	6.950
16	9.870	21	8.915	26	8.113	31	7.430	36	6.837
17	9.665	22	8.743	27	7.968	32	7.305	37	6.727
18	9.467	23	8.578	28	7.827	33	7.183	38	6.620
19	9.276	24	8.418	29	7.691	34	7.065	39	6.515

YSI 556 Calibration

Parameter	Before Calibration	After Calibration	Time	Units
Barametric Pressure				mmHg
Temperature (Saturated Air)				C
Temperature (Calibration Solution)				C
DO				mg/L
pH 7				SU
pH 4				SU
pH 10				SU
Specific Conductance				mS/cm
ORP				mV

MicroTPW Calibration

Calibrations performed 0.02, 10, and 1,000 NTU	Calibrations accepted: (Yes) No (circle one)

Calibrated w/ ambient air and 100ppm gas Reading = 100.0ppm

YSI 556 MPS / Water Quality Calibration Certificate

AECOM

Cal Standard	Temp, LAB, C :	21.0	Temp, FIELD, C :	

Conductivity 1413 UMHO/CM @ 25C	Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
	7903107	3/21	1.28		(+/- .5%)

PH 4.00 @ 25C	Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
	7903469	4/21	4.00		(+/- 0.2 units)

PH 7.01 @ 25C	Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
	7904223	4/21	7.13		(+/- 0.2 units)

PH 10.01 @ 25C	Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
	7904157	4/21	10.01		(+/- 0.2 units)

ORP ZOBELLS 231.0 MV @ 25C	Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
	7911075	2/20	237.5		(+/- 20 MV)

Dissolved Oxygen (Saturated Air)		Temp, C	% Saturation	mg/L	Acceptable Range
	Post-Cal, LAB	22.7	96.0	8.28	(+/- 2%) / (+/- 2%)
	Post-Cal, FIELD				

New DO Membrane: ○ Yes ⊗ No

Do Cap Color: ○ Black ◉ Blue ○ Yellow

Model: YSI - PRO PLUS S/N: 5489 Cable: N/A

Calibration referenced to the temperature of the calibration standards.

Turbidity	Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
.02 NTU	70801	AUG-19	0.02		(.0196 to .0204)
10 NTU	81037	OCT-20	10.01		(9.8 to 10.2)
1000 NTU	70803	AUG-19	~~92.5~~		(970 to 1031)

Model: Micro TPW S/N: 20180912

Calibrated By: Eric Olson Date of Calibration: 11-18-19

Project Name: UTC Project number: 60590866

Signed :

REV-6, 10/31/2018 EKO

AECOM

FIELD INSTRUMENT CALIBRATION LOG

Project Name: LTC Delavan
Project Number: 60578310.02
Calibrated By: Randy Morgan
Signature: Randy Morgan

YSI 556 SN: Pro Plus 5489
Turbidity Meter Model/SN: 20180917Z
Additional Equipment SN:
Date: 11-20-2019

Operation Notes:
1) Turn meter on in Run mode and allow to warm up 10 to 15 minutes prior to calibration.
2) Observe DO % for 2-3 minutes when meter is initially turned on. The unit should display decreasing values until it is stabilized near 100%.
3) If the meter does not stabilize at/near 100%, indicates the DO sensor requires maintenance.

These values should be keyed in when calibrating a water quality meter. Be sure to use the temperature of the standards, not ambient temperature, and be sure the temperature sensor is submerged in the solution.

Table 1: Calibration Values At Various Temperatures

Temp. C	pH 4	pH 7	pH 10	Conductivity	ORP
5	4.00	7.07	10.19	896.00	257.00
10	4.00	7.06	10.16	1020.00	250.50
15	4.00	7.04	10.10	1147.00	244.00
20	4.00	7.02	10.05	1278.00	237.50
25	4.00	7.01	10.01	1413.00	231.00
30	4.00	6.99	9.96	1548.00	224.50

mm Hg = millimeters of mercury. Note that the YSI 556 uses this information ONLY when the DO calibration is being done. After calibration is complete it no longer corrects for pressure change. Verify the meter is correct for your altitude when calibrating.

Table 2: Atmospheric Pressure / Altitude Table

Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)
0	760	1126	730	2290	699
278	752	1413	722	2587	692
558	745	1703	714	2887	684
841	737	1995	707	3190	676

Table 3: DO % Saturation Vs. Temperature

Temp C	DO	Temp C	DO	Temp C	DO	Temp C.	DO	Temp C	DO
15	10.084	20	9.092	25	8.263	30	7.559	35	6.950
16	9.870	21	8.915	26	8.113	31	7.430	36	6.837
17	9.665	22	8.743	27	7.968	32	7.305	37	6.727
18	9.467	23	8.578	28	7.827	33	7.183	38	6.620
19	9.276	24	8.418	29	7.691	34	7.065	39	6.515

YSI 556 Calibration

Parameter	Before Calibration	After Calibration	Time	Units
Barametric Pressure	760.9		1605	mmHg
Temperature (Saturated Air)	21.9	22.1	1605	C
Temperature (Calibration Solution)	21.8	22.3	1625	C
DO	9.05	8.67	1605	mg/L
pH 7	7.12	7.03	1615	SU
pH 4	3.99	4.00	1617	SU
pH 10	10.01	10.05	1621	SU
Specific Conductance	1.28	1.28	1609	mS/cm
ORP	232.0	237.5	1625	mV

MicroTPW Calibration

Calibrations performed 0.02, 10, and 1,000 NTU	Calibrations accepted:	Yes (circle one)	No

AECOM

FIELD INSTRUMENT CALIBRATION LOG

Project Name: UTC Delolon

Project Number: 60590866.02

Calibrated By: [signature]

Signature: [signature]

YSI ~~556~~ Pro Plus SN: 5489

Turbidity Meter Model/SN: 201809102

Additional Equipment SN:

Date: 11-21-2019

Operation Notes:

1) Turn meter on in Run mode and allow to warm up 10 to 15 minutes prior to calibration.
2) Observe DO % for 2-3 minutes when meter is initially turned on. The unit should display decreasing values until it is stabilized near 100%.
3) If the meter does not stabilize at/near 100%, indicates the DO sensor requires maintenance

These values should be keyed in when calibrating a water quality meter. Be sure to use the temperature of the standards, not ambient temperature; and be sure the temperature sensor is submerged in the solution.

Table 1: Calibration Values At Various Temperatures

Temp. C	pH 4	pH 7	pH 10	Conductivity	ORP
5	4.00	7.07	10.19	896.00	257.00
10	4.00	7.06	10.16	1020.00	250.50
15	4.00	7.04	10.10	1147.00	244.00
20	4.00	7.02	10.05	1278.00	237.50
25	4.00	7.01	10.01	1413.00	231.00
30	4.00	6.99	9.96	1548.00	224.50

mm Hg = millimeters of mercury. Note that the YSI 556 uses this information ONLY when the DO calibration is being done. After calibration is complete it no longer corrects for pressure change. Verify the meter is correct for your altitude when calibrating.

Table 2: Atmospheric Pressure / Altitude Table

Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)
0	760	1126	730	2290	699
278	752	1413	722	2587	692
558	745	1703	714	2887	684
841	737	1995	707	3190	676

Table 3: DO % Saturation Vs. Temperature

Temp C.	DO	Temp C	DO	Temp C	DO	Temp C	DO	Temp C	DO
15	10.084	20	9.092	25	8.263	30	7.559	35	6.950
16	9.870	21	8.915	26	8.113	31	7.430	36	6.837
17	9.665	22	8.743	27	7.968	32	7.305	37	6.727
18	9.467	23	8.578	28	7.827	33	7.183	38	6.620
19	9.276	24	8.418	29	7.691	34	7.065	39	6.515

YSI 556 Calibration

Parameter	Before Calibration	After Calibration	Time	Units
Barametric Pressure	759.9		0830	mmHg
Temperature (Saturated Air)	22.1	22.4	0830	C
Temperature (Calibration Solution)	21.4	21.6	0850	C
DO	8.69	8.66	0830	mg/L
pH 7	7.12	7.02	0838	SU
pH 4	3.97	4.00	0842	SU
pH 10	9.99	10.03	0846	SU
Specific Conductance	1.27	1.28	0834	mS/cm
ORP	241.9	232.5	0850	mV

MicroTPW Calibration

Calibrations performed 0.02, 10, and 1,000 NTU	Calibrations accepted: (Yes) No (circle one)

AECOM

FIELD INSTRUMENT CALIBRATION LOG

Project Name: UTC Delavan
Project Number: 60590866.02
Calibrated By: Kaydy Morgan
Signature: Kaydy Morgan

YSI ~~556~~ ProPlus SN: 5489
Turbidity Meter Model/SN: 20180917 2
Additional Equipment SN:
Date: 11-22-2019

Operation Notes:
1) Turn meter on in Run mode and allow to warm up 10 to 15 minutes prior to calibration.
2) Observe DO % for 2-3 minutes when meter is initially turned on. The unit should display decreasing values until it is stabilized near 100%.
3) If the meter does not stabilize at/near 100%, indicates the DO sensor requires maintenance

These values should be keyed in when calibrating a water quality meter. Be sure to use the temperature of the standards, not ambient temperature, and be sure the temperature sensor is submerged in the solution.

Table 1: Calibration Values At Various Temperatures

Temp. C	pH 4	pH 7	pH 10	Conductivity	ORP
5	4.00	7.07	10.19	896.00	257.00
10	4.00	7.06	10.16	1020.00	250.50
15	4.00	7.04	10.10	1147.00	244.00
20	4.00	7.02	10.05	1278.00	237.50
25	4.00	7.01	10.01	1413.00	231.00
30	4.00	6.99	9.96	1548.00	224.50

mm Hg = millimeters of mercury. Note that the YSI 556 uses this information ONLY when the DO calibration is being done. After calibration is complete it no longer corrects for pressure change. Verify the meter is correct for your altitude when calibrating.

Table 2: Atmospheric Pressure / Altitude Table

Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)
0	760	1126	730	2290	699
278	752	1413	722	2587	692
558	745	1703	714	2887	684
841	737	1995	707	3190	676

Table 3: DO % Saturation Vs. Temperature

Temp C	DO	Temp C	DO	Temp C	DO	Temp C	DO	Temp C	DO
15	10.084	20	9.092	25	8.263	30	7.559	35	6.950
16	9.870	21	8.915	26	8.113	31	7.430	36	6.837
17	9.665	22	8.743	27	7.968	32	7.305	37	6.727
18	9.467	23	8.578	28	7.827	33	7.183	38	6.620
19	9.276	24	8.418	29	7.691	34	7.065	39	6.515

YSI 556 Calibration

Parameter	Before Calibration	After Calibration	Time	Units
Barametric Pressure	754.5		0745	mmHg
Temperature (Saturated Air)	21.8	22.0	0745	C
Temperature (Calibration Solution)	20.0	22.2	0806	C
DO	8.87	8.67	0745	mg/L
pH 7	7.11	7.02	0754	SU
pH 4	4.04	4.00	0758	SU
pH 10	9.99	10.03	0802	SU
Specific Conductance	1.28	1.28	0750	mS/cm
ORP	236.9	237.5	0806	mV

MicroTPW Calibration

Calibrations performed 0.02, 10, and 1,000 NTU	Calibrations accepted	Yes (circle one)	No

AECOM

FIELD INSTRUMENT CALIBRATION LOG

Project Name: UTC Delaware
Project Number:
Calibrated By: Randy Morgan
Signature: Randy Morgan

YSI 556 SN: 5489
Turbidity Meter Model/SN: 20180917-2
Additional Equipment SN:
Date: 11-23-2019

Operation Notes:
1) Turn meter on in Run mode and allow to warm up 10 to 15 minutes prior to calibration.
2) Observe DO % for 2-3 minutes when meter is initially turned on. The unit should display decreasing values until it is stabilized near 100%.
3) If the meter does not stabilize at/near 100%, indicates the DO sensor requires maintenance.

These values should be keyed in when calibrating a water quality meter. Be sure to use the temperature of the standards, not ambient temperature; and be sure the temperature sensor is submerged in the solution.

Table 1: Calibration Values At Various Temperatures

Temp. C	pH 4	pH 7	pH 10	Conductivity	ORP
5	4.00	7.07	10.19	896.00	257.00
10	4.00	7.06	10.16	1020.00	250.50
15	4.00	7.04	10.10	1147.00	244.00
20	4.00	7.02	10.05	1278.00	237.50
25	4.00	7.01	10.01	1413.00	231.00
30	4.00	6.99	9.96	1548.00	224.50

mm Hg = millimeters of mercury. Note that the YSI 556 uses this information ONLY when the DO calibration is being done. After calibration is complete it no longer corrects for pressure change. Verify the meter is correct for your altitude when calibrating.

Table 2: Atmospheric Pressure / Altitude Table

Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)
0	760	1126	730	2290	699
278	752	1413	722	2587	692
558	745	1703	714	2887	684
841	737	1995	707	3190	676

Table 3: DO % Saturation Vs. Temperature

Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO
15	10.084	20	9.092	25	8.263	30	7.559	35	6.950
16	9.870	21	8.915	26	8.113	31	7.430	36	6.837
17	9.665	22	8.743	27	7.968	32	7.305	37	6.727
18	9.467	23	8.578	28	7.827	33	7.183	38	6.620
19	9.276	24	8.418	29	7.691	34	7.065	39	6.515

YSI 556 Calibration

Parameter	Before Calibration	After Calibration	Time	Units
Barametric Pressure	755.6		0730	mmHg
Temperature (Saturated Air)	18.0	18.3	0730	C
Temperature (Calibration Solution)	20.1	20.2	0750	C
DO	9.99	9.36	0730	mg/L
pH 7	7.04	7.02	0738	SU
pH 4	4.03	4.00	0742	SU
pH 10	10.00	10.03	0746	SU
Specific Conductance	1.28	1.28	0734	mS/cm
ORP	239.6	237.5	0750	mV

MicroTPW Calibration

Calibrations performed 0.02, 10, and 1,000 NTU	Calibrations accepted: (Yes) No (circle one)

Test Boring Report

BORING NO. MW-33D
PAGE 1 OF 7

PROJECT: UTC Delavan Spray Technologies Site
CLIENT: UTC
CONTRACTOR: Cascade
EQUIPMENT: Geoprobe 8140LC / Sonic Rig

PROJECT NO: 60590866
LOCATION:
ELEVATION:
DATE START: 11/20/2019
DATE FINISH:
DRILLER: M. RODRIGUEZ
PREPARED BY: M. ROCKWELL

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE	6"	4"	6"
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	23.1		Run 0-4'	**TOPSOIL** DRY, DARK BROWN (4/4 7.5YR), MOSTLY ROOT MATERIAL, ORGANIC-RICH, MOSTLY SAND, STRONG ORGANIC ODOR, NON-PLASTIC
2.5	38.8			**POORLY GRADED SAND** DRY, BROWNISH YELLOW (6/6 10YR), MOSTLY FINE SAND, SOME MED SAND, TRACE ROOT MATERIAL, NON-PLASTIC
	42.7			
5.0			Run 4-9'	**NO RECOVERY (NR)** from 4-9'bgs
7.5				
	10.2		Run 9-14'	**POORLY GRADED SAND** AS ABOVE
10.0				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-33D

PAGE 2 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
10.0			Run 9-14'	**POORLY GRADED SAND** DRY, VERY PALE BROWN (8/3 10YR), MOSTLY FINE SAND, SOME MED SAND, NON-PLASTIC
	9.1			**CLAYEY SAND** MOIST, YELLOWISH RED (5/8 5YR), MOSTLY FINE SAND, LITTLE CLAY, NON-PLASTIC
12.5	8.4			**CLAY** MOIST, BANDING OF REDDISH YELLOW (6/8 5YR) AND PINKISH GRAY (7/2 5YR), MOSTLY CLAY, MORE REDDISH YELLOW AT TOP, GRADES TO MORE GRAY TOWARDS BOTTOM
15.0	2.3		Run 14-19'	**NO RECOVERY (NR)** from 14-25.5'bgs
17.5				
20.0			Run 19-24'	
22.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-33D

PAGE 3 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
22.5			Run 19-24'	**NO RECOVERY (NR)** from 14-25.5'bgs
25.0	1.7		Run 24-29'	**SANDY CLAY** MOIST, YELLOWISH RED (5/6 5YR), MOSTLY CLAY, SOME FINE SAND, TRACE MED SAND, NON-PLASTIC
				SAND MOIST, LIGHT REDDISH BROWN (6/3 5YR), MOSTLY FINE-MED SAND, TRACE COARSE SAND, TRACE ROOT MATERIAL, NON-PLASTIC
27.5	0.6			
				SAME AS ABOVE VERY PALE BROWN (8/3 10YR), MORE FINE SAND
30.0	0.8			
	1.1		Run 29-34'	**CLAY** MOIST, RED (4/8 2.5YR) THEN CHANGES TO WHITE (N8 7.5YR), MOSTLY CLAY, MED PLASTICITY, VERY HARD TO CUT THROUGH
32.5				**SAND W/LIMESTONE** MOIST, PALE YELLOW (7/4 2.5Y), MOSTLY FINE-MED SAND, LIMESTONE CEMENTED SHELL MATRIX FRAGMENTS (MED-COARSE GRAVEL SIZE)
	1.4			
35.0			Run 34-39'	

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-33D

PAGE 4 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
35.0	1.3		Run 34-39'	**SANDY LIMESTONE** WET, YELLOW (8/6 10YR), MOSTLY SHELL FRAGMENTS, SOME LIMESTONE CEMENTED SHELL FRAGMENTS UP TO 2" WIDE CORES, FEW FINE SANDS, NON-PLASTIC
	0.4			
37.5				
	0.6			
40.0				
	0.6		Run 39-44'	
				SAME AS ABOVE COLOR GRADES LIGHTER WITH DEPTH, VERY PALE BROWN (8/4 10YR)
42.5				
	0.7			
45.0				
			Run 44-49'	
	1.3			
47.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-33D

PAGE 5 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
47.5			Run 44-49'	**SANDY LIMESTONE** WET, WHITE (8/2 10YR), MOSTLY SHELL FRAGMENTS FINE TO COARSE SAND SIZE, SOME LIMESTONE CEMENTED SHELL MATRIX UP TO 2" WIDE, FEW FINE SAND, TRACE CLAY, NON-PLASTIC
50.0			Run 49-54'	**SAME AS ABOVE** CONTINUES TO GET LIGHTER IN COLOR, PALE YELLOW (8/4 2.5Y)
52.5				
55.0			Run 54-64'	
57.5				
60				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-33D

PAGE 6 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
60.0			Run 54-64'	**LIMESTONE** WET, WHITE (8/1 10YR), MOSTLY LIMESTONE CEMENTED SHELL MATRIX, LARGER SHELLS (>0.5" DIAMETER)
	1.1			
62.5	0.6			
65.0				**SAME AS ABOVE** WHITE (N8 2.5Y)
			Run 64-74'	**SANDY LIMESTONE** WET, WHITE (N8 2.5Y), MOSTLY MED SAND, MOSTLY SHELL FRAGMENTS, SOME LIMESTONE CEMENTED SAND MATRIX FRAGMENTS GRADES TO FINER-SIZE FRAGMENTS AND FINER SHELL FRAGMENTS
67.5				
70.0				
72.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-33D

PAGE 7 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
72.5			Run 64-74'	**SANDY LIMESTONE** WET, WHITE (N8 2.5Y), MOSTLY FINE-MED SAND, SOME FINE SHELL FRAGMENTS, LITTLE LIMESTONE CEMENTED SAND/SHELL MATRIX FRAGMENTS
				END OF BORING @ 74'BGS
75.0				
77.5				
80.0				
82.5				
85.0				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

Test Boring Report

BORING NO. MW-34D
PAGE 1 OF 7

PROJECT: UTC Delavan Spray Technologies Site
CLIENT: UTC
CONTRACTOR: Cascade
EQUIPMENT: Geoprobe 8140LC / Sonic Rig

PROJECT NO: 60590866
LOCATION:
ELEVATION:
DATE START: 11/18/2019
DATE FINISH:
DRILLER: M. RODRIGUEZ
PREPARED BY: M. ROCKWELL

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE	6"	4"	6"
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
				TOPSOIL/ORGANIC ROOT MATERIAL
			Run 0-4'	**SILTY SAND** DAMP, VERY PALE BROWN (7/3 10YR), MOSTLY FINE SAND, LITTLE SILT, NON-PLASTIC
	0.4			**SANDY SILT** DAMP, VERY PALE BROWN (7/4 10YR), MOSTLY SILT, LITTLE FINE SAND, LOW PLASTICITY
2.5				**SILT** DAMP, VERY PALE BROWN (7/4 10YR), MOSTLY SILT, FEW TO TRACE FINE SAND, TRACE CLAY, LOW PLASTICITY
	0.1			**SAME AS ABOVE** ORGANIC ROOT MATERIAL
5.0			Run 4-9'	**SILT** DAMP, VERY PALE BROWN (7/4 10YR), MOSTLY SILT, FEW FINE SAND, TRACE CLAY, MEDIUM PLASTICITY
	0.1			
7.5				**SAME AS ABOVE** IRON STAINING AT 7'BGS
	0.1			
10.0			Run 9-14'	

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-34D

PAGE 2 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
10.0				**CLAY W/SAND** DAMP, VERY PALE BROWN (7/4 10YR), MOSTLY CLAY, LITTLE FINE SAND, SOME SILT, MED-HIGH PLASTICITY
	0.5		Run 9-14'	
12.5				**CLAY W/SAND** DAMP, VERY PALE BROWN (7/4 10YR), MOSTLY CLAY, LITTLE FINE-MED SAND, TRACE SILT, LOW PLASTICITY
	0.3			
	0.2			
15.0				**CLAY W/ SAND** DAMP, VERY PALE BROWN (7/3 10YR), MOSTLY CLAY, LITTLE FINE SAND, FEW MED SAND, SOME IRON STAINING, LOW PLASTICITY
	1.7			
17.5				**SANDY CLAY** DAMP, VERY PALE BROWN (7/4 10YR), MOSTLY CLAY, SOME FINE SAND, LITTLE MED SAND, LOW PLASTICITY
	0.2		Run 14-24'	
	0.1			
20.0				**CLAY** WET, BROWNISH YELLOW (6/8 10YR), MOSTLY CLAY, FEW SILT, IRON STAINING (WATER), HIGH PLASTICITY
	0.1			
	0.1			
22.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

Test Boring Report

BORING NO. MW-34D

PAGE 3 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
22.5	0.2		Run 14-24'	**CLAY W/SAND** WET, WHITE (8/1 10YR), MOSTLY CLAY, FEW-LITTLE FINE SAND, LITTLE-FEW SILT, HIGH PLASTICITY, CALCIUM-RICH SAND (LIMESTONE HEAVY WEATHERED)
	0.2			
25.0	0.1			**CLAYEY SAND** WET, WHITE (8/1 5YR), MOSTLY FINE SAND, SOME CLAY, TRACE SILT, LOW PLASTICITY
27.5				
			Run 24-34'	**GRAVEL W/SAND** WET, WHITE (8/1 5YR) TO PINKISH WHITE (8/2 5YR), MOSTLY GRAVEL (FINE), SOME FINE-MED SAND, TRACE CLAY & SILT
	0.2			**SANDY CLAY** WET, WHITE (8/1 10YR) W/IRON STAINING, MOSTLY CLAY, SOME FINE SAND, LITTLE SILT, MED PLASTICITY
				CLAY WET, BROWNISH YELLOW (6/6 10YR), MOSTLY CLAY, SOME SILT, TRACE FINE SAND, HIGH PLASTICITY
	0.1			
30.0				**CLAY W/SAND** WET, LIGHT OLIVE BROWN (5/4 2.5Y), MOSTLY CLAY, LITTLE FINE QUARTZ-RICH SAND (OCCURS IN THIN LENSES), RELIC FOLIATION STRUCTURE, LOW PLASTICITY
	0.1			
32.5				
	0.1			
	0.1		Run 34-44'	
35.0				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

Test Boring Report

BORING NO. MW-34D
PAGE 4 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
35.0				**CLAY W/SAND** WET, LIGHT OLIVE BROWN (5/4 2.5Y), MOSTLY CLAY, LITTLE FINE QUARTZ-RICH SAND (OCCURS IN THIN LENSES), RELIC FOLIATION STRUCTURE, LOW PLASTICITY
	0.1			
				SAND WET, LIGHT GRAY (N7 2.5Y), MOSTLY FINE-MED SAND, TRACE CLAY, TRACE SILT, NON-PLASTIC
37.5	0.1			**CLAYEY SAND** WET, REDDISH YELLOW (6/8 7.5YR), MOSTLY CLAY, SOME FINE SAND, TRACE SILT, TRACE MED SAND, RELIC FOLIATION?, LOW-MED PLASTICITY
			Run 34-44'	
	0.1			**CLAYEY SAND** WET, OLIVE YELLOW (6/6 2.5Y), MOSTLY MED-FINE SAND, SOME CLAY, LIMESTONE FRAGMENTS (<2"), MOST AVG SIZE IS FINE GRAVELS OF LIMESTONE (SHELLS ARE DIAGNOSTIC FEATURE) -LIMESTONE-
40.0	0.2			
42.5	0.4			**SAME AS ABOVE** PALE YELLOW (7/4 2.5Y), MORE SOLID FRAGMENTS (STILL WEATHERED)
45.0	0.1		Run 44-54'	
	0.2			
47.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-34D

PAGE 5 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
47.5				**LIMESTONE**
	0.1			WET, PALE YELLOW (8/4 2.5Y), MOSTLY FINE SAND, SOME CLAY, LIMESTONE FRAGMENTS FINE GRAVEL SIZE, LITTLE SHELL FRAGMENTS, LOW PLASTICITY
			Run 44-54'	
50.0				
	0.3			
52.5				
	0.2			
	0.1			
55.0				
	0.1			
			Run 54-64'	
57.5				**SAME AS ABOVE**
	0.2			VERY PALE BROWN (8/3 10YR)
	0.1			
60				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-34D

PAGE 6 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
60.0	0.1			**LIMESTONE** WET, VERY PALE BROWN (8/3 10YR), MOSTLY FINE SAND, SOME CLAY, MOSTLY LIMESTONE AND SHELL FRAGMENTS, LOW PLASTICITY
			Run 54-64'	
	0.1			
62.5				
	0.1			
65.0	0.1			
	0.2		Run 64-74'	
67.5				**SAME AS ABOVE** VERY PALE BROWN (7/3 10YR)
	0.2			
70.0				**SAME AS ABOVE** WHITE (8/1 10YR)
	0.2			
72.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

Test Boring Report

BORING NO. MW-34D

PAGE 7 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
72.5			Run 64-74'	**LIMESTONE** WET, WHITE (8/1 10YR), MOSTLY FINE SAND, SOME CLAY, MOSTLY LIMESTONE AND SHELL FRAGMENTS, LOW PLASTICITY
	0.2			
				SAME AS ABOVE LIGHT GRAY (7/2 10YR)
	0.3			
75.0				
			Run 74-79'	
	0.2			
				SAND WET, LIGHT GRAY (7/2 10YR), MOSTLY FINE-MED SAND, LITTLE CLAY, TRACE SHELL FRAGMENTS, NON-PLASTIC, TRACE LIMESTONE
77.5				
	0.2			
	0.2			**FILTER SAND FROM 79-81'BGS**
80.0				
			Run 79-84'	
	0.2			
				BENTONITE FROM 81-84'BGS
82.5				
	0.4			
				END OF BORING @ 84'BGS
85.0				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

Test Boring Report

BORING NO. MW-35D
PAGE 1 OF 7

PROJECT: UTC Delavan Spray Technologies Site
CLIENT: UTC
CONTRACTOR: Cascade
EQUIPMENT: Geoprobe 8140LC / Sonic Rig

PROJECT NO: 60590866
LOCATION:
ELEVATION:
DATE START: 11/19/2019
DATE FINISH:
DRILLER: M. RODRIGUEZ
PREPARED BY: M. ROCKWELL

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE	6"	4"	6"
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
				TOPSOIL DRY, DARK REDDISH GRAY (4/2 5YR), MOSTLY MED SAND, LITTLE ROOT MATERIAL, ORGANIC ODOR, NON-PLASTIC
	12.9			
			Run 0-4'	
	6.4			
2.5				
	1.6			
5.0				**SILTY SAND** DRY, REDDISH GRAY (5/2 5YR), MOSTLY FINE TO COARSE SAND, LITTLE SILT, NON-PLASTIC
			Run 4-9'	
	1.7			
7.5				**SAME AS ABOVE** VERY DARK GRAY (3/1 5YR)
	6.3			**SANDY CLAY** DRY, BANDING OF REDDISH YELLOW (6/8 7.5YR) AND PINKISH WHITE (8/2 7.5YR), MOSTLY CLAY, SOME FINE SAND, LOW-MED PLASTICITY, IRON STAINING = REDDISH YELLOW
			Run 9-14'	
10.0				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-35D

PAGE 2 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
10.0				**SANDY CLAY**
				DRY TO MOIST, REDDISH YELLOW (6/8 7.5YR) BANDING IN PINKISH WHITE (8/2 7.5YR), MOSTLY CLAY, SOME FINE SAND, TRACE SILT, LOW PLASTICITY (IRON STAINING)
	9.6		Run 9-14'	
12.5				
	44.5			
				NO RECOVERY (NR)
				FROM 14-21'BGS
15.0				
			Run 14-19'	
17.5				
20.0				
			Run 19-24'	
	1.6			**POORLY GRADED SAND**
				WET, LIGHT BROWNISH GRAY (6/2 10YR), MOSTLY MED-COARSE SAND, LITTLE FINE SAND, WELL-ROUNDED GRAINS, NON-PLASTIC
22.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-35D

PAGE 3 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
22.5	6.8		Run 19-24'	**POORLY GRADED SAND** WET, LIGHT BROWNISH GRAY (6/2 10YR), MOSTLY MED-COARSE SAND, LITTLE FINE SAND, WELL-ROUNDED GRAINS, NON-PLASTIC
	3.4			
25.0				
			Run 24-29'	
	1.2			
27.5				
	1.0			**FAT CLAY** WET, YELLOWISH RED (5/6 5YR) AND LIGHT RED (6/8 2.5YR), MOSTLY FAT CLAY, TRACE SILT, RELIC FOLIATION, SOME POCKETS OF HIGHLY WEATHERED (LIMESTONE) SAPROLITE, TRACE SHELL FRAGMENTS
30.0				
	0.6		Run 29-34'	**CLAYEY SAND / LIMESTONE** WET, LIGHT YELLOWISH BROWN (6/4 10YR), MOSTLY FINE-MED SAND, SOME CLAY, SOME SHELL FRAGMENTS, CEMENTED LIME-STONE MATRIX
32.5				
	0.8			
			Run 34-39'	
35.0				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-35D

PAGE 4 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
35.0				**CLAYEY SAND / LIMESTONE**
				WET, LIGHT YELLOWISH BROWN (6/4 10YR), MOSTLY FINE-MED SAND, SOME CLAY, SOME SHELL FRAGMENTS, CEMENTED LIME-STONE MATRIX
	0.7		Run 34-39'	
37.5				
	1.6			
				SAME AS ABOVE
				GRADES TO COARSER SAND, LESS CLAY W/DEPTH
40.0				
	1.5			
			Run 39-44'	
42.5	4.0			
				SAME AS ABOVE
	6.8			TRACE CLAY, MOSTLY COARSE SAND, YELLOW (7/6 10YR)
45.0				
			Run 44-49'	
	3.2			
47.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-35D

PAGE 5 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
47.5			Run 44-49'	**SANDY LIMESTONE** WET, YELLOW (7/6 10YR), MOSTLY COARSE SAND, SOME LIME-STONE CEMENTED FRAGMENTS W/LARGE SHELLS (0.5-2"), LITTLE FINE-MED SAND
	1.8			
50.0	2.5			
			Run 49-54'	
				SAME AS ABOVE GRADING TO LIGHTER COLOR, PINKISH WHITE (8/2 7.5YR)
	1.9			
52.5				
	3.0			
55.0				
			Run 54-59'	
	1.6			
57.5				**SAME AS ABOVE** VERY PALE BROWN (8/3 10YR)
	0.8			
			Run 59-64'	
60				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-35D

PAGE 6 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
60.0				**SANDY LIMESTONE**
	2.1			WET, WHITE (8/0 7.5YR), MOSTLY LIMESTONE CEMENTED MATRIX, SOME MED-COARSE SAND, SOME COARSE-SAND-SIZE SHELL FRAGMENTS, TRACE CLAY
			Run 59-64'	
62.5	1.3			
65.0	0.9			
			Run 64-69'	
67.5	0.6			**SAME AS ABOVE**
				SMALLER SHELL FRAGMENTS, BECOMING MORE LIMESTONE CEMENTED SAND/SHELL MATRIX
70.0	1.8			
			Run 69-74'	
	2.0			
72.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-35D

PAGE 7 OF 7

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
72.5				**LIMESTONE**
	1.2		Run 69-74'	WET, WHITE (8/0 7.5YR), MOSTLY LIMESTONE CEMENTED SAND/ SHELL MATRIX, SOME MED SAND, TRACE SILT, NON-PLASTIC
				END OF BORING @ 74'BGS
75.0				
77.5				
80.0				
82.5				
85.0				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

Test Boring Report

AECOM

BORING NO. MW-36D
PAGE 1 OF 6

PROJECT: UTC Delavan Spray Technologies Site
CLIENT: UTC
CONTRACTOR: Cascade
EQUIPMENT: Geoprobe 8140LC / Sonic Rig

PROJECT NO: 60590866
LOCATION:
ELEVATION:
DATE START: 11/21/2019
DATE FINISH:
DRILLER: M. RODRIGUEZ
PREPARED BY: M. ROCKWELL

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE	6"	4"	6"
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
				TOPSOIL/GRASS/ROOT MATERIAL
			Run 0-4'	**SAND** WET, DARK REDDISH GRAY (3/1 10R), MOSTLY COARSE SAND, SOME FINE-MED SAND, LITTLE ROOT MATERIAL, STRONG ORGANIC ODOR, NON-PLASTIC
	43.1			
2.5	26.8			**SAND** WET, DARK GRAY (4/0 2.5YR), MOSTLY COARSE SAND, SOME MED-FINE SAND, STRONG ORGANIC ODOR, NON-PLASTIC
				GRADES FINER
	16.3		Run 4-9'	
5.0				**SILTY SAND** WET, GRAY (5/0 2.5YR), MOSTLY FINE-MED SAND, LITTLE SILT, NON-PLASTIC
	4.8			**CLAY** WET, LIGHT OLIVE GRAY (6/2 5Y), MOSTLY CLAY, HIGH PLASTICITY
7.5				**SAND** WET, YELLOW (7/8 10YR), MOSTLY COARSE SAND, SOME FINE-MED SAND, LITTLE LIMESTONE CEMENTED SHELL MATRIX FRAGMENTS, TRACE SILT, NON-PLASTIC
	1.6		Run 9-14'	
10.0				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-36D

PAGE 2 OF 6

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
10.0				**SANDY LIMESTONE**
	0.8			WET, YELLOW (7/8 10YR), MOSTLY LIMESTONE CEMENTED SHELL MATRIX FRAGMENTS (~1-2"), SOME FINE-MED SAND, SOME FINE-MED GRAVEL-SIZED SHELL FRAGMENTS
			Run 9-14'	
12.5	1.2			
				SAME AS ABOVE
				YELLOW (8/6 10YR)
				NO RECOVERY (NR)
				FROM 14-19'BGS
15.0				
			Run 14-19'	
17.5				
				SAME AS ABOVE
	0.9			LIGHT GRAY (7/2 2.5Y)
20.0				
			Run 19-24'	
	0.6			
22.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-36D

PAGE 3 OF 6

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
22.5				**SANDY LIMESTONE**
	0.7		Run 19-24'	WET, LIGHT GRAY (7/2 2.5Y), MOSTLY LIMESTONE CEMENTED SHELL/SAND MATRIX, SOME FINE SAND, LITTLE CLAY, NON-PLASTIC
				SHELL FRAGMENTS DECREASING IN SIZE
25.0				
	1.1		Run 24-29'	
27.5				
	0.9			
				SAME AS ABOVE
				VERY PALE BROWN (7/4 10YR)
30.0				
	0.6		Run 29-34'	
32.5				
	1.7			
				SAME AS ABOVE
			Run 34-39'	WHITE (8/2 2.5Y)
35.0				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

Test Boring Report

BORING NO. MW-36D

PAGE 4 OF 6

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
35.0				**SANDY LIMESTONE**
	1.1		Run 34-39'	WET, WHIE (8/2 10YR), MOSTLY LIMESTONE CEMENTED SHELL/ SAND MATRIX (FINER THAN PREVIOUS DESCRIPTION~COARSE SAND SIZE), SOME FINE SAND/SHELL FRAGMENTS, TRACE CLAY, NON-PLASTIC
37.5				
	0.6			
				SANDYLIMESTONE / SHELL FRAGMENTS
				WET, VERY PALE BROWN (8/4 10YR), MOSTLY MED SAND SIZE SHELL FRAGMENTS, NON-PLASTIC
40.0				
	0.8		Run 39-44'	
				LIMESTONE
				WET, WHITE (8/1 10YR), MOSTLY LIMESTONE SHELL CEMENTED MATRIX, FINER SIZE SHELLS THAN PREVIOUS 'SANDY LIMESTONE'
42.5				
	0.2			
45.0				
				SAME AS ABOVE
			Run 44-49'	WHITE (8/1 2.5Y), GETTING LIGHTER IN COLOR W/DEPTH
	0.7			
47.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-36D

PAGE 5 OF 6

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
47.5			Run 44-49'	**LIMESTONE** WET, WHITE (8/1 2.5Y), MOSTLY LIMESTONE CEMENTED SHELL MATRIX, FINE-SAND TO COARSE-SAND-SIZED SHELLS, 1-2" CUTTINGS, NON-PLASTIC
	0.4			
50.0			Run 49-54'	
	1.3			
52.5				
	0.9		Run 54-59'	
55.0				
57.5	0.7			
			Run 59-64'	
60				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Test Boring Report

BORING NO. MW-36D

PAGE 6 OF 6

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLE INFIORMATION	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
60.0	0.1			**LIMESTONE**
				WET, WHITE (8/1 2.5Y), MOSTLY LIMESTONE CEMENTED SHELL MATRIX, FINE-SAND TO COARSE-SAND-SIZED SHELLS, 1-2" CUTTINGS, NON-PLASTIC
			Run 59-64'	
62.5	0.4			
				END OF BORING @ 64'BGS
65.0				
67.5				
70.0				
72.5				

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

	SAMPLER ID.
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

	NOTES
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

FIGURE A-6

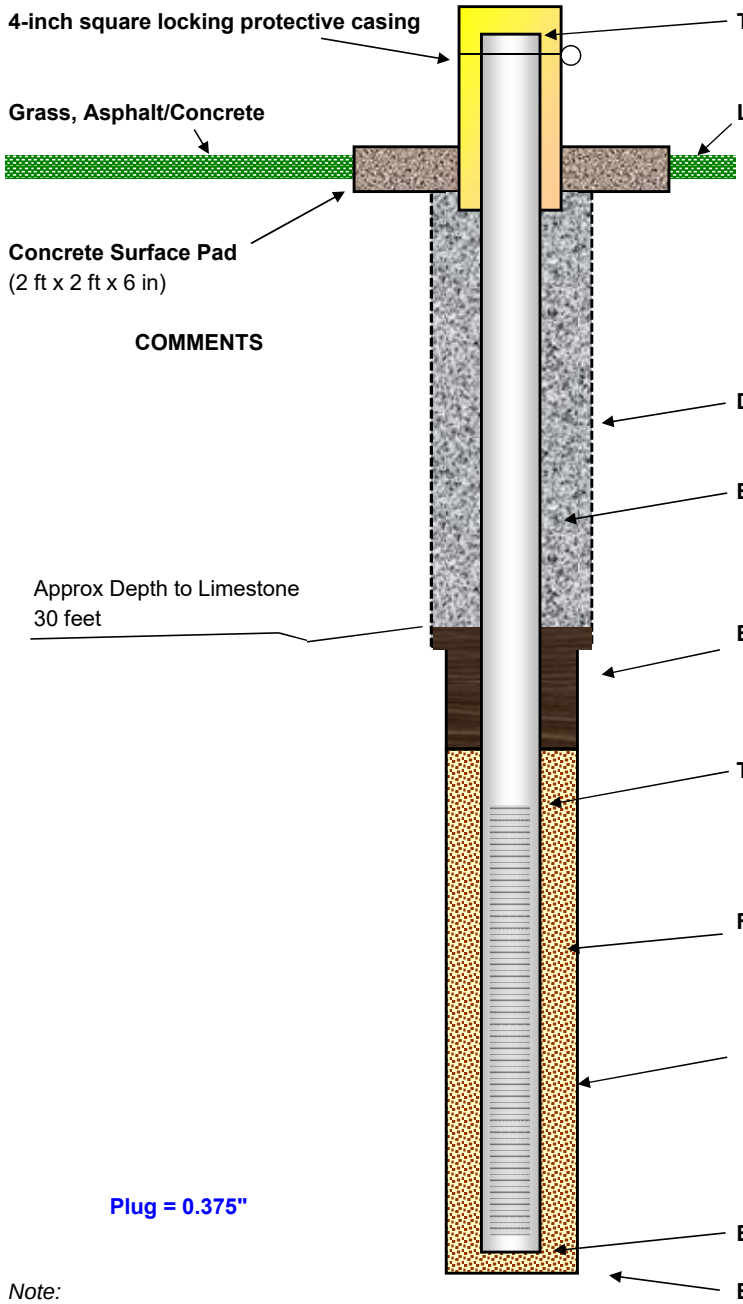
TYPE III GROUNDWATER MONITORING WELL INSTALLATION DETAIL

Project Name: Delavan Spray Technologies **Drilling Co:** Cascade **Well Number:** MW-33D

Location: Bamberg, South Carolina **Driller:** M. Rodriguez **Job Number:** 60590866

Client: United Technology Corporation **Drilling Method:** Sonic **Date Completed:** 11/20/2019

Geologist: Mariah Rockwell **Static Water Level** _____ **b.TOC** **Survey Datum:** State Plan NAVD 88



4-inch square locking protective casing

Top Of Casing Elevation **144.79** ft msl **2.65** ft Stickup

Grass, Asphalt/Concrete

Land Surface Elevation **142.14** ft msl

Concrete Surface Pad
(2 ft x 2 ft x 6 in)

COMMENTS

Diameter of Borehole (nominal)
6 in

Bentonite/Cement Grout
From **0.0** ft to **57.0** ft

Approx Depth to Limestone
30 feet

Bentonite Pellet Seal
Type: Holeplug
From **57.0** ft to **61.0** ft

Top of Screen Depth **64.09** ft
Screen Type: **SCH-40 PVC**
Screen Slot Size: **0.010-in** ID **2** in
Screen Length: **9.93** ft

Filter Sand for Screen
Sand Type: No.1
From **61.0** ft to **74.0** ft

Diameter of Borehole (nominal)
4 in

Plug = 0.375"

Bottom of Well Depth **74.39** ft

Bottom of Boring (estimated) Depth **74** ft

Total Depth of Well, below Top of Casing Depth **77.04** ft

Note:
Drawing Not to Scale
All Depths are Referenced to Ground Surface except where noted

AECOM

FIGURE A-6

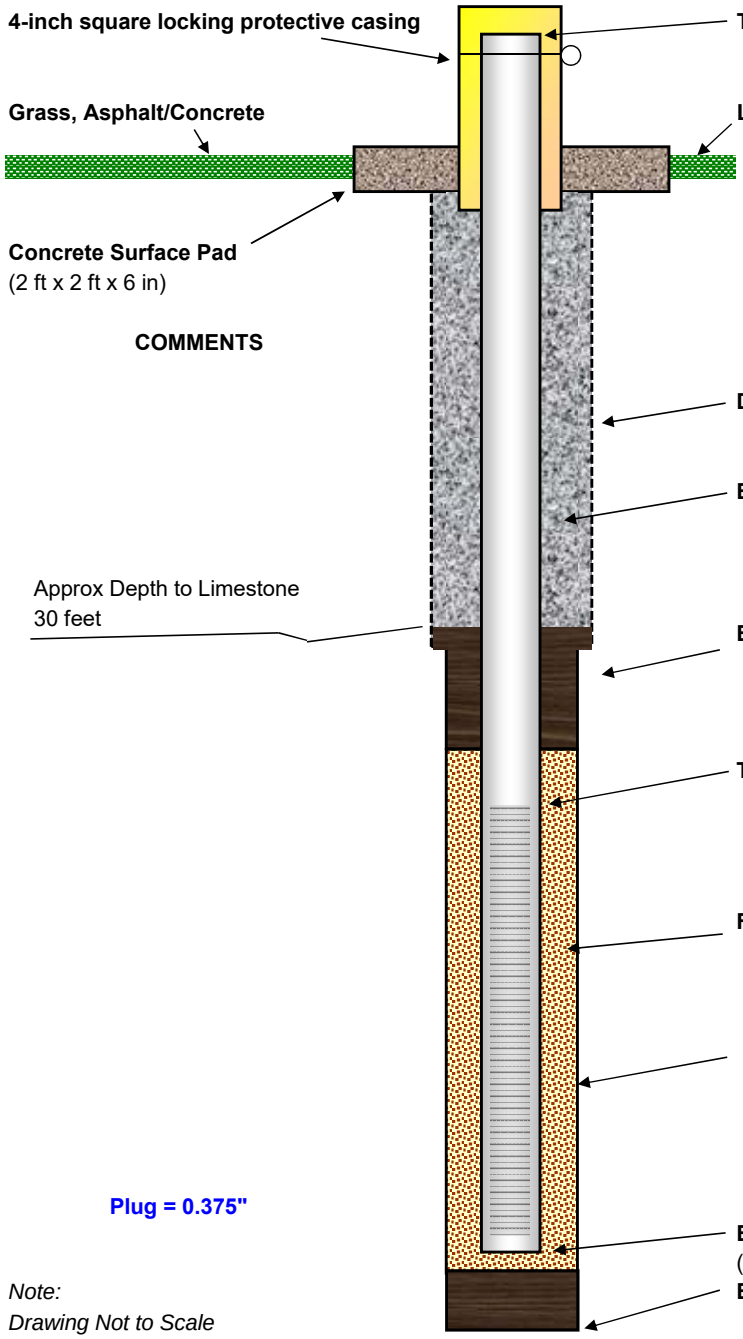
TYPE III GROUNDWATER MONITORING WELL INSTALLATION DETAIL

Project Name: Delavan Spray Technologies **Drilling Co:** Cascade **Well Number:** MW-34D

Location: Bamberg, South Carolina **Driller:** M. Rodriguez **Job Number:** 60590866

Client: United Technology Corporation **Drilling Method:** Sonic **Date Completed:** 11/19/2019

Geologist: Mariah Rockwell **Static Water Level** _____ **b.TOC** **Survey Datum:** State Plan NAVD 88



Top Of Casing Elevation **145.71** ft — **3.01** ft Stickup

Land Surface Elevation **142.70** ft

COMMENTS

Diameter of Borehole (nominal)
6 in

Bentonite/Cement Grout
From **0.0** ft to **64.0** ft

Bentonite Pellet Seal
Type: Holeplug
From **64.0** ft to **67.0** ft

Top of Screen Depth **69.44** ft
Screen Type: **SCH-40 PVC**
Screen Slot Size: **0.010-in** ID **2** in
Screen Length: **9.96** ft

Filter Sand for Screen
Sand Type: No.1
From **67.0** ft to **81.0** ft

Diameter of Borehole (nominal)
4 in

Bottom of Well Depth **79.78** ft
(Note - 3 ft of bentonite installed from 81-84 ft)

Bottom of Boring (estimated) Depth **84.00** ft

Total Depth of Well, b. Top of Casing Depth **82.79** ft

Note:
Drawing Not to Scale
All Depths are Referenced to Ground Surface except where noted

AECOM

FIGURE A-6

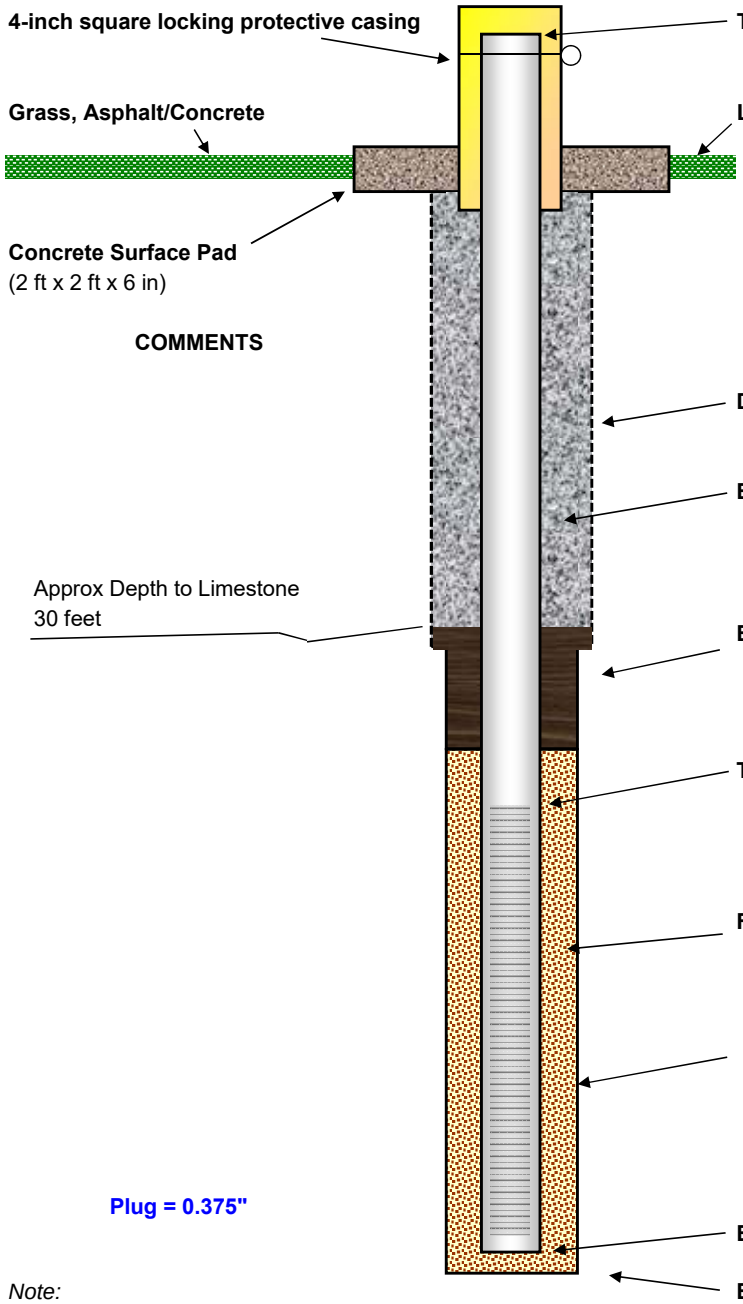
TYPE III GROUNDWATER MONITORING WELL INSTALLATION DETAIL

Project Name: Delavan Spray Technologies **Drilling Co:** Cascade **Well Number:** MW-35D

Location: Bamberg, South Carolina **Driller:** M. Rodriguez **Job Number:** 60590866

Client: United Technology Corporation **Drilling Method:** Sonic **Date Completed:** 11/19/2019

Geologist: Mariah Rockwell **Static Water Level** _____ **b.TOC** **Survey Datum:** State Plan NAVD 88



COMMENTS

Top Of Casing Elevation **141.95** ft **2.69** ft Stickup

Land Surface Elevation **139.26** ft

Diameter of Borehole (nominal) **6** in

Bentonite/Cement Grout From **0.0** ft to **56.0** ft

Bentonite Pellet Seal Type: Holeplug From **56.0** ft to **62.0** ft

Top of Screen Depth **64.25** ft
Screen Type: **SCH-40 PVC**
Screen Slot Size: **0.010-in** ID **2** in
Screen Length: **9.93** ft

Filter Sand for Screen Sand Type: No.1 From **62.0** ft to **74.0** ft

Diameter of Borehole (nominal) **4** in

Bottom of Well Depth **74.56** ft

Bottom of Boring (estimated) Depth **74.00** ft

Total Depth of Well, b. Top of Casing Depth **77.25** ft

Note:
Drawing Not to Scale
All Depths are Referenced to Ground Surface except where noted

AECOM

FIGURE A-6

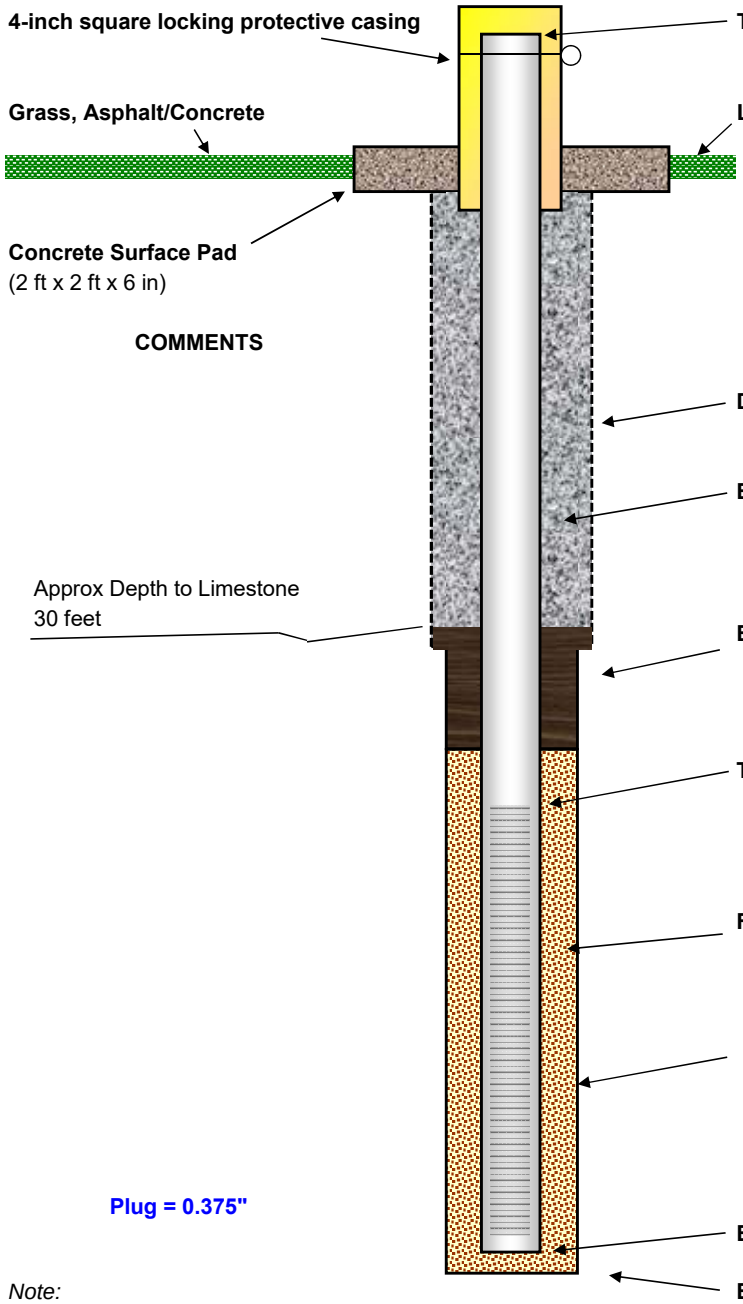
TYPE III GROUNDWATER MONITORING WELL INSTALLATION DETAIL

Project Name: Delavan Spray Technologies **Drilling Co:** Cascade **Well Number:** MW-36D

Location: Bamberg, South Carolina **Driller:** M. Rodriguez **Job Number:** 60590866

Client: United Technology Corporation **Drilling Method:** Sonic **Date Completed:** 11/21/2019

Geologist: Mariah Rockwell **Static Water Level** _____ **b.TOC** **Survey Datum:** State Plan NAVD 88



Top Of Casing Elevation 130.93 ft — 2.37 ft Stickup

Land Surface Elevation 128.57 ft

COMMENTS

Diameter of Borehole (nominal)
6 in

Bentonite/Cement Grout
From 0.0 ft to 47.0 ft

Bentonite Pellet Seal
Type: Holeplug
From 47.0 ft to 52.0 ft

Top of Screen Depth 53.99 ft
Screen Type: SCH-40 PVC
Screen Slot Size: 0.010-in ID 2 in
Screen Length: 10 ft

Filter Sand for Screen
Sand Type: No.1
From 52.0 ft to 64.0 ft

Diameter of Borehole (nominal)
4 in

Bottom of Well Depth 64.29 ft

Bottom of Boring (estimated) Depth 64.00 ft

Total Depth of Well, b. Top of Casing Depth 66.66 ft

Note:
Drawing Not to Scale
All Depths are Referenced to Ground Surface except where noted

AECOM

Monitoring Well Development Log

Date Started (yr/mo/day) 19-11-22 Date Completed (yr/mo/day) 19-11-22

Field Personnel Randy Morgan

Site Name UTC Delavan Spray Technologies Site

Job # ~~60314964.16~~ 60596866.02

Well ID # MW-33D

____ Upgradient X Downgradient

Weather Conditions Partly Cloudy Sunny Partly

Air Temperature ~~40~~ 40s °F

Total Well Depth (TWD) = 76.35 TOC 1/100 ft

Depth to Ground Water (DGW) = 13.27 TOC 1/100 ft

Length of Water Column (LWC) = TWD - DGW = 63.08 1/100 ft

1 Casing Volume (OCV) = LWC x 0.16 = 10.28 gallons

5 Casing Volumes = 51.40 gallons

Method of Well Development Surging

Equipment Used Grundfos pump

Total Volume of Water Removed _____ gallons

Date/Time 11-22-19	Discharge Rate (ml/min)	Volume Purged (gallons)	Water Temp. (°C)	Specific Conductivity (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity/Color	Sand Content (%)	Remarks
0820	2	initial	19.3	0.243	4.25	8.22	219.7	71000 Grey	0	Surged
0830	2	20	19.6	0.251	3.57	8.00	120.9	71000 Grey	0	Surged
0840	2	40	19.9	0.253	4.98	8.02	76.3	71000 Grey	0	Surged
0850	2	60	19.8	0.249	3.53	7.88	78.9	458.2 Grey	0	
0900	1	70	19.7	0.250	3.78	7.84	79.0	63.16 Clear	0	
0910	1	80	19.7	0.252	4.05	7.83	70.1	27.69 clear	0	
0920	1	90	19.7	0.253	3.66	7.82	68.0	16.13 clear	0	

WL
13.91
13.88

COMMENTS/OBSERVATIONS: _____

104 - 2GPM
71 - 1GPM

AECOM

Monitoring Well Development Log

Page 1 of 1

Date Started (yr/mo/day) 2019-11-21 Date Completed (yr/mo/day) 2019-11-21

Field Personnel Randy Morgan

Site Name UTC Delavan Spray Technologies Site

Job # ~~60314964.16~~ 60598866.02

Well ID # MW-340

____ Upgradient X Downgradient

Weather Conditions Clear/Sunny

Air Temperature 40's °F

Total Well Depth (TWD) = 83.63 TOC 1/100 ft

Depth to Ground Water (DGW) = 14.38 TOC 1/100 ft

Length of Water Column (LWC) = TWD - DGW = 69.25 1/100 ft

1 Casing Volume (OCV) = LWC x 0.16 = 11.28 gallons

5 Casing Volumes = 56.43 gallons

Method of Well Development Grundfos Pump - Surging

Equipment Used Grundfos Pump

Total Volume of Water Removed 105 gallons

Date/Time 11-21-2019	Discharge Rate (ml/min)	Volume Purged (gallons)	Water Temp. (°C)	Specific Conductivity (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity/Color	Sand Content (%)	Remarks
0910	2GPM	2	18.6	0.291	5.76	11.12	73.3	7/1000 Grey	0	Surged
0923	2	25	19.0	0.309	5.11	11.22	-17.6	>1000 Grey	0	Surged
0933	2	45	19.2	0.214	5.09	8.34	+24.5	448.3 Grey	0	Surged
0938	2	55	19.3	0.218	5.05	8.13	+31.4	171.74 Grey	0	
0948	2	75	19.5	0.222	4.74	7.99	+43.1	27.90 clear	0	
0958	1	85	19.5	0.224	2.93	7.93	+22.1	10.67 clear	0	
1008	1	95	19.8	0.225	2.84	7.92	+25.9	7.77 clear	0	
1018	1	105	19.7	0.224	2.69	7.90	+29.1	5.13 clear	0	

WL 14.90

COMMENTS/OBSERVATIONS:

AECOM

Monitoring Well Development Log

Page 1 of 1

Date Started (yr/mo/day) 19-11-21 Date Completed (yr/mo/day) 11-19-21

Field Personnel Randy Morgan

Site Name UTC Delavan Spray Technologies Site

Job # ~~60314964.16~~ 60596866.02

Well ID # MW-35D

___ Upgradient X ___ Downgradient

Weather Conditions Clear / Sunny

Air Temperature 50s °F

Total Well Depth (TWD) = 76.55 TOC 1/100 ft

Depth to Ground Water (DGW) = 12.07 TOC 1/100 ft

Length of Water Column (LWC) = TWD - DGW = 64.48 1/100 ft

1 Casing Volume (OCV) = LWC x 0.16 = 10.51 gallons

5 Casing Volumes = 52.55 gallons

Method of Well Development Surging

Equipment Used Grundfos Pump

Total Volume of Water Removed 95 gallons

Date/Time	Discharge Rate (ml/min)	Volume Purged (gallons)	Water Temp. (°C)	Specific Conductivity (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity/Color	Sand Content (%)	Remarks
1230	2	5	20.2	0.209	4.89	8.23	70.1	71000 Grey	0	Surged
1240	2	25	19.9	0.209	4.63	8.04	53.5	71000 Grey	0	Surged
1250	2	45	19.7	0.223	4.53	7.96	53.5	631.1 Grey	0	Surged
1300	2	65	19.5	0.225	3.86	7.89	54.0	361.8 Grey	0	
1310	1	75	19.5	0.226	3.10	7.90	58.7	13.78 Clear	0	
1320	1	85	19.5	0.228	2.92	7.89	62.1	4.87	0	
1330	1	95	19.5	0.230	2.87	7.88	70.9	3.51	0	

WL

12.5[illegible]

12[illegible]

COMMENTS/OBSERVATIONS:

AECOM

Monitoring Well Development Log

Page 1 of 1

Date Started (yr/mo/day) 19-11-25 Date Completed (yr/mo/day) 19-11-25

Field Personnel Randy Morgan

Site Name UTC Delavan Spray Technologies Site

Job # ~~60314984.16~~ MW-36D 60590866.02

Well ID # MW-36D

____ Upgradient X ____ Downgradient

Weather Conditions Clear / sunny

Air Temperature 40's °F

Total Well Depth (TWD) = 65.82 1/100 ft

Depth to Ground Water (DGW) = 2.72 1/100 ft

Length of Water Column (LWC) = TWD - DGW = 63.10 1/100 ft

1 Casing Volume (OCV) = LWC x 0.16 = 10.28 gallons

5 Casing Volumes = 51.42 gallons

Method of Well Development Surging

Equipment Used Grundfos Pump

Total Volume of Water Removed 92 gallons

Date/Time 11-25-2019	Discharge Rate (ml/min)	Volume Purged (gallons)	Water Temp. (°C)	Specific Conductivity (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity/Color	Sand Content (%)	Remarks
0805	2	2	17.4	0.262	2.94	7.77	-84.1	7100 Grey	0	Surged
0815	2	22	18.7	0.273	0.75	7.62	-170.3	7100 Grey	0	Surged
0825	2	42	18.6	0.277	0.61	7.60	-160.8	7100 Grey	0	Surged
0835	2	62	18.6	0.279	0.89	7.58	-156.8	897.6 Grey	0	
0845	1	72	18.3	0.278	1.14	7.56	-156.3	266.0 Grey	0	
0855	1	82	18.2	0.281	1.01	7.55	-156.0	133.9 Grey	0	
0905	1	92	18.1	0.283	0.75	7.56	-166.1	119.9 Grey	0	

WL
3.40
3.13

COMMENTS/OBSERVATIONS:

AECOM

FIELD DATA LOG FOR GROUNDWATER SAMPLING

Date (mo/day/yr): Nov 25, 2014
Field Personnel: Randy Mong
Site Name: UTC Belcamp
AECOM Job #: 60590866.02
Well ID*: MW-33D

____ Upgradient ____ Downgradient ____ Sidegradient ____ Source

Weather Conditions: clear / sunny
Air Temperature: 50 ° F
Total Well Depth (TWD) = 76.35 1/100 ft
Depth to Ground Water (DGW) = 13.24 1/100 ft
Length of Water Column (LWC) = TWD - DGW = 63.11 1/100 ft
1 Casing Volume (OCV)* = LWC x .163 = 10.28 gal
3 Casing Volumes = 30.86 gal = Standard Evacuation Volume
Method of Sample Evacuation: peristaltic pump
Method of Sample Collection: peristaltic pump
Total Volume of Water Removed: 2.80 gal

Casing Diameter: 2.0 inches
Casing Material: PVC
Measuring Point Elevation: N/A 1/100 ft
Height of Riser (above land surface): N/A 1/100 ft
Land Surface Elevation: N/A 1/100 ft
Screened Interval: N/A 1/100 ft
Dedicated Pump or Bailer YES ____ NO X Type ____
Steel Guard Pipe Around Casing YES X NO ____
Locking Cap YES X NO ____
Protective Post/Abutment YES ____ NO X
Well Integrity Satisfactory YES X NO ____
Yield LOW ____ MODERATE ____ HIGH X
Comments/Observations
Sample Time: 1205
Fe = 0.0 dup MW-33D-a

* - One casing volume (gallons) for a 0.5 inch well is 0.0102XLWC; for a 2 inch well is 0.163 X LWC; for a 4 inch well is 0.652 X LWC and for a 6 inch well is 1.468 X LWC.

Volume (in gallons) = $\pi r^2 h$ (7.48), where r is the radius (ft) and h is the height (ft).

FIELD ANALYSES

VOLUME PURGED (gallons)	Initial	.40	.80	1.20	1.60	2.0	2.40	2.80			
TIME (Military)	1125	1130	1135	1140	1145	1150	1155	1200			
Water Level (ft BTOC)	13.25	13.25	13.25	13.25	13.25	13.25	13.25	13.25			
pH (S.U.)	7.84	7.82	7.80	7.78	7.80	7.81	7.79	7.80			
Sp. Cond. (mS/cm)	0.253	0.255	0.257	0.263	0.265	0.264	0.265	0.265			
Water Temp. (°C)	18.8	19.2	19.3	19.1	19.2	19.3	19.5	20.0			
Turbidity (NTUs)	40.95	94.71	71.23	44.78	44.23	40.58	38.19	36.88			
DO - (mg/L)	2.68	0.54	0.47	0.50	0.53	0.52	0.51	0.51			
Salinity (ppt)	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13			
ORP (mV)	95.2	65.1	54.5	41.9	20.1	9.7	-4.9	-9.9			

COMMENTS/OBSERVATIONS

AECOM

FIELD DATA LOG FOR GROUNDWATER SAMPLING

Date (mo/day/yr)	Nov 25, 2019
Field Personnel	Randy Morgan
Site Name	UTC Dehydan
AECOM Job #	60590866.02
Well ID*	MW-34D
	____ Upgradient ____ Downgradient ____ Sidegradient ____ Source
Weather Conditions	Clear, Sunny
Air Temperature	60's ° F
Total Well Depth (TWD) =	83.63 1/100 ft
Depth to Ground Water (DGW) =	14.35 1/100 ft
Length of Water Column (LWC) = TWD - DGW =	69.28 1/100 ft
1 Casing Volume (OCV)* = LWC x .163 =	11.29 gal
3 Casing Volumes =	33.86 gal = Standard Evacuation Volume
Method of Sample Evacuation	Peristaltic pump
Method of Sample Collection	Peristaltic pump
Total Volume of Water Removed	3.20 gal

Casing Diameter	2.0 inches
Casing Material	PVC
Measuring Point Elevation	N/A 1/100 ft
Height of Riser (above land surface)	N/A 1/100 ft
Land Surface Elevation	N/A 1/100 ft
Screened Interval	N/A 1/100 ft
Dedicated Pump or Bailer	YES ____ NO X Type ____
Steel Guard Pipe Around Casing	YES X NO ____
Locking Cap	YES X NO ____
Protective Post/Abutment	YES ____ NO X
Well Integrity Satisfactory	YES X NO ____
Yield	LOW ____ MODERATE ____ HIGH ____
Comments/Observations	Sample Time: 1600
	Fe- 0.36

* - One casing volume (gallons) for a 0.5 inch well is 0.0102XLWC; for a 2 inch well is 0.163 X LWC; for a 4 inch well is 0.652 X LWC and for a 6 inch well is 1.468 X LWC.

Volume (in gallons) = $\pi r^2 h$ (7.48), where r is the radius (ft) and h is the height (ft).

FIELD ANALYSES

VOLUME PURGED (gallons)	initial	.40	.80	1.20	1.60	2.0	2.40	2.80	3.20		
TIME (Military)	1515	1520	1525	1530	1535	1540	1545	1550	1555		
Water Level (ft BTOC)	14.36	14.37	14.37	14.37	14.37	14.37	14.37	14.37	14.37		
pH (S.U.)	7.91	7.89	7.89	7.90	7.90	7.87	7.85	7.86	7.89		
Sp. Cond. (mS/cm)	0.232	0.233	0.233	0.233	0.235	0.232	0.232	0.233	0.233		
Water Temp. (°C)	18.4	18.4	18.4	18.3	18.2	18.3	18.3	18.1	18.2		
Turbidity (NTUs)	86.02	77.52	73.34	69.85	57.07	50.89	38.00	40.19	34.18		
DO - (mg/L)	2.39	0.76	0.53	0.48	0.44	0.46	0.52	0.47	0.50		
Salinity (ppt)	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11		
ORP (mV)	3.4	-32.9	-62.4	-82.1	-94.5	-102.5	-110.5	-117.9	-118.9		

COMMENTS/OBSERVATIONS

AECOM

FIELD DATA LOG FOR GROUNDWATER SAMPLING

Date (mo/day/yr): November 25, 2019
Field Personnel: Randy Morgan
Site Name: CTC / Delaney
AECOM Job #: 60590866.02
Well ID*: MW-35D
_____ Upgradient _____ Downgradient _____ Sidegradient _____ Source
Weather Conditions: clear sunny
Air Temperature: 40's °F
Total Well Depth (TWD) = 76.55 1/100 ft
Depth to Ground Water (DGW) = 12.10 1/100 ft
Length of Water Column (LWC) = TWD - DGW = 64.45 1/100 ft
1 Casing Volume (OCV)* = LWC x .163 = 10.50 gal
3 Casing Volumes = 31.51 gal = Standard Evacuation Volume
Method of Sample Evacuation: peristaltic pump
Method of Sample Collection: " "
Total Volume of Water Removed: 2.4 gal

Casing Diameter: 2.0 inches
Casing Material: PVC
Measuring Point Elevation: N/A 1/100 ft
Height of Riser (above land surface): N/A 1/100 ft
Land Surface Elevation: N/A 1/100 ft
Screened Interval: N/A 1/100 ft
Dedicated Pump or Bailer: YES ____ NO X Type ____
Steel Guard Pipe Around Casing: YES X NO ____
Locking Cap: YES X NO ____
Protective Post/Abutment: YES ____ NO X
Well Integrity Satisfactory: YES X NO ____
Yield: LOW ____ MODERATE ____ HIGH X
Comments/Observations
Sample Time: 1057
Fe = 0.18

* - One casing volume (gallons) for a 0.5 inch well is 0.0102XLWC; for a 2 inch well is 0.163 X LWC; for a 4 inch well is 0.652 X LWC and for a 6 inch well is 1.468 X LWC.

Volume (in gallons) = $\pi r^2 h$ (7.48), where r is the radius (ft) and h is the height (ft).

FIELD ANALYSES

VOLUME PURGED (gallons)	Initial	.40	.80	1.20	1.60	2.0	2.4				
TIME (Military)	1025	1030	1035	1040	1045	1050	1055				
Water Level (ft BTOC)	12.11	12.10	12.10	12.10	12.10	12.10	12.10				
pH (S.U.)	7.98	7.87	7.86	7.86	7.86	7.86	7.85				
Sp. Cond. (mS/cm)	0.218	0.238	0.239	0.239	0.240	0.238	0.239				
Water Temp. (°C)	15.4	17.0	17.[illegible]	17.1	16.8	17.1	17.0				
Turbidity (NTUs)	26.80	43.15	48.45	55.13	61.63	56.96	52.42				
DO - (mg/L)	4.05 ~~4.10~~	1.26	1.06	1.01	0.98	0.92	0.86				
Salinity (ppt)	0.10	0.11	0.11	0.11	0.11	0.11	0.11				
ORP (mV)	94.5	52.6	31.2	15.7	5.5	-1.1	-4.8				

COMMENTS/OBSERVATIONS

AECOM

FIELD DATA LOG FOR GROUNDWATER SAMPLING

Date (mo/day/yr): Nov 25, 2019
Field Personnel: Randy Morgan
Site Name: UTC Delavan
AECOM Job #: 60590866.02
Well ID*: MW-360
___ Upgradient ___ Downgradient ___ Sidegradient ___ Source
Weather Conditions: clear/sunny
Air Temperature: 50's ° F
Total Well Depth (TWD) = 65.82 1/100 ft
Depth to Ground Water (DGW) = 2.70 1/100 ft
Length of Water Column (LWC) = TWD - DGW = 63.12 1/100 ft
1 Casing Volume (OCV)* = LWC x 0.163 = 10.28 gal
3 Casing Volumes = 30.86 gal = Standard Evacuation Volume
Method of Sample Evacuation: grundfos pump
Method of Sample Collection: grundfos pump
Total Volume of Water Removed: 3.60 gal

Casing Diameter: 2.0 inches
Casing Material: PVC
Measuring Point Elevation: 1/100 ft
Height of Riser (above land surface): 1/100 ft
Land Surface Elevation: 1/100 ft
Screened Interval: 1/100 ft
Dedicated Pump or Bailer: YES ___ NO X Type ___
Steel Guard Pipe Around Casing: YES ___ NO ___
Locking Cap: YES X NO ___
Protective Post/Abutment: YES ___ NO X
Well Integrity Satisfactory: YES X NO ___
Yield: LOW ___ MODERATE ___ HIGH X
Comments/Observations
Sample Time: 1413
Fe: 1.42
MS/MSD for VOCs

* - One casing volume (gallons) for a 0.5 inch well is 0.0102XLWC; for a 2 inch well is 0.163 X LWC; for a 4 inch well is 0.652 X LWC and for a 6 inch well is 1.468 X LWC.

Volume (in gallons) = $\pi r^2 h$ (7.48), where r is the radius (ft) and h is the height (ft).

FIELD ANALYSES

VOLUME PURGED (gallons)	initial	.40	.80	1.20	1.60	2.0	2.4	2.8	3.20	3.60
TIME (Military)	1323	1328	1333	1338	1343	1348	1353	1358	1403	1408
Water Level (ft BTOC)	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72
pH (S.U.)	7.64	7.64	7.64	7.63	7.61	7.60	7.60	7.60	7.62	7.61
Sp. Cond. (mS/cm)	0.275	0.2771	0.270	0.273	0.281	0.283	0.284	0.284	0.284	0.283
Water Temp. (°C)	18.9	18.8	18.9	19.0	19.0	18.9	19.1	18.8	18.9	18.5
Turbidity (NTUs)	46.05	65.27	91.85	136.9	152.9	95.61	68.81	40.62	38.19	39.29
DO - (mg/L)	2.51	0.37	0.30	0.23	0.20	0.18	0.17	0.15	0.14	0.14
Salinity (ppt)	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14
ORP (mV)	-126.8	-164.4	-177.0	-187.0	-192.5	-195.5	-199.7	-200.6	-203.1	-204.9

COMMENTS/OBSERVATIONS

SGS

SGS North America Inc - Orlando
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # :

SGS - ORLANDO Quote #

SKIFF #

Client / Reporting Information

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City: Greenville State: SC Zip: 29615
Project Contact: Leslee Alexander Email:
Phone #:
Sampler(s) Name(s) (Printed)
Sampler 1: Randy Morgan Sampler 2:

Project Information

Project Name: UTC Delavan Spray Techs
Street 4334 Main Hwy
City Bamberg SC State
Project # 60590866.02
Fax #
Client Purchase Order #

Matrix Codes
DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid

LAB USE ONLY

Analytical Information

SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NAOH+ZNAC	DI WATER	MEOH	TCL VOCs UNPR	TOC, NO3, NO2, SO4 EHL	VPSK [illegible] DEMEE	ABSEPTD TCL	PM13	Soil TCLP
	Trip Blank	11/25/19		RM	GW	3		X	X							X					
	MW-35D	11/25/19	1051	RM	GW	9		X	X							X	X	X			
	MW-33D	11/25/19	1205	RM	GW	9		X	X							X	X	X			
	MW-33D-a	11/25/19	1205	RM	GW	3		X								X					
	MW-36D	11/25/19	1413	RM	GW	9		X	X							X	X	X			
	MW-36D-MS	11/25/19	1413	RM	GW	3		X								X					
	MW-36D-MSD	11/25/19	1413	RM	GW	3		X								X					
	MW-34D	11/25/19	1600	RM	GW	9		X	X							X	X	X			
	Soil IDW	11/25/19	1700	RM	GW	4		X													X
	Aqueous IDW	11/25/19	1625	RM	SO	6		X								X			X	X	X

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH* ____________
2 Day *RUSH* ____________
1 Day *RUSH* ____________
Other ____________
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

☐ COMMERCIAL "A" (RESULTS ONLY)
☐ COMMERCIAL "B" (RESULTS PLUS QC)
☐ REDT1 (EPA LEVEL 3)
☐ FULLT1 (EPA LEVEL 4)
☐ EDD'S

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 Randy Morgan - AECOM	11/25/19 1845	2	3		4
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
5		6	7		8

Lab Use Only : Cooler Temperature (s) Celsius (corrected):____________

http://www.sgs.com/en/terms-and-conditions

IDW MANAGEMENT FORM

PROJECT: UTC Bamberg

SITE NAME: UTC Delavan Specialty Chemicals Site

LOCATION: Bamberg, South Carolina PROJECT #:

CONTAINER NUMBER	MEDIA DESCRIPTION	MEDIA ORIGIN	DATE FILLED	DATE SAMPLED	DATE DISPOSED	COMMENTS
1	Soil	MW-34D	11/18/19			
2	Soil	MW-34D	11/18/19			
3	Soil / Sand / H2O	MW-34D	11/18/19			Grout / Sand Not Sampled
4	Soil	MW-35D	11/20/19			
5	Soil	MW-33D	11/21/19			
6	Soil	MW-36D	11/22/19			
7	Soil / decon mix	MW-36D	11/22/19			grout / drill mud Not Sampled

IDW MANAGEMENT FORM

PROJECT: UTC Bamberg

SITE NAME: UTC Delavan Specialty Chemicals Site

LOCATION: Bamberg, South Carolina PROJECT #:

CONTAINER NUMBER	MEDIA DESCRIPTION	MEDIA ORIGIN	DATE FILLED	DATE SAMPLED	DATE DISPOSED	COMMENTS
1 Water	Water	MW-34D	11/21/19			development water
2	Water	MW-34D	11/21/19			
3	Water	MW-35D	11/21/19			
4	Water	MW-35D	11/21/19			
5	Water	MW-33D	11/22/19			
6	Water	MW-35D	11/22/19			
7	Water	MW-36D	11/25/19			
8	Water	MW-36D	11/25/19			
9	Water	MW-34, 35D, 36D, 33D	11/25/19			(Sampled MW-33D, 34D, 35D, 36D Drum)

2M

10-17-19 Delavan

N. Mennen

0700 Leave hotel for site

0740 Arrive on site. H&S meeting with R. Morgan.

0745 Calibrate equipment. Finish filling out field forms.

0820 Head to private wells and sample

1130 Leave site

1400 Arrive back

End of Day

End of Event

11/18/19 47°F

Well Install

M. Rockwell

0630 Leave office for site.

0930 Arrive on site. Sign in @ main

1030 office. H/S meeting w/ Cascade.

1030 walk/Drive to all four well locations, meet w/ Mr. Cooler @ his property

1130 Back @ main site, break for lunch.

1230 Cascade meets @ MW-34D location to set equipment.

1300 Phillip to clear next location w/ skid steer while we drill @ MW-34D.

1530 @ 64' bgs MW-34D.

1700 set @ 79' bgs, then set PVC tomorrow. Begin packing up / decon for EOD

1730 Everyone offsite, site secured.

11/18/19

LITC Delaware

11/19/19 47°F M. Rockwell

0800 Cascade on site @ MW-34D
0830 H/S Meeting
0830 measured PVC pipes / plug
0850 Begin bentonite up, @ 84' bgs, bentonite up 3' then sand 2'
- bentonite @ 81" bgs
0911 - sand @ 79' bgs
0916 Dropped ½", total depth @ 78.5' bgs
- sand from 79.5 67.5 bgs
- screen from 79.5 69.5
0945 - bentonite from 67.5 64.5 bgs
1030 Begin grouting.
1120 Grout complete up to 2' bgs
1130 Chuck off site.
1140 Mob to MW-35D.
1230 Measured PVC and plug.
1300 Off site for lunch break.
1320 Back on site. Begin drilling.
1415 MW-35D @ 34' bgs
1530 MW-35D TD = 74' bgs
1600 Mike / J. Hall off site.
Begin setting MW-35D.

11/19/19 Rockwell

1630 [Sand from 74' - 62' bgs
Bentonite from 62' - 58' bgs
1640 Begin decon / pack up for EOD
1650 Everyone off site.

11/19/19

11/20/19 39° M. Rockwell

0800	Everyone on site. H/S meeting
0830	and discuss scope of work.
0835	Begin mixing grout @ MW-35D
0942	Grout complete up to 2' bgs
0942	WL @ 9.77' from g.s.
1000	Begin prep to demob to next location MW-33D @ Mr. Johnston's property. Called Mr. Johnston to let him know we will be on his property w/in hr or so
1040	Mob from Cooley Property to MW-33D location. Mr. Johnston on site.
1050	Begin setting up equipment.
1135	Break for lunch.
1230	Back on site @ MW-33D
1240	Begin drilling.
1400	MW-33D @ 54' bgs, cont'd
1510	J. Hall offsite.
1540	Bentonite complete @ 57'
1635	Everyone offsite

[signature] 11/20/19

11/21/19 38°F M. Rockwell

0705	Leave Hotel.
0745	Arrive on site. @ MW-33D
0800	Cascade on site. H/S meeting, discuss scope of work for today
0830	Begin grouting MW-33D
0920	Grout complete
1000	Decon / pack equipment to demob to MW-36D
1015	Begin clearing spot for MW-36D
1042	Ran into issue w/ water in ditch. Stop clearing. Call Lee
1050	Randy will pick up wood to build temp. bridge
1100	Pack skid steer and mob back to MW-33D to get remaining supplies.
1120	@ MW-33D packing up rig * J. Hall @ MW-36D to set up temp. bridge w/ Randy
1230	Mob w/ Rig to MW-36D
1309	Break for lunch.
1326	Mariah back @ MW-36D
1336	Cascade on site. Everyone is eating lunches in vehicles.

30

11/21/19 M. Rockwell

1340 Begin drilling @ MW-36D
1500 MW-36D @ 39' bgs
The rig is having mechanical issues & keeps shutting down
1630 Begin sand
1653 Bentonite @ 47' bgs
1700 Everyone off site.

11/21/19

11/22/19 40°F M. Rockwell

0745 Leave hotel.
0735 Arrive on site @ MW-36D
0800 Cascade on site. H&S meeting, discuss scope of work.
0825 Begin grouting MW-36D @ 47' - 2" bgs
0832 Rig shut off, Mike restarts
0922 Grouting complete. 47' - 2" bgs
0950 Randy on site.
1028 Call Leslee, discuss remaining work.
1100 Marian checkout w/ facility. OTW back to GVille Office
1330 Arrived @ office. Gave keys to Leslee.

11/22/19

11/20/19 48°F Mr Rockwell

0700 left Greenville offices
1015 check into facility. Arrive @ MW-34D
1026 WL @ 14.34' TOC
1031 WL @ 14.32' TOC
1043 Slug Dimensions 5' 0.25" Diameter 1.5"
1052 WL @ 14.32' TOC
1117 start test MW-34D in 1 (slug in)
1120 ~~stop test~~ 34D in 1
1121 start test 34D-out 1 (slug out)
1125 stop test 34D-out 1
1125 start test 34D-in 2
1130 stop test 34D-out 2
1131 start test MW 34D out 2
1134 Stop test MW34D out 2
set up for using pump (whale)
1145 start test MW 34D pump 1
1153 stop test MW 34D pump 1
start test MW 34D pump 2
1157 Stop test MW 34D pump 2
Note - tests using whale pump have nice curves but only about 0.3-0.4 ft. of

L. Alexander 11/25/19

drawdown. Will get grundfos pump from randy for development to use for slug testing.
1205 Miranda Rockwell goes to meet Randy on mr Johnston's property to get grundfos pump.
1302 MW-35D, WL @ 12.06' TOC
1312 MW-35D in 1 (slug in) test start
1315 MW-35D in 1 test stop
1316 MW-35D out 1 (slug out) test start
1318 MW-35D out 1 test stop
1320 MW-35D in 2 test start
1324 MW-35D in 2 test stop
1325 MW 35D out 2 test start
1328 MW-35D out 2 test stop
1335 MW-35D pump 1 (w/ grundfos) test start
1340 MW-35D pump 1 test stop
1342 MW-35D pump 2 test start
1344 MW-35D pump 2 test stop
1345 MW-35D pump 3 test start
1347 MW-35D-pump 3 test stop
1350 pull pump & decon equipment.
1430 load truck & mob to MW-33D
1448 on site at MW-33D.

11/25/19

1452 Initial DTW 13.24 ft BTOC
1501 Start test MW33D-in 1
1502 Stop test MW33D-in 1
1503 Start test MW33D-off 1
1505 Stop test MW-33D-OUT 1
1506 start test MW-33D in 2
1508 stop test MW-33D in 2
1510 Start test MW-33D OUT 2
1512 Stop test MW-33D-out 2
1515 Set up for MW-33D-pump1 w/ grundfos
1521 Start MW-33D pump 1
1523 Stop MW-33D pump 1
1526 Start MW-33D pump 2
1528 Stop MW-33D pump 2
1529 pull pump & clean equipment
1535 Load truck & mob to MW-36D
1554 WL @ 2.69' TOC MW-36D
Set up on well MW-36D
1602 start test MW-36D-in 1
1604 Stop test MW-36D-in 2
1607 Start test MW 36D-out 1
1609 stop test MW36D-OUT 1
Start test MW36D-in 2

11/25/19

1613 Stop test MW-36D-in 2.
1615 Start test MW-36D out 2
1617 Stop test MW 36D-out 2
1620 Set up for MW-36D pump1 w/ grundfos
1626 Start test MW 36D-pump1
1628 Stop test MW-36D -pump 1
1629 Start test MW-36D-pump2
1631 Stop test MW-36D-pump 2
1633 Start test MW-36D-pump3
1635 Stop test MW-36D -pump3
1640 Clean up & load truck.
1648 Mob to Delavan to put purge water in drums
1720 Finish dropping off water & helping Randy, Morgan Clark & Label drums.
1725 Mob to MW21D to collect water level
1730 collect water level -13.92 ft TOC at MW-21D
1735 collect water level -14.04 ft BTOC at MW-14D, Pack up & Mob back to Greenville.
2020 Back onsite at Greenville office Depot

Alexander

36 UTC Delaware

12/05/19 45°F M. Rockwell

0630 Leave greenville office.
0915 Arrive @ Delaware facility, wait for survey crew to finish @ the in point.
0930 H/S meeting, discuss scope of work.
0940 Take measurement @ well in parking lot (MW-21D)
0957 Measurements @ MW-36D
1011 Survey @ MW-34D
1018 Survey @ MW-35D
1036 Survey @ MW-33D
1050 Mr. Johnston told me that he was unhappy w/ dug out area in front of well and wants it filled in.
1100 Back @ MW-21D for another measurement.
1140 Everyone off site. Demob back to greenville.
1430 Stopped to get gas.
1500 Back @ office

12/05/19

57

4/14/2020 56°F M. Rockwell

0515 Leave Greenville, SC OTW to Bamberg
0820 Arrive @ UTC Delaware. Meet w/ Randy, check into facility
0900 Meet w/ Devane about purge water
0905 Cont. WL's & Opening wells.
1050 Return to facility. Split up equipment. Begin @ Bamberg properties
1110 Began purge MW-30D
1130 Sampled MW-30D
1140 Began purge MW-31D
1200 Sampled @ MW-31D
1215 Began purge MW-25D
1240 Sampled MW-25D
1255 Began purge MW-32DR
1325 Sampled MW-32DR
1330 Sampled MW-32DR-Dup
1340 Began purge MW-26D
1410 Sampled MW-26D
1415 Began purge MW-22D
1440 Sampled MW-22D
1445 Sampled MW-22D-Dup
1515 Began purge MW-33D
1540 Sampled MW-33D
1600 Dumped purge water. Left site for Hotel / Arrived @ Hotel 1700

4-14-20

2 (106) UTC Residential Sampling

11-20-19

1210 leave to pick up equipment

1230 leave for UTC Delavan construction for several miles on I-26 - one lane traffic slow

1545 in Bamberg purchase ice for sample cooler

1605 calibrate YSI S/N 5489

1630 at 343 LCR No one at home No water on at system, will check later.

1650 at 715 LCR-PRE collect sample out of tank #1

1700 at 715 LCR-POST - collect sample out of tank #2

1710 at 13 LCT-PRE collect sample out of tank #1

1720 at 13 LCT-POST collect sample out of tank #2

1730 back at 343 LCR waiting to see if anyone comes home

1800 No one comes home will check back 11-21-2019.

Samples collected will be stored on ice in secure location until 11-22-2019.

1840 back at Motel end of day

Randy Morgan

UTC Delavan (107)

Limestone Aquifer GW Assessment 11/21/19

0730 leave for site

0810 check in with Mariah to get information on newly installed wells to be developed.

0830 calibrate YSI Pro Plus S/N 5489

0840 at MW-34D get set up to begin development at well.

0905 begin developing MW-34D

1018 complete developing MW-34D removed 105 gals of water.

decon pump - label drums and begin IDW-109. for Soils & Water

1045 Mariah called needs plywood to access MW-36D go to local hardware in Bamberg purchase 15 sheets of 3/4 plywood the store delivered it. assist getting the plywood in place.

1200 check back at 343 LCR no one home - no water left note on 11/20/19

1210 at MW-35D set up to begin developing

1230 begin developing MW-35D

1330 complete developing MW-35D

decon pump - removed 95 gal water

Randy Morgan 11/21/19

(108)
11-21-19 UTC Delaware Limestone Aquifer GW Assessment
label all IDW drums at site
1415 at MW-330 drop off drum for Developing on 11-22-2019 collect water level & tag TD.
1450 at MW-360 to assist as needed.
only used 6 sheets of plywood called hardware store and they will allow us to return 9 unused plywood.
1630 returned 9 sheets of plywood
1700 drill crew is finished for today will grout on 11-22-2019.
1715 back at 343 LCR No one home wait to see if anyone shows up — No one comes home, Water
1800 leave for motel.
1838 End of day

Randy Morgan

(107)
UTC Delaware Limestone Aquifer GW Assess. 112219
0705 leave for UTC Delaware
0745 calibrate YSI Pro Plus S/N 15489
0820 at MW-330 begin to developing well
0920 Complete development MW330 decon Pump
0950 at UTC Delaware Plant to check on IDW Drums on (1) left on site from Oct sampling event with 40% water mix
1010 at MW-360 to cover for Mariah as she will be leaving at 1100
1100 Mariah off site
Drill crew is cleaning up & loading out supplies equipment, getting cement for well completions drop off 4 bags cement at each well and the protective covers.
1200 Drillers to lunch/get water to begin well completions.
* 1100 Recived call from Mr. Tomson at 343 Lemon Creek Rd, He is home and I can collect sample
1115 sampled 343LCR-PRE
1125 sampled 343LCR-POST

Randy Morgan 11-22-19

(110)

UTC Delevan
11-22-2019 Limestone Aquifer GW Assess.

1300 Drillers back on site at MW-340 to complete pad & pro cover
1345 at MW-360 to do well completion - Pad & Pro Cover
1430 at MW-330 to do well completion - Pad & Pro cover
1515 at MW-360 for well completion working on rig also
1600 prepare to move drums to site Storage area - the skid steer has a hydralic hose fitting that will not connect - cannot move drums - go to the plant to see if they are working Saturday - Yes
1745 Drillers off site to New Berlington near Arlen to get parts.
Randy off site to Shealy Labs to deliver Residential samples.
1900 relinquish samples to Shealy
0945 back at motel - end of day.
Will return Saturday to try to complete event.

Randy Monge

(111)

UTC Delevan
Limestone Aquifer GW Assess. 11-23-19

0800 Arrive on site to try to complete well activities, drum removal to plant clean up. Light rain
repaired skid steer
0830 notify residents about moving drums out - MR Cooke is OK
no Answer at MR Johnstons
0900 begin moving drums & cleaning up areas.
13 IDW drums today taken to UTC Delevan site
1207 complete all work with drillers and offsite both drillers & Randy will return Monday to develop MW-360 and sample all 14 wells.
1515 back at AECOM Greenville.

Randy Monge
11-23-2019

11-25-2019 Limestone Acufier Assessment

0450 leave AECOM for UTC Delavan Bamberg SC.

0730 arrive on site - calibrate YSI ProPlus S/N 5489

0750 complete calibrating

0753 set up for well development at MW-36D

0805 begin developing MW-36D w/ grundfos pump

0905 Complete developing MW-36D decon pump clean up site will return to sample.

0920 take development water to drum staging area at Delavan plant

1000 leave to go to MW-35D to begin purging to sample

1025 begin purging MW 35D

1057 Sampled MW-35D

1125 at MW-33D begin purging MW-33D

1205 Sampled MW-33D also dup

1220 assist Leslee & Mariah with pump test need grundfos - generator take equipment to MW-35D

1300 mob to MW-36D to purge/sample

1318 at MW-36D set up

Randy Morgan 11-25-19

Limestone Acufier Assess, 11-25-19

1323 begin to micro purge MW-36D to sample

1413 Sampled MW-36D also MS/MSD

1430 empty purge water into 55 gal steel drum at Delavan site

1500 at MW-34D set up to purge/sample

1515 begin to micro purge MW-34D

1600 Sampled MW-34D

1615 get water from Leslee/Mariah

1625 on site at Delavan to collect Aqueous IDW sample

1700 collect SOIL IDW sample secure all drums/label drums inventory.

16 New drums and (1) old drum from previous event

1730 off site to pack samples and ship FedEx Columbia SC

1900 ship samples FedEx

2045 returned equipment

2115 at AECOM office - end of event.

Randy Morgan 11-25-19

Attachment B

Analytical Data

DATA ASSESSMENT REPORT

Data assessment is a systematic process for reviewing a body of data against a predefined set of criteria to provide assurance that the data meet project Data Quality Objective (DQO) requirements. The purpose of the data assessment process is to determine if and how the usability of the analytical data is affected by the overall analytical processes and sample collection and handling procedures. If specific DQOs are not met, the data are qualified (i.e., data flags are assigned to sample results) in accordance with guidelines established by the United States Environmental Protection Agency (USEPA). Data assessment allows the data user to adequately determine if the data can be used for its intended purpose. The data acceptance criteria are established according to Standard Operating Procedures (SOPs) and Statements of Work (SOWs) provided to the contracted analytical laboratory. The assessment of data quality and usability involves five components, as described below.

1) **Field Sampling Check** is a process to ensure that all samples were collected and the laboratory analyses were performed as stipulated in the applicable site-specific Work Plan or Field Sampling Plan (FSP). Inspection of sample preservation procedures, sample handling, analysis requested, sample description and identification (ID), cooler receipt forms, holding time evaluation, and Chain of Custody procedures are all evaluated to ensure that the evidentiary nature of the samples and the resulting analytical data have not been compromised.

2) **Data Verification** is a process for determining the completeness, correctness, consistency, and compliance of a data package in accordance with requirements contained in the applicable SOW and/or contract-specific requirements. This is a review of the data package, electronic data deliverable (EDD), and invoice received from the contract laboratory to ensure that the contract required information is present and complete prior to data validation.

3) **Data Review** is a process of reviewing the primary quality control (QC) data provided by the laboratory and the results of any internal quality assurance (QA)/QC samples, such as field blanks, trip blanks, equipment blanks or ambient blanks, field split samples, and duplicate samples, to ascertain any effect the laboratory's procedures or the sample collection process has on the data.

4) **Data Evaluation** is a process to determine if the data meet project-specific DQOs and contract requirements. This evaluation may involve a review of field sampling and sample management procedures, laboratory audits, Performance Evaluation (PE) sample results, and any other data quality indicators that are available.

5) **Data Validation** is a process to determine the accuracy and precision of analytical data generated and to identify any anomalies encountered. The validation process is performed in accordance with USEPA regional or national functional guidelines, project-specific guidelines, and

compliance with the requirements of each analytical method. Two major components of data validation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance for each analytical method to determine if the samples were analyzed within the prescribed acceptance criteria of the method. Evaluation of matrix interferences involves the analysis of surrogate spike recoveries, matrix spike recoveries, and duplicate sample results. Data not meeting project-specific DQOs or the requirements of the analytical method are qualified with data flags according to referenced guidelines.

Data Assessment Procedures

AECOM performed independent QC checks of field and laboratory procedures that were used in collecting and analyzing the data. The QC checks verify that the data collected are of appropriate quality for the intended data use and that the DQOs were met. The steps and guidelines followed during the data validation process were modeled on the *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA, January 2017) and *USEPA National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, January 2017). In addition, method-specific criteria set forth in the compendium of analytical methods found in the *Test Methods for Evaluation Solid Waste (SW-846*), *Update IV* (USEPA, February 2007) are also evaluated during the validation process. This validation process has been adapted to meet the DQO requirements for generation of definitive critical data.

Data Validation Results

The analytical data associated with analytical data package FA70346 were collected on November 25, 2019 for UTC - Delavan Spray Technologies located in Bamberg, South Carolina. The analytical data were validated according to the procedures outlined above. Where data flags have been applied to this data set, they are separated by a slash "/" and presented in the following format:

Laboratory Flag / Result Flags / Analysis Flags

- Laboratory Flag: This flag precedes the first slash and is added by the laboratory as a result of QC excursions from the analytical method. These flags are laboratory-specific and are described in the associated laboratory report.

- Result Flags: These are presented after the first slash and are added by AECOM based on data validation procedures and guidelines. They tell how and if the data should be used.

- Analysis Flags: These flags are presented after the second slash and are added by AECOM to inform the data user of any specific QA/QC problems that were encountered.

Any data requiring qualification as a result of the validation process were assigned data flags, as discussed below. The validation flags indicate how any QC excursions may have impacted the usability of the data.

Volatile Organic Compounds by Method 8260B

Detections of toluene in samples (not Trip Blank sample) were qualified "/B/T" due to the presence of the analyte in the associated trip blank sample.

Semivolatile Organic Compounds by Method 8270D

Results of phenolic compounds in sample Aqueous IDW were qualified "/J/I" due to surrogate recovery below the established limits of 20-155% (2-fluorophenol 19% and phenol-d5 13%). These qualifiers indicate the results are under-estimations and should be considered biased low.

Results of 3,3'-dichlorobenzidine in sample Aqueous IDW were qualified "/M/m" due to recovery in the associated matrix spike sample below the established criteria of 15-160% (6%). These qualifiers indicate the results should be considered biased low.

Results of bis (2-chloroethoxy)methane, bis (2-chloroethyl)ether, 2,2'-oxybis (1-chloropropane), 1,2-dichlrobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 3,3'-dichlorobenzidine, hexachlorobutadiene, hexachlorocyclopentadiene, hexachloroethane, naphthalene n-nitrosodi-n-propylamine, and 1,2,4-trichlorobenzene in sample Aqueous IDW were qualified "/M/D" due to the relative percent difference between the matrix spike and matrix spike duplicates samples exceeding the established criteria of 35% (37, 40, 41, 40, 41, 41, 55, 42, 43, 45, 36, 38, and 38%, respectively). These qualifiers indicate imprecision with laboratory methodology, instrumentation, or matrix interference.

PP Metals by Methods 6010D/7470A

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Dissolved Gases by Method RSK-175

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Anions by Method 9056A

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Total Organic Carbon by Method 9060A

Detections of TOC in samples associated with batch GP34002 were qualified "/B/K" due to the presence of the analyte in the associated method blank sample. These qualifiers indicate the analyte is not considered site-related per EPA data evaluation guidance.

Data Summary and Usability

The QC excursions encountered during the validation of this data set did not result in the rejection of any data. Therefore, the data associated with this laboratory batch should be considered compliant and adequate for its intended use.

References

United States Environmental Protection Agency (USEPA), February 2007. *Test Methods for Evaluating Solid Waste (SW-846), Update IV.*

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*. Publication #EPA-540-R-2017-001.

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Organic Superfund Methods Data Review.* Publication #EPA-540-R-2017-002.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

United Technologies Corporation

AECOMSCG: Delavan Spray Technologies; Bamberg, SC

60578249.01

SGS Job Number: FA70346

Sampling Date: 11/25/19

Report to:

AECOM Environment
10 Patewood Dr Bldg VI, Suite 500
Greenville, SC 29615
doria.cullom@aecom.com

ATTN: Doria Cullom

Total number of pages in report: **104**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Caitlin Brice, M.S.
General Manager

Client Service contact: Heather Wandrey 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5 6 7 8 9 10

Table of Contents

SGS North America Inc.

Sample Summary

United Technologies Corporation

Job No: FA70346

AECOMSCG: Delavan Spray Technologies; Bamberg, SC
Project No: 60578249.01

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
FA70346-1	11/25/19	00:00	RM	11/26/19	AQ	Trip Blank Water	TRIP BLANK
FA70346-2	11/25/19	10:57	RM	11/26/19	AQ	Ground Water	MW-35D
FA70346-3	11/25/19	12:05	RM	11/26/19	AQ	Ground Water	MW-33D
FA70346-4	11/25/19	12:05	RM	11/26/19	AQ	Ground Water	MW-33D-A
FA70346-5	11/25/19	14:13	RM	11/26/19	AQ	Ground Water	MW-36D
FA70346-5D	11/25/19	14:13	RM	11/26/19	AQ	Water Dup/MSD	MW-36D
FA70346-5S	11/25/19	14:13	RM	11/26/19	AQ	Water Matrix Spike	MW-36D
FA70346-6	11/25/19	16:00	RM	11/26/19	AQ	Ground Water	MW-34D
FA70346-7	11/25/19	17:00	RM	11/26/19	SO	Soil	SOIL IDW
FA70346-8	11/25/19	16:25	RM	11/26/19	AQ	Ground Water	AQUEOUS IDW

This report contains results reported as ND = Not detected. The following applies:
Organics ND = Not detected above the MDL

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: United Technologies Corporation **Job No:** FA70346

Site: AECOMSCG: Delavan Spray Technologies; Bamberg, SC **Report Date** 12/17/2019 6:41:28

7 Samples, 1 Trip Blank were collected on 11/25/2019 and were received at SGS North America Inc - Orlando on 11/26/2019 properly preserved, at 2.1 Deg. C and intact. These Samples received an SGS Orlando job number of FA70346. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Volatiles By Method SW846 8260B

Matrix: AQ **Batch ID:** V5E874

All samples were analyzed within the recommended method holding time.

Sample(s) FA70291-2MS, FA70291-2MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Blank Spike Recovery(s) for Acetone are outside control limits.

Matrix Spike Duplicate Recovery(s) for Acetone are outside control limits. Probable cause is due to matrix interference.

RPD(s) for MSD for Acetone are outside control limits for sample FA70291-2MSD. Probable cause is due to sample non-homogeneity.

FA70346-2 for Acetone: Associated CCV and BS outside control limits high, however sample ND.

FA70346-2: Sample was not preserved to a pH < 2.

FA70346-3 for Acetone: Associated CCV and BS outside control limits high, however sample ND.

FA70346-3: Sample was not preserved to a pH < 2.

FA70346-4 for Acetone: Associated CCV and BS outside control limits high, however sample ND.

FA70346-4: Sample was not preserved to a pH < 2.

FA70346-6 for Acetone: Associated CCV and BS outside control limits high, however sample ND.

FA70346-6: Sample was not preserved to a pH < 2.

Matrix: AQ **Batch ID:** VI1975

All samples were analyzed within the recommended method holding time.

Sample(s) FA70346-5MS, FA70346-5MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

FA70346-1: Sample was not preserved to a pH < 2.

FA70346-5: Sample was not preserved to a pH < 2.

FA70346-8: Sample was not preserved to a pH < 2.

Matrix: LEACHATE **Batch ID:** VC5493

Sample(s) FA70346-7DUP, FA70429-2LMS, FA70429-2LMSD were used as the QC samples indicated.

RPD(s) for Duplicate for 1,2-Dichloroethane are outside control limits for sample FA70346-7DUP. Probable cause is due to sample non-homogeneity.

MS Semi-volatiles By Method SW846 8270D

Matrix: AQ **Batch ID:** OP77932

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA70346-8MS, FA70346-8MSD were used as the QC samples indicated.

Matrix Spike Recovery(s) for 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2-Chloronaphthalene, 2-Chlorophenol, 2-Methylnaphthalene, 2-Nitrophenol, 3,3'-Dichlorobenzidine, Benzyl Alcohol, bis(2-Chloroethoxy)methane, bis(2-Chloroethyl)ether, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, N-Nitrosodi-n-propylamine, N-Nitrosodiphenylamine, Naphthalene are outside control limits. Probable cause is due to matrix interference.

Matrix Spike Duplicate Recovery(s) for 3,3'-Dichlorobenzidine, 3-Nitroaniline, 4-Chloroaniline, N-Nitrosodiphenylamine are outside control limits. Probable cause is due to matrix interference.

RPD(s) for MSD for 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,2'-Oxybis(1-chloropropane), 2-Chloronaphthalene, 2-Chlorophenol, 2-Methylnaphthalene, 2-Nitrophenol, 3,3'-Dichlorobenzidine, 4-Chloroaniline, Benzyl Alcohol, bis(2-Chloroethoxy)methane, bis(2-Chloroethyl)ether, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, Isophorone, N-Nitrosodi-n-propylamine, Naphthalene, Nitrobenzene are outside control limits for sample OP77932-MSD. Probable cause is due to sample non-homogeneity.

FA70346-8 for 2,2'-Oxybis(1-chloropropane): Associated CCV outside of control limits high, sample was ND.

Matrix: LEACHATE **Batch ID:** OP78150

Sample(s) FA70346-7MS, FA70346-7MSD, FA70659-2DUP were used as the QC samples indicated.

The following samples were extracted outside of holding time for method SW846 8270D: FA70346-7

GC Volatiles By Method RSKSOP-147/175

Matrix: AQ **Batch ID:** GLL2437

All samples were analyzed within the recommended method holding time.

Sample(s) FA70330-6DUP, FA70330-6MS were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Recovery(s) for Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Metals Analysis By Method SW846 6010D

Matrix: AQ **Batch ID:** MP36487

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA70398-1DUP, FA70398-1MS, FA70398-1MSD, FA70398-1PS, FA70398-1SDL were used as the QC samples for metals.

RPD(s) for Duplicate for Selenium are outside control limits for sample MP36487-D1. RPD acceptable due to low duplicate and sample concentrations.

RPD(s) for Serial Dilution for Chromium, Copper, Nickel, Selenium are outside control limits for sample MP36487-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Matrix: LEACHATE **Batch ID:** MP36502

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA70346-7DUP, FA70346-7MS, FA70346-7MSD, FA70346-7SDL, were used as the QC samples for metals.

RPD(s) for Duplicate for Selenium, Barium, Selenium are outside control limits for sample MP36502-D1, MP36502-D2. RPD acceptable due to low duplicate and sample concentrations.

RPD(s) for Serial Dilution for Selenium are outside control limits for sample MP36502-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals Analysis By Method SW846 7470A

Matrix: AQ **Batch ID:** MP36489

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA70348-3FDUP, FA70348-3FMS, FA70348-3FMSD, FA70348-3FSDL were used as the QC samples for metals.

Matrix: LEACHATE **Batch ID:** MP36495

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA70346-7DUP, FA70346-7MS, FA70346-7MSD, FA70346-7SDL were used as the QC samples for metals.

General Chemistry By Method EPA 300/SW846 9056A

Matrix: AQ **Batch ID:** GP34000

All samples were prepped within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA70341-4MS, FA70341-4MSD were used as the QC samples for Nitrogen, Nitrate, Sulfate.

Matrix Spike Recovery(s) for Sulfate are outside control limits. Spike recovery indicates possible matrix interference.

Matrix Spike Duplicate Recovery(s) for Sulfate are outside control limits. Probable cause is due to matrix interference.

Matrix: AQ **Batch ID:** GP34040

All samples were prepped within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA70343-1MS, FA70343-1MSD were used as the QC samples for Nitrogen, Nitrite.

FA70346-2 for Nitrogen, Nitrite: Originally ran on GN83724. Re-run beyond holdtime due to CCV failure.

FA70346-3 for Nitrogen, Nitrite: Originally ran on GN83724. Re-run beyond holdtime due to CCV failure.

FA70346-5 for Nitrogen, Nitrite: Originally ran on GN83724. Re-run beyond holdtime due to CCV failure.

FA70346-6 for Nitrogen, Nitrite: Originally ran on GN83724. Re-run beyond holdtime due to CCV failure.

General Chemistry By Method SM5310 B-11/SW9060A

Matrix: AQ **Batch ID:** GP34002

All samples were prepped within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA70346-5MSD, FA70346-5MS were used as the QC samples for Total Organic Carbon.

Matrix Spike Recovery(s) for Total Organic Carbon are outside control limits. Spike recovery indicates possible matrix interference.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____

Ariel Hartney, Client Services (signature on file)

Summary of Hits

Job Number: FA70346
Account: United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC
Collected: 11/25/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA70346-1	**TRIP BLANK**					
Toluene [a]		1.9	1.0	0.30	ug/l	SW846 8260B
FA70346-2	**MW-35D**					
Toluene [a]		1.2	1.0	0.30	ug/l	SW846 8260B
Methane		0.68	0.50	0.16	ug/l	RSKSOP-147/175
Nitrogen, Nitrate		0.65	0.10	0.050	mg/l	EPA 300/SW846 9056A
Sulfate		4.1	2.0	0.60	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		0.44 J	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA70346-3	**MW-33D**					
Toluene [a]		1.0	1.0	0.30	ug/l	SW846 8260B
Methane		0.91	0.50	0.16	ug/l	RSKSOP-147/175
Nitrogen, Nitrate		1.3	0.10	0.050	mg/l	EPA 300/SW846 9056A
Nitrogen, Nitrite [b]		0.34	0.10	0.050	mg/l	EPA 300/SW846 9056A
Sulfate		2.2	2.0	0.60	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		0.55 J	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA70346-4	**MW-33D-A**					
Toluene [a]		0.80 J	1.0	0.30	ug/l	SW846 8260B
FA70346-5	**MW-36D**					
Chloroform [a]		0.61 J	1.0	0.30	ug/l	SW846 8260B
Toluene [a]		0.78 J	1.0	0.30	ug/l	SW846 8260B
Methane		3.1	0.50	0.16	ug/l	RSKSOP-147/175
Ethane		0.60 J	1.0	0.32	ug/l	RSKSOP-147/175
Sulfate		2.8	2.0	0.60	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		0.66 J	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA70346-6	**MW-34D**					
Chloroform [a]		0.88 J	1.0	0.30	ug/l	SW846 8260B
Toluene [a]		1.1	1.0	0.30	ug/l	SW846 8260B
Methane		1.4	0.50	0.16	ug/l	RSKSOP-147/175
Ethane		0.36 J	1.0	0.32	ug/l	RSKSOP-147/175
Nitrogen, Nitrate		0.28	0.10	0.050	mg/l	EPA 300/SW846 9056A
Sulfate		4.4	2.0	0.60	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		0.61 J	1.0	0.23	mg/l	SM5310 B-11/SW9060A

Summary of Hits

Job Number: FA70346
Account: United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC
Collected: 11/25/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA70346-7	**SOIL IDW**					
1,2-Dichloroethane		0.0298	0.010	0.0031	mg/l	SW846 8260B
Barium		0.089 J	2.0	0.050	mg/l	SW846 6010D
Selenium		0.031 J	0.10	0.029	mg/l	SW846 6010D
FA70346-8	**AQUEOUS IDW**					
Chloroform [a]		0.88 J	1.0	0.30	ug/l	SW846 8260B
Toluene [a]		0.81 J	1.0	0.30	ug/l	SW846 8260B
Chromium		1.6 J	10	1.0	ug/l	SW846 6010D
Selenium		3.8 J	10	2.9	ug/l	SW846 6010D
Zinc		11.6 J	20	4.4	ug/l	SW846 6010D

(a) Sample was not preserved to a pH < 2.
(b) Originally ran on GN83724. Re-run beyond holdtime due to CCV failure.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	FA70346-1	**Date Sampled:**	11/25/19
Matrix:	AQ - Trip Blank Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	I63060.D	1	11/28/19 14:12	KB	n/a	n/a	VI1975
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	10	ug/l	
71-43-2	Benzene	ND	1.0	0.31	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.24	ug/l	
75-25-2	Bromoform	ND	1.0	0.41	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.0	ug/l	
75-15-0	Carbon Disulfide	ND	2.0	0.53	ug/l	
56-23-5	Carbon Tetrachloride	ND	1.0	0.36	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	2.0	0.67	ug/l	
67-66-3	Chloroform	ND	1.0	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.28	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.34	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.31	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.43	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.29	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.36	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
74-83-9	Methyl Bromide	ND	2.0	0.59	ug/l	
74-87-3	Methyl Chloride	ND	2.0	0.50	ug/l	
75-09-2	Methylene Chloride	ND	5.0	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
108-88-3	Toluene	1.9	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.47	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	FA70346-1	**Date Sampled:**	11/25/19
Matrix:	AQ - Trip Blank Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	3.0	0.72	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	102%		79-125%
2037-26-5	Toluene-D8	95%		85-112%
460-00-4	4-Bromofluorobenzene	94%		83-118%

(a) Sample was not preserved to a pH < 2.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-35D		
Lab Sample ID:	FA70346-2	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E19313.D	1	11/28/19 12:28	SO	n/a	n/a	V5E874
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone [b]	ND	25	10	ug/l	
71-43-2	Benzene	ND	1.0	0.31	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.24	ug/l	
75-25-2	Bromoform	ND	1.0	0.41	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.0	ug/l	
75-15-0	Carbon Disulfide	ND	2.0	0.53	ug/l	
56-23-5	Carbon Tetrachloride	ND	1.0	0.36	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	2.0	0.67	ug/l	
67-66-3	Chloroform	ND	1.0	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.28	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.34	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.31	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.43	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.29	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.36	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
74-83-9	Methyl Bromide	ND	2.0	0.59	ug/l	
74-87-3	Methyl Chloride	ND	2.0	0.50	ug/l	
75-09-2	Methylene Chloride	ND	5.0	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
108-88-3	Toluene	1.2	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.47	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-35D		
Lab Sample ID:	FA70346-2	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	3.0	0.72	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	101%		79-125%
2037-26-5	Toluene-D8	102%		85-112%
460-00-4	4-Bromofluorobenzene	108%		83-118%

(a) Sample was not preserved to a pH < 2.
(b) Associated CCV and BS outside control limits high, however sample ND.

Report of Analysis

Client Sample ID: MW-35D
Lab Sample ID: FA70346-2 **Date Sampled:** 11/25/19
Matrix: AQ - Ground Water **Date Received:** 11/26/19
Method: RSKSOP-147/175 **Percent Solids:** n/a
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LL70763.D	1	12/05/19 12:56	KB	n/a	n/a	GLL2437
Run #2							

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	0.68	0.50	0.16	ug/l	
74-84-0	Ethane	ND	1.0	0.32	ug/l	
74-85-1	Ethene	ND	1.0	0.43	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-35D		
Lab Sample ID:	FA70346-2	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
		Percent Solids:	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate	0.65	0.10	0.050	mg/l	1	11/27/19 00:37	AC	EPA 300/SW846 9056A
Nitrogen, Nitrite [a]	0.050 U	0.10	0.050	mg/l	1	12/05/19 13:40	JB	EPA 300/SW846 9056A
Sulfate	4.1	2.0	0.60	mg/l	1	11/27/19 00:37	AC	EPA 300/SW846 9056A
Total Organic Carbon	0.44 J	1.0	0.23	mg/l	1	11/28/19 06:43	FN	SM5310 B-11/SW9060A

(a) Originally ran on GN83724. Re-run beyond holdtime due to CCV failure.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-33D		
Lab Sample ID:	FA70346-3	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E19314.D	1	11/28/19 12:51	SO	n/a	n/a	V5E874
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone [b]	ND	25	10	ug/l	
71-43-2	Benzene	ND	1.0	0.31	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.24	ug/l	
75-25-2	Bromoform	ND	1.0	0.41	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.0	ug/l	
75-15-0	Carbon Disulfide	ND	2.0	0.53	ug/l	
56-23-5	Carbon Tetrachloride	ND	1.0	0.36	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	2.0	0.67	ug/l	
67-66-3	Chloroform	ND	1.0	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.28	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.34	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.31	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.43	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.29	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.36	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
74-83-9	Methyl Bromide	ND	2.0	0.59	ug/l	
74-87-3	Methyl Chloride	ND	2.0	0.50	ug/l	
75-09-2	Methylene Chloride	ND	5.0	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
108-88-3	Toluene	1.0	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.47	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-33D		
Lab Sample ID:	FA70346-3	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	3.0	0.72	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	102%		79-125%
2037-26-5	Toluene-D8	102%		85-112%
460-00-4	4-Bromofluorobenzene	108%		83-118%

(a) Sample was not preserved to a pH < 2.
(b) Associated CCV and BS outside control limits high, however sample ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-33D		
Lab Sample ID:	FA70346-3	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	RSKSOP-147/175	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LL70764.D	1	12/05/19 13:03	KB	n/a	n/a	GLL2437
Run #2							

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	0.91	0.50	0.16	ug/l	
74-84-0	Ethane	ND	1.0	0.32	ug/l	
74-85-1	Ethene	ND	1.0	0.43	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-33D		
Lab Sample ID:	FA70346-3	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
		Percent Solids:	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate	1.3	0.10	0.050	mg/l	1	11/27/19	AC	EPA 300/SW846 9056A
Nitrogen, Nitrite [a]	0.34	0.10	0.050	mg/l	1	12/05/19 13:59	JB	EPA 300/SW846 9056A
Sulfate	2.2	2.0	0.60	mg/l	1	11/27/19	AC	EPA 300/SW846 9056A
Total Organic Carbon	0.55 J	1.0	0.23	mg/l	1	11/28/19 08:03	FN	SM5310 B-11/SW9060A

(a) Originally ran on GN83724. Re-run beyond holdtime due to CCV failure.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-33D-A		
Lab Sample ID:	FA70346-4	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E19315.D	1	11/28/19 13:14	SO	n/a	n/a	V5E874
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone [b]	ND	25	10	ug/l	
71-43-2	Benzene	ND	1.0	0.31	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.24	ug/l	
75-25-2	Bromoform	ND	1.0	0.41	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.0	ug/l	
75-15-0	Carbon Disulfide	ND	2.0	0.53	ug/l	
56-23-5	Carbon Tetrachloride	ND	1.0	0.36	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	2.0	0.67	ug/l	
67-66-3	Chloroform	ND	1.0	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.28	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.34	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.31	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.43	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.29	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.36	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
74-83-9	Methyl Bromide	ND	2.0	0.59	ug/l	
74-87-3	Methyl Chloride	ND	2.0	0.50	ug/l	
75-09-2	Methylene Chloride	ND	5.0	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
108-88-3	Toluene	0.80	1.0	0.30	ug/l	J
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.47	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-33D-A		
Lab Sample ID:	FA70346-4	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	3.0	0.72	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	102%		79-125%
2037-26-5	Toluene-D8	102%		85-112%
460-00-4	4-Bromofluorobenzene	108%		83-118%

(a) Sample was not preserved to a pH < 2.
(b) Associated CCV and BS outside control limits high, however sample ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-36D		
Lab Sample ID:	FA70346-5	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	I63063.D	1	11/28/19 17:01	KB	n/a	n/a	VI1975
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	10	ug/l	
71-43-2	Benzene	ND	1.0	0.31	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.24	ug/l	
75-25-2	Bromoform	ND	1.0	0.41	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.0	ug/l	
75-15-0	Carbon Disulfide	ND	2.0	0.53	ug/l	
56-23-5	Carbon Tetrachloride	ND	1.0	0.36	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	2.0	0.67	ug/l	
67-66-3	Chloroform	0.61	1.0	0.30	ug/l	J
124-48-1	Dibromochloromethane	ND	1.0	0.28	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.34	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.31	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.43	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.29	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.36	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
74-83-9	Methyl Bromide	ND	2.0	0.59	ug/l	
74-87-3	Methyl Chloride	ND	2.0	0.50	ug/l	
75-09-2	Methylene Chloride	ND	5.0	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
108-88-3	Toluene	0.78	1.0	0.30	ug/l	J
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.47	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-36D		
Lab Sample ID:	FA70346-5	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	3.0	0.72	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	110%		79-125%
2037-26-5	Toluene-D8	94%		85-112%
460-00-4	4-Bromofluorobenzene	95%		83-118%

(a) Sample was not preserved to a pH < 2.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-36D
Lab Sample ID: FA70346-5
Matrix: AQ - Ground Water
Method: RSKSOP-147/175
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Date Sampled: 11/25/19
Date Received: 11/26/19
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LL70765.D	1	12/05/19 13:55	KB	n/a	n/a	GLL2437
Run #2							

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	3.1	0.50	0.16	ug/l	
74-84-0	Ethane	0.60	1.0	0.32	ug/l	J
74-85-1	Ethene	ND	1.0	0.43	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-36D		
Lab Sample ID:	FA70346-5	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
		Percent Solids:	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	11/27/19 00:19	AC	EPA 300/SW846 9056A
Nitrogen, Nitrite [a]	0.050 U	0.10	0.050	mg/l	1	12/05/19 14:18	JB	EPA 300/SW846 9056A
Sulfate	2.8	2.0	0.60	mg/l	1	11/27/19 00:19	AC	EPA 300/SW846 9056A
Total Organic Carbon	0.66 J	1.0	0.23	mg/l	1	11/28/19 08:26	FN	SM5310 B-11/SW9060A

(a) Originally ran on GN83724. Re-run beyond holdtime due to CCV failure.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-34D		
Lab Sample ID:	FA70346-6	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E19316.D	1	11/28/19 13:37	SO	n/a	n/a	V5E874
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone [b]	ND	25	10	ug/l	
71-43-2	Benzene	ND	1.0	0.31	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.24	ug/l	
75-25-2	Bromoform	ND	1.0	0.41	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.0	ug/l	
75-15-0	Carbon Disulfide	ND	2.0	0.53	ug/l	
56-23-5	Carbon Tetrachloride	ND	1.0	0.36	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	2.0	0.67	ug/l	
67-66-3	Chloroform	0.88	1.0	0.30	ug/l	J
124-48-1	Dibromochloromethane	ND	1.0	0.28	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.34	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.31	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.43	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.29	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.36	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
74-83-9	Methyl Bromide	ND	2.0	0.59	ug/l	
74-87-3	Methyl Chloride	ND	2.0	0.50	ug/l	
75-09-2	Methylene Chloride	ND	5.0	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
108-88-3	Toluene	1.1	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.47	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-34D		
Lab Sample ID:	FA70346-6	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	3.0	0.72	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	101%		79-125%
2037-26-5	Toluene-D8	102%		85-112%
460-00-4	4-Bromofluorobenzene	107%		83-118%

(a) Sample was not preserved to a pH < 2.
(b) Associated CCV and BS outside control limits high, however sample ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-34D
Lab Sample ID: FA70346-6
Matrix: AQ - Ground Water
Method: RSKSOP-147/175
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Date Sampled: 11/25/19
Date Received: 11/26/19
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LL70766.D	1	12/05/19 14:02	KB	n/a	n/a	GLL2437
Run #2							

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	1.4	0.50	0.16	ug/l	
74-84-0	Ethane	0.36	1.0	0.32	ug/l	J
74-85-1	Ethene	ND	1.0	0.43	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-34D		
Lab Sample ID:	FA70346-6	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
		Percent Solids:	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate	0.28	0.10	0.050	mg/l	1	11/27/19 00:56	AC	EPA 300/SW846 9056A
Nitrogen, Nitrite [a]	0.050 U	0.10	0.050	mg/l	1	12/05/19 14:37	JB	EPA 300/SW846 9056A
Sulfate	4.4	2.0	0.60	mg/l	1	11/27/19 00:56	AC	EPA 300/SW846 9056A
Total Organic Carbon	0.61 J	1.0	0.23	mg/l	1	11/28/19 09:46	FN	SM5310 B-11/SW9060A

(a) Originally ran on GN83724. Re-run beyond holdtime due to CCV failure.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	SOIL IDW		
Lab Sample ID:	FA70346-7	**Date Sampled:**	11/25/19
Matrix:	SO - Soil	**Date Received:**	11/26/19
Method:	SW846 8260B SW846 1311	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0137615.D	10	12/04/19 13:51	SP	12/03/19 14:00	OP77946	VC5493
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP List **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.010	0.0031	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.050	0.020	mg/l	
56-23-5	Carbon Tetrachloride	ND	D019	0.50	0.010	0.0036	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.010	0.0020	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.010	0.0030	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.010	0.0026	mg/l	
107-06-2	1,2-Dichloroethane	0.0298	D028	0.50	0.010	0.0031	mg/l	
75-35-4	1,1-Dichloroethylene	ND	D029	0.70	0.010	0.0032	mg/l	
127-18-4	Tetrachloroethylene	ND	D039	0.70	0.010	0.0022	mg/l	
79-01-6	Trichloroethylene	ND	D040	0.50	0.010	0.0035	mg/l	
75-01-4	Vinyl Chloride	ND	D043	0.20	0.010	0.0041	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	99%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	95%		83-118%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 7/1/11) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SOIL IDW		
Lab Sample ID:	FA70346-7	**Date Sampled:**	11/25/19
Matrix:	SO - Soil	**Date Received:**	11/26/19
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X068517.D	1	12/16/19 16:38	MV	12/16/19 10:41	OP78150	SX2815
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP List **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.050	0.0056	mg/l	
	3&4-Methylphenol	ND	D024	200	0.050	0.0098	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.25	0.050	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.0074	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0075	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.050	0.0050	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.050	0.0081	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.050	0.0069	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.050	0.0050	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.016	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.050	0.0093	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.10	0.020	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	31%		14-67%
4165-62-2	Phenol-d5	20%		10-50%
118-79-6	2,4,6-Tribromophenol	80%		33-118%
4165-60-0	Nitrobenzene-d5	75%		42-108%
321-60-8	2-Fluorobiphenyl	78%		40-106%
1718-51-0	Terphenyl-d14	83%		39-121%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 7/1/11) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SOIL IDW
Lab Sample ID: FA70346-7
Matrix: SO - Soil
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Date Sampled: 11/25/19
Date Received: 11/26/19
Percent Solids: n/a

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	MDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.013 U	D004	5.0	0.10	0.013	mg/l	1	12/05/19	12/06/19	LM	SW846 6010D [2]
Barium	0.089 J	D005	100	2.0	0.050	mg/l	1	12/05/19	12/06/19	LM	SW846 6010D [2]
Cadmium	0.0020 U	D006	1.0	0.050	0.0020	mg/l	1	12/05/19	12/06/19	LM	SW846 6010D [2]
Chromium	0.010 U	D007	5.0	0.10	0.010	mg/l	1	12/05/19	12/06/19	LM	SW846 6010D [2]
Lead	0.011 U	D008	5.0	0.050	0.011	mg/l	1	12/05/19	12/06/19	LM	SW846 6010D [2]
Mercury	0.00050 U	D009	0.20	0.0050	0.00050	mg/l	1	12/04/19	12/04/19	JC	SW846 7470A [1]
Selenium	0.031 J	D010	1.0	0.10	0.029	mg/l	1	12/05/19	12/06/19	LM	SW846 6010D [2]
Silver	0.0070 U	D011	5.0	0.10	0.0070	mg/l	1	12/05/19	12/06/19	LM	SW846 6010D [2]

(1) Instrument QC Batch: MA16378
(2) Instrument QC Batch: MA16383
(3) Prep QC Batch: MP36495
(4) Prep QC Batch: MP36502

RL = Reporting Limit MDL = Method Detection Limit U = Indicates a result < MDL
MCL = Maximum Contamination Level (40 CFR 261 7/1/11) J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	AQUEOUS IDW		
Lab Sample ID:	FA70346-8	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	I63064.D	1	11/28/19 17:33	KB	n/a	n/a	VI1975
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	10	ug/l	
71-43-2	Benzene	ND	1.0	0.31	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.24	ug/l	
75-25-2	Bromoform	ND	1.0	0.41	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.0	ug/l	
75-15-0	Carbon Disulfide	ND	2.0	0.53	ug/l	
56-23-5	Carbon Tetrachloride	ND	1.0	0.36	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	2.0	0.67	ug/l	
67-66-3	Chloroform	0.88	1.0	0.30	ug/l	J
124-48-1	Dibromochloromethane	ND	1.0	0.28	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.34	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.31	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.43	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.29	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.36	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
74-83-9	Methyl Bromide	ND	2.0	0.59	ug/l	
74-87-3	Methyl Chloride	ND	2.0	0.50	ug/l	
75-09-2	Methylene Chloride	ND	5.0	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
108-88-3	Toluene	0.81	1.0	0.30	ug/l	J
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.47	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AQUEOUS IDW		
Lab Sample ID:	FA70346-8	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	3.0	0.72	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		83-118%
17060-07-0	1,2-Dichloroethane-D4	103%		79-125%
2037-26-5	Toluene-D8	95%		85-112%
460-00-4	4-Bromofluorobenzene	94%		83-118%

(a) Sample was not preserved to a pH < 2.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AQUEOUS IDW		
Lab Sample ID:	FA70346-8	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X068286.D	1	12/04/19 12:46	MV	12/02/19 07:53	OP77932	SX2807
Run #2							

	Initial Volume	Final Volume
Run #1	1010 ml	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	50	9.9	ug/l	
59-50-7	4-Chloro-3-methyl Phenol	ND	5.0	0.59	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	0.62	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	0.83	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	0.73	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	5.0	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	9.9	2.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	0.55	ug/l	
	3&4-Methylphenol	ND	5.0	0.97	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.84	ug/l	
100-02-7	4-Nitrophenol	ND	25	5.0	ug/l	
87-86-5	Pentachlorophenol	ND	25	5.0	ug/l	
108-95-2	Phenol	ND	5.0	0.50	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	0.73	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.74	ug/l	
83-32-9	Acenaphthene	ND	5.0	0.62	ug/l	
208-96-8	Acenaphthylene	ND	5.0	0.63	ug/l	
120-12-7	Anthracene	ND	5.0	0.79	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	0.75	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	0.78	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	0.77	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	0.81	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	0.85	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	0.61	ug/l	
101-55-3	4-Bromophenyl Phenyl Ether	ND	5.0	0.84	ug/l	
85-68-7	Butyl Benzyl Phthalate	ND	5.0	0.99	ug/l	
86-74-8	Carbazole	ND	5.0	0.59	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.62	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.80	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	0.72	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane) [a]	ND	5.0	0.75	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.50	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AQUEOUS IDW		
Lab Sample ID:	FA70346-8	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
7005-72-3	4-Chlorophenyl Phenyl Ether	ND	5.0	0.53	ug/l	
218-01-9	Chrysene	ND	5.0	0.84	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	0.80	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.60	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	0.50	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.64	ug/l	
84-66-2	Diethyl Phthalate	ND	5.0	0.99	ug/l	
131-11-3	Dimethyl Phthalate	ND	5.0	0.99	ug/l	
84-74-2	Di-n-butyl Phthalate	ND	5.0	0.99	ug/l	
117-84-0	Di-n-octyl Phthalate	ND	5.0	0.99	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	0.80	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	0.71	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	0.99	ug/l	
206-44-0	Fluoranthene	ND	5.0	0.55	ug/l	
86-73-7	Fluorene	ND	5.0	0.69	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	0.69	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	0.50	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	1.8	ug/l	
67-72-1	Hexachloroethane	ND	5.0	1.6	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	0.71	ug/l	
78-59-1	Isophorone	ND	5.0	0.77	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	0.59	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	1.8	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.87	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	1.2	ug/l	
98-95-3	Nitrobenzene	ND	5.0	0.92	ug/l	
621-64-7	N-Nitrosodi-n-propylamine	ND	5.0	0.66	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.80	ug/l	
85-01-8	Phenanthrene	ND	5.0	0.86	ug/l	
129-00-0	Pyrene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.1	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	19%		14-67%
4165-62-2	Phenol-d5	13%		10-50%
118-79-6	2,4,6-Tribromophenol	56%		33-118%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AQUEOUS IDW		
Lab Sample ID:	FA70346-8	**Date Sampled:**	11/25/19
Matrix:	AQ - Ground Water	**Date Received:**	11/26/19
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	AECOMSCG: Delavan Spray Technologies; Bamberg, SC		

ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	52%		42-108%
321-60-8	2-Fluorobiphenyl	48%		40-106%
1718-51-0	Terphenyl-d14	56%		39-121%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: AQUEOUS IDW
Lab Sample ID: FA70346-8
Matrix: AQ - Ground Water
Date Sampled: 11/25/19
Date Received: 11/26/19
Percent Solids: n/a
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Total Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Antimony	1.0 U	6.0	1.0	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]
Arsenic	1.3 U	10	1.3	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]
Beryllium	0.20 U	4.0	0.20	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]
Cadmium	0.20 U	5.0	0.20	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]
Chromium	1.6 J	10	1.0	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]
Copper	1.0 U	25	1.0	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]
Lead	1.1 U	5.0	1.1	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]
Mercury	0.030 U	0.50	0.030	ug/l	1	12/02/19	12/02/19	JC	SW846 7470A [1]	SW846 7470A [4]
Nickel	0.40 U	40	0.40	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]
Selenium	3.8 J	10	2.9	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]
Silver	0.70 U	10	0.70	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]
Thallium	1.4 U	10	1.4	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]
Zinc	11.6 J	20	4.4	ug/l	1	12/02/19	12/03/19	LM	SW846 6010D [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA16371
(2) Instrument QC Batch: MA16376
(3) Prep QC Batch: MP36487
(4) Prep QC Batch: MP36489

RL = Reporting Limit
MDL = Method Detection Limit
U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

FA70346

SGS North America Inc - Orlando
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB #: FA70346   PAGE 1 OF 1

SGS - ORLANDO Quote #   SKIFF #

Client / Reporting Information

Company Name: AECOM
Address: 10 Patewood Dr Bldg VI Suite 500
City: Greenville State: SC Zip: 29615
Project Contact: Leslee Alexander Email:
Phone #:
Sampler(s) Name(s) (Printed)
Sampler 1: Randy Morgan Sampler 2:

Project Information

Project Name: UTC Delavan Spray Tech
Street: 4334 Main Hwy
City: Bamberg SC State
Project #: 60590860.02
Fax #
Client Purchase Order #

Analytical Information: TCL VOCs 4NR; TOC, NO3, NO2, SO4, EHs; VRSK, DG MEE; AB827 TCL; PM13; Soil TCLP

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	Date (Collection)	Time (Collection)	Sampled By	Matrix	Total # of Bottles	Other	None	HCl	NaOH	HNO3	H2SO4	NAOH+ZNAC	DI Water	MEOH	TCL VOCs 4NR	TOC, NO3, NO2, SO4, EHs	VRSK, DG MEE	AB827 TCL	PM13	Soil TCLP	Lab Use Only
1	TRIP Blank	11/25/19		RM	GW	3		X	X							X						
2	MW-35D	11/25/19	1057	RM	GW	9		X	X							X	X	X				
3	MW-33D	11/25/19	1205	RM	GW	9		X	X							X	X	X				
4	MW-33D-a	11/25/19	1205	RM	GW	3		X								X						
5	MW-36D	11/25/19	1413	RM	GW	9		X	X							X	X	X				
5	MW-36D-MS	11/25/19	1413	RM	GW	3		X								X						
5	MW-36D-MSD	11/25/19	1413	RM	GW	3		X								X						
6	MW-34D	11/25/19	1600	RM	GW	9		X	X							X	X	X				
7	Soil IDW	11/25/19	1700	RM	GW	4		X													X	
8	Aqueous IDW	11/25/19	1625	RM	SO	6		X								X			X	X	X	

Turnaround Time (Business days)

10 Day (Business)   Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

☐ COMMERCIAL "A" (RESULTS ONLY)
☐ COMMERCIAL "B" (RESULTS PLUS QC)
☐ REDT1 (EPA LEVEL 3)
☐ FULLT1 (EPA LEVEL 4)
☐ EDD'S

Comments / Remarks

Service Center
Raleigh, NC
PREM

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 Randy Morgan - AECOM	11/25/19 1845	2 FX	3 FX		4 [illegible] 11/26/19 910
Relinquished by/Affiliation 5	Date Time:	Received By/Affiliation 6	Relinquished By/Affiliation 7	Date Time:	Received By/Affiliation 8

Lab Use Only: Cooler Temperature (s) Celsius (corrected): 2.1°

http://www.sgs.com/en/terms-and-conditions

ORLD-SMT-0001-03-FORM-COC (1) Rev 031318

FA70346: Chain of Custody
Page 1 of 2

5.1
5

SGS Sample Receipt Summary

Job Number: FA70346 **Client:** AECOM **Project:** UTC DELARAN SPRAY TECH

Date / Time Received: 11/26/2019 9:10:00 AM **Delivery Method:** FX **Airbill #'s:**

Therm ID: IR 1; **Therm CF:** -0.8; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (2.9);

Cooler Temps (Corrected) °C: Cooler 1: (2.1);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☑		☐	☐
2. Trip Blank listed on COC	☑		☐	☐

	W	or	S	N/A
3. Type Of TB Received	☑		☐	☐

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☐		☑	☐
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: PETERH Date: 11/26/2019 9:10:00 A Reviewer: _____ Date: _____

FA70346: Chain of Custody
Page 2 of 2

MS Volatiles

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E874-MB	5E19308.D	1	11/28/19	SO	n/a	n/a	V5E874

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-2, FA70346-3, FA70346-4, FA70346-6

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	14.9	25	10	ug/l	J
71-43-2	Benzene	ND	1.0	0.31	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.24	ug/l	
75-25-2	Bromoform	ND	1.0	0.41	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.0	ug/l	
75-15-0	Carbon Disulfide	ND	2.0	0.53	ug/l	
56-23-5	Carbon Tetrachloride	ND	1.0	0.36	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	2.0	0.67	ug/l	
67-66-3	Chloroform	ND	1.0	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.28	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.34	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.31	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.43	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.29	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.36	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
74-83-9	Methyl Bromide	ND	2.0	0.59	ug/l	
74-87-3	Methyl Chloride	ND	2.0	0.50	ug/l	
75-09-2	Methylene Chloride	ND	5.0	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
108-88-3	Toluene	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.47	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	3.0	0.72	ug/l	

Method Blank Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E874-MB	5E19308.D	1	11/28/19	SO	n/a	n/a	V5E874

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-2, FA70346-3, FA70346-4, FA70346-6

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	99%	79-125%
2037-26-5	Toluene-D8	102%	85-112%
460-00-4	4-Bromofluorobenzene	107%	83-118%

Method Blank Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI1975-MB	I63059.D	1	11/28/19	KB	n/a	n/a	VI1975

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-1, FA70346-5, FA70346-8

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	10	ug/l	
71-43-2	Benzene	ND	1.0	0.31	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.24	ug/l	
75-25-2	Bromoform	ND	1.0	0.41	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.0	ug/l	
75-15-0	Carbon Disulfide	ND	2.0	0.53	ug/l	
56-23-5	Carbon Tetrachloride	ND	1.0	0.36	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	2.0	0.67	ug/l	
67-66-3	Chloroform	ND	1.0	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.28	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.34	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.31	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.43	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.29	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.36	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
74-83-9	Methyl Bromide	ND	2.0	0.59	ug/l	
74-87-3	Methyl Chloride	ND	2.0	0.50	ug/l	
75-09-2	Methylene Chloride	ND	5.0	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
108-88-3	Toluene	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.47	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	3.0	0.72	ug/l	

Method Blank Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI1975-MB	I63059.D	1	11/28/19	KB	n/a	n/a	VI1975

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-1, FA70346-5, FA70346-8

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	98%	83-118%
17060-07-0	1,2-Dichloroethane-D4	101%	79-125%
2037-26-5	Toluene-D8	94%	85-112%
460-00-4	4-Bromofluorobenzene	96%	83-118%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile [a]		0	ug/l	

(a) No TICs detected.

Leachate Blank Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77946-LB	C0137614.D	10	12/04/19	SP	12/03/19	OP77946	VC5493

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-7

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	10	3.1	ug/l	
78-93-3	2-Butanone (MEK)	ND	50	20	ug/l	
56-23-5	Carbon Tetrachloride	ND	10	3.6	ug/l	
108-90-7	Chlorobenzene	ND	10	2.0	ug/l	
67-66-3	Chloroform	ND	10	3.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	10	2.6	ug/l	
107-06-2	1,2-Dichloroethane	ND	10	3.1	ug/l	
75-35-4	1,1-Dichloroethylene	ND	10	3.2	ug/l	
127-18-4	Tetrachloroethylene	ND	10	2.2	ug/l	
79-01-6	Trichloroethylene	ND	10	3.5	ug/l	
75-01-4	Vinyl Chloride	ND	10	4.1	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	100%	83-118%
17060-07-0	1,2-Dichloroethane-D4	98%	79-125%
2037-26-5	Toluene-D8	95%	85-112%
460-00-4	4-Bromofluorobenzene	97%	83-118%

Blank Spike Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E874-BS	5E19306.D	1	11/28/19	SO	n/a	n/a	V5E874

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-2, FA70346-3, FA70346-4, FA70346-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	125	205	164*	50-147
71-43-2	Benzene	25	23.3	93	81-122
75-27-4	Bromodichloromethane	25	24.4	98	79-123
75-25-2	Bromoform	25	24.0	96	66-123
78-93-3	2-Butanone (MEK)	125	149	119	56-143
75-15-0	Carbon Disulfide	25	21.4	86	66-148
56-23-5	Carbon Tetrachloride	25	25.6	102	76-136
108-90-7	Chlorobenzene	25	22.2	89	82-124
75-00-3	Chloroethane	25	25.1	100	62-144
67-66-3	Chloroform	25	23.8	95	80-124
124-48-1	Dibromochloromethane	25	24.4	98	78-122
75-34-3	1,1-Dichloroethane	25	24.8	99	81-122
107-06-2	1,2-Dichloroethane	25	23.5	94	75-125
75-35-4	1,1-Dichloroethylene	25	25.0	100	78-137
156-59-2	cis-1,2-Dichloroethylene	25	24.3	97	78-120
156-60-5	trans-1,2-Dichloroethylene	25	23.8	95	76-127
78-87-5	1,2-Dichloropropane	25	24.0	96	76-124
10061-01-5	cis-1,3-Dichloropropene	25	23.4	94	75-118
10061-02-6	trans-1,3-Dichloropropene	25	24.0	96	80-120
100-41-4	Ethylbenzene	25	22.2	89	81-121
591-78-6	2-Hexanone	125	130	104	61-129
74-83-9	Methyl Bromide	25	22.9	92	59-143
74-87-3	Methyl Chloride	25	21.3	85	50-159
75-09-2	Methylene Chloride	25	21.7	87	69-135
108-10-1	4-Methyl-2-pentanone (MIBK)	125	126	101	66-122
100-42-5	Styrene	25	22.5	90	78-119
79-34-5	1,1,2,2-Tetrachloroethane	25	25.5	102	72-120
127-18-4	Tetrachloroethylene	25	23.0	92	76-135
108-88-3	Toluene	25	22.1	88	80-120
71-55-6	1,1,1-Trichloroethane	25	25.2	101	75-130
79-00-5	1,1,2-Trichloroethane	25	23.3	93	76-119
79-01-6	Trichloroethylene	25	23.7	95	81-126
75-01-4	Vinyl Chloride	25	20.5	82	69-159
1330-20-7	Xylene (total)	75	67.2	90	80-126

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E874-BS	5E19306.D	1	11/28/19	SO	n/a	n/a	V5E874

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-2, FA70346-3, FA70346-4, FA70346-6

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	103%	83-118%
17060-07-0	1,2-Dichloroethane-D4	103%	79-125%
2037-26-5	Toluene-D8	98%	85-112%
460-00-4	4-Bromofluorobenzene	101%	83-118%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI1975-BS	I63058.D	1	11/28/19	KB	n/a	n/a	VI1975

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-1, FA70346-5, FA70346-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	125	140	112	50-147
71-43-2	Benzene	25	22.1	88	81-122
75-27-4	Bromodichloromethane	25	22.2	89	79-123
75-25-2	Bromoform	25	22.3	89	66-123
78-93-3	2-Butanone (MEK)	125	127	102	56-143
75-15-0	Carbon Disulfide	25	20.9	84	66-148
56-23-5	Carbon Tetrachloride	25	23.9	96	76-136
108-90-7	Chlorobenzene	25	22.0	88	82-124
75-00-3	Chloroethane	25	24.4	98	62-144
67-66-3	Chloroform	25	22.3	89	80-124
124-48-1	Dibromochloromethane	25	22.3	89	78-122
75-34-3	1,1-Dichloroethane	25	22.9	92	81-122
107-06-2	1,2-Dichloroethane	25	21.9	88	75-125
75-35-4	1,1-Dichloroethylene	25	23.6	94	78-137
156-59-2	cis-1,2-Dichloroethylene	25	21.5	86	78-120
156-60-5	trans-1,2-Dichloroethylene	25	22.1	88	76-127
78-87-5	1,2-Dichloropropane	25	22.0	88	76-124
10061-01-5	cis-1,3-Dichloropropene	25	21.0	84	75-118
10061-02-6	trans-1,3-Dichloropropene	25	22.0	88	80-120
100-41-4	Ethylbenzene	25	22.0	88	81-121
591-78-6	2-Hexanone	125	114	91	61-129
74-83-9	Methyl Bromide	25	24.9	100	59-143
74-87-3	Methyl Chloride	25	20.6	82	50-159
75-09-2	Methylene Chloride	25	21.8	87	69-135
108-10-1	4-Methyl-2-pentanone (MIBK)	125	111	89	66-122
100-42-5	Styrene	25	21.8	87	78-119
79-34-5	1,1,2,2-Tetrachloroethane	25	21.5	86	72-120
127-18-4	Tetrachloroethylene	25	23.2	93	76-135
108-88-3	Toluene	25	21.3	85	80-120
71-55-6	1,1,1-Trichloroethane	25	22.5	90	75-130
79-00-5	1,1,2-Trichloroethane	25	21.6	86	76-119
79-01-6	Trichloroethylene	25	22.1	88	81-126
75-01-4	Vinyl Chloride	25	22.3	89	69-159
1330-20-7	Xylene (total)	75	66.1	88	80-126

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI1975-BS	I63058.D	1	11/28/19	KB	n/a	n/a	VI1975

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-1, FA70346-5, FA70346-8

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	102%	79-125%
2037-26-5	Toluene-D8	98%	85-112%
460-00-4	4-Bromofluorobenzene	98%	83-118%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC5493-BS	C0137611.D	10	12/04/19	SP	n/a	n/a	VC5493

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	250	248	99	81-122
78-93-3	2-Butanone (MEK)	1250	1200	96	56-143
56-23-5	Carbon Tetrachloride	250	258	103	76-136
108-90-7	Chlorobenzene	250	245	98	82-124
67-66-3	Chloroform	250	256	102	80-124
106-46-7	1,4-Dichlorobenzene	250	239	96	78-120
107-06-2	1,2-Dichloroethane	250	235	94	75-125
75-35-4	1,1-Dichloroethylene	250	256	102	78-137
127-18-4	Tetrachloroethylene	250	253	101	76-135
79-01-6	Trichloroethylene	250	250	100	81-126
75-01-4	Vinyl Chloride	250	235	94	69-159

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	95%	79-125%
2037-26-5	Toluene-D8	98%	85-112%
460-00-4	4-Bromofluorobenzene	99%	83-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA70291-2MS	5E19329.D	5	11/28/19	SO	n/a	n/a	V5E874
FA70291-2MSD	5E19330.D	5	11/28/19	SO	n/a	n/a	V5E874
FA70291-2 [a]	5E19312.D	5	11/28/19	SO	n/a	n/a	V5E874

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-2, FA70346-3, FA70346-4, FA70346-6

CAS No.	Compound	FA70291-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	130 U		625	823	132	625	1070	171*	26*	50-147/21
71-43-2	Benzene	5.0 U		125	131	105	125	141	113	7	81-122/14
75-27-4	Bromodichloromethane	5.0 U		125	134	107	125	146	117	9	79-123/19
75-25-2	Bromoform	5.0 U		125	118	94	125	132	106	11	66-123/21
78-93-3	2-Butanone (MEK)	25 U		625	752	120	625	862	138	14	56-143/18
75-15-0	Carbon Disulfide	10 U		125	117	94	125	127	102	8	66-148/23
56-23-5	Carbon Tetrachloride	5.0 U		125	142	114	125	153	122	7	76-136/23
108-90-7	Chlorobenzene	5.0 U		125	119	95	125	128	102	7	82-124/14
75-00-3	Chloroethane	10 U		125	153	122	125	157	126	3	62-144/20
67-66-3	Chloroform	5.0 U		125	133	106	125	142	114	7	80-124/15
124-48-1	Dibromochloromethane	5.0 U		125	126	101	125	138	110	9	78-122/19
75-34-3	1,1-Dichloroethane	5.2		125	145	112	125	156	121	7	81-122/15
107-06-2	1,2-Dichloroethane	5.0 U		125	132	106	125	141	113	7	75-125/14
75-35-4	1,1-Dichloroethylene	5.0 U		125	134	107	125	148	118	10	78-137/18
156-59-2	cis-1,2-Dichloroethylene	5.0 U		125	130	104	125	142	114	9	78-120/15
156-60-5	trans-1,2-Dichloroethylene	2.4	I	125	134	105	125	145	114	8	76-127/17
78-87-5	1,2-Dichloropropane	5.0 U		125	134	107	125	143	114	6	76-124/14
10061-01-5	cis-1,3-Dichloropropene	5.0 U		125	128	102	125	138	110	8	75-118/23
10061-02-6	trans-1,3-Dichloropropene	5.0 U		125	129	103	125	139	111	7	80-120/22
100-41-4	Ethylbenzene	5.0 U		125	119	95	125	129	103	8	81-121/14
591-78-6	2-Hexanone	50 U		625	695	111	625	764	122	9	61-129/18
74-83-9	Methyl Bromide	10 U		125	129	103	125	138	110	7	59-143/19
74-87-3	Methyl Chloride	10 U		125	144	115	125	135	108	6	50-159/19
75-09-2	Methylene Chloride	25 U		125	121	97	125	131	105	8	69-135/16
108-10-1	4-Methyl-2-pentanone (MIBK)	25 U		625	689	110	625	749	120	8	66-122/16
100-42-5	Styrene	5.0 U		125	108	86	125	123	98	13	78-119/23
79-34-5	1,1,2,2-Tetrachloroethane	5.0 U		125	135	108	125	149	119	10	72-120/14
127-18-4	Tetrachloroethylene	5.0 U		125	122	98	125	129	103	6	76-135/16
108-88-3	Toluene	5.0 U		125	119	95	125	129	103	8	80-120/14
71-55-6	1,1,1-Trichloroethane	5.0 U		125	136	109	125	147	118	8	75-130/16
79-00-5	1,1,2-Trichloroethane	5.0 U		125	126	101	125	135	108	7	76-119/14
79-01-6	Trichloroethylene	5.0 U		125	130	104	125	140	112	7	81-126/15
75-01-4	Vinyl Chloride	271		125	402	105	125	394	98	2	69-159/18
1330-20-7	Xylene (total)	15 U		375	359	96	375	388	103	8	80-126/15

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA70291-2MS	5E19329.D	5	11/28/19	SO	n/a	n/a	V5E874
FA70291-2MSD	5E19330.D	5	11/28/19	SO	n/a	n/a	V5E874
FA70291-2 [a]	5E19312.D	5	11/28/19	SO	n/a	n/a	V5E874

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-2, FA70346-3, FA70346-4, FA70346-6

CAS No.	Surrogate Recoveries	MS	MSD	FA70291-2	Limits
1868-53-7	Dibromofluoromethane	102%	104%	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	109%	107%	101%	79-125%
2037-26-5	Toluene-D8	96%	97%	103%	85-112%
460-00-4	4-Bromofluorobenzene	101%	100%	108%	83-118%

(a) Sample was not preserved to a pH < 2.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA70346-5MS	I63069.D	1	11/28/19	KB	n/a	n/a	VI1975
FA70346-5MSD	I63070.D	1	11/28/19	KB	n/a	n/a	VI1975
FA70346-5 [a]	I63063.D	1	11/28/19	KB	n/a	n/a	VI1975

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-1, FA70346-5, FA70346-8

CAS No.	Compound	FA70346-5 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		125	172	138	125	171	137	1	50-147/21
71-43-2	Benzene	ND		25	24.4	98	25	25.6	102	5	81-122/14
75-27-4	Bromodichloromethane	ND		25	24.9	100	25	26.5	106	6	79-123/19
75-25-2	Bromoform	ND		25	23.4	94	25	25.5	102	9	66-123/21
78-93-3	2-Butanone (MEK)	ND		125	156	125	125	157	126	1	56-143/18
75-15-0	Carbon Disulfide	ND		25	22.0	88	25	23.2	93	5	66-148/23
56-23-5	Carbon Tetrachloride	ND		25	25.8	103	25	27.4	110	6	76-136/23
108-90-7	Chlorobenzene	ND		25	24.0	96	25	25.1	100	4	82-124/14
75-00-3	Chloroethane	ND		25	26.6	106	25	26.7	107	0	62-144/20
67-66-3	Chloroform	0.61	J	25	25.4	99	25	26.8	105	5	80-124/15
124-48-1	Dibromochloromethane	ND		25	24.4	98	25	25.8	103	6	78-122/19
75-34-3	1,1-Dichloroethane	ND		25	25.5	102	25	26.9	108	5	81-122/15
107-06-2	1,2-Dichloroethane	ND		25	24.6	98	25	26.2	105	6	75-125/14
75-35-4	1,1-Dichloroethylene	ND		25	26.5	106	25	27.6	110	4	78-137/18
156-59-2	cis-1,2-Dichloroethylene	ND		25	24.0	96	25	24.8	99	3	78-120/15
156-60-5	trans-1,2-Dichloroethylene	ND		25	24.5	98	25	25.5	102	4	76-127/17
78-87-5	1,2-Dichloropropane	ND		25	24.3	97	25	26.0	104	7	76-124/14
10061-01-5	cis-1,3-Dichloropropene	ND		25	22.6	90	25	24.4	98	8	75-118/23
10061-02-6	trans-1,3-Dichloropropene	ND		25	23.9	96	25	25.6	102	7	80-120/22
100-41-4	Ethylbenzene	ND		25	24.2	97	25	25.1	100	4	81-121/14
591-78-6	2-Hexanone	ND		125	147	118	125	146	117	1	61-129/18
74-83-9	Methyl Bromide	ND		25	20.8	83	25	24.3	97	16	59-143/19
74-87-3	Methyl Chloride	ND		25	26.5	106	25	26.0	104	2	50-159/19
75-09-2	Methylene Chloride	ND		25	24.8	99	25	26.4	106	6	69-135/16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		125	139	111	125	138	110	1	66-122/16
100-42-5	Styrene	ND		25	23.7	95	25	25.1	100	6	78-119/23
79-34-5	1,1,2,2-Tetrachloroethane	ND		25	23.6	94	25	25.2	101	7	72-120/14
127-18-4	Tetrachloroethylene	ND		25	26.4	106	25	27.8	111	5	76-135/16
108-88-3	Toluene	0.78	J	25	24.1	93	25	25.2	98	4	80-120/14
71-55-6	1,1,1-Trichloroethane	ND		25	24.7	99	25	26.0	104	5	75-130/16
79-00-5	1,1,2-Trichloroethane	ND		25	23.9	96	25	25.3	101	6	76-119/14
79-01-6	Trichloroethylene	ND		25	24.5	98	25	25.8	103	5	81-126/15
75-01-4	Vinyl Chloride	ND		25	24.0	96	25	23.9	96	0	69-159/18
1330-20-7	Xylene (total)	ND		75	72.4	97	75	76.0	101	5	80-126/15

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA70346-5MS	I63069.D	1	11/28/19	KB	n/a	n/a	VI1975
FA70346-5MSD	I63070.D	1	11/28/19	KB	n/a	n/a	VI1975
FA70346-5 [a]	I63063.D	1	11/28/19	KB	n/a	n/a	VI1975

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-1, FA70346-5, FA70346-8

CAS No.	Surrogate Recoveries	MS	MSD	FA70346-5	Limits
1868-53-7	Dibromofluoromethane	103%	102%	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	107%	109%	110%	79-125%
2037-26-5	Toluene-D8	99%	98%	94%	85-112%
460-00-4	4-Bromofluorobenzene	97%	97%	95%	83-118%

(a) Sample was not preserved to a pH < 2.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA70429-2LMS	C0137619.D	10	12/04/19	SP	n/a	n/a	VC5493
FA70429-2LMSD	C0137620.D	10	12/04/19	SP	n/a	n/a	VC5493
FA70429-2L	C0137618.D	10	12/04/19	SP	12/03/19	OP77946	VC5493

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-7

CAS No.	Compound	FA70429-2L ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		250	246	98	250	247	99	0	81-122/14
78-93-3	2-Butanone (MEK)	ND		1250	1330	106	1250	1200	96	10	56-143/18
56-23-5	Carbon Tetrachloride	ND		250	258	103	250	256	102	1	76-136/23
108-90-7	Chlorobenzene	ND		250	246	98	250	246	98	0	82-124/14
67-66-3	Chloroform	ND		250	252	101	250	252	101	0	80-124/15
106-46-7	1,4-Dichlorobenzene	ND		250	234	94	250	233	93	0	78-120/15
107-06-2	1,2-Dichloroethane	3.2	J	250	243	96	250	241	95	1	75-125/14
75-35-4	1,1-Dichloroethylene	ND		250	255	102	250	258	103	1	78-137/18
127-18-4	Tetrachloroethylene	10.5		250	270	104	250	265	102	2	76-135/16
79-01-6	Trichloroethylene	ND		250	253	101	250	244	98	4	81-126/15
75-01-4	Vinyl Chloride	ND		250	251	100	250	256	102	2	69-159/18

CAS No.	Surrogate Recoveries	MS	MSD	FA70429-2L	Limits
1868-53-7	Dibromofluoromethane	99%	101%	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	97%	98%	98%	79-125%
2037-26-5	Toluene-D8	98%	98%	95%	85-112%
460-00-4	4-Bromofluorobenzene	98%	98%	98%	83-118%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA70346-7DUP	C0137616.D	10	12/04/19	SP	n/a	n/a	VC5493
FA70346-7	C0137615.D	10	12/04/19	SP	12/03/19	OP77946	VC5493

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA70346-7

CAS No.	Compound	FA70346-7 ug/l	Q	DUP ug/l	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	14
78-93-3	2-Butanone (MEK)	ND		ND		nc	18
56-23-5	Carbon Tetrachloride	ND		ND		nc	23
108-90-7	Chlorobenzene	ND		ND		nc	14
67-66-3	Chloroform	ND		ND		nc	15
106-46-7	1,4-Dichlorobenzene	ND		ND		nc	15
107-06-2	1,2-Dichloroethane	29.8		24.2		21*	14
75-35-4	1,1-Dichloroethylene	ND		ND		nc	18
127-18-4	Tetrachloroethylene	ND		ND		nc	16
79-01-6	Trichloroethylene	ND		ND		nc	15
75-01-4	Vinyl Chloride	ND		ND		nc	18

CAS No.	Surrogate Recoveries	DUP	FA70346-7	Limits
1868-53-7	Dibromofluoromethane	99%	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	101%	99%	79-125%
2037-26-5	Toluene-D8	96%	96%	85-112%
460-00-4	4-Bromofluorobenzene	98%	95%	83-118%

* = Outside of Control Limits.

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77932-MB	X068285.D	1	12/04/19	MV	12/02/19	OP77932	SX2807

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-8

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	50	10	ug/l	
59-50-7	4-Chloro-3-methyl Phenol	ND	5.0	0.59	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	0.63	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	0.84	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	0.74	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	5.0	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	2.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	0.56	ug/l	
	3&4-Methylphenol	ND	5.0	0.98	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.85	ug/l	
100-02-7	4-Nitrophenol	ND	25	5.0	ug/l	
87-86-5	Pentachlorophenol	ND	25	5.0	ug/l	
108-95-2	Phenol	ND	5.0	0.50	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	0.74	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.75	ug/l	
83-32-9	Acenaphthene	ND	5.0	0.63	ug/l	
208-96-8	Acenaphthylene	ND	5.0	0.64	ug/l	
120-12-7	Anthracene	ND	5.0	0.80	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	0.76	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	0.78	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	0.78	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	0.82	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	0.86	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	0.61	ug/l	
101-55-3	4-Bromophenyl Phenyl Ether	ND	5.0	0.85	ug/l	
85-68-7	Butyl Benzyl Phthalate	ND	5.0	1.0	ug/l	
86-74-8	Carbazole	ND	5.0	0.60	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.63	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.81	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	0.73	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	5.0	0.76	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.50	ug/l	
7005-72-3	4-Chlorophenyl Phenyl Ether	ND	5.0	0.54	ug/l	
218-01-9	Chrysene	ND	5.0	0.85	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	0.80	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.60	ug/l	

Method Blank Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77932-MB	X068285.D	1	12/04/19	MV	12/02/19	OP77932	SX2807

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-8

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	1,2-Dichlorobenzene	ND	5.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	0.50	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.64	ug/l	
84-66-2	Diethyl Phthalate	ND	5.0	1.0	ug/l	
131-11-3	Dimethyl Phthalate	ND	5.0	1.0	ug/l	
84-74-2	Di-n-butyl Phthalate	ND	5.0	1.0	ug/l	
117-84-0	Di-n-octyl Phthalate	ND	5.0	1.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	0.81	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	0.71	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	1.0	ug/l	
206-44-0	Fluoranthene	ND	5.0	0.55	ug/l	
86-73-7	Fluorene	ND	5.0	0.70	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	0.69	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	0.50	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	1.8	ug/l	
67-72-1	Hexachloroethane	ND	5.0	1.6	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	0.71	ug/l	
78-59-1	Isophorone	ND	5.0	0.78	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	0.60	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	1.8	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.88	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	1.2	ug/l	
98-95-3	Nitrobenzene	ND	5.0	0.93	ug/l	
621-64-7	N-Nitrosodi-n-propylamine	ND	5.0	0.67	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.81	ug/l	
85-01-8	Phenanthrene	ND	5.0	0.86	ug/l	
129-00-0	Pyrene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.1	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	35%	14-67%
4165-62-2	Phenol-d5	25%	10-50%

Method Blank Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77932-MB	X068285.D	1	12/04/19	MV	12/02/19	OP77932	SX2807

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-8

CAS No.	Surrogate Recoveries		Limits
118-79-6	2,4,6-Tribromophenol	53%	33-118%
4165-60-0	Nitrobenzene-d5	68%	42-108%
321-60-8	2-Fluorobiphenyl	58%	40-106%
1718-51-0	Terphenyl-d14	63%	39-121%

Leachate Blank Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78150-LB	X068516.D	1	12/16/19	MV	12/16/19	OP78150	SX2815

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-7

CAS No.	Compound	Result	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	50	5.6	ug/l	
	3&4-Methylphenol	ND	50	9.8	ug/l	
87-86-5	Pentachlorophenol	ND	250	50	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	50	7.4	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	50	7.5	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	50	5.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	50	8.1	ug/l	
118-74-1	Hexachlorobenzene	ND	50	6.9	ug/l	
87-68-3	Hexachlorobutadiene	ND	50	5.0	ug/l	
67-72-1	Hexachloroethane	ND	50	16	ug/l	
98-95-3	Nitrobenzene	ND	50	9.3	ug/l	
110-86-1	Pyridine	ND	100	20	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	35%	14-67%
4165-62-2	Phenol-d5	24%	10-50%
118-79-6	2,4,6-Tribromophenol	77%	33-118%
4165-60-0	Nitrobenzene-d5	78%	42-108%
321-60-8	2-Fluorobiphenyl	76%	40-106%
1718-51-0	Terphenyl-d14	84%	39-121%

Blank Spike Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77932-BS	X068284.D	1	12/04/19	MV	12/02/19	OP77932	SX2807

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	100	26.8	27	10-69
59-50-7	4-Chloro-3-methyl Phenol	50	37.3	75	54-103
95-57-8	2-Chlorophenol	50	30.4	61	52-98
120-83-2	2,4-Dichlorophenol	50	34.0	68	53-103
105-67-9	2,4-Dimethylphenol	50	31.3	63	43-90
51-28-5	2,4-Dinitrophenol	100	68.1	68	44-112
534-52-1	4,6-Dinitro-o-cresol	100	80.3	80	66-121
95-48-7	2-Methylphenol	50	26.8	54	43-90
	3&4-Methylphenol	100	50.1	50	36-88
88-75-5	2-Nitrophenol	50	33.3	67	53-102
100-02-7	4-Nitrophenol	100	37.4	37	18-62
87-86-5	Pentachlorophenol	100	77.8	78	61-115
108-95-2	Phenol	50	14.3	29	19-56
95-95-4	2,4,5-Trichlorophenol	50	34.8	70	62-109
88-06-2	2,4,6-Trichlorophenol	50	36.3	73	59-107
83-32-9	Acenaphthene	50	34.3	69	61-107
208-96-8	Acenaphthylene	50	35.9	72	60-104
120-12-7	Anthracene	50	35.9	72	65-108
56-55-3	Benzo(a)anthracene	50	38.9	78	66-111
50-32-8	Benzo(a)pyrene	50	36.7	73	62-107
205-99-2	Benzo(b)fluoranthene	50	38.1	76	65-114
191-24-2	Benzo(g,h,i)perylene	50	35.5	71	66-116
207-08-9	Benzo(k)fluoranthene	50	39.5	79	65-114
100-51-6	Benzyl Alcohol	50	25.8	52	46-94
101-55-3	4-Bromophenyl Phenyl Ether	50	35.5	71	65-109
85-68-7	Butyl Benzyl Phthalate	50	43.3	87	65-112
86-74-8	Carbazole	50	38.5	77	59-113
106-47-8	4-Chloroaniline	50	31.8	64	49-105
111-91-1	bis(2-Chloroethoxy)methane	50	36.0	72	51-102
111-44-4	bis(2-Chloroethyl)ether	50	33.0	66	53-100
108-60-1	2,2'-Oxybis(1-chloropropane)	50	43.3	87	45-106
91-58-7	2-Chloronaphthalene	50	32.9	66	57-103
7005-72-3	4-Chlorophenyl Phenyl Ether	50	35.0	70	62-105
218-01-9	Chrysene	50	39.0	78	66-111
53-70-3	Dibenzo(a,h)anthracene	50	34.6	69	66-119
132-64-9	Dibenzofuran	50	34.8	70	61-106

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77932-BS	X068284.D	1	12/04/19	MV	12/02/19	OP77932	SX2807

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
95-50-1	1,2-Dichlorobenzene	50	28.2	56	48-97
541-73-1	1,3-Dichlorobenzene	50	27.8	56	45-95
106-46-7	1,4-Dichlorobenzene	50	28.0	56	45-98
91-94-1	3,3'-Dichlorobenzidine	50	35.5	71	46-117
84-66-2	Diethyl Phthalate	50	39.3	79	64-108
131-11-3	Dimethyl Phthalate	50	38.0	76	63-106
84-74-2	Di-n-butyl Phthalate	50	41.9	84	65-107
117-84-0	Di-n-octyl Phthalate	50	42.5	85	62-118
121-14-2	2,4-Dinitrotoluene	50	35.8	72	61-110
606-20-2	2,6-Dinitrotoluene	50	33.5	67	63-108
117-81-7	bis(2-Ethylhexyl)phthalate	50	42.8	86	61-117
206-44-0	Fluoranthene	50	37.0	74	63-106
86-73-7	Fluorene	50	36.1	72	62-108
118-74-1	Hexachlorobenzene	50	32.7	65	63-108
87-68-3	Hexachlorobutadiene	50	27.9	56	42-102
77-47-4	Hexachlorocyclopentadiene	50	25.5	51	39-102
67-72-1	Hexachloroethane	50	29.2	58	42-100
193-39-5	Indeno(1,2,3-cd)pyrene	50	33.7	67	64-119
78-59-1	Isophorone	50	35.9	72	43-87
91-57-6	2-Methylnaphthalene	50	31.6	63	51-102
91-20-3	Naphthalene	50	30.9	62	47-100
88-74-4	2-Nitroaniline	50	44.6	89	54-128
99-09-2	3-Nitroaniline	50	36.0	72	56-106
100-01-6	4-Nitroaniline	50	36.5	73	55-120
98-95-3	Nitrobenzene	50	36.0	72	50-104
621-64-7	N-Nitrosodi-n-propylamine	50	37.4	75	52-104
86-30-6	N-Nitrosodiphenylamine	50	37.4	75	64-108
85-01-8	Phenanthrene	50	37.5	75	66-110
129-00-0	Pyrene	50	39.0	78	64-113
120-82-1	1,2,4-Trichlorobenzene	50	28.4	57	45-97

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	37%	14-67%
4165-62-2	Phenol-d5	28%	10-50%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77932-BS	X068284.D	1	12/04/19	MV	12/02/19	OP77932	SX2807

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-8

CAS No.	Surrogate Recoveries	BSP	Limits
118-79-6	2,4,6-Tribromophenol	64%	33-118%
4165-60-0	Nitrobenzene-d5	69%	42-108%
321-60-8	2-Fluorobiphenyl	63%	40-106%
1718-51-0	Terphenyl-d14	66%	39-121%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78150-LBS	X068515.D	1	12/16/19	MV	12/16/19	OP78150	SX2815

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
95-48-7	2-Methylphenol	500	301	60	43-90
	3&4-Methylphenol	1000	556	56	36-88
87-86-5	Pentachlorophenol	1000	865	87	61-115
95-95-4	2,4,5-Trichlorophenol	500	444	89	62-109
88-06-2	2,4,6-Trichlorophenol	500	478	96	59-107
106-46-7	1,4-Dichlorobenzene	500	343	69	45-98
121-14-2	2,4-Dinitrotoluene	500	450	90	61-110
118-74-1	Hexachlorobenzene	500	429	86	63-108
87-68-3	Hexachlorobutadiene	500	368	74	42-102
67-72-1	Hexachloroethane	500	346	69	42-100
98-95-3	Nitrobenzene	500	402	80	50-104
110-86-1	Pyridine	500	221	44	23-74

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	38%	14-67%
4165-62-2	Phenol-d5	26%	10-50%
118-79-6	2,4,6-Tribromophenol	85%	33-118%
4165-60-0	Nitrobenzene-d5	79%	42-108%
321-60-8	2-Fluorobiphenyl	81%	40-106%
1718-51-0	Terphenyl-d14	79%	39-121%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77932-MS	X068287.D	1	12/04/19	MV	12/02/19	OP77932	SX2807
OP77932-MSD	X068288.D	1	12/04/19	MV	12/02/19	OP77932	SX2807
FA70346-8	X068286.D	1	12/04/19	MV	12/02/19	OP77932	SX2807

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-8

CAS No.	Compound	FA70346-8 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic Acid	ND		200	61.9	31	200	68.6	34	10	10-69/39
59-50-7	4-Chloro-3-methyl Phenol	ND		100	78.0	78	100	77.9	78	0	54-103/23
95-57-8	2-Chlorophenol	ND		100	44.5	45*	100	61.3	61	32*	52-98/25
120-83-2	2,4-Dichlorophenol	ND		100	66.8	67	100	72.5	73	8	53-103/26
105-67-9	2,4-Dimethylphenol	ND		100	56.8	57	100	65.7	66	15	43-90/27
51-28-5	2,4-Dinitrophenol	ND		200	136	68	200	138	69	1	44-112/25
534-52-1	4,6-Dinitro-o-cresol	ND		200	157	79	200	157	79	0	66-121/23
95-48-7	2-Methylphenol	ND		100	45.2	45	100	56.8	57	23	43-90/28
	3&4-Methylphenol	ND		200	94.3	47	200	110	55	15	36-88/28
88-75-5	2-Nitrophenol	ND		100	45.2	45*	100	64.4	64	35*	53-102/29
100-02-7	4-Nitrophenol	ND		200	92.8	46	200	91.9	46	1	18-62/33
87-86-5	Pentachlorophenol	ND		200	154	77	200	149	75	3	61-115/26
108-95-2	Phenol	ND		100	28.4	28	100	36.8	37	26	19-56/35
95-95-4	2,4,5-Trichlorophenol	ND		100	72.0	72	100	73.5	74	2	62-109/22
88-06-2	2,4,6-Trichlorophenol	ND		100	69.8	70	100	75.5	76	8	59-107/23
83-32-9	Acenaphthene	ND		100	60.5	61	100	71.4	71	17	61-107/22
208-96-8	Acenaphthylene	ND		100	62.4	62	100	72.9	73	16	60-104/22
120-12-7	Anthracene	ND		100	68.6	69	100	69.2	69	1	65-108/20
56-55-3	Benzo(a)anthracene	ND		100	79.6	80	100	76.7	77	4	66-111/22
50-32-8	Benzo(a)pyrene	ND		100	70.1	70	100	68.2	68	3	62-107/23
205-99-2	Benzo(b)fluoranthene	ND		100	77.3	77	100	74.3	74	4	65-114/23
191-24-2	Benzo(g,h,i)perylene	ND		100	70.4	70	100	68.7	69	2	66-116/23
207-08-9	Benzo(k)fluoranthene	ND		100	81.3	81	100	79.1	79	3	65-114/24
100-51-6	Benzyl Alcohol	ND		100	41.5	42*	100	54.8	55	28*	46-94/27
101-55-3	4-Bromophenyl Phenyl Ether	ND		100	68.4	68	100	71.3	71	4	65-109/23
85-68-7	Butyl Benzyl Phthalate	ND		100	87.3	87	100	85.0	85	3	65-112/24
86-74-8	Carbazole	ND		100	78.4	78	100	76.1	76	3	59-113/21
106-47-8	4-Chloroaniline	ND		100	51.9	52	100	36.3	36*	35*	49-105/27
111-91-1	bis(2-Chloroethoxy)methane	ND		100	48.5	49*	100	70.2	70	37*	51-102/28
111-44-4	bis(2-Chloroethyl)ether	ND		100	43.3	43*	100	65.1	65	40*	53-100/27
108-60-1	2,2'-Oxybis(1-chloropropane)	ND		100	55.5	56	100	83.9	84	41*	45-106/26
91-58-7	2-Chloronaphthalene	ND		100	53.3	53*	100	67.6	68	24*	57-103/23
7005-72-3	4-Chlorophenyl Phenyl Ether	ND		100	64.5	65	100	71.1	71	10	62-105/20
218-01-9	Chrysene	ND		100	77.5	78	100	76.1	76	2	66-111/22
53-70-3	Dibenzo(a,h)anthracene	ND		100	68.3	68	100	68.3	68	0	66-119/24
132-64-9	Dibenzofuran	ND		100	64.2	64	100	71.9	72	11	61-106/21

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77932-MS	X068287.D	1	12/04/19	MV	12/02/19	OP77932	SX2807
OP77932-MSD	X068288.D	1	12/04/19	MV	12/02/19	OP77932	SX2807
FA70346-8	X068286.D	1	12/04/19	MV	12/02/19	OP77932	SX2807

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-8

CAS No.	Compound	FA70346-8 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
95-50-1	1,2-Dichlorobenzene	ND		100	39.0	39*	100	58.2	58	40*	48-97/24
541-73-1	1,3-Dichlorobenzene	ND		100	38.4	38*	100	58.3	58	41*	45-95/25
106-46-7	1,4-Dichlorobenzene	ND		100	38.1	38*	100	57.7	58	41*	45-98/25
91-94-1	3,3'-Dichlorobenzidine	ND		100	5.8	6*	100	3.3	3*	55*	46-117/29
84-66-2	Diethyl Phthalate	ND		100	76.5	77	100	78.9	79	3	64-108/21
131-11-3	Dimethyl Phthalate	ND		100	70.1	70	100	75.8	76	8	63-106/22
84-74-2	Di-n-butyl Phthalate	ND		100	84.5	85	100	82.3	82	3	65-107/21
117-84-0	Di-n-octyl Phthalate	ND		100	90.2	90	100	86.7	87	4	62-118/24
121-14-2	2,4-Dinitrotoluene	ND		100	69.3	69	100	72.1	72	4	61-110/21
606-20-2	2,6-Dinitrotoluene	ND		100	64.0	64	100	69.0	69	8	63-108/21
117-81-7	bis(2-Ethylhexyl)phthalate	ND		100	87.4	87	100	84.2	84	4	61-117/23
206-44-0	Fluoranthene	ND		100	75.5	76	100	74.8	75	1	63-106/21
86-73-7	Fluorene	ND		100	67.8	68	100	74.0	74	9	62-108/20
118-74-1	Hexachlorobenzene	ND		100	62.8	63	100	65.1	65	4	63-108/22
87-68-3	Hexachlorobutadiene	ND		100	37.4	37*	100	57.4	57	42*	42-102/28
77-47-4	Hexachlorocyclopentadiene	ND		100	33.4	33*	100	51.6	52	43*	39-102/29
67-72-1	Hexachloroethane	ND		100	38.8	39*	100	61.3	61	45*	42-100/29
193-39-5	Indeno(1,2,3-cd)pyrene	ND		100	68.3	68	100	67.4	67	1	64-119/24
78-59-1	Isophorone	ND		100	47.8	48	100	67.2	67	34*	43-87/25
91-57-6	2-Methylnaphthalene	ND		100	47.6	48*	100	63.2	63	28*	51-102/26
91-20-3	Naphthalene	ND		100	43.4	43*	100	62.6	63	36*	47-100/29
88-74-4	2-Nitroaniline	ND		100	86.4	86	100	90.7	91	5	54-128/24
99-09-2	3-Nitroaniline	ND		100	66.2	66	100	52.0	52*	24	56-106/27
100-01-6	4-Nitroaniline	ND		100	69.0	69	100	66.2	66	4	55-120/24
98-95-3	Nitrobenzene	ND		100	52.4	52	100	73.7	74	34*	50-104/28
621-64-7	N-Nitrosodi-n-propylamine	ND		100	47.6	48*	100	70.1	70	38*	52-104/25
86-30-6	N-Nitrosodiphenylamine	ND		100	62.0	62*	100	63.3	63*	2	64-108/23
85-01-8	Phenanthrene	ND		100	72.6	73	100	74.3	74	2	66-110/21
129-00-0	Pyrene	ND		100	76.3	76	100	75.4	75	1	64-113/23
120-82-1	1,2,4-Trichlorobenzene	ND		100	39.1	39*	100	57.2	57	38*	45-97/28

CAS No.	Surrogate Recoveries	MS	MSD	FA70346-8	Limits
367-12-4	2-Fluorophenol	30%	44%	19%	14-67%
4165-62-2	Phenol-d5	28%	36%	13%	10-50%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77932-MS	X068287.D	1	12/04/19	MV	12/02/19	OP77932	SX2807
OP77932-MSD	X068288.D	1	12/04/19	MV	12/02/19	OP77932	SX2807
FA70346-8	X068286.D	1	12/04/19	MV	12/02/19	OP77932	SX2807

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-8

CAS No.	Surrogate Recoveries	MS	MSD	FA70346-8	Limits
118-79-6	2,4,6-Tribromophenol	64%	62%	56%	33-118%
4165-60-0	Nitrobenzene-d5	47%	68%	52%	42-108%
321-60-8	2-Fluorobiphenyl	49%	64%	48%	40-106%
1718-51-0	Terphenyl-d14	65%	64%	56%	39-121%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78150-MS	X068518.D	1	12/16/19	MV	12/16/19	OP78150	SX2815
OP78150-MSD	X068519.D	1	12/16/19	MV	12/16/19	OP78150	SX2815
FA70346-7	X068517.D	1	12/16/19	MV	12/16/19	OP78150	SX2815

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-7

CAS No.	Compound	FA70346-7 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
95-48-7	2-Methylphenol	ND		500	261	52	500	222	44	16	43-90/28
	3&4-Methylphenol	ND		1000	481	48	1000	414	41	15	36-88/28
87-86-5	Pentachlorophenol	ND		1000	817	82	1000	759	76	7	61-115/26
95-95-4	2,4,5-Trichlorophenol	ND		500	401	80	500	351	70	13	62-109/22
88-06-2	2,4,6-Trichlorophenol	ND		500	440	88	500	375	75	16	59-107/23
106-46-7	1,4-Dichlorobenzene	ND		500	342	68	500	287	57	17	45-98/25
121-14-2	2,4-Dinitrotoluene	ND		500	414	83	500	364	73	13	61-110/21
118-74-1	Hexachlorobenzene	ND		500	394	79	500	353	71	11	63-108/22
87-68-3	Hexachlorobutadiene	ND		500	363	73	500	295	59	21	42-102/28
67-72-1	Hexachloroethane	ND		500	351	70	500	279	56	23	42-100/29
98-95-3	Nitrobenzene	ND		500	375	75	500	321	64	16	50-104/28
110-86-1	Pyridine	ND		500	194	39	500	166	33	16	23-74/34

CAS No.	Surrogate Recoveries	MS	MSD	FA70346-7	Limits
367-12-4	2-Fluorophenol	32%	28%	31%	14-67%
4165-62-2	Phenol-d5	22%	19%	20%	10-50%
118-79-6	2,4,6-Tribromophenol	79%	70%	80%	33-118%
4165-60-0	Nitrobenzene-d5	73%	62%	75%	42-108%
321-60-8	2-Fluorobiphenyl	74%	64%	78%	40-106%
1718-51-0	Terphenyl-d14	76%	66%	83%	39-121%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78150-DUP	X068522.D	1	12/16/19	MV	12/16/19	OP78150	SX2815
FA70659-2	X068521.D	1	12/16/19	MV	12/16/19	OP78150	SX2815

The QC reported here applies to the following samples: **Method:** SW846 8270D

FA70346-7

CAS No.	Compound	FA70659-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
95-48-7	2-Methylphenol	ND		ND		nc	28
	3&4-Methylphenol	ND		ND		nc	28
87-86-5	Pentachlorophenol	ND		ND		nc	26
95-95-4	2,4,5-Trichlorophenol	ND		ND		nc	22
88-06-2	2,4,6-Trichlorophenol	ND		ND		nc	23
106-46-7	1,4-Dichlorobenzene	ND		ND		nc	25
121-14-2	2,4-Dinitrotoluene	ND		ND		nc	21
118-74-1	Hexachlorobenzene	ND		ND		nc	22
87-68-3	Hexachlorobutadiene	ND		ND		nc	28
67-72-1	Hexachloroethane	ND		ND		nc	29
98-95-3	Nitrobenzene	ND		ND		nc	28
110-86-1	Pyridine	ND		ND		nc	34

CAS No.	Surrogate Recoveries	DUP	FA70659-2	Limits
367-12-4	2-Fluorophenol	32%	37%	14-67%
4165-62-2	Phenol-d5	21%	26%	10-50%
118-79-6	2,4,6-Tribromophenol	80%	84%	33-118%
4165-60-0	Nitrobenzene-d5	73%	78%	42-108%
321-60-8	2-Fluorobiphenyl	77%	83%	40-106%
1718-51-0	Terphenyl-d14	86%	89%	39-121%

* = Outside of Control Limits.

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GLL2437-MB	LL70747.D	1	12/05/19	KB	n/a	n/a	GLL2437

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA70346-2, FA70346-3, FA70346-5, FA70346-6

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.16	ug/l	
74-84-0	Ethane	ND	1.0	0.32	ug/l	
74-85-1	Ethene	ND	1.0	0.43	ug/l	

Blank Spike/Blank Spike Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GLL2437-BS	LL70748.D	1	12/05/19	KB	n/a	n/a	GLL2437
GLL2437-BSD	LL70749.D	1	12/05/19	KB	n/a	n/a	GLL2437

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA70346-2, FA70346-3, FA70346-5, FA70346-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
74-82-8	Methane	108	125	116	123	114	2	62-139/30
74-84-0	Ethane	219	238	109	233	106	2	67-141/30
74-85-1	Ethene	290	332	114	324	112	2	68-141/30

8.2.1

8

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA70330-6MS	LL70759.D	1	12/05/19	KB	n/a	n/a	GLL2437
FA70330-6	LL70750.D	1	12/05/19	KB	n/a	n/a	GLL2437

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA70346-2, FA70346-3, FA70346-5, FA70346-6

CAS No.	Compound	FA70330-6 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	197		108	394	182* [a]	62-139
74-84-0	Ethane	1.0 U		219	248	113	67-141
74-85-1	Ethene	1.0 U		290	345	119	68-141

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA70346
Account: UTC United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA70330-6DUP	LL70758.D	1	12/05/19	KB	n/a	n/a	GLL2437
FA70330-6	LL70750.D	1	12/05/19	KB	n/a	n/a	GLL2437

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA70346-2, FA70346-3, FA70346-5, FA70346-6

CAS No.	Compound	FA70330-6 ug/l	Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	197		218		10	30
74-84-0	Ethane	1.0 U		ND		nc	30
74-85-1	Ethene	1.0 U		ND		nc	30

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36487
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 12/02/19

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	14	14		
Antimony	6.0	1	1	-0.90	<6.0
Arsenic	10	1.3	1.3	-1.1	<10
Barium	200	1	1		
Beryllium	4.0	.2	.2	0.030	<4.0
Cadmium	5.0	.2	.2	0.020	<5.0
Calcium	1000	50	50		
Chromium	10	1	1	0.20	<10
Cobalt	50	.2	.2		
Copper	25	1	1	0.50	<25
Iron	300	17	17		
Lead	5.0	1	1.1	0.30	<5.0
Magnesium	5000	35	35		
Manganese	15	.5	1		
Molybdenum	50	.3	.3		
Nickel	40	.4	.4	0.0	<40
Potassium	10000	200	200		
Selenium	10	2.4	2.9	0.60	<10
Silver	10	.7	.7	-0.30	<10
Sodium	10000	500	500		
Strontium	10	.5	.5		
Thallium	10	1.1	1.4	-2.0	<10
Tin	50	.9	1		
Titanium	10	.5	1		
Vanadium	50	.5	.6		
Zinc	20	3	4.4	1.8	<20

Associated samples MP36487: FA70346-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36487
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date:			12/02/19					12/02/19	
Metal	FA70398-1 Original	DUP	RPD	QC Limits	FA70398-1 Original	MS	Spikelot MPFLICP2	% Rec	QC Limits
Aluminum									
Antimony	0.0	0.0	NC	0-20	0.0	485	500	97.0	80-120
Arsenic	0.0	0.0	NC	0-20	0.0	1850	2000	92.5	80-120
Barium									
Beryllium	0.0	0.0	NC	0-20	0.0	48.2	50	96.4	80-120
Cadmium	0.0	0.0	NC	0-20	0.0	46.3	50	92.6	80-120
Calcium									
Chromium	1.4	1.6	13.3	0-20	1.4	193	200	95.8	80-120
Cobalt	anr								
Copper	2.6	2.7	3.8	0-20	2.6	244	250	96.6	80-120
Iron	anr								
Lead	0.0	0.0	NC	0-20	0.0	456	500	91.2	80-120
Magnesium									
Manganese									
Molybdenum	anr								
Nickel	5.6	5.4	3.6	0-20	5.6	477	500	94.3	80-120
Potassium									
Selenium	3.5	0.0	200.0(a)	0-20	3.5	1860	2000	92.8	80-120
Silver	0.0	0.0	NC	0-20	0.0	46.0	50	92.0	80-120
Sodium	anr								
Strontium									
Thallium	0.0	0.0	NC	0-20	0.0	1830	2000	91.5	80-120
Tin	anr								
Titanium									
Vanadium									
Zinc	45.6	44.3	2.9	0-20	45.6	506	500	92.1	80-120

Associated samples MP36487: FA70346-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36487
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 12/02/19

Metal	FA70398-1 Original	MSD	Spikelot MPFLICP2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	0.0	487	500	97.4	0.4	20
Arsenic	0.0	1850	2000	92.5	0.0	20
Barium						
Beryllium	0.0	47.9	50	95.8	0.6	20
Cadmium	0.0	46.3	50	92.6	0.0	20
Calcium						
Chromium	1.4	192	200	95.3	0.5	20
Cobalt	anr					
Copper	2.6	244	250	96.6	0.0	20
Iron	anr					
Lead	0.0	453	500	90.6	0.7	20
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	5.6	477	500	94.3	0.0	20
Potassium						
Selenium	3.5	1870	2000	93.3	0.5	20
Silver	0.0	45.5	50	91.0	1.1	20
Sodium	anr					
Strontium						
Thallium	0.0	1830	2000	91.5	0.0	20
Tin	anr					
Titanium						
Vanadium						
Zinc	45.6	510	500	92.9	0.8	20

Associated samples MP36487: FA70346-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36487
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 12/02/19

Metal	BSP Result	Spikelot MPFLICP2	% Rec	QC Limits
Aluminum				
Antimony	473	500	94.6	80-120
Arsenic	1800	2000	90.0	80-120
Barium				
Beryllium	47.2	50	94.4	80-120
Cadmium	46.1	50	92.2	80-120
Calcium				
Chromium	191	200	95.5	80-120
Cobalt	anr			
Copper	235	250	94.0	80-120
Iron	anr			
Lead	442	500	88.4	80-120
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	467	500	93.4	80-120
Potassium				
Selenium	1810	2000	90.5	80-120
Silver	44.1	50	88.2	80-120
Sodium	anr			
Strontium				
Thallium	1770	2000	88.5	80-120
Tin	anr			
Titanium				
Vanadium				
Zinc	462	500	92.4	80-120

Associated samples MP36487: FA70346-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36487
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 12/02/19

Metal	FA70398-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	0.00	0.00	NC	0-10
Arsenic	0.00	0.00	NC	0-10
Barium				
Beryllium	0.00	0.00	NC	0-10
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	1.40	0.00	100.0(a)	0-10
Cobalt	anr			
Copper	2.60	0.00	100.0(a)	0-10
Iron	anr			
Lead	0.00	0.00	NC	0-10
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	5.60	6.70	19.6 (a)	0-10
Potassium				
Selenium	3.50	0.00	100.0(a)	0-10
Silver	0.00	0.00	NC	0-10
Sodium	anr			
Strontium				
Thallium	0.00	0.00	NC	0-10
Tin	anr			
Titanium				
Vanadium				
Zinc	45.6	49.2	7.9	0-10

Associated samples MP36487: FA70346-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

POST DIGESTATE SPIKE SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36487
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 12/02/19

Metal	Sample ml	Final ml	FA70398-1 Raw	FA70398-1 Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony	9.8	10			94	0.2	5	100	94.0	80-120
Arsenic	9.8	10			94.7	0.2	5	100	94.7	80-120
Barium										
Beryllium	9.8	10			46.69	0.2	2.5	50	93.4	80-120
Cadmium	9.8	10			45.56	0.2	2.5	50	91.1	80-120
Calcium										
Chromium	9.8	10	1.4	1.372	48.1	0.2	2.5	50	93.5	80-120
Cobalt										
Copper	9.8	10	2.6	2.548	96.8	0.2	5	100	94.3	80-120
Iron										
Lead	9.8	10			44.6	0.2	2.5	50	89.2	80-120
Magnesium										
Manganese										
Molybdenum										
Nickel	9.8	10	5.6	5.488	97	0.2	5	100	91.5	80-120
Potassium										
Selenium	9.8	10	3.5	3.43	89.2	0.2	5	100	85.8	80-120
Silver	9.8	10			45.7	0.2	2.5	50	91.4	80-120
Sodium										
Strontium										
Thallium	9.8	10			87.5	0.2	5	100	87.5	80-120
Tin										
Titanium										
Vanadium										
Zinc	9.8	10	45.6	44.688	275	0.2	12.5	250	92.1	80-120

Associated samples MP36487: FA70346-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(**) Corr. sample result = Raw * (sample volume / final volume)
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36489 Methods: SW846 7470A
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/02/19

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.50	.03	.03	0.097	<0.50

Associated samples MP36489: FA70346-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36489
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date:			12/02/19					12/02/19	
Metal	FA70348-3F Original	DUP	RPD	QC Limits	FA70348-3F Original	MS	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.0	0.0	NC	0-20	0.0	2.9	3	96.7	80-120

Associated samples MP36489: FA70346-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36489 Methods: SW846 7470A
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 12/02/19

Metal	FA70348-3F Original	MSD	Spikelot HGFLWS1	% Rec	MSD RPD	QC Limit
Mercury	0.0	2.9	3	96.7	0.0	20

Associated samples MP36489: FA70346-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36489
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 12/02/19

Metal	BSP Result	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	3.0	3	100.0	80-120

Associated samples MP36489: FA70346-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36489
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 12/02/19

Metal	FA70348-3F Original	SDL 1:5	%DIF	QC Limits
Mercury	0.00	0.00	NC	0-10

Associated samples MP36489: FA70346-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36495 Methods: SW846 7470A
Matrix Type: LEACHATE Units: mg/l

Prep Date:				12/04/19		12/04/19		12/04/19	
Metal	RL	IDL	MDL	MB raw	final	MB raw	final	MB raw	final
Mercury	0.00050	.00003	.00005	-0.00011	<0.00050	-0.0012	<0.0050	-0.0010	<0.0050

Associated samples MP36495: FA70346-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36495
Matrix Type: LEACHATE

Methods: SW846 7470A
Units: mg/l

Prep Date: 12/04/19 12/04/19

Metal	FA70346-7 Original	DUP	RPD	QC Limits	FA70346-7 Original	MS	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.0	0.0	NC	0-20	0.0	0.029	0.030	96.7	80-120

Associated samples MP36495: FA70346-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36495
Matrix Type: LEACHATE

Methods: SW846 7470A
Units: mg/l

Prep Date:					12/04/19				12/04/19	
Metal	FA70346-7 Original	MSD	Spikelot HGFLWS1	% Rec	MSD RPD	QC Limit	FA70346-7 Original	DUP	RPD	QC Limits
Mercury	0.0	0.028	0.030	93.3	3.5	20	0.0	0.0	NC	0-20

Associated samples MP36495: FA70346-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36495
Matrix Type: LEACHATE

Methods: SW846 7470A
Units: mg/l

Prep Date:			12/04/19				12/04/19	
Metal	BSP Result	Spikelot HGFLWS1	% Rec	QC Limits	BSP Result	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.0028	0.0030	93.3	80-120	0.029	0.030	96.7	80-120

Associated samples MP36495: FA70346-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36495
Matrix Type: LEACHATE

Methods: SW846 7470A
Units: mg/l

Prep Date: 12/04/19

Metal	BSP Result	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.029	0.030	96.7	80-120

Associated samples MP36495: FA70346-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36495
Matrix Type: LEACHATE

Methods: SW846 7470A
Units: ug/l

Prep Date: 12/04/19

Metal	FA70346-7 Original	SDL 1:5	%DIF	QC Limits
Mercury	0.00	0.00	NC	0-10

Associated samples MP36495: FA70346-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36502 Methods: SW846 6010D
Matrix Type: LEACHATE Units: mg/l

Prep Date:					12/05/19		12/05/19
Metal	RL	IDL	MDL	MB raw	final	MB raw	final
Aluminum	0.20	.014	.014				
Antimony	0.0060	.001	.001				
Arsenic	0.010	.0013	.0013	-0.0016	<0.010	-0.010	<0.10
Barium	0.20	.001	.005	-0.00020	<0.20	0.0010	<2.0
Beryllium	0.0040	.0002	.0002				
Cadmium	0.0050	.0002	.0002	-0.000020	<0.0050	-0.00050	<0.050
Calcium	1.0	.05	.05				
Chromium	0.010	.001	.001	-0.00030	<0.010	0.0010	<0.10
Cobalt	0.050	.0002	.0002				
Copper	0.025	.001	.001				
Iron	0.30	.017	.017				
Lead	0.0050	.001	.0011	0.00020	<0.0050	0.0070	<0.050
Magnesium	5.0	.035	.035				
Manganese	0.015	.0005	.001				
Molybdenum	0.050	.0003	.0003				
Nickel	0.040	.0004	.0004				
Potassium	10	.2	.2				
Selenium	0.010	.0024	.0029	0.0032	<0.010	0.036	<0.10
Silver	0.010	.0007	.0007	0.0	<0.010	-0.0010	<0.10
Sodium	10	.5	.5				
Strontium	0.010	.0005	.0005				
Thallium	0.010	.0011	.0014				
Tin	0.050	.0009	.001				
Titanium	0.010	.0005	.001				
Vanadium	0.050	.0005	.0006				
Zinc	0.020	.003	.01				

Associated samples MP36502: FA70346-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36502
Matrix Type: LEACHATE

Methods: SW846 6010D
Units: mg/l

Prep Date: 12/05/19 12/05/19

Metal	FA70346-7 Original	DUP	RPD	QC Limits	FA70346-7 Original	MS	Spikelot MPFLICP2	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic	0.0	0.0	NC	0-20	0.0	18.9	20.0	94.5	80-120
Barium	0.089	0.090	1.1	0-20	0.089	19.2	20.0	95.6	80-120
Beryllium									
Cadmium	0.0	0.0	NC	0-20	0.0	0.47	0.50	94.0	80-120
Calcium									
Chromium	0.0	0.0	NC	0-20	0.0	2.0	2.0	100.0	80-120
Cobalt									
Copper									
Iron									
Lead	0.0	0.0	NC	0-20	0.0	4.5	5.0	90.0	80-120
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium	0.031	0.054	54.1 (a)	0-20	0.031	19.1	20.0	95.3	80-120
Silver	0.0	0.0	NC	0-20	0.0	0.48	0.50	96.0	80-120
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP36502: FA70346-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36502
Matrix Type: LEACHATE

Methods: SW846 6010D
Units: mg/l

Prep Date:					12/05/19				12/05/19	
Metal	FA70346-7 Original	MSD	Spikelot MPFLICP2	% Rec	MSD RPD	QC Limit	FA70346-7 Original	DUP	RPD	QC Limits
Aluminum										
Antimony										
Arsenic	0.0	19.3	20.0	96.5	2.1	20	0.0	0.0	NC	0-20
Barium	0.089	19.3	20.0	96.1	0.5	20	0.089	0.27	100.8(a)	0-20
Beryllium										
Cadmium	0.0	0.48	0.50	96.0	2.1	20	0.0	0.0	NC	0-20
Calcium										
Chromium	0.0	2.0	2.0	100.0	0.0	20	0.0	0.0	NC	0-20
Cobalt										
Copper										
Iron										
Lead	0.0	4.6	5.0	92.0	2.2	20	0.0	0.0	NC	0-20
Magnesium										
Manganese										
Molybdenum										
Nickel										
Potassium										
Selenium	0.031	19.4	20.0	96.8	1.6	20	0.031	0.064	69.5 (a)	0-20
Silver	0.0	0.48	0.50	96.0	0.0	20	0.0	0.0	NC	0-20
Sodium										
Strontium										
Thallium										
Tin										
Titanium										
Vanadium										
Zinc										

Associated samples MP36502: FA70346-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) RPD acceptable due to low duplicate and sample concentrations.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36502
Matrix Type: LEACHATE

Methods: SW846 6010D
Units: mg/l

Prep Date:			12/05/19				12/05/19	
Metal	BSP Result	Spikelot MPFLICP2	% Rec	QC Limits	BSP Result	Spikelot MPFLICP2	% Rec	QC Limits
Aluminum								
Antimony								
Arsenic	1.9	2.0	95.0	80-120	19.0	20.0	95.0	80-120
Barium	1.9	2.0	95.0	80-120	19.1	20.0	95.5	80-120
Beryllium								
Cadmium	0.049	0.050	98.0	80-120	0.48	0.50	96.0	80-120
Calcium								
Chromium	0.20	0.20	100.0	80-120	2.0	2.0	100.0	80-120
Cobalt								
Copper								
Iron								
Lead	0.46	0.50	92.0	80-120	4.5	5.0	90.0	80-120
Magnesium								
Manganese								
Molybdenum								
Nickel								
Potassium								
Selenium	1.9	2.0	95.0	80-120	19.2	20.0	96.0	80-120
Silver	0.048	0.050	96.0	80-120	0.48	0.50	96.0	80-120
Sodium								
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc								

Associated samples MP36502: FA70346-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

QC Batch ID: MP36502
Matrix Type: LEACHATE

Methods: SW846 6010D
Units: ug/l

Prep Date: 12/05/19

Metal	FA70346-7 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	0.00	0.00	NC	0-10
Barium	8.90	8.30	6.7	0-10
Beryllium				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	0.00	0.00	NC	0-10
Cobalt				
Copper				
Iron				
Lead	0.00	0.00	NC	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium	3.10	13.7	341.9(a)	0-10
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP36502: FA70346-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP34000/GN83724	2.0	0.0	mg/l	50	42.4	84.8*(a)	90-110%
Chloride	GP34040/GN83794	2.0	0.0	mg/l	50	50.5	101.0	90-110%
Nitrogen, Nitrate	GP34000/GN83724	0.10	0.0	mg/l	2.5	2.32	92.8	90-110%
Nitrogen, Nitrate	GP34040/GN83794	0.10	0.0	mg/l	2.5	2.55	102.0	90-110%
Nitrogen, Nitrite	GP34040/GN83794	0.10	0.0	mg/l	2.5	2.52	100.8	90-110%
Sulfate	GP34000/GN83724	2.0	0.0	mg/l	50	49.6	99.2	90-110%
Sulfate	GP34040/GN83794	2.0	0.0	mg/l	50	50.6	101.2	90-110%
Total Organic Carbon	GP34002/GN83725	1.0	0.24	mg/l	15	13.6	90.7	90-110%

Associated Samples:
Batch GP34000: FA70346-2, FA70346-3, FA70346-5, FA70346-6
Batch GP34002: FA70346-2, FA70346-3, FA70346-5, FA70346-6
Batch GP34040: FA70346-2, FA70346-3, FA70346-5, FA70346-6
(*) Outside of QC limits
(a) No samples for Chloride reported in this run.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP34040/GN83794	FA70343-1	mg/l	4.1	50	53.1	98.0	90-110%
Nitrogen, Nitrate	GP34000/GN83724	FA70341-4	mg/l	0.050 U	2.5	2.3	92.0	90-110%
Nitrogen, Nitrate	GP34040/GN83794	FA70343-1	mg/l	0.92	2.5	3.2	91.2	90-110%
Nitrogen, Nitrite	GP34040/GN83794	FA70343-1	mg/l	0.050 U	2.5	2.5	100.0	90-110%
Sulfate	GP34000/GN83724	FA70341-4	mg/l	41.1	50	84.4	86.6N(a)	90-110%
Sulfate	GP34040/GN83794	FA70343-1	mg/l	9.6	50	57.3	95.4	90-110%
Total Organic Carbon	GP34002/GN83725	FA70346-5	mg/l	0.66	15	12.9	81.6N(a)	90-110%

Associated Samples:
Batch GP34000: FA70346-2, FA70346-3, FA70346-5, FA70346-6
Batch GP34002: FA70346-2, FA70346-3, FA70346-5, FA70346-6
Batch GP34040: FA70346-2, FA70346-3, FA70346-5, FA70346-6
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference.

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA70346
Account: UTC - United Technologies Corporation
Project: AECOMSCG: Delavan Spray Technologies; Bamberg, SC

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride	GP34040/GN83794	FA70343-1	mg/l	4.1	50	53.4	0.6	20%
Nitrogen, Nitrate	GP34000/GN83724	FA70341-4	mg/l	0.050 U	2.5	2.3	0.0	20%
Nitrogen, Nitrate	GP34040/GN83794	FA70343-1	mg/l	0.92	2.5	3.2	0.0	20%
Nitrogen, Nitrite	GP34040/GN83794	FA70343-1	mg/l	0.050 U	2.5	2.5	0.0	20%
Sulfate	GP34000/GN83724	FA70341-4	mg/l	41.1	50	84.2	0.2	20%
Sulfate	GP34040/GN83794	FA70343-1	mg/l	9.6	50	57.3	0.0	20%
Total Organic Carbon	GP34002/GN83725	FA70346-5	mg/l	0.66	15	14.9	14.4	20%

Associated Samples:
Batch GP34000: FA70346-2, FA70346-3, FA70346-5, FA70346-6
Batch GP34002: FA70346-2, FA70346-3, FA70346-5, FA70346-6
Batch GP34040: FA70346-2, FA70346-3, FA70346-5, FA70346-6
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

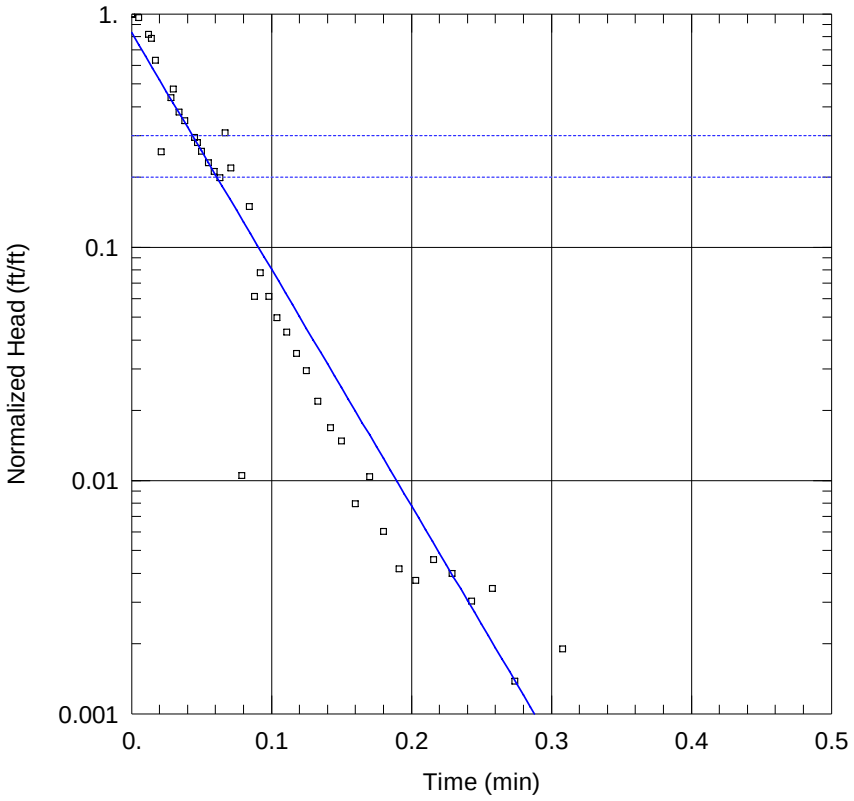
Attachment C

Slug Test Data

Table C-1
Summary of Slug Test Results
Delavan Spray Technologies Site
Bamberg, South Carolina

Well ID	Test Name	Horizontal Hydraulic Conductivity (ft/day)	Method	Comments
MW-33D	MW33D-in1	45.22	Bouwer & Rice	
MW-33D	MW33D-in2	55.85	Bouwer & Rice	noise in early data
MW-33D	MW33S-out1	61.17	Bouwer & Rice	
MW-33D	MW33D-out2	60.82	Bouwer & Rice	
MW-33D	MW33D-pump1	57.26	Bouwer & Rice	
MW-33D	MW33D-pump2	59.30	Bouwer & Rice	
MW-34D	34D-in1	79.41	Bouwer & Rice	noise in data
MW-34D	34D-in2	~~100~~	Bouwer & Rice	do not use - lots of noise in data and rapid recovery - not many points in recommended head range
MW-34D	34D-out1	88.59	Bouwer & Rice	
MW-34D	34D-out2	91.27	Bouwer & Rice	
MW-34D	34D-pump1	~~65.41~~	Bouwer & Rice	Do not use - insufficient drawdown - only one point in recommended head range
MW-34D	34D-pump2	120.0	Bouwer & Rice	
MW-34D	34D-pump4	111.6	Bouwer & Rice	
MW-35D	MW35D-in2	93.17	KGS	
MW-35D	MW35Dout1	86.24	KGS	
MW-35D	MW35D-out2	91.15	KGS	
MW-35D	MW35D-pump1	119.2	KGS	
MW-35D	MW35D-pump2	97.73	KGS	
MW-35D	MW35D-pump3	115.5	KGS	
MW-36D	MW36D-in1	90.56	Springer-Gelhar	
MW-36D	MW36D-in2	92.07	Springer-Gelhar	
MW-36D	MW36D-out1	113.2	Springer-Gelhar	
MW-36D	MW36D-out2	104.6	Springer-Gelhar	
MW-36D	MW36D-pump1	121.6	Springer-Gelhar	
	Minimum	**45.22**		
	Maximum	**121.6**		
	Deeper Wells Geometric Mean	**85.57**		
	MW-33D Geometric Mean	**56.3**		
	MW-34D Geometric Mean	**97.03**		
	MW-35DR Geometric Mean	**99.76**		
	MW-36D Geometric Mean	**103.72**		

Notes:
Data with a strike-through was not used for calculation of the means.



MW33D-IN1

Data Set: C:\...\MW33D-in1.aqt
Date: 03/31/20 Time: 15:54:06

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-33D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 63.43 ft Anisotropy Ratio (Kz/Kr): 1.

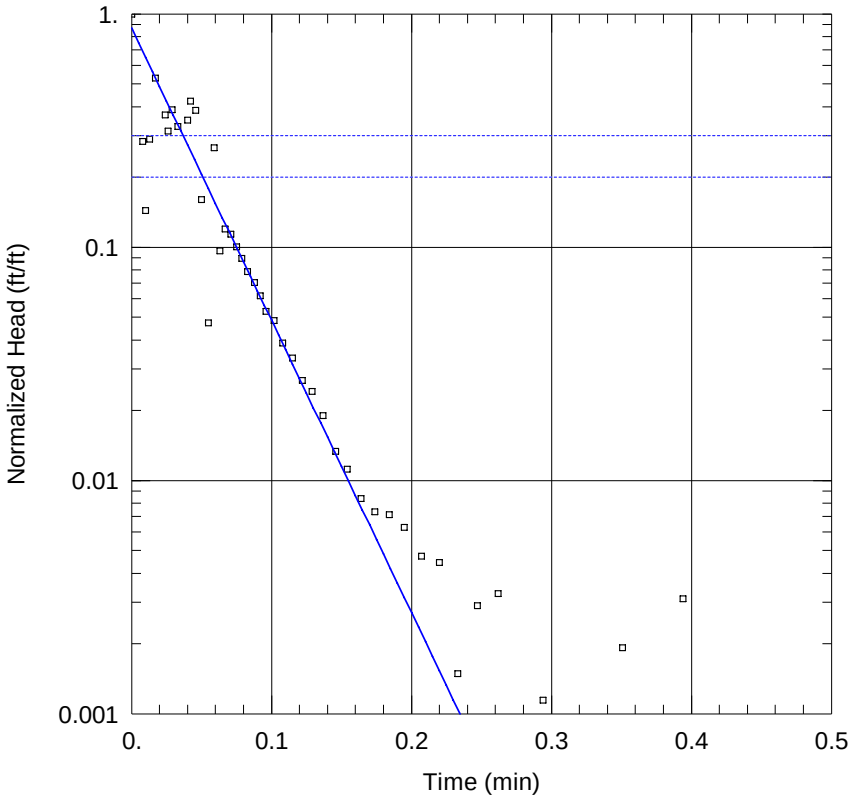
WELL DATA (MW-33D)

Initial Displacement: 2.604 ft
Total Well Penetration Depth: 63.43 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.43 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 45.22 ft/day
y0 = 2.163 ft



MW33D-IN2

Data Set: C:\...\MW33D-in2.aqt
Date: 03/31/20 Time: 15:54:06

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-33D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 63.43 ft Anisotropy Ratio (Kz/Kr): 1.

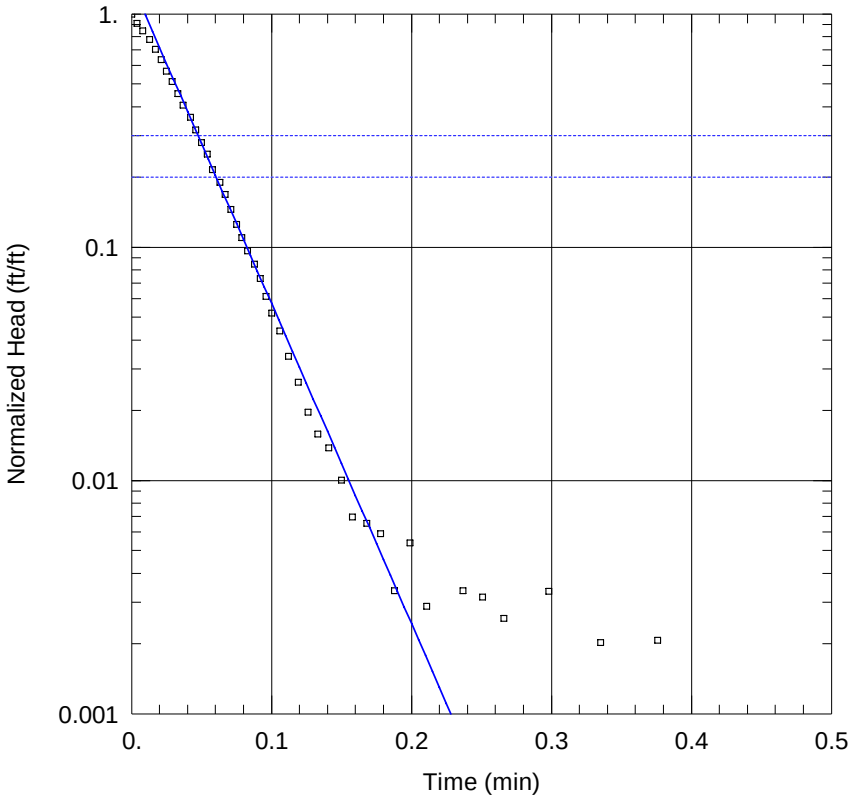
WELL DATA (MW-33D)

Initial Displacement: 2.867 ft
Total Well Penetration Depth: 63.43 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.43 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 55.85 ft/day
y0 = 2.491 ft



MW33D-OUT1

Data Set: C:\...\MW33D-out1.aqt
Date: 03/31/20 Time: 15:54:07

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-33D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 63.43 ft Anisotropy Ratio (Kz/Kr): 1.

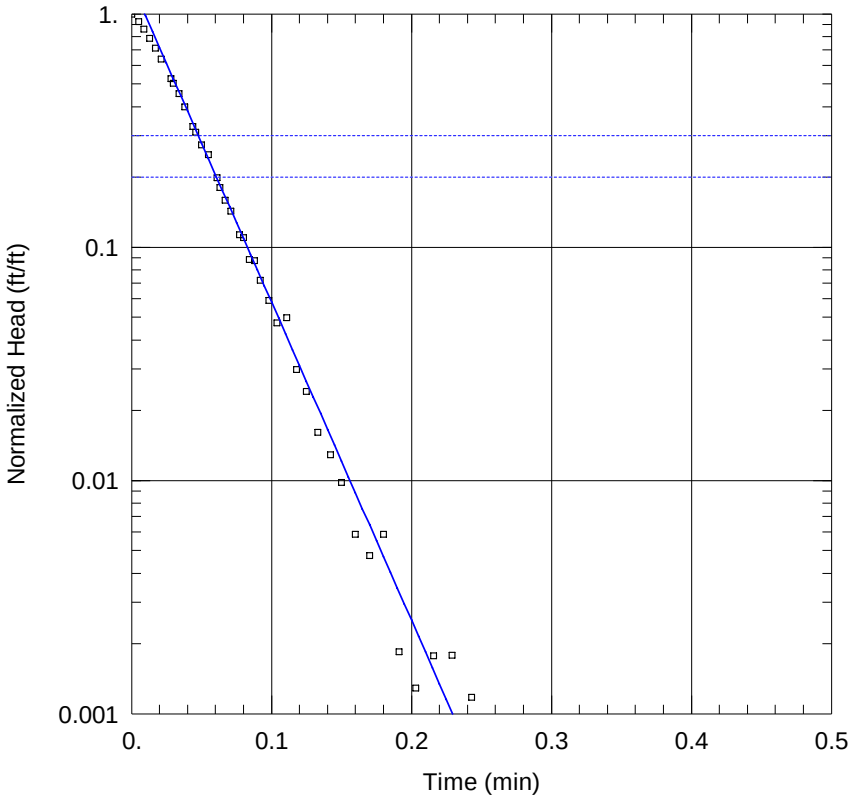
WELL DATA (MW-33D)

Initial Displacement: 2.481 ft
Total Well Penetration Depth: 63.43 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.43 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 61.17 ft/day y0 = 3.349 ft



MW33D-OUT2

Data Set: C:\...\MW33D-out2.aqt
Date: 03/31/20 Time: 15:54:07

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-33D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 63.43 ft Anisotropy Ratio (Kz/Kr): 1.

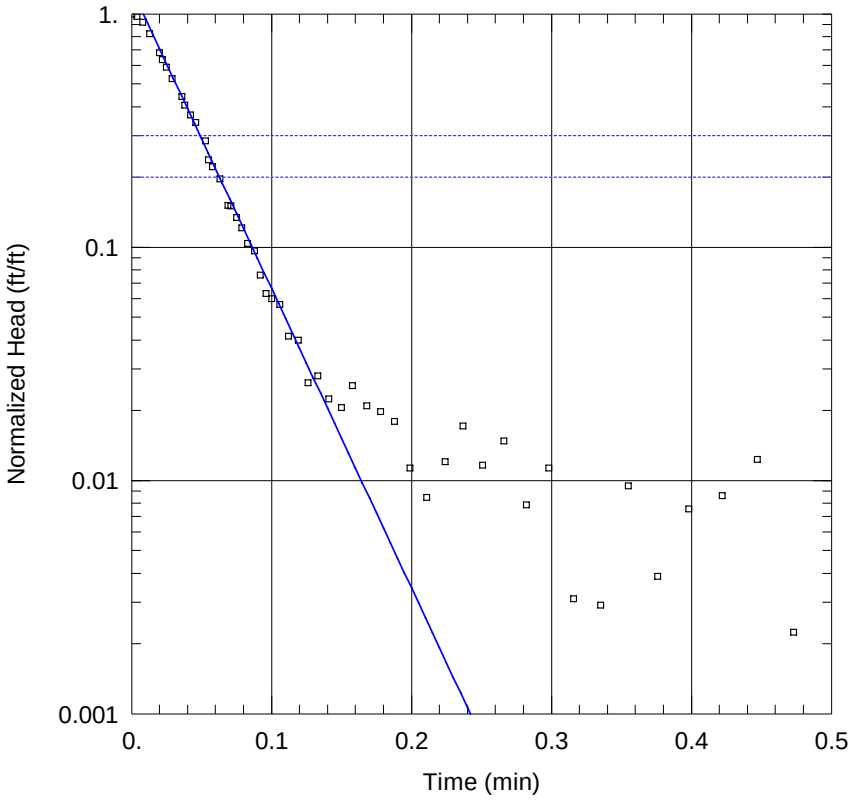
WELL DATA (MW-33D)

Initial Displacement: 2.343 ft
Total Well Penetration Depth: 63.43 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.43 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 60.82 ft/day
y0 = 3.152 ft



MW33D-PUMP1

Data Set: C:\...\MW33D-pump1.aqt
Date: 03/31/20 Time: 15:54:08

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-33D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 63.43 ft Anisotropy Ratio (Kz/Kr): 1.

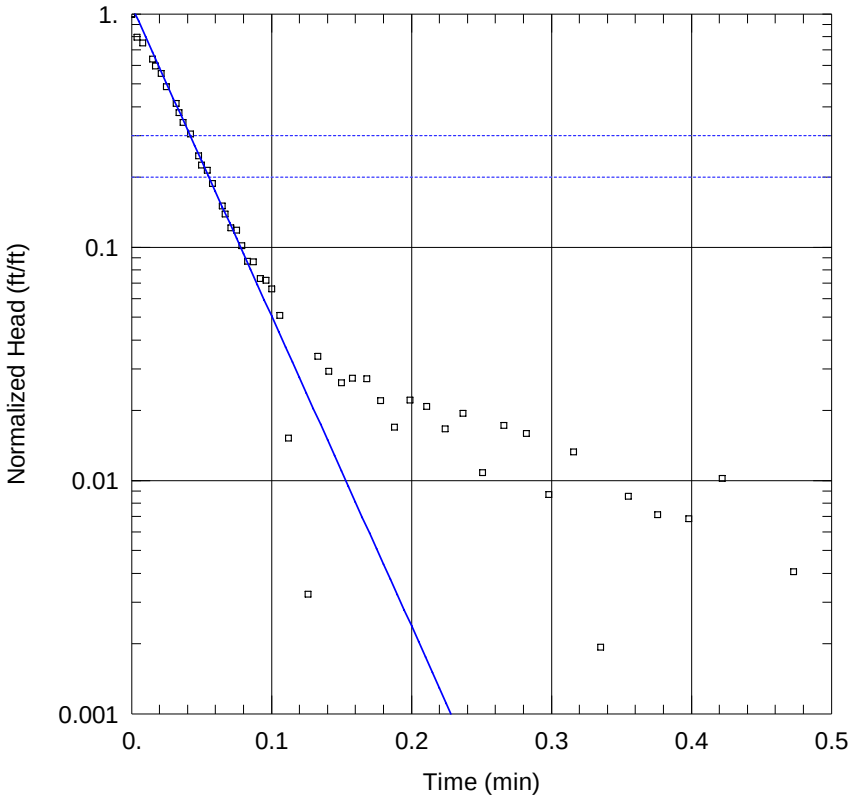
WELL DATA (MW-33D)

Initial Displacement: 0.812 ft
Total Well Penetration Depth: 63.43 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.43 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 57.26 ft/day y0 = 1.041 ft



MW33D-PUMP2

Data Set: C:\...\MW33D-pump2.aqt
Date: 03/31/20 Time: 15:54:08

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-33D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 63.43 ft Anisotropy Ratio (Kz/Kr): 1.

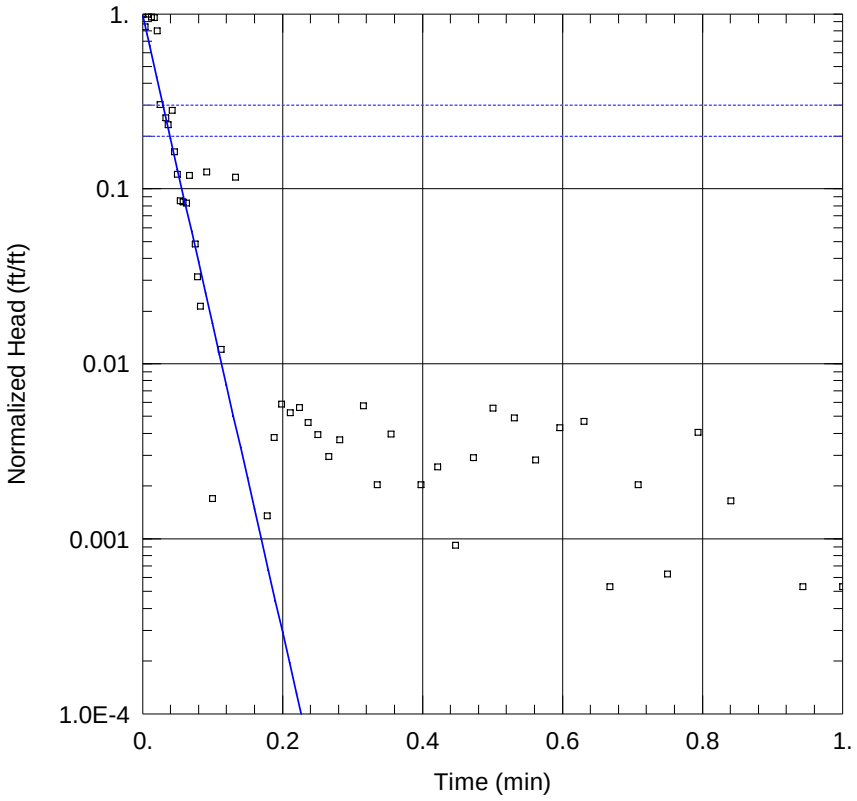
WELL DATA (MW-33D)

Initial Displacement: 0.919 ft
Total Well Penetration Depth: 63.43 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.43 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 59.3 ft/day y0 = 0.9968 ft



MW34D-IN1

Data Set: C:\...\MW34D-in1.aqt
Date: 03/31/20 Time: 15:54:54

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-34D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 68.1 ft Anisotropy Ratio (Kz/Kr): 1.

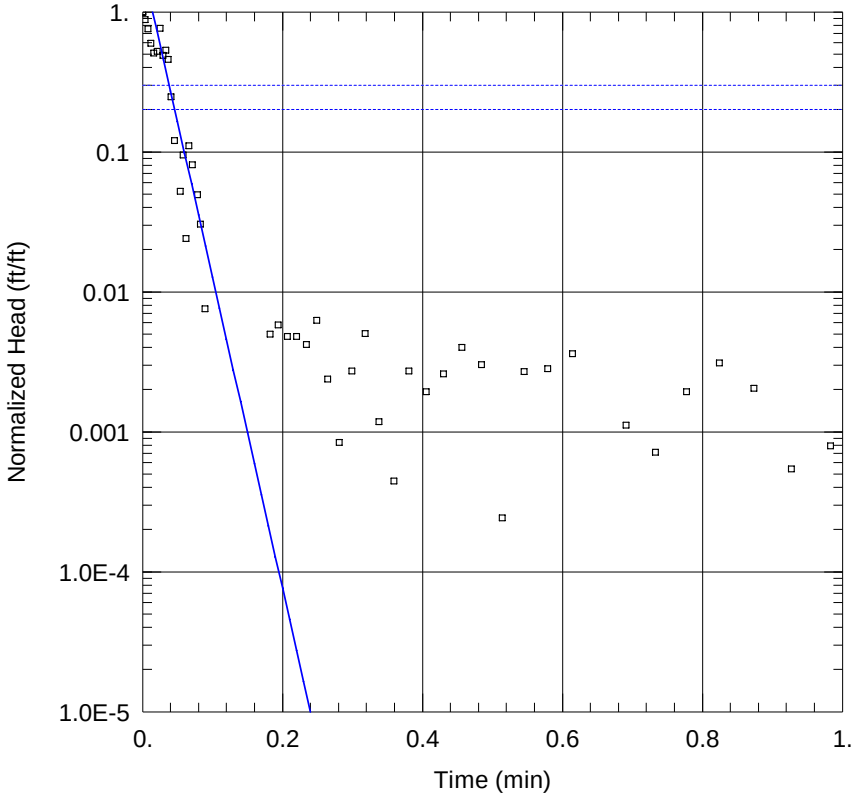
WELL DATA (MW-34D)

Initial Displacement: 2.064 ft
Total Well Penetration Depth: 68.1 ft
Casing Radius: 0.083 ft
Static Water Column Height: 68.1 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 79.41 ft/day
y0 = 2.03 ft



MW34D-IN2

Data Set: C:\...\MW34D-in2.aqt
Date: 03/31/20 Time: 15:54:54

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-34D
Test Date: 11/25/19

AQUIFER DATA

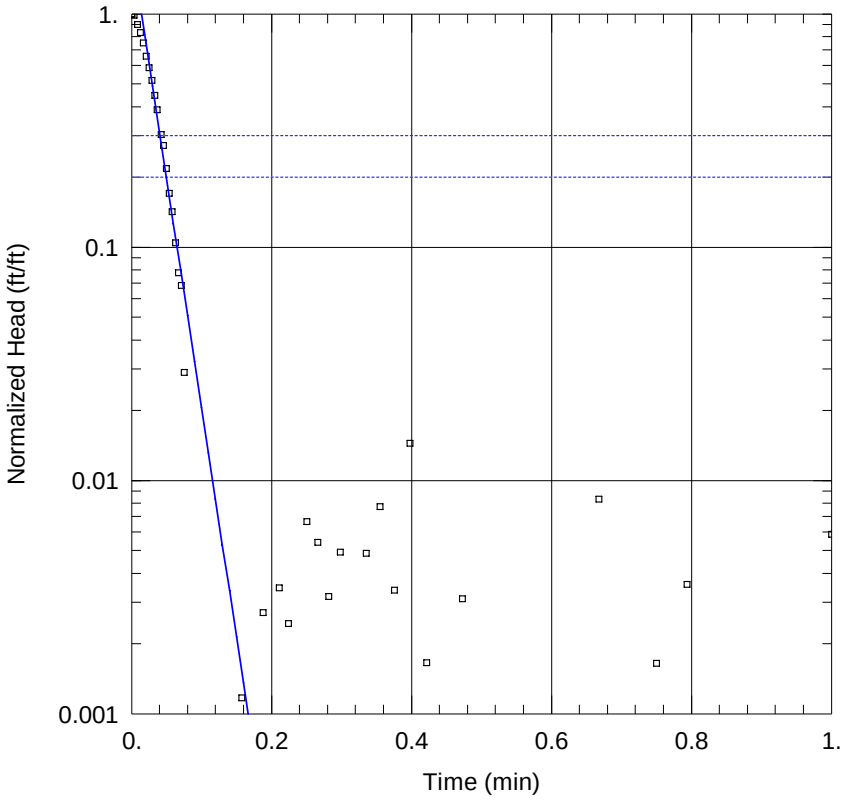
Saturated Thickness: 68.1 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-34D)

Initial Displacement: 2.186 ft
Total Well Penetration Depth: 68.1 ft
Casing Radius: 0.083 ft
Static Water Column Height: 68.1 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 100. ft/day
y0 = 4.617 ft



MW34D-OUT1

Data Set: C:\...\MW34D-out1.aqt
Date: 03/31/20 Time: 15:54:55

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-34D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 68.1 ft Anisotropy Ratio (Kz/Kr): 1.

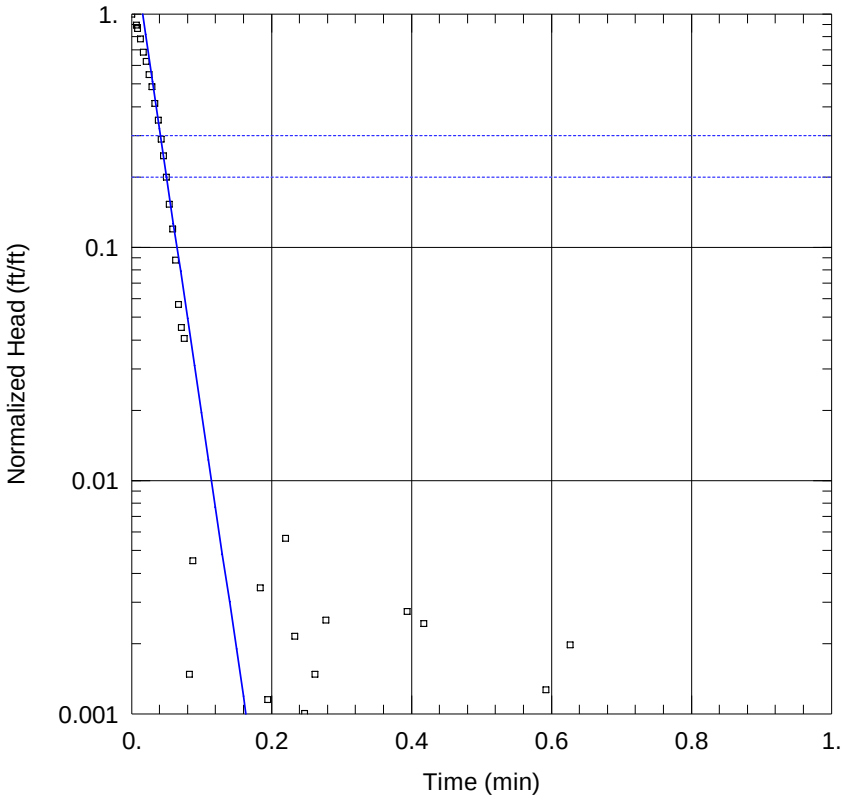
WELL DATA (MW-34D)

Initial Displacement: 1.754 ft
Total Well Penetration Depth: 68.1 ft
Casing Radius: 0.083 ft
Static Water Column Height: 68.1 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 88.59 ft/day y0 = 3.341 ft



MW34D-OUT2

Data Set: C:\...\MW34D-out2.aqt
Date: 03/31/20 Time: 15:54:55

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-34D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 68.1 ft Anisotropy Ratio (Kz/Kr): 1.

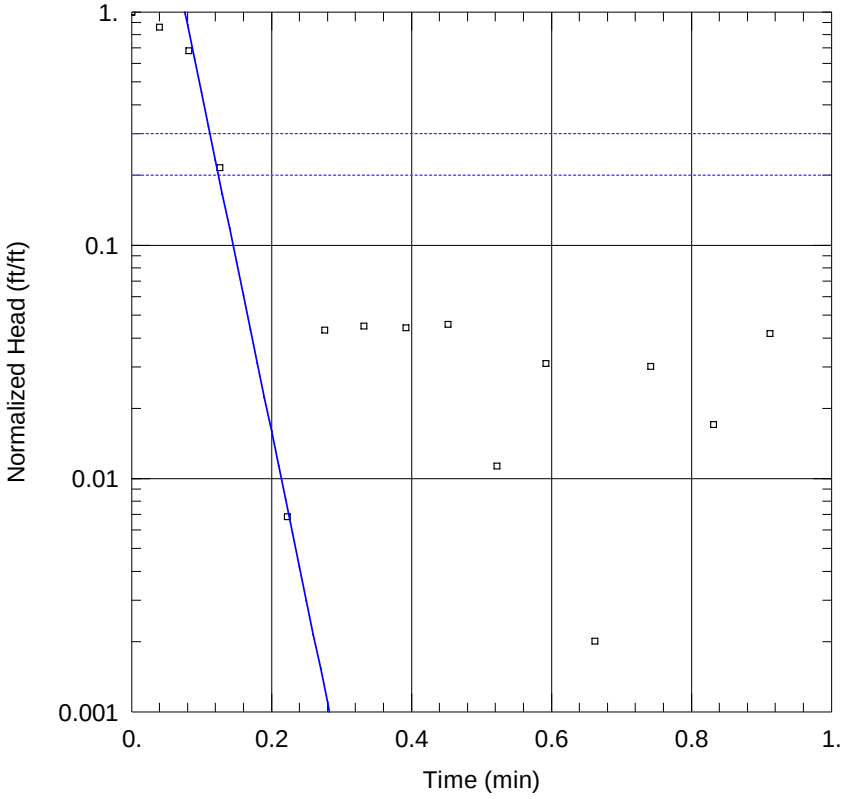
WELL DATA (MW-34D)

Initial Displacement: 1.776 ft
Total Well Penetration Depth: 68.1 ft
Casing Radius: 0.083 ft
Static Water Column Height: 68.1 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 91.27 ft/day
y0 = 3.685 ft



MW34D-PUMP1

Data Set: C:\...\MW34D-pump1.aqt
Date: 03/31/20 Time: 15:54:56

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-34D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 68.1 ft Anisotropy Ratio (Kz/Kr): 1.

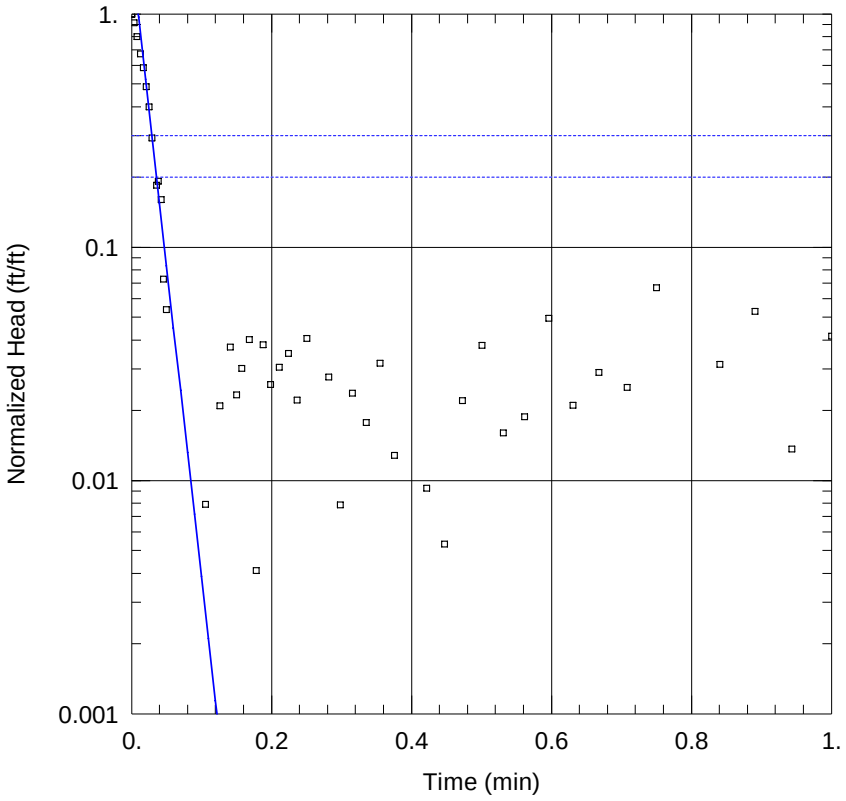
WELL DATA (MW-34D)

Initial Displacement: 0.2716 ft
Total Well Penetration Depth: 68.1 ft
Casing Radius: 0.083 ft
Static Water Column Height: 68.1 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 65.41 ft/day y0 = 3.473 ft



MW34D-PUMP2

Data Set: C:\...\MW34D-pump2.aqt
Date: 03/31/20 Time: 15:54:56

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-34D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 68.1 ft Anisotropy Ratio (Kz/Kr): 1.

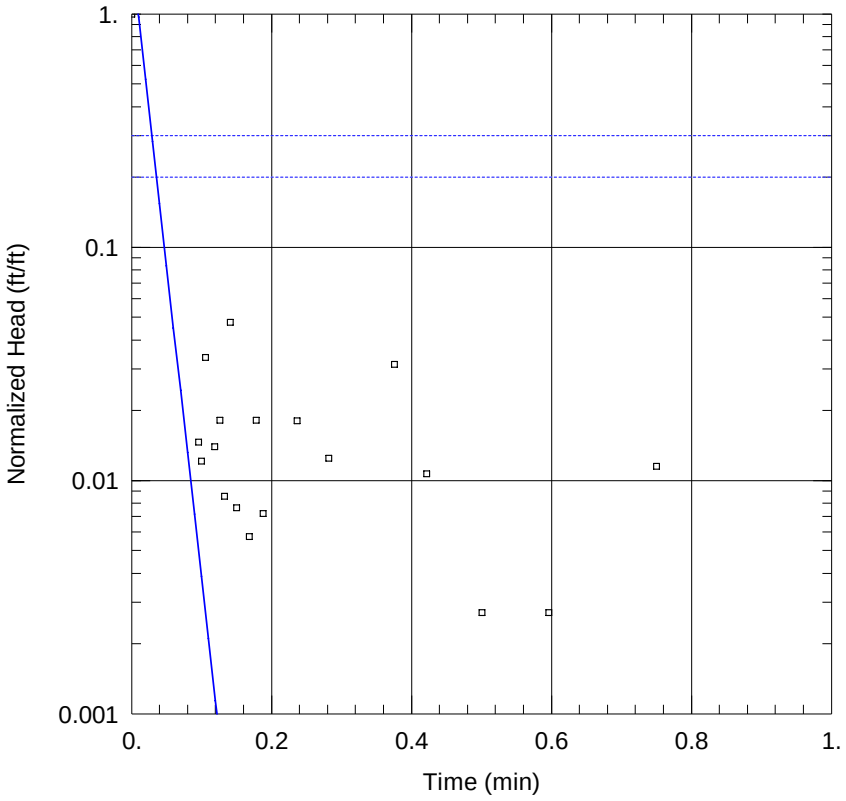
WELL DATA (MW-34D)

Initial Displacement: 0.1735 ft
Total Well Penetration Depth: 68.1 ft
Casing Radius: 0.083 ft
Static Water Column Height: 68.1 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 120. ft/day y0 = 0.3101 ft



MW34D-PUMP3

Data Set: C:\...\MW34D-pump3.aqt
Date: 03/31/20 Time: 15:54:56

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-34D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 68.1 ft Anisotropy Ratio (Kz/Kr): 1.

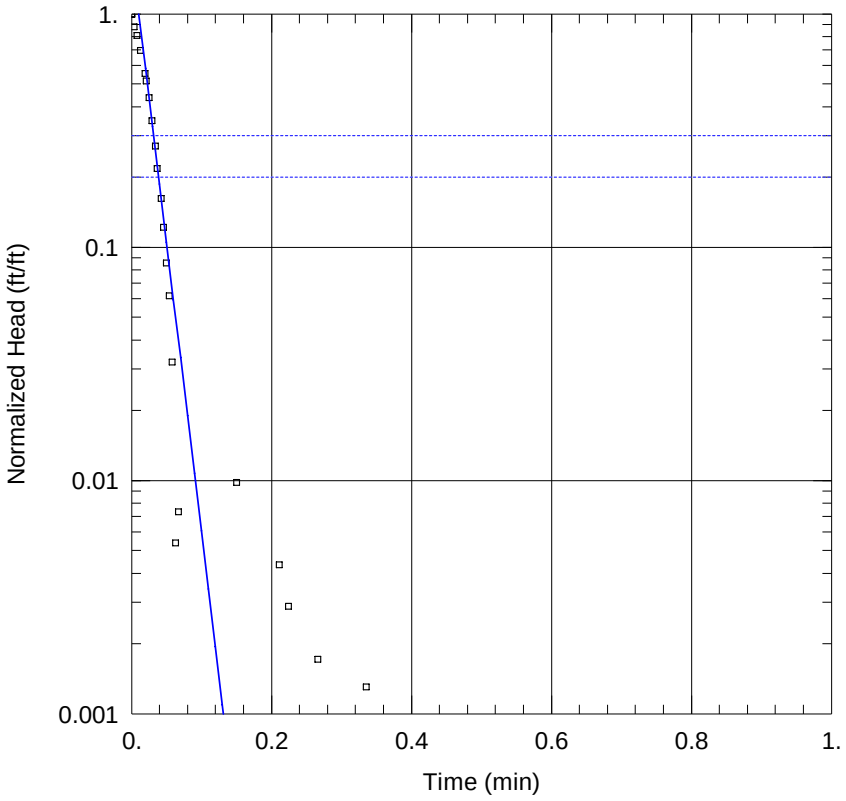
WELL DATA (MW-34D)

Initial Displacement: 0.1735 ft
Total Well Penetration Depth: 68.1 ft
Casing Radius: 0.083 ft
Static Water Column Height: 68.1 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 120. ft/day y0 = 0.3101 ft



MW34D-PUMP4

Data Set: C:\...\MW34D-pump4.aqt
Date: 03/31/20 Time: 15:54:57

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-34D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 68.1 ft Anisotropy Ratio (Kz/Kr): 1.

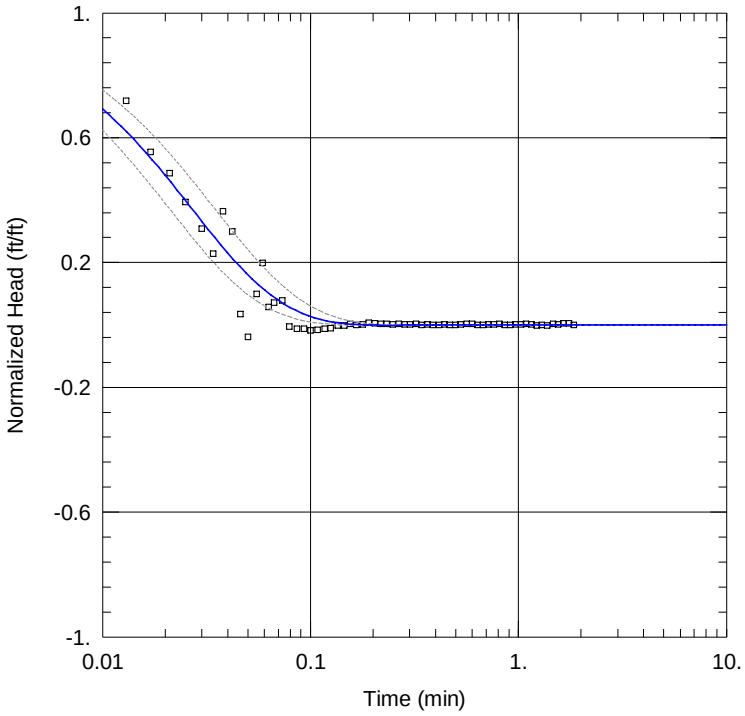
WELL DATA (MW-34D)

Initial Displacement: 0.5216 ft
Total Well Penetration Depth: 68.1 ft
Casing Radius: 0.083 ft
Static Water Column Height: 68.1 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 111.6 ft/day y0 = 0.9516 ft



MW35D-IN2

Data Set: C:\...\MW35D-in2_KGS.aqt
Date: 03/31/20 Time: 16:08:55

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-35D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 67.73 ft

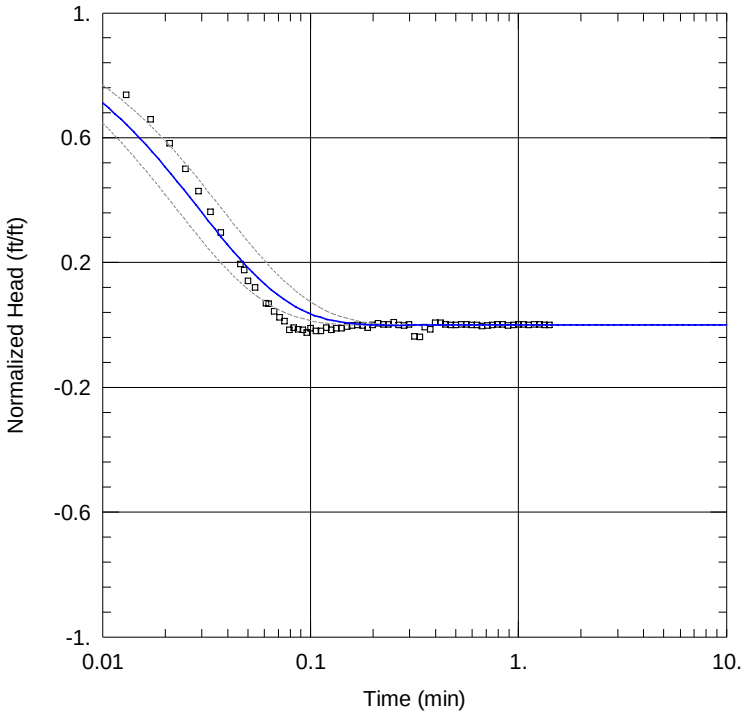
WELL DATA (MW-35D)

Initial Displacement: 1.668 ft
Total Well Penetration Depth: 67.73 ft
Casing Radius: 0.083 ft
Static Water Column Height: 67.73 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 93.17 ft/day
Kz/Kr = 0.1
Ss = 1.476E-12 ft^{-1}



MW35D-OUT1

Data Set: C:\...\MW35D-out1_KGS.aqt
Date: 03/31/20 Time: 16:08:56

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-35D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 67.73 ft

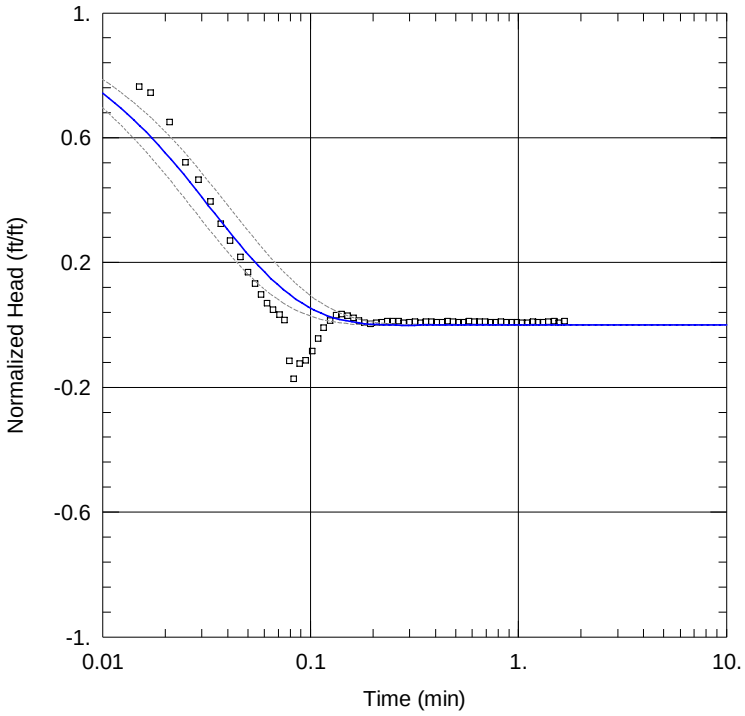
WELL DATA (MW-35D)

Initial Displacement: 2.4 ft
Total Well Penetration Depth: 67.73 ft
Casing Radius: 0.083 ft
Static Water Column Height: 67.73 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 86.24 ft/day
Kz/Kr = 0.1
Ss = 1.476E-12 ft^{-1}



MW35D-OUT2

Data Set: C:\...\MW35D-out2_KGS.aqt
Date: 03/31/20 Time: 16:08:57

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-35D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 67.73 ft

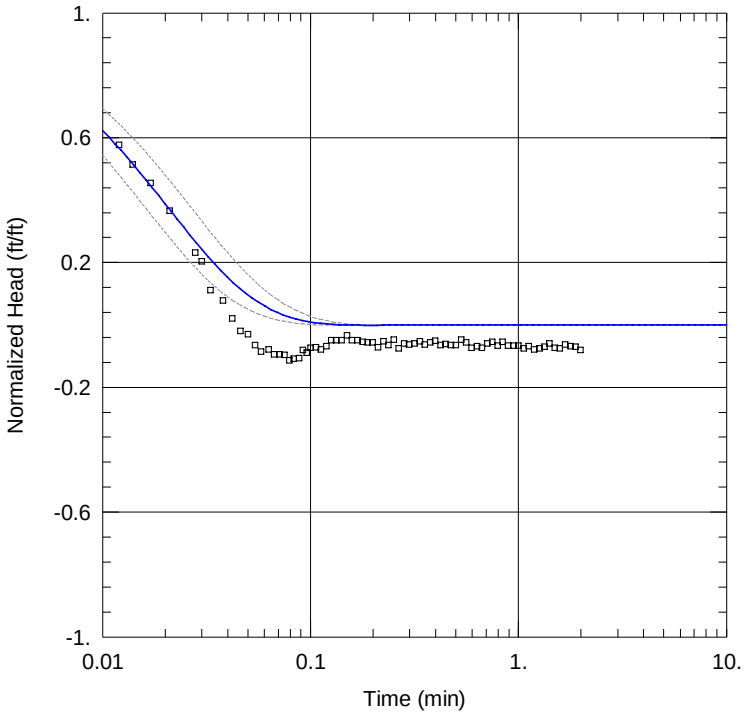
WELL DATA (MW-35D)

Initial Displacement: 1.85 ft
Total Well Penetration Depth: 67.73 ft
Casing Radius: 0.083 ft
Static Water Column Height: 67.73 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 91.15 ft/day
Kz/Kr = 0.01135
Ss = 5.119E-12 ft^{-1}



MW35D-PUMP1

Data Set: C:\...\MW35D-pump1_KGS.aqt
Date: 03/31/20 Time: 16:08:57

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-35D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 67.73 ft

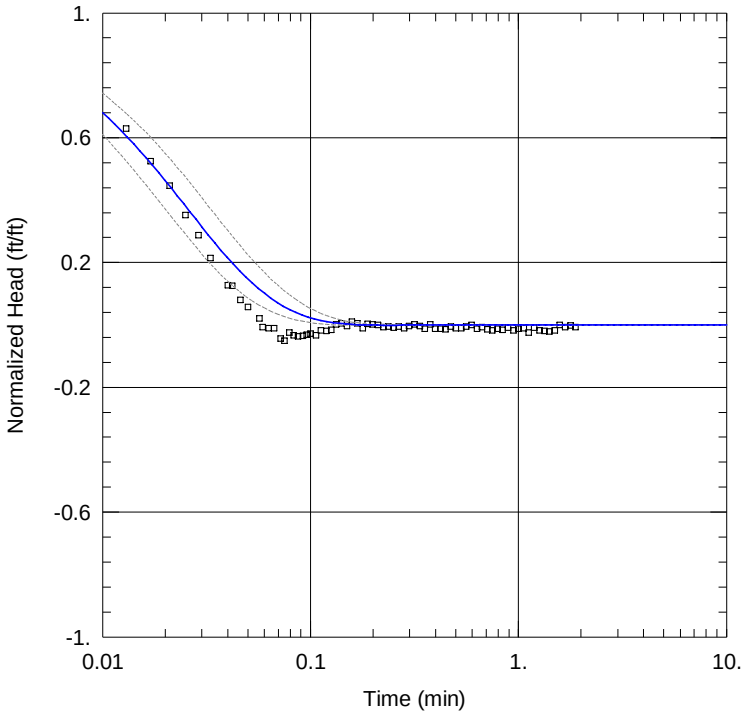
WELL DATA (MW-35D)

Initial Displacement: 0.3822 ft
Total Well Penetration Depth: 67.73 ft
Casing Radius: 0.083 ft
Static Water Column Height: 67.73 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 119.2 ft/day
Kz/Kr = 0.1072
Ss = 3.752E-12 ft^{-1}



MW35D-PUMP2

Data Set: C:\...\MW35D-pump2_KGS.aqt
Date: 03/31/20 Time: 16:08:58

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-35D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 67.73 ft

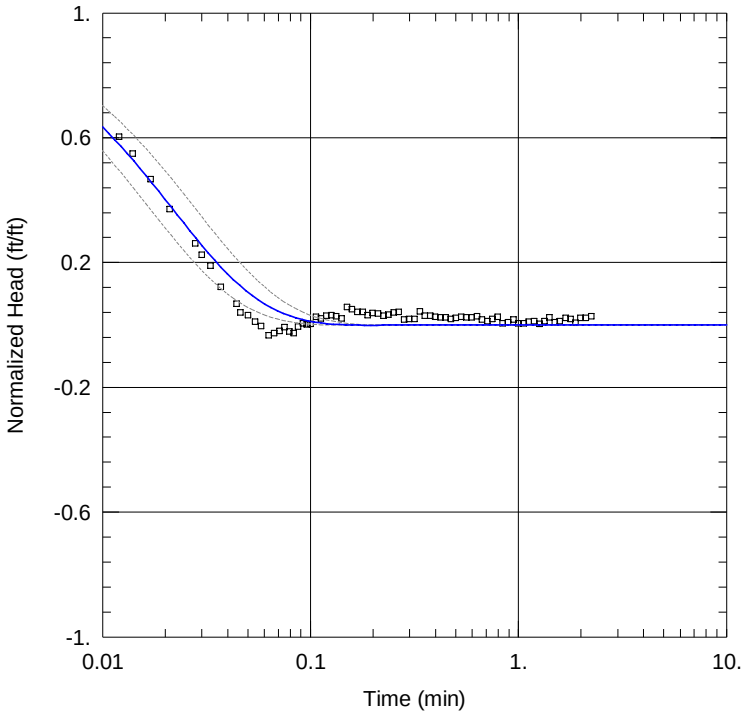
WELL DATA (MW-35D)

Initial Displacement: 0.516 ft
Total Well Penetration Depth: 67.73 ft
Casing Radius: 0.083 ft
Static Water Column Height: 67.73 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 97.73 ft/day
Kz/Kr = 0.1
Ss = 1.476E-12 ft^{-1}



MW35D-PUMP3

Data Set: C:\...\MW35D-pump3_KGS.aqt
Date: 03/31/20 Time: 16:08:59

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-35D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 67.73 ft

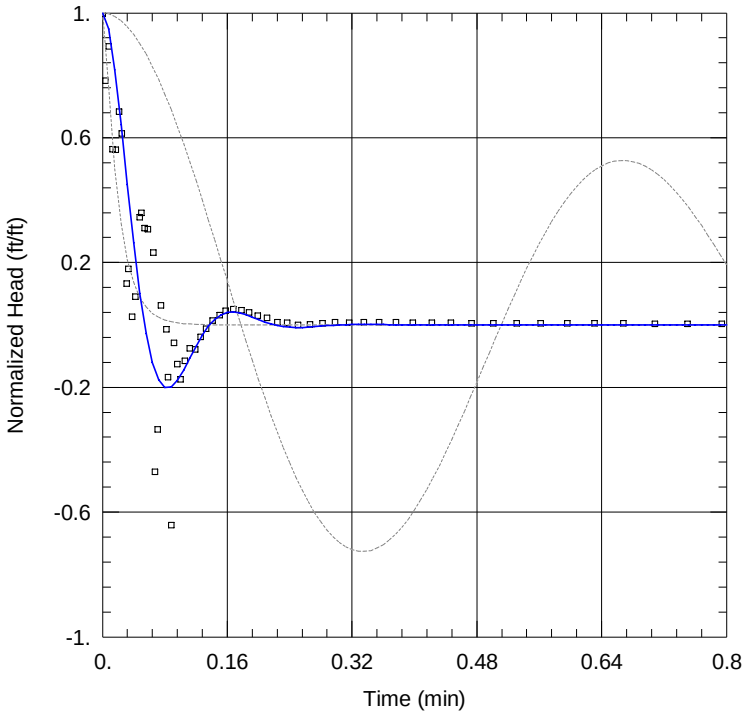
WELL DATA (MW-35D)

Initial Displacement: 0.3363 ft
Total Well Penetration Depth: 67.73 ft
Casing Radius: 0.083 ft
Static Water Column Height: 67.73 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 115.5 ft/day
Kz/Kr = 0.1
Ss = 1.476E-12 ft^{-1}



MW36D-IN1

Data Set: C:\...\MW36D-in1_springer-gelhar.aqt
Date: 03/31/20 Time: 16:10:13

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-36D
Test Date: 11/25/19

AQUIFER DATA

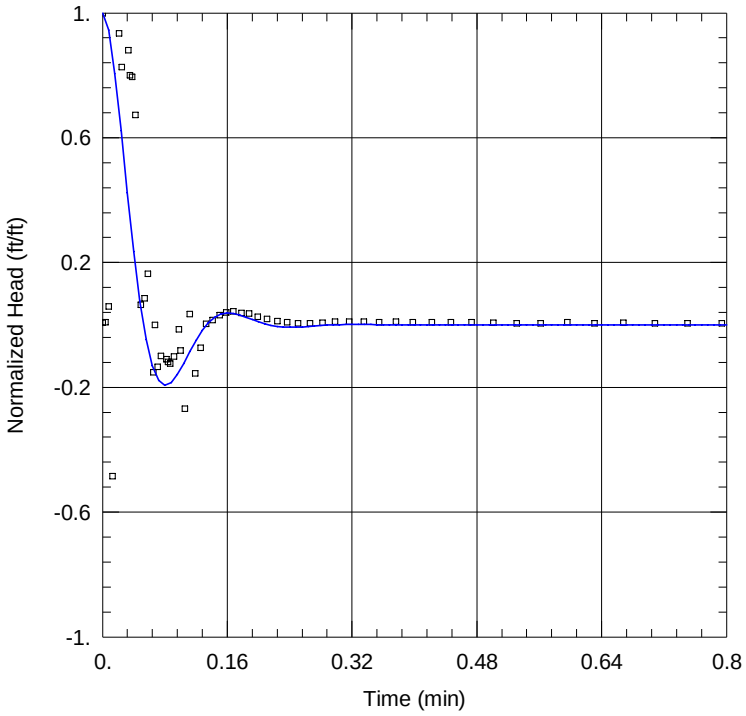
Saturated Thickness: 63.59 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-36D)

Initial Displacement: 2.38 ft
Total Well Penetration Depth: 63.59 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.59 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
K = 90.56 ft/day
Solution Method: Springer-Gelhar
Le = 64.64 ft



MW36D-IN2

Data Set: C:\...\MW36D-in2_springer-gelhar.aqt
Date: 03/31/20 Time: 16:10:13

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-36D
Test Date: 11/25/19

AQUIFER DATA

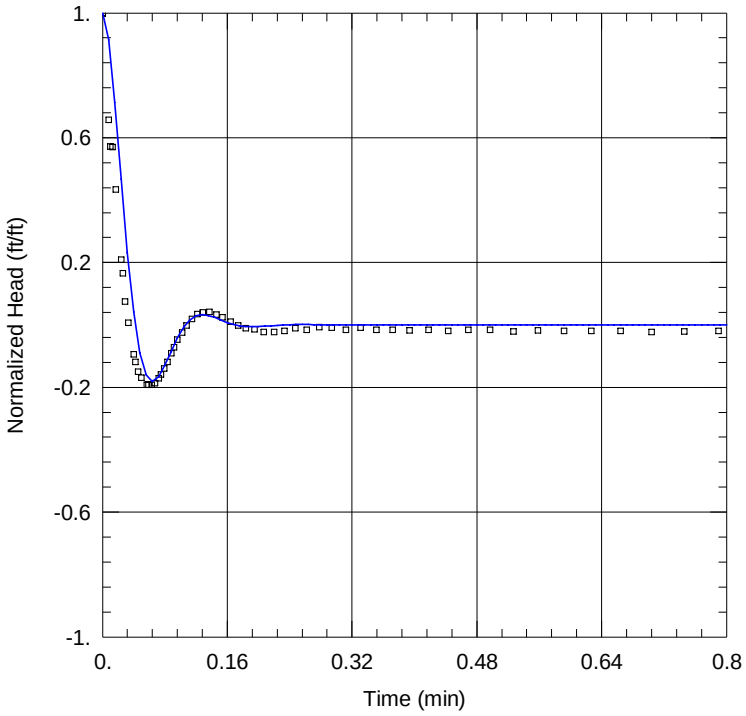
Saturated Thickness: 63.59 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-36D)

Initial Displacement: 2.69 ft
Total Well Penetration Depth: 63.59 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.59 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
K = 92.07 ft/day
Solution Method: Springer-Gelhar
Le = 59.84 ft



MW36D-OUT1

Data Set: C:\...\MW36D-out1_Springer-gelhar.aqt
Date: 03/31/20 Time: 16:10:14

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-36D
Test Date: 11/25/19

AQUIFER DATA

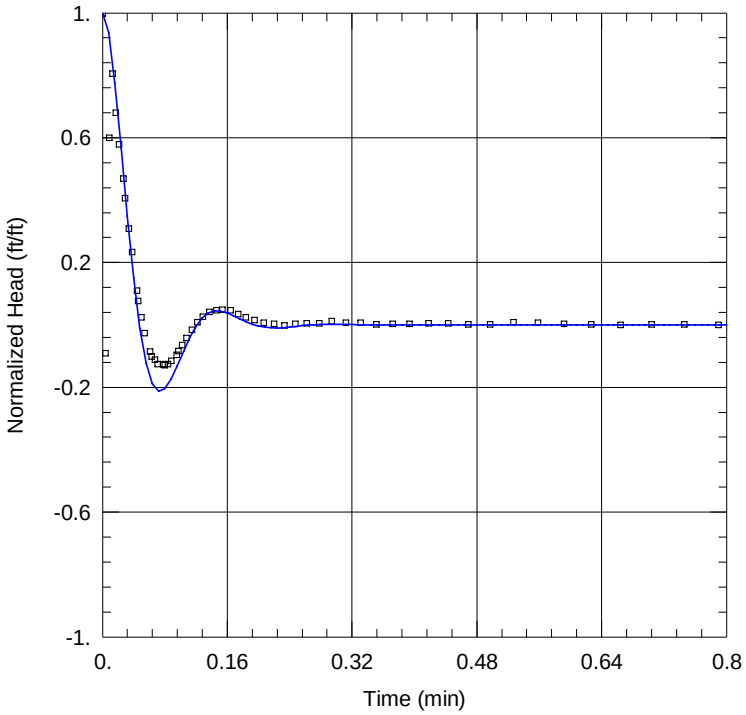
Saturated Thickness: 63.59 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-36D)

Initial Displacement: 1.333 ft
Total Well Penetration Depth: 63.59 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.59 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
K = 113.2 ft/day
Solution Method: Springer-Gelhar
Le = 37.18 ft



MW36D-OUT2

Data Set: C:\...\MW36D-out2_Springer-gelhar.aqt
Date: 03/31/20 Time: 16:10:14

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-36D
Test Date: 11/25/19

AQUIFER DATA

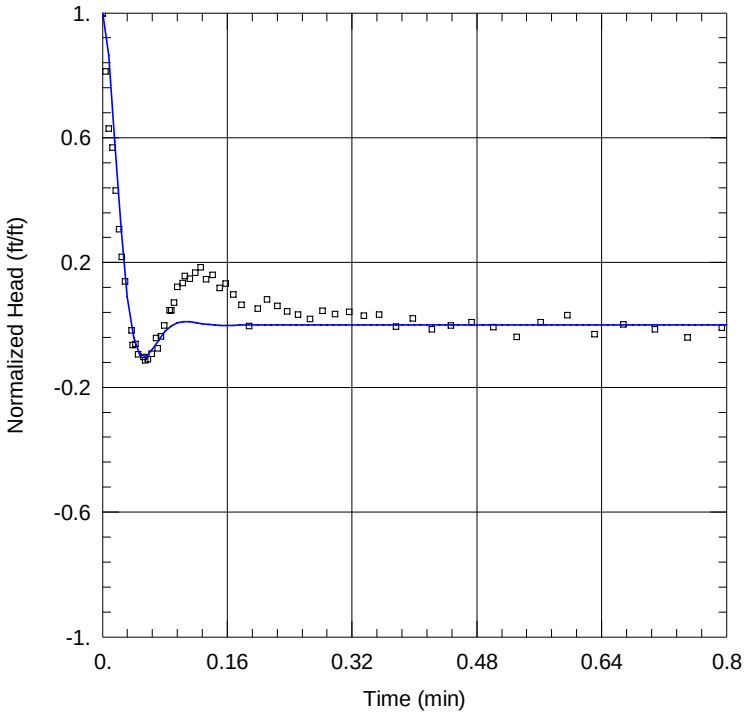
Saturated Thickness: 63.59 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-36D)

Initial Displacement: 1.606 ft
Total Well Penetration Depth: 63.59 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.59 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
K = 104.6 ft/day
Solution Method: Springer-Gelhar
Le = 51.08 ft



MW36D-PUMP1

Data Set: C:\...\MW36D-pump1_Springer-gelhar.aqt
Date: 03/31/20 Time: 16:12:02

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-36D
Test Date: 11/25/19

AQUIFER DATA

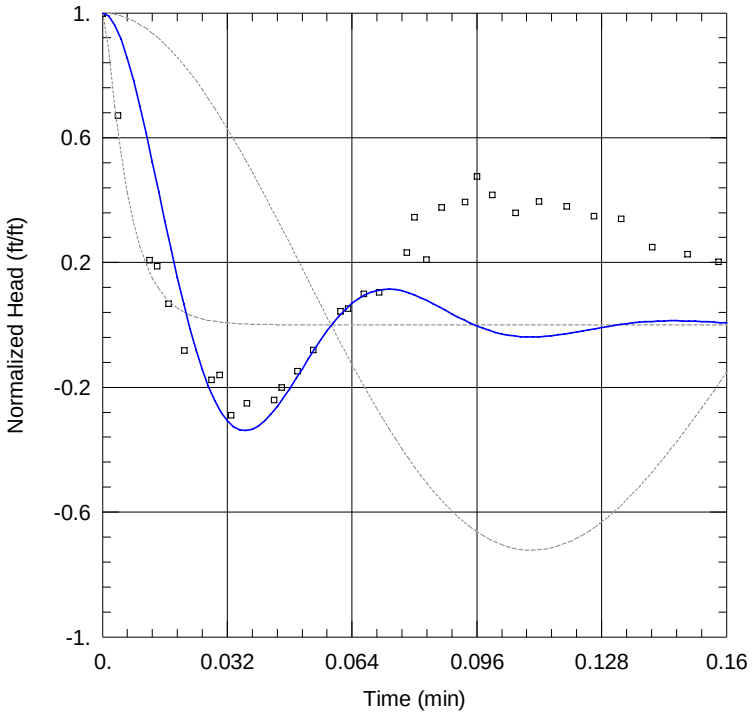
Saturated Thickness: 63.59 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-36D)

Initial Displacement: 0.2743 ft
Total Well Penetration Depth: 63.59 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.59 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
K = 121.6 ft/day
Solution Method: Springer-Gelhar
Le = 21.46 ft



MW36D-PUMP3

Data Set: C:\...\MW36D-pump3_Springer-gelhar.aqt
Date: 03/31/20 Time: 16:12:02

PROJECT INFORMATION

Company: AECOM
Client: UTC
Project: 60590866
Location: Bamberg, SC
Test Well: MW-36D
Test Date: 11/25/19

AQUIFER DATA

Saturated Thickness: 63.59 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-36D)

Initial Displacement: 0.13 ft
Total Well Penetration Depth: 63.59 ft
Casing Radius: 0.083 ft
Static Water Column Height: 63.59 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
K = 269.8 ft/day
Solution Method: Springer-Gelhar
Le = 14.06 ft