AECOM Environment

Prepared for:
CNA Holdings LLC
Dallas, Texas

Prepared by:
AECOM
Atlanta, GA
60301530.300
September 2016

OU-1 SEMIANNUAL REPORT FIRST HALF 2016

CELANESE FIBERS OPERATIONS SITE, SHELBY, NORTH CAROLINA

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Prepared By: Jing Zhou
Project Engineer

Reviewed By: Everett W. Glover Jr. P.E.
Project Manager

NORTH CAROLINA PROFESSIONAL SEAL 8641 ENGINEER EVERETT W. GLOVER

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List of Acronyms

AECOM	AECOM Technical Services of North Carolina, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFO	Celanese Fibers Operations
CNA	CNA Holdings LLC
COD	chemical oxygen demand
DNAPL	dense non-aqueous phase liquid
DO	dissolved oxygen
EFM	Environmental Field Management, Inc.
EG	ethylene glycol
EPA	U.S. Environmental Protection Agency
ft/ft	feet per foot
GRUB	Glycol Recovery Unit Bottoms
GWRS	Groundwater Recovery System
HASP	health and safety plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IT	Inner Tier
MCL	Maximum Contaminant Level
mg/L	milligrams per liter
MSL	mean sea level
NC 2B	North Carolina Administrative Code, Title 15A, Subchapter 2B
NC 2L	North Carolina Administrative Code, Title 15A, Subchapter 2L
NPL	National Priorities List
ORP	oxidation-reduction potential
OT	Outer Tier
Pace	Pace Analytical Services, Inc.
PPE	personal protective equipment

SVOC	semivolatile organic compound
TCE	trichloroethene
VOC	volatile organic compound

1.0 Introduction

This report provides a summary of the activities performed at the CNA Holdings LLC (CNA), formerly known as Celanese Fibers Operations (CFO), site in Shelby, North Carolina, during the first half of 2016.

1.1 Site Description

The CNA site is located in south-central Cleveland County, North Carolina, approximately 1 mile north of Earl and 6 miles south of Shelby, North Carolina. It is approximately 450 acres and includes the plant production area, wastewater treatment area, former waste disposal areas, and a former recreational area. North Carolina Highway 198 borders the site to the west and Lavender Road borders the site to the south; relatively low density, single family residences border the site to the north, east, and southeast. A site location map is included as Figure 1-1.

Ticona, an operating subsidiary of Celanese, currently owns the site, however, CNA, also a subsidiary of Celanese, retains management of, and responsibility for, environmental matters for the corporation. Manufacturing operations began at the site in April 1960 as Fiber Industries, Incorporated (a joint venture of Celanese and ICI). The operations included production of polyester polymer resin and filament yarn. Celanese Corporation bought the facility in 1983, renamed it CFO, and continued the production and processing of polyester polymer chips and fibers. The site currently manufactures high-performance engineering polymers. When the U.S. Environmental Protection Agency (EPA) listed the site on the National Priorities List (NPL) in June 1986, it was the CFO site.

1.2 First Half 2016 Field Activities

The activities performed at the site during the first half of 2016 included the following:

- Semiannual groundwater and surface water sampling event (March 2016)
- Glycol Recovery Unit Bottoms (GRUB) Area Groundwater Recovery System (GWRS) operation (January – June 2016)

These tasks are discussed in the following sections.

1.2.1 Semiannual Sampling Event

During March 2016, a groundwater and surface water sampling event was performed in compliance with the "*Work Plan and Field Sampling Plan for Supplemental Investigation and Long-Term Groundwater Monitoring, Celanese Fibers Operations Site, Shelby, North Carolina"* (Work Plan), dated June 2010. According to the Work Plan, the objective of the groundwater monitoring event is to provide general site-wide data to comply with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) monitoring program. The Sampling Plan is included as Table 1-1.

1.2.2 GRUB Area Groundwater Recovery System Operation

Previous investigation in the former GRUB disposal area has shown an area of elevated ethylene glycol (EG) and 1,4-dioxane concentrations in groundwater. Based on this finding, the GWRS consisting of groundwater extraction wells IT-10, IT-11, and IT-12 and related infrastructure was installed and started in 2012. System operations have continued since that time. The system operation and performance monitoring from January 2016 to June 2016 are discussed later in this report.

1.3 Project Personnel

The table below identifies key project personnel and relevant contact information.

Name/Company	Title	Address	Phone	Email
Everett W. Glover, Jr. AECOM Technical Services of North Carolina, Inc. (AECOM)	Project Manager	400 Northpark Town Center 1000 Abernathy Rd NE Suite 900 Atlanta, GA 30328-5648	678.808.8960	everett.glover@aecom.com
Lee Davis AECOM	Health & Safety Manager	1600 Perimeter Park Drive Suite 400 Morrisville, NC 27560	919.461.1100	bennie.davis@aecom.com
Jing Zhou AECOM	Project Engineer	400 Northpark Town Center 1000 Abernathy Rd NE Suite 900 Atlanta, GA 30328-5648	678.808.8925	jing.zhou@aecom.com
Kevin Godwin Pace Analytical Services, Inc. (Pace)	Project Manager	9800 Kincey Ave. Ste. 100 Huntersville, NC 28078	704.875.9092	kevin.godwin@pacelabs.com
Aaron Hill Environmental Field Management, Inc. (EFM)	Field Sampling and Site Safety Manager	2300 Ireland Street SE Bolivia, NC 28422	919.524.6128	aaronhill.efm@gmail.com

2.0 Health and Safety

Site personnel reviewed and updated the health and safety plan (HASP), as needed, before initiating the field activities. Field personnel had access to a copy of the HASP during field activities, and personnel working at the site were required to read, understand, and conform to the requirements of the HASP. As site activities progressed, the HASP was reviewed to ensure compliance with Occupational Safety and Health Administration (OSHA) regulations and safe working conditions.

The site manager/site health and safety officer conducted daily safety meetings. Safety meeting notes were recorded on Site Safety Meeting Forms and/or referenced in the field notebook.

2.1 Personal Protective Equipment

Level D personal protective equipment (PPE) was used during field activities. Level D PPE for this site included:

- standard work clothes (long pants and long sleeves required)
- hardhat (as required)
- safety glasses
- steel-toed boots
- ear protection (as required)
- gloves (as required)
- high visibility safety vest (as required)

2.2 Training

In compliance with Title 29 of the Code of Federal Regulations (29 CFR) 1910.120, field personnel who could potentially encounter contaminated groundwater or waste were required to document they had completed a 40-hour course in Hazardous Waste Operations and Emergency Response (HAZWOPER) and the 8-hour HAZWOPER refresher courses, as needed. In addition, site personnel were required to complete site-specific safety training.

3.0 Semiannual Sampling Event

The March 2016 semiannual sampling event included the collection of water levels and groundwater samples from selected site monitoring wells, inactive[1] and active remediation wells, and from surface water on and adjacent to the site. A map of the groundwater and surface water sampling locations is included as Figure 3-1.

3.1 Groundwater/Surface Water Monitoring

On March 7, 2016, EFM collected groundwater and surface water elevation data using electronic water level indicators. The groundwater and surface water elevation data are included as Tables 3-1 and 3-2, respectively. Potentiometric surface maps of the shallow saprolite and deep saprolite/shallow bedrock aquifer were generated from data in Tables 3-1 and 3-2. These maps are provided as Figures 3-2 and 3-3, respectively.

3.1.1 March 2016 Groundwater Elevation Results

The shallow saprolite potentiometric surface map (Figure 3-2) shows water level contours and direction of groundwater movement in the uppermost water-bearing zone beneath the site. The map shows that groundwater elevations ranged from approximately 849 feet above mean sea level (MSL) along NC 198 to approximately 658 feet MSL near the confluence of the unnamed tributaries to Buffalo Creek east and southeast of the site. The direction of flow in this zone is to the east, northeast, and southeast from upgradient areas along NC 198, towards discharge areas along the unnamed tributaries of Buffalo Creek. The unnamed tributaries are referred to as Stream A, Stream B, and Stream C on the figures. Groundwater gradients were calculated from three different areas that were representative of site conditions; the groundwater gradient ranged from 0.030 feet per foot (ft/ft) to 0.044 ft/ft across the site with an average of 0.037 ft/ft. The locations of these gradients are included on Figure 3-2.

The deep saprolite/shallow bedrock aquifer potentiometric surface map (Figure 3-3) shows water level contours and direction of groundwater movement in this region beneath the site. As in the shallow saprolite, the direction of flow in the bedrock zone is to the east, northeast, and southeast from upgradient areas along NC 198, towards discharge areas along the unnamed tributaries of Buffalo Creek. Groundwater elevations ranged from approximately 828 feet MSL along NC 198 to 716 feet MSL at the JJ-well location near the unnamed tributaries of Buffalo Creek along the east portions of the site. Groundwater gradients were calculated from three different areas that were representative of conditions of the deep saprolite/shallow bedrock aquifer; the groundwater gradient ranged from 0.025 ft/ft to 0.042 ft/ft across the site with an average of 0.035 ft/ft. The locations of these gradients are included on Figure 3-3.

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[1] The former Inner Tier (IT) and Outer Tier (OT) extraction wells have been incorporated into the routine monitoring program for collection of groundwater elevation information and, and at select locations, groundwater quality information. Thus, they are considered part of the monitoring well network. Wells IT-10, IT-11, and IT-12 comprise the current extraction well system.

A comparison of the September 2015 and March 2016 water levels was made to evaluate if water levels were increasing or decreasing during the period. The comparison shows that water levels increased 5 feet in most wells. The groundwater elevations in March 2016 generally remain within the historically observed range.

3.1.2 DOWTHERM™A Gauging and Recovery – Monitoring Well F-55

Historically, separate phase DOWTHERM™A has been detected in monitoring well F-55 during routine groundwater monitoring. When detected, the dense non-aqueous phase liquid (DNAPL) is recovered using a disposable polyethylene bailer.

On March 9, 2016, groundwater and DNAPL measurements were taken in monitoring well F-55 using an electronic interface probe, and 2.69 feet of DNAPL was detected. Approximately 0.5 gallons of DNAPL were recovered using a disposable polyethylene bailer; the total volume of DNAPL recovered from well F-55 since 2006 is approximately 6.3 gallons. Measurement of water and DNAPL levels will continue at well F-55 during routine monitoring events. Table 3-3 presents a summary of the bailing activities, including the DNAPL removal history at well F-55.

3.2 Groundwater/Surface Water Sampling

Groundwater samples were collected using modified low-flow purging and sampling methods. The low-flow purging method modification included pre-purging of the wells to compensate for drawdowns that are typically greater than 0.2 feet due to the flow characteristics of the site aquifer materials. Low-flow sampling has been used since it was approved by the EPA in 2006.

Peristaltic pumps and disposable polyethylene tubing or submersible pumps (depending on depth to groundwater) were used for purging and sampling the monitoring wells. During purging, conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), pH, temperature, and turbidity were measured using a multi-parameter water quality instrument and flow-through cell. Water levels were monitored during groundwater purging to determine the drawdown in the well. Water quality measurements and water levels were recorded on groundwater purging and sampling forms and in a field logbook. A summary of the water quality measurements is included in Table 3-4, and copies of the purging and sampling forms are included in Appendix A.

After water quality parameters stabilized to within the limits specified in the Work Plan, groundwater samples were collected and submitted, under chain-of-custody, for various combinations of the following analyses.

- volatile organic compounds (VOCs) including 1,4-dioxane, using EPA method 8260B (1,4-dioxane by 8260B SIM)
- EG using EPA method 8015C
- semivolatile organic compounds (SVOCs) including DOWTHERM™A (1,1-biphenyl and diphenyl ether) using EPA method 8270D

Surface water samples were collected using a peristaltic pump and disposable polyethylene tubing; however, because the samples were collected from a flowing stream, the samples were collected as soon as the flow through cell had filled and the air in the lines had been purged.

3.3 Discussion of Site Constituents

The following sections discuss the results of the March 2016 monitoring and sampling event. Copies of the monitoring analytical reports are included as Appendix B for January through June 2016. Summaries of the groundwater analytical data with detections are included as Table 3-5 for VOCs and Table 3-6 for SVOCs. Summaries of the groundwater and surface water analytical data including non-detects are included in Appendix C. Concentrations of 1,4-dioxane, EG, trichloroethene (TCE), and DOWTHERM™A vs. time plots for selected wells are provided in Appendix D. A summary of the surface water detections is included as Table 3-7. Maps showing the distribution of 1,4-dioxane, EG, TCE, and DOWTHERM™A constituents are included as Figures 3-4 through 3-7, respectively.

Additional data on 1,4-dioxane and EG were developed through operational monitoring of extraction wells IT-10, IT-11, and IT-12. These data are presented in tables included in Section 4.0.

Data from previous reports indicate there are two primary sources of EG and 1,4-dioxane at the site; the former GRUB Disposal Area and the area around the former Polymer Production Building bounded roughly by monitoring wellsTD-3/TD-4, F-55, and G-50. The wells routinely monitored have been organized in general groupings to represent these areas, and are used to organize the data in the following subsections. In addition, Mann-Kendall analyses were performed on the data sets to identify trends within the data. The results of this analysis have been added to the text tables summarizing the data collected after the IT wells were decommissioned in 2004 and are included in the following discussions.

3.3.1 1,4-Dioxane

A review of Table 3-5 shows that 1,4-dioxane was detected in 33 out of 38 monitoring wells sampled during the March 2016 event, and 32 of them exceeded the North Carolina Administrative Code, Title 15A, Subchapter 2L (NC 2L) standard of 0.003 milligrams per liter (mg/L). The highest 1,4-dioxane concentration, 2.87 mg/L, was detected in a sample from well IT-6. Well IT-6 also had the maximum 1,4-dioxane concentration in the March and September 2015 sampling events; however, approximately 66 percent of the 1,4-dioxane detections were between the reporting limit of 0.002 mg/L and 0.3 mg/L, or more than an order of magnitude lower than the highest detections.

Compared to the historical data since 2004, the 1,4-dioxane concentrations during the March 2016 sampling event were all within the historical range, except for well V-65. The 1,4-dioxane concentration in V-65 was 1.07 mg/L in March 2016, slightly higher than the historical high of 1.04 mg/L (March 2013). V-65 is one of the performance morning wells of the GRUB GWRS, and operation of the GRUB GWRS may have impacted its concentrations. Mann-Kendall statistical analysis indicated increasing trends were observed at wells F-55, I-57, PEW-1, and TI-2 downgradient of the F-55 area, and at wells II-112, V-65, T-35, and K-28 downgradient of the former GRUB Disposal Area. 1,4-Dioxane concentrations in other wells are declining, stable, or fluctuated without an apparent trend.

Summary of 1,4-Dioxane Concentrations in Monitoring Wells

Well ID		Historical Values (March 2004 – September 2015)				Current Value	Concentration Trend (2)
		Initial Value (1)	Maximum Value (mg/L)		Median Value	March 2016	
		(mg/L)	Value	Date	(mg/L)	(mg/L)	
Upgradient Area	C-49	<0.01	0.00365	11/3/2009	<0.002	<0.002	PD
Former Polymer Production Area	F-55	0.01	0.367	3/20/2012	0.305	0.333	I
	G-50	0.15	1.09	11/9/2006	0.201	0.0193	D
	G-88	0.0119	0.017	9/24/2014	0.0121	0.0152	NT
	I-57	0.103	1.72	3/20/2014	0.6455	0.598	I
	PEW-1	0.028	0.05	9/22/2015	0.0342	0.0418	I
	PEW-3	<0.002	0.0049	3/10/2015	<0.002	<0.002	NT
	PEW-4	0.0685	0.193	9/24/2014	0.0777	0.0626	NT
	QQ-110	0.0043	0.00512	3/14/2013	0.0048	0.0043	NT
	RR-131	0.0026	0.0168	9/24/2014	0.0026	0.0124	NT
	TD-2	<0.002	0.009	10/11/2011	0.00242	0.002	NT
	TD-3	<0.01	0.0121	9/23/2014	<0.002	0.0095	NT
	TD-4	All ND					ND
	TI-2	<0.01	0.0077	9/24/2014	0.0049	0.0054	I
Former GRUB Disposal Area	CC-64	0.381	0.381	9/12/2006	0.208	0.218	NT
	C-33	0.048	0.166	8/17/2006	0.076	0.119	PD
	IT-5	0.8	2.36	9/22/2014	1.36	1.7	PI
	IT-6	2.4	4.15	9/22/2014	2.69	2.87	NT
	IT-7	0.51	0.573	3/8/2011	0.492	0.442	NT
	IT-8R	0.74	1.56	3/10/2011	1.01	1.29	S
	IT-9	0.99	0.99	2/22/2005	0.397	0.288	D
	K-28	0.17	1.54	11/13/2012	0.95	0.875	I
	K-58	0.0062	0.969	9/12/2006	0.553	0.629	NT
	V-23	0.17	2.94	11/4/2009	1.03	0.0771	D
	V-65	0.2	1.04	3/13/2013	0.544	1.07	I
Downgradient Area	AA-54	0.576	0.576	8/15/2006	0.21	0.186	D
	DD-58R	0.0387	0.115	3/20/2009	0.0842	0.0828	S
	GG-61	0.0287	0.0731	3/11/2011	0.0462	0.035	S
	HH-48	<0.002	0.006	9/23/2014	<0.0020	<0.0020	S
	HH-77	<0.002	0.0045	9/23/2014	0.002135	<0.002	S
	II-112	0.0063	0.0982	9/23/2015	0.0332	0.0979	I
	II-65	0.16	0.361	9/15/2006	0.27	0.105	D
	KK-55	0.19	0.205	9/21/2015	0.145	0.185	PI
	OT-2R	0.246	0.246	8/17/2006	0.0997	0.0946	D
	T-35	0.094	0.199	9/22/2015	0.09435	0.169	I

(1) March 2004 or earliest sample date after March 2004
(2) I: Increasing; PI: Probably Increasing; S: Stable; PD: Probably Decreasing; D: Decreasing; NT: No Trend; ND: not detected

Figure 3-4 shows the distribution of 1,4-dioxane detections during the March 2016 sampling event. The map shows 1,4-dioxane concentrations were detected at most depths throughout the saprolite and shallow bedrock zones sampled. From the previous expanded sampling events, it was reported that downgradient from the source areas, the higher concentrations tended to occur in the deep saprolite and the shallow bedrock with generally lower concentrations in the deep bedrock. This is consistent with the predominance of flow occurring in the transition zone at the deep saprolite/shallow bedrock interface and the decreasing frequency, size, and interconnectivity of fractures at greater depth into bedrock.

1,4-Dioxane was also detected in both surface water samples collected during the March 2016 sampling event as presented in Table 3-7. Location SW-4 had a concentration of 0.0383 mg/L and location SW-7 had a concentration of 0.0147 mg/L, which are below the North Carolina Administrative Code, Title 15A, Subchapter 2B (NC 2B) standard of 0.08 mg/L. These values are within the normal fluctuation at these points.

1,4-Dioxane is recalcitrant in the subsurface, and degradation is more rapid once discharged to surface water and exposed to volatilization, UV light, and ozone in the atmosphere. Thus, the concentrations will continue to decrease due to degradation and influx of non-impacted groundwater downgradient of the site.

3.3.2 Ethylene Glycol

A review of the data in Table 3-5 and Figure 3-5 shows detections of EG in 11 out of 22 of the monitoring wells sampled during the March 2016 sampling event. The maximum EG concentration, 2,870 mg/L, was detected in a sample from monitoring well IT-11 located immediately downgradient of the former GRUB disposal area.

The highest EG concentration for a sample collected outside the former GRUB disposal area was detected in monitoring well F-55 at 715 mg/L located east of the Polymer Production Area. The EG concentrations in F-55 has demonstrated a decreasing trend since 2008.

Compared to the historical data since 2004, the EG concentrations during the March 2016 sampling event were within the historical range in most of the wells sampled, except for well V-65, IT-7 and K-58. These three wells are performance morning wells of the GRUB GWRS, and their concentrations may have been impacted by the GRUB GWRS operation. Mann-Kendall statistical analysis indicated the increasing trends were observed in wells IT-5, IT-8R, and IT-9. Wells AA-54, KK-55, and OT-2R indicate probably increasing or increasing trends. However, inspection of the data shows that these interpretations are based on a single detection and elevated detections levels in the more recent samples. Therefore, the probably increasing or increasing trends in these wells is interpreted as not representing truly increasing concentrations of EG at these wells. EG concentrations in other wells have been decreasing or fluctuated without an apparent trend.

Summary of Ethylene Glycol Concentrations in Monitoring Wells

Well ID		Initial Value (1) (mg/L)	Historical Values (March 2004 – March 2016) Maximum Value (mg/L) Value	Maximum Value (mg/L) (mg/L)	Median Value (mg/L)	Current Value March 2016 (mg/L)	Concentration Trend (2)
Former Polymer Production Area	F-55	1,990	11,500	11/30/2006	4,320	715	D
	G-50	<7	ALL ND				ND
	G-88	<7	ALL ND				ND
	I-57	<7	5.1	3/9/2015	<7	<50	PI
	TI-2	<7	ALL ND				ND
Former GRUB Disposal Area	CC-64	<7	ALL ND				ND
	IT-5	<7	2,630	9/22/2015	<7	1,940	I
	IT-6	<70	3,970	9/19/2006	705.5	1,900	NT
	IT-7	<28	303	9/22/2015	<7	314	NT
	IT-8R	<7	1,750	11/13/2012	<7	845	I
	IT-9	<7	153	12/4/2012	<7	93.3	I
	K-28	<35	1,410	11/8/2006	71.7	<50	NT
	K-58	<7	20.8	12/4/2012	<7	50.7	NT
	V-65	<7	31.1	12/4/2012	<7	54	PI
	V-23	7,960	9,640	11/1/2007	4,850	<50	D
Downgradient Area	AA-54	<7	11.2	9/22/2015	<7	<50	I (only one detection)
	DD-58R	<7	ALL ND				ND
	II-65	<7	ALL ND				ND
	KK-55	<7	61.6	3/10/2015	<7	<50	PI
	OT-2R	<7	5.9	9/22/2015	<7	<50	I (only one detection)

(1) March 2004 or earliest sample date after March 2004
(2) I: Increasing; PI: Probably Increasing; S: Stable; PD: Probably Decreasing; D: Decreasing; NT: No Trend; ND: not detected

EG is readily biodegradable under aerobic and anaerobic conditions, and the microorganisms capable of biodegrading EG are typically readily available at most sites. Depletion of oxygen and a reducing environment are expected when EG is biodegraded by native microorganisms. In the vicinity of monitoring well F-55 and the K and V monitoring wells, EG concentrations are elevated. The low DO concentrations in these areas support the conclusion that both aerobic and anaerobic biodegradation of EG is occurring.

3.3.3 Trichloroethene

A review of the data in Table 3-5 and Figure 3-6 shows detections of TCE in 12 out of 32 of the monitoring wells sampled during the March 2016 sampling event, and 8 of them exceeded the NC 2L standard and Maximum Contaminant Level (MCL). These wells are all located in the vicinity of the former Polymer Production Area.

The highest TCE concentration from the March 2016 sampling event occurred at well QQ-110 at 41.2 mg/L. Monitoring well QQ-110 is a bedrock monitoring well installed as a deep cluster well near monitoring wells TD-3 and TD-4 to delineate the vertical extent of TCE at this location. Monitoring well

TD-4, which has historically reported the highest concentrations of TCE, had the second highest concentration of TCE at 4.92 mg/L during the March 2016 sampling event.

Compared to the historical data since 2004, the TCE concentrations during the March 2016 sampling event were within the historical range in the wells sampled, except for well CC-33. Mann-Kendall statistical analysis indicated increasing trends were observed in wells PEW-1, PEW-3, TD-4, and CC-33. TCE concentrations in other wells have been declining, stable, or fluctuated without an apparent trend.

Summary of TCE Concentrations in Monitoring Wells

Well ID		Initial Value (1) (mg/L)	Historical Values (March 2004 – March 2016) Maximum Value (mg/L) Value	Date	Median Value (mg/L)	Current Value March 2016 (mg/L)	Concentration Trend (2)
Upgradient Area	C-49	<0.001	All ND				ND
Former Polymer Production Area	F-55	<0.003	0.0329	3/13/2013	0.005	0.0022	I (detections all below MCL)
	G-50	<0.001	0.007	3/10/2015	0.00155	0.0017	I (most detections below MCL)
	PEW-1	0.0055	0.0342	9/22/2015	0.0142	0.0303	I
	PEW-3	<0.001	0.0133	9/24/2014	0.001	0.0017	I
	PEW-4	0.0064	0.0524	3/19/2009	0.0125	0.0035	D
	TD-3	0.202	0.416	7/17/2007	0.0594	0.0165	D
	TD-4	2.63	7.76	9/19/2012	4.28	4.92	I
	TI-2	0.0072	0.0114	9/25/2013	0.00795	0.0081	NT
	QQ-110	40.7	54.2	9/23/2015	45.3	41.2	NT
	G-88	0.123	0.123	9/21/2010	0.10335	0.0904	D
	RR-131	0.0693	0.193	9/24/2014	0.0845	0.0494	S
	I-57	<0.001	All ND				ND
	TD-2	<0.001	All ND				ND
Former GRUB Disposal Area	CC-33	0.0012	0.0229	9/22/2015	0.0054	0.0254	I
	IT-5	<0.001	All ND				ND
	IT-6	<0.001	All ND				ND
	IT-7	<0.001	All ND				ND
	K-28	<0.001	0.0126	3/24/2009	<0.01	<0.0010	NT
	T-35	0.0021	0.0023	8/9/2004	0.0015	<0.001	D
	V-23	<0.001	All ND				ND
	V-65	<0.001	All ND				ND
Downgradient Area	AA-54	<0.001	All ND				ND
	DD-58R	<0.001	All ND				ND
	GG-61	<0.001	All ND				ND
	II-112	<0.001	All ND				ND
	II-65	<0.001	All ND				ND
	KK-55	<0.001	All ND				ND
	OT-2R	<0.001	All ND				ND

(1) March 2004 or earliest sample date after March 2004
(2) I: Increasing; PI: Probably Increasing; S: Stable; PD: Probably Decreasing; D: Decreasing; NT: No Trend; ND: not detected

3.3.4 DOWTHERM™A

DOWTHERM™A is a heat transfer fluid that is comprised of approximately 73 percent diphenyl ether and 27 percent 1,1-biphenyl. Samples were collected from monitoring wells in the vicinity of monitoring well F-55, including monitoring wells F-55, PEW-1, PEW-3, PEW-4, and RR-131, for analysis of diphenyl ether and 1,1-biphenyl. The sampling results for SVOCs are provided in Table 3-6, and a map showing the results of the DOWTHERM™A constituents in groundwater is provided as Figure 3-7.

A review of the data in Table 3-6 and Figure 3-7 shows that during the March 2016 sampling event, 1,1-biphenyl and diphenyl ether were not detected in any samples collected from the five wells sampled. Mann-Kendall statistical analysis shows that none of the wells monitored are showing increasing trends and the concentrations are declining, stable, or fluctuating with no apparent trend.

Summary of 1,1-Biphenyl Concentrations in Monitoring Wells

Well ID			1,1-Biphenyl Historical Values (March 2004 – March 2016)			Current Value	Concentration Trend (2)
		Initial Value (1)	Maximum Value (mg/L)		Median Value	March 2016	
		(mg/L)	Value	Date	(mg/L)	(mg/L)	
Production Area	F-55	27.1	68.1	10/16/2008	6.88	<0.1	D
	PEW-1	<0.01	ALL ND				ND
	PEW-3	0.46	0.46	3/3/2004	<0.01	<0.01	D
	PEW-4	<0.01	0.0058	8/15/2006	<0.01	<0.01	S
	RR-131	<0.01	0.0032	3/20/2014	<0.01	<0.01	NT

(1) March 2004 or earliest sample date after March 2004
(2) I: Increasing; PI: Probably Increasing; S: Stable; PD: Probably Decreasing; D: Decreasing; NT: No Trend; ND: not detected

Summary of Diphenyl Ether Concentrations in Monitoring Wells

Well ID			Diphenyl Ether Historical Values (March 2004 – March 2016)			Current Value	Concentration Trend (2)
		Initial Value (1)	Maximum Value (mg/L)		Median Value	March 2016	
		(mg/L)	Value	Date	(mg/L)	(mg/L)	
Production Area	F-55	81.3	168	1/30/2008	24	<0.1	D
	PEW-1	<0.01	0.005	3/20/2014	<0.01	<0.01	S
	PEW-3	1.9	1.9	3/3/2004	<0.01	<0.01	D
	PEW-4	0.029	0.0341	4/18/2007	0.017	<0.01	D
	RR-131	<0.01	0.0085	3/20/2014	<0.01	<0.01	S

(1) March 2004 or earliest sample date after March 2004
(2) I: Increasing; PI: Probably Increasing; S: Stable; PD: Probably Decreasing; D: Decreasing; NT: No Trend; ND: not detected

4.0 GRUB Area Groundwater Recovery System

The GRUB GWRS consists of groundwater extraction wells IT-10, IT-11, and IT-12. The system installation was completed in September 2012. Performance monitoring has been conducted since the system startup. The three extraction wells and performance monitoring wells CC-64, IT-5, IT-6, IT-7, IT-8R, IT-9, K-28, K-58, V-23, and V-65 are monitored periodically. The operation and performance monitoring performed during the January 2016 through June 2016 reporting period are discussed in this section, and summaries of the data collected are contained in Tables 4-1 through 4-3. Copies of the purging and sampling forms and field notes are included in Appendix A, and copies of the analytical data are included in Appendix B.

4.1.1 Groundwater Monitoring

Groundwater levels from monitoring and extraction wells CC-64, IT-5, IT-6, IT-7, IT-8R, IT-9, IT-10, IT-11, IT-12, K-28, K-58, V-23, and V-65 were collected as part of the GRUB GWRS performance monitoring (Table 4-1). Hydrographs were constructed from the data from the startup of the GRUB GWRS through June 2016 to show the effects of the groundwater extraction wells on the surrounding monitoring wells. These graphs also include rainfall data to show the effects of rainfall on the groundwater elevation. The graphs are provided in Appendix E.

The graphs indicate that the groundwater surface in the area of the GRUB extraction wells declined after the system startup, then increased during the period from January 2013 to July 2013, then fluctuated thereafter. The groundwater elevations ranged from 754.07 (IT-10) to 799.47 (IT-10) feet above MSL at the start of this reporting period, to 750.31 (IT-10) to 801.26 (IT-12) feet above MSL at the end of this reporting period. Groundwater elevations fluctuated in extraction wells IT-10, IT-11, and IT-12 during this reporting period reflecting the pumping status at the time the measurements were taken. Wells CC-64, K-28, and K-58 are outside of the area of anticipated influence from extraction wells IT-10, IT-11, and IT-12. A review of these hydrographs shows fluctuation in these wells during this reporting period..

4.1.2 Groundwater Sampling

Groundwater samples were collected from monitoring and extraction wells CC-64, IT-5, IT-6, IT-7, IT-8R, IT-9, IT-10, IT-11, IT-12, K-28, K-58, V-23, and V-65 for 1,4-dioxane and EG analyses as part of the GRUB GWRS area monitoring, and were submitted to Pace for laboratory analyses. Table 4-2 provides a summary of the analytical data. Graphs of the 1,4-dioxane and EG concentrations versus time were constructed from the analytical data to show the effects of the groundwater extraction wells. Two graphs were generated for each constituent, one for the surrounding monitoring wells and one for the extraction wells. These graphs are included as Appendix E. Appendix E also includes a graph showing 1,4-dioxane and EG removed (pounds) and cumulative 1,4-dioxane and EG removed (pounds), based on the flow from each extraction well.

In addition, groundwater samples were collected from extraction wells IT-10, IT-11, and IT-12 for chemical oxygen demand (COD) analysis by the plant wastewater treatment laboratory. Graphs of the COD concentrations versus time were constructed from the analytical data to show the effects of the groundwater extraction on COD concentrations in IT-10, IT-11, and IT-12. The graphs also

include estimated pounds of COD and cumulative COD removed, based on the flow from each extraction well. These graphs are included as Appendix E.

4.1.2.1 1,4-Dioxane

A review of the 1,4-dioxane concentration versus time graphs for the GRUB area monitoring wells from startup of the GRUB GWRS through June 2016 shows that the maximum 1,4-dioxane concentrations occurred in samples from monitoring well IT-6. An initial decrease of the 1,4-dioxane concentrations was observed in most of the monitoring wells after the well startup. After this initial decrease, the 1,4-dioxane concentrations in some wells fluctuated or rebounded to their original concentration levels. An overall decreasing trend was observed in well V-23, and an overall increasing trend was observed in wells K-58 and V-65. No apparent trend was observed in other monitoring wells.

Graphs of the 1,4-dioxane concentration versus time were constructed from the analytical data to show the effects on the groundwater extraction wells (Appendix E). During this reporting period, the maximum 1,4-dioxane concentrations in the extraction wells were mainly found in samples from extraction well IT-11. 1,4-Dioxane concentrations in the extraction wells notably declined in samples from well IT-11 and fluctuated in samples from wells IT-10 and IT-12 (Appendix E).

Summary of 1,4-Dioxane Concentrations in Extraction Wells and Performance Monitoring Wells

Well ID	Initial Value (mg/L)	Historical Values (SEP 2012 – DEC 2015)			This Reporting Period (JAN 2016 – JUN 2016)			
		Maximum Value (mg/L)		Median Value	Range	Maximum Value (mg/L)		Median Value
		Value	Date	(mg/L)	(mg/L)	Value	Date	(mg/L)
CC-64	0.19	0.62	9/25/2013	0.208	NA	0.218	3/9/2016	NA
K-28	1.14	1.54	11/13/2012	1.105	NA	0.875	3/8/2016	NA
K-58	0.48	0.715	9/22/2014	0.542	NA	0.629	3/9/2016	NA
V-65	0.54	1.04	3/13/2013	0.755	NA	1.07	3/9/2016	NA
V-23	2.13	2.13	12/4/2012	0.649	NA	0.077	3/8/2016	NA
IT-5	1.75	2.36	9/22/2014	1.41	NA	1.70	3/8/2016	NA
IT-6	2.54	4.15	9/22/2014	2.70	NA	2.87	3/8/2016	NA
IT-7	0.5	0.562	9/22/2015	0.492	NA	0.442	3/8/2016	NA
IT-8R	1.29	1.33	11/13/2012	1.01	NA	1.29	3/9/2016	NA
IT-9	0.39	0.45	3/12/2013	0.385	NA	0.288	3/9/2016	NA
IT-10	0.79	1.09	8/15/2013	0.65	0.601-0.759	0.759	1/21/2016	0.67
IT-11	2.89	2.89	11/6/2012	1.21	0.755-1.18	1.18	1/21/2016	0.88
IT-12	1.06	1.8	11/11/2014	1.11	0.726-0.926	0.926	1/21/2016	0.75

NA – not applicable for single data point
mg/L – milligrams per liter

4.1.2.2 Ethylene Glycol

A review of the EG concentration versus time graphs for the GRUB area monitoring wells from startup of the GRUB GWRS through June 2016 shows that EG concentrations in the monitoring wells generally decreased after an initial upward fluctuation in November 2012. During this reporting period, the EG concentrations fluctuated in these monitoring wells and the concentrations were generally within the historical range in most monitoring wells except for well IT-6, IT-7, K-58 and V-65, which had the historical highest concentration in June 2016.

A review of the EG versus concentration graphs for the GRUB area extraction wells shows that the maximum EG concentrations were detected in samples from extraction well IT-11. Overall, the graphs show that EG concentrations in samples from extraction wells IT-10, IT-11, and IT-12 fluctuated during the period.

Summary of EG Concentrations in Extraction Wells and Performance Monitoring Wells

Well ID	Initial Value (mg/L)	Historical Values (SEP 2012 – DEC 2015)			This Reporting Period (JAN 2016 – JUN 2016)			
		Maximum Value (mg/L)		Median Value	Range	Maximum Value (mg/L)		Median Value
		Value	Date	(mg/L)	(mg/L)	Value	Date	(mg/L)
CC-64	All below reporting limits.							
K-28	71.7	897	11/13/2012	375	NA	<50	3/8/2016	NA
K-58	<7	20.8	12/4/2012	20.8	NA	50.7	3/9/2016	NA
V-65	<7	31.1	12/4/2012	25.65	NA	54	3/9/2016	NA
V-23	746	1,410	11/13/2012	577	NA	<50	3/8/2016	NA
IT-5	45.4	2,630	9/22/2015	233	NA	1,940	3/8/2016	NA
IT-6	799	1,000	3/19/2014	688	NA	1,900	3/8/2016	NA
IT-7	<7	303	9/22/2015	75.7	NA	314	3/8/2016	NA
IT-8R	<7	1,750	11/13/2012	593	NA	845	3/8/2016	NA
IT-9	<7	153	12/4/2012	147	NA	93.3	3/9/2016	NA
IT-10	<7	1,180	11/25/2015	206	<50-384	384	3/9/2016	233
IT-11	1230	3,890	4/10/2013	1695	<50-2,870	2,870	3/9/2016	1,630
IT-12	<7	1,940	4/22/2014	572	<50-484	666	3/9/2016	300

NA – not applicable for single data point
mg/L – milligrams per liter

4.1.3 Chemical Oxygen Demand

A review of the COD concentration versus time graphs for the GRUB area extraction wells from startup of the GRUB GWRS through June 2016 shows the maximum COD concentrations were detected in samples from extraction well IT-11. COD concentrations in samples from well IT-10 were generally lower than the COD concentrations measured at wells IT-11 and IT-12 during most of the sampling events. The COD concentrations are summarized in Table 4-3.

The COD concentrations in samples from extraction wells IT-11 and IT-12 have generally indicated a decreasing trend since the startup of the pumping. The COD concentrations in samples from extraction well IT-10 fluctuated without apparent trend (Appendix E). The COD concentration in well IT-12 in June 2016 was 300 mg/L, significantly lower than the previous levels (greater than 2,400 mg/L). The 1,4-dioxane concentration and EG concentration in this well in June 2016 remained similar to the previous sampling event.

Summary of COD Concentrations in Extraction Wells

Well ID	Historical Values (SEP 2012 – DEC 2015)			This Reporting Period (JAN 2016 – JUN 2016)			
	Maximum Value (mg/L)		Median Value	Range	Maximum Value (mg/L)		Median Value
	Value	Date	(mg/L)	(mg/L)	Value	Date	(mg/L)
IT-10	13,660	8/15/2013	4,870	4,470-5,230	5,230	3/9/2016	4,540
IT-11	36,940	10/23/2012	15,440	8,380-12,150	12,150	2/15/2016	9,200
IT-12	15,430	4/10/2013	13,415	300-7,820	7,820	2/15/2016	6,160

mg/L – milligrams per liter

4.1.4 GRUB GWRS Recovery

The startup of the GRUB GWRS was completed between October 9 and December 4, 2012, and the system has been operating since startup. Table 4-3 summarizes the totalizer readings, COD, EG, and 1,4-dioxane information.

Table 4-3 shows that since the system startup during the week of October 8, 2012, approximately 490,785 gallons of groundwater, 122,091 pounds of COD, 14 pounds of 1,4-dioxane, and 16,920 pounds of EG have been recovered and discharged to the plant's wastewater treatment system. Well IT-10 had not operated efficiently compared to wells IT-11 and IT-12 before 2014. A minimal amount of water has been extracted from IT-10 since April 2013 when the well was shut down for approximately 2 months to evaluate the impact of extraction from the other wells. However, the operation efficiency of well IT-10 has increased since 2014. Accordingly, more COD, 1,4-dioxane, and EG were removed from well IT-10 during this reporting period.

The contribution from each well is shown in the following table.

Summary of Groundwater Discharged to Plant's Wastewater Treatment System October 9, 2012 through June 27, 2016

Well	Groundwater		COD		1,4-Dioxane		EG	
	gallons	%	pounds	%	pounds	%	pounds	%
IT-10	58,288	12	6,446	5	0.98	7	236.55	1
IT-11	322,270	66	87,186	71	9.82	70	15,159.23	90
IT-12	110,227	22	28,459	23	3.29	23	1,524.33	9
Totals	490,785	100	122,091	100	14	100	16,920	100

COD – chemical oxygen demand
EG – ethylene glycol

5.0 Summary Conclusions

The following summarizes the conclusions from this reporting period:

- The direction of flow in the saprolite and deep saprolite/shallow bedrock groundwater zones is to the east, northeast, and southeast from upgradient areas along NC 198, towards discharge areas along the unnamed tributaries of Buffalo Creek. Groundwater gradients in the saprolite ranged from 0.033 ft/ft to 0.044 ft/ft across the site with an average of 0.037 ft/ft, and groundwater gradients of the deep saprolite/shallow bedrock aquifer ranged from 0.025 ft/ft to 0.042 ft/ft across the site with an average of 0.035 ft/ft.

- Groundwater monitoring detected 2.69 feet of DNAPL in monitoring well F-55. Since 06/06/2006, the volume of DNAPL recovered from well F-55 is approximately 6.3 gallons.

- Groundwater analytical data indicated that 1,4-dioxance plume at the site is generally stable. Compared to the historical data since 2004 when the groundwater extraction system was shut down, the 1,4-dioxane concentrations during the March 2016 sampling event were all within the historical range, except for well V-65. Overall, the highest 1,4-dioxane concentrations were detected at the former GRUB disposal area in samples from well IT-6. Outside of the GRUB disposal area, the highest 1,4-dioxane concentration was detected southeast of the former Polymer Production Area in well I-57. These results support the previous conclusion that 1,4-dioxane source areas at the site include the former GRUB disposal area and the area east of the polymer production area.

- 1,4-Dioxane was also detected in both surface water samples collected during the March 2016 sampling event indicating that 1,4-dioxane is being discharged into Stream A, Stream B, and Stream C on the Celanese property. These values are within the normal fluctuation at these points. The discharge to surface water allows more rapid degradation of 1,4-dioxane.

- Groundwater analytical data indicated that the EG plume at the site is stable. Compared to the historical data since 2004 when the groundwater extraction system was shut down, the EG concentrations during the March 2016 sampling event were within the historical range in most of the wells sampled. The maximum EG concentration was detected in a sample from well IT-11 located immediately downgradient of the former GRUB disposal area. The highest EG concentration collected outside the GRUB area was detected in a sample from well F-55 located east of the polymer production area. These data are in agreement with the expanded characterization sampling that indicated distinct and limited EG impacted areas associated with the F-55 area east of the former Polymer Production Area and immediately downgradient of the former GRUB waste disposal area.

- The highest TCE concentration was detected in a sample from well QQ-110 (41.2 mg/L) near well TD-4.

- The GRUB area groundwater recovery system has been operated consistently since September 2012, and has removed approximately 490,785 gallons of groundwater containing

approximately 122,091 pounds of COD, 14 pounds of 1,4-dioxane, and 16,920 pounds of EG for treatment in the plant's wastewater treatment system.

Tables

Table 1-1
Sampling Plan
Celanese Fiber Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Sample Location	VOCs with 1,4-Dioxane	Historic SVOCs plus DOWTHERM A™	Ethylene Glycol	Field Parameters[1]
C-49	X	--	--	X
F-55	X	X	X	X
G-50	X	--	X	X
I-57	X	--	X	X
K-28	X	--	X	X
T-35	X	--	--	X
V-23	X	--	X	X
V-65	X	--	X	X
AA-54	X	--	X	X
CC-33	X	--	--	X
DD-58R	X	--	X	X
GG-61	X	--	--	X
II-65	X	--	X	X
KK-55	X	--	X	X
IT-5	X	--	X	X
IT-6	X	--	X	X
IT-7	X	--	X	X
OT-2R	X	--	X	X
PEW-1	X	X	--	X
PEW-3	X	X	--	X
PEW-4	X	X	--	X
TD-2	X	--	--	X
TD-3	X	--	--	X
TD-4	X	--	--	X
TI-2	X	--	X	X
SW-4	X	--	--	--
SW-7	X	--	--	--
HH-48	1,4-dioxane only	--	--	X
HH-77	1,4-dioxane only	--	--	X
II-112	X	--	--	X
G-88	X	--	--	X
QQ-110	X	--	--	X
RR-131	X	X	--	X
IT-10 (depth 75 ft)	X	--	X	X
IT-11 (depth 42 ft)	X	--	X	X
IT-12 (depth 82 ft)	X	--	X	X

Notes:

[1]Field Parameters – depth to groundwater, dissolved oxygen, oxidation-reduction potential, pH, specific conductance, temperature, and turbidity

Table 3-1
Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Location	Date	Top of Casing (TOC) Elevation	Depth to Water	Groundwater Elevation
		feet above MSL	feet below TOC	feet above MSL
A-39	3/7/2016	823.36	12.81	810.55
AA-41	3/7/2016	783.71	33.61	750.10
AA-54	3/7/2016	782.33	32.41	749.92
B-34	3/7/2016	790.68	13.51	777.17
BB-18	3/7/2016	771.90	6.93	764.97
C-49	3/7/2016	864.21	14.57	849.64
CC-33	3/7/2016	812.71	16.76	795.95
CC-64	3/7/2016	811.45	14.11	797.34
D-27	3/7/2016	845.64	16.59	829.05
D-35	3/7/2016	845.74	17.08	828.66
D-56	3/7/2016	845.23	16.85	828.38
D-88	3/7/2016	845.65	17.10	828.55
DD-58R	3/7/2016	795.77	32.42	763.35
EE-58	3/7/2016	794.61	34.69	759.92
F-55	3/7/2016	849.21	34.04	815.17
FF-23	3/7/2016	772.49	9.82	762.67
FF-34	3/7/2016	772.84	10.18	762.66
FF-62	3/7/2016	772.24	10.10	762.14
G-50	3/7/2016	848.42	31.40	817.02
G-88	3/7/2016	848.24	31.46	816.78
GG-25	3/7/2016	771.70	17.35	754.35
GG-39	3/7/2016	770.61	16.33	754.28
GG-61	3/7/2016	771.83	17.71	754.12
H-59	3/7/2016	845.17	37.91	807.26
H-79	3/7/2016	846.53	40.50	806.03
HH-48	3/7/2016	755.64	40.08	715.56
HH-77	3/7/2016	755.62	39.57	716.05
I-57	3/7/2016	837.59	26.21	811.38
II-112	3/7/2016	759.32	27.08	732.24
II-40	3/7/2016	757.91	25.50	732.41
II-65	3/7/2016	757.95	25.29	732.66
IT-1	3/7/2016	812.56	7.48	805.08
IT-2	3/7/2016	812.30	6.50	805.80
IT-3	3/7/2016	808.02	4.20	803.82
IT-4	3/7/2016	807.46	4.49	802.97
IT-5	3/7/2016	809.09	4.75	804.34
IT-6	3/7/2016	810.65	4.82	805.83
IT-7	3/7/2016	811.90	6.59	805.31
IT-8R	3/7/2016	812.82	9.97	802.85
IT-9	3/7/2016	808.73	7.28	801.45
J-28	3/7/2016	825.06	12.87	812.19

Table 3-1
Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Location	Date	Top of Casing (TOC) Elevation	Depth to Water	Groundwater Elevation
		feet above MSL	feet below TOC	feet above MSL
J-59	3/7/2016	824.92	14.00	810.92
JJ-40	3/7/2016	744.95	25.22	719.73
JJ-65	3/7/2016	745.55	27.55	718.00
K-28	3/7/2016	811.18	10.53	800.65
K-58	3/7/2016	811.41	12.47	798.94
KK-27	3/7/2016	764.24	24.53	739.71
KK-55	3/7/2016	763.14	24.76	738.38
LL-110	3/7/2016	794.70	33.50	761.20
LL-175	3/7/2016	794.53	42.08	752.45
LL-295	3/7/2016	794.58	46.61	747.97
M-28	3/7/2016	806.65	26.68	779.97
M-44	3/7/2016	806.63	25.15	781.48
MM-128	3/7/2016	800.20	49.89	750.31
MM-170	3/7/2016	800.09	48.71	751.38
MM-280	3/7/2016	799.98	37.94	762.04
N-29	3/7/2016	803.29	7.10	796.19
N-53	3/7/2016	803.77	9.19	794.58
NN-105	3/7/2016	790.45	24.31	766.14
NN-240	3/7/2016	790.45	24.14	766.31
NN-280	3/7/2016	790.31	25.21	765.10
O-25	3/7/2016	807.59	10.98	796.61
O-59	3/7/2016	806.62	10.23	796.39
OO-150	3/7/2016	776.14	13.90	762.24
OO-218	3/7/2016	776.03	13.83	762.20
OO-95	3/7/2016	776.24	13.50	762.74
OT-10	3/7/2016	803.53	22.29	781.24
OT-1R	3/7/2016	770.27	0.86	769.41
OT-2R	3/7/2016	772.90	1.00	771.90
OT-3	3/7/2016	791.20	33.40	757.80
OT-4	3/7/2016	788.96	20.94	768.02
OT-5	3/7/2016	782.86	19.97	762.89
OT-6	3/7/2016	783.93	31.51	752.42
OT-6A	3/7/2016	797.76	35.22	762.54
OT-7	3/7/2016	780.83	25.69	755.14
OT-7A	3/7/2016	782.53	7.92	774.61
OT-8	3/7/2016	782.26	8.22	774.04
PEW-1	3/7/2016	845.44	39.46	805.98
PEW-3	3/7/2016	847.32	31.53	815.79
PEW-4	3/7/2016	846.82	30.20	816.62
PP-70	3/7/2016	784.79	19.03	765.76
PZ-1	3/7/2016	773.84	15.95	757.89

Table 3-1
Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Location	Date	Top of Casing (TOC) Elevation	Depth to Water	Groundwater Elevation
		feet above MSL	feet below TOC	feet above MSL
PZ-10	3/7/2016	781.64	36.93	744.71
PZ-11	3/7/2016	802.52	53.89	748.63
PZ-12	3/7/2016	747.08	0.75	746.33
PZ-2	3/7/2016	795.52	35.17	760.35
PZ-5A	3/7/2016	788.62	31.02	757.60
PZ-5B	3/7/2016	777.34	21.72	755.62
PZ-6A	3/7/2016	794.79	32.35	762.44
PZ-6B	3/7/2016	796.82	35.37	761.45
PZ-7A	3/7/2016	780.15	26.75	753.40
PZ-7B	3/7/2016	784.05	4.58	779.47
PZ-8	3/7/2016	765.09	5.11	759.98
PZ-9	3/7/2016	787.76	32.52	755.24
Q-33	3/7/2016	783.54	18.45	765.09
R-17	3/7/2016	779.30	9.30	770.00
R-42	3/7/2016	778.81	8.22	770.59
S-1	3/7/2016	829.84	16.77	813.07
S-50	3/7/2016	826.04	20.96	805.08
SW-13	3/7/2016	807.38	4.15	803.23
T-17	3/7/2016	777.88	10.30	767.58
T-35	3/7/2016	777.37	9.95	767.42
T-58	3/7/2016	775.93	3.77	772.16
TD-1	3/7/2016	821.30	11.81	809.49
TD-2	3/7/2016	842.68	31.55	811.13
TD-3	3/7/2016	848.65	27.47	821.18
TD-4	3/7/2016	848.94	29.40	819.54
TI-1	3/7/2016	841.95	29.74	812.21
TI-2	3/7/2016	841.80	30.22	811.58
U-38	3/7/2016	826.64	14.28	812.36
V-23	3/7/2016	811.87	6.64	805.23
V-65	3/7/2016	811.86	10.00	801.86
W-23	3/7/2016	800.91	13.69	787.22
X-32	3/7/2016	796.91	13.83	783.08
Y-38	3/7/2016	794.49	11.10	783.39
Y-74	3/7/2016	794.90	10.48	784.42
Z-78	3/7/2016	797.07	19.52	777.55
IT-10	3/7/2016	812.28	56.61	755.67
IT-11	3/7/2016	814.05	26.25	787.80
IT-12	3/7/2016	815.31	9.95	805.36
QQ-110	3/7/2016	847.64	29.12	818.52
RR-131	3/7/2016	847.06	31.24	815.82

Notes:
MSL – mean sea level
TOC – top of casing

Table 3-2
Stream Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Location	Date	Benchmark Elevation	Measuring Point Height above Benchmark	Depth to Water	Measuring Point Elevation	Stream Elevation
SW-1	3/7/2016	759.49	2.21	8.40	761.70	753.30
SW-2	3/7/2016	727.77	2.49	7.82	730.26	722.44
SW-3	3/7/2016	714.05	2.55	7.57	716.60	709.03
SW-4	3/7/2016	754.95	2.54	7.52	757.49	749.97
SW-5	3/7/2016	779.11	1.80	13.38	780.91	767.53
SW-7	3/7/2016	705.48	2.53	7.36	708.01	700.65
SW-8(1)	3/7/2016	723.12	0.00	5.46	723.12	717.66
SW-9	3/7/2016	704.93	3.20	7.24	708.13	700.89
SW-10	3/7/2016	667.06	3.15	7.30	670.21	662.91
SW-11	3/7/2016	665.67	3.49	10.62	669.16	658.54
SW-12	3/7/2016	696.89	3.24	11.11	700.13	689.02

Notes:
MSL – mean sea level
NA – not applicable
(1) – Benchmark and measuring point are the same at this location.

Table 3-3
DNAPL Removal History at Well F-55
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Date	DNAPL Thickness	DNAPL Bailed	Cumulative DNAPL Bailed
	feet	gallons	gallons
6/6/2006	0.85	0.15	0.15
8/8/2006	1.30	0.25	0.40
8/16/2006	0.53	0.00	0.40
9/11/2006	0.00	0.00	0.40
11/6/2006	0.00	0.00	0.40
1/24/2007	NM	0.01	0.41
1/24/2007	1.20 to 1.80	0.00	0.41
1/24/2007	1.20 to 1.80	0.22	0.63
1/30/2007	0.14	0.00	0.63
1/30/2007	0.70-1.20	0.07	0.70
4/20/2007	1.25	0.12	0.82
7/19/2007	0.50	0.00	0.82
11/1/2007	0.26	0.00	0.82
11/1/2007	0.50	0.08	0.90
1/27/2008	NM	0.26	1.16
1/30/2008	NM	0.08	1.24
4/17/2008	0.20	0.00	1.24
7/24/2008	0.20	0.00	1.24
10/16/2008	0.20	0.05	1.29
3/20/2009	1.70	0.00	1.29
11/5/2009	0.20	0.00	1.29
3/17/2010	0.20	0.22	1.51
9/24/2010	Not Detected	0.00	1.51
3/17/2011	Not Detected	0.00	1.51
10/12/2011	2.24	0.38	1.89
3/20/2012	2.69	0.44	2.33
9/20/2012	2.23	0.44	2.77
3/13/2013	2.14	0.50	3.27
9/25/2013	2.92	0.53	3.80
3/20/2014	0.20	0.26	4.06
9/23/2014	2.60	0.50	4.56
3/9/2015	2.85	0.75	5.31
9/21/2015	3.23	0.50	5.81
3/9/2016	2.69	0.50	6.31

Notes:
DNAPL – dense non-aqueous phase liquid
NM – not measured

Table 3-4
Groundwater and Surface Water Field Parameters
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Location	Collection Date	Conductivity	Dissolved Oxygen (DO)	Oxidation-Reduction Potential (ORP)	pH	Temperature	Turbidity
		mS/cm	mg/L	mV	SU	°C	NTU
AA-54	3/8/2016	0.389	1.00	108.8	4.89	16.15	8.9
C-49	3/8/2016	0.017	6.66	174.8	5.28	18.52	0.37
CC-33	3/9/2016	0.280	0.25	-129.7	6.26	21.07	9.84
CC-64	3/9/2016	0.037	1.80	34.8	6.14	20.30	1.18
DD-58R	3/8/2016	0.522	1.27	22.4	7.18	16.04	7.3
F-55	3/9/2016	3.421	1.03	108.6	4.72	20.14	19.6
G-50	3/8/2016	0.088	1.17	132.4	6.39	22.56	4.41
G-88	3/9/2016	0.151	0.30	53.3	6.50	19.71	1.91
GG-61	3/9/2016	0.223	5.40	84.9	6.59	16.60	1.15
HH-48	3/8/2016	0.082	4.90	97.4	5.53	16.40	6.9
HH-77	3/8/2016	0.086	1.64	47.8	6.24	16.90	6.9
I-57	3/9/2016	0.178	2.60	0.141	4.64	19.20	1.9
II-112	3/9/2016	0.172	0.92	21.0	6.53	23.36	4.3
II-65	3/9/2016	0.238	0.91	58.6	5.81	18.04	3.1
IT-10	3/9/2016	2.099	1.80	80.5	5.11	16.30	9.6
IT-11	3/9/2016	2.756	2.34	65.9	5.12	18.27	6.9
IT-12	3/9/2016	3.395	1.49	41.2	5.26	21.69	14.7
IT-5	3/8/2016	7.338	0.29	-21.7	5.08	20.30	61.1
IT-6	3/8/2016	5.996	0.15	-5.0	4.89	19.70	14.3
IT-7	3/8/2016	1.896	0.05	-50.1	5.58	18.88	35.7
IT-8R	3/9/2016	3.948	0.25	-38.0	5.27	18.42	23.2
IT-9	3/9/2016	0.198	0.71	-133.8	6.65	13.71	2.99
K-28	3/8/2016	0.427	0.77	-154.4	6.45	18.96	18.2
K-58	3/9/2016	0.429	0.57	-173.0	6.87	17.94	5.01
KK-55	3/9/2016	0.418	0.50	-4.5	6.24	17.79	4.87
OT-2R	3/9/2016	0.520	0.63	-77.9	6.77	16.24	6.45
PEW-1	3/9/2016	0.223	0.28	-21.4	6.17	17.96	3.6
PEW-3	3/9/2016	0.051	3.66	109.2	6.25	18.72	2.02
PEW-4	3/8/2016	0.264	0.45	133.9	5.73	22.65	117.9
QQ-110	3/8/2016	0.092	2.11	108.5	9.77	21.16	2.60
RR-131	3/9/2016	0.134	0.63	43.3	7.25	19.37	3.44
SW-4	3/8/2016	0.189	9.52	103.7	6.64	11.74	3.45
SW-7	3/8/2016	0.105	10.25	150.3	7.04	7.61	3.14
T-35	3/9/2016	0.416	1.29	133.2	6.06	18.59	5.06
TD-2	3/8/2016	0.097	1.54	125.3	4.74	18.51	8.7
TD-3	3/8/2016	0.242	2.11	199.1	5.15	20.84	1.09
TD-4	3/8/2016	0.050	0.67	148.2	6.52	20.88	2.5
TI-2	3/8/2016	0.052	4.59	88.2	5.63	18.94	7.2
V-23	3/8/2016	0.504	0.81	-162.2	6.63	18.13	13.5
V-65	3/9/2016	2.135	0.11	-204.9	6.68	23.83	23.1

Notes:
mg/L – milligrams per liter
mS/cm – millisiemens per centimeter
mV – millivolts
SU – Standard Units
°C – degrees Celsius
NTU – Nephelometric Turbidity Units

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	AA-54 3/8/2016 AA-54-030816	C-49 3/8/2016 C-49-030816	CC-33 3/9/2016 CC-33-030916
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	<50.0	--	--
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**0.186 ***	<0.0020	**0.119 ***
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0010	<0.0010
2-Butanone	mg/L	4	--	<0.0050	<0.0050	<0.0050
2-Hexanone	mg/L	--	--	<0.0050	<0.0050	<0.0050
Acetone	mg/L	6	--	<0.0250	<0.0250	<0.0250
Benzene	mg/L	0.001	0.005	<0.0010	<0.0010	**0.0010**
Carbon Disulfide	mg/L	0.7	--	<0.0020	<0.0020	<0.0020
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	<0.0010	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	<0.0010	**0.0263**
Ethylbenzene	mg/L	0.6	0.7	<0.0010	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0020	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	<0.0010	<0.0010	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	<0.0100	<0.0100	<0.0100
Toluene	mg/L	0.6	1	<0.0010	<0.0010	<0.0010
trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0010	**0.0015**
Trichloroethene	mg/L	0.003	0.005	<0.0010	<0.0010	**0.0254**
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0010 UJ	**0.0035 J * ** **

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	CC-64 3/9/2016 CC-64-030916	DD-58R 3/8/2016 DD-58R-030816	F-55 3/9/2016 F-55-030916
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	<50.0	<50.0	**715 ***
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**0.218 ***	**0.0828 ***	**0.333 ***
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	--	<0.0010	<0.0010
2-Butanone	mg/L	4	--	--	<0.0050	**0.282**
2-Hexanone	mg/L	--	--	--	<0.0050	<0.0050
Acetone	mg/L	6	--	--	<0.0250	**0.367**
Benzene	mg/L	0.001	0.005	--	<0.0010	**0.0333 * ****
Carbon Disulfide	mg/L	0.7	--	--	<0.0020	**0.0022**
Chlorobenzene	mg/L	0.05	0.1	--	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	--	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	--	**0.0019**	<0.0010
Ethylbenzene	mg/L	0.6	0.7	--	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	--	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	--	<0.0010	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	--	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	--	<0.0100	**0.245**
Toluene	mg/L	0.6	1	--	<0.0010	**0.0228**
trans-1,2-Dichloroethene	mg/L	0.1	0.1	--	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	--	<0.0010	**0.0022**
Vinyl chloride	mg/L	3E-05	0.002	--	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	F-55 DUP 3/9/2016 F-99-030916	G-50 3/8/2016 G-50-030816	G-88 3/9/2016 G-88-030916
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	**749 ***	<50.0	--
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**0.347 ***	**0.0193 ***	**0.0152 ***
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0020	<0.0010	<0.0010
2-Butanone	mg/L	4	--	**0.284**	<0.0050	<0.0050
2-Hexanone	mg/L	--	--	<0.0100	<0.0050	<0.0050
Acetone	mg/L	6	--	**0.411**	<0.0250	<0.0250
Benzene	mg/L	0.001	0.005	**0.0304 * ****	<0.0010	**0.0102 * ****
Carbon Disulfide	mg/L	0.7	--	<0.0040	<0.0020	<0.0020
Chlorobenzene	mg/L	0.05	0.1	<0.0020	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	<0.0020	<0.0010	**0.0039**
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0020	<0.0010	**0.0018**
Ethylbenzene	mg/L	0.6	0.7	<0.0020	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0040	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	<0.0020	<0.0010	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	<0.0020	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	**0.238**	<0.0100	<0.0100
Toluene	mg/L	0.6	1	**0.0203**	<0.0010	<0.0010
trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0020	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	**0.0021**	**0.0017**	**0.0904 * ****
Vinyl chloride	mg/L	3E-05	0.002	<0.0020 UJ	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	GG-61 3/9/2016 GG-61-030916	HH-48 3/8/2016 HH-48-030816	HH-77 3/8/2016 HH-77-030816
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	--	--	--
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**0.0350 ***	<0.0020	<0.0020
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	--	--
2-Butanone	mg/L	4	--	<0.0050	--	--
2-Hexanone	mg/L	--	--	<0.0050	--	--
Acetone	mg/L	6	--	<0.0250	--	--
Benzene	mg/L	0.001	0.005	<0.0010	--	--
Carbon Disulfide	mg/L	0.7	--	<0.0020	--	--
Chlorobenzene	mg/L	0.05	0.1	<0.0010	--	--
Chloroform	mg/L	0.07	0.08	<0.0010	--	--
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	--	--
Ethylbenzene	mg/L	0.6	0.7	<0.0010	--	--
m,p-Xylene	mg/L	0.5	--	<0.0020	--	--
o-Xylene	mg/L	0.5	--	<0.0010	--	--
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	--	--
Tetrahydrofuran	mg/L	--	--	<0.0100	--	--
Toluene	mg/L	0.6	1	<0.0010	--	--
trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	--	--
Trichloroethene	mg/L	0.003	0.005	<0.0010	--	--
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	--	--

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	I-57 3/9/2016 I-57-030916	II-112 3/9/2016 II-112-030916	II-65 3/9/2016 II-65-030916
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	<50.0	--	<50.0
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**0.598 ***	**0.0979 ***	**0.105 ***
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0010	<0.0010
2-Butanone	mg/L	4	--	<0.0050	<0.0050	<0.0050
2-Hexanone	mg/L	--	--	<0.0050	<0.0050	<0.0050
Acetone	mg/L	6	--	<0.0250	<0.0250	<0.0250
Benzene	mg/L	0.001	0.005	<0.0010	<0.0010	<0.0010
Carbon Disulfide	mg/L	0.7	--	<0.0020	<0.0020	<0.0020
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	**0.0264**	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.6	0.7	<0.0010	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0020	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	<0.0010	<0.0010	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	<0.0100	<0.0100	<0.0100
Toluene	mg/L	0.6	1	<0.0010	<0.0010	<0.0010
trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	<0.0010	<0.0010	<0.0010
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	IT-5 3/8/2016 IT-5-030816	IT-6 3/8/2016 IT-6-030816	IT-7 3/8/2016 IT-7-030816
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	**1940 ***	**1900 ***	**314 ***
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**1.7 ***	**2.87 ***	**0.442 ***
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0040	<0.0020	<0.0010
2-Butanone	mg/L	4	--	**0.221**	**0.485**	**0.0817**
2-Hexanone	mg/L	--	--	<0.0200	**0.371**	<0.0050
Acetone	mg/L	6	--	**0.665**	**0.553**	**0.312**
Benzene	mg/L	0.001	0.005	**0.0082 * ****	**0.0139 * ****	**0.0658 * ****
Carbon Disulfide	mg/L	0.7	--	<0.0080	<0.0040	<0.0020
Chlorobenzene	mg/L	0.05	0.1	<0.0040	<0.0020	**0.0437**
Chloroform	mg/L	0.07	0.08	<0.0040	<0.0020	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0040	<0.0020	<0.0010
Ethylbenzene	mg/L	0.6	0.7	<0.0040	<0.0020	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0080	<0.0040	**0.0027**
o-Xylene	mg/L	0.5	--	<0.0040	<0.0020	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	<0.0040	<0.0020	<0.0010
Tetrahydrofuran	mg/L	--	--	**7.24**	**3.28**	**0.944**
Toluene	mg/L	0.6	1	**0.0115**	**0.0209**	**0.0158**
trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0040	<0.0020	<0.0010
Trichloroethene	mg/L	0.003	0.005	<0.0040	<0.0020	<0.0010
Vinyl chloride	mg/L	3E-05	0.002	<0.0040 UJ	<0.0020 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	IT-8R 3/9/2016 IT-8R-030916	IT-9 3/9/2016 IT-9-030916	IT-10 3/9/2016 IT-10-030916
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	**845 ***	**93.3 ***	**384 ***
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**1.29 ***	**0.288 ***	**0.665 ***
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	--	--	<0.0025
2-Butanone	mg/L	4	--	--	--	**0.0497**
2-Hexanone	mg/L	--	--	--	--	<0.0125
Acetone	mg/L	6	--	--	--	**0.234**
Benzene	mg/L	0.001	0.005	--	--	**0.0050 ***
Carbon Disulfide	mg/L	0.7	--	--	--	<0.0050
Chlorobenzene	mg/L	0.05	0.1	--	--	<0.0025
Chloroform	mg/L	0.07	0.08	--	--	<0.0025
cis-1,2-Dichloroethene	mg/L	0.07	0.07	--	--	<0.0025
Ethylbenzene	mg/L	0.6	0.7	--	--	<0.0025
m,p-Xylene	mg/L	0.5	--	--	--	<0.0050
o-Xylene	mg/L	0.5	--	--	--	<0.0025
Tetrachloroethene	mg/L	0.0007	0.005	--	--	<0.0025
Tetrahydrofuran	mg/L	--	--	--	--	**1.9**
Toluene	mg/L	0.6	1	--	--	<0.0025
trans-1,2-Dichloroethene	mg/L	0.1	0.1	--	--	<0.0025
Trichloroethene	mg/L	0.003	0.005	--	--	<0.0025
Vinyl chloride	mg/L	3E-05	0.002	--	--	<0.0025 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	IT-11 3/9/2016 IT-11-030916	IT-12 3/9/2016 IT-12-030916	K-28 3/8/2016 K-28-030816
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	**2870 ***	**484 ***	<50.0
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**0.983 ***	**0.859 ***	**0.875 ***
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0020	<0.0010
2-Butanone	mg/L	4	--	**0.13**	**0.337**	**0.0419**
2-Hexanone	mg/L	--	--	**0.0068**	<0.0100	<0.0050
Acetone	mg/L	6	--	**0.121**	**0.419**	**0.0566**
Benzene	mg/L	0.001	0.005	**0.0084 * ****	**0.0038 ***	**0.0045 ***
Carbon Disulfide	mg/L	0.7	--	**0.0176**	<0.0040	<0.0020
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0020	<0.0010
Chloroform	mg/L	0.07	0.08	<0.0010	<0.0020	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	<0.0020	<0.0010
Ethylbenzene	mg/L	0.6	0.7	**0.0012**	<0.0020	<0.0010
m,p-Xylene	mg/L	0.5	--	**0.0033**	<0.0040	<0.0020
o-Xylene	mg/L	0.5	--	**0.0015**	<0.0020	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0020	<0.0010
Tetrahydrofuran	mg/L	--	--	**1.4**	**2.7**	**0.867**
Toluene	mg/L	0.6	1	**0.0033**	**0.0031**	**0.0050**
trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0020	<0.0010
Trichloroethene	mg/L	0.003	0.005	<0.0010	<0.0020	<0.0010
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0020 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	K-58 3/9/2016 K-58-030916	KK-55 3/9/2016 KK-55-030916	OT-2R 3/9/2016 OT-2R-030916
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	**50.7 ***	<50.0	<50.0
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**0.629 ***	**0.185**	**0.0946 ***
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	--	<0.0010	<0.0010
2-Butanone	mg/L	4	--	--	<0.0050	<0.0050
2-Hexanone	mg/L	--	--	--	<0.0050	<0.0050
Acetone	mg/L	6	--	--	<0.0250	<0.0250
Benzene	mg/L	0.001	0.005	--	<0.0010	<0.0010
Carbon Disulfide	mg/L	0.7	--	--	<0.0020	<0.0020
Chlorobenzene	mg/L	0.05	0.1	--	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	--	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	--	<0.0010	<0.0010
Ethylbenzene	mg/L	0.6	0.7	--	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	--	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	--	<0.0010	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	--	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	--	<0.0100	<0.0100
Toluene	mg/L	0.6	1	--	<0.0010	<0.0010
trans-1,2-Dichloroethene	mg/L	0.1	0.1	--	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	--	<0.0010	<0.0010
Vinyl chloride	mg/L	3E-05	0.002	--	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	OT-2R DUP 3/9/2016 OT-99-030916	PEW-1 3/9/2016 PEW-1-030916	PEW-3 3/9/2016 PEW-3-030916
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	<50.0	<50.0	--
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**0.0932 ***	**0.0418 ***	<0.0020
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0010	<0.0010
2-Butanone	mg/L	4	--	<0.0050	<0.0050	<0.0050
2-Hexanone	mg/L	--	--	<0.0050	<0.0050	<0.0050
Acetone	mg/L	6	--	<0.0250	<0.0250	<0.0250
Benzene	mg/L	0.001	0.005	<0.0010	**0.0022 ***	<0.0010
Carbon Disulfide	mg/L	0.7	--	<0.0020	<0.0020	<0.0020
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	<0.0010	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	**0.0097**	<0.0010
Ethylbenzene	mg/L	0.6	0.7	<0.0010	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0020	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	<0.0010	<0.0010	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	<0.0100	**0.0141**	<0.0100
Toluene	mg/L	0.6	1	<0.0010	<0.0010	<0.0010
trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	<0.0010	**0.0303 * ****	**0.0017**
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	PEW-4 3/8/2016 PEW-4-030816	QQ-110 3/8/2016 QQ-110-030816	RR-131 3/9/2016 RR-131-030916
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	--	--	--
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**0.0626 ***	**0.0043 ***	**0.0124 ***
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.4	**0.0017**
2-Butanone	mg/L	4	--	<0.0050	<2	<0.0050
2-Hexanone	mg/L	--	--	<0.0050	<2	<0.0050
Acetone	mg/L	6	--	<0.0250	<10	<0.0250
Benzene	mg/L	0.001	0.005	<0.0010	<0.4	<0.0010
Carbon Disulfide	mg/L	0.7	--	<0.0020	<0.8	<0.0020
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.4	<0.0010
Chloroform	mg/L	0.07	0.08	<0.0010	<0.4	**0.0012**
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	<0.4	**0.0062**
Ethylbenzene	mg/L	0.6	0.7	<0.0010	<0.4	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0020	<0.8	<0.0020
o-Xylene	mg/L	0.5	--	<0.0010	<0.4	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.4	<0.0010
Tetrahydrofuran	mg/L	--	--	<0.0100	<4	<0.0100
Toluene	mg/L	0.6	1	<0.0010	<0.4	<0.0010
trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.4	<0.0010
Trichloroethene	mg/L	0.003	0.005	**0.0035 ***	**41.2 * ****	**0.0494 * ****
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.4 UJ	<0.0010 UJ

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** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	T-35 3/9/2016 T-35-030916	TD-2 3/8/2016 TD-2-030816	TD-3 3/8/2016 TD-3-030816
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	--	--	--
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	**0.169 ***	**0.0020**	**0.0095 ***
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0010	<0.0010
2-Butanone	mg/L	4	--	<0.0050	<0.0050	<0.0050
2-Hexanone	mg/L	--	--	<0.0050	<0.0050	<0.0050
Acetone	mg/L	6	--	<0.0250	<0.0250	<0.0250
Benzene	mg/L	0.001	0.005	<0.0010	<0.0010	<0.0010
Carbon Disulfide	mg/L	0.7	--	<0.0020	<0.0020	<0.0020
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	<0.0010	<0.0010	**0.0011**
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.6	0.7	<0.0010	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0020	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	<0.0010	<0.0010	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	<0.0100	<0.0100	<0.0100
Toluene	mg/L	0.6	1	<0.0010	<0.0010	<0.0010
trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	<0.0010	<0.0010	**0.0165 * ** **
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	TD-4 3/8/2016 TD-4-030816	TI-2 3/8/2016 TI-2-030816	V-23 3/8/2016 V-23-030816
Method SW846 8015M						
Ethylene Glycol	mg/L	10	--	--	<50.0	<50.0
Method SW8260 SIM						
1,4-Dioxane	mg/L	0.003	--	<0.0020	**0.0054 ***	**0.0771 ***
Method SW8260						
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0400	<0.0010	<0.0010
2-Butanone	mg/L	4	--	<0.2	<0.0050	<0.0050
2-Hexanone	mg/L	--	--	<0.2	<0.0050	<0.0050
Acetone	mg/L	6	--	<1	<0.0250	<0.0250
Benzene	mg/L	0.001	0.005	<0.0400	<0.0010	**0.0022 ***
Carbon Disulfide	mg/L	0.7	--	<0.0800	<0.0020	<0.0020
Chlorobenzene	mg/L	0.05	0.1	<0.0400	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	<0.0400	**0.0060**	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0400	**0.0012**	<0.0010
Ethylbenzene	mg/L	0.6	0.7	<0.0400	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0800	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	<0.0400	<0.0010	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	<0.0400	**0.0056 * ** **	<0.0010
Tetrahydrofuran	mg/L	--	--	<0.4	<0.0100	**0.0502**
Toluene	mg/L	0.6	1	<0.0400	<0.0010	<0.0010
trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0400	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	**4.92 * ** **	**0.0081 * ** **	<0.0010
Vinyl chloride	mg/L	3E-05	0.002	<0.0400 UJ	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-5
Groundwater Analytical Results (VOCs and Ethylene Glycol) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	V-65 3/9/2016 V-65-030916	V-65 DUP 3/9/2016 V-99-030916
Method SW846 8015M					
Ethylene Glycol	mg/L	10	--	**54.0 ***	<50.0
Method SW8260 SIM					
1,4-Dioxane	mg/L	0.003	--	**1.07 ***	**1.02 ***
Method SW8260					
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0010
2-Butanone	mg/L	4	--	**0.0545**	**0.0471**
2-Hexanone	mg/L	--	--	<0.0050	<0.0050
Acetone	mg/L	6	--	**0.0956**	**0.0894**
Benzene	mg/L	0.001	0.005	**0.0039 ***	**0.0041 ***
Carbon Disulfide	mg/L	0.7	--	<0.0020	<0.0020
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	<0.0010
Ethylbenzene	mg/L	0.6	0.7	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	<0.0010	<0.0010
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	**1.59**	**1.54**
Toluene	mg/L	0.6	1	<0.0010	<0.0010
trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	<0.0010	<0.0010
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approxiamted and may be inaccurate or imprecise.

Table 3-6
Groundwater Analytical Results (SVOCs) – Detections Only
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-335

No SVOC was detected above the reporting limit during the March 2016 Sampling event.

Table 3-7
Surface Water Analytical Results
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	SW-4	SW-4 DUP	SW-7	SW-7 DUP
		3/8/2016	3/8/2016	3/8/2016	3/8/2016
		SW-4-030816	SW-98-030816	SW-7-030816	SW-99-030816
Method SW8260 SIM					
1,4-Dioxane	mg/L	**0.0383**	**0.0420**	**0.0147**	**0.0153**
Method SW8260					
1,1,1-Trichloroethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
1,1,2,2-Tetrachloroethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
1,1,2-Trichloroethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloropropane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
2-Butanone	mg/L	<0.0050	<0.0050	<0.0050	<0.0050
2-Hexanone	mg/L	<0.0050	<0.0050	<0.0050	<0.0050
4-Methyl-2-Pentanone	mg/L	<0.0050	<0.0050	<0.0050	<0.0050
Acetone	mg/L	<0.0250	<0.0250	<0.0250	<0.0250
Benzene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Bromodichloromethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Bromoform	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Bromomethane	mg/L	<0.0020	<0.0020	<0.0020	<0.0020
Carbon Disulfide	mg/L	<0.0020	<0.0020	<0.0020	<0.0020
Carbon Tetrachloride	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Chlorobenzene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Chloroethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Chloroform	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Chloromethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
cis-1,3-Dichloropropene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Dibromochloromethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
m,p-Xylene	mg/L	<0.0020	<0.0020	<0.0020	<0.0020
Methylene chloride	mg/L	<0.0020	<0.0020	<0.0020	<0.0020
o-Xylene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Styrene	mg/L	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ
Tetrachloroethene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Tetrahydrofuran	mg/L	<0.0100	<0.0100	<0.0100	<0.0100
Toluene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Trans-1,2-Dichloroethene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Trans-1,3-Dichloropropene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Trichloroethene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Vinyl acetate	mg/L	<0.0020	<0.0020	<0.0020	<0.0020
Vinyl chloride	mg/L	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory.
mg/L – milligrams per liter
UJ – The analyte was not detected; however, the reported quantitation limit is approximated and may be inaccurate or imprecise.

Table 4-1
Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
IT-5	9/17/2012	809.09	8.91	800.18
IT-5	11/13/2012	809.09	10.77	798.32
IT-5	12/3/2012	809.09	11.47	797.62
IT-5	1/2/2013	809.09	11.35	797.74
IT-5	1/28/2013	809.09	9.59	799.50
IT-5	2/11/2013	809.09	8.71	800.38
IT-5	2/27/2013	809.09	8.00	801.09
IT-5	3/13/2013	809.09	7.21	801.88
IT-5	4/10/2013	809.09	6.78	802.31
IT-5	5/6/2013	809.09	6.11	802.98
IT-5	6/11/2013	809.09	6.89	802.20
IT-5	7/9/2013	809.09	5.82	803.27
IT-5	8/15/2013	809.09	5.41	803.68
IT-5	9/23/2013	809.09	5.85	803.24
IT-5	10/17/2013	809.09	5.87	803.22
IT-5	11/26/2013	809.09	7.90	801.19
IT-5	12/20/2013	809.09	6.24	802.85
IT-5	1/27/2014	809.09	5.10	803.99
IT-5	2/19/2014	809.09	5.52	803.57
IT-5	3/19/2014	809.09	5.08	804.01
IT-5	4/22/2014	809.09	4.24	804.85
IT-5	5/19/2014	809.09	6.31	802.78
IT-5	6/16/2014	809.09	7.60	801.49
IT-5	7/28/2014	809.09	8.69	800.40
IT-5	8/27/2014	809.09	8.67	800.42
IT-5	9/22/2014	809.09	9.99	799.10
IT-5	10/29/2014	809.09	10.35	798.74
IT-5	11/11/2014	809.09	10.67	798.42
IT-5	12/17/2014	809.09	10.12	798.97
IT-5	1/27/2015	809.09	8.53	800.56
IT-5	3/10/2015	809.09	7.36	801.73
IT-5	4/21/2015	809.09	6.55	802.54
IT-5	5/28/2015	809.09	8.18	800.91
IT-5	6/29/2015	809.09	9.75	799.34
IT-5	7/24/2015	809.09	11.21	797.88
IT-5	8/25/2015	809.09	12.51	796.58
IT-5	9/21/2015	809.09	13.51	795.58
IT-5	10/19/2015	809.09	12.62	796.47
IT-5	11/25/2015	809.09	5.94	803.15
IT-5	12/15/2015	809.09	7.48	801.61
IT-5	1/21/2016	809.09	7.04	802.05
IT-5	2/15/2016	809.09	6.91	802.18
IT-5	3/7/2016	809.09	4.75	804.34
IT-5	5/24/2016	809.09	8.06	801.03
IT-5	6/27/2016	809.09	9.12	799.97

Table 4-1
Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
IT-6	9/17/2012	810.65	9.98	800.67
IT-6	11/13/2012	810.65	12.11	798.54
IT-6	12/3/2012	810.65	12.61	798.04
IT-6	1/2/2013	810.65	12.95	797.70
IT-6	1/13/2013	810.65	12.95	797.70
IT-6	1/28/2013	810.65	11.11	799.54
IT-6	2/11/2013	810.65	10.21	800.44
IT-6	2/27/2013	810.65	9.84	800.81
IT-6	3/13/2013	810.65	8.95	801.70
IT-6	4/10/2013	810.65	8.40	802.25
IT-6	5/6/2013	810.65	7.72	802.93
IT-6	6/11/2013	810.65	8.22	802.43
IT-6	7/9/2013	810.65	7.61	803.04
IT-6	8/15/2013	810.65	6.59	804.06
IT-6	9/23/2013	810.65	7.06	803.59
IT-6	10/17/2013	810.65	7.69	802.96
IT-6	11/26/2013	810.65	8.70	801.95
IT-6	12/20/2013	810.65	7.61	803.04
IT-6	1/27/2014	810.65	6.18	804.47
IT-6	2/19/2014	810.65	6.77	803.88
IT-6	3/19/2014	810.65	6.23	804.42
IT-6	4/22/2014	810.65	5.59	805.06
IT-6	5/19/2014	810.65	7.35	803.30
IT-6	6/16/2014	810.65	8.61	802.04
IT-6	7/28/2014	810.65	9.61	801.04
IT-6	8/27/2014	810.65	9.57	801.08
IT-6	9/22/2014	810.65	10.50	800.15
IT-6	10/29/2014	810.65	11.32	799.33
IT-6	11/11/2014	810.65	11.50	799.15
IT-6	12/17/2014	810.65	11.09	799.56
IT-6	1/27/2015	810.65	9.65	801.00
IT-6	3/10/2015	810.65	8.63	802.02
IT-6	4/21/2015	810.65	5.32	805.33
IT-6	5/28/2015	810.65	9.13	801.52
IT-6	6/29/2015	810.65	10.71	799.94
IT-6	7/24/2015	810.65	12.03	798.62
IT-6	8/25/2015	810.65	13.36	797.29
IT-6	9/21/2015	810.65	14.32	796.33
IT-6	10/19/2015	810.65	13.93	796.72
IT-6	11/25/2015	810.65	11.47	799.18
IT-6	12/15/2015	810.65	9.01	801.64
IT-6	1/21/2016	810.65	9.14	801.51
IT-6	2/15/2016	810.65	9.07	801.58
IT-6	3/7/2016	810.65	4.82	805.83
IT-6	5/24/2016	810.65	9.29	801.36
IT-6	6/27/2016	810.65	10.40	800.25

Table 4-1
Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
IT-7	9/17/2012	811.90	11.38	800.52
IT-7	11/13/2012	811.90	13.15	798.75
IT-7	12/3/2012	811.90	13.76	798.14
IT-7	1/2/2013	811.90	14.16	797.74
IT-7	1/28/2013	811.90	12.50	799.40
IT-7	2/11/2013	811.90	11.49	800.41
IT-7	2/27/2013	811.90	10.69	801.21
IT-7	3/13/2013	811.90	9.79	802.11
IT-7	4/10/2013	811.90	9.45	802.45
IT-7	5/6/2013	811.90	8.81	803.09
IT-7	6/11/2013	811.90	9.15	802.75
IT-7	7/9/2013	811.90	8.81	803.09
IT-7	8/15/2013	811.90	7.46	804.44
IT-7	9/23/2013	811.90	8.15	803.75
IT-7	10/17/2013	811.90	8.86	803.04
IT-7	11/26/2013	811.90	9.72	802.18
IT-7	12/20/2013	811.90	8.83	803.07
IT-7	1/27/2014	811.90	7.01	804.89
IT-7	2/19/2014	811.90	7.80	804.10
IT-7	3/19/2014	811.90	7.28	804.62
IT-7	4/22/2014	811.90	6.64	805.26
IT-7	5/19/2014	811.90	8.22	803.68
IT-7	6/16/2014	811.90	9.49	802.41
IT-7	7/28/2014	811.90	10.51	801.39
IT-7	8/27/2014	811.90	10.63	801.27
IT-7	9/22/2014	811.90	11.49	800.41
IT-7	10/29/2014	811.90	12.40	799.50
IT-7	11/11/2014	811.90	12.66	799.24
IT-7	12/17/2014	811.90	12.44	799.46
IT-7	1/27/2015	811.90	10.97	800.93
IT-7	3/10/2015	811.90	9.63	802.27
IT-7	4/21/2015	811.90	9.48	802.42
IT-7	5/28/2015	811.90	10.02	801.88
IT-7	6/29/2015	811.90	11.63	800.27
IT-7	7/24/2015	811.90	12.97	798.93
IT-7	8/25/2015	811.90	14.38	797.52
IT-7	9/21/2015	811.90	15.31	796.59
IT-7	10/19/2015	811.90	15.44	796.46
IT-7	11/25/2015	811.90	11.96	799.94
IT-7	12/15/2015	811.90	10.00	801.90
IT-7	1/21/2016	811.90	10.05	801.85
IT-7	2/15/2016	811.90	9.83	802.07
IT-7	3/7/2016	811.90	6.59	805.31
IT-7	5/24/2016	811.90	10.20	801.70
IT-7	6/27/2016	811.90	11.37	800.53

Table 4-1
Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
IT-8R	9/17/2012	812.82	14.28	798.54
IT-8R	10/8/2012	812.82	14.96	797.86
IT-8R	11/13/2012	812.82	15.97	796.85
IT-8R	12/3/2012	812.82	16.49	796.33
IT-8R	1/2/2013	812.82	16.41	796.41
IT-8R	1/28/2013	812.82	14.63	798.19
IT-8R	2/11/2013	812.82	13.89	798.93
IT-8R	2/27/2013	812.82	12.82	800.00
IT-8R	3/12/2013	812.82	12.34	800.48
IT-8R	4/10/2013	812.82	12.77	800.05
IT-8R	5/6/2013	812.82	12.02	800.80
IT-8R	6/11/2013	812.82	11.44	801.38
IT-8R	7/9/2013	812.82	11.99	800.83
IT-8R	8/15/2013	812.82	9.97	802.85
IT-8R	9/23/2013	812.82	12.19	800.63
IT-8R	10/17/2013	812.82	12.04	800.78
IT-8R	11/26/2013	812.82	11.96	800.86
IT-8R	12/20/2013	812.82	13.55	799.27
IT-8R	1/27/2014	812.82	11.24	801.58
IT-8R	2/19/2014	812.82	11.76	801.06
IT-8R	3/19/2014	812.82	9.31	803.51
IT-8R	4/22/2014	812.82	10.40	802.42
IT-8R	5/19/2014	812.82	10.52	802.30
IT-8R	6/16/2014	812.82	11.42	801.40
IT-8R	7/28/2014	812.82	12.40	800.42
IT-8R	8/27/2014	812.82	12.52	800.30
IT-8R	9/22/2014	812.82	13.25	799.57
IT-8R	10/29/2014	812.82	14.27	798.55
IT-8R	11/11/2014	812.82	14.89	797.93
IT-8R	12/17/2014	812.82	15.59	797.23
IT-8R	1/27/2015	812.82	13.88	798.94
IT-8R	3/10/2015	812.82	13.78	799.04
IT-8R	4/21/2015	812.82	NG	NA
IT-8R	5/28/2015	812.82	12.31	800.51
IT-8R	6/29/2015	812.82	13.51	799.31
IT-8R	7/24/2015	812.82	14.94	797.88
IT-8R	8/25/2015	812.82	16.27	796.55
IT-8R	9/21/2015	812.82	13.78	799.04
IT-8R	10/19/2015	812.82	16.80	796.02
IT-8R	11/25/2015	812.82	14.78	798.04
IT-8R	12/15/2015	812.82	13.11	799.71
IT-8R	1/21/2016	812.82	12.98	799.84
IT-8R	2/15/2016	812.82	12.74	800.08
IT-8R	3/7/2016	812.82	9.97	802.85
IT-8R	5/24/2016	812.82	12.05	800.77
IT-8R	6/27/2016	812.82	13.04	799.78

Table 4-1
Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
IT-9	9/17/2012	808.73	11.91	796.82
IT-9	10/8/2012	808.73	12.23	796.50
IT-9	11/13/2012	808.73	13.90	794.83
IT-9	12/3/2012	808.73	13.83	794.90
IT-9	1/2/2013	808.73	13.05	795.68
IT-9	1/28/2013	808.73	11.92	796.81
IT-9	2/11/2013	808.73	11.09	797.64
IT-9	2/27/2013	808.73	10.72	798.01
IT-9	3/12/2013	808.73	10.07	798.66
IT-9	4/10/2013	808.73	9.90	798.83
IT-9	5/6/2013	808.73	9.11	799.62
IT-9	6/11/2013	808.73	8.91	799.82
IT-9	7/9/2013	808.73	8.20	800.53
IT-9	8/15/2013	808.73	7.60	801.13
IT-9	9/23/2013	808.73	8.14	800.59
IT-9	10/17/2013	808.73	8.25	800.48
IT-9	11/26/2013	808.73	9.41	799.32
IT-9	12/20/2013	808.73	9.02	799.71
IT-9	1/27/2014	808.73	7.43	801.30
IT-9	2/19/2014	808.73	7.92	800.81
IT-9	3/19/2014	808.73	7.68	801.05
IT-9	4/22/2014	808.73	7.11	801.62
IT-9	5/19/2014	808.73	8.03	800.70
IT-9	6/16/2014	808.73	8.71	800.02
IT-9	7/28/2014	808.73	10.57	798.16
IT-9	8/27/2014	808.73	9.60	799.13
IT-9	9/22/2014	808.73	10.38	798.35
IT-9	10/29/2014	808.73	11.54	797.19
IT-9	11/11/2014	808.73	11.88	796.85
IT-9	12/17/2014	808.73	11.86	796.87
IT-9	1/27/2015	808.73	10.86	797.87
IT-9	3/10/2015	808.73	10.10	798.63
IT-9	4/21/2015	808.73	9.69	799.04
IT-9	5/28/2015	808.73	9.78	798.95
IT-9	6/29/2015	808.73	10.99	797.74
IT-9	7/24/2015	808.73	12.38	796.35
IT-9	8/25/2015	808.73	13.58	795.15
IT-9	9/21/2015	808.73	10.10	798.63
IT-9	10/19/2015	808.73	13.58	795.15
IT-9	11/25/2015	808.73	11.69	797.04
IT-9	12/15/2015	808.73	9.77	798.96
IT-9	1/21/2016	808.73	9.69	799.04
IT-9	2/15/2016	808.73	9.51	799.22
IT-9	3/7/2016	808.73	7.28	801.45
IT-9	5/24/2016	808.73	9.30	799.43
IT-9	6/27/2016	808.73	10.32	798.41

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Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
IT-10	9/17/2012	812.28	11.38	800.90
IT-10	11/7/2012	812.28	32.45	779.83
IT-10	1/2/2013	812.28	40.43	771.85
IT-10	1/28/2013	812.28	10.41	801.87
IT-10	2/11/2013	812.28	61.78	750.50
IT-10	2/27/2013	812.28	58.69	753.59
IT-10	3/12/2013	812.28	10.21	802.07
IT-10	4/10/2013	812.28	9.32	802.96
IT-10	5/6/2013	812.28	8.66	803.62
IT-10	6/11/2013	812.28	8.67	803.61
IT-10	7/9/2013	812.28	8.58	803.70
IT-10	8/15/2013	812.28	6.99	805.29
IT-10	9/25/2013	812.28	7.62	804.66
IT-10	10/17/2013	812.28	8.68	803.60
IT-10	11/26/2013	812.28	9.30	802.98
IT-10	12/20/2013	812.28	8.97	803.31
IT-10	1/27/2014	812.28	40.88	771.40
IT-10	2/19/2014	812.28	54.29	757.99
IT-10	3/19/2014	812.28	60.77	751.51
IT-10	4/22/2014	812.28	60.41	751.87
IT-10	5/19/2014	812.28	61.49	750.79
IT-10	6/16/2014	812.28	59.21	753.07
IT-10	7/28/2014	812.28	57.00	755.28
IT-10	8/27/2014	812.28	58.10	754.18
IT-10	9/22/2014	812.28	57.24	755.04
IT-10	10/29/2014	812.28	56.26	756.02
IT-10	11/11/2014	812.28	49.05	763.23
IT-10	12/17/2014	812.28	53.86	758.42
IT-10	1/27/2015	812.28	58.22	754.06
IT-10	3/10/2015	812.28	60.62	751.66
IT-10	4/21/2015	812.28	62.60	749.68
IT-10	5/28/2015	812.28	Dry	NA
IT-10	6/29/2015	812.28	57.11	755.17
IT-10	7/24/2015	812.28	12.81	799.47
IT-10	8/25/2015	812.28	59.50	752.78
IT-10	9/21/2015	812.28	60.62	751.66
IT-10	10/19/2015	812.28	57.84	754.44
IT-10	11/25/2015	812.28	56.84	755.44
IT-10	12/15/2015	812.28	60.81	751.47
IT-10	1/21/2016	812.28	58.21	754.07
IT-10	2/15/2016	812.28	59.14	753.14
IT-10	3/7/2016	812.28	56.61	755.67
IT-10	5/24/2016	812.28	57.89	754.39
IT-10	6/27/2016	812.28	61.97	750.31

Table 4-1
Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
IT-11	9/17/2012	814.05	11.50	802.55
IT-11	1/2/2013	814.05	16.82	797.23
IT-11	1/28/2013	814.05	12.72	801.33
IT-11	2/11/2013	814.05	11.92	802.13
IT-11	2/27/2013	814.05	39.29	774.76
IT-11	3/12/2013	814.05	29.88	784.17
IT-11	4/10/2013	814.05	23.90	790.15
IT-11	5/6/2013	814.05	21.76	792.29
IT-11	6/11/2013	814.05	19.21	794.84
IT-11	7/9/2013	814.05	23.69	790.36
IT-11	8/15/2013	814.05	26.36	787.69
IT-11	9/25/2013	814.05	24.18	789.87
IT-11	10/17/2013	814.05	28.38	785.67
IT-11	11/26/2013	814.05	11.37	802.68
IT-11	12/20/2013	814.05	22.76	791.29
IT-11	1/27/2014	814.05	13.73	800.32
IT-11	2/19/2014	814.05	13.31	800.74
IT-11	3/19/2014	814.05	17.35	796.70
IT-11	4/22/2014	814.05	13.55	800.50
IT-11	5/19/2014	814.05	19.82	794.23
IT-11	6/16/2014	814.05	15.67	798.38
IT-11	7/28/2014	814.05	24.51	789.54
IT-11	8/27/2014	814.05	10.82	803.23
IT-11	9/22/2014	814.05	18.75	795.30
IT-11	10/29/2014	814.05	13.43	800.62
IT-11	11/11/2014	814.05	24.98	789.07
IT-11	12/17/2014	814.05	12.34	801.71
IT-11	1/27/2015	814.05	10.92	803.13
IT-11	3/10/2015	814.05	27.04	787.01
IT-11	4/21/2015	814.05	25.40	788.65
IT-11	5/28/2015	814.05	23.68	790.37
IT-11	6/29/2015	814.05	15.42	798.63
IT-11	7/24/2015	814.05	29.18	784.87
IT-11	8/25/2015	814.05	19.11	794.94
IT-11	9/21/2015	814.05	27.04	787.01
IT-11	10/19/2015	814.05	18.25	795.80
IT-11	11/25/2015	814.05	29.31	784.74
IT-11	12/15/2015	814.05	29.63	784.42
IT-11	1/21/2016	814.05	29.69	784.36
IT-11	2/15/2016	814.05	27.43	786.62
IT-11	3/7/2016	814.05	26.25	787.80
IT-11	5/24/2016	814.05	26.11	787.94
IT-11	6/27/2016	814.05	27.52	786.53

Table 4-1
Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
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Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
IT-12	9/17/2012	815.31	12.79	802.52
IT-12	11/7/2012	815.31	68.91	746.40
IT-12	1/2/2013	815.31	42.50	772.81
IT-12	1/28/2013	815.31	46.65	768.66
IT-12	2/11/2013	815.31	47.31	768.00
IT-12	2/27/2013	815.31	46.69	768.62
IT-12	3/12/2013	815.31	11.55	803.76
IT-12	4/10/2013	815.31	12.73	802.58
IT-12	5/6/2013	815.31	12.10	803.21
IT-12	6/11/2013	815.31	12.90	802.41
IT-12	7/9/2013	815.31	12.95	802.36
IT-12	8/15/2013	815.31	11.55	803.76
IT-12	9/25/2013	815.31	12.11	803.20
IT-12	10/17/2013	815.31	12.04	803.27
IT-12	11/26/2013	815.31	10.50	804.81
IT-12	12/20/2013	815.31	10.43	804.88
IT-12	1/27/2014	815.31	48.48	766.83
IT-12	2/19/2014	815.31	62.17	753.14
IT-12	3/19/2014	815.31	17.22	798.09
IT-12	4/22/2014	815.31	44.17	771.14
IT-12	5/19/2014	815.31	45.43	769.88
IT-12	6/16/2014	815.31	54.16	761.15
IT-12	7/28/2014	815.31	61.35	753.96
IT-12	8/27/2014	815.31	48.91	766.40
IT-12	9/22/2014	815.31	65.00	750.31
IT-12	10/29/2014	815.31	57.74	757.57
IT-12	11/11/2014	815.31	49.17	766.14
IT-12	12/17/2014	815.31	20.42	794.89
IT-12	1/27/2015	815.31	60.75	754.56
IT-12	3/10/2015	815.31	65.44	749.87
IT-12	4/21/2015	815.31	67.40	747.91
IT-12	5/28/2015	815.31	30.11	785.20
IT-12	6/29/2015	815.31	30.60	784.71
IT-12	7/24/2015	815.31	65.05	750.26
IT-12	8/25/2015	815.31	20.78	794.53
IT-12	9/21/2015	815.31	65.44	749.87
IT-12	10/19/2015	815.31	54.29	761.02
IT-12	11/25/2015	815.31	51.28	764.03
IT-12	12/15/2015	815.31	67.34	747.97
IT-12	1/21/2016	815.31	56.14	759.17
IT-12	2/15/2016	815.31	59.49	755.82
IT-12	3/7/2016	815.31	9.95	805.36
IT-12	5/24/2016	815.31	13.92	801.39
IT-12	6/27/2016	815.31	14.05	801.26

Table 4-1
Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
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Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
K-28	9/17/2012	811.18	16.82	794.36
K-28	11/13/2012	811.18	18.62	792.56
K-28	12/3/2012	811.18	19.18	792.00
K-28	1/2/2013	811.18	18.77	792.41
K-28	1/28/2013	811.18	16.52	794.66
K-28	2/11/2013	811.18	14.95	796.23
K-28	2/27/2013	811.18	13.68	797.50
K-28	3/13/2013	811.18	12.87	798.31
K-28	4/10/2013	811.18	12.83	798.35
K-28	5/6/2013	811.18	10.58	800.60
K-28	6/11/2013	811.18	13.06	798.12
K-28	7/9/2013	811.18	12.43	798.75
K-28	8/15/2013	811.18	12.32	798.86
K-28	9/23/2013	811.18	13.33	797.85
K-28	10/17/2013	811.18	12.47	798.71
K-28	11/26/2013	811.18	15.02	796.16
K-28	12/20/2013	811.18	12.84	798.34
K-28	1/27/2014	811.18	10.52	800.66
K-28	2/19/2014	811.18	10.95	800.23
K-28	3/19/2014	811.18	9.53	801.65
K-28	4/22/2014	811.18	8.93	802.25
K-28	5/19/2014	811.18	13.98	797.20
K-28	6/16/2014	811.18	14.13	797.05
K-28	7/28/2014	811.18	15.92	795.26
K-28	8/27/2014	811.18	16.19	794.99
K-28	9/22/2014	811.18	17.15	794.03
K-28	10/29/2014	811.18	18.13	793.05
K-28	11/11/2014	811.18	18.41	792.77
K-28	12/17/2014	811.18	18.00	793.18
K-28	1/27/2015	811.18	15.99	795.19
K-28	3/10/2015	811.18	26.62	784.56
K-28	4/21/2015	811.18	12.46	798.72
K-28	5/28/2015	811.18	14.52	796.66
K-28	6/29/2015	811.18	16.66	794.52
K-28	7/24/2015	811.18	18.34	792.84
K-28	8/25/2015	811.18	19.76	791.42
K-28	9/21/2015	811.18	13.79	797.39
K-28	10/19/2015	811.18	20.05	791.13
K-28	11/25/2015	811.18	16.36	794.82
K-28	12/15/2015	811.18	14.68	796.50
K-28	1/21/2016	811.18	14.53	796.65
K-28	2/15/2016	811.18	14.38	796.80
K-28	3/7/2016	811.18	10.53	800.65
K-28	5/24/2016	811.18	14.69	796.49
K-28	6/27/2016	811.18	16.01	795.17

Table 4-1
Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
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Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
K-58	9/17/2012	811.41	17.91	793.50
K-58	10/9/2012	811.41	18.77	792.64
K-58	11/13/2012	811.41	19.91	791.50
K-58	12/3/2012	811.41	20.44	790.97
K-58	1/2/2013	811.41	19.81	791.60
K-58	2/11/2013	811.41	16.45	794.96
K-58	2/27/2013	811.41	15.44	795.97
K-58	3/13/2013	811.41	14.72	796.69
K-58	4/10/2013	811.41	13.83	797.58
K-58	5/6/2013	811.41	12.62	798.79
K-58	6/11/2013	811.41	14.57	796.84
K-58	7/9/2013	811.41	13.76	797.65
K-58	8/15/2013	811.41	13.80	797.61
K-58	9/23/2013	811.41	14.82	796.59
K-58	10/17/2013	811.41	13.81	797.60
K-58	11/26/2013	811.41	16.42	794.99
K-58	12/20/2013	811.41	14.54	796.87
K-58	1/27/2014	811.41	12.58	798.83
K-58	2/19/2014	811.41	12.99	798.42
K-58	3/19/2014	811.41	11.77	799.64
K-58	4/22/2014	811.41	11.09	800.32
K-58	5/19/2014	811.41	12.48	798.93
K-58	6/16/2014	811.41	15.59	795.82
K-58	7/28/2014	811.41	17.08	794.33
K-58	8/27/2014	811.41	17.21	794.20
K-58	9/22/2014	811.41	18.12	793.29
K-58	10/29/2014	811.41	19.22	792.19
K-58	11/11/2014	811.41	19.54	791.87
K-58	12/17/2014	811.41	19.09	792.32
K-58	1/27/2015	811.41	17.26	794.15
K-58	3/10/2015	811.41	26.27	785.14
K-58	4/21/2015	811.41	14.19	797.22
K-58	5/28/2015	811.41	16.10	795.31
K-58	6/29/2015	811.41	18.08	793.33
K-58	7/24/2015	811.41	19.64	791.77
K-58	8/25/2015	811.41	20.91	790.50
K-58	9/21/2015	811.41	15.62	795.79
K-58	10/19/2015	811.41	20.98	790.43
K-58	11/25/2015	811.41	17.37	794.04
K-58	12/15/2015	811.41	16.17	795.24
K-58	1/21/2016	811.41	16.01	795.40
K-58	2/15/2016	811.41	15.89	795.52
K-58	3/7/2016	811.41	12.47	798.94
K-58	5/24/2016	811.41	16.04	795.37
K-58	6/27/2016	811.41	17.34	794.07

Table 4-1
Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
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Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
V-23	9/17/2012	811.87	10.67	801.20
V-23	11/13/2012	811.87	12.92	798.95
V-23	12/3/2012	811.87	13.30	798.57
V-23	1/2/2013	811.87	13.57	798.30
V-23	1/28/2013	811.87	11.64	800.23
V-23	2/11/2013	811.87	10.82	801.05
V-23	2/27/2013	811.87	10.50	801.37
V-23	3/13/2013	811.87	9.63	802.24
V-23	4/10/2013	811.87	9.00	802.87
V-23	5/6/2013	811.87	8.26	803.61
V-23	6/11/2013	811.87	8.84	803.03
V-23	7/9/2013	811.87	8.05	803.82
V-23	8/15/2013	811.87	7.18	804.69
V-23	9/23/2013	811.87	7.66	804.21
V-23	10/17/2013	811.87	8.10	803.77
V-23	11/26/2013	811.87	9.40	802.47
V-23	12/20/2013	811.87	8.49	803.38
V-23	1/27/2014	811.87	6.82	805.05
V-23	2/19/2014	811.87	7.36	804.51
V-23	3/19/2014	811.87	6.79	805.08
V-23	4/22/2014	811.87	6.11	805.76
V-23	5/19/2014	811.87	8.13	803.74
V-23	6/16/2014	811.87	9.40	802.47
V-23	7/28/2014	811.87	10.52	801.35
V-23	8/27/2014	811.87	10.39	801.48
V-23	9/22/2014	811.87	11.26	800.61
V-23	10/29/2014	811.87	12.17	799.70
V-23	11/11/2014	811.87	12.44	799.43
V-23	12/17/2014	811.87	11.86	800.01
V-23	1/27/2015	811.87	10.30	801.57
V-23	3/10/2015	811.87	9.40	802.47
V-23	4/21/2015	811.87	8.90	802.97
V-23	5/28/2015	811.87	9.98	801.89
V-23	6/29/2015	811.87	11.62	800.25
V-23	7/24/2015	811.87	12.92	798.95
V-23	8/25/2015	811.87	14.24	797.63
V-23	9/21/2015	811.87	15.21	796.66
V-23	10/19/2015	811.87	14.52	797.35
V-23	11/25/2015	811.87	11.15	800.72
V-23	12/15/2015	811.87	9.68	802.19
V-23	1/21/2016	811.87	9.58	802.29
V-23	2/15/2016	811.87	9.40	802.47
V-23	3/7/2016	811.87	6.64	805.23
V-23	5/24/2016	811.87	10.07	801.80
V-23	6/27/2016	811.87	11.63	800.24

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Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
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Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
V-65	9/17/2012	811.86	10.11	801.75
V-65	11/13/2012	811.86	14.29	797.57
V-65	12/3/2012	811.86	13.33	798.53
V-65	1/2/2013	811.86	19.77	792.09
V-65	1/28/2013	811.86	17.76	794.10
V-65	2/11/2013	811.86	17.06	794.80
V-65	2/27/2013	811.86	16.60	795.26
V-65	3/13/2013	811.86	10.37	801.49
V-65	4/10/2013	811.86	9.57	802.29
V-65	5/6/2013	811.86	8.70	803.16
V-65	6/11/2013	811.86	8.93	802.93
V-65	7/9/2013	811.86	8.13	803.73
V-65	8/15/2013	811.86	7.43	804.43
V-65	9/23/2013	811.86	7.88	803.98
V-65	10/17/2013	811.86	8.82	803.04
V-65	11/26/2013	811.86	9.46	802.40
V-65	12/20/2013	811.86	8.52	803.34
V-65	1/27/2014	811.86	11.62	800.24
V-65	2/19/2014	811.86	12.29	799.57
V-65	3/19/2014	811.86	12.30	799.56
V-65	4/22/2014	811.86	11.51	800.35
V-65	5/19/2014	811.86	12.53	799.33
V-65	6/16/2014	811.86	13.73	798.13
V-65	7/28/2014	811.86	14.25	797.61
V-65	8/27/2014	811.86	14.25	797.61
V-65	9/22/2014	811.86	14.93	796.93
V-65	10/29/2014	811.86	14.49	797.37
V-65	11/11/2014	811.86	12.81	799.05
V-65	12/17/2014	811.86	15.30	796.56
V-65	1/27/2015	811.86	14.50	797.36
V-65	3/10/2015	811.86	13.44	798.42
V-65	4/21/2015	811.86	13.26	798.60
V-65	5/28/2015	811.86	12.90	798.96
V-65	6/29/2015	811.86	14.18	797.68
V-65	7/24/2015	811.86	12.81	799.05
V-65	8/25/2015	811.86	16.60	795.26
V-65	9/21/2015	811.86	13.44	798.42
V-65	10/19/2015	811.86	17.45	794.41
V-65	11/25/2015	811.86	14.87	796.99
V-65	12/15/2015	811.86	13.20	798.66
V-65	1/21/2016	811.86	13.02	798.84
V-65	2/15/2016	811.86	12.81	799.05
V-65	3/7/2016	811.86	10.00	801.86
V-65	5/24/2016	811.86	12.66	799.20
V-65	6/27/2016	811.86	13.93	797.93

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Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
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Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
W-23	12/3/2012	800.91	17.26	783.65
W-23	1/2/2013	800.91	17.89	783.02
W-23	1/28/2013	800.91	17.69	783.22
W-23	2/11/2013	800.91	17.35	783.56
W-23	2/27/2013	800.91	17.14	783.77
W-23	3/12/2013	800.91	16.83	784.08
W-23	4/10/2013	800.91	16.25	784.66
W-23	5/6/2013	800.91	15.34	785.57
W-23	6/11/2013	800.91	14.48	786.43
W-23	7/9/2013	800.91	13.90	787.01
W-23	8/15/2013	800.91	13.04	787.87
W-23	9/23/2013	800.91	13.48	787.43
W-23	10/17/2013	800.91	13.98	786.93
W-23	11/26/2013	800.91	14.93	785.98
W-23	12/20/2013	800.91	15.18	785.73
W-23	1/27/2014	800.91	14.36	786.55
W-23	2/19/2014	800.91	14.92	785.99
W-23	3/19/2014	800.91	14.52	786.39
W-23	4/22/2014	800.91	13.69	787.22
W-23	5/19/2014	800.91	13.12	787.79
W-23	6/16/2014	800.91	12.97	787.94
W-23	7/28/2014	800.91	13.35	787.56
W-23	8/27/2014	800.91	13.41	787.50
W-23	9/22/2014	800.91	13.88	787.03
W-23	10/29/2014	800.91	14.99	785.92
W-23	11/11/2014	800.91	15.35	785.56
W-23	12/17/2014	800.91	16.31	784.60
W-23	1/27/2015	800.91	16.55	784.36
W-23	3/10/2015	800.91	16.55	784.36
W-23	4/21/2015	800.91	15.48	785.43
W-23	5/28/2015	800.91	14.51	786.40
W-23	6/29/2015	800.91	14.51	786.40
W-23	7/24/2015	800.91	15.00	785.91
W-23	8/25/2015	800.91	15.41	785.50
W-23	9/21/2015	800.91	16.55	784.36
W-23	10/19/2015	800.91	16.20	784.71
W-23	11/25/2015	800.91	15.41	785.50
W-23	12/15/2015	800.91	15.07	785.84
W-23	1/21/2016	800.91	14.99	785.92
W-23	2/15/2016	800.91	14.69	786.22
W-23	3/7/2016	800.91	13.69	787.22
W-23	5/24/2016	800.91	14.34	786.57
W-23	6/27/2016	800.91	14.45	786.46

Table 4-1
Summary of Performance Monitoring Groundwater Elevations
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well Location	Date Gauged	TOC Elevation (feet above MSL)	Depth to Water (feet)	Groundwater Elevation (feet above MSL)
CC-64	9/17/2012	811.45	18.19	793.26
CC-64	11/13/2012	811.45	19.53	791.92
CC-64	12/3/2012	811.45	20.19	791.26
CC-64	1/2/2013	811.45	19.80	791.65
CC-64	1/28/2013	811.45	18.81	792.64
CC-64	2/11/2013	811.45	18.20	793.25
CC-64	2/27/2013	811.45	17.80	793.65
CC-64	3/12/2013	811.45	17.04	794.41
CC-64	4/10/2013	811.45	16.93	794.52
CC-64	5/6/2013	811.45	15.97	795.48
CC-64	6/11/2013	811.45	15.29	796.16
CC-64	7/9/2013	811.45	14.69	796.76
CC-64	8/15/2013	811.45	14.13	797.32
CC-64	9/23/2013	811.45	14.54	796.91
CC-64	10/17/2013	811.45	14.74	796.71
CC-64	11/26/2013	811.45	15.92	795.53
CC-64	12/20/2013	811.45	15.78	795.67
CC-64	1/27/2014	811.45	14.19	797.26
CC-64	2/19/2014	811.45	14.97	796.48
CC-64	3/19/2014	811.45	14.44	797.01
CC-64	4/22/2014	811.45	13.87	797.58
CC-64	5/19/2014	811.45	15.23	796.22
CC-64	6/16/2014	811.45	15.04	796.41
CC-64	7/28/2014	811.45	15.75	795.70
CC-64	8/27/2014	811.45	15.74	795.71
CC-64	9/22/2014	811.45	16.50	794.95
CC-64	10/29/2014	811.45	17.75	793.70
CC-64	11/11/2014	811.45	18.13	793.32
CC-64	12/17/2014	811.45	18.42	793.03
CC-64	1/27/2015	811.45	17.75	793.70
CC-64	3/10/2015	811.45	17.11	794.34
CC-64	4/21/2015	811.45	22.43	789.02
CC-64	5/28/2015	811.45	16.31	795.14
CC-64	6/29/2015	811.45	17.21	794.24
CC-64	7/24/2015	811.45	18.45	793.00
CC-64	8/25/2015	811.45	19.45	792.00
CC-64	9/21/2015	811.45	17.11	794.34
CC-64	10/19/2015	811.45	19.57	791.88
CC-64	11/25/2015	811.45	17.13	794.32
CC-64	12/15/2015	811.45	16.24	795.21
CC-64	1/21/2016	811.45	16.18	795.27
CC-64	2/15/2016	811.45	16.09	795.36
CC-64	3/7/2016	811.45	14.11	797.34
CC-64	5/24/2016	811.45	15.65	795.80
CC-64	6/27/2016	811.45	16.92	794.53

Notes:
MSL – mean sea level
TOC – top of casing
NA – not applicable
NG – not gauged

Table 4-2
Summary of Performance Monitoring Laboratory Analytical Data
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

	Chemical	1,4-Dioxane	Ethylene Glycol
	NCAC 2L	0.003	10
	Unit	mg/L	mg/L
Location	Sample Date		
IT-5	9/18/2012	1.750	45.4
IT-5	11/13/2012	1.460	297.0
IT-5	12/4/2012	1.360	233.0
IT-5	1/3/2013	1.060	120.0
IT-5	3/13/2013	1.130	108.0
IT-5	9/25/2013	1.510	474.0
IT-5	3/19/2014	1.000	1080.0
IT-5	9/23/2014	2.360	82.3
IT-5	3/10/2015	0.713	<5.0
IT-5	9/22/2015	2.030	2630.0
IT-5	3/8/2016	1.700	1940.0
IT-6	9/18/2012	2.820	387.0
IT-6	11/13/2012	2.540	799.0
IT-6	12/4/2012	2.510	688.0
IT-6	1/3/2013	2.580	733.0
IT-6	3/13/2013	3.110	443.0
IT-6	9/25/2013	2.300	670.0
IT-6	3/19/2014	2.190	1000.0
IT-6	9/23/2014	4.150	68.4 J
IT-6	3/10/2015	2.930	103.0
IT-6	9/22/2015	3.260	723.0
IT-6	3/8/2016	2.870	1900.0
IT-7	9/18/2012	0.495	< 7.00
IT-7	11/13/2012	0.489	< 7.00
IT-7	12/4/2012	0.482	37.0
IT-7	1/3/2013	0.480	< 7.00
IT-7	3/13/2013	0.550	64.6
IT-7	9/25/2013	0.441	< 7.00
IT-7	3/19/2014	0.403	99.4
IT-7	9/23/2014	0.547	75.7
IT-7	3/10/2015	0.545	<5.0
IT-7	9/22/2015	0.562	303.0
IT-7	3/8/2016	0.442	314.0
IT-8R	10/10/2012	1.290	< 7.00
IT-8R DUP	10/10/2012	1.280	< 7.00
IT-8R	11/13/2012	1.330	1750.0
IT-8R	12/4/2012	1.260	766.0
IT-8R	1/3/2013	0.816	603.0
IT-8R	3/12/2013	1.010	240.0
IT-8R	9/24/2013	0.800	593.0
IT-8R	3/19/2014	0.099	22.7
IT-8R	9/23/2014	0.789	< 100
IT-8R	3/9/2015	1.320	<5.0
IT-8R	9/23/2015	0.765	131

Table 4-2
Summary of Performance Monitoring Laboratory Analytical Data
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

	Chemical	1,4-Dioxane	Ethylene Glycol
	NCAC 2L	0.003	10
	Unit	mg/L	mg/L
Location	Sample Date		
IT-9	10/10/2012	0.386	< 7.00
IT-9	11/13/2012	0.408	< 7.00
IT-9	12/4/2012	0.362	153.0
IT-9	1/3/2013	0.385	< 14.0
IT-9	3/12/2013	0.448	43.3
IT-9	9/24/2013	0.296	< 14.0
IT-9	3/19/2014	0.359	< 10.0
IT-9	9/24/2014	0.351	< 10.0
IT-9	3/11/2015	0.425	<5.0
IT-9	9/23/2015	0.308	147
IT-10	9/18/2012	0.786	< 7.00
IT-10	11/6/2012	0.831	< 7.00
IT-10	12/5/2012	0.736	164.0
IT-10	1/3/2013	0.601	22.6
IT-10	1/17/2013	0.578	--
IT-10	1/28/2013	0.525	--
IT-10	2/11/2013	0.487	206.0
IT-10	2/27/2013	0.504	125.0
IT-10	3/12/2013	0.671	347.0
IT-10	4/10/2013	0.592	423.0
IT-10	5/6/2013	0.709	323.0
IT-10	6/11/2013	0.730	92.9
IT-10	7/9/2013	0.665	9.8
IT-10	8/15/2013	1.090	405.0
IT-10	9/25/2013	0.600	18.6
IT-10	10/17/2013	0.718	29.3
IT-10	11/26/2013	--	--
IT-10	12/20/2013	--	--
IT-10	1/27/2014	0.595	<100
IT-10	2/19/2014	0.746	314.0
IT-10	3/19/2014	0.562	343.0
IT-10	4/22/2014	0.703	302.0
IT-10	5/19/2014	0.610	262.0
IT-10	6/16/2014	0.674	<100
IT-10	7/29/2014	0.583	<100
IT-10	8/27/2014	0.509	34.2
IT-10	9/23/2014	0.624	97.1
IT-10	10/29/2014	0.814	309.0
IT-10	11/11/2014	0.753	<100
IT-10	12/17/2014	0.587	<50
IT-10	1/27/2015	0.614	61.9
IT-10	3/10/2015	0.535	73.9
IT-10	4/21/2015	0.680	73.2
IT-10	5/28/2015	--	--
IT-10	6/29/2015	0.741	70.7
IT-10	7/24/2015	0.594	<50

Table 4-2
Summary of Performance Monitoring Laboratory Analytical Data
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

	Chemical	1,4-Dioxane	Ethylene Glycol
	NCAC 2L	0.003	10
	Unit	mg/L	mg/L
Location	Sample Date		
IT-10	8/25/2015	0.633	217.0
IT-10	9/23/2015	0.677	226.0
IT-10	10/19/2015	0.625	250.0
IT-10	11/25/2015	1.040	1180.0
IT-10	12/15/2015	0.668	<50
IT-10	1/21/2016	0.759	<50
IT-10	2/15/2016	0.615	<50
IT-10	3/9/2016	0.665	384.0
IT-10	5/24/2016	0.601	<50
IT-10	6/27/2016	0.683	82.2
IT-11	9/18/2012	2.890	1230.0
IT-11	11/6/2012	2.450	771 J
IT-11 DUP	11/6/2012	2.350	2070 J
IT-11	12/5/2012	2.230	1120.0
IT-11	1/3/2013	1.900	2010.0
IT-11	1/17/2013	1.960	--
IT-11	1/28/2013	1.850	--
IT-11	2/11/2013	1.770	1470.0
IT-11	2/27/2013	1.670	1630.0
IT-11	3/12/2013	1.840	1160.0
IT-11	4/10/2013	1.610	3850.0
IT-11	5/6/2013	1.450	3410.0
IT-11	6/11/2013	1.300	738.0
IT-11	7/9/2013	1.220	2100.0
IT-11	8/15/2013	1.310	2020.0
IT-11	9/25/2013	1.260	2290.0
IT-11	10/17/2013	1.180	3360.0
IT-11	11/26/2013	1.120	1940.0
IT-11	12/20/2013	0.995	1520.0
IT-11	1/27/2014	1.170	2280.0
IT-11	2/19/2014	1.170	1490.0
IT-11	3/19/2014	1.020	2170.0
IT-11	4/22/2014	1.160	2430.0
IT-11	5/19/2014	0.996	1420.0
IT-11	6/16/2014	1.470	2020.0
IT-11	7/29/2014	1.200	1760.0
IT-11	8/27/2014	1.020	1310.0
IT-11	9/23/2014	0.610	1460.0
IT-11	10/29/2014	1.270	951.0
IT-11	11/11/2014	1.350	1020.0
IT-11	12/17/2014	1.160	1220.0
IT-11	1/27/2015	1.040	1590.0
IT-11	3/10/2015	1.280	3890.0
IT-11	4/21/2015	1.130	1160.0
IT-11	5/28/2015	1.160	1070.0

Table 4-2
Summary of Performance Monitoring Laboratory Analytical Data
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

	Chemical	1,4-Dioxane	Ethylene Glycol
	NCAC 2L	0.003	10
	Unit	mg/L	mg/L
Location	Sample Date		
IT-11	6/29/2015	1.340	2040.0
IT-11	7/24/2015	1.100	2120.0
IT-11	8/25/2015	1.030	1800.0
IT-11	9/23/2015	1.070	2580.0
IT-11	10/19/2015	0.931	2180.0
IT-11	11/25/2015	0.725	759.0
IT-11	12/15/2015	0.826	1610.0
IT-11	1/21/2016	1.180	1670.0
IT-11	2/15/2016	0.877	927.0
IT-11	3/9/2016	0.983	2870.0
IT-11	5/24/2016	0.813	<50
IT-11	6/27/2016	0.755	1590.0
IT-12	9/18/2012	1.060	< 7.00
IT-12	11/6/2012	1.080	< 7.00
IT-12	12/5/2012	1.030	219.0
IT-12	1/3/2013	1.170	310.0
IT-12	1/17/2013	1.260	--
IT-12	1/28/2013	1.090	--
IT-12	2/11/2013	1.060	855.0
IT-12	2/27/2013	1.070	711.0
IT-12	3/12/2013	1.400	738.0
IT-12	4/10/2013	1.100	1330.0
IT-12	5/6/2013	1.170	1540.0
IT-12	6/11/2013	1.200	158.0
IT-12	7/9/2013	1.150	397.0
IT-12	8/15/2013	1.400	989.0
IT-12	9/25/2013	1.210	1590.0
IT-12	10/17/2013	1.110	610.0
IT-12	11/26/2013	1.140	255.0
IT-12	12/20/2013	0.900	550.0
IT-12	1/27/2014	1.150	1540.0
IT-12	2/19/2014	1.260	896.0
IT-12	3/19/2014	1.110	1370.0
IT-12	4/22/2014	1.500	1940.0
IT-12	5/19/2014	1.210	591.0
IT-12	6/16/2014	1.470	714.0
IT-12	7/29/2014	0.462	183.0
IT-12	8/27/2014	1.170	109.0
IT-12	9/23/2014	1.080	410.0
IT-12	10/29/2014	1.380	767.0
IT-12	11/11/2014	1.800	<100
IT-12	12/17/2014	1.020	<50
IT-12	1/27/2015	1.160	138.0
IT-12	3/10/2015	1.280	376 J
IT-12	4/21/2015	1.050	56.1

Table 4-2
Summary of Performance Monitoring Laboratory Analytical Data
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

	Chemical	1,4-Dioxane	Ethylene Glycol
	NCAC 2L	0.003	10
	Unit	mg/L	mg/L
Location	Sample Date		
IT-12	5/28/2015	1.090	<50
IT-12	6/29/2015	1.080	33.6
IT-12	7/24/2015	1.040	38.1
IT-12	8/25/2015	0.868	462.0
IT-12	9/23/2015	0.807	666.0
IT-12	10/19/2015	0.754	554.0
IT-12	11/25/2015	0.809	<50
IT-12	12/15/2015	0.824	522.0
IT-12	1/21/2016	0.926	<50
IT-12	2/15/2016	0.726	<50
IT-12	3/9/2016	0.859	484.0
IT-12	5/24/2016	0.741	<50
IT-12	6/27/2016	0.752	116.0
K-28	9/18/2012	1.140	71.7
K-28	11/13/2012	1.540	897.0
K-28	12/4/2012	1.230	712.0
K-28	1/3/2013	1.190	396.0
K-28	3/13/2013	1.030	85.7
K-28	9/25/2013	1.070	355.0
K-28	3/19/2014	0.965	79.6
K-28	9/23/2014	1.210	< 100
K-28	3/10/2015	0.987	<5.0
K-28	9/22/2015	0.891	807
K-28	3/8/2016	0.875	<50.0
K-58	10/10/2012	0.486	< 7.00
K-58	11/13/2012	0.479	< 7.00
K-58	12/4/2012	0.479	20.8
K-58	1/3/2013	0.450	< 7.00
K-58	3/13/2013	0.561	< 7.00
K-58	9/25/2013	0.523	< 7.00
K-58	3/19/2014	0.678	< 10.0
K-58	9/23/2014	0.715	< 10.0
K-58	3/10/2015	0.614	<5.0
K-58	9/22/2015	0.639	<5.0
K-58	3/9/2016	0.629	50.7
V-23	9/18/2012	2.130	746.0
V-23	11/13/2012	1.230	1410.0
V-23	12/4/2012	1.550	688.0
V-23	1/3/2013	0.857	466.0
V-23	3/13/2013	0.536	13.9
V-23	9/25/2013	0.649	161.0
V-23	3/19/2014	0.276	59.1
V-23	9/23/2014	0.614	49.1 J
V-23	3/10/2015	0.193	<5.0
V-23	9/22/2015	0.628	739
V-23	3/8/2016	0.077	<50.0

Table 4-2
Summary of Performance Monitoring Laboratory Analytical Data
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

	Chemical	1,4-Dioxane	Ethylene Glycol
	NCAC 2L	0.003	10
	Unit	mg/L	mg/L
Location	Sample Date		
V-65	9/19/2012	0.535	< 7.00
V-65	11/13/2012	0.575	< 7.00
V-65	12/4/2012	0.544	31.1
V-65	1/3/2013	0.736	< 7.00
V-65	3/13/2013	1.040	< 7.00
V-65	3/19/2014	0.778	20.2
V-65	9/23/2014	0.755	< 10.0
V-65	3/10/2015	0.900	<5.0
V-65	9/23/2015	0.879	<50.0
V-65	3/9/2016	1.070	54
V-65 DUP	3/9/2016	1.020	<50.0
W-23	12/4/2012	0.023	< 7.00
W-23	1/3/2013	< 0.00200	< 7.00
CC-64	10/10/2012	0.191	< 7.00
CC-64	11/13/2012	0.193	< 7.00
CC-64 DUP	11/13/2012	0.200	< 7.00
CC-64	12/4/2012	0.208	< 7.00
CC-64	1/3/2013	0.165	< 7.00
CC-64	3/12/2013	0.232	< 7.00
CC-64	9/25/2013	0.213	< 7.00
CC-64	3/19/2014	0.195	< 10.0
CC-64	9/24/2014	0.207	< 10.0
CC-64	3/11/2015	0.218	<5.0
CC-64 DUP	3/11/2015	0.255	<5.0
CC-64	9/22/2015	0.266	<5.0
CC-64	3/9/2016	0.218	<50.0

Notes:
mg/L – milligrams per liter
-- not sampled
NCAC 2L – North Carolina Administrative Code, Title 15A, Subchapter 2L
Shaded: Parameter exceeded the NCAC 2L standard.

Table 4-3
Summary of Performance Monitoring Totalizer Readings and COD and 1,4-Dioxane Information
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well ID	Date	Totalizer (gallons)	Chemical Oxygen Demand (mg/L)	Chemical Oxygen Demand %	Decimal Equivalent	COD Removed (pounds)	Cumulative COD Removed (pounds)	1,4-Dioxane (mg/L)	1,4-Dioxane Removed (pounds)	Cumulative 1,4-Dioxane Removed (pounds)	Ethylene Glycol (mg/L)	Ethylene Glycol Removed (pounds)	Cumulative Ethylene Glycol Removed (pounds)
IT-10	10/9/2012	926	**	--	--	0	0	--	--	--	--	--	0
IT-10	10/23/2012	934	7,540	0.75	0.01	0.4	0	--	--	--	--	--	0
IT-10	11/7/2012	1,034	5,920	0.59	0.01	3.3	4	0.831	0.00	0.01	< 7.00	0	0
IT-10	11/27/2012	1,091	6,560	0.66	0.01	1.9	6	--	--	0.01	--	--	0
IT-10	12/4/2012	1,176	7,140	0.71	0.01	3.5	9	0.736	0.00	0.01	164	1.66	1.66
IT-10	12/17/2012	2,148	5,050	0.51	0.01	24.9	34	--	--	0.01	--	--	1.66
IT-10	1/3/2013	3,393	4,270	0.43	0.00	20.6	55	0.601	0.01	0.02	22.6	1.38	3.04
IT-10	1/17/2013	4,550	4,010	0.40	0.00	16.0	71	0.578	0.04	0.06	--	--	3.04
IT-10	1/28/2013	5,491	4,030	0.40	0.00	12.7	83	0.525	0.04	0.10	--	--	3.04
IT-10	2/11/2013	6,761	4,120	0.41	0.00	17.8	101	0.487	0.04	0.13	206	15.57	18.61
IT-10	2/27/2013	7,717	4,170	0.42	0.00	13.8	115	0.504	0.03	0.16	125	6.22	24.83
IT-10	3/13/2013	7,883	4,840	0.48	0.00	3.0	118	0.671	0.01	0.17	347	3.43	28.26
IT-10	4/10/2013	8,080	4,330	0.43	0.00	3.3	121	0.592	0.00	0.17	423	2.48	30.73
IT-10	5/6/2013	8,081	6,140	0.61	0.01	0.0	121	0.709	0.00	0.17	323	0.01	30.74
IT-10	6/11/2013	8,081	5,960	0.60	0.01	0.0	121	0.730	0.00	0.17	93	0.00	30.74
IT-10	7/9/2013	8,088	3,010	0.30	0.00	0.1	121	0.665	0.00	0.17	10	0.00	30.75
IT-10	8/15/2013	8,090	13,660	1.37	0.01	0.62	122	1.090	0.00	0.17	405	0.02	30.76
IT-10	9/25/2013	8,095	870	0.09	0.00	0.09	122	0.600	0.00	0.17	19	0.00	30.77
IT-10	10/17/2013	8,103	--	--	--	--	122	0.718	0.00	0.17	29	0.01	30.78
IT-10	11/26/2013	8,150	--	--	--	--	--	--	--	0.17	--	--	30.78
IT-10	12/20/2013	8,152	--	--	--	--	122	--	--	0.17	--	--	30.78
IT-10	1/27/2014	9,507	4,800	0.48	0.00	142.57	265	0.595	0.01	0.18	<100	0.00	30.78
IT-10	2/19/2014	11,028	4,820	0.48	0.00	265.52	530	0.746	0.03	0.21	314.00	17.30	48.08
IT-10	3/19/2014	13,147	4,780	0.48	0.00	301.33	831	0.562	0.03	0.24	343.00	21.62	69.70
IT-10	4/22/2014	15,863	4,810	0.48	0.00	320.07	1,151	0.703	0.05	0.29	302.00	20.10	89.80
IT-10	5/19/2014	18,014	4,630	0.46	0.00	307.26	1,459	0.610	0.04	0.33	262.00	17.39	107.18
IT-10	6/16/2014	19,823	4,870	0.49	0.00	262.09	1,721	0.674	0.04	0.37	<100	0.00	107.18
IT-10	7/29/2014	22,614	4,320	0.43	0.00	233.57	1,954	0.583	0.03	0.40	<100	0.00	107.18
IT-10	8/27/2014	24,246	4,890	0.49	0.00	229.23	2,184	0.509	0.03	0.43	34.20	1.60	108.79
IT-10	9/23/2014	25,882	4,700	0.47	0.00	237.23	2,421	0.624	0.03	0.46	97.1	4.90	113.69
IT-10	10/29/2014	28,242	6,800	0.68	0.01	371.33	2,792	0.814	0.04	0.50	309.00	16.87	130.56
IT-10	11/11/2014	28,509	5,060	0.51	0.01	86.57	2,879	0.753	0.03	0.53	<100	0.00	130.56
IT-10	12/17/2014	30,319	4,720	0.47	0.00	197.68	3,076	0.587	0.02	0.56	<50	0.00	130.56
IT-10	1/27/2015	31,757	4,940	0.49	0.00	144.33	3,221	0.614	0.02	0.58	61.90	0.00	130.56
IT-10	3/10/2015	34,351	5,010	0.50	0.01	257.75	3,479	0.535	0.02	0.60	73.9	0.00	130.56
IT-10	4/21/2015	36,860	4,870	0.49	0.00	242.34	3,721	0.680	0.03	0.63	73.20	0.00	130.56
IT-10	5/28/2015	38,338	--	--	--	--	3,721	--	--	--	--	--	130.56
IT-10	6/29/2015	40,203	4,800	0.48	0.00	233.03	3,954	0.741	0.03	0.66	70.70	3.43	133.99
IT-10	7/24/2015	40,212	3,060	0.31	0.00	0.92	3,955	0.594	0.02	0.68	<50	0.00	133.99
IT-10	8/25/2015	41,759	5,290	0.53	0.01	213.03	4,168	0.633	0.01	0.69	217.00	8.74	142.73
IT-10	9/23/2015	43,180	5,350	0.54	0.01	218.37	4,386	0.677	0.03	0.72	226.00	9.22	151.96
IT-10	10/19/2015	44,655	6,480	0.65	0.01	306.22	4,692	0.625	0.03	0.75	250.00	11.81	163.77

Table 4-3
Summary of Performance Monitoring Totalizer Readings and COD and 1,4-Dioxane Information
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well ID	Date	Totalizer (gallons)	Chemical Oxygen Demand (mg/L)	Chemical Oxygen Demand %	Decimal Equivalent	COD Removed (pounds)	Cumulative COD Removed (pounds)	1,4-Dioxane (mg/L)	1,4-Dioxane Removed (pounds)	Cumulative 1,4-Dioxane Removed (pounds)	Ethylene Glycol (mg/L)	Ethylene Glycol Removed (pounds)	Cumulative Ethylene Glycol Removed (pounds)
IT-10	11/25/2015	46,559	10,090	1.01	0.01	432.52	5,125	1.040	0.05	0.79	1180.00	50.58	214.35
IT-10	12/15/2015	47,654	5,410	0.54	0.01	246.73	5,372	0.668	0.03	0.82	<50	0.00	214.35
IT-10	1/21/2016	49,806	4,600	0.46	0.00	222.87	5,595	0.759	0.04	0.86	<50	0.00	214.35
IT-10	2/15/2016	51,147	4,500	0.45	0.00	201.07	5,796	0.615	0.03	0.89	<50	0.00	214.35
IT-10	3/9/2016	52,481	5,230	0.52	0.01	252.68	6,048	0.665	0.03	0.92	384.00	18.55	232.90
IT-10	5/24/2016	56,476	4,470	0.45	0.00	195.73	6,244	0.601	0.03	0.95	<50	0.00	232.90
IT-10	6/27/2016	58,288	4,540	0.45	0.00	201.55	6,446	0.683	0.03	0.98	82.20	3.65	236.55
IT-11	10/9/2012	2,099	**	--	--	0.0	0	--	--	--	--	--	--
IT-11	10/10/2012	2,114	27,800	--	--	3.4	3	--	--	--	--	--	--
IT-11	10/11/2012	2,769	**	--	--	148.8	152	--	--	--	--	--	--
IT-11	10/23/2012	6,219	36,940	3.69	0.04	922.8	1,075	--	--	--	--	--	--
IT-11	11/7/2012	9,682	30,900	3.09	0.03	978.5	2,054	2.890	0.17	0.17	771.00	148.27	148.27
IT-11	11/27/2012	17,868	21,240	2.12	0.02	1,777.7	3,831	--	--	0.17		--	148.27
IT-11	12/4/2012	20,279	25,720	2.57	0.03	471.6	4,303	2.230	0.21	0.38	1120	321.34	469.61
IT-11	12/17/2012	23,004	23,620	2.36	0.02	560.0	4,863	--	--	0.38		--	469.61
IT-11	1/3/2013	27,957	20,480	2.05	0.02	909.7	5,773	1.900	0.13	0.51	2010	487.82	957.43
IT-11	1/17/2013	29,480	23,260	2.33	0.02	277.5	6,050	1.960	0.18	0.68	--	--	957.43
IT-11	1/28/2013	30,512	25,320	2.53	0.03	208.8	6,259	1.850	0.14	0.83	--	--	957.43
IT-11	2/11/2013	31,771	21,060	2.11	0.02	243.2	6,502	1.77	0.13	0.96	1470.00	110.12	1,067.55
IT-11	2/27/2013	35,730	24,920	2.49	0.02	758.2	7,260	1.67	0.34	1.31	1630.00	335.97	1,403.52
IT-11	3/13/2013	43,586	21,200	2.12	0.02	1,509.1	8,769	1.84	0.86	2.17	1160.00	542.22	1,945.74
IT-11	4/10/2013	52,192	19,400	1.94	0.02	1,455.3	10,224	1.610	0.53	2.69	3850.00	985.71	2,931.45
IT-11	5/6/2013	59,244	16,240	1.62	0.02	1,046.8	11,271	1.450	0.33	3.02	3410.00	770.44	3,701.89
IT-11	6/11/2013	69,281	19,280	1.93	0.02	1,484.9	12,756	1.300	0.30	3.32	738.00	171.40	3,873.28
IT-11	7/9/2013	76,822	17,260	1.73	0.02	1,147.7	13,904	1.220	0.27	3.60	2100.00	471.12	4,344.41
IT-11	8/15/2013	86,157	21,640	2.16	0.02	4,547.94	18,452	1.310	0.28	3.87	2020.00	424.53	4,768.94
IT-11	9/25/2013	96,478	16,120	1.61	0.02	3,380.24	21,832	1.260	0.26	4.13	2290.00	480.20	5,249.13
IT-11	10/17/2013	101,921	15,220	1.52	0.02	3,172.38	21,624	1.180	0.25	4.12	3360.00	692.47	5,941.60
IT-11	11/26/2013	109,373	15,440	1.54	0.02	2,674.99	24,299	1.120	0.17	4.29	1940.00	301.06	6,242.67
IT-11	12/20/2013	114,962	15,040	1.50	0.02	2,552.84	26,852	0.995	0.19	4.48	1520.00	294.86	6,537.52
IT-11	1/27/2014	124,366	17,940	1.79	0.02	3,613.80	30,466	1.17	0.24	4.72	2280.00	470.01	7,007.53
IT-11	2/19/2014	129,734	14,080	1.41	0.01	2,840.25	33,306	1.17	0.23	4.95	1490.00	289.68	7,297.21
IT-11	3/19/2014	137,128	14,780	1.48	0.01	3,080.83	36,387	1.02	0.22	5.18	2170.00	477.34	7,774.55
IT-11	4/22/2014	145,615	13,400	1.34	0.01	2,859.14	39,246	1.16	0.24	5.42	2430.00	505.27	8,279.82
IT-11	5/19/2014	152,486	14,260	1.43	0.01	2,990.68	42,237	0.996	0.21	5.63	1420.00	301.02	8,580.84
IT-11	6/16/2014	159,006	16,040	1.60	0.02	3,253.12	45,490	1.47	0.29	5.91	2020.00	391.82	8,972.66
IT-11	7/29/2014	164,510	12,640	1.26	0.01	1,783.13	47,273	1.2	0.13	6.04	1760.00	187.66	9,160.32
IT-11	8/27/2014	168,389	12,140	1.21	0.01	1,317.87	48,591	1.02	0.11	6.16	1310.00	145.96	9,306.28
IT-11	9/23/2014	172,648	12,180	1.22	0.01	1,474.42	50,065	0.61	0.08	6.24	1460	191.84	9,498.12
IT-11	10/29/2014	178,199	13,600	1.36	0.01	1,764.06	51,829	1.27	0.16	6.40	951.00	122.15	9,620.27
IT-11	11/11/2014	178,891	11,980	1.20	0.01	1,271.45	53,101	1.35	0.06	6.46	1020.00	45.23	9,665.50
IT-11	12/17/2014	180,876	13,920	1.39	0.01	633.49	53,734	1.16	0.05	6.51	1220.00	56.04	9,721.53

Table 4-3
Summary of Performance Monitoring Totalizer Readings and COD and 1,4-Dioxane Information
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well ID	Date	Totalizer (gallons)	Chemical Oxygen Demand (mg/L)	Chemical Oxygen Demand %	Decimal Equivalent	COD Removed (pounds)	Cumulative COD Removed (pounds)	1,4-Dioxane (mg/L)	1,4-Dioxane Removed (pounds)	Cumulative 1,4-Dioxane Removed (pounds)	Ethylene Glycol (mg/L)	Ethylene Glycol Removed (pounds)	Cumulative Ethylene Glycol Removed (pounds)
IT-11	1/27/2015	184,733	13,280	1.33	0.01	839.29	54,574	1.04	0.08	6.59	1590.00	124.60	9,846.13
IT-11	3/10/2015	191,842	13,540	1.35	0.01	1,490.16	56,064	1.28	0.18	6.77	3890	548.47	10,394.60
IT-11	4/21/2015	206,471	14,980	1.50	0.01	3,229.22	59,293	1.13	0.33	7.10	1160.00	336.56	10,731.17
IT-11	5/28/2015	215,035	--	--	--	--	59,293	1.160	0.22	7.33	1070.00	206.30	10,937.47
IT-11	6/29/2015	220,657	15,760	1.58	0.02	2,699.06	61,992	1.34	0.20	7.52	2040.00	298.55	11,236.02
IT-11	7/24/2015	225,177	11,360	1.14	0.01	1,683.73	63,676	1.100	0.17	7.69	2120.00	319.29	11,555.30
IT-11	8/25/2015	230,478	13,720	1.37	0.01	1,969.16	65,645	1.030	0.14	7.83	1800.00	248.38	11,803.69
IT-11	9/23/2015	235,004	12,200	1.22	0.01	1,637.18	67,282	1.070	0.14	7.97	2580.00	335.41	12,139.10
IT-11	10/19/2015	239,741	12,740	1.27	0.01	1,787.32	69,069	0.931	0.14	8.11	2180.00	330.85	12,469.95
IT-11	11/25/2015	249,904	4,560	0.46	0.00	898.37	69,968	0.725	0.17	8.28	759.00	173.66	12,643.62
IT-11	12/15/2015	256,546	14,060	1.41	0.01	3,452.98	73,421	0.826	0.23	8.50	1610.00	445.39	13,089.01
IT-11	1/21/2016	271,257	8,380	0.84	0.01	2,615.01	76,036	1.180	0.39	8.89	1670.00	553.10	13,642.10
IT-11	2/15/2016	277,941	12,150	1.22	0.01	3,492.54	79,528	0.877	0.20	9.09	927.00	206.45	13,848.56
IT-11	3/9/2016	286,555	10,360	1.04	0.01	2,750.41	82,279	0.983	0.31	9.40	2870.00	895.37	14,743.93
IT-11	5/24/2016	311,609	8,540	0.85	0.01	2,419.27	84,698	0.813	0.22	9.62	<50	0.00	14,743.93
IT-11	6/27/2016	322,270	9,200	0.92	0.01	2,488.23	87,186	0.755	0.20	9.82	1590.00	415.30	15,159.23
IT-12	10/9/2012	461	**	--	--	0.0	0	--	--	--	--	--	
IT-12	10/23/2012	518	10,570	1.06	0.01	5.0	5	--	--	--	--	--	
IT-12	11/7/2012	1,271	10,650	1.07	0.01	66.6	72	1.080	0.01	0.01	< 7.00	0.00	0
IT-12	11/27/2012	2,915	10,610	1.06	0.01	145.6	217	--	--	0.01	--	--	0
IT-12	12/4/2012	3,336	11,460	1.15	0.01	38.7	256	1.030	0.02	0.03	219	10.97	10.97
IT-12	12/17/2012	5,179	11,420	1.14	0.01	175.6	431	--	--	0.03	--	--	10.97
IT-12	1/3/2013	7,568	12,730	1.27	0.01	240.3	672	1.170	0.04	0.06	310	36.29	47.26
IT-12	1/17/2013	9,648	12,160	1.22	0.01	215.6	887	1.260	0.16	0.22	--	--	47.26
IT-12	1/28/2013	10,938	13,030	1.30	0.01	135.3	1,023	1.090	0.11	0.33	--	--	47.26
IT-12	2/11/2013	12,630	13,720	1.37	0.01	188.5	1,211	1.06	0.11	0.43	855.00	86.08	133.34
IT-12	2/27/2013	14,814	13,230	1.32	0.01	245.1	1,456	1.07	0.12	0.55	711.00	80.84	214.18
IT-12	3/13/2013	16,137	13,620	1.36	0.01	148.0	1,604	1.4	0.11	0.67	738.00	58.09	272.28
IT-12	4/10/2013	18,426	15,430	1.54	0.02	277.0	1,881	1.100	0.08	0.74	1330.00	90.57	362.85
IT-12	5/6/2013	19,363	15,040	1.50	0.02	118.9	2,000	1.170	0.04	0.78	1540.00	46.23	409.08
IT-12	6/11/2013	20,585	14,720	1.47	0.01	151.5	2,152	1.200	0.03	0.81	158.00	4.47	413.54
IT-12	7/9/2013	21,432	14,450	1.45	0.01	102.9	2,255	1.150	0.03	0.84	397.00	10.00	423.55
IT-12	8/15/2013	22,486	13,660	1.37	0.01	324.14	2,579	1.400	0.03	0.88	989.00	23.47	447.02
IT-12	9/25/2013	23,698	14,340	1.43	0.01	353.11	2,932	1.210	0.03	0.90	1590.00	39.15	486.17
IT-12	10/17/2013	24,394	14,000	1.40	0.01	353.19	2,932	1.110	0.03	0.90	610.00	16.08	502.24
IT-12	11/26/2013	24,530	13,250	1.33	0.01	37.53	2,969	1.140	0.00	0.91	255.00	0.72	502.97
IT-12	12/20/2013	24,532	12,330	1.23	0.01	22.15	2,992	0.900	0.00	0.91	550.00	0.04	503.00
IT-12	1/27/2014	27,667	12,690	1.27	0.01	534.85	3,526	1.150	0.08	0.99	1540.00	105.83	608.84
IT-12	2/19/2014	30,516	13,700	1.37	0.01	1,119.51	4,646	1.260	0.13	1.12	896.00	92.45	701.29
IT-12	3/19/2014	34,246	14,110	1.41	0.01	1,516.22	6,162	1.110	0.12	1.24	1370.00	152.03	853.31
IT-12	4/22/2014	38,517	15,340	1.53	0.02	1,649.01	7,811	1.500	0.16	1.40	1940.00	203.00	1,056.31
IT-12	5/19/2014	42,431	14,590	1.46	0.01	1,630.76	9,442	1.210	0.15	1.54	591.00	71.37	1,127.68

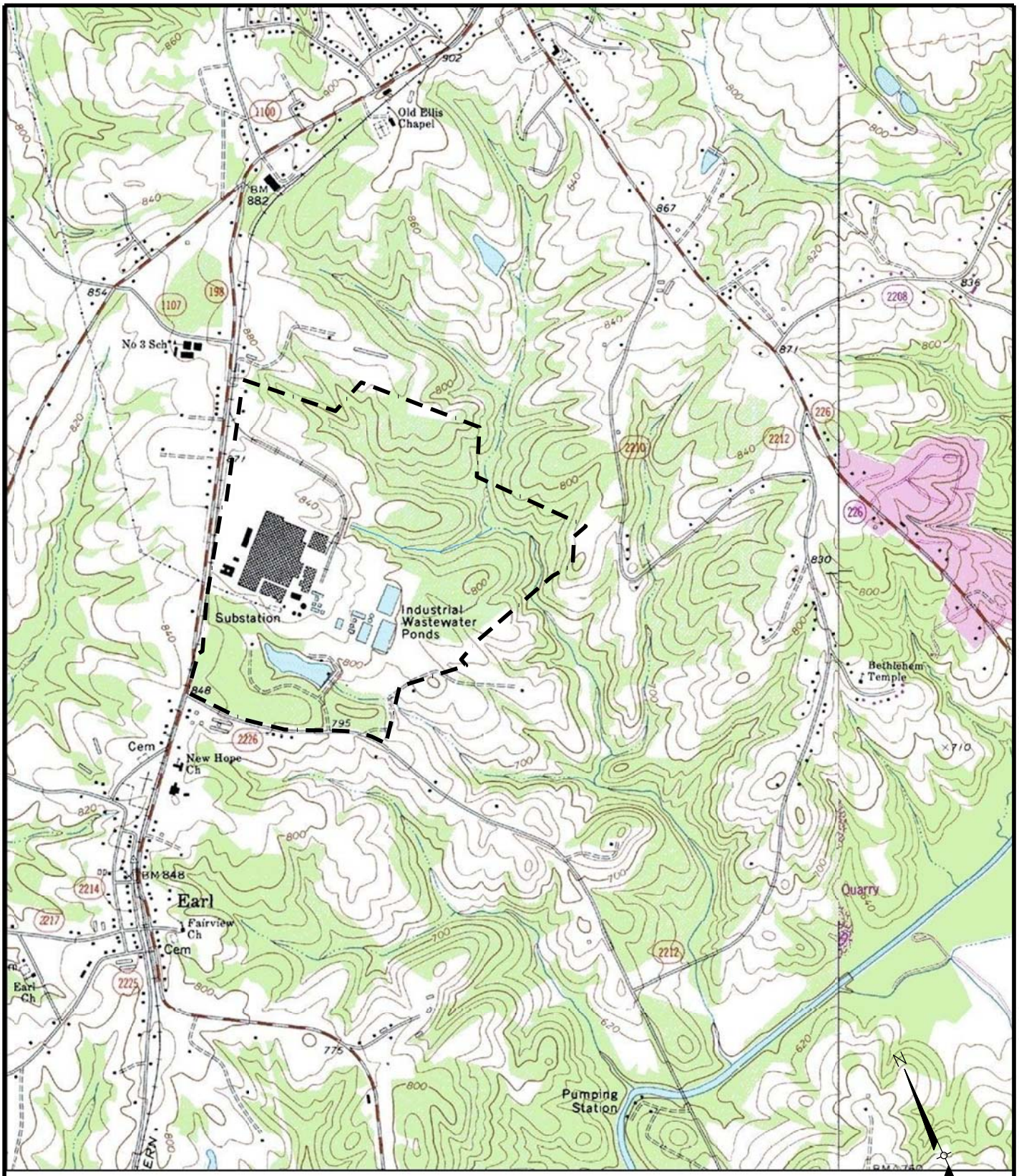
Table 4-3
Summary of Performance Monitoring Totalizer Readings and COD and 1,4-Dioxane Information
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project No. 60301530
Document Control No. 026SB-337

Well ID	Date	Totalizer (gallons)	Chemical Oxygen Demand (mg/L)	Chemical Oxygen Demand %	Decimal Equivalent	COD Removed (pounds)	Cumulative COD Removed (pounds)	1,4-Dioxane (mg/L)	1,4-Dioxane Removed (pounds)	Cumulative 1,4-Dioxane Removed (pounds)	Ethylene Glycol (mg/L)	Ethylene Glycol Removed (pounds)	Cumulative Ethylene Glycol Removed (pounds)
IT-12	6/16/2014	45,612	14,920	1.49	0.01	1,603.26	11,045	1.470	0.14	1.68	714.00	67.57	1,195.25
IT-12	7/29/2014	52,085	14,430	1.44	0.01	1,634.41	12,680	0.462	0.06	1.74	183.00	22.95	1,218.20
IT-12	8/27/2014	55,546	13,700	1.37	0.01	1,574.55	14,254	1.170	0.12	1.86	109.00	10.84	1,229.03
IT-12	9/23/2014	58,732	13,690	1.37	0.01	1,353.59	15,608	1.08	0.11	1.96	410	40.30	1,269.33
IT-12	10/29/2014	62,978	14,880	1.49	0.01	1,462.22	17,070	1.380	0.14	2.10	767.00	75.36	1,344.69
IT-12	11/11/2014	64,219	13,580	1.36	0.01	1,266.73	18,337	1.800	0.14	2.24	<100	0.00	1,344.69
IT-12	12/17/2014	66,681	12,860	1.29	0.01	809.55	19,146	1.020	0.06	2.30	<50	0.00	1,344.69
IT-12	1/27/2015	70,477	13,700	1.37	0.01	927.49	20,074	1.160	0.09	2.39	138.00	10.64	1,355.33
IT-12	3/10/2015	72,109	14,280	1.43	0.01	777.92	20,852	1.28	0.04	2.43	376	12.17	1,367.50
IT-12	4/21/2015	76,418	12,700	1.27	0.01	748.22	21,600	1.05	0.09	2.52	56.10	4.79	1,372.30
IT-12	5/28/2015	77,785	--	--	--	--	21,600	1.090	0.03	2.55	0.00	0.00	1,372.30
IT-12	6/29/2015	78,391	11,940	1.19	0.01	284.40	21,884	1.080	0.02	2.57	33.60	0.53	1,372.83
IT-12	7/24/2015	80,741	11,720	1.17	0.01	506.29	22,391	1.040	0.08	2.65	38.10	2.98	1,375.81
IT-12	8/25/2015	81,887	9,420	0.94	0.01	481.27	22,872	0.868	0.03	2.68	462.00	13.78	1,389.59
IT-12	9/23/2015	83,869	8,280	0.83	0.01	353.68	23,226	0.807	0.05	2.72	666.00	37.92	1,427.51
IT-12	10/19/2015	85,896	7,920	0.79	0.01	480.89	23,706	0.754	0.05	2.77	554.00	35.98	1,463.49
IT-12	11/25/2015	89,089	6,580	0.66	0.01	454.15	24,161	0.809	0.06	2.83	0.00	0.00	1,463.49
IT-12	12/15/2015	91,334	8,480	0.85	0.01	673.92	24,834	0.824	0.08	2.91	522.00	48.81	1,512.30
IT-12	1/21/2016	104,442	6,980	0.70	0.01	1,566.10	26,401	0.926	0.27	3.18	<50	0.00	1,512.30
IT-12	2/15/2016	107,080	7,820	0.78	0.01	1,654.36	28,055	0.726	0.06	3.24	<50	0.00	1,512.30
IT-12	3/9/2016	107,675	6,160	0.62	0.01	345.61	28,401	0.859	0.02	3.26	484.00	10.43	1,522.73
IT-12	5/24/2016	109,662	2,420	0.24	0.00	52.58	28,453	0.741	0.02	3.28	<50	0.00	1,522.73
IT-12	6/27/2016	110,227	300	0.03	0.00	5.80	28,459	0.752	0.01	3.29	116.00	1.61	1,524.33
	Totals	**490,785**					**122,091**			**14**			**16,920**

Notes:
COD – Chemical Oxygen Demand
mg/L – milligrams per liter
** assumed equal to lowest adjacent measured values for calculation purposes
-- not sampled

Figures

06/24/14



SOURCE: USGS 7.5 MIN. QUADRANGLE
BLACKSBURG NORTH, NC - 1971.

0 1000 2000 4000
SCALE IN FEET

FIGURE 1-1.DGN

AECOM

FIGURE 1-1
SITE LOCATION MAP

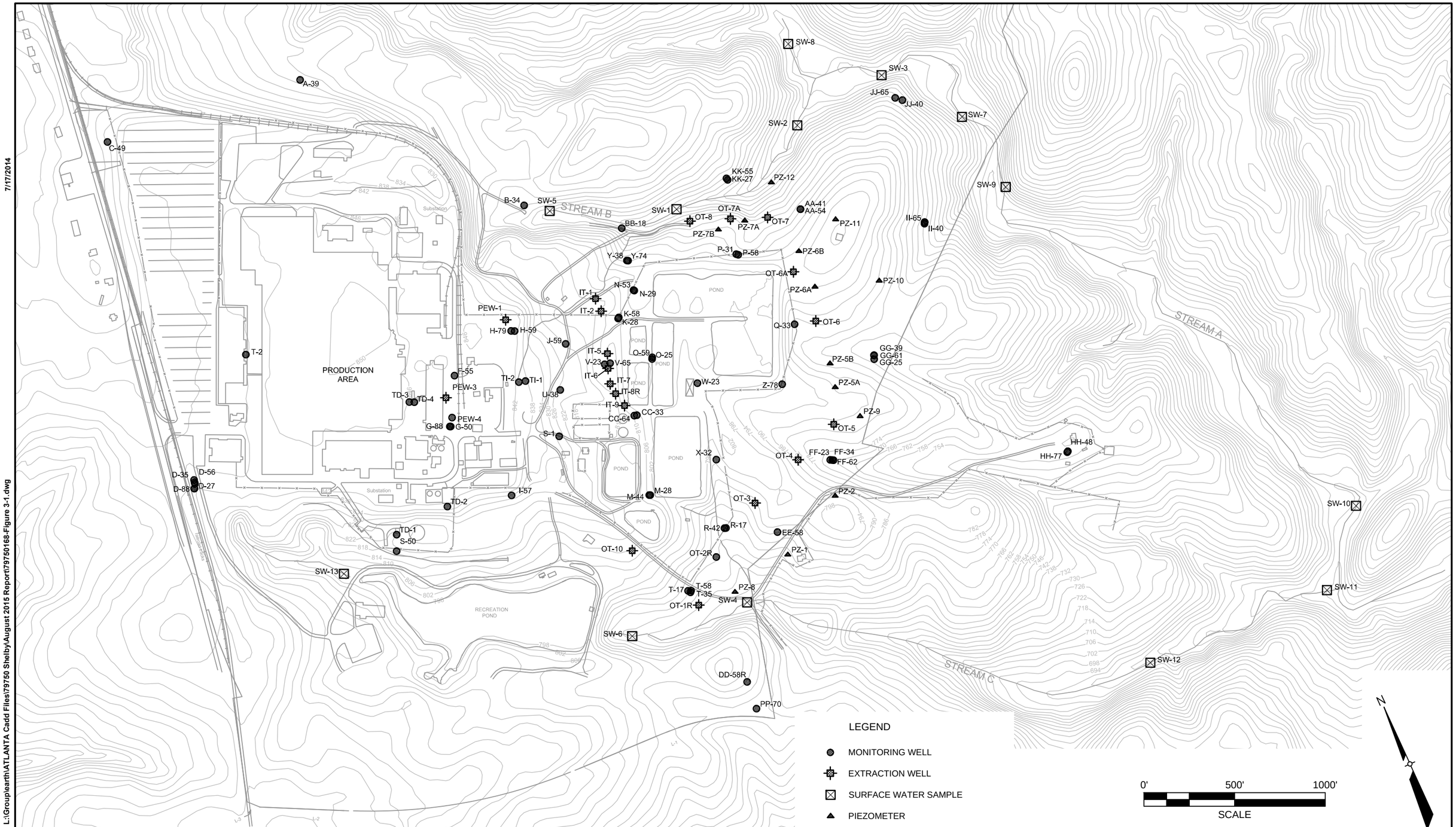
CNA HOLDINGS LLC
SHELBY, NORTH CAROLINA

JULY 2014

60301530

7/17/2014

L:\Groupleartn\ATLANTA Cadd Files\79750 Shelby\August 2015 Report\79750168-Figure 3-1.dwg



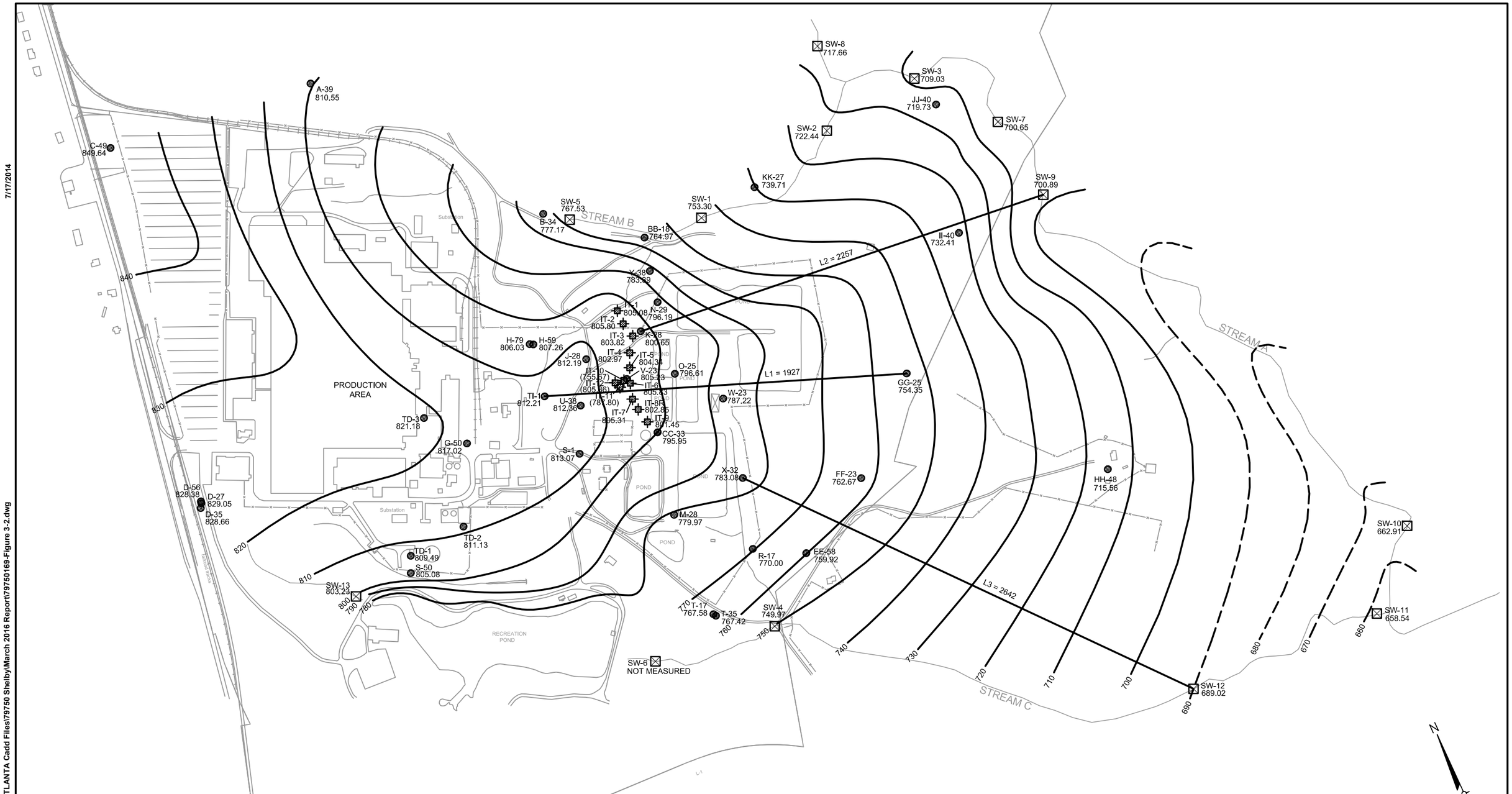
AECOM

FIGURE 3-1
MONITORING WELL / SURFACE WATER SAMPLE LOCATION MAP

CNA HOLDINGS LLC
SHELBY, NORTH CAROLINA

AUGUST 2015

60301530



7/17/2014

L:\Grouplearth\ATLANTA Cadd Files\79750 Shelby\March 2016 Report\79750169-Figure 3-2.dwg

GRADIENT CALCULATIONS

$L_1 = \frac{812.21 \text{ ft} - 754.35 \text{ ft}}{1927 \text{ ft}} = 0.030 \text{ ft/ft}$

$L_2 = \frac{800.65 \text{ ft} - 700.89 \text{ ft}}{2257 \text{ ft}} = 0.044 \text{ ft/ft}$

$L_3 = \frac{783.08 \text{ ft} - 689.02 \text{ ft}}{2642 \text{ ft}} = 0.036 \text{ ft/ft}$

LEGEND

- MONITORING WELL
- EXTRACTION WELL
- SURFACE WATER SAMPLE
- PIEZOMETER
- 787.03 GROUNDWATER ELEVATION
- POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)

NOTE: WATER LEVELS MEASURED MARCH 7, 2016.

0' 500' 1000'
SCALE

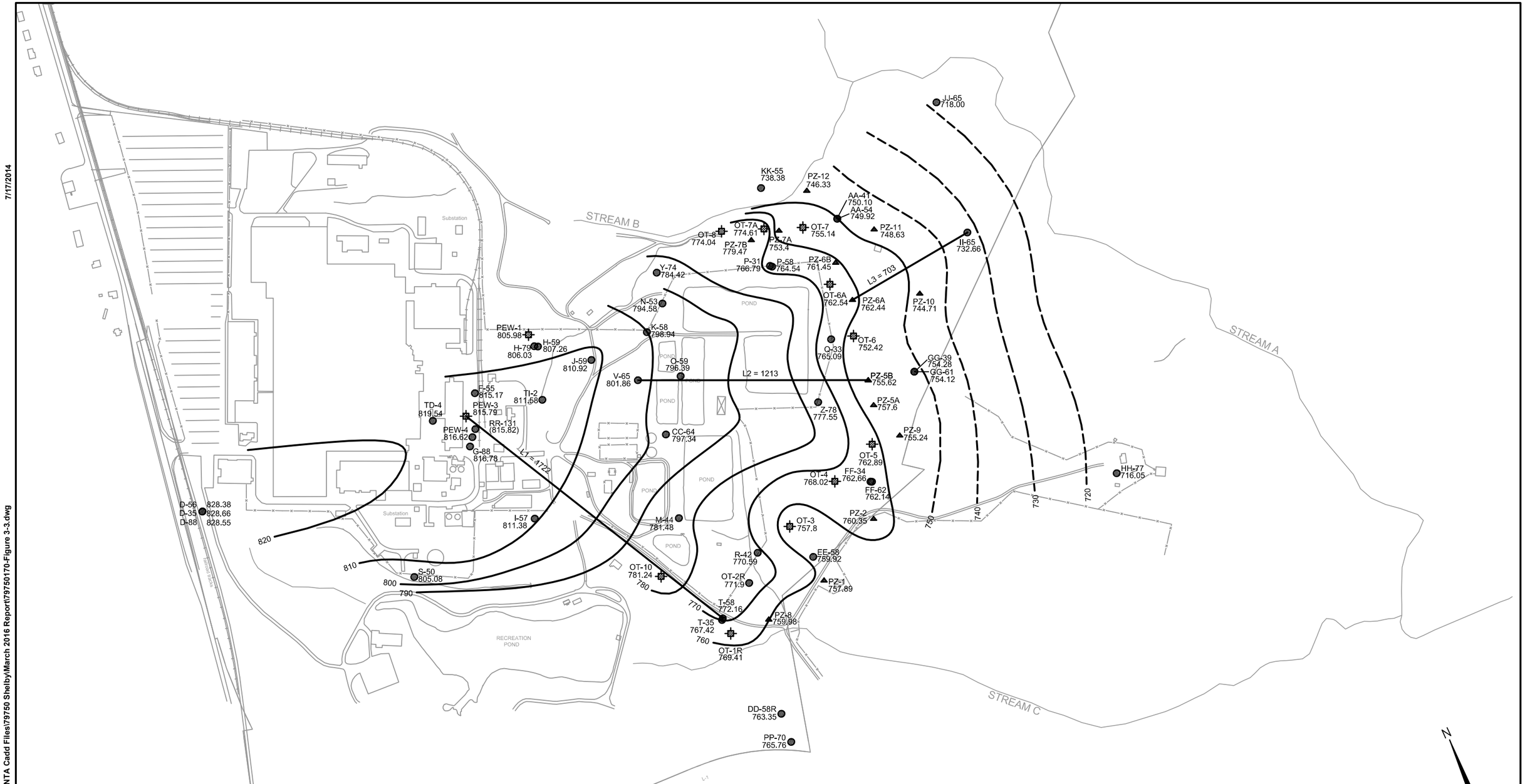
AECOM

FIGURE 3-2
SHALLOW SAPROLITE POTENTIOMETRIC SURFACE MAP - MARCH 2016

CNA HOLDINGS LLC
SHELBY, NORTH CAROLINA

JUNE 2016

60301530



LEGEND

- MONITORING WELL
- EXTRACTION WELL
- SURFACE WATER SAMPLE
- PIEZOMETER
- 796.93 GROUNDWATER ELEVATION
- POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)

GRADIENT CALCULATIONS

$$L_1 = \frac{815.79 \text{ ft} - 772.16 \text{ ft}}{1722 \text{ ft}} = 0.025 \text{ ft/ft}$$

$$L_2 = \frac{801.86 \text{ ft} - 755.62 \text{ ft}}{1213 \text{ ft}} = 0.038 \text{ ft/ft}$$

$$L_3 = \frac{762.44 \text{ ft} - 732.66 \text{ ft}}{703 \text{ ft}} = 0.042 \text{ ft/ft}$$

NOTE: WATER LEVELS MEASURED MARCH 7, 2016.

0' 500' 1000'
SCALE

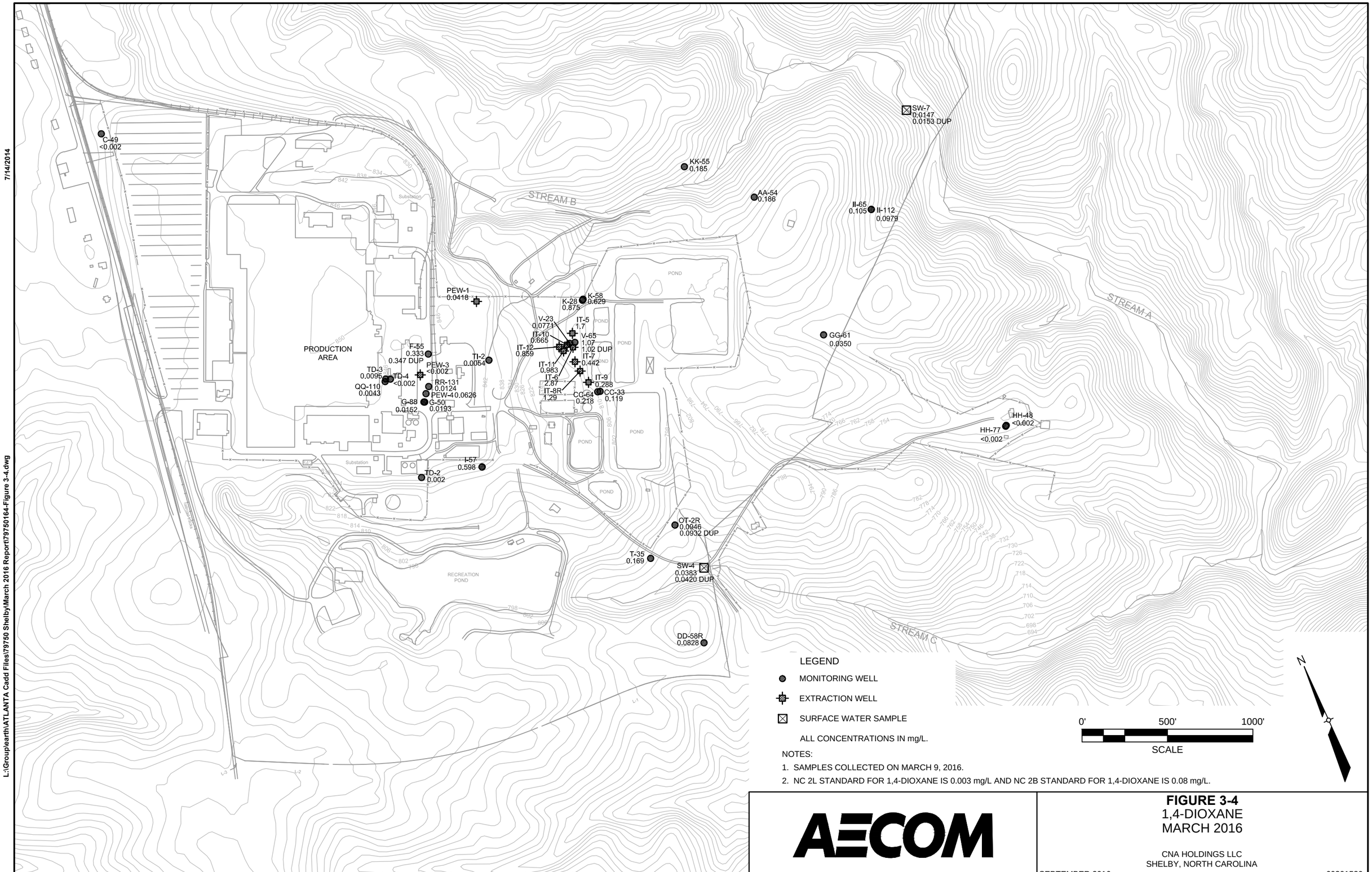
AECOM

FIGURE 3-3
DEEP SAPROLITE / SHALLOW BEDROCK
POTENTIOMETRIC SURFACE MAP
MARCH 2016
CNA HOLDINGS LLC
SHELBY, NORTH CAROLINA

JUNE 2016 60301530

7/17/2014

L:\Group\earth\ATLANTA Cadd Files\79750 Shelby\March 2016 Report\79750170-Figure 3-3.dwg



NOTES:

1. SAMPLES COLLECTED ON MARCH 9, 2016.
2. NC 2L STANDARD FOR 1,4-DIOXANE IS 0.003 mg/L AND NC 2B STANDARD FOR 1,4-DIOXANE IS 0.08 mg/L.

AECOM

FIGURE 3-4
1,4-DIOXANE
MARCH 2016

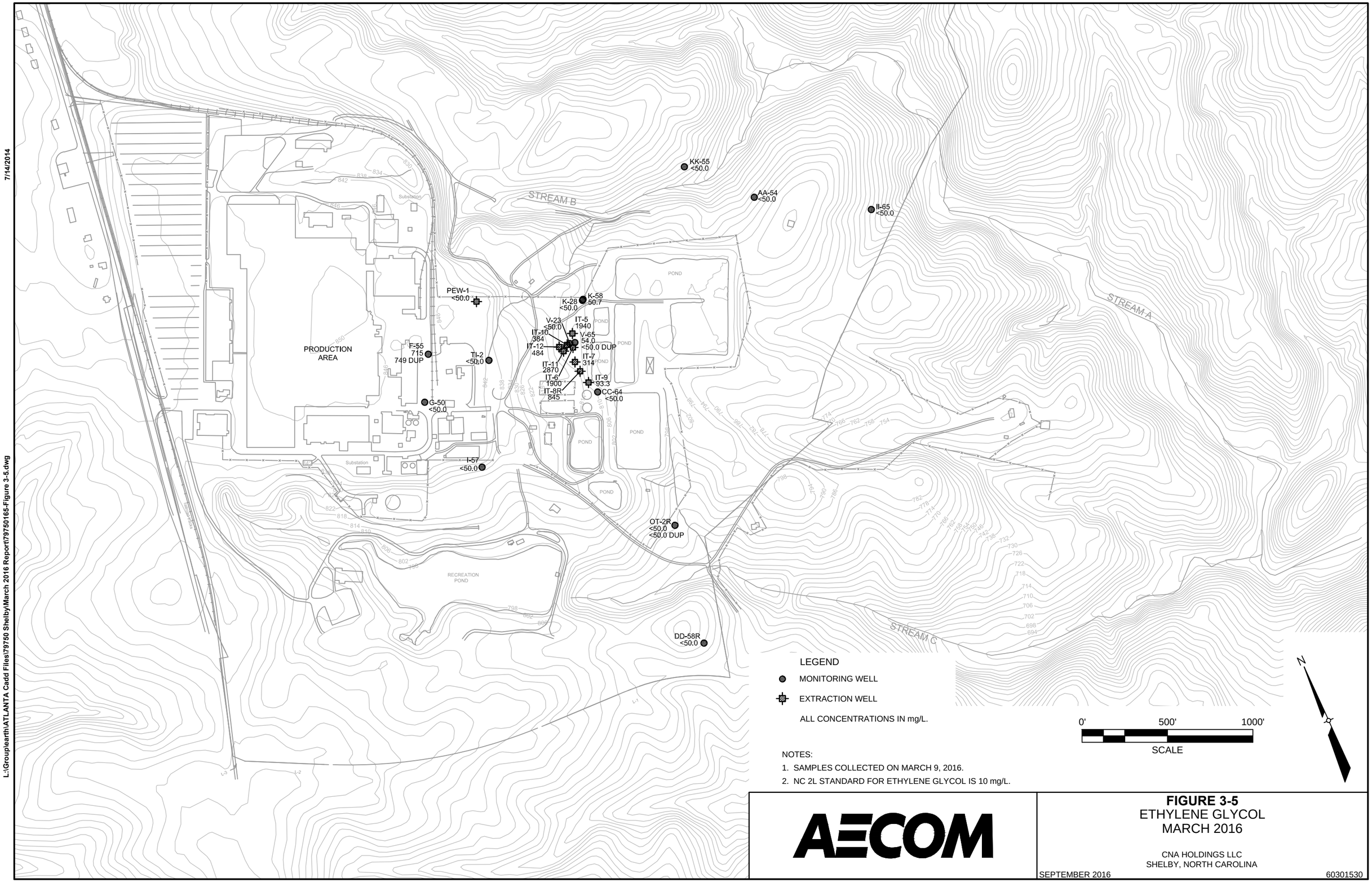
CNA HOLDINGS LLC
SHELBY, NORTH CAROLINA

SEPTEMBER 2016

60301530

7/14/2014

L:\Groupearth\ATLANTA Cadd Files\79750 Shelby\March 2016 Report\79750164-Figure 3-4.dwg



NOTES:

1. SAMPLES COLLECTED ON MARCH 9, 2016.
2. NC 2L STANDARD FOR ETHYLENE GLYCOL IS 10 mg/L.

AECOM

FIGURE 3-5
ETHYLENE GLYCOL
MARCH 2016

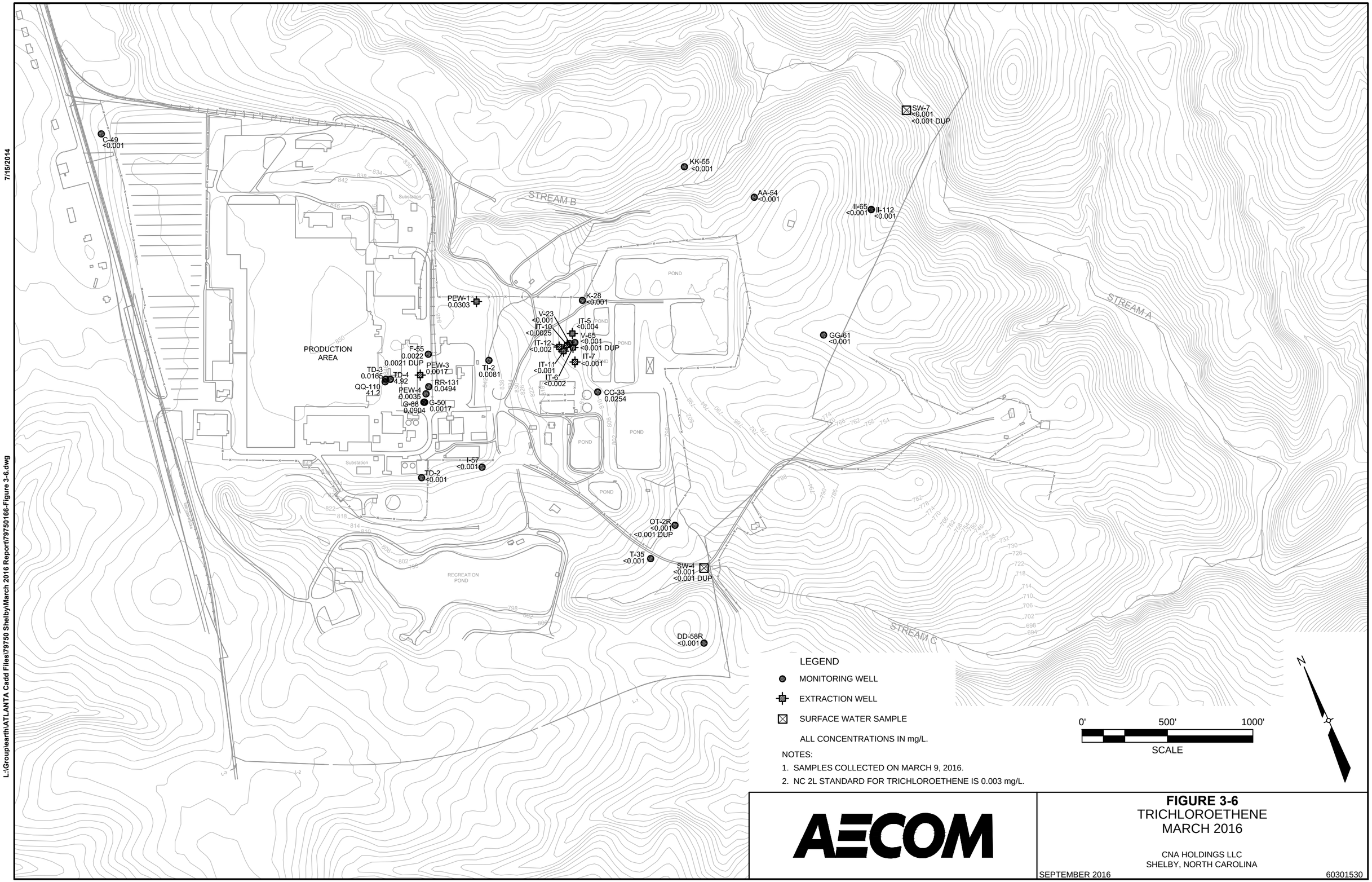
CNA HOLDINGS LLC
SHELBY, NORTH CAROLINA

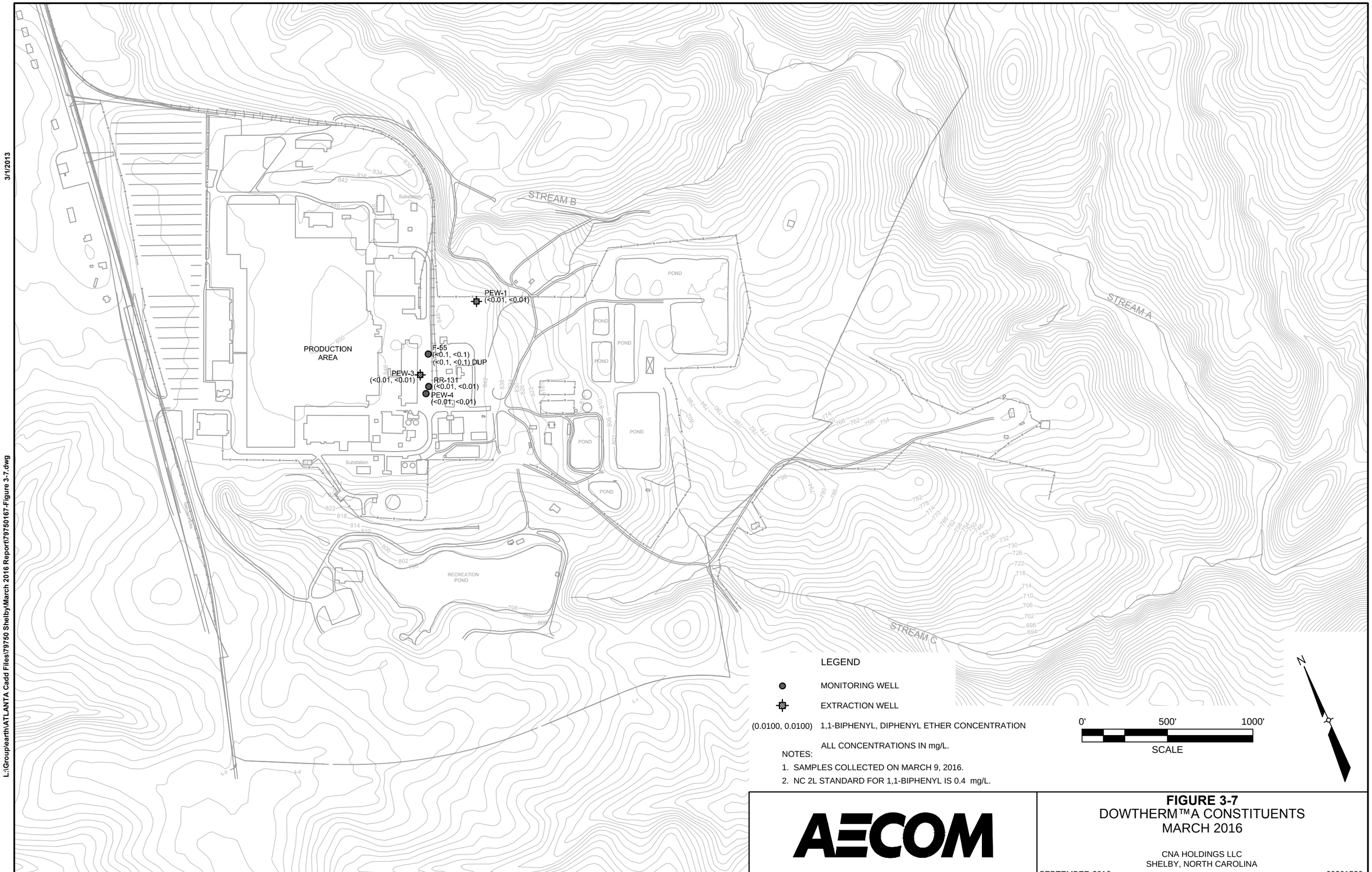
SEPTEMBER 2016

60301530

7/14/2014

L:\Groupearth\ATLANTA Cadd Files\79750 Shelby\March 2016 Report\79750165-Figure 3-5.dwg


C-49
<0.001
KK-55
<0.001
AA-54
<0.001
SW-7
<0.001
<0.001 DUP
II-65
<0.001
II-112
<0.001
STREAM B
STREAM A
STREAM C
PEW-1
0.0303
K-28
<0.001
V-23
<0.001
IT-10
<0.0025
IT-5
<0.004
V-65
<0.001
<0.001 DUP
IT-12
<0.002
IT-7
<0.001
IT-11
<0.001
IT-6
<0.002
GG-61
<0.001
PRODUCTION
AREA
F-55
0.0022
0.0021 DUP
PEW-3
0.0017
TI-2
0.0081
TD-3
0.0165
TD-4
4.92
QQ-110
41.2
RR-131
0.0494
PEW-4
0.0035
G-88
0.0904
G-50
0.0017
CC-33
0.0254
I-57
<0.001
TD-2
<0.001
OT-2R
<0.001
<0.001 DUP
T-35
<0.001
SW-4
<0.001
<0.001 DUP
DD-58R
<0.001
POND
Substation
RECREATION
POND
LEGEND
MONITORING WELL
EXTRACTION WELL
SURFACE WATER SAMPLE
ALL CONCENTRATIONS IN mg/L.
NOTES:
1. SAMPLES COLLECTED ON MARCH 9, 2016.
2. NC 2L STANDARD FOR TRICHLOROETHENE IS 0.003 mg/L.
0'
500'
1000'
SCALE
N
AECOM
FIGURE 3-6
TRICHLOROETHENE
MARCH 2016
CNA HOLDINGS LLC
SHELBY, NORTH CAROLINA
SEPTEMBER 2016
60301530
7/15/2014
L:\Grouplearth\ATLANTA Cadd Files\79750 Shelby\March 2016 Report\79750166-Figure 3-6.dwg



3/1/2013

L:\Grouplearth\ATLANTA Cadd Files\79750 Shelby\March 2016 Report\79750167-Figure 3-7.dwg

Appendix A

Purging and Sampling Forms

Location Tacoma / Shelby Date 1/21/16

Project / Client CNA/Aecom

Weather: P-Cloudy, 20's
Personnel: A.H.
Objective: Surface water samples
- gauging
0730 Arrive at site, get permit
set up for Samples

Point	Time	Totalizer
IT-10	0825	49806
IT-11	0835	271257
IT-12	0845	104442
PP-C-EFF	0920	
b2+ Dupe	~~0930~~	
PP-B-EFF	0930	
PP-A-EFF	0940	
Clarifier EFF	0950	
Headworks	1000	

0850 Turn IT wells off after gauging & sampling them. gauge other wells, Sample surface waters (Sample Headworks at least 30 min after shutting IT wells off)
1020 Depart site

~~1/21/16 AH~~

AECOM

DATE: 1/21/16 SITE Ticona/Shelby

Well Number	Depth To Water	Time	Flow rate	PSI	Totalizer	Comments (i.e. COD sample times and conditions)
V-23	9.58					
V-65	13.02					
IT-5	7.04					
IT-6	9.14					
IT-7	10.05					
IT-8R	12.98					
IT-9	9.69					
IT-10	5.21				49806	
IT-11	29.69				271257	
IT-12	5.14				104442	
K-28	14.53					
K-58	16.01					
CC-64	16.18					
W-23	14.99					

Contractor/Representative Name _____

Soil Conditions _____

Weather _____ Temperature _____

Entered On Computer _____ Signature _____ Date 1/21/16

Rev. 10/98

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1997809

Section A Required Client Information:

Company: CNA/Aecom
Address: 1360 Peachtree ST. STE Atlanta GA 30309
Email To: Everett Glover
Phone: 404-965-9687 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover
Copy To:
Purchase Order No.:
Project Name: Tiona/Shelby
Project Number:

Section C Invoice Information:

Attention: Same
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N): 1,4-Dioxane SIM (Y); Ethylene Glycol (Y)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	1,4-Dioxane SIM	Ethylene Glycol	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	IT-10	WT	G			1/21/16	0825	-	4	1			3					3	1	N	
2	IT-11	WT	G			1/21/16	0835	-	4	1			3					3	1	N	
3	IT-12	WT	G			1/21/16	0845	-	4	1			3					3	1	N	
4	PP-C-EFF	WT	G			1/21/16	0920	-	3				3					3		N	
5	PP-B-EFF	WT	G			1/21/16	0930	-	3				3					3		N	
6	PP-A-EFF	WT	G			1/21/16	0940	-	3				3					3		N	
7	Clarifier-EFF	WT	G			1/21/16	0950	-	3				3					3		N	
8	Headworks	WT	G			1/21/16	1000	-	3				3					3		N	
9	Dupe	WT	G			1/21/16	—	-	3				3					3		N	
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Aaron Hill	1/21/16	[illegible]	[illegible]	1/21/16	[illegible]

SAMPLE CONDITIONS: Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron Hill

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 1/21/16

3

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Ticona / Shelby 2/15/16

Weather: MST 20°-30°
Personnel: A. Hill, D. Hill
Objective: SW Samples, gauge wells
lock wells

2/15/16 AH

0830 Arrive at site; sign in.
get permit
Set up for IT wells; lock wells
w/ electrical panel tags

Point	Time	Totalizer
IT-10	0858	511417
IT-11	0907	277941
IT-12	0915	107080
PP-C-EFF + Dupe	0922	
PP-B-EFF	0932	
PP-A-EFF	0938	
Clarifier EFF	0946	
Headworks	1005	

0919 Turn off IT wells for at least
30 min before collecting Headworks
1130 Depart site

2/15/16 AH

AECOM

DATE: 2/15/16 SITE Ticona/Shelby

Well Number	Depth To Water	Time	Flow rate	PSI	Totalizer	Comments (i.e. COD sample times and conditions)
V-23	9.40					
V-65	12.81					
IT-5	6.91					
IT-6	9.07					
IT-7	9.83					
IT-8R	12.74					
IT-9	9.51					
IT-10	59.14				51147	
IT-11	27.43				277941	
IT-12	59.49				107080	
K-28	14.38					
K-58	15.89					
CC-64	16.09					
W-23	14.69					

Contractor/Representative Name _____

Soil Conditions _____

Weather _____ Temperature _____

Entered On Computer _____ Signature _____ Date 2/15/16

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www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1899562

Section A Required Client Information:

Company: Aecom
Address: 560 Peachtree ST. Atlanta, GA 30309
Email To: Everett Glover
Phone: (404) 965-5657 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover
Copy To:
Purchase Order No.:
Project Name: Ticona/Shelby
Project Number:

Section C Invoice Information:

Attention: Same
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N): 1,4-Dioxane N; Ethylene Glycol N

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	1,4-Dioxane	Ethylene Glycol	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	IT-10	W	G			2/15/16	0858	-	4	1			3					3	1	N	
2	IT-11	W	G			2/15/16	0907	-	4	1			3					3	1	N	
3	IT-12	W	G			2/15/16	0915	-	4	1			3					3	1	N	
4	PP-C-EFF	W	G			2/15/16	0922	-	3				3					3		N	
5	PP-B-EFF	W	G			2/15/16	0932	-	3				3					3		N	
6	PP-A-EFF	W	G			2/15/16	0938	-	3				3					3		N	
7	Clarifier EFF	W	G			2/15/16	0946	-	3				3					3		N	
8	Headworks	W	G			2/15/16	1005	-	3				3					3		N	
9	Dupe	W	G			2/15/16	—	-	3				3					3		N	
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	[signature] / EFM	2/15/16		[signature] / Pace	2-16-16	1320	

SAMPLE CONDITIONS: Temp in °C; Received on Ice (Y/N); Custody Sealed Cooler (Y/N); Samples Intact (Y/N)

3

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron Hill

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 2/15/16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

3/8/16 CNA/Shelby
Weather: Sunny; up to 70°s
Personnel: A. Hill, J. Leaver, D. Hill
Objective: GW Samples
3/8/16 AH

0700 Arrive at site; sign in
get permit; Tailgate safety
· Calibrate meters
· Collect stream levels & applicable samples
· collect dups on
SW-4 → SW-98 @ 0937
SW-7 SW-99 @ 0856
1100 Field blank collected near staging area VOCs only FB01-030816
1108 Equipment Blank collected on submersible pump VOCs only EQ-01-030816
1115 water Blank collected VOCs only
- WaterBlank-030816
1704 MS/MSD collected on G-50
1800 Samples on ice
Done for the day.
Depart site

3/8/16 AH

CNA/ Shelby 3/9/16
Weather Sunny: 50°s - 70°s
Personnel: A. Hill, D. Hill, J. Leaver
Objective: GW Samples
3/9/16 AH

0630 Arrive at site; sign in
Get permit; Tailgate Safety
Calibrate meters
Resume Samples
Collect from IT-10, 11, 12
· COD to WWTP
· Shut off IT wells for at least 30 min before collecting from Headworks (WWTP samples @ 95 on Sep COC & Report)
0955 MS/MSD collected from PEW-1
1122 Dup collected on OT-2R
· called OT-99-030916 @ 1200
1335 MS/MSD collected on II-65
Dup collected on V-65
called V-99 @
1550 Dup collected on F-55: F-99 @ 1620
- DTP = 53.41 Bailed 0.50 gal from
PT = 2.69 well and stored in
1708 Depart site to amber jug on Doghouse

CNA / Shelby 3/7/16

Weather: Sunny up to 60°s

Personnel: AH-71, J. Leaver

Objective: GW Sampling

~~3/7/16 AH~~

1000 Arrive at site; sign in
get permit; Tailgate safety
Set up & gauge wells
1530 wells gauged
will gauge stream locations
tomorrow.
Set up & prepurge wells
that have slow recharge (<100ml/min)
including: K-28, V-23, IT-5, IT-6,
IT-7, HH-48, DD-58R
confirm bottle count
1730 Depart Site

3/7/16 AH

AECOM

Water Level Measurements

Project No: 60135442.200 Site: **Celanese Fibers Operations, Shelby, NC.** Date: 3/7/16

Well ID	Depth to NAPL	Depth to Water	Comments
G-88		31.46	
G-50		31.40	
PEW-4		30.20	
QQ-110		29.12	
TD-4		29.40	
TD-3		27.47	
RR-131		31.24	
PEW-3		31.53	
FF-55		34.04	
TD-2		31.55	
TD-1		11.81	
D-35		17.08	
D-27		16.59	
D-56		16.85	
D-88		17.10	
C-49		14.57	
PEW-1		39.46	
H-79		40.50	
H-59		37.91	
S-1		16.77	
IT-3		A ~~4.48~~ 4.20	
IT-4		4.49	
IT-5		4.85	
IT-6		4.82	
V-23		6.64	
J-28		12.87	
J-29		14.00	
T-1		Destroyed	
T-2		Destroyed	

Measurements taken by: EFM

AECOM

Water Level Measurements

Project No: 60135442.200 Site: **Celanese Fibers Operations, Shelby, NC.** Date: 3/7/16

Well ID	Depth to NAPL	Depth to Water	Comments
U-38		14.28	
TI-1		29.74	
TI-2		30.22	
K-28		10.53	
K-58		12.47	
X-32		13.83	
M-28		26.68	
M-44		25.15	
IT-1		7.48	
IT-2		6.56	
V-65		10.00	
W-23		13.69	
Z-78		19.52	
Q-33		18.45	
GG-61		17.71	
GG-39		16.33	
GG-25		17.35	
PZ-10		36.93	
PZ-6B		35.37	
PZ-6A		32.35	
PZ-5B		21.72	
PZ-7A		26.75	
PZ-7B		4.58	
OT-7A		7.92	
N-29		7.10	
N-53		9.19	
Y-74		10.48	
Y-38		11.10	
PZ-8		5.11	

Measurements taken by: EFM

AECOM

Water Level Measurements

Project No: 60135442.200 Site: **Celanese Fibers Operations, Shelby, NC.** Date: 3/17/16

Well ID	Depth to NAPL	Depth to Water	Comments
R-17		9.30	
R-42		8.22	
EE-58		34.69	
DD-58R		32.42	
OT-10		22.29	
S-50		20.96	
I-57		26.21	
PP-70		19.03	
B-34		13.51	
BB-18		6.93	
OT-8		8.22	
IT-7		6.59	
IT-8R		9.97	
IT-9		7.28	
IT-10		56.61	TOT= 52481
IT-11		26.25	TOT= 286555
IT-12		9.95	TOT= 107675
CC-64		14.11	
CC-33		16.76	
O-59		10.23	
O-25		10.98	
OT-5		19.97	
OT-4		20.94	
OT-3		33.40	
OT-2R		1.0	
OT-6R		31.51	
OT-6A		35.22	
OT-7		25.69	
OT-1		0.86	

Measurements taken by: EFM

AECOM

Water Level Measurements

Project No: 60135442.200 Site: **Celanese Fibers Operations, Shelby, NC.** Date: 3/7/16

Well ID	Depth to NAPL	Depth to Water	Comments
FF-23		9.82	
FF-34		10.18	
FF-62		10.10	
NN-240		24.14	
NN-105		24.31	
NN-280		25.21	
T-58		3.77	
T-17		10.30	
T-35		9.95	
PZ-9		32.52	
PZ-5A		31.02	
LL-110		33.50	
LL-175		42.08	
LL-295		46.61	
PZ-11		53.89	
MM-128		49.89	
MM-170		48.71	
MM-280		37.94	
AA-41		33.61	
AA-54		32.41	
PZ-12		0.75	
A-39		12.81	
JJ-40		25.22	
JJ-65		27.55	
KK-55		24.76	
KK-28		24.53	
PZ-1		15.95	
PZ-2		35.17	
HH-48		40.08	

Measurements taken by: EFM

AECOM

Water Level Measurements

Project No: 60135442.200 Site: **Celanese Fibers Operations, Shelby, NC.** Date: 3/7/16

Well ID	Depth to NAPL	Depth to Water	Comments
HH-77		39.57	
OO-218		13.83	
OO-95		13.50	
OO-150		13.90	
II-112		27.08	
II-65		25.29	
II-40		25.50	
SW-1		8.40	2.21 to BM
SW-2		7.82	2.49 to BM
SW-3		7.57	2.55 to BM
SW-4		7.52	2.54 to BM
SW-5		13.38	1.80 to BM
SW-6		NG	No gauging station
SW-7		7.36	2.53 to BM
SW-8		5.46	2.80 to Ground
SW-9		7.24	3.20 to BM
SW-10		7.30	3.15 to BM
SW-11		10.62	3.49 to BM
SW-12		11.11	3.24 to BM
SW-13		4.15	Stick up well

Measurements taken by: EFM

TAILGATE SAFETY MEETING

EFM, Inc.

PROJECT: CNA | Shelby

PROJECT NO.:

DATE: 3/7/16

TIME: 1000

TYPE OF TRAINING

Site Specific H&S Meeting ____

HASP Reading / Review ____

Tailgate Safety Meeting ✓

Other: ____

TRAINING PRESENTED BY: Aaron Hill

TOPICS COVERED: S,T,F, Hand safety, lifting

ATTENDEES

Name (print)	Signature
Aaron Hill	Aa Hill
Jeff Leaver	Jeff Leaver

SITE SUPERVISOR: Aaron Hill

DATE: 3/7/16

Form #16

dmw-e\forms\tailgate.xls
8/14/2010

TAILGATE SAFETY MEETING

EFM, Inc.

PROJECT: CNA/Shelby

PROJECT NO.:

DATE: 3/8/16

TIME: 0700

TYPE OF TRAINING

Site Specific H&S Meeting _____ Tailgate Safety Meeting ✓

HASP Reading / Review _____ Other: _____

TRAINING PRESENTED BY: A. Hill

TOPICS COVERED: STF, Pinch points, traffic

ATTENDEES

Name (print)	Signature
Aaron Hill	Aa Hill
Jeff Leaver	Jeffrey Leaver
Davis Hill (0930)	Davis Hill

SITE SUPERVISOR: A. Hill DATE: 3/8/16

Form #16

dmw-e\forms\tailgate.xls
8/14/2010

TAILGATE SAFETY MEETING

EFM, Inc.

PROJECT: CNA | Shelby

PROJECT NO.:

DATE: 3/9/16

TIME: 0640

TYPE OF TRAINING

Site Specific H&S Meeting ____

HASP Reading / Review ____

Tailgate Safety Meeting ✓

Other: ____

TRAINING PRESENTED BY: Aaron Hill

TOPICS COVERED: pinchpoints, weather, traffic

ATTENDEES

Name (print)	Signature
Aaron Hill	Aaron Hill
Davis Hill	Davis Hill
Jeff Leaver	Jeff Leaver

SITE SUPERVISOR: Aaron Hill

DATE: 3/9/16

EFM EQUIPMENT CALIBRATION FORM

Client: CNA **Project #:** Shelby

INSTRUMENT: YSI 556

SERIAL NO.: 10H100442

Date	Time	Parameter	Calibration Reading	Calibration Recorded By	
3/8/16	0720	pH 4.00	4.01	Lot# 5GE740	Exp: 5/31/17
		7.00	7.00	Lot# 2407988	Exp: 7/31/16
		10.00	10.01	Lot# 5GH140	Exp: 8/31/17
		pH Verification Check 7.0	—	Lot#	Exp:
		Sp. Conductivity 1.413mS	1.411	Lot# 5GH1047	Exp: 8/31/16
		Sp. Cond. Check .718 mS	—	Lot#	Exp:
		ORP	240mV	Lot# 8154	Exp: 10/31/19
		Dissolved Oxygen Initial	100 %	Air Temp= 53°F	
		Dissolved Oxygen Final	100 %	Air Temp= 51°F	
		Barometric Pressure	—		

INSTRUMENT: Hach DR 850

SERIAL NO.: 31559

Date	Time	Parameter	Calibration Reading	Calibration Recorded By	
3/8/16		Turbidity <0.1	0.08	NTU	Exp: 5/16
		20	20.1	NTU	Exp: 5/16
		100	100.0	NTU	Exp: 5/16
		800	798.6	NTU	Exp: 5/16

EFM EQUIPMENT CALIBRATION FORM

Client: CNA **Project #:** Shelby

INSTRUMENT: YSI 556

SERIAL NO.: 09K101305

Date	Time	Parameter		Calibration Reading	Calibration Recorded By	
3/8/16	0720	pH	4.00	4.00	Lot# 5GE140	Exp: 5/31/17
			7.00	7.00	Lot# 2407988	Exp: 7/31/16
			10.00	10.00	Lot# 5GH140	Exp: 8/31/17
		pH Verification Check 7.0		—	Lot#	Exp:
		Sp. Conductivity 1.413mS		1.413	Lot# 5GH1047	Exp: 8/31/16
		Sp. Cond. Check .718 mS		—	Lot#	Exp:
		ORP		240mV	Lot# 8154	Exp: 10/31/19
		Dissolved Oxygen Initial		100 %	Air Temp=	
		Dissolved Oxygen Final		100 %	Air Temp=	
		Barometric Pressure		—		

INSTRUMENT: Hach 2100P

SERIAL NO.: 091200

Date	Time	Parameter		Calibration Reading	Calibration Recorded By	
3/8/16	0720	Turbidity	<0.1	0.09	NTU	Exp: 5/16
			20	20.1	NTU	Exp: 5/16
			100	100.0	NTU	Exp: 5/16
			800	799.8	NTU	Exp: 5/16

EFM EQUIPMENT CALIBRATION FORM

Client: CNA **Project #:** Shelby

INSTRUMENT: YSI 556

SERIAL NO.: 15L100985

Date	Time	Parameter		Calibration Reading	Calibration Recorded By	
3/8/16	0720	pH	4.00	4.01	Lot# 5GE740	Exp: 5/31/17
			7.00	7.00	Lot# 2407988	Exp: 7/31/16
			10.00	10.01	Lot# 5GH140	Exp: 8/31/17
		pH Verification Check 7.0		—	Lot#	Exp:
		Sp. Conductivity 1.413mS		1.411	Lot# 5GH1047	Exp: 8/31/16
		Sp. Cond. Check .718 mS		—	Lot#	Exp:
		ORP		237mV	Lot# 8154	Exp: 10/31/19
		Dissolved Oxygen Initial		99 %	Air Temp=	
		Dissolved Oxygen Final		99 %	Air Temp=	
		Barometric Pressure		—		

INSTRUMENT: Hach 2100 Q

SERIAL NO.: 390

Date	Time	Parameter		Calibration Reading	Calibration Recorded By	
3/8/16	0720	Turbidity	<0.1	0.09	NTU	Exp: 5/16
			20	20.0	NTU	Exp: 5/16
			100	100	NTU	Exp: 5/16
			800	800	NTU	Exp: 5/16

EFM EQUIPMENT CALIBRATION FORM

Client: CNA **Project #:** Shelby

INSTRUMENT: YSI 556

SERIAL NO.: 10H100442

Date	Time	Parameter		Calibration Reading	Calibration Recorded By	
3/9/16	0640	pH	4.00	4.00	Lot# 5GE740	Exp: 5/31/17
			7.00	7.00	Lot# 2407988	Exp: 7/31/16
			10.00	10.00	Lot# 5GH140	Exp: 8/31/17
		pH Verification Check 7.0		—	Lot#	Exp:
		Sp. Conductivity 1.413mS		1.413	Lot# 5GH1047	Exp: 8/31/16
		Sp. Cond. Check .718 mS		—	Lot#	Exp:
		ORP		240mV	Lot# 8154	Exp: 10/31/19
		Dissolved Oxygen Initial		100 %	Air Temp=	
		Dissolved Oxygen Final		100 %	Air Temp=	
		Barometric Pressure		—		

INSTRUMENT: Hach DR 850

SERIAL NO.: 31559

Date	Time	Parameter		Calibration Reading	Calibration Recorded By	
3/9/16	0640	Turbidity	<0.1	0.01	NTU	Exp: 5/16
			20	20.1	NTU	Exp: 5/16
			100	100.0	NTU	Exp: 5/16
			800	799.8	NTU	Exp: 5/16

EFM EQUIPMENT CALIBRATION FORM

Client: CNA **Project #:** Shelby

INSTRUMENT: YSI 556

SERIAL NO.: 09K101305

Date	Time	Parameter		Calibration Reading	Calibration Recorded By	
3/9/16	0640	pH	4.00	4.00	Lot# 5GE740	Exp: 5/31/17
			7.00	7.01	Lot# 2407988	Exp: 7/31/16
			10.00	10.00	Lot# 5GH140	Exp: 8/31/17
		pH Verification Check 7.0		—	Lot#	Exp:
		Sp. Conductivity 1.413mS		1.413	Lot# 5GH1047	Exp: 8/31/16
		Sp. Cond. Check .718 mS		—	Lot#	Exp:
		ORP		240mV	Lot# 8154	Exp: 10/31/19
		Dissolved Oxygen Initial		100 %	Air Temp=	
		Dissolved Oxygen Final		100 %	Air Temp=	
		Barometric Pressure		—		

INSTRUMENT: Hach 2100P

SERIAL NO.: 09120C

Date	Time	Parameter		Calibration Reading	Calibration Recorded By	
3/9/16	0640	Turbidity	<0.1	0.08	NTU	Exp: 5/16
			20	18.9	NTU	Exp: 5/16
			100	100.1	NTU	Exp: 5/16
			800	800.1	NTU	Exp: 5/16

EFM EQUIPMENT CALIBRATION FORM

Client: CNA **Project #:** Shelby

INSTRUMENT: YSI 556

SERIAL NO.: 15L100985

Date	Time	Parameter		Calibration Reading	Calibration Recorded By	
8/9/16	0640	pH	4.00	4.00	Lot# 5GE140	Exp: 5/31/17
			7.00	7.00	Lot# 2407988	Exp: 7/31/16
			10.00	10.00	Lot# 5GH140	Exp: 8/31/17
		pH Verification Check 7.0		—	Lot#	Exp:
		Sp. Conductivity 1.413mS		1.414	Lot# 5GH1047	Exp: 8/31/16
		Sp. Cond. Check .718 mS		—	Lot#	Exp:
		ORP		241mV	Lot# 8154	Exp: 10/31/19
		Dissolved Oxygen Initial		99 %	Air Temp=	
		Dissolved Oxygen Final		99 %	Air Temp=	
		Barometric Pressure		—		

INSTRUMENT: Hach 2100Q

SERIAL NO.: 390

Date	Time	Parameter		Calibration Reading	Calibration Recorded By	
8/9/16	0640	Turbidity	<0.1	0.08	NTU	Exp: 5/16
			20	18.9	NTU	Exp: 5/16
			100	100.4	NTU	Exp: 5/16
			800	800.2	NTU	Exp: 5/16

Well Pre-purge Form

3/7/16

Project No.: 79750.200
Site Name: Celanese Fibers Operations, Shelby, NC.
Date:

Well ID: K-28

Well Information
Screen Interval: 23.0-28.0 ft. bgs.*
Height of Stickup: 2.75 ft.
T/Screen + Stickup: 25.75 ft. bgs.
*Source: (Well Tag) Well Table

Well Measurements
Initial Depth to NAPL: N/A ft.
Initial Depth to Water: 10.53 ft.
Final Depth to NAPL: N/A ft.
Final Depth to Water: 25.5 ft.
Purge Volume: 3.0 gals.

Well Pre-purged with:
Pump
Grundfos 2" Redi-Flo
Remediation Pump
(Bailer)
Disposable Polyethylene

Comments:

Well ID: V-23

Well Information
Screen Interval: 18.0-28.0 ft. bgs.*
Height of Stickup: 19 ~~2.75~~ ft. 19.9
T/Screen + Stickup: ~~25.75~~ ft. bgs.
*Source: (Well Tag) Well Table

Well Measurements
Initial Depth to NAPL: N/A ft.
Initial Depth to Water: 6.64 ft.
Final Depth to NAPL: N/A ft.
Final Depth to Water: 19.5 ft.
Purge Volume: 2.6 gals.

Well Pre-purged with:
Pump (with polyethylene tubing)
Grundfos 2" Redi-Flo
Remediation Pump
(Bailer)
Disposable Polyethylene

Comments:

Well ID: IT-5

Well Information
Screen Interval: 30.0-40.0 ft. bgs.*
Height of Stickup: -1.16 ft.
T/Screen + Stickup: 28.84 ft. bgs.
*Source: (Well Tag) Well Table

Well Measurements
Initial Depth to NAPL: N/A ft.
Initial Depth to Water: 4.75 ft.
Final Depth to NAPL: N/A ft.
Final Depth to Water: 28.60 ft.
Purge Volume: 4.5 gals.

Well Pre-purged with:
Pump (with polyethylene tubing)
Grundfos 2" Redi-Flo
Remediation Pump
(Bailer)
Disposable Polyethylene

Comments:

Well ID: IT-6

Well Information
Screen Interval: 30.0-40.0 ft. bgs.*
Height of Stickup: -1.02 ft.
T/Screen + Stickup: 28.98 ft. bgs.
*Source: (Well Tag) Well Table

Well Measurements
Initial Depth to NAPL: N/A ft.
Initial Depth to Water: 4.82 ft.
Final Depth to NAPL: N/A ft.
Final Depth to Water: 28.75 ft.
Purge Volume: 4.0 gals.

Well Pre-purged with:
Pump (with polyethylene tubing)
Grundfos 2" Redi-Flo
Remediation Pump
(Bailer)
Disposable Polyethylene

Comments:

Well Pre-purge Form

3/7/16

Project No.: 79750.200
Site Name: Celanese Fibers Operations, Shelby, NC.
Date:

Well ID: IT-7

Well Information
Screen Interval: 30.0-40.0 ft. bgs.*
Height of Stickup: -1.00 ft.
T/Screen + Stickup: 29.00 ft. bgs.
*Source: (Well Tag) Well Table

Well Measurements
Initial Depth to NAPL: N/A ft.
Initial Depth to Water: 6.59 ft.
Final Depth to NAPL: N/A ft.
Final Depth to Water: 28.6 ft.
Purge Volume: 4.0 gals.

Well Pre-purged with:
Pump
Grundfos 2" Redi-Flo
Remediation Pump
(Bailer)
Disposable Polyethylene

Comments:

Well ID: HH-48

Well Information
Screen Interval: 43-48 ft. bgs.*
Height of Stickup: 1.85 ft.
T/Screen + Stickup: 44.85 ft. bgs.
*Source: (Well Tag) Well Table

Well Measurements
Initial Depth to NAPL: NA ft.
Initial Depth to Water: 40.08 ft.
Final Depth to NAPL: NA ft.
Final Depth to Water: 44.5 ft.
Purge Volume: 0.80 gals.

Well Pre-purged with:
Pump (with polyethylene tubing)
Grundfos 2" Redi-Flo
Remediation Pump
(Bailer)
Disposable Polyethylene

Comments:

Well ID: DD-58R

Well Information
Screen Interval: 53-58 ft. bgs.*
Height of Stickup: 1.50 ft.
T/Screen + Stickup: 54.50 ft. bgs.
*Source: (Well Tag) Well Table

Well Measurements
Initial Depth to NAPL: NA ft.
Initial Depth to Water: 33.42 ft.
Final Depth to NAPL: NA ft.
Final Depth to Water: 53.50 ft.
Purge Volume: 3.5 gals.

Well Pre-purged with:
Pump (with polyethylene tubing)
Grundfos 2" Redi-Flo
Remediation Pump
(Bailer)
Disposable Polyethylene

Comments:

Well ID:

Well Information
Screen Interval: ____ ft. bgs.*
Height of Stickup: ____ ft.
T/Screen + Stickup: ____ ft. bgs.
*Source: Well Tag Well Table

Well Measurements
Initial Depth to NAPL: ____ ft.
Initial Depth to Water: ____ ft.
Final Depth to NAPL: ____ ft.
Final Depth to Water: ____ ft.
Purge Volume: ____ gals.

Well Pre-purged with:
Pump (with polyethylene tubing)
Grundfos 2" Redi-Flo
Remediation Pump
Bailer
Disposable Polyethylene

Comments:

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

2055422

Section A Required Client Information:

Company: Aecom
Address: 400 Northpark Town Center 1000 Abernathy Rd NE Ste 900 Atlanta, GA 30328
Email To: Everett Glover
Phone: 678-808-8960 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover, PE
Copy To:
Purchase Order No.:
Project Name: CNA / Shelby
Project Number:

Section C Invoice Information:

Attention: Same
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): 8260 DDE (N)	Ethylene Glycol (N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	PP-C-EFF-030916	W	G			3/9/16	0800	-	6	3			3					3	3	-	
2	PP-B-EFF-030916	W	G			3/9/16	0815	-	6	3			3					3	3	-	
3	PP-A-EFF-030916	W	G			3/9/16	0830	-	6	3			3					3	3	-	
4	Clarifier-EFF-030916	W	G			3/9/16	0845	-	6	3			3					3	3	-	
5	Headworks-030916	W	G			3/9/16	0900	-	6	3			3					3	3	-	
6																					
7																					
8																					
9																					
10																					
11																					
12																					

• 1,4-Dioxane SIM w/ 0.0002 mg/l reporting limits
• put on separate report. NOT w/ GW samples

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Aaron Hill	3/9/16	1055	Pace	3-9-16	1059	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron Hill

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/9/16

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

2

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

2055420

Section A Required Client Information:

Company: Aecom
Address: 400 Northpark Town Center 1000 Abernathy St. SE STE 900 Atlanta, GA 30328
Email To:
Phone: 678-808-8960 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover, PE
Copy To:
Purchase Order No.:
Project Name: CNA | Shelby
Project Number:

Section C Invoice Information:

Attention: Jamie
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) VOCs 8260	DDE 8260	Ethylene Glycol	Dow Therm A 8270	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		N	N	N	N		
1	DD-SBR-030816	W	G			3/8/16	1440	–	9	3			6					3	3	3		N	
2	IT-5-030816	W	G			3/8/16	1445	–	9	3			6					3	3	3		N	
3	RG-110-030816	W	G			3/8/16	1450	–	6				6					3	3			N	
4	AA-54-030816	W	G			3/8/16	1545	–	9	3			6					3	3	3		N	
5	IT-6-030816	W	G			3/8/16	1550	–	9	3			6					3	3	3		N	
6	PKW-4-030816	W	G			3/8/16	1604	–	8	2			6					3	3		2	N	
7	TI-2-030816	W	G			3/8/16	1640	–	9	3			6					3	3	3		N	
8	IT-7-030816	W	G			3/8/16	1645	–	9	3			6					3	3	3		N	
9	G-50-030816	W	G			3/8/16	1704	–	27	9			18					9	9	9		N	MS/MSD collected
10	TD-2-030816	W	G			3/8/16	1730	–	6				6					3	3			N	
11	Trip Blank-02	W	G			3/9/16	—	–	2				2					2				N	
12	IT-10-030816	W	G			3/9/16	0720	–	9	3			6					3	3	3		N	

- 1,4-Dioxane SM1 w/ 0.0002 mg/l Report limit
- SVOCs to include diphenyl ether
- VOCs to include THF

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	[signature] / KRM	3/9/16	1059	[signature] / Pace	3-9-16	1059	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron Hill

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/9/16

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

2055421

Section A Required Client Information:

Company: Aecom
Address: 400 Northpark Town Center 1000 Abernathy St SE Ste 900
Atlanta GA 30328
Email To:
Phone: 678-808-8960 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover, PE
Copy To:
Purchase Order No.:
Project Name: CNA/Shelby
Project Number:

Section C Invoice Information:

Attention: Same
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	VOCs 8260	DRO 8260	Ethylene Glycol	Dioxane SIM 8270							Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		N	N	N	N									
1	IT-11-030916	W	G			3/9/16	0730	–	9	3			6						3	3	3								N	• 1,4-Dioxane SIM w/ 0.0002 mg/l Report limit • SVOCs to include diphenyl ether • VOCs to include THF
2	IT-12-030916	W	G			3/9/16	0740	–	9	3			6						3	3	3								N	
3	IT-9-030916	W	G			3/9/16	0805	–	6	3			3							3	3								N	
4	IT-8R-030916	W	G			3/9/16	0920	–	6	3			3							3	3								N	
5	PEW-1-030916	W	G			3/9/16	0955	–	24	6			18						9	9	9	6							N	MS/MSD taken
6	K-58-030916	W	G			3/9/16	1020	–	6	3			3							3	3								N	
7																														
8																														
9																														
10																														
11																														
12																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Aaron Hall / EFM	3/9/16	1059	[signature] / Pace	3-9-16	1059	

2

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron Hall
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/9/16

Temp In °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

WELL NO.: SW-7 + Dup

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: | **Client:** Celanese Corp.

Project Name: Ticona/Shelby | **Project Location:** Shelby, NC

Weather Conditions: Sunny; 50's | **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** NA (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** NA (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** NA (ft) (a-d)

h. **Well Volume:** NA (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** **End Purge Time:**

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	—	—	7.61	7.04	0.105	150.3	10.25	3.14	clear	None	NA
PURGING VALUES											
3/8/16 AH											

3. SAMPLE COLLECTION DATA **Sampling Personnel:** A. Hill

Sampling Method(s) & Equip: Grab

Sample I.D. (Name, Date, Time): SW-7-030816, 3/8/16, 0908

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 28078 ; YSI s/n: 10H100443

Sample Start Time: NA **End SampleTime:** NA

COMMENTS:

Dup collected SW-99-030816 @ 0856

WELL NO.: SW-4 + Dup

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny; 60's **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** NA (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** NA (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** NA (ft) (a-d)

h. **Well Volume:** NA (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** NA **End Purge Time:** NA

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	—	—	11.74	6.64	0.189	103.7	9.52	3.45	clear	none	NA
PURGING VALUES											

3/8/16 AH

3. SAMPLE COLLECTION DATA **Sampling Personnel:** A. Hill

Sampling Method(s) & Equip: grab

Sample I.D. (Name, Date, Time): SW-4-030816, 3/8/16 0930

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 28078 ; YSI s/n: 10H100442

Sample Start Time: **End SampleTime:**

COMMENTS:

Dup collected SW-98-030816 @ 0937

WELL NO.: C-49

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: _____ **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** Sunny 60s (ft) b. **Depth to Water:** 14.51 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 52.0 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 37.49 (ft) (a-d)

h. **Well Volume:** 6.11 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100Q

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1000 **End Purge Time:** 1030

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	INT	100	18.02	5.46	18	135.4	7.11	1.14	Clear	No	14.56
PURGING VALUES											
2	10	100	18.15	5.39	17	144.8	6.87	0.87	Clear	No	14.57
3	15	100	18.23	5.34	17	160.3	6.69	0.48	↓	↓	14.59
4	20	100	18.37	5.31	17	169.8	6.65	0.52	↓	↓	14.61
5	25	100	18.44	5.29	17	171.2	6.66	0.41	↓	↓	14.62
6	30	100	18.52	5.28	17	174.8	6.66	0.37	↓	↓	14.63

DH 3-8-16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** D. Hill

Sampling Method(s) & Equip: low Flow Peri Pump w/Dedicated tubing

Sample I.D. (Name, Date, Time): C-49 3-8-16 1035

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 390 ; YSI s/n: 15L100985

Sample Start Time: 1035 **End SampleTime:** 1040

COMMENTS:

WELL NO.: TD-3

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: **Client:** Celanese Corp.
Project Name: Ticona/Shelby **Project Location:** Shelby, NC
Weather Conditions: Sunny 70° **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 27.50 (ft)
c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 45.00 (ft)
e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)
g. **Length of Water Column:** 17.50 (ft) (a-d)
h. **Well Volume:** 2.9 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water
b. **Field Testing Equipment:** YSI 556; Hach 2100P
c. **Required Total Purge Volume (1f x 2c) (gals.):** NA
d. **Total Volume and Number of Well Volumes Removed:** NA
e. **Begin Purge Time:** 1210 **End Purge Time:** 1245

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	4	100	21.27	6.68	-138	89.2	6.91	4.01	CLEAR	NO	27.62
PURGING VALUES											
2	10	100	20.91	5.70	.211	194.9	4.00	2.77	CLEAR	NO	27.66
3	15	100	20.70	5.35	.235	165.0	2.92	2.03	↓	↓	27.70
4	20	100	20.74	5.23	.239	186.1	2.41	1.45	↓	↓	27.73
5	25	100	20.77	5.18	.241	194.7	2.27	1.21	↓	↓	27.76
6	30	100	20.81	5.16	.242	196.9	2.15	1.16	↓	↓	27.78
7	35	100	20.84	5.15	.242	199.1	2.11	1.09	↓	↓	27.81

J.L 3/8/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** JEFF LEAVER

Sampling Method(s) & Equip: LOW FLOW, PUMP TUBING
Sample I.D. (Name, Date, Time): TD-3-030816, 3/8/16, 1247
Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol
HACH s/n: 09120C ; YSI s/n: 09K101305

Sample Start Time: 1247 **End SampleTime:** 1300
COMMENTS:

WELL NO.: V-23

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny 60s **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 6.52 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 28.0 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 21.48 (ft) (a-d)

h. **Well Volume:** 3.50 (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100Q

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1230 **End Purge Time:** 1255

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
INT	5	150	18.25	6.52	507	-154.2	2.70	18.50	Clear	Yes	6.74
PURGING VALUES											
2	10	150	18.12	6.55	504	-160.2	1.47	11.9	Clear	Yes	6.84
3	15	150	18.02	6.61	502	-163.1	0.86	10.2	↓	↓	6.92
4	20	150	18.08	6.63	503	-162.8	0.84	11.2	↓	↓	6.99
5	25	150	18.13	6.63	504	-162.2	0.81	13.5	↓	↓	7.04

3-8-16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** D.Hill

Sampling Method(s) & Equip: low flow Peripump w/Dedicated tubing

Sample I.D. (Name, Date, Time): V-23 3-8-16 1300

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 390 ; YSI s/n: 15L100985

Sample Start Time: 1300 **End SampleTime:** 1305

COMMENTS: Pre-Purged on 3-7-16

WELL NO.: HH-48

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: | **Client:** Celanese Corp.

Project Name: Ticona/Shelby | **Project Location:** Shelby, NC

Weather Conditions: Sunny, 70's | **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** 40.08 (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** 48.00 (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** 7.92 (ft) (a-d)

h. **Well Volume:** 1.3 (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1235 **End Purge Time:** 1300

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	100	16.69	6.87	0.080	87.4	8.61	6.9	clear	None	40.24
PURGING VALUES											
2	10	100	16.48	5.65	0.081	89.4	4.92	6.2	clear	None	41.93
3	15	100	16.44	5.55	0.081	92.1	4.92	6.5	clear	None	43.07
4	20	100	16.41	5.53	0.082	95.8	4.93	6.4	clear	None	43.89
5	25	100	16.40	5.53	0.082	97.4	4.90	6.9	clear	None	44.91

3/8/16 AH

3. SAMPLE COLLECTION DATA **Sampling Personnel:** AHH

Sampling Method(s) & Equip: low flow

Sample I.D. (Name, Date, Time): HH-48-030816, 3/8/16, 1300

Sample Analytical Parameters/Method: Vocs with DDE/DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 31559 ; YSI s/n: 10H100442

Sample Start Time: 1300 **End SampleTime:** 1305

COMMENTS:

Prepurged 3/7/16

WELL NO.: K-28

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: | **Client:** Celanese Corp.

Project Name: Ticona/Shelby | **Project Location:** Shelby, NC

Weather Conditions: Sunny 60s | **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 10.46 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 28.00 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 17.54 (ft) (a-d)

h. **Well Volume:** 2.86 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100Q

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1315 **End Purge Time:** 1340

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
INIT	5	150	18.64	6.48	381	-148.5	1.63	13.0	Clear	yes	10.51
PURGING VALUES											
2	10	150	18.74	6.47	405	-149.9	1.34	12.8	Clear	yes	10.57
3	15	150	18.97	6.47	417	-150.9	1.01	10.5	↓	↓	10.64
4	20	150	18.97	6.46	424	-151.2	0.89	14.1	↓	↓	10.69
5	25	150	18.96	6.45	427	-154.4	0.77	18.2	↓	↓	10.75

3/8/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** D.H.

Sampling Method(s) & Equip: Low Flow Peri. Pump w/Dedicated tubing

Sample I.D. (Name, Date, Time): K-28 3-8-16 1345

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 390 ; YSI s/n: 15L100985

Sample Start Time: 1345 **End SampleTime:** 1350

COMMENTS: Pre Purged on 3-7-16

WELL NO.: HH-77

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny, 70's **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** 39.57 (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** 77.00 (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** 37.43 (ft) (a-d)

h. **Well Volume:** 6.1 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic 12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1312 **End Purge Time:** 1347

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	200	16.92	5.98	0.084	66.7	4.14	19.8	Clear	None	39.60
PURGING VALUES											
2	10	200	16.89	5.98	0.084	65.8	3.84	20.4	Clear	None	39.60
3	15	200	16.86	5.99	0.085	64.1	3.70	9.3	Clear	None	39.60
4	20	200	16.87	6.17	0.085	54.7	1.83	7.1	Clear	None	39.59
5	25	200	16.89	6.20	0.086	50.1	1.69	6.3	Clear	None	39.59
6	30	200	16.90	6.22	0.086	48.7	1.67	6.4	Clear	None	39.59
7	35	200	16.90	6.24	0.086	47.8	1.64	6.9	Clear	None	39.59

3/8/16 AH

3. SAMPLE COLLECTION DATA **Sampling Personnel:** A. Hill

Sampling Method(s) & Equip: low flow

Sample I.D. (Name, Date, Time): HH-77-030816, 3/8/16, 1347

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 31559 ; YSI s/n: 10H100442

Sample Start Time: 1347 **End SampleTime:** 1354

COMMENTS:

WELL NO.: TD-4

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: SUNNY 70° **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 29.37 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 80.00 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 50.63 (ft) (a-d)

h. **Well Volume:** 8.3 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/(12v pump)/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100P

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1310 **End Purge Time:** 1346

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	100	20.56	6.27	.053	138.6	6.39	11.2	CLEAR	NO	29.45
PURGING VALUES											
2	10	100	20.67	6.30	.051	142.9	4.04	8.1	CLEAR	NO	29.49
3	15	100	20.75	6.41	.050	144.1	1.22	6.6	↓	↓	29.51
4	20	100	20.78	6.48	.050	146.0	0.88	4.9	↓	↓	29.53
5	25	100	20.81	6.51	.050	146.7	0.76	4.3	↓	↓	29.55
6	30	100	20.84	6.52	.050	147.5	0.72	2.8	↓	↓	29.57
7	35	100	20.88	6.52	.050	148.2	0.67	2.5	↓	↓	29.58

J.L. 3/8/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** JEFF LEAVER

Sampling Method(s) & Equip: LOW FLOW, PUMP TUBING

Sample I.D. (Name, Date, Time): TD-4-030816, 3/8/16, , 1348

Sample Analytical Parameters/Method: (Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol)

HACH s/n: 09120C ; YSI s/n: 09K101305

Sample Start Time: 1348 **End SampleTime:** 1400

COMMENTS:

WELL NO.: DD-58R

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: | **Client:** Celanese Corp.
Project Name: Ticona/Shelby | **Project Location:** Shelby, NC
Weather Conditions: Sunny, 70°F | **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. Depth to LNAPL: NA (ft) b. Depth to Water: 32.42 (ft)
c. Depth to DNAPL: NA (ft) d. Total Well Depth: 58.00 (ft)
e. LNAPL Thickness: (a-b) NA (ft) f. DNAPL Thickness: (c-d) NA (ft)
g. Length of Water Column: 25.58 (ft) (a-d)
h. Well Volume: 4.2 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. Purge Method: Peristaltic/12v pump/Ext Well/Surface Water
b. Field Testing Equipment: YSI 556; Hach
c. Required Total Purge Volume (1f x 2c) (gals.): NA
d. Total Volume and Number of Well Volumes Removed: NA
e. Begin Purge Time: 1415 End Purge Time: 1440

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	100	16.21	6.80	0.503	39.4	3.50	8.4	clear	No	34.29
PURGING VALUES											
2	10	100	16.07	6.91	0.514	31.8	2.69	7.8	clear	No	35.07
3	15	100	16.05	7.14	0.517	24.7	1.31	7.2	clear	No	35.91
4	20	100	16.06	7.17	0.520	22.8	1.30	7.4	clear	No	37.12
5	25	100	16.04	7.18	0.522	22.4	1.27	7.3	clear	No	38.15

3/8/16 AH

3. SAMPLE COLLECTION DATA Sampling Personnel: A.H.H

Sampling Method(s) & Equip: low flow
Sample I.D. (Name, Date, Time): DD-58R-030816, 3/8/16, 1440
Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol
HACH s/n: 31559 ; YSI s/n: 10410442

Sample Start Time: 1440 End SampleTime: 1450

COMMENTS:
Prepurged 3/7/16

WELL NO.: IT-5

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: | **Client:** Celanese Corp.

Project Name: Ticona/Shelby | **Project Location:** Shelby, NC

Weather Conditions: Sunny 60-70s | **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 4.86 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 42.51 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 37.65 (ft) (a-d)

h. **Well Volume:** 6.14 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100Q

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1415 **End Purge Time:** 1440

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
INT	5	150	21.22	5.03	7237	-17.7	0.68	91.5	Clear	Yes	4.92
PURGING VALUES											
2	10	150	21.11	5.06	7284	-18.2	0.51	88.4	Clear	Yes	4.98
3	15	150	21.04	5.07	7325	-19.8	0.36	74.3	↓	↓	5.02
4	20	150	20.79	5.07	7331	-20.1	0.31	69.8	↓	↓	5.06
5	25	150	20.30	5.08	7338	-21.7	0.29	61.1	↓	↓	5.11

3-8-16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** D. Hill

Sampling Method(s) & Equip: low Flow Peri Pump w/ Dedicated Tubing

Sample I.D. (Name, Date, Time): IT-5 3-8-16 1445

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 390 ; YSI s/n: 15L100985

Sample Start Time: 1445 **End SampleTime:** 1450

COMMENTS: Pre Purged 3-8-16

WELL NO.: QQ-110

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: SUNNY 72° **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 29.11 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 110.00 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 80.89 (ft) (a-d)

h. **Well Volume:** 13.2 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100P

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1408 **End Purge Time:** 1448

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	4	130	20.13	8.52	.090	84.9	5.64	9.06	CLEAR	NO	29.30
PURGING VALUES											
2	10	100	20.51	9.04	.088	90.6	3.22	7.71	CLEAR	NO	29.34
3	15	100	20.80	9.33	.088	98.3	2.67	7.04	↓	↓	29.37
4	20	100	20.93	9.50	.090	102.4	2.40	5.90	↓	↓	29.40
5	25	100	20.98	9.66	.091	105.0	2.28	5.22	↓	↓	29.42
6	30	100	21.04	9.72	.091	106.2	2.19	4.17	↓	↓	29.44
7	35	100	21.11	9.75	.092	107.7	2.15	4.04	↓	↓	29.45
8	40	100	21.16	9.77	.092	108.5	2.11	2.60	↓	↓	29.47

J.L. 3/8/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** JEFF LEAVER

Sampling Method(s) & Equip: LOW FLOW, PUMP TUBING

Sample I.D. (Name, Date, Time): QQ-110, 3/8/16, 1450

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 091200 ; YSI s/n: 09K101305

Sample Start Time: 1450 **End SampleTime:** 1502

COMMENTS:

WELL NO.: AA-54

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny; 70's **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** 32.41 (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** 54.00 (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** 21.59 (ft) (a-d)

h. **Well Volume:** 3.5 (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1505 **End Purge Time:** 1545

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	100	17.03	5.97	0.396	86.2	1.97	121	Tan	No	32.44
PURGING VALUES											
2	10	100	16.33	5.12	0.385	86.2	1.39	69.4	Tan	No	32.46
3	15	100	16.13	4.94	0.390	105.3	1.15	28.7	clear	No	32.48
4	20	100	16.12	4.93	0.390	106.5	1.11	19.4	clear	No	32.51
5	25	100	16.13	4.91	0.390	107.5	1.08	12.6	clear	No	32.53
6	30	100	16.14	4.89	0.390	108.9	1.04	10.7	clear	No	32.56
7	35	100	16.15	4.89	0.389	108.4	1.02	9.3	clear	No	32.58
8	40	100	16.15	4.89	0.389	108.8	1.00	8.9	clear	No	32.58

3/8/16 AH

3. SAMPLE COLLECTION DATA **Sampling Personnel:** AHH

Sampling Method(s) & Equip: low flow

Sample I.D. (Name, Date, Time): AA-54-030816, 3/8/16, 1545

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 31559 ; YSI s/n: 10H100442

Sample Start Time: 1545 **End SampleTime:** 1555

COMMENTS:

WELL NO.: IT-6

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny 60-70s **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 5.74 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 42.50 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 36.76 (ft) (a-d)

h. **Well Volume:** 5.99 (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100Q

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1520 **End Purge Time:** 1545

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	INT	150	20.19	4.86	6706	4.3	2.00	61.2	Clear	yes	5.81
PURGING VALUES											
2	10	150	20.01	4.85	6504	0.1	0.74	50.4	Clear	yes	5.86
3	15	150	19.92	4.84	6251	-2.5	0.31	30.1	↓	↓	5.90
4	20	150	19.84	4.84	6104	-3.9	0.24	24.7	↓	↓	5.97
5	25	150	19.70	4.84	5996	-5.0	0.15	14.3	↓	↓	6.04

3. SAMPLE COLLECTION DATA **Sampling Personnel:** D. Hill

Sampling Method(s) & Equip: low Flow Peri Pump w/Dedicated tubing

Sample I.D. (Name, Date, Time): IT-6 3-8-16 1550

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 390 ; YSI s/n: 15L100985

Sample Start Time: 1550 **End SampleTime:** 1555

COMMENTS:

Pre Purged -3-8-16

WELL NO.: PEW-4

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.:
Client: Celanese Corp.
Project Name: Ticona/Shelby
Project Location: Shelby, NC
Weather Conditions: SUNNY 72°
Sampling Date: 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft)
b. **Depth to Water:** 30.08 (ft)
c. **Depth to DNAPL:** N/A (ft)
d. **Total Well Depth:** 94.00 (ft)
e. **LNAPL Thickness:** (a-b) N/A (ft)
f. **DNAPL Thickness:** (c-d) N/A (ft)
g. **Length of Water Column:** 63.92 (ft) (a-d)
h. **Well Volume:** 94.0 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water
b. **Field Testing Equipment:** YSI 556; Hach 2100P
c. **Required Total Purge Volume (1f x 2c) (gals.):** NA
d. **Total Volume and Number of Well Volumes Removed:** NA
e. **Begin Purge Time:** 1515 **End Purge Time:** 1600

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	4	140	22.26	8.26	.118	92.9	5.94	31.3	CLOUDY	NO	30.17
PURGING VALUES											
2	10	120	22.19	6.55	.179	103.1	2.66	187.2	TAN	NO	30.22
3	15	120	22.31	6.02	.233	114.8	0.97	320.5	TAN	NO	30.25
4	20	120	22.70	6.04	.245	120.2	0.82	219.0	TAN	NO	30.27
5	25	120	22.87	5.89	.252	127.0	0.66	140.6	LT. TAN	NO	30.30
6	30	120	22.95	5.80	.255	130.5	0.58	123.6	CLOUDY	NO	30.32
7	35	120	22.80	5.76	.258	131.7	0.52	121.4	CLOUDY	NO	30.34
8	40	120	22.71	5.74	.261	133.3	0.48	119.6	CLOUDY	NO	30.36
9	45	120	22.65	5.73	.264	133.9	0.45	117.9	CLOUDY	NO	30.38

J.f. 3/8/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** JEFF LOAVER

Sampling Method(s) & Equip: LOW FLOW, PUMP TUBING
Sample I.D. (Name, Date, Time): PEW-4-030816, 3/8/16, 1604
Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 09120C ; YSI s/n: 09K101305

Sample Start Time: 1604 **End SampleTime:** 1620
COMMENTS:

WELL NO.: TI-2

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny, 70's **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** 30.22 (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** 68.50 (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** _____ (ft) (a-d)

h. **Well Volume:** _____ (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1605 **End Purge Time:** 1640

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	100	19.04	5.96	0.057	65.1	6.34	21.4	clear	No	30.24
PURGING VALUES											
2	10	100	19.07	5.69	0.056	72.1	5.43	12.4	clear	No	30.24
3	15	100	19.10	5.63	0.054	84.4	5.10	12.1	clear	No	30.25
4	20	100	19.04	5.63	0.054	85.4	5.04	10.0	clear	No	30.27
5	25	100	19.00	5.63	0.053	86.9	4.69	9.4	clear	No	30.28
6	30	100	18.97	5.63	0.053	88.0	4.63	8.1	clear	No	30.28
7	35	100	18.94	5.63	0.052	88.2	4.59	7.2	clear	No	30.30

3/8/16 AH

3. SAMPLE COLLECTION DATA **Sampling Personnel:** AHill

Sampling Method(s) & Equip: low flow

Sample I.D. (Name, Date, Time): TI-2-030816, 3/8/16, 1640

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 31559 ; YSI s/n: 10H100442

Sample Start Time: 1640 **End SampleTime:** 1650

COMMENTS:

WELL NO.: IT-7

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: | **Client:** Celanese Corp.

Project Name: Ticona/Shelby | **Project Location:** Shelby, NC

Weather Conditions: Sunny 60s-70s | **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 6.73 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 42.50 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 35.77 (ft) (a-d)

h. **Well Volume:** 5.83 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100Q

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1615 **End Purge Time:** 1640

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
INT	5	150	19.71	5.58	2013	-41.3	1.12	113	Clear/ ~~Debris~~	Yes	6.77
PURGING VALUES											
2	10	150	18.99	5.57	1974	-42.3	0.74	51.7	Clear/ Debris	Yes	6.82
3	15	150	18.92	5.56	1943	-44.6	0.06	23.2	↓	↓	6.85
4	20	150	18.91	5.58	1915	-47.6	0.05	27.1	↓	↓	6.88
5	25	150	18.88	5.58	1896	-50.1	0.05	35.7	↓	↓	6.92

D.Hill 3-8-16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** D.Hill

Sampling Method(s) & Equip: low flow Peri Pump w/ Ded. coated tubing

Sample I.D. (Name, Date, Time): IT-7 3-8-16 1645

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 390 ; YSI s/n: 15L100985

Sample Start Time: 1645 **End SampleTime:** 1650

COMMENTS: Pre Purged 3-8-16

WELL NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.: G-50

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: SUNNY 74° **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 31.26 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 50.00 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 18.74 (ft) (a-d)

h. **Well Volume:** 3.1 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100P

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1625 **End Purge Time:** 1700

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	100	21.60	6.51	.086	120.4	4.71	8.22	CLEAR	NO	31.30
PURGING VALUES											
2	10	100	22.01	6.26	.086	127.9	2.68	6.90	CLEAR	NO	31.33
3	15	100	22.20	6.30	.087	128.9	1.56	6.51	↓	↓	31.35
4	20	100	22.40	6.33	.087	130.5	1.40	6.08	↓	↓	31.37
5	25	100	22.44	6.36	.088	131.6	1.29	5.55	↓	↓	31.40
6	30	100	22.50	6.38	.088	132.1	1.22	5.32	↓	↓	31.42
7	35	100	22.56	6.39	.088	132.4	1.17	4.41	↓	↓	31.44

J.L. 3/8/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** JEFF LEAVER

Sampling Method(s) & Equip: LOW FLOW, PUMP TUBING

Sample I.D. (Name, Date, Time): G-50-030816, 3/8/16, 1704

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 09120C ; YSI s/n: 09K101305

Sample Start Time: 1704 **End SampleTime:** 1720

COMMENTS:

TOOK MS/MSD

WELL NO.: TD-2

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny; 70's **Sampling Date:** 03/8/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** 31.55 (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** 38.30 (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** 6.75 (ft) (a-d)

h. **Well Volume:** 1.1 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1700 **End Purge Time:** 1730

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	100	18.27	5.19	0.096	126.4	2.29	12.1	clear	No	31.57
PURGING VALUES											
2	10	100	18.94	4.94	0.106	118.0	1.88	11.3	clear	No	31.58
3	15	100	18.56	4.79	0.0100	118.4	1.69	10.1	clear	No	31.58
4	20	100	18.55	4.76	0.098	122.6	1.63	9.4	clear	No	31.59
5	25	100	18.53	4.74	0.098	124.1	1.57	8.9	clear	No	31.60
6	30	100	18.51	4.74	0.097	125.3	1.54	8.7	clear	No	31.60

3/8/16 AH

3. SAMPLE COLLECTION DATA **Sampling Personnel:** A. Hill

Sampling Method(s) & Equip: low flow

Sample I.D. (Name, Date, Time): TD-2-030816, 3/8/16, 1730

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 31559 ; YSI s/n: 10H100442

Sample Start Time: 1730 **End SampleTime:** 1740

COMMENTS:

WELL NO.: IT-10 IT-11 IT-12 Pond grabs

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny 50's **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** NA (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** NA (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** NA (ft) (a-d)

h. **Well Volume:** NA (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** NA **End Purge Time:** NA

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
PURGING VALUES											
		Time									
	IT-10	0720	16.30	5.11	2.099	80.5	1.80	9.6	clear	yes	NA
	IT-11	0730	18.27	5.12	2.756	65.9	2.34	6.9	clear	yes	NA
	IT-12	0740	21.69	5.26	3.395	41.2	1.49	14.7	clear	yes	NA
			Time								
	PP-C-EFF		0800								
	PP-B-EFF		0815								
	PP-A-EFF		0830								
	Clarifier EFF		0845								
	Headworks		0900								

3. SAMPLE COLLECTION DATA **Sampling Personnel:** A. Hill

Sampling Method(s) & Equip: Grab

Sample I.D. (Name, Date, Time): Various

Sample Analytical Parameters/Method: Vocs with DDE/DDE only/Dow Therm A/Ethylene Glycol

HACH s/n: 31559 ; YSI s/n: 10H100442

Sample Start Time: NA **End SampleTime:** NA

COMMENTS:

WELL NO.: IT-9

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: | **Client:** Celanese Corp.
Project Name: Ticona/Shelby | **Project Location:** Shelby, NC
Weather Conditions: Sunny 60s | **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. Depth to LNAPL: N/A (ft) b. Depth to Water: 6.32 (ft)
c. Depth to DNAPL: N/A (ft) d. Total Well Depth: 42.50 (ft)
e. LNAPL Thickness: (a-b) N/A (ft) f. DNAPL Thickness: (c-d) N/A (ft)
g. Length of Water Column: 36.18 (ft) (a-d)
h. Well Volume: 5.90 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. Purge Method: Peristaltic/12v pump/Ext Well/Surface Water
b. Field Testing Equipment: YSI 556; Hach 2100Q
c. Required Total Purge Volume (1f x 2c) (gals.): NA
d. Total Volume and Number of Well Volumes Removed: NA
e. Begin Purge Time: 0730 End Purge Time: 0800

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
INT	5	100	13.11	6.48	214	-103.1	3.00	11.3	Clear	Yes	6.35
PURGING VALUES											
2	10	100	13.25	6.52	215	-112.6	1.24	7.11	Clear	yes	6.38
3	15	100	13.40	6.61	215	-116.9	0.79	4.82	↓	↓	6.41
4	20	100	13.52	6.64	211	-121.5	0.77	3.75	↓	↓	6.44
5	25	100	13.64	6.66	205	-129.8	0.75	3.45	↓	↓	6.47
6	30	100	13.71	6.65	198	-133.8	0.71	2.99	↓	↓	6.50

DH 3.9.16

3. SAMPLE COLLECTION DATA Sampling Personnel: D. Hill

Sampling Method(s) & Equip: low flow Peri Pump w/ Dedicated tubing
Sample I.D. (Name, Date, Time): IT-9 3.9.16 0805
Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol
HACH s/n: 390 ; YSI s/n: 15L100985

Sample Start Time: 0805 End SampleTime: 0810
COMMENTS:

WELL NO.: IT- 8R

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: **Client:** Celanese Corp.
Project Name: Ticona/Shelby **Project Location:** Shelby, NC
Weather Conditions: Sunny 60s **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 10.05 (ft)
c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 42.50 (ft)
e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)
g. **Length of Water Column:** 32.45 (ft) (a-d)
h. **Well Volume:** 21.19 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic 12v pump/Ext Well/Surface Water
b. **Field Testing Equipment:** YSI 556; Hach 21000
c. **Required Total Purge Volume (1f x 2c) (gals.):** NA
d. **Total Volume and Number of Well Volumes Removed:** NA
e. **Begin Purge Time:** 0835 **End Purge Time:** 0915

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
INT	5	100	16.84	5.19	4025	-162	1.67	37.5	Clear	Yes	10.09
PURGING VALUES											
2	10	100	16.99	5.20	4059	-19.1	0.75	28.7	Clear	Yes	10.11
3	15	100	17.59	5.23	4087	-22.5	0.47	24.2	↓	↓	10.11
4	20	100	17.89	5.24	4040	-25.7	0.41	22.7			10.13
5	25	100	18.01	5.25	4024	-29.8	0.34	23.8			10.14
6	30	100	18.05	5.25	4012	-32.3	0.31	18.2			10.15
7	35	100	18.37	5.26	4000	-35.7	0.29	21.7			10.15
8	40	100	18.42	5.27	3948	-38.0	0.25	23.2			10.16

D.Hill 3-9-16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** D.Hill
Sampling Method(s) & Equip: low flow peri pump w/ dedicated tubing
Sample I.D. (Name, Date, Time): IT-8R 3-9-16 0920
Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol
HACH s/n: 390 ; YSI s/n: 15L100985

Sample Start Time: 0920 **End SampleTime:** 0925
COMMENTS:

WELL NO.: PEW-1

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.: + MS/MSD

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny; 50°s **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** 39.46 (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** 91.00 (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** _____ (ft) (a-d)

h. **Well Volume:** _____ (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 0920 **End Purge Time:** 0955

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	200	17.40	5.75	0.206	53.6	6.69	6.9	clear	No	39.47
PURGING VALUES											
2	10	200	17.90	6.33	0.321	1.9	0.71	5.8	clear	No	39.48
3	15	200	17.92	6.22	0.291	-18.4	0.47	4.1	clear	No	39.48
4	20	200	17.93	6.22	0.231	-18.9	0.38	4.0	clear	No	39.47
5	25	200	17.95	6.19	0.228	-19.8	0.31	3.8	clear	No	39.47
6	30	200	17.96	6.17	0.225	-20.7	0.29	3.9	clear	No	39.47
7	35	200	17.96	6.17	0.223	-21.4	0.28	3.6	clear	No	39.47

3/9/16 AH

3. SAMPLE COLLECTION DATA **Sampling Personnel:** AH.11

Sampling Method(s) & Equip: low flow

Sample I.D. (Name, Date, Time): PEW-1-030916, 3/9/16, 0955

Sample Analytical Parameters/Method: Vocs with DDE, DDE only, Dow Therm A, Ethylene Glycol

HACH s/n: 31559 ; YSI s/n: 10H100442

Sample Start Time: 0955 **End SampleTime:** 1010

COMMENTS:

MS/MSD Taken

WELL NO.: K-58

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny 60s **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 12.55 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 58.0 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 45.45 (ft) (a-d)

h. **Well Volume:** 7.41 (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic 12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100Q

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 0945 **End Purge Time:** 1015

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
INT	5	100	17.18	6.74	477	-161.5	3.80	6.02	Clear	Yes	12.59
PURGING VALUES											
2	10	100	17.41	6.79	469	-163.4	1.97	4.29	Clear	Yes	12.62
3	15	100	17.69	6.81	449	-167.8	1.24	3.71	↓	↓	12.62
4	20	100	17.76	6.84	444	-166.5	0.98	2.45	↓	↓	12.62
5	25	100	17.81	6.85	434	-169.9	0.69	4.22	↓	↓	12.62
6	30	100	17.94	6.87	429	-173.0	0.57	5.01	↓	↓	12.62

DH 3-9-16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** D. Hill

Sampling Method(s) & Equip: low flow Per. Pump w/ Dedicated tubing

Sample I.D. (Name, Date, Time): K-58 3-9-16 1020

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 396 ; YSI s/n: 15L100985

Sample Start Time: 1020 **End SampleTime:** 1025

COMMENTS:

WELL NO.: G-88

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.:
Client: Celanese Corp.
Project Name: Ticona/Shelby
Project Location: Shelby, NC
Weather Conditions: SUNNY 54°
Sampling Date: 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. Depth to LNAPL: N/A (ft) b. Depth to Water: 31.35 (ft)
c. Depth to DNAPL: N/A (ft) d. Total Well Depth: 88.00 (ft)
e. LNAPL Thickness: (a-b) N/A (ft) f. DNAPL Thickness: (c-d) N/A (ft)
g. Length of Water Column: 56.65 (ft) (a-d)
h. Well Volume: 9.2 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. Purge Method: Peristaltic/12v pump/Ext Well/Surface Water
b. Field Testing Equipment: YSI 556; Hach 2100P
c. Required Total Purge Volume (1f x 2c) (gals.): NA
d. Total Volume and Number of Well Volumes Removed: NA
e. Begin Purge Time: 0720 End Purge Time: 0800

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	100	17.62	6.99	.172	-15.7	3.40	8.07	CLEAR	NO	31.44
PURGING VALUES											
2	10	100	19.58	6.89	.190	19.0	1.04	6.94	CLEAR	NO	31.47
3	15	100	19.35	6.77	.191	27.1	0.88	6.01	↓	↓	31.49
4	20	100	19.44	6.62	.172	36.5	0.60	4.70	↓	↓	31.50
5	25	100	19.61	6.56	.159	43.0	0.44	4.45	↓	↓	31.51
6	30	100	19.66	6.53	.153	51.2	0.35	2.99	↓	↓	31.51
7	35	100	19.69	6.51	.151	52.9	0.32	2.26	↓	↓	31.52
8	40	100	19.71	6.50	.151	53.3	0.30	1.91	↓	↓	31.52

J.T. 3/9/16

3. SAMPLE COLLECTION DATA Sampling Personnel: JEFF LEAVER

Sampling Method(s) & Equip: LOW FLOW, PUMP TUBING
Sample I.D. (Name, Date, Time): G-88-030916, 3/9/16, 0804
Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol
HACH s/n: 09120C ; YSI s/n: 09K101305

Sample Start Time: 0804 End SampleTime: 0812
COMMENTS:

WELL NO.: PEW-3

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: SUNNY 57° **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 31.44 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 95.00 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 63.56 (ft) (a-d)

h. **Well Volume:** 93.4 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100P

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 0820 **End Purge Time:** 0855

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	100	16.99	7.08	.040	58.9	5.15	3.90	CLEAR	YES	31.50
PURGING VALUES											
2	10	100	17.76	6.77	.040	76.2	4.16	3.22	CLEAR	YES	31.52
3	15	100	18.25	6.56	.044	90.5	4.01	2.76	↓	↓	31.52
4	20	100	18.40	6.39	.048	99.1	3.80	2.41	↓	↓	31.52
5	25	100	18.49	6.32	.050	106.7	3.74	2.30	↓	↓	31.53
6	30	100	18.61	6.28	.051	108.0	3.69	2.19	↓	↓	31.53
7	35	100	18.72	6.25	.051	109.2	3.66	2.02	↓	↓	31.53

J.L. 3/9/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** JEFF LEAVER

Sampling Method(s) & Equip: LOW FLOW, PUMP TUBING

Sample I.D. (Name, Date, Time): PEW-3-030916, 3/9/16, 0857

Sample Analytical Parameters/Method: Vocs with DDE; ~~DDE only~~ Dow Therm A; Ethylene Glycol

HACH s/n: 09120C ; YSI s/n: 09K101305

Sample Start Time: 0857 **End SampleTime:** 0920

COMMENTS:

WELL NO.: RR-131

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: SUNNY 60° **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 31.18 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 131.00 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 99.82 (ft) (a-d)

h. **Well Volume:** 16.3 (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100P

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 0933 **End Purge Time:** 1013

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	4	140	18.87	7.01	.123	82.6	5.61	9.24	CLEAR	NO	31.27
PURGING VALUES											
2	10	110	19.04	7.11	.128	83.0	3.34	7.72	CLEAR	NO	31.29
3	15	110	19.10	7.19	.130	79.8	1.91	7.02	↓	↓	31.30
4	20	110	19.17	7.22	.131	70.1	1.30	5.99	↓	↓	31.30
5	25	110	19.26	7.24	.131	55.7	1.02	5.51	↓	↓	31.31
6	30	110	19.30	7.24	.133	48.2	0.79	4.08	↓	↓	31.31
7	35	110	19.34	7.25	.134	45.0	0.66	3.70	↓	↓	31.31
8	40	110	19.37	7.25	.134	43.3	0.63	3.44	↓	↓	31.32

J.L. 3/9/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** JEFF LEAVER

Sampling Method(s) & Equip: LOW FLOW, PUMP TUBING

Sample I.D. (Name, Date, Time): RR-131-030916, 3/9/16, 1014

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 09120C ; YSI s/n: 09K101305

Sample Start Time: 1014 **End SampleTime:** 1037

COMMENTS:

WELL NO.: OT-2R

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.:
Client: Celanese Corp.
Project Name: Ticona/Shelby
Project Location: Shelby, NC
Weather Conditions: SUNNY 62°
Sampling Date: 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 1.10 (ft)
c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 65.00 (ft)
e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)
g. **Length of Water Column:** 63.90 (ft) (a-d)
h. **Well Volume:** 94.0 (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water
b. **Field Testing Equipment:** YSI 556; Hach 2100P
c. **Required Total Purge Volume (1f x 2c) (gals.):** NA
d. **Total Volume and Number of Well Volumes Removed:** NA
e. **Begin Purge Time:** 1045 **End Purge Time:** 1120

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	4	200	16.16	7.09	.512	-41.6	3.44	16.4	CLEAR	NO	1.11
PURGING VALUES											
2	9	200	16.00	7.04	.510	-60.9	1.08	11.9	CLEAR	NO	1.11
3	15	200	16.04	6.92	.514	-67.4	0.85	8.77	↓	↓	1.11
4	20	200	16.11	6.85	.517	-70.3	0.79	7.04	↓	↓	1.11
5	25	200	16.16	6.82	.519	-75.6	0.71	7.01	↓	↓	1.11
6	30	200	16.20	6.79	.520	-77.1	0.67	6.63	↓	↓	1.11
7	35	200	16.24	6.77	.520	-77.9	0.63	6.45	↓	↓	1.11

J.L. 3/9/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** JEFF LEAVER

Sampling Method(s) & Equip: LOW FLOW, PUMP TUBING
Sample I.D. (Name, Date, Time): OT-2R-030916, 3/9/16, 1122
Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 09120C ; YSI s/n: 09K101305

Sample Start Time: 1122 **End SampleTime:** 1140

COMMENTS:
TOOK DUP (OT-99 21200), SMALL ORANGE PARTICLES IN SAMPLES

WELL NO.: CC-64

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny 70s **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 14.08 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 64.0 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 49.92 (ft) (a-d)

h. **Well Volume:** 8.14 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100Q

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** ~~1530~~ 1525 **End Purge Time:** 1555

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
INS	5	100	20.12	6.33	39	-14.6	4.39	2.57	Clear	Yes	14.12
PURGING VALUES											
2	10	100	20.57	6.27	38	0.1	3.42	1.78	Clear	Yes	14.15
3	15	100	20.87	6.18	37	18.4	2.31	1.23	↓	↓	14.17
4	20	100	20.73	6.15	37	25.8	1.92	1.11			14.19
5	25	100	20.69	6.15	37	29.7	1.89	1.15			14.20
6	30	100	20.30	6.14	37	34.8	1.80	1.18			14.21

3-9-16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** D.H.11

Sampling Method(s) & Equip: low flow Peri pump w/dedicated tubing

Sample I.D. (Name, Date, Time): CC-64 ~~030~~916 3-9-16 1600

Sample Analytical Parameters/Method: Vocs with DDE; ~~DDE only~~; Dow Therm A; Ethylene Glycol

HACH s/n: 390 ; YSI s/n: 15L100985

Sample Start Time: 1600 **End SampleTime:** 1605

COMMENTS:

WELL NO.: CC-33

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny 70s **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 16.75 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 33.00 (ft)

e. **LNAPL Thickness:** (a-b) _____ (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** 16.25 (ft) (a-d)

h. **Well Volume:** 2.65 ~~[illegible]~~ (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100Q

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1430 **End Purge Time:** 1510

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
INT	5	100	20.41	6.35	274	-94.7	3.95	52.5	Clear	NO	16.79
PURGING VALUES											
2	10	100	20.52	6.29	275	-99.8	0.81	41.8	Clear	NO	16.82
3	15	100	20.86	6.23	275	-106.7	0.42	34.2	↓	↓	16.85
4	20	100	20.99	6.20	277	-109.8	0.39	24.7	↓	↓	16.88
5	25	100	21.37	6.19	278	-112.4	0.35	19.3	↓	↓	16.92
6	30	100	21.29	6.21	279	-115.4	0.32	13.7	↓	↓	16.95
7	35	100	21.24	6.24	280	-121.8	0.29	10.1	↓	↓	16.98
8	40	100	21.0	6.26	280	-129.7	0.25	9.84	↓	↓	17.01

DJH 3-9-16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** D.Hill

Sampling Method(s) & Equip: low flow per. pump w/ Dedicated tubing

Sample I.D. (Name, Date, Time): CC-33-030916 3-9-16 1515

Sample Analytical Parameters/Method: VOCs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 390 ; YSI s/n: 15L100985

Sample Start Time: 1515 **End SampleTime:** 1520

COMMENTS:

WELL NO.: V-65

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: | **Client:** Celanese Corp.

Project Name: Ticona/Shelby | **Project Location:** Shelby, NC

Weather Conditions: Sunny 60s - 70s | **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 10.09 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 65.0 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 54.91 (ft) (a-d)

h. **Well Volume:** 8.95 (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic 12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100Q

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1245 **End Purge Time:** 1320

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
3	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
INT	5	100	22.01	6.88	1783	-195.4	1.37	10.1	Clear	yes	10.15
PURGING VALUES											
2	10	100	22.56	6.84	1929	-198.7	1.04	15.7	Clear	Yes	10.17
3	15	100	23.07	6.79	1940	-200.1	0.30	24.4	↓	↓	10.21
4	20	100	23.37	6.76	1992	-202.1	0.21	25.7			10.24
5	25	100	23.51	6.73	2025	-203.2	0.16	26.3			10.27
6	30	100	23.71	6.71	2098	-204.1	0.12	24.5			10.31
7	35	100	23.83	6.66	2135	-204.9	0.11	23.1	↓	↓	10.34

3-9-16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** D. Hill

Sampling Method(s) & Equip: low flow Peri Pump w/ Dedicated tubing

Sample I.D. (Name, Date, Time): V-65-030916 3-9-16, 1325

Sample Analytical Parameters/Method: Vocs with DDE, DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 390 ; YSI s/n: 15L100985

Sample Start Time: 1325 **End SampleTime:** 1340

COMMENTS:

Dup taken V-99-030916 @ 1215

WELL NO.: KK-55

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: SUNNY 70° **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 24.85 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 55.00 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 30.15 (ft) (a-d)

h. **Well Volume:** 4.9 (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100P

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1240 **End Purge Time:** 1315

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	200	17.83	7.15	.411	13.4	4.17	16.7	CLEAR	NO	24.85
PURGING VALUES											
2	10	200	17.30	6.74	.408	16.6	0.73	12.4	CLEAR	NO	24.85
3	15	200	17.49	6.52	.412	1.4	0.60	10.1			24.85
4	20	200	17.60	6.33	.415	-2.7	0.57	8.40			24.85
5	25	200	17.68	6.28	.417	-3.3	0.55	6.69			24.85
6	30	200	17.75	6.25	.417	-3.9	0.52	6.04			24.85
7	35	200	17.79	6.24	.418	-4.5	0.50	4.87			24.85

3/9/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** JEFF LEAVER

Sampling Method(s) & Equip: LOW FLOW, PUMP TUBING

Sample I.D. (Name, Date, Time): KK-55-030916, 3/9/16, 1317

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 09120C ; YSI s/n: 09K101305

Sample Start Time: 1317 **End SampleTime:** 1330

COMMENTS:

WELL NO.: II-65

PERMIT NO.: +ms/msD

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: P.Cloudy, 70's **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** 25.29 (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** 65.00 (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** 39.71 (ft) (a-d)

h. **Well Volume:** 6.5 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1300 **End Purge Time:** 1335

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	150	19.32	6.08	0.239	52.6	2.35	28.4	clear	No	25.30
PURGING VALUES											
2	10	150	18.80	5.84	0.239	57.8	1.22	14.6	clear	No	25.30
3	15	150	18.28	5.81	0.238	58.8	0.88	10.1	clear	No	25.30
4	20	150	18.12	5.81	0.238	58.9	0.89	6.9	clear	No	25.30
5	25	150	18.07	5.81	0.238	58.8	0.90	5.2	clear	No	25.30
6	30	150	18.05	5.81	0.238	58.6	0.90	4.4	clear	No	25.30
7	35	150	18.04	5.81	0.238	58.6	0.91	3.1	clear	No	25.30

AH 3/9/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** AHill

Sampling Method(s) & Equip: low flow

Sample I.D. (Name, Date, Time): II-65-030916, 3/9/16, 1335

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 31559 ; YSI s/n: 10H100442

Sample Start Time: 1335 **End SampleTime:** 1350

COMMENTS:

ms/msD taken

WELL NO.: II-112

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny; 70's **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** 27.08 (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** 112.0 (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** 84.92 (ft) (a-d)

h. **Well Volume:** 13.8 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1355 **End Purge Time:** 1425

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	100	22.63	6.53	0.171	31.7	0.99	6.9	Clear	No	27.10
PURGING VALUES											
2	10	100	22.91	6.53	0.171	27.3	0.98	5.1	Clear	No	27.12
3	15	100	23.30	6.53	0.171	24.5	0.96	4.2	Clear	No	27.14
4	20	100	23.33	6.53	0.171	22.6	0.95	4.4	Clear	No	27.15
5	25	100	23.35	6.53	0.172	21.8	0.93	4.4	Clear	No	27.17
6	30	100	23.36	6.53	0.172	21.0	0.92	4.3	Clear	No	27.20
~~7~~	~~35~~										

~~3/9/16~~

3. SAMPLE COLLECTION DATA **Sampling Personnel:** A. Hill

Sampling Method(s) & Equip: low flow

Sample I.D. (Name, Date, Time): II-112-030916, 3/9/16, 1425

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 31559 ; YSI s/n: 10H100442

Sample Start Time: 1425 **End SampleTime:** 1430

COMMENTS:

WELL NO.: GG-61

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: SUNNY 72° **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 17.67 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 61.00 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 43.33 (ft) (a-d)

h. **Well Volume:** 7.1 (gal)

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100P

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1400 **End Purge Time:** 1435

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	4	200	17.33	7.19	.232	24.1	6.09	3.70	CLEAR	NO	17.70
PURGING VALUES											
2	10	200	16.74	6.77	.225	56.9	5.90	2.44	CLEAR	NO	17.70
3	15	200	16.60	6.69	.224	70.4	5.71	2.10	↓	↓	↓
4	20	200	16.51	6.65	.224	78.6	5.58	1.67	↓	↓	↓
5	25	200	16.52	6.62	.224	82.5	5.49	1.49	↓	↓	↓
6	30	200	16.59	6.60	.223	84.0	5.44	1.31	↓	↓	↓
7	35	200	16.60	6.59	.223	84.9	5.40	1.15	↓	↓	↓

3/9/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** JEFF LEAVELL

Sampling Method(s) & Equip: LOW FLOW, PUMP TUBING

Sample I.D. (Name, Date, Time): GG-61-030916, 3/9/16, 1437

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 09120C ; YSI s/n: 09K101305

Sample Start Time: 1437 **End SampleTime:** 1445

COMMENTS:

WELL NO.: I-57

GROUNDWATER SAMPLE COLLECTION RECORD

PERMIT NO.:

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny, 70°s **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** 26.21 (ft)

c. **Depth to DNAPL:** NA (ft) d. **Total Well Depth:** 57.00 (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) NA (ft)

g. **Length of Water Column:** 30.79 (ft) (a-d)

h. **Well Volume:** 5.0 (gal)

2. WELL PURGE DATA

a. **Purge Method:** (Peristaltic) 12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1440 **End Purge Time:** 1510

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	150	20.09	530	0.156	120.7	6.11	6.9	clear	No	26.21
PURGING VALUES											
2	10	150	19.54	4.69	0.181	141.0	2.73	4.1	clear	No	26.21
3	15	150	19.27	4.67	0.180	141.1	2.69	2.8	clear	No	26.21
4	20	150	19.24	4.65	0.180	141.1	2.64	2.1	clear	No	26.21
5	25	150	19.21	4.64	0.179	141.3	2.62	1.9	clear	No	26.21
6	30	150	19.20	4.64	0.178	141.3	2.60	1.9	clear	No	26.21

3/9/16 AH

3. SAMPLE COLLECTION DATA **Sampling Personnel:** A.H.V

Sampling Method(s) & Equip: low flow

Sample I.D. (Name, Date, Time): I-57, 030916, 3/9/16, 1510

Sample Analytical Parameters/Method: (Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol)

HACH s/n: 31559 ; YSI s/n: 10H100442

Sample Start Time: 1510 **End SampleTime:** 1520

COMMENTS:

WELL NO.: F-55 +DUP

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny, 70°s **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** NA (ft) b. **Depth to Water:** 34.04 (ft)

c. **Depth to DNAPL:** 53.41 (ft) d. **Total Well Depth:** 56.10 (ft)

e. **LNAPL Thickness:** (a-b) NA (ft) f. **DNAPL Thickness:** (c-d) 2.69 (ft)

g. **Length of Water Column:** 22.06 (ft) (a-d)

h. **Well Volume:** 3.6 (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water/GRAB

b. **Field Testing Equipment:** YSI 556; Hach

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1540 NA **End Purge Time:** NA

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	–	–	20.14	4.72	3.421	108.6	1.03	19.6	clear	yes	–
PURGING VALUES											

3/9/16 AH

3. SAMPLE COLLECTION DATA **Sampling Personnel:** A. Hill

Sampling Method(s) & Equip: grab w/ disp bailer

Sample I.D. (Name, Date, Time): F-55-030916, 3/9/16, 1550

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 31559 ; YSI s/n: 10H100442

Sample Start Time: 1550 **End SampleTime:** 1610

COMMENTS:

Dup collected: F-99 @ 1620

WELL NO.: T-35

PERMIT NO.:

GROUNDWATER SAMPLE COLLECTION RECORD

Project No.: _____ **Client:** Celanese Corp.

Project Name: Ticona/Shelby **Project Location:** Shelby, NC

Weather Conditions: Sunny 72° **Sampling Date:** 03/9/2016

1. WATER LEVEL DATA (measured from top of inner well casing)

a. **Depth to LNAPL:** N/A (ft) b. **Depth to Water:** 9.98 (ft)

c. **Depth to DNAPL:** N/A (ft) d. **Total Well Depth:** 37.00 (ft)

e. **LNAPL Thickness:** (a-b) N/A (ft) f. **DNAPL Thickness:** (c-d) N/A (ft)

g. **Length of Water Column:** 27.02 (ft) (a-d)

h. **Well Volume:** 4.4 (gal)

2. WELL PURGE DATA

a. **Purge Method:** Peristaltic/12v pump/Ext Well/Surface Water

b. **Field Testing Equipment:** YSI 556; Hach 2100P

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** NA

e. **Begin Purge Time:** 1455 **End Purge Time:** 1530

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate (ml/min)	Temp (deg. C) (±10%)	pH (0.1s.u.) (±0.1)	Spec. Cond. (0.1ms/cm) (±10%)	Eh/ORP (1.0mV) (±10mV)	Diss O2 (0.1mg/L) (±10%)	TURB (1.0NTU) (<10NTU)	Color	Odor	Water Level (ft)
PRE PURGE VALUES											
1	5	150	18.17	6.84	.409	104.5	6.08	9.16	CLEAR	NO	10.10
PURGING VALUES											
2	10	120	18.03	6.43	.411	119.8	5.27	8.80	CLEAR	NO	10.16
3	15	100	18.20	6.21	.412	125.6	2.90	8.01	↓	↓	10.19
4	20	100	18.41	6.16	.414	128.0	1.67	6.93	↓	↓	10.21
5	25	100	18.50	6.11	.415	130.1	1.44	5.40	↓	↓	10.22
6	30	100	18.55	6.08	.415	131.5	1.35	5.22	↓	↓	10.24
7	35	100	18.59	6.06	.416	133.2	1.29	5.06	↓	↓	10.25

J.L. 3/9/16

3. SAMPLE COLLECTION DATA **Sampling Personnel:** JEFF LEAVER

Sampling Method(s) & Equip: Low Flow, Pump Tubing

Sample I.D. (Name, Date, Time): T-35-030916, 3/9/16, 1533

Sample Analytical Parameters/Method: Vocs with DDE; DDE only; Dow Therm A; Ethylene Glycol

HACH s/n: 09120C ; YSI s/n: 09K101305

Sample Start Time: 1533 **End SampleTime:** 1550

COMMENTS:

Ticona/Shelby 5/24/16

weather: Sunny; 80's

Personnel: AH

Objective: SW samples, COD, gauging

~~5/24/16 AH~~

0800 Arrive at site; sign in get permit

- Set up for COD Samples

Point	Time	Totalizer	DTW
IT-10	0900	56476	5789
IT-11	0908	311609	26.11
IT-12	0915	109662	13.92
PP-C-EFF	1000		
+Dupe	—		
PP-B-EFF	1015		
PP-A-EFF	1019		
Clarifier EFF	1025		
Headworks	1033		

0920 Turn off IT wells while gauging

- allow at least 30 min before sampling Headworks

1100 Depart site

~~5/24/16 AH~~

AECOM

DATE: 5/24/16 SITE Ticona/Shelby

Well Number	Depth To Water	Time	Flow rate	PSI	Totalizer	Comments (i.e. COD sample times and conditions)
V-23	10.07					
V-65	12.66					
IT-5	8.06					
IT-6	9.29					
IT-7	10.20					
IT-8R	12.05					
IT-9	9.30					
IT-10	57.89				56476	
IT-11	26.11				311609	
IT-12	13.92				109662	
K-28	14.69					
K-58	16.04					
CC-64	15.65					
W-23	14.34					

Contractor/Representative Name _____

Soil Conditions _____

Weather _____ Temperature _____

Entered On Computer _____ Signature _____ Date _____

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1697704

Section A Required Client Information:

Company: Aecom
Address: 400 North Park Town Center 1000 Abernathy Rd NE Ste 900 Atlanta GA 30328
Email To:
Phone: 678-808-8940 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover Jr PE
Copy To:
Purchase Order No.:
Project Name: Tiona/Shelby
Project Number:

Section C Invoice Information:

Attention: Same
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N): Y/N; Analysis Test: U Dioxane, Methylene Glycol

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	IT-10	WT	G			5/24/16	0900	–	6	2			3					3 2	–	
2	IT-11	WT	G			5/24/16	0908	–	6	2			3					3 2	–	
3	IT-12	WT	G			5/24/16	0915	–	6	2			3					3 2	–	
4	PP-C-EFF	WT	G			5/24/16	1000	–	3				3					3	–	
5	PP-B-EFF	WT	G			5/24/16	1015	–	3				3					3	–	
6	PP-A-EFF	WT	G			5/24/16	1019	–	3				3					3	–	
7	Clarifier EFF	WT	G			5/24/16	1025	–	3				3					3	–	
8	Headworks	WT	G			5/24/16	1033	–	3				3					3	–	
9	Dye	WT	G			5/24/16	—	–	3				3					3	–	
10																				
11																				
12																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	[signature]	5/25/16	0900	[signature]	5/25/16	0903	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron Hill

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 5/24/16

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

2

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Ticona/Shelby 6/27/16

Weather: Sunny 70's
Personnel: A-Hill D.Hill
Objective: Surface Water Samples/gauging

6/27/16 AH

0800 Arrive at site; sign in
get permit
Set up for COD samples

point	TIME	Totalizer	DTW
IT-10	0830	58288	61.97
IT-11	0840	322270	27.52
IT-12	0850	110227	14.05
PP-C EFF	0905		
+Dupe	—		
PP-B-EFF	0917		
PP-A EFF	0924		
Clarifier EFF	0930		
Headworks	0940		

Turn off IT wells while
gauging - allow at least 30 min
before sampling Headworks
1000 Depart site

6/27/16 AH

AECOM

DATE: 6/27/16 SITE Ticona/Shelby

Well Number	Depth To Water	Time	Flow rate	PSI	Totalizer	Comments (i.e. COD sample times and conditions)
V-23	11.63					
V-65	13.93					
IT-5	9.12					
IT-6	10.40					
IT-7	11.37					
IT-8R	13.04					
IT-9	10.32					
IT-10	61.97				58288	
IT-11	27.52				322270	
IT-12	14.05				110227	
K-28	16.91					
K-58	17.34					
CC-64	16.92					
W-23	14.45					

Contractor/Representative Name _____

Soil Conditions _____

Weather _____ Temperature _____

Entered On Computer _____ Signature _____ Date _____

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1697705

Section A Required Client Information:

Company: Aecom
Address: 400 Northpark Town Center Ste 900, 1000 Abernathy Rd NE Atlanta GA 30328
Email To:
Phone: 678-808-8960 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover Jr. PE
Copy To:
Purchase Order No.:
Project Name: Ticona Shelby
Project Number:

Section C Invoice Information:

Attention: Same
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): Y/N; Analysis Test: 820 1,4-Dioxane; Ethylene Glycol

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	820	1,4-Dioxane	Ethylene Glycol	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	IT-10	WT	G			6/27/16	0830	-	4	1			3					3	1		N	
2	IT-11						0840	-	4	1			3					3	1			
3	IT-12						0850	-	4	1			3					3	1			
4	PP-C-EFF						0905	-	3				3					3				
5	Dupe						—	-					3					3				
6	PP-B-EFF						0917	-					3					3				
7	PP-A-EFF						0924	-					3					3				
8	Clar Gov EFF						0930	-					3					3				
9	Headworks						0940	-					3					3				
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		6/28/16	1055		6/28/16	1055	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron H.

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 6/27/16

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

3

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Zhou, Jing

From: SHY Waste Treatment, Celanese <SHY.WasteTreatment@celanese.com>
Sent: Thursday, January 21, 2016 2:24 PM
To: Glover, Everett; Zhou, Jing
Subject: COD ground water results

Ground water COD results for 1/21/2016: # 10--------4,600 mg/l
11-------8,380 mg/l
12--------6,980 mg/l

Wastewater Operations

Celanese
The chemistry inside innovation™

2525 Blacksburg Rd
Grover, NC 28073

Phone +1-704-480-5793
Mobile +1-864-490-7844
Mobile +1-704-473-3856
Shy.wastetreatment@celanese.com
www.celanese.com

Zhou, Jing

From: SHY Waste Treatment, Celanese <SHY.WasteTreatment@celanese.com>
Sent: Wednesday, February 17, 2016 1:42 PM
To: Glover, Everett; Zhou, Jing
Subject: Groundwater COD results,

Ground water COD results for 2/15/2016: # 10--------4,500 mg/l
11-------12,150 mg/l
12--------7,820 mg/l

Mike Queen

Wastewater Operations

Celanese
The chemistry inside innovation™

2525 Blacksburg Rd
Grover, NC 28073

Phone +1-704-480-5793
Mobile +1-864-490-7844
Mobile +1-704-473-3856
Shy.wastetreatment@celanese.com
www.celanese.com

Zhou, Jing

From: SHY Waste Treatment, Celanese <SHY.WasteTreatment@celanese.com>
Sent: Thursday, March 10, 2016 4:17 PM
To: Glover, Everett; Zhou, Jing
Subject: Ground Water COD 3/9/2016

Ground water COD results for 3/9/2016: # 10---------5,230 mg/l
11------10,360 mg/l
12--------6,160 mg/l

Did you receive the rainfall info you requested??

Mike Queen

Wastewater Operations

Celanese
The chemistry inside innovation™

2525 Blacksburg Rd
Grover, NC 28073

Phone +1-704-480-5793
Mobile +1-864-490-7844
Mobile +1-704-473-3856
Shy.wastetreatment@celanese.com
www.celanese.com

Zhou, Jing

From: SHY Waste Treatment, Celanese <SHY.WasteTreatment@celanese.com>
Sent: Tuesday, May 24, 2016 2:16 PM
To: Glover, Everett; Zhou, Jing
Cc: SHY Waste Treatment, Celanese
Subject: Ground water COD 5/24/2016

Ground water COD results for 5/24/2016: # 10---------4,470 mg/l
11--------8,540 mg/l
12---------2,420 mg/l

Did you receive the rainfall info you requested??

Mike Queen

Wastewater Operations

Celanese
The chemistry inside innovation™

2525 Blacksburg Rd
Grover, NC 28073

Phone +1-704-480-5793
Mobile +1-864-490-7844
Mobile +1-704-473-3856
Shy.wastetreatment@celanese.com
www.celanese.com

Zhou, Jing

From: SHY Waste Treatment, Celanese <SHY.WasteTreatment@celanese.com>
Sent: Monday, June 27, 2016 2:42 PM
To: Glover, Everett; Zhou, Jing
Cc: SHY Waste Treatment, Celanese
Subject: COD ground water results.

Ground water COD results for 6/27/2016: # 10---------4,540 mg/l
11--------9,200 mg/l
12----------300 mg/l

Checked #12 twice, yep it was that low...

Mike Queen

Wastewater Operations

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Appendix B

January 2016 – June 2016 Analytical Data

Pace Analytical Services, Inc.
816 Durst Avenue East
Greenwood, SC 29649
(864)229-4413

January 28, 2016

Everett Glover
AECOM
1360 Peachtree Street NE
Suite 500
Atlanta, GA 30309

RE: Project: Ticona/Shelby
Pace Project No.: 92283822

Dear Everett Glover:
Enclosed are the analytical results for sample(s) received by the laboratory on January 21, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Godwin
kevin.godwin@pacelabs.com
Project Manager

Enclosures

cc: Bryon Dahlgren, AECOM
Robert Davis, AECOM

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CERTIFICATIONS

Project:	Ticona/Shelby
Pace Project No.:	92283822

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #:E-10177
Kentucky UST Certification #: 0042
Kentucky WW Certification #:98019
Louisiana Certification #: 04076
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2014-148
Texas Certification #: T104704355-15-9
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-10-00128

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

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SAMPLE SUMMARY

Project: Ticona/Shelby
Pace Project No.: 92283822

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92283822001	**IT-10**	Water	01/21/16 08:25	01/21/16 12:25
92283822002	**IT-11**	Water	01/21/16 08:35	01/21/16 12:25
92283822003	**IT-12**	Water	01/21/16 08:45	01/21/16 12:25

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SAMPLE ANALYTE COUNT

Project: Ticona/Shelby
Pace Project No.: 92283822

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92283822001	**IT-10**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C
92283822002	**IT-11**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C
92283822003	**IT-12**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C

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PROJECT NARRATIVE

Project: Ticona/Shelby
Pace Project No.: 92283822

Method: **EPA 8015 Alcohol-Glycol**
Description: 8015M Glycols in water
Client: CNA Holdings, LLC
Date: January 28, 2016

General Information:
3 samples were analyzed for EPA 8015 Alcohol-Glycol. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: GCSV/18267

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- IT-10 (Lab ID: 92283822001)
  - Ethylene glycol
- IT-12 (Lab ID: 92283822003)
  - Ethylene glycol

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PROJECT NARRATIVE

Project: Ticona/Shelby
Pace Project No.: 92283822

Method: **EPA 8260B Mod.**
Description: 8260 MSV SIM
Client: CNA Holdings, LLC
Date: January 28, 2016

General Information:
9 samples were analyzed for EPA 8260B Mod.. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Ticona/Shelby
Pace Project No.: 92283822

Sample: IT-10 **Lab ID: 92283822001** Collected: 01/21/16 08:25 Received: 01/21/16 12:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		01/26/16 18:58	107-21-1	D3
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**759**	ug/L	20.0	19.0	10		01/26/16 19:09	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	112	%	50-150		10		01/26/16 19:09	17060-07-0	
Toluene-d8 (S)	95	%	50-150		10		01/26/16 19:09	2037-26-5	

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ANALYTICAL RESULTS

Project: Ticona/Shelby
Pace Project No.: 92283822

Sample: IT-11 **Lab ID: 92283822002** Collected: 01/21/16 08:35 Received: 01/21/16 12:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**1670**	mg/L	500	250	100		01/26/16 19:07	107-21-1	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**1180**	ug/L	40.0	38.0	20		01/26/16 19:29	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	106	%	50-150		20		01/26/16 19:29	17060-07-0	
Toluene-d8 (S)	96	%	50-150		20		01/26/16 19:29	2037-26-5	

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ANALYTICAL RESULTS

Project: Ticona/Shelby
Pace Project No.: 92283822

Sample: IT-12 **Lab ID: 92283822003** Collected: 01/21/16 08:45 Received: 01/21/16 12:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		01/26/16 19:17	107-21-1	D3
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**926**	ug/L	40.0	38.0	20		01/26/16 19:50	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	107	%	50-150		20		01/26/16 19:50	17060-07-0	
Toluene-d8 (S)	96	%	50-150		20		01/26/16 19:50	2037-26-5	

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QUALITY CONTROL DATA

Project: Ticona/Shelby
Pace Project No.: 92283822

QC Batch: GCSV/18267 Analysis Method: EPA 8015 Alcohol-Glycol
QC Batch Method: EPA 8015 Alcohol-Glycol Analysis Description: EPA 8015 Modified
Associated Lab Samples: 92283822001, 92283822002, 92283822003

METHOD BLANK: 1466828 Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Ethylene glycol	mg/L	ND	5.0	2.5	01/26/16 18:18	

LABORATORY CONTROL SAMPLE: 1466829

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylene glycol	mg/L	25	26.4	106	60-129	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: Ticona/Shelby
Pace Project No.: 92283822

QC Batch: MSV/35297 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92283822001, 92283822002, 92283822003, 92283822004, 92283822006, 92283822007, 92283822008, 92283822009

METHOD BLANK: 1653784 Matrix: Water
Associated Lab Samples: 92283822001, 92283822002, 92283822003, 92283822004, 92283822006, 92283822007, 92283822008, 92283822009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	1.9	01/26/16 18:08	
1,2-Dichloroethane-d4 (S)	%	111	50-150		01/26/16 18:08	
Toluene-d8 (S)	%	99	50-150		01/26/16 18:08	

LABORATORY CONTROL SAMPLE: 1653785

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	23.0	115	71-125	
1,2-Dichloroethane-d4 (S)	%			105	50-150	
Toluene-d8 (S)	%			97	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1653786 1653787

Parameter	Units	92283978006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	4.0	20	20	25.6	26.5	108	112	50-150	3	30	
1,2-Dichloroethane-d4 (S)	%						106	106	50-150		150	
Toluene-d8 (S)	%						97	97	50-150		150	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: Ticona/Shelby
Pace Project No.: 92283822

QC Batch: MSV/35309 | Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. | Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92283822005

METHOD BLANK: 1654534 | Matrix: Water
Associated Lab Samples: 92283822005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	1.9	01/27/16 12:26	
1,2-Dichloroethane-d4 (S)	%	108	50-150		01/27/16 12:26	
Toluene-d8 (S)	%	89	50-150		01/27/16 12:26	

LABORATORY CONTROL SAMPLE: 1654535

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	19.0	95	71-125	
1,2-Dichloroethane-d4 (S)	%			108	50-150	
Toluene-d8 (S)	%			91	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1654536 1654537

Parameter	Units	92284082004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	21.4	22.6	100	105	50-150	5	30	
1,2-Dichloroethane-d4 (S)	%						117	116	50-150		150	
Toluene-d8 (S)	%						84	83	50-150		150	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Ticona/Shelby
Pace Project No.: 92283822

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Ticona/Shelby
Pace Project No.: 92283822

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92283822001	**IT-10**	EPA 8015 Alcohol-Glycol	GCSV/18267		
92283822002	**IT-11**	EPA 8015 Alcohol-Glycol	GCSV/18267		
92283822003	**IT-12**	EPA 8015 Alcohol-Glycol	GCSV/18267		
92283822001	**IT-10**	EPA 8260B Mod.	MSV/35297		
92283822002	**IT-11**	EPA 8260B Mod.	MSV/35297		
92283822003	**IT-12**	EPA 8260B Mod.	MSV/35297		

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Pace Analytical®	Document Name: **Sample Condition Upon Receipt(SCUR)**	Document Revised: 26OCT2015 Page 1 of 2
	Document No.: **F-CHR-CS-003-rev.17**	Issuing Authority: Pace Huntersville Quality Office

Sample Condition Upon Receipt

Client Name: CNA / AECOM

Project #: **WO# : 92283822**

92283822

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace ☐ Other:

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other:

Thermometer Used: ☑ T1505

Type of Ice: ☐ Wet ☐ Blue ☐ None ☑ Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 4.1 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** 0.0 °C **Date and Initials of Person Examining Contents:** AD 1-21-16

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☐ Yes	☑ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☑ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☐ No	☑ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☑ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: test				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☐ N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☐ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	☐ Yes	☐ No	☐ N/A	
Samples checked for dechlorization	☐ Yes	☐ No	☑ N/A	14.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	16.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager SCURF Review: JY **Date:** 1/22/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers).

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www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1997809

Section A Required Client Information:

Company: CNA/Aecom
Address: 1360 Peachtree St. SE, Atlanta GA 30309
Email To: Everett Glover
Phone: 404-965-9687 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover
Copy To:
Purchase Order No.:
Project Name: Ticona/Shelby
Project Number:

Section C Invoice Information:

Attention: Same
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N): 1,4-Dioxane SIM (Y); Ethylene Glycol (Y)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	1,4-Dioxane SIM	Ethylene Glycol	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	IT-10	WT	G			1/21/16	0825	-	4	1			3					3	1	N	001
2	IT-11	WT	G			1/21/16	0835	-	4	1			3					3	1	N	002
3	IT-12	WT	G			1/21/16	0845	-	4	1			3					3	1	N	003
4	PP-C-EFF	WT	G			1/21/16	0920	-	3				3					3		N	004
5	PP-B-EFF	WT	G			1/21/16	0930	-	3				3					3		N	005
6	PP-A-EFF	WT	G			1/21/16	0940	-	3				3					3		N	006
7	Clarifier-EFF	WT	G			1/21/16	0950	-	3				3					3		N	007
8	Headworks	WT	G			1/21/16	1000	-	3				3					3		N	008
9	Dupe	WT	G			1/21/16	—	-	3				3					3		N	009
10																					
11																					
12																					

92283822

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Aaron Hill	1/21/16	1025	[illegible]	1/21-16	12:25	4.1	✓	✓	✓

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron Hill

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 1/21/16

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, Inc.
816 Durst Avenue East
Greenwood, SC 29649
(864)229-4413

February 29, 2016

Everett Glover
AECOM
1360 Peachtree Street NE
Suite 500
Atlanta, GA 30309

RE: Project: Ticona/Shelby
Pace Project No.: 92286888

Dear Everett Glover:
Enclosed are the analytical results for sample(s) received by the laboratory on February 16, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Godwin
kevin.godwin@pacelabs.com
Project Manager

Enclosures

cc: Bryon Dahlgren, AECOM
Robert Davis, AECOM

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CERTIFICATIONS

Project:	Ticona/Shelby
Pace Project No.:	92286888

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 0042
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2014-148
Texas Certification #: T104704355-15-9
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-10-00128

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

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SAMPLE SUMMARY

Project: Ticona/Shelby
Pace Project No.: 92286888

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92286888001	**IT-10**	Water	02/15/16 08:58	02/16/16 13:20
92286888002	**IT-11**	Water	02/15/16 09:07	02/16/16 13:20
92286888003	**IT-12**	Water	02/15/16 09:15	02/16/16 13:20

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SAMPLE ANALYTE COUNT

Project: Ticona/Shelby
Pace Project No.: 92286888

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92286888001	**IT-10**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C
92286888002	**IT-11**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C
92286888003	**IT-12**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C

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PROJECT NARRATIVE

Project: Ticona/Shelby
Pace Project No.: 92286888

Method: **EPA 8015 Alcohol-Glycol**
Description: 8015M Glycols in water
Client: CNA Holdings, LLC
Date: February 29, 2016

General Information:
3 samples were analyzed for EPA 8015 Alcohol-Glycol. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: GCSV/18605

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- IT-10 (Lab ID: 92286888001)
  - Ethylene glycol
- IT-12 (Lab ID: 92286888003)
  - Ethylene glycol

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PROJECT NARRATIVE

Project: Ticona/Shelby
Pace Project No.: 92286888

Method: **EPA 8260B Mod.**
Description: 8260 MSV SIM
Client: CNA Holdings, LLC
Date: February 29, 2016

General Information:
9 samples were analyzed for EPA 8260B Mod.. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Ticona/Shelby
Pace Project No.: 92286888

Sample: IT-10 **Lab ID: 92286888001** Collected: 02/15/16 08:58 Received: 02/16/16 13:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		02/25/16 17:29	107-21-1	D3
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**615**	ug/L	20.0	19.0	10		02/18/16 22:15	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	50-150		10		02/18/16 22:15	17060-07-0	
Toluene-d8 (S)	105	%	50-150		10		02/18/16 22:15	2037-26-5	

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ANALYTICAL RESULTS

Project: Ticona/Shelby
Pace Project No.: 92286888

Sample: IT-11 **Lab ID: 92286888002** Collected: 02/15/16 09:07 Received: 02/16/16 13:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**927**	mg/L	500	250	100		02/25/16 17:38	107-21-1	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**877**	ug/L	40.0	38.0	20		02/18/16 22:35	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%	50-150		20		02/18/16 22:35	17060-07-0	
Toluene-d8 (S)	107	%	50-150		20		02/18/16 22:35	2037-26-5	

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ANALYTICAL RESULTS

Project: Ticona/Shelby
Pace Project No.: 92286888

Sample: IT-12 **Lab ID: 92286888003** Collected: 02/15/16 09:15 Received: 02/16/16 13:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		02/25/16 17:48	107-21-1	D3
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**726**	ug/L	40.0	38.0	20		02/18/16 22:56	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	50-150		20		02/18/16 22:56	17060-07-0	
Toluene-d8 (S)	106	%	50-150		20		02/18/16 22:56	2037-26-5	

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QUALITY CONTROL DATA

Project: Ticona/Shelby
Pace Project No.: 92286888

QC Batch: GCSV/18605 | Analysis Method: EPA 8015 Alcohol-Glycol
QC Batch Method: EPA 8015 Alcohol-Glycol | Analysis Description: EPA 8015 Modified
Associated Lab Samples: 92286888001, 92286888002, 92286888003

METHOD BLANK: 1483913 | Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Ethylene glycol	mg/L	ND	5.0	2.5	02/25/16 17:10	

LABORATORY CONTROL SAMPLE: 1483914

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylene glycol	mg/L	25	23.0	92	60-129	

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QUALITY CONTROL DATA

Project: Ticona/Shelby
Pace Project No.: 92286888

QC Batch: MSV/35611 | Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. | Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92286888001, 92286888002

METHOD BLANK: 1668779 | Matrix: Water
Associated Lab Samples: 92286888001, 92286888002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	1.9	02/18/16 15:06	
1,2-Dichloroethane-d4 (S)	%	106	50-150		02/18/16 15:06	
Toluene-d8 (S)	%	105	50-150		02/18/16 15:06	

LABORATORY CONTROL SAMPLE: 1668780

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	18.3	92	71-125	
1,2-Dichloroethane-d4 (S)	%			102	50-150	
Toluene-d8 (S)	%			107	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1668781 1668782

Parameter	Units	50138248001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	18.8	20.3	94	102	50-150	8	30	
1,2-Dichloroethane-d4 (S)	%						107	106	50-150		150	
Toluene-d8 (S)	%						107	106	50-150		150	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Ticona/Shelby
Pace Project No.: 92286888

QC Batch: MSV/35612 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92286888003, 92286888004, 92286888005

METHOD BLANK: 1668783 Matrix: Water
Associated Lab Samples: 92286888003, 92286888004, 92286888005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	1.9	02/18/16 14:46	
1,2-Dichloroethane-d4 (S)	%	106	50-150		02/18/16 14:46	
Toluene-d8 (S)	%	104	50-150		02/18/16 14:46	

LABORATORY CONTROL SAMPLE: 1668784

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	19.0	95	71-125	
1,2-Dichloroethane-d4 (S)	%			101	50-150	
Toluene-d8 (S)	%			107	50-150	

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QUALITY CONTROL DATA

Project: Ticona/Shelby
Pace Project No.: 92286888

QC Batch: MSV/35635 | Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. | Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92286888006, 92286888007

METHOD BLANK: 1669755 | Matrix: Water
Associated Lab Samples: 92286888006, 92286888007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	1.9	02/19/16 13:52	
1,2-Dichloroethane-d4 (S)	%	91	50-150		02/19/16 13:52	
Toluene-d8 (S)	%	102	50-150		02/19/16 13:52	

LABORATORY CONTROL SAMPLE: 1669756

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	24.0	120	71-125	
1,2-Dichloroethane-d4 (S)	%			91	50-150	
Toluene-d8 (S)	%			101	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1669757 1669758

Parameter	Units	92286721012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	23.2	20.6	94	81	50-150	12	30	
1,2-Dichloroethane-d4 (S)	%						94	92	50-150		150	
Toluene-d8 (S)	%						101	100	50-150		150	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Ticona/Shelby
Pace Project No.: 92286888

QC Batch: MSV/35636 | Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. | Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92286888008, 92286888009

METHOD BLANK: 1669759 | Matrix: Water
Associated Lab Samples: 92286888008, 92286888009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	1.9	02/19/16 13:32	
1,2-Dichloroethane-d4 (S)	%	91	50-150		02/19/16 13:32	
Toluene-d8 (S)	%	102	50-150		02/19/16 13:32	

LABORATORY CONTROL SAMPLE: 1669760

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	19.8	99	71-125	
1,2-Dichloroethane-d4 (S)	%			91	50-150	
Toluene-d8 (S)	%			102	50-150	

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QUALIFIERS

Project: Ticona/Shelby
Pace Project No.: 92286888

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Ticona/Shelby
Pace Project No.: 92286888

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92286888001	**IT-10**	EPA 8015 Alcohol-Glycol	GCSV/18605		
92286888002	**IT-11**	EPA 8015 Alcohol-Glycol	GCSV/18605		
92286888003	**IT-12**	EPA 8015 Alcohol-Glycol	GCSV/18605		
92286888001	**IT-10**	EPA 8260B Mod.	MSV/35611		
92286888002	**IT-11**	EPA 8260B Mod.	MSV/35611		
92286888003	**IT-12**	EPA 8260B Mod.	MSV/35612		

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Pace Analytical®	Document Name: **Sample Condition Upon Receipt(SCUR)**	Document Revised: 26OCT2015 Page 1 of 2
	Document No.: **F-CHR-CS-003-rev.17**	Issuing Authority: Pace Huntersville Quality Office

Sample Condition Upon Receipt

Client Name: AECOM

Project #: WO# : 92286888

92286888

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other:

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other:

Thermometer Used: ☐ T1505

Type of Ice: ☐ Wet ☐ Blue ☐ None ☑ Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 2.0

Biological Tissue Frozen? ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** 0.0 °C **Date and Initials of Person Examining Contents:** AO 2/17/16

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	☑ Yes	☐ No	☐ N/A	
Samples checked for dechlorization	☐ Yes	☐ No	☑ N/A	14.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☑ No	☐ N/A	15.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	16.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager SCURF Review: JY **Date:** 2/18/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers).

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

*Picked up

Page: 1 of 1

1899562

Section A Required Client Information:

Company: Arcom
Address: 1360 Peachtree ST. Atlanta, GA 30309
Email To: Everett Glover
Phone: (404) 965-9657 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover
Copy To:
Purchase Order No.:
Project Name: Ticona/Shelby
Project Number:

Section C Invoice Information:

Attention: Same
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): 1,4-Dioxane (Y/N); Ethylene Glycol (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	1,4-Dioxane (Y/N)	Ethylene Glycol (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 92086888
1	IT-10	W	G			2/15/16	0858	-	4	1			3					3	1	N	001
2	IT-11	W	G			2/15/16	0907	-	4	1			3					3	1	N	002
3	IT-12	W	G			2/15/16	0915	-	4	1			3					3	1	N	003
4	PP-C-EFF	W	G			2/15/16	0922	-	3				3					3		N	004
5	PP-B-EFF	W	G			2/15/16	0932	-	3				3					3		N	005
6	PP-A-EFF	W	G			2/15/16	0938	-	3				3					3		N	006
7	Clarifier EFF	W	G			2/15/16	0946	-	3				3					3		N	007
8	Headworks	W	G			2/15/16	1005	-	3				3					3		N	008
9	Dupe	W	G			2/15/16	—	-	3				3					3		N	009
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Aaron Hill / EFM	2/15/16		David Spencer / Pace	2-16-16	1320
	David Spencer / Pace	2-16-16	1509	[illegible] / Pace	2/17/16	935
	[illegible] / Pace	2/17/16	1505	[illegible] / Pace	2-17-16	1505

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	2.0	✓	✓	✓

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron Hill

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 2/15/16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical Services, Inc.
816 Durst Avenue East
Greenwood, SC 29649
(864)229-4413

March 23, 2016

Everett Glover
AECOM
1360 Peachtree Street NE
Suite 500
Atlanta, GA 30309

RE: Project: CNA/Shelby
Pace Project No.: 92289456

Dear Everett Glover:
Enclosed are the analytical results for sample(s) received by the laboratory on March 09, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Godwin
kevin.godwin@pacelabs.com
Project Manager

Enclosures

cc: Bryon Dahlgren, AECOM
Robert Davis, AECOM

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CERTIFICATIONS

Project:	CNA/Shelby
Pace Project No.:	92289456

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 0042
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2014-148
Texas Certification #: T104704355-15-9
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-10-00128

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

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SAMPLE SUMMARY

Project: CNA/Shelby
Pace Project No.: 92289456

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92289456001	**V-23-030816**	Water	03/08/16 13:00	03/09/16 10:59
92289456002	**K-28-030816**	Water	03/08/16 13:45	03/09/16 10:59
92289456003	**DD-58R-030816**	Water	03/08/16 14:40	03/09/16 10:59
92289456004	**IT-5-030816**	Water	03/08/16 14:45	03/09/16 10:59
92289456005	**AA-54-030816**	Water	03/08/16 15:45	03/09/16 10:59
92289456006	**IT-6-030816**	Water	03/08/16 15:50	03/09/16 10:59
92289456007	**TI-2-030816**	Water	03/08/16 16:40	03/09/16 10:59
92289456008	**IT-7-030816**	Water	03/08/16 16:45	03/09/16 10:59
92289456009	**IT-10-030916**	Water	03/09/16 07:20	03/09/16 10:59
92289456010	**IT-11-030916**	Water	03/09/16 07:30	03/09/16 10:59
92289456011	**IT-12-030916**	Water	03/09/16 07:40	03/09/16 10:59
92289456012	**SW-7-030816**	Water	03/08/16 09:08	03/09/16 10:59
92289456013	**SW-99-030816**	Water	03/08/16 08:56	03/09/16 10:59
92289456014	**SW-4-030816**	Water	03/08/16 09:30	03/09/16 10:59
92289456015	**SW-98-030816**	Water	03/08/16 09:37	03/09/16 10:59
92289456016	**C-49-030816**	Water	03/08/16 10:35	03/09/16 10:59
92289456017	**TD-3-030816**	Water	03/08/16 12:47	03/09/16 10:59
92289456018	**TD-4-030816**	Water	03/08/16 13:48	03/09/16 10:59
92289456019	**QQ-110-030816**	Water	03/08/16 14:50	03/09/16 10:59
92289456020	**TD-2-030816**	Water	03/08/16 17:30	03/09/16 10:59
92289456021	**IT-9-030916**	Water	03/09/16 08:05	03/09/16 10:59
92289456022	**IT-8R-030916**	Water	03/09/16 09:20	03/09/16 10:59
92289456023	**K-58-030916**	Water	03/09/16 10:20	03/09/16 10:59
92289456024	**HH-48-030816**	Water	03/08/16 13:00	03/09/16 10:59
92289456025	**HH-77-030816**	Water	03/08/16 13:47	03/09/16 10:59
92289456026	**PEW-4-030816**	Water	03/08/16 16:04	03/09/16 10:59
92289456027	**G-50-030816**	Water	03/08/16 17:04	03/09/16 10:59
92289456028	**PEW-1-030916**	Water	03/09/16 09:55	03/09/16 10:59
92289456029	**Trip Blank-01-030816**	Water	03/08/16 00:00	03/09/16 10:59
92289456030	**Trip Blank-02-030816**	Water	03/09/16 00:00	03/09/16 10:59
92289456032	**Water Blank-030816**	Water	03/08/16 11:15	03/09/16 10:59
92289456033	**EQ-01-030816**	Water	03/08/16 11:08	03/09/16 10:59
92289456034	**FB-01-030816**	Water	03/08/16 11:00	03/09/16 10:59

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SAMPLE ANALYTE COUNT

Project: CNA/Shelby
Pace Project No.: 92289456

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92289456001	**V-23-030816**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	GAW	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456002	**K-28-030816**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456003	**DD-58R-030816**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	GAW	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456004	**IT-5-030816**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456005	**AA-54-030816**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	GAW	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456006	**IT-6-030816**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456007	**TI-2-030816**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	GAW	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456008	**IT-7-030816**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	GAW	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456009	**IT-10-030916**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456010	**IT-11-030916**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	GAW	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456011	**IT-12-030916**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456012	**SW-7-030816**	EPA 8260	GAW	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456013	**SW-99-030816**	EPA 8260	GAW	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C

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SAMPLE ANALYTE COUNT

Project: CNA/Shelby
Pace Project No.: 92289456

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92289456014	**SW-4-030816**	EPA 8260	GAW	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456015	**SW-98-030816**	EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456016	**C-49-030816**	EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456017	**TD-3-030816**	EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456018	**TD-4-030816**	EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456019	**QQ-110-030816**	EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456020	**TD-2-030816**	EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456021	**IT-9-030916**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C
92289456022	**IT-8R-030916**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C
92289456023	**K-58-030916**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C
92289456024	**HH-48-030816**	EPA 8260B Mod.	DLK	3	PASI-C
92289456025	**HH-77-030816**	EPA 8260B Mod.	DLK	3	PASI-C
92289456026	**PEW-4-030816**	EPA 8270	BPJ	72	PASI-C
		EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456027	**G-50-030816**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456028	**PEW-1-030916**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8270	BPJ	72	PASI-C
		EPA 8260	NB	40	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92289456029	**Trip Blank-01-030816**	EPA 8260	NB	40	PASI-C
92289456030	**Trip Blank-02-030816**	EPA 8260	NB	40	PASI-C
92289456032	**Water Blank-030816**	EPA 8260	NB	40	PASI-C
92289456033	**EQ-01-030816**	EPA 8260	NB	40	PASI-C
92289456034	**FB-01-030816**	EPA 8260	NB	40	PASI-C

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PROJECT NARRATIVE

Project: CNA/Shelby
Pace Project No.: 92289456

Method: **EPA 8015 Alcohol-Glycol**
Description: 8015M Glycols in water
Client: CNA Holdings, LLC
Date: March 23, 2016

General Information:
16 samples were analyzed for EPA 8015 Alcohol-Glycol. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: CNA/Shelby
Pace Project No.: 92289456

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: CNA Holdings, LLC
Date: March 23, 2016

General Information:
2 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/41292

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92289456028

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1683766)
  - 3&4-Methylphenol(m&p Cresol)
  - Benzaldehyde
  - Caprolactam
  - bis(2-Ethylhexyl)phthalate
- MSD (Lab ID: 1683767)
  - Benzaldehyde
  - Caprolactam

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PROJECT NARRATIVE

Project: CNA/Shelby
Pace Project No.: 92289456

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: CNA Holdings, LLC
Date: March 23, 2016

QC Batch: OEXT/41292

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92289456028

R1: RPD value was outside control limits.

- MSD (Lab ID: 1683767)
  - 2,4-Dinitrophenol
  - 3&4-Methylphenol(m&p Cresol)

Additional Comments:

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PROJECT NARRATIVE

Project: CNA/Shelby
Pace Project No.: 92289456

Method: **EPA 8260**
Description: 8260 MSV Low Level
Client: CNA Holdings, LLC
Date: March 23, 2016

General Information:
28 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/35913

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92289456012

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1683989)
  - Carbon disulfide
  - Chloroethane

QC Batch: MSV/35974

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92289664001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1686895)
  - Chloroethane
  - Tetrachloroethene
- MSD (Lab ID: 1686896)
  - Chloroethane
  - Vinyl chloride

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PROJECT NARRATIVE

Project: CNA/Shelby
Pace Project No.: 92289456

Method: **EPA 8260**
Description: 8260 MSV Low Level
Client: CNA Holdings, LLC
Date: March 23, 2016

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MSV/35902

C9: Common Laboratory Contaminant.

- BLANK (Lab ID: 1683786)
  - Methylene Chloride

QC Batch: MSV/35940

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- IT-10-030916 (Lab ID: 92289456009)
  - 4-Bromofluorobenzene (S)

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PROJECT NARRATIVE

Project: CNA/Shelby
Pace Project No.: 92289456

Method: **EPA 8260B Mod.**
Description: 8260 MSV SIM
Client: CNA Holdings, LLC
Date: March 23, 2016

General Information:
28 samples were analyzed for EPA 8260B Mod.. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: V-23-030816 **Lab ID: 92289456001** Collected: 03/08/16 13:00 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		03/18/16 18:15	107-21-1	ED
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 06:42	67-64-1	
Benzene	**2.2**	ug/L	1.0	0.25	1		03/11/16 06:42	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 06:42	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 06:42	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 06:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 06:42	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 06:42	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 06:42	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 06:42	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 06:42	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 06:42	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 06:42	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 06:42	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 06:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 06:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 06:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 06:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 06:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 06:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 06:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 06:42	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 06:42	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 06:42	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 06:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 06:42	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 06:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 06:42	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 06:42	127-18-4	
Tetrahydrofuran	**50.2**	ug/L	10.0	3.1	1		03/11/16 06:42	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 06:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 06:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 06:42	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/11/16 06:42	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 06:42	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 06:42	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 06:42	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 06:42	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		03/11/16 06:42	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		1		03/11/16 06:42	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		03/11/16 06:42	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: V-23-030816 **Lab ID: 92289456001** Collected: 03/08/16 13:00 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**77.1**	ug/L	2.0	1.9	1		03/14/16 14:30	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	112	%	50-150		1		03/14/16 14:30	17060-07-0	
Toluene-d8 (S)	106	%	50-150		1		03/14/16 14:30	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: K-28-030816 **Lab ID: 92289456002** Collected: 03/08/16 13:45 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		03/18/16 18:24	107-21-1	ED
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	**56.6**	ug/L	25.0	10.0	1		03/14/16 21:30	67-64-1	
Benzene	**4.5**	ug/L	1.0	0.25	1		03/14/16 21:30	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/14/16 21:30	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/14/16 21:30	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/14/16 21:30	74-83-9	
2-Butanone (MEK)	**41.9**	ug/L	5.0	0.96	1		03/14/16 21:30	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/14/16 21:30	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/14/16 21:30	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/14/16 21:30	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/14/16 21:30	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/14/16 21:30	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/14/16 21:30	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/14/16 21:30	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/14/16 21:30	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/14/16 21:30	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/14/16 21:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/14/16 21:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/14/16 21:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/14/16 21:30	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/14/16 21:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/14/16 21:30	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/14/16 21:30	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/14/16 21:30	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/14/16 21:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/14/16 21:30	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/14/16 21:30	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/14/16 21:30	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/14/16 21:30	127-18-4	
Tetrahydrofuran	**867**	ug/L	10.0	3.1	1		03/14/16 21:30	109-99-9	
Toluene	**5.0**	ug/L	1.0	0.26	1		03/14/16 21:30	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/14/16 21:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/14/16 21:30	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/14/16 21:30	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/14/16 21:30	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/14/16 21:30	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/14/16 21:30	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/14/16 21:30	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130		1		03/14/16 21:30	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		03/14/16 21:30	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		03/14/16 21:30	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: K-28-030816 **Lab ID: 92289456002** Collected: 03/08/16 13:45 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**875**	ug/L	40.0	38.0	20		03/11/16 16:55	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	106	%	50-150		20		03/11/16 16:55	17060-07-0	
Toluene-d8 (S)	103	%	50-150		20		03/11/16 16:55	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: DD-58R-030816 **Lab ID: 92289456003** Collected: 03/08/16 14:40 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		03/18/16 18:34	107-21-1	ED
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 04:45	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/11/16 04:45	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 04:45	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 04:45	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 04:45	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 04:45	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 04:45	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 04:45	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 04:45	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 04:45	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 04:45	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 04:45	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 04:45	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 04:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 04:45	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 04:45	75-35-4	
cis-1,2-Dichloroethene	**1.9**	ug/L	1.0	0.19	1		03/11/16 04:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 04:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 04:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 04:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 04:45	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 04:45	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 04:45	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 04:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 04:45	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 04:45	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 04:45	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 04:45	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/11/16 04:45	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 04:45	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 04:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 04:45	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/11/16 04:45	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 04:45	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 04:45	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 04:45	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 04:45	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	103	%	70-130		1		03/11/16 04:45	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-130		1		03/11/16 04:45	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		03/11/16 04:45	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: DD-58R-030816 **Lab ID: 92289456003** Collected: 03/08/16 14:40 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**82.8**	ug/L	2.0	1.9	1		03/11/16 17:14	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	109	%	50-150		1		03/11/16 17:14	17060-07-0	
Toluene-d8 (S)	103	%	50-150		1		03/11/16 17:14	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-5-030816 **Lab ID: 92289456004** Collected: 03/08/16 14:45 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**1940**	mg/L	500	250	100		03/21/16 13:50	107-21-1	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	**665**	ug/L	250	100	10		03/16/16 15:54	67-64-1	
Benzene	**8.2**	ug/L	4.0	1.0	4		03/16/16 07:35	71-43-2	
Bromodichloromethane	ND	ug/L	4.0	0.72	4		03/16/16 07:35	75-27-4	
Bromoform	ND	ug/L	4.0	1.0	4		03/16/16 07:35	75-25-2	
Bromomethane	ND	ug/L	8.0	1.2	4		03/16/16 07:35	74-83-9	
2-Butanone (MEK)	**221**	ug/L	20.0	3.8	4		03/16/16 07:35	78-93-3	
Carbon disulfide	ND	ug/L	8.0	4.6	4		03/16/16 07:35	75-15-0	
Carbon tetrachloride	ND	ug/L	4.0	1.0	4		03/16/16 07:35	56-23-5	
Chlorobenzene	ND	ug/L	4.0	0.92	4		03/16/16 07:35	108-90-7	
Chloroethane	ND	ug/L	4.0	2.2	4		03/16/16 07:35	75-00-3	
Chloroform	ND	ug/L	4.0	0.56	4		03/16/16 07:35	67-66-3	
Chloromethane	ND	ug/L	4.0	0.44	4		03/16/16 07:35	74-87-3	
Dibromochloromethane	ND	ug/L	4.0	0.84	4		03/16/16 07:35	124-48-1	
1,1-Dichloroethane	ND	ug/L	4.0	1.3	4		03/16/16 07:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	4.0	0.96	4		03/16/16 07:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	4.0	2.2	4		03/16/16 07:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	4.0	0.76	4		03/16/16 07:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	4.0	2.0	4		03/16/16 07:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	4.0	1.1	4		03/16/16 07:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	4.0	0.52	4		03/16/16 07:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	1.0	4		03/16/16 07:35	10061-02-6	
Ethylbenzene	ND	ug/L	4.0	1.2	4		03/16/16 07:35	100-41-4	
2-Hexanone	ND	ug/L	20.0	1.8	4		03/16/16 07:35	591-78-6	
Methylene Chloride	ND	ug/L	8.0	3.9	4		03/16/16 07:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	20.0	1.3	4		03/16/16 07:35	108-10-1	
Styrene	ND	ug/L	4.0	1.0	4		03/16/16 07:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	4.0	1.6	4		03/16/16 07:35	79-34-5	
Tetrachloroethene	ND	ug/L	4.0	1.8	4		03/16/16 07:35	127-18-4	
Tetrahydrofuran	**7240**	ug/L	40.0	12.5	4		03/16/16 07:35	109-99-9	
Toluene	**11.5**	ug/L	4.0	1.0	4		03/16/16 07:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	4.0	1.9	4		03/16/16 07:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	4.0	1.2	4		03/16/16 07:35	79-00-5	
Trichloroethene	ND	ug/L	4.0	1.9	4		03/16/16 07:35	79-01-6	
Vinyl acetate	ND	ug/L	8.0	1.4	4		03/16/16 07:35	108-05-4	
Vinyl chloride	ND	ug/L	4.0	2.5	4		03/16/16 07:35	75-01-4	
m&p-Xylene	ND	ug/L	8.0	2.6	4		03/16/16 07:35	179601-23-1	
o-Xylene	ND	ug/L	4.0	0.92	4		03/16/16 07:35	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		4		03/16/16 07:35	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-130		4		03/16/16 07:35	17060-07-0	
Toluene-d8 (S)	100	%	70-130		4		03/16/16 07:35	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-5-030816 **Lab ID: 92289456004** Collected: 03/08/16 14:45 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**1700**	ug/L	50.0	47.5	25		03/14/16 14:11	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	119	%	50-150		10		03/11/16 17:32	17060-07-0	
Toluene-d8 (S)	114	%	50-150		10		03/11/16 17:32	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: AA-54-030816 **Lab ID: 92289456005** Collected: 03/08/16 15:45 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		03/18/16 18:53	107-21-1	ED
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 01:07	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/11/16 01:07	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 01:07	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 01:07	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 01:07	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 01:07	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 01:07	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 01:07	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 01:07	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 01:07	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 01:07	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 01:07	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 01:07	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 01:07	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 01:07	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 01:07	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 01:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 01:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 01:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 01:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 01:07	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 01:07	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 01:07	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 01:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 01:07	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 01:07	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 01:07	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 01:07	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/11/16 01:07	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 01:07	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 01:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 01:07	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/11/16 01:07	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 01:07	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 01:07	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 01:07	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 01:07	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		03/11/16 01:07	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	70-130		1		03/11/16 01:07	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		03/11/16 01:07	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: AA-54-030816 **Lab ID: 92289456005** Collected: 03/08/16 15:45 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**186**	ug/L	5.0	4.8	2.5		03/11/16 17:51	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	107	%	50-150		2.5		03/11/16 17:51	17060-07-0	
Toluene-d8 (S)	102	%	50-150		2.5		03/11/16 17:51	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-6-030816 **Lab ID: 92289456006** Collected: 03/08/16 15:50 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**1900**	mg/L	500	250	100		03/21/16 14:47	107-21-1	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	**553**	ug/L	50.0	20.0	2		03/13/16 18:16	67-64-1	
Benzene	**13.9**	ug/L	2.0	0.50	2		03/13/16 18:16	71-43-2	
Bromodichloromethane	ND	ug/L	2.0	0.36	2		03/13/16 18:16	75-27-4	
Bromoform	ND	ug/L	2.0	0.52	2		03/13/16 18:16	75-25-2	
Bromomethane	ND	ug/L	4.0	0.58	2		03/13/16 18:16	74-83-9	
2-Butanone (MEK)	**485**	ug/L	10.0	1.9	2		03/13/16 18:16	78-93-3	
Carbon disulfide	ND	ug/L	4.0	2.3	2		03/13/16 18:16	75-15-0	
Carbon tetrachloride	ND	ug/L	2.0	0.50	2		03/13/16 18:16	56-23-5	
Chlorobenzene	ND	ug/L	2.0	0.46	2		03/13/16 18:16	108-90-7	
Chloroethane	ND	ug/L	2.0	1.1	2		03/13/16 18:16	75-00-3	
Chloroform	ND	ug/L	2.0	0.28	2		03/13/16 18:16	67-66-3	
Chloromethane	ND	ug/L	2.0	0.22	2		03/13/16 18:16	74-87-3	
Dibromochloromethane	ND	ug/L	2.0	0.42	2		03/13/16 18:16	124-48-1	
1,1-Dichloroethane	ND	ug/L	2.0	0.64	2		03/13/16 18:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.0	0.48	2		03/13/16 18:16	107-06-2	
1,1-Dichloroethene	ND	ug/L	2.0	1.1	2		03/13/16 18:16	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.0	0.38	2		03/13/16 18:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.0	0.98	2		03/13/16 18:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.0	0.54	2		03/13/16 18:16	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	2.0	0.26	2		03/13/16 18:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.0	0.52	2		03/13/16 18:16	10061-02-6	
Ethylbenzene	ND	ug/L	2.0	0.60	2		03/13/16 18:16	100-41-4	
2-Hexanone	**371**	ug/L	10.0	0.92	2		03/13/16 18:16	591-78-6	
Methylene Chloride	ND	ug/L	4.0	1.9	2		03/13/16 18:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.66	2		03/13/16 18:16	108-10-1	
Styrene	ND	ug/L	2.0	0.52	2		03/13/16 18:16	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	0.80	2		03/13/16 18:16	79-34-5	
Tetrachloroethene	ND	ug/L	2.0	0.92	2		03/13/16 18:16	127-18-4	
Tetrahydrofuran	**3280**	ug/L	20.0	6.2	2		03/13/16 18:16	109-99-9	
Toluene	**20.9**	ug/L	2.0	0.52	2		03/13/16 18:16	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	2.0	0.96	2		03/13/16 18:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	0.58	2		03/13/16 18:16	79-00-5	
Trichloroethene	ND	ug/L	2.0	0.94	2		03/13/16 18:16	79-01-6	
Vinyl acetate	ND	ug/L	4.0	0.70	2		03/13/16 18:16	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1.2	2		03/13/16 18:16	75-01-4	
m&p-Xylene	ND	ug/L	4.0	1.3	2		03/13/16 18:16	179601-23-1	
o-Xylene	ND	ug/L	2.0	0.46	2		03/13/16 18:16	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		2		03/13/16 18:16	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-130		2		03/13/16 18:16	17060-07-0	
Toluene-d8 (S)	101	%	70-130		2		03/13/16 18:16	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-6-030816 **Lab ID: 92289456006** Collected: 03/08/16 15:50 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**2870**	ug/L	100	95.0	50		03/11/16 18:09	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	105	%	50-150		50		03/11/16 18:09	17060-07-0	
Toluene-d8 (S)	90	%	50-150		50		03/11/16 18:09	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: TI-2-030816 **Lab ID: 92289456007** Collected: 03/08/16 16:40 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		03/18/16 19:21	107-21-1	ED
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 05:02	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/11/16 05:02	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 05:02	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 05:02	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 05:02	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 05:02	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 05:02	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 05:02	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 05:02	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 05:02	75-00-3	
Chloroform	**6.0**	ug/L	1.0	0.14	1		03/11/16 05:02	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 05:02	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 05:02	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 05:02	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 05:02	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 05:02	75-35-4	
cis-1,2-Dichloroethene	**1.2**	ug/L	1.0	0.19	1		03/11/16 05:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 05:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 05:02	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 05:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 05:02	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 05:02	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 05:02	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 05:02	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 05:02	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 05:02	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 05:02	79-34-5	
Tetrachloroethene	**5.6**	ug/L	1.0	0.46	1		03/11/16 05:02	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/11/16 05:02	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 05:02	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 05:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 05:02	79-00-5	
Trichloroethene	**8.1**	ug/L	1.0	0.47	1		03/11/16 05:02	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 05:02	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 05:02	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 05:02	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 05:02	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		03/11/16 05:02	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		03/11/16 05:02	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		03/11/16 05:02	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: TI-2-030816 **Lab ID: 92289456007** Collected: 03/08/16 16:40 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**5.4**	ug/L	2.0	1.9	1		03/14/16 14:49	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	109	%	50-150		1		03/14/16 14:49	17060-07-0	
Toluene-d8 (S)	106	%	50-150		1		03/14/16 14:49	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-7-030816 **Lab ID: 92289456008** Collected: 03/08/16 16:45 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**314**	mg/L	50.0	25.0	10		03/21/16 14:00	107-21-1	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	**312**	ug/L	25.0	10.0	1		03/11/16 06:08	67-64-1	
Benzene	**65.8**	ug/L	1.0	0.25	1		03/11/16 06:08	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 06:08	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 06:08	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 06:08	74-83-9	
2-Butanone (MEK)	**81.7**	ug/L	5.0	0.96	1		03/11/16 06:08	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 06:08	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 06:08	56-23-5	
Chlorobenzene	**43.7**	ug/L	1.0	0.23	1		03/11/16 06:08	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 06:08	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 06:08	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 06:08	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 06:08	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 06:08	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 06:08	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 06:08	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 06:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 06:08	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 06:08	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 06:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 06:08	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 06:08	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 06:08	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 06:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 06:08	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 06:08	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 06:08	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 06:08	127-18-4	
Tetrahydrofuran	**944**	ug/L	10.0	3.1	1		03/11/16 06:08	109-99-9	
Toluene	**15.8**	ug/L	1.0	0.26	1		03/11/16 06:08	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 06:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 06:08	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/11/16 06:08	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 06:08	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 06:08	75-01-4	
m&p-Xylene	**2.7**	ug/L	2.0	0.66	1		03/11/16 06:08	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 06:08	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		03/11/16 06:08	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		1		03/11/16 06:08	17060-07-0	
Toluene-d8 (S)	98	%	70-130		1		03/11/16 06:08	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-7-030816 **Lab ID: 92289456008** Collected: 03/08/16 16:45 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**442**	ug/L	20.0	19.0	10		03/11/16 18:46	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	114	%	50-150		10		03/11/16 18:46	17060-07-0	
Toluene-d8 (S)	105	%	50-150		10		03/11/16 18:46	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-10-030916 **Lab ID: 92289456009** Collected: 03/09/16 07:20 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**384**	mg/L	50.0	25.0	10		03/21/16 14:09	107-21-1	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	**234**	ug/L	62.5	25.0	2.5		03/13/16 18:32	67-64-1	
Benzene	**5.0**	ug/L	2.5	0.62	2.5		03/13/16 18:32	71-43-2	
Bromodichloromethane	ND	ug/L	2.5	0.45	2.5		03/13/16 18:32	75-27-4	
Bromoform	ND	ug/L	2.5	0.65	2.5		03/13/16 18:32	75-25-2	
Bromomethane	ND	ug/L	5.0	0.72	2.5		03/13/16 18:32	74-83-9	
2-Butanone (MEK)	**49.7**	ug/L	12.5	2.4	2.5		03/13/16 18:32	78-93-3	
Carbon disulfide	ND	ug/L	5.0	2.9	2.5		03/13/16 18:32	75-15-0	
Carbon tetrachloride	ND	ug/L	2.5	0.62	2.5		03/13/16 18:32	56-23-5	
Chlorobenzene	ND	ug/L	2.5	0.58	2.5		03/13/16 18:32	108-90-7	
Chloroethane	ND	ug/L	2.5	1.4	2.5		03/13/16 18:32	75-00-3	
Chloroform	ND	ug/L	2.5	0.35	2.5		03/13/16 18:32	67-66-3	
Chloromethane	ND	ug/L	2.5	0.28	2.5		03/13/16 18:32	74-87-3	
Dibromochloromethane	ND	ug/L	2.5	0.52	2.5		03/13/16 18:32	124-48-1	
1,1-Dichloroethane	ND	ug/L	2.5	0.80	2.5		03/13/16 18:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.5	0.60	2.5		03/13/16 18:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	2.5	1.4	2.5		03/13/16 18:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.5	0.48	2.5		03/13/16 18:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.5	1.2	2.5		03/13/16 18:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.5	0.68	2.5		03/13/16 18:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	2.5	0.32	2.5		03/13/16 18:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.5	0.65	2.5		03/13/16 18:32	10061-02-6	
Ethylbenzene	ND	ug/L	2.5	0.75	2.5		03/13/16 18:32	100-41-4	
2-Hexanone	ND	ug/L	12.5	1.2	2.5		03/13/16 18:32	591-78-6	
Methylene Chloride	ND	ug/L	5.0	2.4	2.5		03/13/16 18:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	12.5	0.82	2.5		03/13/16 18:32	108-10-1	
Styrene	ND	ug/L	2.5	0.65	2.5		03/13/16 18:32	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.5	1.0	2.5		03/13/16 18:32	79-34-5	
Tetrachloroethene	ND	ug/L	2.5	1.2	2.5		03/13/16 18:32	127-18-4	
Tetrahydrofuran	**1900**	ug/L	25.0	7.8	2.5		03/13/16 18:32	109-99-9	
Toluene	ND	ug/L	2.5	0.65	2.5		03/13/16 18:32	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	2.5	1.2	2.5		03/13/16 18:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.5	0.72	2.5		03/13/16 18:32	79-00-5	
Trichloroethene	ND	ug/L	2.5	1.2	2.5		03/13/16 18:32	79-01-6	
Vinyl acetate	ND	ug/L	5.0	0.88	2.5		03/13/16 18:32	108-05-4	
Vinyl chloride	ND	ug/L	2.5	1.6	2.5		03/13/16 18:32	75-01-4	
m&p-Xylene	ND	ug/L	5.0	1.6	2.5		03/13/16 18:32	179601-23-1	
o-Xylene	ND	ug/L	2.5	0.58	2.5		03/13/16 18:32	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		2.5		03/13/16 18:32	460-00-4	D3
1,2-Dichloroethane-d4 (S)	100	%	70-130		2.5		03/13/16 18:32	17060-07-0	
Toluene-d8 (S)	101	%	70-130		2.5		03/13/16 18:32	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-10-030916 **Lab ID: 92289456009** Collected: 03/09/16 07:20 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**665**	ug/L	20.0	19.0	10		03/11/16 19:05	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	110	%	50-150		10		03/11/16 19:05	17060-07-0	
Toluene-d8 (S)	106	%	50-150		10		03/11/16 19:05	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-11-030916 **Lab ID: 92289456010** Collected: 03/09/16 07:30 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**2870**	mg/L	500	250	100		03/21/16 14:18	107-21-1	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	**121**	ug/L	25.0	10.0	1		03/11/16 06:25	67-64-1	
Benzene	**8.4**	ug/L	1.0	0.25	1		03/11/16 06:25	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 06:25	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 06:25	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 06:25	74-83-9	
2-Butanone (MEK)	**130**	ug/L	5.0	0.96	1		03/11/16 06:25	78-93-3	
Carbon disulfide	**17.6**	ug/L	2.0	1.2	1		03/11/16 06:25	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 06:25	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 06:25	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 06:25	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 06:25	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 06:25	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 06:25	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 06:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 06:25	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 06:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 06:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 06:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 06:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 06:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 06:25	10061-02-6	
Ethylbenzene	**1.2**	ug/L	1.0	0.30	1		03/11/16 06:25	100-41-4	
2-Hexanone	**6.8**	ug/L	5.0	0.46	1		03/11/16 06:25	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 06:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 06:25	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 06:25	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 06:25	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 06:25	127-18-4	
Tetrahydrofuran	**1400**	ug/L	10.0	3.1	1		03/11/16 06:25	109-99-9	
Toluene	**3.3**	ug/L	1.0	0.26	1		03/11/16 06:25	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 06:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 06:25	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/11/16 06:25	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 06:25	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 06:25	75-01-4	
m&p-Xylene	**3.3**	ug/L	2.0	0.66	1		03/11/16 06:25	179601-23-1	
o-Xylene	**1.5**	ug/L	1.0	0.23	1		03/11/16 06:25	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		03/11/16 06:25	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		03/11/16 06:25	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		03/11/16 06:25	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-11-030916 **Lab ID: 92289456010** Collected: 03/09/16 07:30 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**983**	ug/L	40.0	38.0	20		03/11/16 19:23	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	109	%	50-150		20		03/11/16 19:23	17060-07-0	
Toluene-d8 (S)	103	%	50-150		20		03/11/16 19:23	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-12-030916 **Lab ID: 92289456011** Collected: 03/09/16 07:40 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**484**	mg/L	50.0	25.0	10		03/21/16 14:28	107-21-1	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	**419**	ug/L	50.0	20.0	2		03/13/16 19:05	67-64-1	
Benzene	**3.8**	ug/L	2.0	0.50	2		03/13/16 19:05	71-43-2	
Bromodichloromethane	ND	ug/L	2.0	0.36	2		03/13/16 19:05	75-27-4	
Bromoform	ND	ug/L	2.0	0.52	2		03/13/16 19:05	75-25-2	
Bromomethane	ND	ug/L	4.0	0.58	2		03/13/16 19:05	74-83-9	
2-Butanone (MEK)	**337**	ug/L	10.0	1.9	2		03/13/16 19:05	78-93-3	
Carbon disulfide	ND	ug/L	4.0	2.3	2		03/13/16 19:05	75-15-0	
Carbon tetrachloride	ND	ug/L	2.0	0.50	2		03/13/16 19:05	56-23-5	
Chlorobenzene	ND	ug/L	2.0	0.46	2		03/13/16 19:05	108-90-7	
Chloroethane	ND	ug/L	2.0	1.1	2		03/13/16 19:05	75-00-3	
Chloroform	ND	ug/L	2.0	0.28	2		03/13/16 19:05	67-66-3	
Chloromethane	ND	ug/L	2.0	0.22	2		03/13/16 19:05	74-87-3	
Dibromochloromethane	ND	ug/L	2.0	0.42	2		03/13/16 19:05	124-48-1	
1,1-Dichloroethane	ND	ug/L	2.0	0.64	2		03/13/16 19:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.0	0.48	2		03/13/16 19:05	107-06-2	
1,1-Dichloroethene	ND	ug/L	2.0	1.1	2		03/13/16 19:05	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.0	0.38	2		03/13/16 19:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.0	0.98	2		03/13/16 19:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.0	0.54	2		03/13/16 19:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	2.0	0.26	2		03/13/16 19:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.0	0.52	2		03/13/16 19:05	10061-02-6	
Ethylbenzene	ND	ug/L	2.0	0.60	2		03/13/16 19:05	100-41-4	
2-Hexanone	ND	ug/L	10.0	0.92	2		03/13/16 19:05	591-78-6	
Methylene Chloride	ND	ug/L	4.0	1.9	2		03/13/16 19:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.66	2		03/13/16 19:05	108-10-1	
Styrene	ND	ug/L	2.0	0.52	2		03/13/16 19:05	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	0.80	2		03/13/16 19:05	79-34-5	
Tetrachloroethene	ND	ug/L	2.0	0.92	2		03/13/16 19:05	127-18-4	
Tetrahydrofuran	**2700**	ug/L	20.0	6.2	2		03/13/16 19:05	109-99-9	
Toluene	**3.1**	ug/L	2.0	0.52	2		03/13/16 19:05	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	2.0	0.96	2		03/13/16 19:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	0.58	2		03/13/16 19:05	79-00-5	
Trichloroethene	ND	ug/L	2.0	0.94	2		03/13/16 19:05	79-01-6	
Vinyl acetate	ND	ug/L	4.0	0.70	2		03/13/16 19:05	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1.2	2		03/13/16 19:05	75-01-4	
m&p-Xylene	ND	ug/L	4.0	1.3	2		03/13/16 19:05	179601-23-1	
o-Xylene	ND	ug/L	2.0	0.46	2		03/13/16 19:05	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130		2		03/13/16 19:05	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		2		03/13/16 19:05	17060-07-0	
Toluene-d8 (S)	98	%	70-130		2		03/13/16 19:05	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-12-030916 **Lab ID: 92289456011** Collected: 03/09/16 07:40 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**859**	ug/L	40.0	38.0	20		03/11/16 19:42	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	111	%	50-150		20		03/11/16 19:42	17060-07-0	
Toluene-d8 (S)	102	%	50-150		20		03/11/16 19:42	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: SW-7-030816 **Lab ID: 92289456012** Collected: 03/08/16 09:08 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 01:41	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/11/16 01:41	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 01:41	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 01:41	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 01:41	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 01:41	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 01:41	75-15-0	M1
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 01:41	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 01:41	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 01:41	75-00-3	M1
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 01:41	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 01:41	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 01:41	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 01:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 01:41	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 01:41	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 01:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 01:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 01:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 01:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 01:41	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 01:41	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 01:41	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 01:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 01:41	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 01:41	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 01:41	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 01:41	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/11/16 01:41	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 01:41	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 01:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 01:41	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/11/16 01:41	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 01:41	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 01:41	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 01:41	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 01:41	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130		1		03/11/16 01:41	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		03/11/16 01:41	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		03/11/16 01:41	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**14.7**	ug/L	2.0	1.9	1		03/11/16 20:55	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	107	%	50-150		1		03/11/16 20:55	17060-07-0	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: SW-7-030816 **Lab ID: 92289456012** Collected: 03/08/16 09:08 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Surrogates									
Toluene-d8 (S)	101	%	50-150		1		03/11/16 20:55	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: SW-99-030816 **Lab ID: 92289456013** Collected: 03/08/16 08:56 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 05:18	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/11/16 05:18	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 05:18	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 05:18	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 05:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 05:18	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 05:18	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 05:18	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 05:18	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 05:18	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 05:18	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 05:18	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 05:18	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 05:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 05:18	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 05:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 05:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 05:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 05:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 05:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 05:18	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 05:18	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 05:18	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 05:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 05:18	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 05:18	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 05:18	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 05:18	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/11/16 05:18	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 05:18	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 05:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 05:18	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/11/16 05:18	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 05:18	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 05:18	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 05:18	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 05:18	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		03/11/16 05:18	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-130		1		03/11/16 05:18	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		03/11/16 05:18	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**15.3**	ug/L	2.0	1.9	1		03/11/16 21:14	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	110	%	50-150		1		03/11/16 21:14	17060-07-0	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: SW-99-030816 **Lab ID: 92289456013** Collected: 03/08/16 08:56 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Surrogates									
Toluene-d8 (S)	101	%	50-150		1		03/11/16 21:14	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: SW-4-030816 **Lab ID: 92289456014** Collected: 03/08/16 09:30 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 05:35	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/11/16 05:35	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 05:35	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 05:35	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 05:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 05:35	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 05:35	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 05:35	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 05:35	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 05:35	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 05:35	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 05:35	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 05:35	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 05:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 05:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 05:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 05:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 05:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 05:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 05:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 05:35	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 05:35	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 05:35	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 05:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 05:35	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 05:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 05:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 05:35	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/11/16 05:35	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 05:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 05:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 05:35	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/11/16 05:35	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 05:35	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 05:35	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 05:35	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 05:35	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130		1		03/11/16 05:35	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		03/11/16 05:35	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		03/11/16 05:35	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**38.3**	ug/L	2.0	1.9	1		03/11/16 21:32	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	108	%	50-150		1		03/11/16 21:32	17060-07-0	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: SW-4-030816 **Lab ID: 92289456014** Collected: 03/08/16 09:30 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Surrogates									
Toluene-d8 (S)	102	%	50-150		1		03/11/16 21:32	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: SW-98-030816 **Lab ID: 92289456015** Collected: 03/08/16 09:37 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/14/16 05:05	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/14/16 05:05	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/14/16 05:05	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/14/16 05:05	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/14/16 05:05	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/14/16 05:05	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/14/16 05:05	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/14/16 05:05	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/14/16 05:05	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/14/16 05:05	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/14/16 05:05	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/14/16 05:05	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/14/16 05:05	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/14/16 05:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/14/16 05:05	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/14/16 05:05	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/14/16 05:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/14/16 05:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/14/16 05:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/14/16 05:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/14/16 05:05	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/14/16 05:05	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/14/16 05:05	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/14/16 05:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/14/16 05:05	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/14/16 05:05	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/14/16 05:05	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/14/16 05:05	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/14/16 05:05	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/14/16 05:05	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/14/16 05:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/14/16 05:05	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/14/16 05:05	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/14/16 05:05	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/14/16 05:05	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/14/16 05:05	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/14/16 05:05	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		03/14/16 05:05	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		03/14/16 05:05	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		03/14/16 05:05	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**42.0**	ug/L	2.0	1.9	1		03/14/16 15:07	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	110	%	50-150		1		03/14/16 15:07	17060-07-0	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: SW-98-030816 **Lab ID: 92289456015** Collected: 03/08/16 09:37 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Surrogates									
Toluene-d8 (S)	107	%	50-150		1		03/14/16 15:07	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: C-49-030816 **Lab ID: 92289456016** Collected: 03/08/16 10:35 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 18:52	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/11/16 18:52	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 18:52	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 18:52	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 18:52	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 18:52	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 18:52	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 18:52	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 18:52	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 18:52	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 18:52	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 18:52	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 18:52	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 18:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 18:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 18:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 18:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 18:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 18:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 18:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 18:52	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 18:52	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 18:52	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 18:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 18:52	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 18:52	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 18:52	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 18:52	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/11/16 18:52	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 18:52	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 18:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 18:52	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/11/16 18:52	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 18:52	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 18:52	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 18:52	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 18:52	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130		1		03/11/16 18:52	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		03/11/16 18:52	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		03/11/16 18:52	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	ND	ug/L	2.0	1.9	1		03/14/16 15:26	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	109	%	50-150		1		03/14/16 15:26	17060-07-0	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: C-49-030816 **Lab ID: 92289456016** Collected: 03/08/16 10:35 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Surrogates									
Toluene-d8 (S)	107	%	50-150		1		03/14/16 15:26	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: TD-3-030816 **Lab ID: 92289456017** Collected: 03/08/16 12:47 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 19:57	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/11/16 19:57	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 19:57	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 19:57	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 19:57	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 19:57	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 19:57	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 19:57	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 19:57	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 19:57	75-00-3	
Chloroform	**1.1**	ug/L	1.0	0.14	1		03/11/16 19:57	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 19:57	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 19:57	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 19:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 19:57	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 19:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 19:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 19:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 19:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 19:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 19:57	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 19:57	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 19:57	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 19:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 19:57	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 19:57	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 19:57	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 19:57	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/11/16 19:57	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 19:57	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 19:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 19:57	79-00-5	
Trichloroethene	**16.5**	ug/L	1.0	0.47	1		03/11/16 19:57	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 19:57	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 19:57	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 19:57	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 19:57	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		03/11/16 19:57	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		03/11/16 19:57	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		03/11/16 19:57	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**9.5**	ug/L	2.0	1.9	1		03/14/16 15:44	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	114	%	50-150		1		03/14/16 15:44	17060-07-0	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: TD-3-030816 **Lab ID: 92289456017** Collected: 03/08/16 12:47 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Surrogates									
Toluene-d8 (S)	107	%	50-150		1		03/14/16 15:44	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: TD-4-030816 **Lab ID: 92289456018** Collected: 03/08/16 13:48 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	1000	400	40		03/16/16 07:51	67-64-1	
Benzene	ND	ug/L	40.0	10.0	40		03/16/16 07:51	71-43-2	
Bromodichloromethane	ND	ug/L	40.0	7.2	40		03/16/16 07:51	75-27-4	
Bromoform	ND	ug/L	40.0	10.4	40		03/16/16 07:51	75-25-2	
Bromomethane	ND	ug/L	80.0	11.6	40		03/16/16 07:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	200	38.4	40		03/16/16 07:51	78-93-3	
Carbon disulfide	ND	ug/L	80.0	46.0	40		03/16/16 07:51	75-15-0	
Carbon tetrachloride	ND	ug/L	40.0	10.0	40		03/16/16 07:51	56-23-5	
Chlorobenzene	ND	ug/L	40.0	9.2	40		03/16/16 07:51	108-90-7	
Chloroethane	ND	ug/L	40.0	21.6	40		03/16/16 07:51	75-00-3	
Chloroform	ND	ug/L	40.0	5.6	40		03/16/16 07:51	67-66-3	
Chloromethane	ND	ug/L	40.0	4.4	40		03/16/16 07:51	74-87-3	
Dibromochloromethane	ND	ug/L	40.0	8.4	40		03/16/16 07:51	124-48-1	
1,1-Dichloroethane	ND	ug/L	40.0	12.8	40		03/16/16 07:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	40.0	9.6	40		03/16/16 07:51	107-06-2	
1,1-Dichloroethene	ND	ug/L	40.0	22.4	40		03/16/16 07:51	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	40.0	7.6	40		03/16/16 07:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	40.0	19.6	40		03/16/16 07:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	40.0	10.8	40		03/16/16 07:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	40.0	5.2	40		03/16/16 07:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	40.0	10.4	40		03/16/16 07:51	10061-02-6	
Ethylbenzene	ND	ug/L	40.0	12.0	40		03/16/16 07:51	100-41-4	
2-Hexanone	ND	ug/L	200	18.4	40		03/16/16 07:51	591-78-6	
Methylene Chloride	ND	ug/L	80.0	38.8	40		03/16/16 07:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	200	13.2	40		03/16/16 07:51	108-10-1	
Styrene	ND	ug/L	40.0	10.4	40		03/16/16 07:51	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	40.0	16.0	40		03/16/16 07:51	79-34-5	
Tetrachloroethene	ND	ug/L	40.0	18.4	40		03/16/16 07:51	127-18-4	
Tetrahydrofuran	ND	ug/L	400	125	40		03/16/16 07:51	109-99-9	
Toluene	ND	ug/L	40.0	10.4	40		03/16/16 07:51	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	40.0	19.2	40		03/16/16 07:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	40.0	11.6	40		03/16/16 07:51	79-00-5	
Trichloroethene	**4920**	ug/L	40.0	18.8	40		03/16/16 07:51	79-01-6	
Vinyl acetate	ND	ug/L	80.0	14.0	40		03/16/16 07:51	108-05-4	
Vinyl chloride	ND	ug/L	40.0	24.8	40		03/16/16 07:51	75-01-4	
m&p-Xylene	ND	ug/L	80.0	26.4	40		03/16/16 07:51	179601-23-1	
o-Xylene	ND	ug/L	40.0	9.2	40		03/16/16 07:51	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		40		03/16/16 07:51	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		40		03/16/16 07:51	17060-07-0	
Toluene-d8 (S)	101	%	70-130		40		03/16/16 07:51	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	ND	ug/L	2.0	1.9	1		03/14/16 16:03	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	113	%	50-150		1		03/14/16 16:03	17060-07-0	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: TD-4-030816 **Lab ID: 92289456018** Collected: 03/08/16 13:48 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Surrogates									
Toluene-d8 (S)	111	%	50-150		1		03/14/16 16:03	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: QQ-110-030816 **Lab ID: 92289456019** Collected: 03/08/16 14:50 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	10000	4000	400		03/13/16 19:53	67-64-1	
Benzene	ND	ug/L	400	100	400		03/13/16 19:53	71-43-2	
Bromodichloromethane	ND	ug/L	400	72.0	400		03/13/16 19:53	75-27-4	
Bromoform	ND	ug/L	400	104	400		03/13/16 19:53	75-25-2	
Bromomethane	ND	ug/L	800	116	400		03/13/16 19:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	2000	384	400		03/13/16 19:53	78-93-3	
Carbon disulfide	ND	ug/L	800	460	400		03/13/16 19:53	75-15-0	
Carbon tetrachloride	ND	ug/L	400	100	400		03/13/16 19:53	56-23-5	
Chlorobenzene	ND	ug/L	400	92.0	400		03/13/16 19:53	108-90-7	
Chloroethane	ND	ug/L	400	216	400		03/13/16 19:53	75-00-3	
Chloroform	ND	ug/L	400	56.0	400		03/13/16 19:53	67-66-3	
Chloromethane	ND	ug/L	400	44.0	400		03/13/16 19:53	74-87-3	
Dibromochloromethane	ND	ug/L	400	84.0	400		03/13/16 19:53	124-48-1	
1,1-Dichloroethane	ND	ug/L	400	128	400		03/13/16 19:53	75-34-3	
1,2-Dichloroethane	ND	ug/L	400	96.0	400		03/13/16 19:53	107-06-2	
1,1-Dichloroethene	ND	ug/L	400	224	400		03/13/16 19:53	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	400	76.0	400		03/13/16 19:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	400	196	400		03/13/16 19:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	400	108	400		03/13/16 19:53	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	400	52.0	400		03/13/16 19:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	400	104	400		03/13/16 19:53	10061-02-6	
Ethylbenzene	ND	ug/L	400	120	400		03/13/16 19:53	100-41-4	
2-Hexanone	ND	ug/L	2000	184	400		03/13/16 19:53	591-78-6	
Methylene Chloride	ND	ug/L	800	388	400		03/13/16 19:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2000	132	400		03/13/16 19:53	108-10-1	
Styrene	ND	ug/L	400	104	400		03/13/16 19:53	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	400	160	400		03/13/16 19:53	79-34-5	
Tetrachloroethene	ND	ug/L	400	184	400		03/13/16 19:53	127-18-4	
Tetrahydrofuran	ND	ug/L	4000	1250	400		03/13/16 19:53	109-99-9	
Toluene	ND	ug/L	400	104	400		03/13/16 19:53	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	400	192	400		03/13/16 19:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	400	116	400		03/13/16 19:53	79-00-5	
Trichloroethene	**41200**	ug/L	400	188	400		03/13/16 19:53	79-01-6	
Vinyl acetate	ND	ug/L	800	140	400		03/13/16 19:53	108-05-4	
Vinyl chloride	ND	ug/L	400	248	400		03/13/16 19:53	75-01-4	
m&p-Xylene	ND	ug/L	800	264	400		03/13/16 19:53	179601-23-1	
o-Xylene	ND	ug/L	400	92.0	400		03/13/16 19:53	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130		400		03/13/16 19:53	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		400		03/13/16 19:53	17060-07-0	
Toluene-d8 (S)	98	%	70-130		400		03/13/16 19:53	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**4.3**	ug/L	2.0	1.9	1		03/14/16 16:21	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	122	%	50-150		1		03/14/16 16:21	17060-07-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: QQ-110-030816 **Lab ID: 92289456019** Collected: 03/08/16 14:50 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Surrogates									
Toluene-d8 (S)	117	%	50-150		1		03/14/16 16:21	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: TD-2-030816 **Lab ID: 92289456020** Collected: 03/08/16 17:30 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 19:24	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/11/16 19:24	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 19:24	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 19:24	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 19:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 19:24	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 19:24	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 19:24	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 19:24	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 19:24	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 19:24	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 19:24	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 19:24	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 19:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 19:24	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 19:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 19:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 19:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 19:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 19:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 19:24	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 19:24	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 19:24	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 19:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 19:24	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 19:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 19:24	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 19:24	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/11/16 19:24	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 19:24	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 19:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 19:24	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/11/16 19:24	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 19:24	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 19:24	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 19:24	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 19:24	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		03/11/16 19:24	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		03/11/16 19:24	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		03/11/16 19:24	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**2.0**	ug/L	2.0	1.9	1		03/14/16 16:40	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	112	%	50-150		1		03/14/16 16:40	17060-07-0	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: TD-2-030816 **Lab ID: 92289456020** Collected: 03/08/16 17:30 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Surrogates									
Toluene-d8 (S)	108	%	50-150		1		03/14/16 16:40	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-9-030916 **Lab ID: 92289456021** Collected: 03/09/16 08:05 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**93.3**	mg/L	50.0	25.0	10		03/21/16 14:37	107-21-1	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**288**	ug/L	10.0	9.5	5		03/14/16 16:58	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	112	%	50-150		5		03/14/16 16:58	17060-07-0	
Toluene-d8 (S)	108	%	50-150		5		03/14/16 16:58	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: IT-8R-030916 **Lab ID: 92289456022** Collected: 03/09/16 09:20 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**845**	mg/L	250	125	50		03/21/16 15:32	107-21-1	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**1290**	ug/L	40.0	38.0	20		03/14/16 17:17	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	119	%	50-150		20		03/14/16 17:17	17060-07-0	
Toluene-d8 (S)	110	%	50-150		20		03/14/16 17:17	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: K-58-030916 **Lab ID: 92289456023** Collected: 03/09/16 10:20 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**50.7**	mg/L	50.0	25.0	10		03/21/16 15:41	107-21-1	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**629**	ug/L	20.0	19.0	10		03/14/16 17:35	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	110	%	50-150		10		03/14/16 17:35	17060-07-0	
Toluene-d8 (S)	108	%	50-150		10		03/14/16 17:35	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: HH-48-030816 **Lab ID: 92289456024** Collected: 03/08/16 13:00 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	ND	ug/L	2.0	1.9	1		03/14/16 17:54	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	108	%	50-150		1		03/14/16 17:54	17060-07-0	
Toluene-d8 (S)	107	%	50-150		1		03/14/16 17:54	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: HH-77-030816 **Lab ID: 92289456025** Collected: 03/08/16 13:47 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	ND	ug/L	2.0	1.9	1		03/14/16 18:12	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	111	%	50-150		1		03/14/16 18:12	17060-07-0	
Toluene-d8 (S)	108	%	50-150		1		03/14/16 18:12	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: PEW-4-030816 **Lab ID: 92289456026** Collected: 03/08/16 16:04 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	10.0	0.25	1	03/10/16 15:55	03/16/16 17:07	83-32-9	
Acenaphthylene	ND	ug/L	10.0	0.21	1	03/10/16 15:55	03/16/16 17:07	208-96-8	
Anthracene	ND	ug/L	10.0	0.14	1	03/10/16 15:55	03/16/16 17:07	120-12-7	
Atrazine	ND	ug/L	20.0	1.7	1	03/10/16 15:55	03/16/16 17:07	1912-24-9	
Benzaldehyde	ND	ug/L	20.0	4.7	1	03/10/16 15:55	03/16/16 17:07	100-52-7	
Benzo(a)anthracene	ND	ug/L	10.0	0.33	1	03/10/16 15:55	03/16/16 17:07	56-55-3	
Benzo(a)pyrene	ND	ug/L	10.0	0.30	1	03/10/16 15:55	03/16/16 17:07	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	10.0	0.28	1	03/10/16 15:55	03/16/16 17:07	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	10.0	0.38	1	03/10/16 15:55	03/16/16 17:07	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	10.0	0.43	1	03/10/16 15:55	03/16/16 17:07	207-08-9	
Biphenyl (Diphenyl)	ND	ug/L	10.0	1.9	1	03/10/16 15:55	03/16/16 17:07	92-52-4	
4-Bromophenylphenyl ether	ND	ug/L	10.0	1.3	1	03/10/16 15:55	03/16/16 17:07	101-55-3	
Butylbenzylphthalate	ND	ug/L	10.0	0.75	1	03/10/16 15:55	03/16/16 17:07	85-68-7	
Caprolactam	ND	ug/L	10.0	1.8	1	03/10/16 15:55	03/16/16 17:07	105-60-2	
Carbazole	ND	ug/L	10.0	0.73	1	03/10/16 15:55	03/16/16 17:07	86-74-8	
4-Chloro-3-methylphenol	ND	ug/L	20.0	4.2	1	03/10/16 15:55	03/16/16 17:07	59-50-7	
4-Chloroaniline	ND	ug/L	20.0	3.4	1	03/10/16 15:55	03/16/16 17:07	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:07	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	10.0	1.5	1	03/10/16 15:55	03/16/16 17:07	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	10.0	1.6	1	03/10/16 15:55	03/16/16 17:07	108-60-1	
2-Chloronaphthalene	ND	ug/L	10.0	2.2	1	03/10/16 15:55	03/16/16 17:07	91-58-7	
2-Chlorophenol	ND	ug/L	10.0	1.5	1	03/10/16 15:55	03/16/16 17:07	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	10.0	2.1	1	03/10/16 15:55	03/16/16 17:07	7005-72-3	
Chrysene	ND	ug/L	10.0	0.21	1	03/10/16 15:55	03/16/16 17:07	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	10.0	0.55	1	03/10/16 15:55	03/16/16 17:07	53-70-3	
Dibenzofuran	ND	ug/L	10.0	1.8	1	03/10/16 15:55	03/16/16 17:07	132-64-9	
3,3'-Dichlorobenzidine	ND	ug/L	20.0	1.4	1	03/10/16 15:55	03/16/16 17:07	91-94-1	
2,4-Dichlorophenol	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:07	120-83-2	
Diethylphthalate	ND	ug/L	10.0	1.3	1	03/10/16 15:55	03/16/16 17:07	84-66-2	
2,4-Dimethylphenol	ND	ug/L	10.0	2.2	1	03/10/16 15:55	03/16/16 17:07	105-67-9	
Dimethylphthalate	ND	ug/L	10.0	1.5	1	03/10/16 15:55	03/16/16 17:07	131-11-3	
Di-n-butylphthalate	ND	ug/L	10.0	1.1	1	03/10/16 15:55	03/16/16 17:07	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	20.0	1.7	1	03/10/16 15:55	03/16/16 17:07	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	6.5	1	03/10/16 15:55	03/16/16 17:07	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	10.0	1.2	1	03/10/16 15:55	03/16/16 17:07	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:07	606-20-2	
Di-n-octylphthalate	ND	ug/L	10.0	0.86	1	03/10/16 15:55	03/16/16 17:07	117-84-0	
Diphenyl ether (Phenyl ether)	ND	ug/L	10.0	1.9	1	03/10/16 15:55	03/16/16 17:07	101-84-8	
bis(2-Ethylhexyl)phthalate	ND	ug/L	6.0	0.85	1	03/10/16 15:55	03/16/16 17:07	117-81-7	
Fluoranthene	ND	ug/L	10.0	0.21	1	03/10/16 15:55	03/16/16 17:07	206-44-0	
Fluorene	ND	ug/L	10.0	0.21	1	03/10/16 15:55	03/16/16 17:07	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	1.8	1	03/10/16 15:55	03/16/16 17:07	87-68-3	
Hexachlorobenzene	ND	ug/L	10.0	1.1	1	03/10/16 15:55	03/16/16 17:07	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	10.0	1.8	1	03/10/16 15:55	03/16/16 17:07	77-47-4	
Hexachloroethane	ND	ug/L	10.0	1.5	1	03/10/16 15:55	03/16/16 17:07	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	10.0	0.29	1	03/10/16 15:55	03/16/16 17:07	193-39-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: PEW-4-030816 **Lab ID: 92289456026** Collected: 03/08/16 16:04 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Isophorone	ND	ug/L	10.0	1.8	1	03/10/16 15:55	03/16/16 17:07	78-59-1	
2-Methylnaphthalene	ND	ug/L	10.0	0.28	1	03/10/16 15:55	03/16/16 17:07	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:07	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:07		
Naphthalene	ND	ug/L	10.0	0.34	1	03/10/16 15:55	03/16/16 17:07	91-20-3	
2-Nitroaniline	ND	ug/L	50.0	2.8	1	03/10/16 15:55	03/16/16 17:07	88-74-4	
3-Nitroaniline	ND	ug/L	50.0	2.4	1	03/10/16 15:55	03/16/16 17:07	99-09-2	
4-Nitroaniline	ND	ug/L	20.0	2.5	1	03/10/16 15:55	03/16/16 17:07	100-01-6	
Nitrobenzene	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:07	98-95-3	
2-Nitrophenol	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:07	88-75-5	
4-Nitrophenol	ND	ug/L	50.0	5.8	1	03/10/16 15:55	03/16/16 17:07	100-02-7	
N-Nitroso-di-n-propylamine	ND	ug/L	10.0	2.1	1	03/10/16 15:55	03/16/16 17:07	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	10.0	1.3	1	03/10/16 15:55	03/16/16 17:07	86-30-6	
Pentachlorophenol	ND	ug/L	25.0	2.3	1	03/10/16 15:55	03/16/16 17:07	87-86-5	
Phenanthrene	ND	ug/L	10.0	0.22	1	03/10/16 15:55	03/16/16 17:07	85-01-8	
Phenol	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:07		
Pyrene	ND	ug/L	10.0	0.19	1	03/10/16 15:55	03/16/16 17:07	129-00-0	
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:07	95-94-3	
2,4,5-Trichlorophenol	ND	ug/L	10.0	2.2	1	03/10/16 15:55	03/16/16 17:07	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	10.0	1.9	1	03/10/16 15:55	03/16/16 17:07	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	69	%	21-110		1	03/10/16 15:55	03/16/16 17:07	4165-60-0	
2-Fluorobiphenyl (S)	70	%	27-110		1	03/10/16 15:55	03/16/16 17:07	321-60-8	
Terphenyl-d14 (S)	82	%	31-107		1	03/10/16 15:55	03/16/16 17:07	1718-51-0	
Phenol-d6 (S)	27	%	10-110		1	03/10/16 15:55	03/16/16 17:07	13127-88-3	
2-Fluorophenol (S)	40	%	12-110		1	03/10/16 15:55	03/16/16 17:07	367-12-4	
2,4,6-Tribromophenol (S)	65	%	27-110		1	03/10/16 15:55	03/16/16 17:07	118-79-6	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 19:41	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/11/16 19:41	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 19:41	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 19:41	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 19:41	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 19:41	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 19:41	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 19:41	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 19:41	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 19:41	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 19:41	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 19:41	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 19:41	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 19:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 19:41	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 19:41	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 19:41	156-59-2	

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816 Durst Avenue East
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(864)229-4413

ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: PEW-4-030816 **Lab ID: 92289456026** Collected: 03/08/16 16:04 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 19:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 19:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 19:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 19:41	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 19:41	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 19:41	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 19:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 19:41	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 19:41	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 19:41	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 19:41	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/11/16 19:41	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 19:41	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 19:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 19:41	79-00-5	
Trichloroethene	**3.5**	ug/L	1.0	0.47	1		03/11/16 19:41	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 19:41	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 19:41	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 19:41	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 19:41	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130		1		03/11/16 19:41	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		03/11/16 19:41	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		03/11/16 19:41	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**62.6**	ug/L	2.0	1.9	1		03/14/16 18:30	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	112	%	50-150		1		03/14/16 18:30	17060-07-0	
Toluene-d8 (S)	108	%	50-150		1		03/14/16 18:30	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: G-50-030816 **Lab ID: 92289456027** Collected: 03/08/16 17:04 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		03/21/16 15:51	107-21-1	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 19:08	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/11/16 19:08	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 19:08	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 19:08	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 19:08	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 19:08	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 19:08	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 19:08	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 19:08	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 19:08	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 19:08	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 19:08	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 19:08	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 19:08	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 19:08	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 19:08	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/11/16 19:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 19:08	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 19:08	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 19:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 19:08	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 19:08	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 19:08	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 19:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 19:08	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 19:08	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 19:08	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 19:08	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/11/16 19:08	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 19:08	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 19:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 19:08	79-00-5	
Trichloroethene	**1.7**	ug/L	1.0	0.47	1		03/11/16 19:08	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 19:08	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 19:08	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 19:08	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 19:08	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		03/11/16 19:08	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		03/11/16 19:08	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		03/11/16 19:08	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: G-50-030816 **Lab ID: 92289456027** Collected: 03/08/16 17:04 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**19.3**	ug/L	2.0	1.9	1		03/11/16 20:00	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	108	%	50-150		1		03/11/16 20:00	17060-07-0	
Toluene-d8 (S)	101	%	50-150		1		03/11/16 20:00	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: PEW-1-030916 **Lab ID: 92289456028** Collected: 03/09/16 09:55 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		03/22/16 12:38	107-21-1	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	10.0	0.25	1	03/10/16 15:55	03/16/16 17:35	83-32-9	
Acenaphthylene	ND	ug/L	10.0	0.21	1	03/10/16 15:55	03/16/16 17:35	208-96-8	
Anthracene	ND	ug/L	10.0	0.14	1	03/10/16 15:55	03/16/16 17:35	120-12-7	
Atrazine	ND	ug/L	20.0	1.7	1	03/10/16 15:55	03/16/16 17:35	1912-24-9	
Benzaldehyde	ND	ug/L	20.0	4.7	1	03/10/16 15:55	03/16/16 17:35	100-52-7	M1
Benzo(a)anthracene	ND	ug/L	10.0	0.33	1	03/10/16 15:55	03/16/16 17:35	56-55-3	
Benzo(a)pyrene	ND	ug/L	10.0	0.30	1	03/10/16 15:55	03/16/16 17:35	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	10.0	0.28	1	03/10/16 15:55	03/16/16 17:35	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	10.0	0.38	1	03/10/16 15:55	03/16/16 17:35	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	10.0	0.43	1	03/10/16 15:55	03/16/16 17:35	207-08-9	
Biphenyl (Diphenyl)	ND	ug/L	10.0	1.9	1	03/10/16 15:55	03/16/16 17:35	92-52-4	
4-Bromophenylphenyl ether	ND	ug/L	10.0	1.3	1	03/10/16 15:55	03/16/16 17:35	101-55-3	
Butylbenzylphthalate	ND	ug/L	10.0	0.75	1	03/10/16 15:55	03/16/16 17:35	85-68-7	
Caprolactam	ND	ug/L	10.0	1.8	1	03/10/16 15:55	03/16/16 17:35	105-60-2	M1
Carbazole	ND	ug/L	10.0	0.73	1	03/10/16 15:55	03/16/16 17:35	86-74-8	
4-Chloro-3-methylphenol	ND	ug/L	20.0	4.2	1	03/10/16 15:55	03/16/16 17:35	59-50-7	
4-Chloroaniline	ND	ug/L	20.0	3.4	1	03/10/16 15:55	03/16/16 17:35	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:35	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	10.0	1.5	1	03/10/16 15:55	03/16/16 17:35	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	10.0	1.6	1	03/10/16 15:55	03/16/16 17:35	108-60-1	
2-Chloronaphthalene	ND	ug/L	10.0	2.2	1	03/10/16 15:55	03/16/16 17:35	91-58-7	
2-Chlorophenol	ND	ug/L	10.0	1.5	1	03/10/16 15:55	03/16/16 17:35	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	10.0	2.1	1	03/10/16 15:55	03/16/16 17:35	7005-72-3	
Chrysene	ND	ug/L	10.0	0.21	1	03/10/16 15:55	03/16/16 17:35	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	10.0	0.55	1	03/10/16 15:55	03/16/16 17:35	53-70-3	
Dibenzofuran	ND	ug/L	10.0	1.8	1	03/10/16 15:55	03/16/16 17:35	132-64-9	
3,3'-Dichlorobenzidine	ND	ug/L	20.0	1.4	1	03/10/16 15:55	03/16/16 17:35	91-94-1	
2,4-Dichlorophenol	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:35	120-83-2	
Diethylphthalate	ND	ug/L	10.0	1.3	1	03/10/16 15:55	03/16/16 17:35	84-66-2	
2,4-Dimethylphenol	ND	ug/L	10.0	2.2	1	03/10/16 15:55	03/16/16 17:35	105-67-9	
Dimethylphthalate	ND	ug/L	10.0	1.5	1	03/10/16 15:55	03/16/16 17:35	131-11-3	
Di-n-butylphthalate	ND	ug/L	10.0	1.1	1	03/10/16 15:55	03/16/16 17:35	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	20.0	1.7	1	03/10/16 15:55	03/16/16 17:35	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	6.5	1	03/10/16 15:55	03/16/16 17:35	51-28-5	R1
2,4-Dinitrotoluene	ND	ug/L	10.0	1.2	1	03/10/16 15:55	03/16/16 17:35	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:35	606-20-2	
Di-n-octylphthalate	ND	ug/L	10.0	0.86	1	03/10/16 15:55	03/16/16 17:35	117-84-0	
Diphenyl ether (Phenyl ether)	ND	ug/L	10.0	1.9	1	03/10/16 15:55	03/16/16 17:35	101-84-8	
bis(2-Ethylhexyl)phthalate	ND	ug/L	6.0	0.85	1	03/10/16 15:55	03/16/16 17:35	117-81-7	M1
Fluoranthene	ND	ug/L	10.0	0.21	1	03/10/16 15:55	03/16/16 17:35	206-44-0	
Fluorene	ND	ug/L	10.0	0.21	1	03/10/16 15:55	03/16/16 17:35	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	1.8	1	03/10/16 15:55	03/16/16 17:35	87-68-3	
Hexachlorobenzene	ND	ug/L	10.0	1.1	1	03/10/16 15:55	03/16/16 17:35	118-74-1	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: PEW-1-030916 **Lab ID: 92289456028** Collected: 03/09/16 09:55 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Hexachlorocyclopentadiene	ND	ug/L	10.0	1.8	1	03/10/16 15:55	03/16/16 17:35	77-47-4	
Hexachloroethane	ND	ug/L	10.0	1.5	1	03/10/16 15:55	03/16/16 17:35	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	10.0	0.29	1	03/10/16 15:55	03/16/16 17:35	193-39-5	
Isophorone	ND	ug/L	10.0	1.8	1	03/10/16 15:55	03/16/16 17:35	78-59-1	
2-Methylnaphthalene	ND	ug/L	10.0	0.28	1	03/10/16 15:55	03/16/16 17:35	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:35	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:35		M1,R1
Naphthalene	ND	ug/L	10.0	0.34	1	03/10/16 15:55	03/16/16 17:35	91-20-3	
2-Nitroaniline	ND	ug/L	50.0	2.8	1	03/10/16 15:55	03/16/16 17:35	88-74-4	
3-Nitroaniline	ND	ug/L	50.0	2.4	1	03/10/16 15:55	03/16/16 17:35	99-09-2	
4-Nitroaniline	ND	ug/L	20.0	2.5	1	03/10/16 15:55	03/16/16 17:35	100-01-6	
Nitrobenzene	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:35	98-95-3	
2-Nitrophenol	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:35	88-75-5	
4-Nitrophenol	ND	ug/L	50.0	5.8	1	03/10/16 15:55	03/16/16 17:35	100-02-7	
N-Nitroso-di-n-propylamine	ND	ug/L	10.0	2.1	1	03/10/16 15:55	03/16/16 17:35	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	10.0	1.3	1	03/10/16 15:55	03/16/16 17:35	86-30-6	
Pentachlorophenol	ND	ug/L	25.0	2.3	1	03/10/16 15:55	03/16/16 17:35	87-86-5	
Phenanthrene	ND	ug/L	10.0	0.22	1	03/10/16 15:55	03/16/16 17:35	85-01-8	
Phenol	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:35		
Pyrene	ND	ug/L	10.0	0.19	1	03/10/16 15:55	03/16/16 17:35	129-00-0	
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10.0	1.7	1	03/10/16 15:55	03/16/16 17:35	95-94-3	
2,4,5-Trichlorophenol	ND	ug/L	10.0	2.2	1	03/10/16 15:55	03/16/16 17:35	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	10.0	1.9	1	03/10/16 15:55	03/16/16 17:35	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	65	%	21-110		1	03/10/16 15:55	03/16/16 17:35	4165-60-0	
2-Fluorobiphenyl (S)	67	%	27-110		1	03/10/16 15:55	03/16/16 17:35	321-60-8	
Terphenyl-d14 (S)	81	%	31-107		1	03/10/16 15:55	03/16/16 17:35	1718-51-0	
Phenol-d6 (S)	26	%	10-110		1	03/10/16 15:55	03/16/16 17:35	13127-88-3	
2-Fluorophenol (S)	39	%	12-110		1	03/10/16 15:55	03/16/16 17:35	367-12-4	
2,4,6-Tribromophenol (S)	65	%	27-110		1	03/10/16 15:55	03/16/16 17:35	118-79-6	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/11/16 20:13	67-64-1	
Benzene	**2.2**	ug/L	1.0	0.25	1		03/11/16 20:13	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/11/16 20:13	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/11/16 20:13	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/11/16 20:13	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/11/16 20:13	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/11/16 20:13	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/11/16 20:13	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/11/16 20:13	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/11/16 20:13	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/11/16 20:13	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/11/16 20:13	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/11/16 20:13	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/11/16 20:13	75-34-3	

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816 Durst Avenue East
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(864)229-4413

ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: PEW-1-030916 **Lab ID: 92289456028** Collected: 03/09/16 09:55 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/11/16 20:13	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/11/16 20:13	75-35-4	
cis-1,2-Dichloroethene	**9.7**	ug/L	1.0	0.19	1		03/11/16 20:13	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/11/16 20:13	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/11/16 20:13	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/11/16 20:13	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/11/16 20:13	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/11/16 20:13	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/11/16 20:13	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/11/16 20:13	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/11/16 20:13	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/11/16 20:13	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/11/16 20:13	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/11/16 20:13	127-18-4	
Tetrahydrofuran	**14.1**	ug/L	10.0	3.1	1		03/11/16 20:13	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/11/16 20:13	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/11/16 20:13	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/11/16 20:13	79-00-5	
Trichloroethene	**30.3**	ug/L	1.0	0.47	1		03/11/16 20:13	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/11/16 20:13	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/11/16 20:13	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/11/16 20:13	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/11/16 20:13	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		03/11/16 20:13	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		03/11/16 20:13	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		03/11/16 20:13	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
Diethylene Dioxide	**41.8**	ug/L	2.0	1.9	1		03/14/16 18:49	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	111	%	50-150		1		03/14/16 18:49	17060-07-0	
Toluene-d8 (S)	108	%	50-150		1		03/14/16 18:49	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: Trip Blank-01-030816 **Lab ID: 92289456029** Collected: 03/08/16 00:00 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/10/16 19:20	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/10/16 19:20	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/10/16 19:20	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/10/16 19:20	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/10/16 19:20	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/10/16 19:20	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/10/16 19:20	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/10/16 19:20	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/10/16 19:20	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/10/16 19:20	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/10/16 19:20	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/10/16 19:20	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/10/16 19:20	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/10/16 19:20	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/10/16 19:20	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/10/16 19:20	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/10/16 19:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/10/16 19:20	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/10/16 19:20	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/10/16 19:20	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/10/16 19:20	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/10/16 19:20	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/10/16 19:20	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/10/16 19:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/10/16 19:20	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/10/16 19:20	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/10/16 19:20	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/10/16 19:20	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/10/16 19:20	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/10/16 19:20	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/10/16 19:20	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/10/16 19:20	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/10/16 19:20	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/10/16 19:20	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/10/16 19:20	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/10/16 19:20	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/10/16 19:20	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		03/10/16 19:20	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		1		03/10/16 19:20	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		03/10/16 19:20	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: Trip Blank-02-030816 **Lab ID: 92289456030** Collected: 03/09/16 00:00 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/10/16 19:36	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/10/16 19:36	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/10/16 19:36	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/10/16 19:36	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/10/16 19:36	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/10/16 19:36	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/10/16 19:36	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/10/16 19:36	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/10/16 19:36	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/10/16 19:36	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/10/16 19:36	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/10/16 19:36	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/10/16 19:36	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/10/16 19:36	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/10/16 19:36	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/10/16 19:36	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/10/16 19:36	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/10/16 19:36	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/10/16 19:36	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/10/16 19:36	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/10/16 19:36	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/10/16 19:36	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/10/16 19:36	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/10/16 19:36	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/10/16 19:36	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/10/16 19:36	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/10/16 19:36	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/10/16 19:36	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/10/16 19:36	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/10/16 19:36	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/10/16 19:36	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/10/16 19:36	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/10/16 19:36	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/10/16 19:36	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/10/16 19:36	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/10/16 19:36	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/10/16 19:36	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		03/10/16 19:36	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		03/10/16 19:36	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		03/10/16 19:36	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: Water Blank-030816 **Lab ID: 92289456032** Collected: 03/08/16 11:15 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/10/16 19:52	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/10/16 19:52	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/10/16 19:52	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/10/16 19:52	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/10/16 19:52	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/10/16 19:52	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/10/16 19:52	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/10/16 19:52	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/10/16 19:52	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/10/16 19:52	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/10/16 19:52	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/10/16 19:52	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/10/16 19:52	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/10/16 19:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/10/16 19:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/10/16 19:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/10/16 19:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/10/16 19:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/10/16 19:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/10/16 19:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/10/16 19:52	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/10/16 19:52	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/10/16 19:52	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/10/16 19:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/10/16 19:52	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/10/16 19:52	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/10/16 19:52	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/10/16 19:52	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/10/16 19:52	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/10/16 19:52	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/10/16 19:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/10/16 19:52	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/10/16 19:52	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/10/16 19:52	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/10/16 19:52	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/10/16 19:52	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/10/16 19:52	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		03/10/16 19:52	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		03/10/16 19:52	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		03/10/16 19:52	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: EQ-01-030816 **Lab ID: 92289456033** Collected: 03/08/16 11:08 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/10/16 20:08	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/10/16 20:08	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/10/16 20:08	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/10/16 20:08	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/10/16 20:08	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/10/16 20:08	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/10/16 20:08	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/10/16 20:08	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/10/16 20:08	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/10/16 20:08	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/10/16 20:08	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/10/16 20:08	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/10/16 20:08	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/10/16 20:08	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/10/16 20:08	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/10/16 20:08	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/10/16 20:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/10/16 20:08	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/10/16 20:08	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/10/16 20:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/10/16 20:08	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/10/16 20:08	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/10/16 20:08	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/10/16 20:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/10/16 20:08	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/10/16 20:08	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/10/16 20:08	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/10/16 20:08	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/10/16 20:08	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/10/16 20:08	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/10/16 20:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/10/16 20:08	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/10/16 20:08	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/10/16 20:08	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/10/16 20:08	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/10/16 20:08	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/10/16 20:08	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		03/10/16 20:08	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		03/10/16 20:08	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		03/10/16 20:08	2037-26-5	

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ANALYTICAL RESULTS

Project: CNA/Shelby
Pace Project No.: 92289456

Sample: FB-01-030816 **Lab ID: 92289456034** Collected: 03/08/16 11:00 Received: 03/09/16 10:59 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		03/10/16 20:24	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		03/10/16 20:24	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		03/10/16 20:24	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		03/10/16 20:24	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		03/10/16 20:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		03/10/16 20:24	78-93-3	
Carbon disulfide	ND	ug/L	2.0	1.2	1		03/10/16 20:24	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		03/10/16 20:24	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		03/10/16 20:24	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		03/10/16 20:24	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		03/10/16 20:24	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		03/10/16 20:24	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		03/10/16 20:24	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		03/10/16 20:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		03/10/16 20:24	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		03/10/16 20:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		03/10/16 20:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		03/10/16 20:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		03/10/16 20:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		03/10/16 20:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		03/10/16 20:24	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		03/10/16 20:24	100-41-4	
2-Hexanone	ND	ug/L	5.0	0.46	1		03/10/16 20:24	591-78-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		03/10/16 20:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		03/10/16 20:24	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		03/10/16 20:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		03/10/16 20:24	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		03/10/16 20:24	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		03/10/16 20:24	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		03/10/16 20:24	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		03/10/16 20:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		03/10/16 20:24	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		03/10/16 20:24	79-01-6	
Vinyl acetate	ND	ug/L	2.0	0.35	1		03/10/16 20:24	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		03/10/16 20:24	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.66	1		03/10/16 20:24	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		03/10/16 20:24	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		03/10/16 20:24	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		03/10/16 20:24	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		03/10/16 20:24	2037-26-5	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: GCSV/18874 | Analysis Method: EPA 8015 Alcohol-Glycol
QC Batch Method: EPA 8015 Alcohol-Glycol | Analysis Description: EPA 8015 Modified
Associated Lab Samples: 92289456001, 92289456002, 92289456003, 92289456004, 92289456005, 92289456006, 92289456007, 92289456008, 92289456009, 92289456010, 92289456011, 92289456021, 92289456022, 92289456023, 92289456027

METHOD BLANK: 1499338 | Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Ethylene glycol	mg/L	ND	5.0	2.5	03/18/16 17:33	

LABORATORY CONTROL SAMPLE: 1499339

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylene glycol	mg/L	25	22.7	91	60-129	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1499340 1499341

Parameter	Units	92289456027 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethylene glycol	mg/L	ND	250	250	36.8J	45.4J	2	5	23-157		20	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1499342 1499343

Parameter	Units	92289490008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethylene glycol	mg/L	ND	250	250	31.7J	57.1	13	23	23-157		20	M0

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: GCSV/18875 | Analysis Method: EPA 8015 Alcohol-Glycol
QC Batch Method: EPA 8015 Alcohol-Glycol | Analysis Description: EPA 8015 Modified
Associated Lab Samples: 92289456028

METHOD BLANK: 1499344 | Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Ethylene glycol	mg/L	ND	5.0	2.5	03/22/16 09:53	

LABORATORY CONTROL SAMPLE: 1499345

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylene glycol	mg/L	25	29.1	116	60-129	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1499346 1499347

Parameter	Units	92289456028 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethylene glycol	mg/L	ND	25	25	42.9J	36.6J	130	105	23-157		20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35902 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92289456029, 92289456030, 92289456032, 92289456033, 92289456034

METHOD BLANK: 1683786 Matrix: Water
Associated Lab Samples: 92289456029, 92289456030, 92289456032, 92289456033, 92289456034

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.48	03/10/16 17:59	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.40	03/10/16 17:59	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.29	03/10/16 17:59	
1,1-Dichloroethane	ug/L	ND	1.0	0.32	03/10/16 17:59	
1,1-Dichloroethene	ug/L	ND	1.0	0.56	03/10/16 17:59	
1,2-Dichloroethane	ug/L	ND	1.0	0.24	03/10/16 17:59	
1,2-Dichloropropane	ug/L	ND	1.0	0.27	03/10/16 17:59	
2-Butanone (MEK)	ug/L	ND	5.0	0.96	03/10/16 17:59	
2-Hexanone	ug/L	ND	5.0	0.46	03/10/16 17:59	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.33	03/10/16 17:59	
Acetone	ug/L	ND	25.0	10.0	03/10/16 17:59	
Benzene	ug/L	ND	1.0	0.25	03/10/16 17:59	
Bromodichloromethane	ug/L	ND	1.0	0.18	03/10/16 17:59	
Bromoform	ug/L	ND	1.0	0.26	03/10/16 17:59	
Bromomethane	ug/L	ND	2.0	0.29	03/10/16 17:59	
Carbon disulfide	ug/L	ND	2.0	1.2	03/10/16 17:59	
Carbon tetrachloride	ug/L	ND	1.0	0.25	03/10/16 17:59	
Chlorobenzene	ug/L	ND	1.0	0.23	03/10/16 17:59	
Chloroethane	ug/L	ND	1.0	0.54	03/10/16 17:59	
Chloroform	ug/L	ND	1.0	0.14	03/10/16 17:59	
Chloromethane	ug/L	ND	1.0	0.11	03/10/16 17:59	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.19	03/10/16 17:59	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.13	03/10/16 17:59	
Dibromochloromethane	ug/L	ND	1.0	0.21	03/10/16 17:59	
Ethylbenzene	ug/L	ND	1.0	0.30	03/10/16 17:59	
m&p-Xylene	ug/L	ND	2.0	0.66	03/10/16 17:59	
Methylene Chloride	ug/L	3.9	2.0	0.97	03/10/16 17:59	C9
o-Xylene	ug/L	ND	1.0	0.23	03/10/16 17:59	
Styrene	ug/L	ND	1.0	0.26	03/10/16 17:59	
Tetrachloroethene	ug/L	ND	1.0	0.46	03/10/16 17:59	
Tetrahydrofuran	ug/L	ND	10.0	3.1	03/10/16 17:59	
Toluene	ug/L	ND	1.0	0.26	03/10/16 17:59	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.49	03/10/16 17:59	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.26	03/10/16 17:59	
Trichloroethene	ug/L	ND	1.0	0.47	03/10/16 17:59	
Vinyl acetate	ug/L	ND	2.0	0.35	03/10/16 17:59	
Vinyl chloride	ug/L	ND	1.0	0.62	03/10/16 17:59	
1,2-Dichloroethane-d4 (S)	%	99	70-130		03/10/16 17:59	
4-Bromofluorobenzene (S)	%	95	70-130		03/10/16 17:59	
Toluene-d8 (S)	%	100	70-130		03/10/16 17:59	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

LABORATORY CONTROL SAMPLE: 1683787

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.1	98	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	48.4	97	70-130	
1,1,2-Trichloroethane	ug/L	50	48.5	97	70-130	
1,1-Dichloroethane	ug/L	50	48.1	96	70-130	
1,1-Dichloroethene	ug/L	50	51.0	102	70-132	
1,2-Dichloroethane	ug/L	50	45.1	90	70-130	
1,2-Dichloropropane	ug/L	50	48.2	96	70-130	
2-Butanone (MEK)	ug/L	100	97.8	98	70-145	
2-Hexanone	ug/L	100	96.3	96	70-144	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	70-140	
Acetone	ug/L	100	106	106	50-175	
Benzene	ug/L	50	48.5	97	70-130	
Bromodichloromethane	ug/L	50	48.8	98	70-130	
Bromoform	ug/L	50	46.9	94	70-130	
Bromomethane	ug/L	50	47.1	94	54-130	
Carbon disulfide	ug/L	50	49.9	100	70-131	
Carbon tetrachloride	ug/L	50	48.2	96	70-132	
Chlorobenzene	ug/L	50	48.0	96	70-130	
Chloroethane	ug/L	50	50.0	100	64-134	
Chloroform	ug/L	50	47.1	94	70-130	
Chloromethane	ug/L	50	50.3	101	64-130	
cis-1,2-Dichloroethene	ug/L	50	48.4	97	70-131	
cis-1,3-Dichloropropene	ug/L	50	49.8	100	70-130	
Dibromochloromethane	ug/L	50	50.0	100	70-130	
Ethylbenzene	ug/L	50	47.7	95	70-130	
m&p-Xylene	ug/L	100	94.8	95	70-130	
Methylene Chloride	ug/L	50	51.6	103	63-130	
o-Xylene	ug/L	50	47.1	94	70-130	
Styrene	ug/L	50	48.4	97	70-130	
Tetrachloroethene	ug/L	50	47.4	95	70-130	
Tetrahydrofuran	ug/L	500	484	97	70-130	
Toluene	ug/L	50	48.3	97	70-130	
trans-1,2-Dichloroethene	ug/L	50	50.1	100	70-130	
trans-1,3-Dichloropropene	ug/L	50	49.7	99	70-132	
Trichloroethene	ug/L	50	47.7	95	70-130	
Vinyl acetate	ug/L	100	101	101	66-157	
Vinyl chloride	ug/L	50	52.3	105	50-150	
1,2-Dichloroethane-d4 (S)	%			96	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE SAMPLE: 1683788

Parameter	Units	92289272001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	20	21.5	107	70-130	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

MATRIX SPIKE SAMPLE: 1683788

Parameter	Units	92289272001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,2,2-Tetrachloroethane	ug/L	ND	20	19.3	97	70-130	
1,1,2-Trichloroethane	ug/L	ND	20	20.1	100	70-130	
1,1-Dichloroethane	ug/L	ND	20	20.6	103	70-130	
1,1-Dichloroethene	ug/L	ND	20	22.4	112	70-166	
1,2-Dichloroethane	ug/L	ND	20	19.2	96	70-130	
1,2-Dichloropropane	ug/L	ND	20	20.5	102	70-130	
2-Butanone (MEK)	ug/L	ND	40	37.3	93	70-130	
2-Hexanone	ug/L	ND	40	39.0	97	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40.8	102	70-130	
Acetone	ug/L	ND	40	36.5	91	70-130	
Benzene	ug/L	ND	20	20.9	104	70-148	
Bromodichloromethane	ug/L	ND	20	19.8	99	70-130	
Bromoform	ug/L	ND	20	17.5	87	70-130	
Bromomethane	ug/L	ND	20	15.2	76	70-130	
Carbon disulfide	ug/L	ND	20	21.8	109	70-130	
Carbon tetrachloride	ug/L	ND	20	21.5	108	70-130	
Chlorobenzene	ug/L	ND	20	20.8	104	70-146	
Chloroethane	ug/L	ND	20	22.3	112	70-130	
Chloroform	ug/L	ND	20	20.6	103	70-130	
Chloromethane	ug/L	ND	20	20.8	104	70-130	
cis-1,2-Dichloroethene	ug/L	ND	20	20.9	105	70-130	
cis-1,3-Dichloropropene	ug/L	ND	20	20.1	100	70-130	
Dibromochloromethane	ug/L	ND	20	19.6	98	70-130	
Ethylbenzene	ug/L	ND	20	21.0	105	70-130	
m&p-Xylene	ug/L	ND	40	40.6	102	70-130	
Methylene Chloride	ug/L	ND	20	21.6	108	70-130	
o-Xylene	ug/L	ND	20	19.8	99	70-130	
Styrene	ug/L	ND	20	19.6	98	70-130	
Tetrachloroethene	ug/L	ND	20	19.9	100	70-130	
Tetrahydrofuran	ug/L	ND	200	191	95	70-130	
Toluene	ug/L	ND	20	20.7	104	70-155	
trans-1,2-Dichloroethene	ug/L	ND	20	21.5	108	70-130	
trans-1,3-Dichloropropene	ug/L	ND	20	19.1	95	70-130	
Trichloroethene	ug/L	ND	20	20.8	104	69-151	
Vinyl acetate	ug/L	ND	40	36.2	91	70-130	
Vinyl chloride	ug/L	ND	20	23.0	115	70-130	
1,2-Dichloroethane-d4 (S)	%				99	70-130	
4-Bromofluorobenzene (S)	%				99	70-130	
Toluene-d8 (S)	%				99	70-130	

SAMPLE DUPLICATE: 1683789

Parameter	Units	92289272002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

SAMPLE DUPLICATE: 1683789

Parameter	Units	92289272002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Hexanone	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon disulfide	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Tetrahydrofuran	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Vinyl acetate	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	100	99	1		
4-Bromofluorobenzene (S)	%	97	98	1		
Toluene-d8 (S)	%	100	101	1		

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(864)229-4413

QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35913 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92289456001, 92289456003, 92289456005, 92289456007, 92289456008, 92289456010, 92289456012, 92289456013, 92289456014

METHOD BLANK: 1683986 Matrix: Water
Associated Lab Samples: 92289456001, 92289456003, 92289456005, 92289456007, 92289456008, 92289456010, 92289456012, 92289456013, 92289456014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.48	03/11/16 00:50	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.40	03/11/16 00:50	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.29	03/11/16 00:50	
1,1-Dichloroethane	ug/L	ND	1.0	0.32	03/11/16 00:50	
1,1-Dichloroethene	ug/L	ND	1.0	0.56	03/11/16 00:50	
1,2-Dichloroethane	ug/L	ND	1.0	0.24	03/11/16 00:50	
1,2-Dichloropropane	ug/L	ND	1.0	0.27	03/11/16 00:50	
2-Butanone (MEK)	ug/L	ND	5.0	0.96	03/11/16 00:50	
2-Hexanone	ug/L	ND	5.0	0.46	03/11/16 00:50	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.33	03/11/16 00:50	
Acetone	ug/L	ND	25.0	10.0	03/11/16 00:50	
Benzene	ug/L	ND	1.0	0.25	03/11/16 00:50	
Bromodichloromethane	ug/L	ND	1.0	0.18	03/11/16 00:50	
Bromoform	ug/L	ND	1.0	0.26	03/11/16 00:50	
Bromomethane	ug/L	ND	2.0	0.29	03/11/16 00:50	
Carbon disulfide	ug/L	ND	2.0	1.2	03/11/16 00:50	
Carbon tetrachloride	ug/L	ND	1.0	0.25	03/11/16 00:50	
Chlorobenzene	ug/L	ND	1.0	0.23	03/11/16 00:50	
Chloroethane	ug/L	ND	1.0	0.54	03/11/16 00:50	
Chloroform	ug/L	ND	1.0	0.14	03/11/16 00:50	
Chloromethane	ug/L	ND	1.0	0.11	03/11/16 00:50	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.19	03/11/16 00:50	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.13	03/11/16 00:50	
Dibromochloromethane	ug/L	ND	1.0	0.21	03/11/16 00:50	
Ethylbenzene	ug/L	ND	1.0	0.30	03/11/16 00:50	
m&p-Xylene	ug/L	ND	2.0	0.66	03/11/16 00:50	
Methylene Chloride	ug/L	ND	2.0	0.97	03/11/16 00:50	
o-Xylene	ug/L	ND	1.0	0.23	03/11/16 00:50	
Styrene	ug/L	ND	1.0	0.26	03/11/16 00:50	
Tetrachloroethene	ug/L	ND	1.0	0.46	03/11/16 00:50	
Tetrahydrofuran	ug/L	ND	10.0	3.1	03/11/16 00:50	
Toluene	ug/L	ND	1.0	0.26	03/11/16 00:50	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.49	03/11/16 00:50	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.26	03/11/16 00:50	
Trichloroethene	ug/L	ND	1.0	0.47	03/11/16 00:50	
Vinyl acetate	ug/L	ND	2.0	0.35	03/11/16 00:50	
Vinyl chloride	ug/L	ND	1.0	0.62	03/11/16 00:50	
1,2-Dichloroethane-d4 (S)	%	107	70-130		03/11/16 00:50	
4-Bromofluorobenzene (S)	%	98	70-130		03/11/16 00:50	
Toluene-d8 (S)	%	106	70-130		03/11/16 00:50	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

LABORATORY CONTROL SAMPLE: 1683987

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.4	99	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	46.8	94	70-130	
1,1,2-Trichloroethane	ug/L	50	47.0	94	70-130	
1,1-Dichloroethane	ug/L	50	47.9	96	70-130	
1,1-Dichloroethene	ug/L	50	48.3	97	70-132	
1,2-Dichloroethane	ug/L	50	43.9	88	70-130	
1,2-Dichloropropane	ug/L	50	46.3	93	70-130	
2-Butanone (MEK)	ug/L	100	102	102	70-145	
2-Hexanone	ug/L	100	102	102	70-144	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	70-140	
Acetone	ug/L	100	95.5	95	50-175	
Benzene	ug/L	50	48.9	98	70-130	
Bromodichloromethane	ug/L	50	45.1	90	70-130	
Bromoform	ug/L	50	42.0	84	70-130	
Bromomethane	ug/L	50	45.3	91	54-130	
Carbon disulfide	ug/L	50	51.5	103	70-131	
Carbon tetrachloride	ug/L	50	50.2	100	70-132	
Chlorobenzene	ug/L	50	45.9	92	70-130	
Chloroethane	ug/L	50	62.5	125	64-134	
Chloroform	ug/L	50	47.7	95	70-130	
Chloromethane	ug/L	50	54.1	108	64-130	
cis-1,2-Dichloroethene	ug/L	50	46.3	93	70-131	
cis-1,3-Dichloropropene	ug/L	50	47.5	95	70-130	
Dibromochloromethane	ug/L	50	48.3	97	70-130	
Ethylbenzene	ug/L	50	46.8	94	70-130	
m&p-Xylene	ug/L	100	88.8	89	70-130	
Methylene Chloride	ug/L	50	50.5	101	63-130	
o-Xylene	ug/L	50	45.1	90	70-130	
Styrene	ug/L	50	46.2	92	70-130	
Tetrachloroethene	ug/L	50	48.2	96	70-130	
Tetrahydrofuran	ug/L	500	492	98	70-130	
Toluene	ug/L	50	49.0	98	70-130	
trans-1,2-Dichloroethene	ug/L	50	52.9	106	70-130	
trans-1,3-Dichloropropene	ug/L	50	47.0	94	70-132	
Trichloroethene	ug/L	50	45.9	92	70-130	
Vinyl acetate	ug/L	100	98.4	98	66-157	
Vinyl chloride	ug/L	50	47.0	94	50-150	
1,2-Dichloroethane-d4 (S)	%			95	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			103	70-130	

MATRIX SPIKE SAMPLE: 1683989

Parameter	Units	92289456012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	20	24.0	120	70-130	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

MATRIX SPIKE SAMPLE: 1683989

Parameter	Units	92289456012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,2,2-Tetrachloroethane	ug/L	ND	20	21.1	106	70-130	
1,1,2-Trichloroethane	ug/L	ND	20	21.5	108	70-130	
1,1-Dichloroethane	ug/L	ND	20	23.0	115	70-130	
1,1-Dichloroethene	ug/L	ND	20	24.3	122	70-166	
1,2-Dichloroethane	ug/L	ND	20	21.2	106	70-130	
1,2-Dichloropropane	ug/L	ND	20	22.0	110	70-130	
2-Butanone (MEK)	ug/L	ND	40	46.1	115	70-130	
2-Hexanone	ug/L	ND	40	41.6	104	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	43.5	109	70-130	
Acetone	ug/L	ND	40	42.0	105	70-130	
Benzene	ug/L	ND	20	22.5	113	70-148	
Bromodichloromethane	ug/L	ND	20	21.6	108	70-130	
Bromoform	ug/L	ND	20	18.3	92	70-130	
Bromomethane	ug/L	ND	20	25.5	127	70-130	
Carbon disulfide	ug/L	ND	20	28.9	145	70-130	M1
Carbon tetrachloride	ug/L	ND	20	24.3	121	70-130	
Chlorobenzene	ug/L	ND	20	21.1	106	70-146	
Chloroethane	ug/L	ND	20	30.3	151	70-130	M1
Chloroform	ug/L	ND	20	22.3	111	70-130	
Chloromethane	ug/L	ND	20	25.2	126	70-130	
cis-1,2-Dichloroethene	ug/L	ND	20	23.6	118	70-130	
cis-1,3-Dichloropropene	ug/L	ND	20	22.3	111	70-130	
Dibromochloromethane	ug/L	ND	20	21.8	109	70-130	
Ethylbenzene	ug/L	ND	20	21.8	109	70-130	
m&p-Xylene	ug/L	ND	40	42.6	106	70-130	
Methylene Chloride	ug/L	ND	20	23.8	119	70-130	
o-Xylene	ug/L	ND	20	21.4	107	70-130	
Styrene	ug/L	ND	20	21.7	108	70-130	
Tetrachloroethene	ug/L	ND	20	22.1	111	70-130	
Tetrahydrofuran	ug/L	ND	200	215	108	70-130	
Toluene	ug/L	ND	20	22.8	114	70-155	
trans-1,2-Dichloroethene	ug/L	ND	20	25.2	126	70-130	
trans-1,3-Dichloropropene	ug/L	ND	20	21.7	109	70-130	
Trichloroethene	ug/L	ND	20	23.4	117	69-151	
Vinyl acetate	ug/L	ND	40	41.9	105	70-130	
Vinyl chloride	ug/L	ND	20	23.2	116	70-130	
1,2-Dichloroethane-d4 (S)	%				103	70-130	
4-Bromofluorobenzene (S)	%				97	70-130	
Toluene-d8 (S)	%				99	70-130	

SAMPLE DUPLICATE: 1683988

Parameter	Units	92289456005 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

SAMPLE DUPLICATE: 1683988

Parameter	Units	92289456005 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Hexanone	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon disulfide	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Tetrahydrofuran	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Vinyl acetate	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	108	101	6		
4-Bromofluorobenzene (S)	%	100	100	0		
Toluene-d8 (S)	%	99	101	2		

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35919 | Analysis Method: EPA 8260
QC Batch Method: EPA 8260 | Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92289456016, 92289456027

METHOD BLANK: 1684383 | Matrix: Water
Associated Lab Samples: 92289456016, 92289456027

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.48	03/11/16 13:28	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.40	03/11/16 13:28	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.29	03/11/16 13:28	
1,1-Dichloroethane	ug/L	ND	1.0	0.32	03/11/16 13:28	
1,1-Dichloroethene	ug/L	ND	1.0	0.56	03/11/16 13:28	
1,2-Dichloroethane	ug/L	ND	1.0	0.24	03/11/16 13:28	
1,2-Dichloropropane	ug/L	ND	1.0	0.27	03/11/16 13:28	
2-Butanone (MEK)	ug/L	ND	5.0	0.96	03/11/16 13:28	
2-Hexanone	ug/L	ND	5.0	0.46	03/11/16 13:28	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.33	03/11/16 13:28	
Acetone	ug/L	ND	25.0	10.0	03/11/16 13:28	
Benzene	ug/L	ND	1.0	0.25	03/11/16 13:28	
Bromodichloromethane	ug/L	ND	1.0	0.18	03/11/16 13:28	
Bromoform	ug/L	ND	1.0	0.26	03/11/16 13:28	
Bromomethane	ug/L	ND	2.0	0.29	03/11/16 13:28	
Carbon disulfide	ug/L	ND	2.0	1.2	03/11/16 13:28	
Carbon tetrachloride	ug/L	ND	1.0	0.25	03/11/16 13:28	
Chlorobenzene	ug/L	ND	1.0	0.23	03/11/16 13:28	
Chloroethane	ug/L	ND	1.0	0.54	03/11/16 13:28	
Chloroform	ug/L	ND	1.0	0.14	03/11/16 13:28	
Chloromethane	ug/L	ND	1.0	0.11	03/11/16 13:28	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.19	03/11/16 13:28	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.13	03/11/16 13:28	
Dibromochloromethane	ug/L	ND	1.0	0.21	03/11/16 13:28	
Ethylbenzene	ug/L	ND	1.0	0.30	03/11/16 13:28	
m&p-Xylene	ug/L	ND	2.0	0.66	03/11/16 13:28	
Methylene Chloride	ug/L	ND	2.0	0.97	03/11/16 13:28	
o-Xylene	ug/L	ND	1.0	0.23	03/11/16 13:28	
Styrene	ug/L	ND	1.0	0.26	03/11/16 13:28	
Tetrachloroethene	ug/L	ND	1.0	0.46	03/11/16 13:28	
Tetrahydrofuran	ug/L	ND	10.0	3.1	03/11/16 13:28	
Toluene	ug/L	ND	1.0	0.26	03/11/16 13:28	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.49	03/11/16 13:28	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.26	03/11/16 13:28	
Trichloroethene	ug/L	ND	1.0	0.47	03/11/16 13:28	
Vinyl acetate	ug/L	ND	2.0	0.35	03/11/16 13:28	
Vinyl chloride	ug/L	ND	1.0	0.62	03/11/16 13:28	
1,2-Dichloroethane-d4 (S)	%	99	70-130		03/11/16 13:28	
4-Bromofluorobenzene (S)	%	97	70-130		03/11/16 13:28	
Toluene-d8 (S)	%	100	70-130		03/11/16 13:28	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

LABORATORY CONTROL SAMPLE: 1684384

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	51.1	102	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.6	99	70-130	
1,1,2-Trichloroethane	ug/L	50	49.2	98	70-130	
1,1-Dichloroethane	ug/L	50	49.5	99	70-130	
1,1-Dichloroethene	ug/L	50	54.4	109	70-132	
1,2-Dichloroethane	ug/L	50	46.5	93	70-130	
1,2-Dichloropropane	ug/L	50	48.7	97	70-130	
2-Butanone (MEK)	ug/L	100	88.3	88	70-145	
2-Hexanone	ug/L	100	91.4	91	70-144	
4-Methyl-2-pentanone (MIBK)	ug/L	100	95.4	95	70-140	
Acetone	ug/L	100	91.1	91	50-175	
Benzene	ug/L	50	49.9	100	70-130	
Bromodichloromethane	ug/L	50	49.4	99	70-130	
Bromoform	ug/L	50	47.0	94	70-130	
Bromomethane	ug/L	50	45.4	91	54-130	
Carbon disulfide	ug/L	50	53.9	108	70-131	
Carbon tetrachloride	ug/L	50	50.1	100	70-132	
Chlorobenzene	ug/L	50	50.9	102	70-130	
Chloroethane	ug/L	50	50.2	100	64-134	
Chloroform	ug/L	50	48.7	97	70-130	
Chloromethane	ug/L	50	48.8	98	64-130	
cis-1,2-Dichloroethene	ug/L	50	50.8	102	70-131	
cis-1,3-Dichloropropene	ug/L	50	49.5	99	70-130	
Dibromochloromethane	ug/L	50	50.8	102	70-130	
Ethylbenzene	ug/L	50	50.6	101	70-130	
m&p-Xylene	ug/L	100	101	101	70-130	
Methylene Chloride	ug/L	50	51.6	103	63-130	
o-Xylene	ug/L	50	49.6	99	70-130	
Styrene	ug/L	50	50.5	101	70-130	
Tetrachloroethene	ug/L	50	49.2	98	70-130	
Tetrahydrofuran	ug/L	500	450	90	70-130	
Toluene	ug/L	50	49.1	98	70-130	
trans-1,2-Dichloroethene	ug/L	50	51.5	103	70-130	
trans-1,3-Dichloropropene	ug/L	50	49.7	99	70-132	
Trichloroethene	ug/L	50	48.7	97	70-130	
Vinyl acetate	ug/L	100	98.2	98	66-157	
Vinyl chloride	ug/L	50	52.4	105	50-150	
1,2-Dichloroethane-d4 (S)	%			97	70-130	
4-Bromofluorobenzene (S)	%			103	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1684385 1684386

Parameter	Units	92289456027 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	21.1	22.1	106	111	70-130	5	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	19.1	19.6	95	98	70-130	3	30	
1,1,2-Trichloroethane	ug/L	ND	20	20	20.4	20.6	102	103	70-130	1	30	
1,1-Dichloroethane	ug/L	ND	20	20	20.1	20.5	101	102	70-130	2	30	
1,1-Dichloroethene	ug/L	ND	20	20	22.7	23.6	113	118	70-166	4	30	
1,2-Dichloroethane	ug/L	ND	20	20	18.6	19.6	92	97	70-130	5	30	
1,2-Dichloropropane	ug/L	ND	20	20	20.3	20.2	102	101	70-130	0	30	
2-Butanone (MEK)	ug/L	ND	40	40	41.9	40.6	105	102	70-130	3	30	
2-Hexanone	ug/L	ND	40	40	38.7	38.2	97	96	70-130	1	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	41.4	41.2	103	103	70-130	0	30	
Acetone	ug/L	ND	40	40	52.7	45.4	121	102	70-130	15	30	
Benzene	ug/L	ND	20	20	21.2	21.2	106	106	70-148	0	30	
Bromodichloromethane	ug/L	ND	20	20	20.1	20.3	101	102	70-130	1	30	
Bromoform	ug/L	ND	20	20	17.9	17.7	89	89	70-130	1	30	
Bromomethane	ug/L	ND	20	20	16.0	16.4	80	82	70-130	2	30	
Carbon disulfide	ug/L	ND	20	20	22.0	22.5	110	112	70-130	2	30	
Carbon tetrachloride	ug/L	ND	20	20	20.7	21.3	103	107	70-130	3	30	
Chlorobenzene	ug/L	ND	20	20	20.4	20.7	102	103	70-146	2	30	
Chloroethane	ug/L	ND	20	20	21.1	21.2	106	106	70-130	0	30	
Chloroform	ug/L	ND	20	20	20.6	20.5	103	103	70-130	1	30	
Chloromethane	ug/L	ND	20	20	19.3	20.0	97	100	70-130	4	30	
cis-1,2-Dichloroethene	ug/L	ND	20	20	20.6	21.5	103	107	70-130	4	30	
cis-1,3-Dichloropropene	ug/L	ND	20	20	20.2	20.3	101	101	70-130	0	30	
Dibromochloromethane	ug/L	ND	20	20	19.3	19.5	97	98	70-130	1	30	
Ethylbenzene	ug/L	ND	20	20	20.3	20.9	102	105	70-130	3	30	
m&p-Xylene	ug/L	ND	40	40	40.2	40.9	99	101	70-130	2	30	
Methylene Chloride	ug/L	ND	20	20	21.3	21.6	106	108	70-130	2	30	
o-Xylene	ug/L	ND	20	20	19.6	20.0	98	100	70-130	2	30	
Styrene	ug/L	ND	20	20	20.0	20.4	100	102	70-130	2	30	
Tetrachloroethene	ug/L	ND	20	20	20.1	20.6	101	103	70-130	3	30	
Tetrahydrofuran	ug/L	ND	200	200	199	194	99	97	70-130	2	30	
Toluene	ug/L	ND	20	20	20.7	21.1	103	105	70-155	2	30	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.6	21.9	108	110	70-130	1	30	
trans-1,3-Dichloropropene	ug/L	ND	20	20	19.5	19.9	97	99	70-130	2	30	
Trichloroethene	ug/L	1.7	20	20	22.9	23.0	106	106	69-151	0	30	
Vinyl acetate	ug/L	ND	40	40	36.4	37.6	91	94	70-130	3	30	
Vinyl chloride	ug/L	ND	20	20	21.3	22.0	106	110	70-130	3	30	
1,2-Dichloroethane-d4 (S)	%						96	99	70-130			
4-Bromofluorobenzene (S)	%						99	98	70-130			
Toluene-d8 (S)	%						100	99	70-130			

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35921 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92289456017, 92289456020, 92289456026, 92289456028

METHOD BLANK: 1684606 Matrix: Water
Associated Lab Samples: 92289456017, 92289456020, 92289456026, 92289456028

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.48	03/11/16 13:44	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.40	03/11/16 13:44	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.29	03/11/16 13:44	
1,1-Dichloroethane	ug/L	ND	1.0	0.32	03/11/16 13:44	
1,1-Dichloroethene	ug/L	ND	1.0	0.56	03/11/16 13:44	
1,2-Dichloroethane	ug/L	ND	1.0	0.24	03/11/16 13:44	
1,2-Dichloropropane	ug/L	ND	1.0	0.27	03/11/16 13:44	
2-Butanone (MEK)	ug/L	ND	5.0	0.96	03/11/16 13:44	
2-Hexanone	ug/L	ND	5.0	0.46	03/11/16 13:44	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.33	03/11/16 13:44	
Acetone	ug/L	ND	25.0	10.0	03/11/16 13:44	
Benzene	ug/L	ND	1.0	0.25	03/11/16 13:44	
Bromodichloromethane	ug/L	ND	1.0	0.18	03/11/16 13:44	
Bromoform	ug/L	ND	1.0	0.26	03/11/16 13:44	
Bromomethane	ug/L	ND	2.0	0.29	03/11/16 13:44	
Carbon disulfide	ug/L	ND	2.0	1.2	03/11/16 13:44	
Carbon tetrachloride	ug/L	ND	1.0	0.25	03/11/16 13:44	
Chlorobenzene	ug/L	ND	1.0	0.23	03/11/16 13:44	
Chloroethane	ug/L	ND	1.0	0.54	03/11/16 13:44	
Chloroform	ug/L	ND	1.0	0.14	03/11/16 13:44	
Chloromethane	ug/L	ND	1.0	0.11	03/11/16 13:44	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.19	03/11/16 13:44	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.13	03/11/16 13:44	
Dibromochloromethane	ug/L	ND	1.0	0.21	03/11/16 13:44	
Ethylbenzene	ug/L	ND	1.0	0.30	03/11/16 13:44	
m&p-Xylene	ug/L	ND	2.0	0.66	03/11/16 13:44	
Methylene Chloride	ug/L	ND	2.0	0.97	03/11/16 13:44	
o-Xylene	ug/L	ND	1.0	0.23	03/11/16 13:44	
Styrene	ug/L	ND	1.0	0.26	03/11/16 13:44	
Tetrachloroethene	ug/L	ND	1.0	0.46	03/11/16 13:44	
Tetrahydrofuran	ug/L	ND	10.0	3.1	03/11/16 13:44	
Toluene	ug/L	ND	1.0	0.26	03/11/16 13:44	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.49	03/11/16 13:44	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.26	03/11/16 13:44	
Trichloroethene	ug/L	ND	1.0	0.47	03/11/16 13:44	
Vinyl acetate	ug/L	ND	2.0	0.35	03/11/16 13:44	
Vinyl chloride	ug/L	ND	1.0	0.62	03/11/16 13:44	
1,2-Dichloroethane-d4 (S)	%	100	70-130		03/11/16 13:44	
4-Bromofluorobenzene (S)	%	95	70-130		03/11/16 13:44	
Toluene-d8 (S)	%	101	70-130		03/11/16 13:44	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

LABORATORY CONTROL SAMPLE: 1684607

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	48.1	96	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	46.7	93	70-130	
1,1,2-Trichloroethane	ug/L	50	47.6	95	70-130	
1,1-Dichloroethane	ug/L	50	46.7	93	70-130	
1,1-Dichloroethene	ug/L	50	51.9	104	70-132	
1,2-Dichloroethane	ug/L	50	44.4	89	70-130	
1,2-Dichloropropane	ug/L	50	47.5	95	70-130	
2-Butanone (MEK)	ug/L	100	86.2	86	70-145	
2-Hexanone	ug/L	100	86.1	86	70-144	
4-Methyl-2-pentanone (MIBK)	ug/L	100	94.8	95	70-140	
Acetone	ug/L	100	87.8	88	50-175	
Benzene	ug/L	50	48.5	97	70-130	
Bromodichloromethane	ug/L	50	47.8	96	70-130	
Bromoform	ug/L	50	45.0	90	70-130	
Bromomethane	ug/L	50	43.4	87	54-130	
Carbon disulfide	ug/L	50	51.3	103	70-131	
Carbon tetrachloride	ug/L	50	48.4	97	70-132	
Chlorobenzene	ug/L	50	48.5	97	70-130	
Chloroethane	ug/L	50	47.5	95	64-134	
Chloroform	ug/L	50	45.4	91	70-130	
Chloromethane	ug/L	50	47.6	95	64-130	
cis-1,2-Dichloroethene	ug/L	50	47.7	95	70-131	
cis-1,3-Dichloropropene	ug/L	50	48.4	97	70-130	
Dibromochloromethane	ug/L	50	47.7	95	70-130	
Ethylbenzene	ug/L	50	48.0	96	70-130	
m&p-Xylene	ug/L	100	94.3	94	70-130	
Methylene Chloride	ug/L	50	49.4	99	63-130	
o-Xylene	ug/L	50	46.5	93	70-130	
Styrene	ug/L	50	49.0	98	70-130	
Tetrachloroethene	ug/L	50	47.4	95	70-130	
Tetrahydrofuran	ug/L	500	429	86	70-130	
Toluene	ug/L	50	47.7	95	70-130	
trans-1,2-Dichloroethene	ug/L	50	48.7	97	70-130	
trans-1,3-Dichloropropene	ug/L	50	47.3	95	70-132	
Trichloroethene	ug/L	50	47.8	96	70-130	
Vinyl acetate	ug/L	100	94.8	95	66-157	
Vinyl chloride	ug/L	50	50.7	101	50-150	
1,2-Dichloroethane-d4 (S)	%			96	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1684608 1684609

Parameter	Units	92289456028 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.4	22.0	112	110	70-130	2	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	20.4	20.0	102	100	70-130	2	30	
1,1,2-Trichloroethane	ug/L	ND	20	20	21.0	20.9	105	105	70-130	0	30	
1,1-Dichloroethane	ug/L	ND	20	20	21.7	21.2	108	106	70-130	2	30	
1,1-Dichloroethene	ug/L	ND	20	20	24.8	23.5	124	117	70-166	5	30	
1,2-Dichloroethane	ug/L	ND	20	20	20.4	20.0	101	99	70-130	2	30	
1,2-Dichloropropane	ug/L	ND	20	20	21.2	20.7	106	104	70-130	2	30	
2-Butanone (MEK)	ug/L	ND	40	40	40.2	39.3	101	98	70-130	2	30	
2-Hexanone	ug/L	ND	40	40	41.2	38.8	103	97	70-130	6	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	42.9	42.0	107	105	70-130	2	30	
Acetone	ug/L	ND	40	40	40.2	37.2	101	93	70-130	8	30	
Benzene	ug/L	2.2	20	20	24.2	23.5	110	107	70-148	3	30	
Bromodichloromethane	ug/L	ND	20	20	21.0	20.6	105	103	70-130	2	30	
Bromoform	ug/L	ND	20	20	18.6	18.6	93	93	70-130	0	30	
Bromomethane	ug/L	ND	20	20	16.9	17.8	84	89	70-130	5	30	
Carbon disulfide	ug/L	ND	20	20	23.7	23.5	118	118	70-130	1	30	
Carbon tetrachloride	ug/L	ND	20	20	22.5	21.5	113	108	70-130	5	30	
Chlorobenzene	ug/L	ND	20	20	21.6	21.2	108	106	70-146	2	30	
Chloroethane	ug/L	ND	20	20	22.5	22.3	113	111	70-130	1	30	
Chloroform	ug/L	ND	20	20	21.2	20.8	106	104	70-130	2	30	
Chloromethane	ug/L	ND	20	20	20.5	19.9	103	100	70-130	3	30	
cis-1,2-Dichloroethene	ug/L	9.7	20	20	31.7	31.8	110	110	70-130	0	30	
cis-1,3-Dichloropropene	ug/L	ND	20	20	20.8	20.4	104	102	70-130	2	30	
Dibromochloromethane	ug/L	ND	20	20	20.8	20.0	104	100	70-130	4	30	
Ethylbenzene	ug/L	ND	20	20	21.4	21.3	107	106	70-130	1	30	
m&p-Xylene	ug/L	ND	40	40	42.3	42.0	105	104	70-130	1	30	
Methylene Chloride	ug/L	ND	20	20	22.0	21.8	110	109	70-130	1	30	
o-Xylene	ug/L	ND	20	20	20.7	20.5	104	102	70-130	1	30	
Styrene	ug/L	ND	20	20	20.5	20.8	102	104	70-130	1	30	
Tetrachloroethene	ug/L	ND	20	20	21.3	21.7	105	107	70-130	2	30	
Tetrahydrofuran	ug/L	14.1	200	200	213	203	100	94	70-130	5	30	
Toluene	ug/L	ND	20	20	21.6	21.4	108	107	70-155	1	30	
trans-1,2-Dichloroethene	ug/L	ND	20	20	22.9	22.4	115	112	70-130	2	30	
trans-1,3-Dichloropropene	ug/L	ND	20	20	20.1	19.9	100	99	70-130	1	30	
Trichloroethene	ug/L	30.3	20	20	53.3	53.7	115	117	69-151	1	30	
Vinyl acetate	ug/L	ND	40	40	37.7	36.8	94	92	70-130	2	30	
Vinyl chloride	ug/L	ND	20	20	22.6	22.5	113	112	70-130	1	30	
1,2-Dichloroethane-d4 (S)	%						100	99	70-130			
4-Bromofluorobenzene (S)	%						98	100	70-130			
Toluene-d8 (S)	%						100	99	70-130			

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35939
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92289456006

METHOD BLANK: 1685351
Matrix: Water
Associated Lab Samples: 92289456006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.48	03/13/16 14:45	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.40	03/13/16 14:45	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.29	03/13/16 14:45	
1,1-Dichloroethane	ug/L	ND	1.0	0.32	03/13/16 14:45	
1,1-Dichloroethene	ug/L	ND	1.0	0.56	03/13/16 14:45	
1,2-Dichloroethane	ug/L	ND	1.0	0.24	03/13/16 14:45	
1,2-Dichloropropane	ug/L	ND	1.0	0.27	03/13/16 14:45	
2-Butanone (MEK)	ug/L	ND	5.0	0.96	03/13/16 14:45	
2-Hexanone	ug/L	ND	5.0	0.46	03/13/16 14:45	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.33	03/13/16 14:45	
Acetone	ug/L	ND	25.0	10.0	03/13/16 14:45	
Benzene	ug/L	ND	1.0	0.25	03/13/16 14:45	
Bromodichloromethane	ug/L	ND	1.0	0.18	03/13/16 14:45	
Bromoform	ug/L	ND	1.0	0.26	03/13/16 14:45	
Bromomethane	ug/L	ND	2.0	0.29	03/13/16 14:45	
Carbon disulfide	ug/L	ND	2.0	1.2	03/13/16 14:45	
Carbon tetrachloride	ug/L	ND	1.0	0.25	03/13/16 14:45	
Chlorobenzene	ug/L	ND	1.0	0.23	03/13/16 14:45	
Chloroethane	ug/L	ND	1.0	0.54	03/13/16 14:45	
Chloroform	ug/L	ND	1.0	0.14	03/13/16 14:45	
Chloromethane	ug/L	ND	1.0	0.11	03/13/16 14:45	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.19	03/13/16 14:45	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.13	03/13/16 14:45	
Dibromochloromethane	ug/L	ND	1.0	0.21	03/13/16 14:45	
Ethylbenzene	ug/L	ND	1.0	0.30	03/13/16 14:45	
m&p-Xylene	ug/L	ND	2.0	0.66	03/13/16 14:45	
Methylene Chloride	ug/L	ND	2.0	0.97	03/13/16 14:45	
o-Xylene	ug/L	ND	1.0	0.23	03/13/16 14:45	
Styrene	ug/L	ND	1.0	0.26	03/13/16 14:45	
Tetrachloroethene	ug/L	ND	1.0	0.46	03/13/16 14:45	
Tetrahydrofuran	ug/L	ND	10.0	3.1	03/13/16 14:45	
Toluene	ug/L	ND	1.0	0.26	03/13/16 14:45	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.49	03/13/16 14:45	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.26	03/13/16 14:45	
Trichloroethene	ug/L	ND	1.0	0.47	03/13/16 14:45	
Vinyl acetate	ug/L	ND	2.0	0.35	03/13/16 14:45	
Vinyl chloride	ug/L	ND	1.0	0.62	03/13/16 14:45	
1,2-Dichloroethane-d4 (S)	%	98	70-130		03/13/16 14:45	
4-Bromofluorobenzene (S)	%	98	70-130		03/13/16 14:45	
Toluene-d8 (S)	%	99	70-130		03/13/16 14:45	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

LABORATORY CONTROL SAMPLE: 1685352

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	50.9	102	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	50.5	101	70-130	
1,1,2-Trichloroethane	ug/L	50	49.5	99	70-130	
1,1-Dichloroethane	ug/L	50	50.6	101	70-130	
1,1-Dichloroethene	ug/L	50	55.2	110	70-132	
1,2-Dichloroethane	ug/L	50	47.9	96	70-130	
1,2-Dichloropropane	ug/L	50	49.7	99	70-130	
2-Butanone (MEK)	ug/L	100	103	103	70-145	
2-Hexanone	ug/L	100	103	103	70-144	
4-Methyl-2-pentanone (MIBK)	ug/L	100	104	104	70-140	
Acetone	ug/L	100	118	118	50-175	
Benzene	ug/L	50	50.2	100	70-130	
Bromodichloromethane	ug/L	50	51.1	102	70-130	
Bromoform	ug/L	50	50.3	101	70-130	
Bromomethane	ug/L	50	44.6	89	54-130	
Carbon disulfide	ug/L	50	54.6	109	70-131	
Carbon tetrachloride	ug/L	50	51.1	102	70-132	
Chlorobenzene	ug/L	50	49.4	99	70-130	
Chloroethane	ug/L	50	50.0	100	64-134	
Chloroform	ug/L	50	50.2	100	70-130	
Chloromethane	ug/L	50	47.1	94	64-130	
cis-1,2-Dichloroethene	ug/L	50	51.1	102	70-131	
cis-1,3-Dichloropropene	ug/L	50	52.2	104	70-130	
Dibromochloromethane	ug/L	50	52.7	105	70-130	
Ethylbenzene	ug/L	50	50.0	100	70-130	
m&p-Xylene	ug/L	100	99.4	99	70-130	
Methylene Chloride	ug/L	50	51.9	104	63-130	
o-Xylene	ug/L	50	49.2	98	70-130	
Styrene	ug/L	50	50.3	101	70-130	
Tetrachloroethene	ug/L	50	49.7	99	70-130	
Tetrahydrofuran	ug/L	500	510	102	70-130	
Toluene	ug/L	50	50.0	100	70-130	
trans-1,2-Dichloroethene	ug/L	50	53.0	106	70-130	
trans-1,3-Dichloropropene	ug/L	50	51.2	102	70-132	
Trichloroethene	ug/L	50	50.6	101	70-130	
Vinyl acetate	ug/L	100	103	103	66-157	
Vinyl chloride	ug/L	50	52.0	104	50-150	
1,2-Dichloroethane-d4 (S)	%			98	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1685356 1685357

Parameter	Units	92289490008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	23.1	23.9	115	120	70-130	4	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	20.8	21.4	104	107	70-130	3	30	
1,1,2-Trichloroethane	ug/L	ND	20	20	22.0	22.1	110	111	70-130	0	30	
1,1-Dichloroethane	ug/L	ND	20	20	22.7	23.2	114	116	70-130	2	30	
1,1-Dichloroethene	ug/L	ND	20	20	25.0	25.5	125	128	70-166	2	30	
1,2-Dichloroethane	ug/L	ND	20	20	20.9	21.5	105	107	70-130	3	30	
1,2-Dichloropropane	ug/L	ND	20	20	21.7	22.5	109	113	70-130	4	30	
2-Butanone (MEK)	ug/L	ND	40	40	41.4	41.6	104	104	70-130	1	30	
2-Hexanone	ug/L	ND	40	40	41.5	43.1	104	108	70-130	4	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	44.0	45.4	110	114	70-130	3	30	
Acetone	ug/L	ND	40	40	42.9	45.4	107	114	70-130	6	30	
Benzene	ug/L	ND	20	20	22.8	23.0	114	115	70-148	1	30	
Bromodichloromethane	ug/L	ND	20	20	21.6	23.1	108	115	70-130	7	30	
Bromoform	ug/L	ND	20	20	19.5	20.7	97	103	70-130	6	30	
Bromomethane	ug/L	ND	20	20	20.7	21.8	104	109	70-130	5	30	
Carbon disulfide	ug/L	ND	20	20	24.0	25.0	120	125	70-130	4	30	
Carbon tetrachloride	ug/L	ND	20	20	22.9	23.6	114	118	70-130	3	30	
Chlorobenzene	ug/L	ND	20	20	21.5	22.3	108	112	70-146	4	30	
Chloroethane	ug/L	ND	20	20	23.1	23.0	115	115	70-130	0	30	
Chloroform	ug/L	ND	20	20	22.1	22.6	110	113	70-130	3	30	
Chloromethane	ug/L	ND	20	20	20.9	21.9	105	110	70-130	5	30	
cis-1,2-Dichloroethene	ug/L	ND	20	20	22.5	23.0	113	115	70-130	2	30	
cis-1,3-Dichloropropene	ug/L	ND	20	20	21.4	22.2	107	111	70-130	4	30	
Dibromochloromethane	ug/L	ND	20	20	20.5	21.6	103	108	70-130	5	30	
Ethylbenzene	ug/L	ND	20	20	22.1	22.7	110	113	70-130	3	30	
m&p-Xylene	ug/L	ND	40	40	43.2	44.8	108	112	70-130	4	30	
Methylene Chloride	ug/L	ND	20	20	22.7	23.3	114	116	70-130	2	30	
o-Xylene	ug/L	ND	20	20	20.8	21.6	104	108	70-130	4	30	
Styrene	ug/L	ND	20	20	21.2	21.6	106	108	70-130	2	30	
Tetrachloroethene	ug/L	ND	20	20	22.8	22.9	114	115	70-130	1	30	
Tetrahydrofuran	ug/L	ND	200	200	209	210	105	105	70-130	1	30	
Toluene	ug/L	ND	20	20	22.4	23.2	112	116	70-155	4	30	
trans-1,2-Dichloroethene	ug/L	ND	20	20	23.9	24.2	119	121	70-130	1	30	
trans-1,3-Dichloropropene	ug/L	ND	20	20	21.8	21.5	109	107	70-130	1	30	
Trichloroethene	ug/L	ND	20	20	22.3	22.6	112	113	69-151	1	30	
Vinyl acetate	ug/L	ND	40	40	40.3	42.4	101	106	70-130	5	30	
Vinyl chloride	ug/L	ND	20	20	24.1	24.8	120	124	70-130	3	30	
1,2-Dichloroethane-d4 (S)	%						97	99	70-130			
4-Bromofluorobenzene (S)	%						98	99	70-130			
Toluene-d8 (S)	%						101	101	70-130			

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

MATRIX SPIKE SAMPLE: 1685358

Parameter	Units	92289366001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	20	23.4	117	70-130	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20.4	102	70-130	
1,1,2-Trichloroethane	ug/L	ND	20	21.5	108	70-130	
1,1-Dichloroethane	ug/L	ND	20	22.9	114	70-130	
1,1-Dichloroethene	ug/L	ND	20	25.7	129	70-166	
1,2-Dichloroethane	ug/L	ND	20	20.9	104	70-130	
1,2-Dichloropropane	ug/L	ND	20	21.7	109	70-130	
2-Butanone (MEK)	ug/L	ND	40	43.0	107	70-130	
2-Hexanone	ug/L	ND	40	40.2	101	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	43.0	107	70-130	
Acetone	ug/L	ND	40	43.6	109	70-130	
Benzene	ug/L	ND	20	22.7	113	70-148	
Bromodichloromethane	ug/L	ND	20	21.7	108	70-130	
Bromoform	ug/L	ND	20	19.8	99	70-130	
Bromomethane	ug/L	ND	20	17.9	90	70-130	
Carbon disulfide	ug/L	ND	20	24.4	122	70-130	
Carbon tetrachloride	ug/L	ND	20	22.8	114	70-130	
Chlorobenzene	ug/L	ND	20	21.5	108	70-146	
Chloroethane	ug/L	ND	20	23.7	118	70-130	
Chloroform	ug/L	9.2	20	31.5	112	70-130	
Chloromethane	ug/L	ND	20	22.0	110	70-130	
cis-1,2-Dichloroethene	ug/L	ND	20	24.1	116	70-130	
cis-1,3-Dichloropropene	ug/L	ND	20	22.5	113	70-130	
Dibromochloromethane	ug/L	ND	20	21.0	105	70-130	
Ethylbenzene	ug/L	ND	20	22.0	110	70-130	
m&p-Xylene	ug/L	ND	40	43.5	109	70-130	
Methylene Chloride	ug/L	ND	20	23.2	116	70-130	
o-Xylene	ug/L	ND	20	21.1	105	70-130	
Styrene	ug/L	ND	20	21.1	105	70-130	
Tetrachloroethene	ug/L	5.8	20	28.6	114	70-130	
Tetrahydrofuran	ug/L	ND	200	212	106	70-130	
Toluene	ug/L	ND	20	22.2	111	70-155	
trans-1,2-Dichloroethene	ug/L	ND	20	23.9	120	70-130	
trans-1,3-Dichloropropene	ug/L	ND	20	21.1	105	70-130	
Trichloroethene	ug/L	15.9	20	39.1	116	69-151	
Vinyl acetate	ug/L	ND	40	42.1	105	70-130	
Vinyl chloride	ug/L	ND	20	24.7	124	70-130	
1,2-Dichloroethane-d4 (S)	%				99	70-130	
4-Bromofluorobenzene (S)	%				99	70-130	
Toluene-d8 (S)	%				97	70-130	

SAMPLE DUPLICATE: 1685355

Parameter	Units	92289490010 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

SAMPLE DUPLICATE: 1685355

Parameter	Units	92289490010 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Hexanone	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon disulfide	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Tetrahydrofuran	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Vinyl acetate	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	101	102	1		
4-Bromofluorobenzene (S)	%	98	96	2		
Toluene-d8 (S)	%	101	99	1		

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35940 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92289456009, 92289456011, 92289456019

METHOD BLANK: 1685359 Matrix: Water
Associated Lab Samples: 92289456009, 92289456011, 92289456019

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.48	03/13/16 15:02	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.40	03/13/16 15:02	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.29	03/13/16 15:02	
1,1-Dichloroethane	ug/L	ND	1.0	0.32	03/13/16 15:02	
1,1-Dichloroethene	ug/L	ND	1.0	0.56	03/13/16 15:02	
1,2-Dichloroethane	ug/L	ND	1.0	0.24	03/13/16 15:02	
1,2-Dichloropropane	ug/L	ND	1.0	0.27	03/13/16 15:02	
2-Butanone (MEK)	ug/L	ND	5.0	0.96	03/13/16 15:02	
2-Hexanone	ug/L	ND	5.0	0.46	03/13/16 15:02	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.33	03/13/16 15:02	
Acetone	ug/L	ND	25.0	10.0	03/13/16 15:02	
Benzene	ug/L	ND	1.0	0.25	03/13/16 15:02	
Bromodichloromethane	ug/L	ND	1.0	0.18	03/13/16 15:02	
Bromoform	ug/L	ND	1.0	0.26	03/13/16 15:02	
Bromomethane	ug/L	ND	2.0	0.29	03/13/16 15:02	
Carbon disulfide	ug/L	ND	2.0	1.2	03/13/16 15:02	
Carbon tetrachloride	ug/L	ND	1.0	0.25	03/13/16 15:02	
Chlorobenzene	ug/L	ND	1.0	0.23	03/13/16 15:02	
Chloroethane	ug/L	ND	1.0	0.54	03/13/16 15:02	
Chloroform	ug/L	ND	1.0	0.14	03/13/16 15:02	
Chloromethane	ug/L	ND	1.0	0.11	03/13/16 15:02	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.19	03/13/16 15:02	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.13	03/13/16 15:02	
Dibromochloromethane	ug/L	ND	1.0	0.21	03/13/16 15:02	
Ethylbenzene	ug/L	ND	1.0	0.30	03/13/16 15:02	
m&p-Xylene	ug/L	ND	2.0	0.66	03/13/16 15:02	
Methylene Chloride	ug/L	ND	2.0	0.97	03/13/16 15:02	
o-Xylene	ug/L	ND	1.0	0.23	03/13/16 15:02	
Styrene	ug/L	ND	1.0	0.26	03/13/16 15:02	
Tetrachloroethene	ug/L	ND	1.0	0.46	03/13/16 15:02	
Tetrahydrofuran	ug/L	ND	10.0	3.1	03/13/16 15:02	
Toluene	ug/L	ND	1.0	0.26	03/13/16 15:02	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.49	03/13/16 15:02	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.26	03/13/16 15:02	
Trichloroethene	ug/L	ND	1.0	0.47	03/13/16 15:02	
Vinyl acetate	ug/L	ND	2.0	0.35	03/13/16 15:02	
Vinyl chloride	ug/L	ND	1.0	0.62	03/13/16 15:02	
1,2-Dichloroethane-d4 (S)	%	101	70-130		03/13/16 15:02	
4-Bromofluorobenzene (S)	%	94	70-130		03/13/16 15:02	
Toluene-d8 (S)	%	99	70-130		03/13/16 15:02	

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(864)229-4413

QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

LABORATORY CONTROL SAMPLE: 1685360

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.9	100	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	48.2	96	70-130	
1,1,2-Trichloroethane	ug/L	50	50.0	100	70-130	
1,1-Dichloroethane	ug/L	50	48.1	96	70-130	
1,1-Dichloroethene	ug/L	50	53.3	107	70-132	
1,2-Dichloroethane	ug/L	50	46.2	92	70-130	
1,2-Dichloropropane	ug/L	50	49.9	100	70-130	
2-Butanone (MEK)	ug/L	100	95.1	95	70-145	
2-Hexanone	ug/L	100	97.8	98	70-144	
4-Methyl-2-pentanone (MIBK)	ug/L	100	104	104	70-140	
Acetone	ug/L	100	106	106	50-175	
Benzene	ug/L	50	50.3	101	70-130	
Bromodichloromethane	ug/L	50	49.5	99	70-130	
Bromoform	ug/L	50	47.1	94	70-130	
Bromomethane	ug/L	50	44.7	89	54-130	
Carbon disulfide	ug/L	50	53.2	106	70-131	
Carbon tetrachloride	ug/L	50	50.8	102	70-132	
Chlorobenzene	ug/L	50	49.1	98	70-130	
Chloroethane	ug/L	50	48.2	96	64-134	
Chloroform	ug/L	50	48.4	97	70-130	
Chloromethane	ug/L	50	47.0	94	64-130	
cis-1,2-Dichloroethene	ug/L	50	49.9	100	70-131	
cis-1,3-Dichloropropene	ug/L	50	50.7	101	70-130	
Dibromochloromethane	ug/L	50	49.9	100	70-130	
Ethylbenzene	ug/L	50	49.0	98	70-130	
m&p-Xylene	ug/L	100	96.8	97	70-130	
Methylene Chloride	ug/L	50	50.4	101	63-130	
o-Xylene	ug/L	50	47.4	95	70-130	
Styrene	ug/L	50	48.3	97	70-130	
Tetrachloroethene	ug/L	50	48.7	97	70-130	
Tetrahydrofuran	ug/L	500	488	98	70-130	
Toluene	ug/L	50	49.5	99	70-130	
trans-1,2-Dichloroethene	ug/L	50	51.3	103	70-130	
trans-1,3-Dichloropropene	ug/L	50	51.4	103	70-132	
Trichloroethene	ug/L	50	49.9	100	70-130	
Vinyl acetate	ug/L	100	98.9	99	66-157	
Vinyl chloride	ug/L	50	50.6	101	50-150	
1,2-Dichloroethane-d4 (S)	%			94	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35942
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92289456015

METHOD BLANK: 1685365
Matrix: Water
Associated Lab Samples: 92289456015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.48	03/13/16 22:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.40	03/13/16 22:52	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.29	03/13/16 22:52	
1,1-Dichloroethane	ug/L	ND	1.0	0.32	03/13/16 22:52	
1,1-Dichloroethene	ug/L	ND	1.0	0.56	03/13/16 22:52	
1,2-Dichloroethane	ug/L	ND	1.0	0.24	03/13/16 22:52	
1,2-Dichloropropane	ug/L	ND	1.0	0.27	03/13/16 22:52	
2-Butanone (MEK)	ug/L	ND	5.0	0.96	03/13/16 22:52	
2-Hexanone	ug/L	ND	5.0	0.46	03/13/16 22:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.33	03/13/16 22:52	
Acetone	ug/L	ND	25.0	10.0	03/13/16 22:52	
Benzene	ug/L	ND	1.0	0.25	03/13/16 22:52	
Bromodichloromethane	ug/L	ND	1.0	0.18	03/13/16 22:52	
Bromoform	ug/L	ND	1.0	0.26	03/13/16 22:52	
Bromomethane	ug/L	ND	2.0	0.29	03/13/16 22:52	
Carbon disulfide	ug/L	ND	2.0	1.2	03/13/16 22:52	
Carbon tetrachloride	ug/L	ND	1.0	0.25	03/13/16 22:52	
Chlorobenzene	ug/L	ND	1.0	0.23	03/13/16 22:52	
Chloroethane	ug/L	ND	1.0	0.54	03/13/16 22:52	
Chloroform	ug/L	ND	1.0	0.14	03/13/16 22:52	
Chloromethane	ug/L	ND	1.0	0.11	03/13/16 22:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.19	03/13/16 22:52	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.13	03/13/16 22:52	
Dibromochloromethane	ug/L	ND	1.0	0.21	03/13/16 22:52	
Ethylbenzene	ug/L	ND	1.0	0.30	03/13/16 22:52	
m&p-Xylene	ug/L	ND	2.0	0.66	03/13/16 22:52	
Methylene Chloride	ug/L	ND	2.0	0.97	03/13/16 22:52	
o-Xylene	ug/L	ND	1.0	0.23	03/13/16 22:52	
Styrene	ug/L	ND	1.0	0.26	03/13/16 22:52	
Tetrachloroethene	ug/L	ND	1.0	0.46	03/13/16 22:52	
Tetrahydrofuran	ug/L	ND	10.0	3.1	03/13/16 22:52	
Toluene	ug/L	ND	1.0	0.26	03/13/16 22:52	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.49	03/13/16 22:52	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.26	03/13/16 22:52	
Trichloroethene	ug/L	ND	1.0	0.47	03/13/16 22:52	
Vinyl acetate	ug/L	ND	2.0	0.35	03/13/16 22:52	
Vinyl chloride	ug/L	ND	1.0	0.62	03/13/16 22:52	
1,2-Dichloroethane-d4 (S)	%	99	70-130		03/13/16 22:52	
4-Bromofluorobenzene (S)	%	93	70-130		03/13/16 22:52	
Toluene-d8 (S)	%	100	70-130		03/13/16 22:52	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

LABORATORY CONTROL SAMPLE: 1685366

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	48.2	96	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	48.4	97	70-130	
1,1,2-Trichloroethane	ug/L	50	48.1	96	70-130	
1,1-Dichloroethane	ug/L	50	47.2	94	70-130	
1,1-Dichloroethene	ug/L	50	52.0	104	70-132	
1,2-Dichloroethane	ug/L	50	46.4	93	70-130	
1,2-Dichloropropane	ug/L	50	48.5	97	70-130	
2-Butanone (MEK)	ug/L	100	93.1	93	70-145	
2-Hexanone	ug/L	100	94.4	94	70-144	
4-Methyl-2-pentanone (MIBK)	ug/L	100	98.6	99	70-140	
Acetone	ug/L	100	99.6	100	50-175	
Benzene	ug/L	50	47.7	95	70-130	
Bromodichloromethane	ug/L	50	48.1	96	70-130	
Bromoform	ug/L	50	46.7	93	70-130	
Bromomethane	ug/L	50	44.0	88	54-130	
Carbon disulfide	ug/L	50	50.5	101	70-131	
Carbon tetrachloride	ug/L	50	47.6	95	70-132	
Chlorobenzene	ug/L	50	48.0	96	70-130	
Chloroethane	ug/L	50	48.1	96	64-134	
Chloroform	ug/L	50	47.9	96	70-130	
Chloromethane	ug/L	50	45.0	90	64-130	
cis-1,2-Dichloroethene	ug/L	50	49.4	99	70-131	
cis-1,3-Dichloropropene	ug/L	50	48.5	97	70-130	
Dibromochloromethane	ug/L	50	50.4	101	70-130	
Ethylbenzene	ug/L	50	48.1	96	70-130	
m&p-Xylene	ug/L	100	94.7	95	70-130	
Methylene Chloride	ug/L	50	49.1	98	63-130	
o-Xylene	ug/L	50	46.6	93	70-130	
Styrene	ug/L	50	48.7	97	70-130	
Tetrachloroethene	ug/L	50	47.3	95	70-130	
Tetrahydrofuran	ug/L	500	474	95	70-130	
Toluene	ug/L	50	47.4	95	70-130	
trans-1,2-Dichloroethene	ug/L	50	49.9	100	70-130	
trans-1,3-Dichloropropene	ug/L	50	48.4	97	70-132	
Trichloroethene	ug/L	50	47.3	95	70-130	
Vinyl acetate	ug/L	100	97.1	97	66-157	
Vinyl chloride	ug/L	50	48.3	97	50-150	
1,2-Dichloroethane-d4 (S)	%			98	70-130	
4-Bromofluorobenzene (S)	%			103	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35959
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92289456002

METHOD BLANK: 1686132
Matrix: Water
Associated Lab Samples: 92289456002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.48	03/14/16 17:38	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.40	03/14/16 17:38	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.29	03/14/16 17:38	
1,1-Dichloroethane	ug/L	ND	1.0	0.32	03/14/16 17:38	
1,1-Dichloroethene	ug/L	ND	1.0	0.56	03/14/16 17:38	
1,2-Dichloroethane	ug/L	ND	1.0	0.24	03/14/16 17:38	
1,2-Dichloropropane	ug/L	ND	1.0	0.27	03/14/16 17:38	
2-Butanone (MEK)	ug/L	ND	5.0	0.96	03/14/16 17:38	
2-Hexanone	ug/L	ND	5.0	0.46	03/14/16 17:38	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.33	03/14/16 17:38	
Acetone	ug/L	ND	25.0	10.0	03/14/16 17:38	
Benzene	ug/L	ND	1.0	0.25	03/14/16 17:38	
Bromodichloromethane	ug/L	ND	1.0	0.18	03/14/16 17:38	
Bromoform	ug/L	ND	1.0	0.26	03/14/16 17:38	
Bromomethane	ug/L	ND	2.0	0.29	03/14/16 17:38	
Carbon disulfide	ug/L	ND	2.0	1.2	03/14/16 17:38	
Carbon tetrachloride	ug/L	ND	1.0	0.25	03/14/16 17:38	
Chlorobenzene	ug/L	ND	1.0	0.23	03/14/16 17:38	
Chloroethane	ug/L	ND	1.0	0.54	03/14/16 17:38	
Chloroform	ug/L	ND	1.0	0.14	03/14/16 17:38	
Chloromethane	ug/L	ND	1.0	0.11	03/14/16 17:38	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.19	03/14/16 17:38	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.13	03/14/16 17:38	
Dibromochloromethane	ug/L	ND	1.0	0.21	03/14/16 17:38	
Ethylbenzene	ug/L	ND	1.0	0.30	03/14/16 17:38	
m&p-Xylene	ug/L	ND	2.0	0.66	03/14/16 17:38	
Methylene Chloride	ug/L	ND	2.0	0.97	03/14/16 17:38	
o-Xylene	ug/L	ND	1.0	0.23	03/14/16 17:38	
Styrene	ug/L	ND	1.0	0.26	03/14/16 17:38	
Tetrachloroethene	ug/L	ND	1.0	0.46	03/14/16 17:38	
Tetrahydrofuran	ug/L	ND	10.0	3.1	03/14/16 17:38	
Toluene	ug/L	ND	1.0	0.26	03/14/16 17:38	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.49	03/14/16 17:38	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.26	03/14/16 17:38	
Trichloroethene	ug/L	ND	1.0	0.47	03/14/16 17:38	
Vinyl acetate	ug/L	ND	2.0	0.35	03/14/16 17:38	
Vinyl chloride	ug/L	ND	1.0	0.62	03/14/16 17:38	
1,2-Dichloroethane-d4 (S)	%	98	70-130		03/14/16 17:38	
4-Bromofluorobenzene (S)	%	98	70-130		03/14/16 17:38	
Toluene-d8 (S)	%	100	70-130		03/14/16 17:38	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

LABORATORY CONTROL SAMPLE: 1686133

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	53.4	107	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.8	100	70-130	
1,1,2-Trichloroethane	ug/L	50	48.4	97	70-130	
1,1-Dichloroethane	ug/L	50	50.5	101	70-130	
1,1-Dichloroethene	ug/L	50	52.9	106	70-132	
1,2-Dichloroethane	ug/L	50	46.5	93	70-130	
1,2-Dichloropropane	ug/L	50	49.0	98	70-130	
2-Butanone (MEK)	ug/L	100	103	103	70-145	
2-Hexanone	ug/L	100	104	104	70-144	
4-Methyl-2-pentanone (MIBK)	ug/L	100	107	107	70-140	
Acetone	ug/L	100	106	106	50-175	
Benzene	ug/L	50	50.4	101	70-130	
Bromodichloromethane	ug/L	50	50.2	100	70-130	
Bromoform	ug/L	50	43.9	88	70-130	
Bromomethane	ug/L	50	48.5	97	54-130	
Carbon disulfide	ug/L	50	51.6	103	70-131	
Carbon tetrachloride	ug/L	50	51.3	103	70-132	
Chlorobenzene	ug/L	50	49.3	99	70-130	
Chloroethane	ug/L	50	48.7	97	64-134	
Chloroform	ug/L	50	50.9	102	70-130	
Chloromethane	ug/L	50	49.7	99	64-130	
cis-1,2-Dichloroethene	ug/L	50	51.9	104	70-131	
cis-1,3-Dichloropropene	ug/L	50	50.8	102	70-130	
Dibromochloromethane	ug/L	50	50.3	101	70-130	
Ethylbenzene	ug/L	50	48.9	98	70-130	
m&p-Xylene	ug/L	100	96.7	97	70-130	
Methylene Chloride	ug/L	50	49.0	98	63-130	
o-Xylene	ug/L	50	47.6	95	70-130	
Styrene	ug/L	50	49.8	100	70-130	
Tetrachloroethene	ug/L	50	48.4	97	70-130	
Tetrahydrofuran	ug/L	500	515	103	70-130	
Toluene	ug/L	50	49.4	99	70-130	
trans-1,2-Dichloroethene	ug/L	50	51.6	103	70-130	
trans-1,3-Dichloropropene	ug/L	50	49.7	99	70-132	
Trichloroethene	ug/L	50	48.3	97	70-130	
Vinyl acetate	ug/L	100	97.0	97	66-157	
Vinyl chloride	ug/L	50	55.2	110	50-150	
1,2-Dichloroethane-d4 (S)	%			98	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE SAMPLE: 1686134

Parameter	Units	92289664024 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	67.8	500	649	116	70-130	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

MATRIX SPIKE SAMPLE: 1686134

Parameter	Units	92289664024 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,2,2-Tetrachloroethane	ug/L	ND	500	520	104	70-130	
1,1,2-Trichloroethane	ug/L	ND	500	512	101	70-130	
1,1-Dichloroethane	ug/L	ND	500	546	109	70-130	
1,1-Dichloroethene	ug/L	1050	500	1600	110	70-166	
1,2-Dichloroethane	ug/L	27.7	500	525	99	70-130	
1,2-Dichloropropane	ug/L	ND	500	504	101	70-130	
2-Butanone (MEK)	ug/L	ND	1000	1090	109	70-130	
2-Hexanone	ug/L	ND	1000	1090	109	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1000	1120	112	70-130	
Acetone	ug/L	ND	1000	1050	105	70-130	
Benzene	ug/L	ND	500	553	111	70-148	
Bromodichloromethane	ug/L	ND	500	507	101	70-130	
Bromoform	ug/L	ND	500	453	91	70-130	
Bromomethane	ug/L	ND	500	560	112	70-130	
Carbon disulfide	ug/L	ND	500	542	108	70-130	
Carbon tetrachloride	ug/L	ND	500	575	115	70-130	
Chlorobenzene	ug/L	ND	500	532	106	70-146	
Chloroethane	ug/L	ND	500	553	111	70-130	
Chloroform	ug/L	18.4J	500	556	108	70-130	
Chloromethane	ug/L	ND	500	536	107	70-130	
cis-1,2-Dichloroethene	ug/L	164	500	705	108	70-130	
cis-1,3-Dichloropropene	ug/L	ND	500	516	103	70-130	
Dibromochloromethane	ug/L	ND	500	519	104	70-130	
Ethylbenzene	ug/L	ND	500	548	108	70-130	
m&p-Xylene	ug/L	ND	1000	1070	106	70-130	
Methylene Chloride	ug/L	ND	500	546	105	70-130	
o-Xylene	ug/L	ND	500	531	106	70-130	
Styrene	ug/L	ND	500	527	105	70-130	
Tetrachloroethene	ug/L	3340	500	3800	92	70-130	
Tetrahydrofuran	ug/L	ND	5000	4970	99	70-130	
Toluene	ug/L	7.9J	500	544	107	70-155	
trans-1,2-Dichloroethene	ug/L	ND	500	566	113	70-130	
trans-1,3-Dichloropropene	ug/L	ND	500	499	100	70-130	
Trichloroethene	ug/L	920	500	1430	103	69-151	
Vinyl acetate	ug/L	ND	1000	1030	103	70-130	
Vinyl chloride	ug/L	ND	500	591	118	70-130	
1,2-Dichloroethane-d4 (S)	%				100	70-130	
4-Bromofluorobenzene (S)	%				100	70-130	
Toluene-d8 (S)	%				99	70-130	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35974 | Analysis Method: EPA 8260
QC Batch Method: EPA 8260 | Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92289456004, 92289456018

METHOD BLANK: 1686893 | Matrix: Water
Associated Lab Samples: 92289456004, 92289456018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.48	03/16/16 02:19	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.40	03/16/16 02:19	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.29	03/16/16 02:19	
1,1-Dichloroethane	ug/L	ND	1.0	0.32	03/16/16 02:19	
1,1-Dichloroethene	ug/L	ND	1.0	0.56	03/16/16 02:19	
1,2-Dichloroethane	ug/L	ND	1.0	0.24	03/16/16 02:19	
1,2-Dichloropropane	ug/L	ND	1.0	0.27	03/16/16 02:19	
2-Butanone (MEK)	ug/L	ND	5.0	0.96	03/16/16 02:19	
2-Hexanone	ug/L	ND	5.0	0.46	03/16/16 02:19	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.33	03/16/16 02:19	
Acetone	ug/L	ND	25.0	10.0	03/16/16 02:19	
Benzene	ug/L	ND	1.0	0.25	03/16/16 02:19	
Bromodichloromethane	ug/L	ND	1.0	0.18	03/16/16 02:19	
Bromoform	ug/L	ND	1.0	0.26	03/16/16 02:19	
Bromomethane	ug/L	ND	2.0	0.29	03/16/16 02:19	
Carbon disulfide	ug/L	ND	2.0	1.2	03/16/16 02:19	
Carbon tetrachloride	ug/L	ND	1.0	0.25	03/16/16 02:19	
Chlorobenzene	ug/L	ND	1.0	0.23	03/16/16 02:19	
Chloroethane	ug/L	ND	1.0	0.54	03/16/16 02:19	
Chloroform	ug/L	ND	1.0	0.14	03/16/16 02:19	
Chloromethane	ug/L	ND	1.0	0.11	03/16/16 02:19	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.19	03/16/16 02:19	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.13	03/16/16 02:19	
Dibromochloromethane	ug/L	ND	1.0	0.21	03/16/16 02:19	
Ethylbenzene	ug/L	ND	1.0	0.30	03/16/16 02:19	
m&p-Xylene	ug/L	ND	2.0	0.66	03/16/16 02:19	
Methylene Chloride	ug/L	ND	2.0	0.97	03/16/16 02:19	
o-Xylene	ug/L	ND	1.0	0.23	03/16/16 02:19	
Styrene	ug/L	ND	1.0	0.26	03/16/16 02:19	
Tetrachloroethene	ug/L	ND	1.0	0.46	03/16/16 02:19	
Tetrahydrofuran	ug/L	ND	10.0	3.1	03/16/16 02:19	
Toluene	ug/L	ND	1.0	0.26	03/16/16 02:19	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.49	03/16/16 02:19	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.26	03/16/16 02:19	
Trichloroethene	ug/L	ND	1.0	0.47	03/16/16 02:19	
Vinyl acetate	ug/L	ND	2.0	0.35	03/16/16 02:19	
Vinyl chloride	ug/L	ND	1.0	0.62	03/16/16 02:19	
1,2-Dichloroethane-d4 (S)	%	99	70-130		03/16/16 02:19	
4-Bromofluorobenzene (S)	%	98	70-130		03/16/16 02:19	
Toluene-d8 (S)	%	101	70-130		03/16/16 02:19	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

LABORATORY CONTROL SAMPLE: 1686894

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.2	98	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	47.6	95	70-130	
1,1,2-Trichloroethane	ug/L	50	48.2	96	70-130	
1,1-Dichloroethane	ug/L	50	47.4	95	70-130	
1,1-Dichloroethene	ug/L	50	48.3	97	70-132	
1,2-Dichloroethane	ug/L	50	46.5	93	70-130	
1,2-Dichloropropane	ug/L	50	47.2	94	70-130	
2-Butanone (MEK)	ug/L	100	100	100	70-145	
2-Hexanone	ug/L	100	98.3	98	70-144	
4-Methyl-2-pentanone (MIBK)	ug/L	100	105	105	70-140	
Acetone	ug/L	100	102	102	50-175	
Benzene	ug/L	50	47.3	95	70-130	
Bromodichloromethane	ug/L	50	48.0	96	70-130	
Bromoform	ug/L	50	40.4	81	70-130	
Bromomethane	ug/L	50	29.3	59	54-130	
Carbon disulfide	ug/L	50	46.6	93	70-131	
Carbon tetrachloride	ug/L	50	46.5	93	70-132	
Chlorobenzene	ug/L	50	46.1	92	70-130	
Chloroethane	ug/L	50	54.3	109	64-134	
Chloroform	ug/L	50	47.3	95	70-130	
Chloromethane	ug/L	50	38.5	77	64-130	
cis-1,2-Dichloroethene	ug/L	50	49.7	99	70-131	
cis-1,3-Dichloropropene	ug/L	50	47.3	95	70-130	
Dibromochloromethane	ug/L	50	47.8	96	70-130	
Ethylbenzene	ug/L	50	46.1	92	70-130	
m&p-Xylene	ug/L	100	90.4	90	70-130	
Methylene Chloride	ug/L	50	48.8	98	63-130	
o-Xylene	ug/L	50	45.4	91	70-130	
Styrene	ug/L	50	46.9	94	70-130	
Tetrachloroethene	ug/L	50	44.4	89	70-130	
Tetrahydrofuran	ug/L	500	484	97	70-130	
Toluene	ug/L	50	46.3	93	70-130	
trans-1,2-Dichloroethene	ug/L	50	49.3	99	70-130	
trans-1,3-Dichloropropene	ug/L	50	46.4	93	70-132	
Trichloroethene	ug/L	50	44.5	89	70-130	
Vinyl acetate	ug/L	100	96.7	97	66-157	
Vinyl chloride	ug/L	50	49.6	99	50-150	
1,2-Dichloroethane-d4 (S)	%			97	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1686895 1686896

Parameter	Units	92289664001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	504	4000	4000	5180	5450	117	124	70-130	5	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	4000	4000	3850	3990	96	100	70-130	4	30	
1,1,2-Trichloroethane	ug/L	ND	4000	4000	4140	4280	104	107	70-130	3	30	
1,1-Dichloroethane	ug/L	ND	4000	4000	4550	4560	114	114	70-130	0	30	
1,1-Dichloroethene	ug/L	13000	4000	4000	16700	17500	93	113	70-166	5	30	
1,2-Dichloroethane	ug/L	98.8J	4000	4000	4160	4260	102	104	70-130	2	30	
1,2-Dichloropropane	ug/L	ND	4000	4000	4330	4380	108	109	70-130	1	30	
2-Butanone (MEK)	ug/L	ND	8000	8000	7310	7140	91	89	70-130	2	30	
2-Hexanone	ug/L	ND	8000	8000	7320	7400	92	93	70-130	1	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	8000	8000	8490	8580	106	107	70-130	1	30	
Acetone	ug/L	ND	8000	8000	7310	7340	91	92	70-130	0	30	
Benzene	ug/L	ND	4000	4000	4630	4600	116	115	70-148	1	30	
Bromodichloromethane	ug/L	ND	4000	4000	4280	4280	107	107	70-130	0	30	
Bromoform	ug/L	ND	4000	4000	3250	3340	81	84	70-130	3	30	
Bromomethane	ug/L	ND	4000	4000	4650	4790	116	120	70-130	3	30	
Carbon disulfide	ug/L	ND	4000	4000	4510	4570	113	114	70-130	1	30	
Carbon tetrachloride	ug/L	ND	4000	4000	4770	4870	119	122	70-130	2	30	
Chlorobenzene	ug/L	ND	4000	4000	4250	4320	106	108	70-146	2	30	
Chloroethane	ug/L	ND	4000	4000	5640	5830	141	146	70-130	3	30	M1
Chloroform	ug/L	ND	4000	4000	4590	4580	115	115	70-130	0	30	
Chloromethane	ug/L	ND	4000	4000	3820	4050	96	101	70-130	6	30	
cis-1,2-Dichloroethene	ug/L	63.6J	4000	4000	4530	4790	112	118	70-130	6	30	
cis-1,3-Dichloropropene	ug/L	ND	4000	4000	4050	4150	101	104	70-130	2	30	
Dibromochloromethane	ug/L	ND	4000	4000	4090	3940	102	98	70-130	4	30	
Ethylbenzene	ug/L	ND	4000	4000	4250	4360	106	109	70-130	3	30	
m&p-Xylene	ug/L	ND	8000	8000	8450	8620	106	108	70-130	2	30	
Methylene Chloride	ug/L	ND	4000	4000	4350	4400	109	110	70-130	1	30	
o-Xylene	ug/L	ND	4000	4000	4150	4280	104	107	70-130	3	30	
Styrene	ug/L	ND	4000	4000	4160	4230	104	106	70-130	2	30	
Tetrachloroethene	ug/L	28600	4000	4000	30100	31900	40	83	70-130	6	30	M1
Tetrahydrofuran	ug/L	ND	40000	40000	36300	37000	91	93	70-130	2	30	
Toluene	ug/L	ND	4000	4000	4460	4640	112	116	70-155	4	30	
trans-1,2-Dichloroethene	ug/L	ND	4000	4000	4720	4830	118	121	70-130	2	30	
trans-1,3-Dichloropropene	ug/L	ND	4000	4000	3900	3990	98	100	70-130	2	30	
Trichloroethene	ug/L	7110	4000	4000	11000	11500	97	109	69-151	4	30	
Vinyl acetate	ug/L	ND	8000	8000	8090	8220	101	103	70-130	2	30	
Vinyl chloride	ug/L	ND	4000	4000	4910	5320	123	133	70-130	8	30	M1
1,2-Dichloroethane-d4 (S)	%						99	101	70-130			
4-Bromofluorobenzene (S)	%						99	99	70-130			
Toluene-d8 (S)	%						101	101	70-130			

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35917 | Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. | Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92289456002, 92289456003, 92289456004, 92289456005, 92289456006, 92289456008, 92289456009, 92289456010, 92289456011, 92289456027

METHOD BLANK: 1684325 | Matrix: Water
Associated Lab Samples: 92289456002, 92289456003, 92289456004, 92289456005, 92289456006, 92289456008, 92289456009, 92289456010, 92289456011, 92289456027

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Diethylene Dioxide	ug/L	ND	2.0	1.9	03/11/16 13:50	
1,2-Dichloroethane-d4 (S)	%	104	50-150		03/11/16 13:50	
Toluene-d8 (S)	%	105	50-150		03/11/16 13:50	

LABORATORY CONTROL SAMPLE: 1684326

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diethylene Dioxide	ug/L	20	18.1	91	71-125	
1,2-Dichloroethane-d4 (S)	%			103	50-150	
Toluene-d8 (S)	%			103	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1684327 1684328

Parameter	Units	92289456027 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diethylene Dioxide	ug/L	19.3	20	20	36.1	36.5	84	86	50-150	1	30	
1,2-Dichloroethane-d4 (S)	%						107	108	50-150		150	
Toluene-d8 (S)	%						100	100	50-150		150	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35918 | Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. | Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92289456012, 92289456013, 92289456014

METHOD BLANK: 1684334 | Matrix: Water
Associated Lab Samples: 92289456012, 92289456013, 92289456014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Diethylene Dioxide	ug/L	ND	2.0	1.9	03/11/16 13:32	
1,2-Dichloroethane-d4 (S)	%	105	50-150		03/11/16 13:32	
Toluene-d8 (S)	%	105	50-150		03/11/16 13:32	

LABORATORY CONTROL SAMPLE: 1684335

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diethylene Dioxide	ug/L	20	18.8	94	71-125	
1,2-Dichloroethane-d4 (S)	%			101	50-150	
Toluene-d8 (S)	%			102	50-150	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: MSV/35949 | Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. | Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92289456001, 92289456007, 92289456015, 92289456016, 92289456017, 92289456018, 92289456019, 92289456020, 92289456021, 92289456022, 92289456023, 92289456024, 92289456025, 92289456026, 92289456028

METHOD BLANK: 1685890 | Matrix: Water
Associated Lab Samples: 92289456001, 92289456007, 92289456015, 92289456016, 92289456017, 92289456018, 92289456019, 92289456020, 92289456021, 92289456022, 92289456023, 92289456024, 92289456025, 92289456026, 92289456028

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Diethylene Dioxide	ug/L	ND	2.0	1.9	03/14/16 13:34	
1,2-Dichloroethane-d4 (S)	%	107	50-150		03/14/16 13:34	
Toluene-d8 (S)	%	103	50-150		03/14/16 13:34	

LABORATORY CONTROL SAMPLE: 1685891

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diethylene Dioxide	ug/L	20	18.3	91	71-125	
1,2-Dichloroethane-d4 (S)	%			105	50-150	
Toluene-d8 (S)	%			101	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1685892 1685893

Parameter	Units	92289456028 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diethylene Dioxide	ug/L	41.8	20	20	56.4	61.5	73	99	50-150	9	30	
1,2-Dichloroethane-d4 (S)	%						112	108	50-150		150	
Toluene-d8 (S)	%						108	106	50-150		150	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

QC Batch: OEXT/41292 | Analysis Method: EPA 8270
QC Batch Method: EPA 3510 | Analysis Description: 8270 Water MSSV
Associated Lab Samples: 92289456026, 92289456028

METHOD BLANK: 1683764 | Matrix: Water
Associated Lab Samples: 92289456026, 92289456028

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	ND	10.0	1.7	03/15/16 14:42	
2,4,5-Trichlorophenol	ug/L	ND	10.0	2.2	03/15/16 14:42	
2,4,6-Trichlorophenol	ug/L	ND	10.0	1.9	03/15/16 14:42	
2,4-Dichlorophenol	ug/L	ND	10.0	1.7	03/15/16 14:42	
2,4-Dimethylphenol	ug/L	ND	10.0	2.2	03/15/16 14:42	
2,4-Dinitrophenol	ug/L	ND	50.0	6.5	03/15/16 14:42	
2,4-Dinitrotoluene	ug/L	ND	10.0	1.2	03/15/16 14:42	
2,6-Dinitrotoluene	ug/L	ND	10.0	1.7	03/15/16 14:42	
2-Chloronaphthalene	ug/L	ND	10.0	2.2	03/15/16 14:42	
2-Chlorophenol	ug/L	ND	10.0	1.5	03/15/16 14:42	
2-Methylnaphthalene	ug/L	ND	10.0	0.28	03/15/16 14:42	
2-Methylphenol(o-Cresol)	ug/L	ND	10.0	1.7	03/15/16 14:42	
2-Nitroaniline	ug/L	ND	50.0	2.8	03/15/16 14:42	
2-Nitrophenol	ug/L	ND	10.0	1.7	03/15/16 14:42	
3&4-Methylphenol(m&p Cresol)	ug/L	ND	10.0	1.7	03/15/16 14:42	
3,3'-Dichlorobenzidine	ug/L	ND	20.0	1.4	03/15/16 14:42	
3-Nitroaniline	ug/L	ND	50.0	2.4	03/15/16 14:42	
4,6-Dinitro-2-methylphenol	ug/L	ND	20.0	1.7	03/15/16 14:42	
4-Bromophenylphenyl ether	ug/L	ND	10.0	1.3	03/15/16 14:42	
4-Chloro-3-methylphenol	ug/L	ND	20.0	4.2	03/15/16 14:42	
4-Chloroaniline	ug/L	ND	20.0	3.4	03/15/16 14:42	
4-Chlorophenylphenyl ether	ug/L	ND	10.0	2.1	03/15/16 14:42	
4-Nitroaniline	ug/L	ND	20.0	2.5	03/15/16 14:42	
4-Nitrophenol	ug/L	ND	50.0	5.8	03/15/16 14:42	
Acenaphthene	ug/L	ND	10.0	0.25	03/15/16 14:42	
Acenaphthylene	ug/L	ND	10.0	0.21	03/15/16 14:42	
Anthracene	ug/L	ND	10.0	0.14	03/15/16 14:42	
Atrazine	ug/L	ND	20.0	1.7	03/15/16 14:42	
Benzaldehyde	ug/L	ND	20.0	4.7	03/15/16 14:42	
Benzo(a)anthracene	ug/L	ND	10.0	0.33	03/15/16 14:42	
Benzo(a)pyrene	ug/L	ND	10.0	0.30	03/15/16 14:42	
Benzo(b)fluoranthene	ug/L	ND	10.0	0.28	03/15/16 14:42	
Benzo(g,h,i)perylene	ug/L	ND	10.0	0.38	03/15/16 14:42	
Benzo(k)fluoranthene	ug/L	ND	10.0	0.43	03/15/16 14:42	
Biphenyl (Diphenyl)	ug/L	ND	10.0	1.9	03/15/16 14:42	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	1.7	03/15/16 14:42	
bis(2-Chloroethyl) ether	ug/L	ND	10.0	1.5	03/15/16 14:42	
bis(2-Chloroisopropyl) ether	ug/L	ND	10.0	1.6	03/15/16 14:42	
bis(2-Ethylhexyl)phthalate	ug/L	ND	6.0	0.85	03/15/16 14:42	
Butylbenzylphthalate	ug/L	ND	10.0	0.75	03/15/16 14:42	
Caprolactam	ug/L	ND	10.0	1.8	03/15/16 14:42	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

METHOD BLANK: 1683764 Matrix: Water
Associated Lab Samples: 92289456026, 92289456028

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Carbazole	ug/L	ND	10.0	0.73	03/15/16 14:42	
Chrysene	ug/L	ND	10.0	0.21	03/15/16 14:42	
Di-n-butylphthalate	ug/L	ND	10.0	1.1	03/15/16 14:42	
Di-n-octylphthalate	ug/L	ND	10.0	0.86	03/15/16 14:42	
Dibenz(a,h)anthracene	ug/L	ND	10.0	0.55	03/15/16 14:42	
Dibenzofuran	ug/L	ND	10.0	1.8	03/15/16 14:42	
Diethylphthalate	ug/L	ND	10.0	1.3	03/15/16 14:42	
Dimethylphthalate	ug/L	ND	10.0	1.5	03/15/16 14:42	
Diphenyl ether (Phenyl ether)	ug/L	ND	10.0	1.9	03/15/16 14:42	
Fluoranthene	ug/L	ND	10.0	0.21	03/15/16 14:42	
Fluorene	ug/L	ND	10.0	0.21	03/15/16 14:42	
Hexachloro-1,3-butadiene	ug/L	ND	10.0	1.8	03/15/16 14:42	
Hexachlorobenzene	ug/L	ND	10.0	1.1	03/15/16 14:42	
Hexachlorocyclopentadiene	ug/L	ND	10.0	1.8	03/15/16 14:42	
Hexachloroethane	ug/L	ND	10.0	1.5	03/15/16 14:42	
Indeno(1,2,3-cd)pyrene	ug/L	ND	10.0	0.29	03/15/16 14:42	
Isophorone	ug/L	ND	10.0	1.8	03/15/16 14:42	
N-Nitroso-di-n-propylamine	ug/L	ND	10.0	2.1	03/15/16 14:42	
N-Nitrosodiphenylamine	ug/L	ND	10.0	1.3	03/15/16 14:42	
Naphthalene	ug/L	ND	10.0	0.34	03/15/16 14:42	
Nitrobenzene	ug/L	ND	10.0	1.7	03/15/16 14:42	
Pentachlorophenol	ug/L	ND	25.0	2.3	03/15/16 14:42	
Phenanthrene	ug/L	ND	10.0	0.22	03/15/16 14:42	
Phenol	ug/L	ND	10.0	1.7	03/15/16 14:42	
Pyrene	ug/L	ND	10.0	0.19	03/15/16 14:42	
2,4,6-Tribromophenol (S)	%	43	27-110		03/15/16 14:42	
2-Fluorobiphenyl (S)	%	47	27-110		03/15/16 14:42	
2-Fluorophenol (S)	%	27	12-110		03/15/16 14:42	
Nitrobenzene-d5 (S)	%	50	21-110		03/15/16 14:42	
Phenol-d6 (S)	%	19	10-110		03/15/16 14:42	
Terphenyl-d14 (S)	%	67	31-107		03/15/16 14:42	

LABORATORY CONTROL SAMPLE: 1683765

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	50	26.5	53	16-129	
2,4,5-Trichlorophenol	ug/L	50	37.4	75	43-113	
2,4,6-Trichlorophenol	ug/L	50	39.9	80	42-120	
2,4-Dichlorophenol	ug/L	50	34.6	69	30-120	
2,4-Dimethylphenol	ug/L	50	35.2	70	29-111	
2,4-Dinitrophenol	ug/L	250	221	88	19-132	
2,4-Dinitrotoluene	ug/L	50	44.6	89	58-128	
2,6-Dinitrotoluene	ug/L	50	44.4	89	54-129	
2-Chloronaphthalene	ug/L	50	42.9	86	43-117	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

LABORATORY CONTROL SAMPLE: 1683765

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Chlorophenol	ug/L	50	34.0	68	37-120	
2-Methylnaphthalene	ug/L	50	31.0	62	33-120	
2-Methylphenol(o-Cresol)	ug/L	50	28.7	57	31-120	
2-Nitroaniline	ug/L	100	74.2	74	48-121	
2-Nitrophenol	ug/L	50	36.1	72	25-116	
3&4-Methylphenol(m&p Cresol)	ug/L	50	26.9	54	23-120	
3,3'-Dichlorobenzidine	ug/L	250	94.3	38	10-154	
3-Nitroaniline	ug/L	100	80.4	80	43-115	
4,6-Dinitro-2-methylphenol	ug/L	100	86.6	87	44-124	
4-Bromophenylphenyl ether	ug/L	50	35.7	71	34-113	
4-Chloro-3-methylphenol	ug/L	100	77.4	77	31-110	
4-Chloroaniline	ug/L	100	67.4	67	20-120	
4-Chlorophenylphenyl ether	ug/L	50	38.6	77	34-116	
4-Nitroaniline	ug/L	100	85.3	85	46-128	
4-Nitrophenol	ug/L	250	98.4	39	11-120	
Acenaphthene	ug/L	50	33.7	67	48-114	
Acenaphthylene	ug/L	50	35.9	72	48-112	
Anthracene	ug/L	50	36.4	73	57-118	
Atrazine	ug/L	50	42.9	86	33-160	
Benzaldehyde	ug/L	50	9.2J	18	10-120	
Benzo(a)anthracene	ug/L	50	41.4	83	56-121	
Benzo(a)pyrene	ug/L	50	42.2	84	55-127	
Benzo(b)fluoranthene	ug/L	50	45.7	91	53-128	
Benzo(g,h,i)perylene	ug/L	50	39.4	79	54-125	
Benzo(k)fluoranthene	ug/L	50	41.1	82	51-123	
Biphenyl (Diphenyl)	ug/L	50	33.8	68	38-120	
bis(2-Chloroethoxy)methane	ug/L	50	32.8	66	32-120	
bis(2-Chloroethyl) ether	ug/L	50	35.4	71	33-111	
bis(2-Chloroisopropyl) ether	ug/L	50	31.0	62	15-120	
bis(2-Ethylhexyl)phthalate	ug/L	50	51.1	102	50-145	
Butylbenzylphthalate	ug/L	50	53.4	107	54-138	
Caprolactam	ug/L	50	8.5J	17	10-115	
Carbazole	ug/L	50	41.4	83	59-119	
Chrysene	ug/L	50	37.7	75	58-127	
Di-n-butylphthalate	ug/L	50	44.0	88	56-125	
Di-n-octylphthalate	ug/L	50	45.7	91	50-134	
Dibenz(a,h)anthracene	ug/L	50	41.6	83	53-129	
Dibenzofuran	ug/L	50	38.1	76	45-120	
Diethylphthalate	ug/L	50	42.6	85	53-120	
Dimethylphthalate	ug/L	50	41.1	82	55-116	
Diphenyl ether (Phenyl ether)	ug/L	50	32.6	65	51-120	
Fluoranthene	ug/L	50	38.3	77	57-125	
Fluorene	ug/L	50	38.9	78	53-118	
Hexachloro-1,3-butadiene	ug/L	50	25.3	51	23-120	
Hexachlorobenzene	ug/L	50	36.3	73	49-116	
Hexachlorocyclopentadiene	ug/L	50	30.2	60	26-158	
Hexachloroethane	ug/L	50	30.5	61	30-114	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

LABORATORY CONTROL SAMPLE: 1683765

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Indeno(1,2,3-cd)pyrene	ug/L	50	44.6	89	55-128	
Isophorone	ug/L	50	35.0	70	31-118	
N-Nitroso-di-n-propylamine	ug/L	50	42.1	84	32-119	
N-Nitrosodiphenylamine	ug/L	50	35.7	71	43-120	
Naphthalene	ug/L	50	30.1	60	32-120	
Nitrobenzene	ug/L	50	32.9	66	33-110	
Pentachlorophenol	ug/L	250	88.8	36	10-137	
Phenanthrene	ug/L	50	35.9	72	57-117	
Phenol	ug/L	50	14.8	30	10-120	
Pyrene	ug/L	50	39.5	79	55-122	
2,4,6-Tribromophenol (S)	%			82	27-110	
2-Fluorobiphenyl (S)	%			68	27-110	
2-Fluorophenol (S)	%			40	12-110	
Nitrobenzene-d5 (S)	%			70	21-110	
Phenol-d6 (S)	%			29	10-110	
Terphenyl-d14 (S)	%			83	31-107	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1683766 1683767

Parameter	Units	92289456028 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4,5-Tetrachlorobenzene	ug/L	ND	50	50	31.8	30.8	64	62	50-150	3	30	
2,4,5-Trichlorophenol	ug/L	ND	50	50	40.2	40.1	80	80	19-105	0	30	
2,4,6-Trichlorophenol	ug/L	ND	50	50	43.6	44.6	87	89	13-108	2	30	
2,4-Dichlorophenol	ug/L	ND	50	50	40.0	39.0	80	78	29-111	3	30	
2,4-Dimethylphenol	ug/L	ND	50	50	38.7	41.3	77	83	21-103	7	30	
2,4-Dinitrophenol	ug/L	ND	250	250	182	117	73	47	10-109	43	30	R1
2,4-Dinitrotoluene	ug/L	ND	50	50	47.0	42.7	94	85	27-104	10	30	
2,6-Dinitrotoluene	ug/L	ND	50	50	46.7	44.3	93	89	28-101	5	30	
2-Chloronaphthalene	ug/L	ND	50	50	46.6	48.5	93	97	14-102	4	30	
2-Chlorophenol	ug/L	ND	50	50	41.8	41.2	84	82	16-110	2	30	
2-Methylnaphthalene	ug/L	ND	50	50	35.8	34.3	72	69	13-110	4	30	
2-Methylphenol(o-Cresol)	ug/L	ND	50	50	37.6	36.2	75	72	19-110	4	30	
2-Nitroaniline	ug/L	ND	100	100	70.4	75.4	70	75	26-103	7	30	
2-Nitrophenol	ug/L	ND	50	50	42.6	41.3	85	83	20-110	3	30	
3&4-Methylphenol(m&p Cresol)	ug/L	ND	50	50	76.1	34.5	152	69	20-110	75	30	M1,R1
3,3'-Dichlorobenzidine	ug/L	ND	250	250	91.9	89.6	37	36	25-112	3	30	
3-Nitroaniline	ug/L	ND	100	100	82.4	79.7	82	80	29-110	3	30	
4,6-Dinitro-2-methylphenol	ug/L	ND	100	100	81.0	79.9	81	80	10-117	1	30	
4-Bromophenylphenyl ether	ug/L	ND	50	50	42.4	36.5	85	73	20-105	15	30	
4-Chloro-3-methylphenol	ug/L	ND	100	100	84.5	82.4	85	82	22-110	3	30	
4-Chloroaniline	ug/L	ND	100	100	72.5	71.7	73	72	20-100	1	30	
4-Chlorophenylphenyl ether	ug/L	ND	50	50	41.6	39.7	83	79	19-102	5	30	
4-Nitroaniline	ug/L	ND	100	100	80.1	83.1	80	83	29-110	4	30	

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1683766 1683767

Parameter	Units	92289456028 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
4-Nitrophenol	ug/L	ND	250	250	139	151	56	60	10-110	8	30	
Acenaphthene	ug/L	ND	50	50	36.1	36.9	72	74	17-100	2	30	
Acenaphthylene	ug/L	ND	50	50	37.6	39.3	75	79	21-100	4	30	
Anthracene	ug/L	ND	50	50	37.6	36.5	75	73	24-109	3	30	
Atrazine	ug/L	ND	50	50	43.9	46.1	88	92	50-150	5	30	
Benzaldehyde	ug/L	ND	50	50	6.9J	6.9J	14	14	50-150		30	M1
Benzo(a)anthracene	ug/L	ND	50	50	44.1	39.8	88	80	22-117	10	30	
Benzo(a)pyrene	ug/L	ND	50	50	40.9	40.2	82	80	23-104	2	30	
Benzo(b)fluoranthene	ug/L	ND	50	50	41.2	42.1	82	84	23-103	2	30	
Benzo(g,h,i)perylene	ug/L	ND	50	50	39.7	38.7	79	77	18-111	3	30	
Benzo(k)fluoranthene	ug/L	ND	50	50	37.9	37.7	76	75	22-113	1	30	
Biphenyl (Diphenyl)	ug/L	ND	50	50	37.6	39.8	74	79	50-150	6	30	
bis(2-Chloroethoxy)methane	ug/L	ND	50	50	36.5	34.9	73	70	22-110	4	30	
bis(2-Chloroethyl) ether	ug/L	ND	50	50	41.2	39.1	82	78	16-110	5	30	
bis(2-Chloroisopropyl) ether	ug/L	ND	50	50	25.1	33.2	50	66	14-110	28	30	
bis(2-Ethylhexyl)phthalate	ug/L	ND	50	50	52.2	49.0	104	98	23-102	6	30	M1
Butylbenzylphthalate	ug/L	ND	50	50	53.4	51.7	107	103	25-110	3	30	
Caprolactam	ug/L	ND	50	50	17.2	16.3	34	33	50-150	5	30	M1
Carbazole	ug/L	ND	50	50	41.2	42.1	82	84	50-150	2	30	
Chrysene	ug/L	ND	50	50	42.2	36.7	84	73	23-115	14	30	
Di-n-butylphthalate	ug/L	ND	50	50	45.9	45.4	92	91	26-110	1	30	
Di-n-octylphthalate	ug/L	ND	50	50	48.8	45.8	98	92	22-110	6	30	
Dibenz(a,h)anthracene	ug/L	ND	50	50	37.3	40.8	75	82	21-112	9	30	
Dibenzofuran	ug/L	ND	50	50	42.3	40.7	85	81	19-102	4	30	
Diethylphthalate	ug/L	ND	50	50	44.6	42.0	89	84	29-110	6	30	
Dimethylphthalate	ug/L	ND	50	50	42.8	41.0	86	82	27-110	4	30	
Diphenyl ether (Phenyl ether)	ug/L	ND	50	50	43.5	44.3	75	77	50-150	2	30	
Fluoranthene	ug/L	ND	50	50	38.9	38.9	78	78	23-112	0	30	
Fluorene	ug/L	ND	50	50	41.6	39.6	83	79	22-104	5	30	
Hexachloro-1,3-butadiene	ug/L	ND	50	50	35.2	30.8	70	62	10-110	13	30	
Hexachlorobenzene	ug/L	ND	50	50	40.9	36.9	82	74	21-116	10	30	
Hexachlorocyclopentadiene	ug/L	ND	50	50	25.3	30.7	51	61	10-110	19	30	
Hexachloroethane	ug/L	ND	50	50	39.9	36.0	80	72	10-110	10	30	
Indeno(1,2,3-cd)pyrene	ug/L	ND	50	50	45.0	43.5	90	87	20-113	3	30	
Isophorone	ug/L	ND	50	50	34.4	37.9	69	76	50-150	10	30	
N-Nitroso-di-n-propylamine	ug/L	ND	50	50	38.3	44.4	77	89	21-105	15	30	
N-Nitrosodiphenylamine	ug/L	ND	50	50	37.1	36.6	74	73	23-107	1	30	
Naphthalene	ug/L	ND	50	50	32.6	33.6	65	67	10-110	3	30	
Nitrobenzene	ug/L	ND	50	50	34.3	35.9	69	72	20-110	5	30	
Pentachlorophenol	ug/L	ND	250	250	72.8	81.0	29	32	10-118	11	30	
Phenanthrene	ug/L	ND	50	50	36.6	36.3	73	73	24-106	1	30	
Phenol	ug/L	ND	50	50	27.3	28.9	55	58	12-110	6	30	
Pyrene	ug/L	ND	50	50	39.4	38.6	79	77	24-114	2	30	
2,4,6-Tribromophenol (S)	%						85	81	27-110			
2-Fluorobiphenyl (S)	%						73	75	27-110			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: CNA/Shelby
Pace Project No.: 92289456

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1683766 1683767

Parameter	Units	92289456028 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2-Fluorophenol (S)	%						61	61	12-110			
Nitrobenzene-d5 (S)	%						73	76	21-110			
Phenol-d6 (S)	%						47	50	10-110			
Terphenyl-d14 (S)	%						84	72	31-107			

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QUALIFIERS

Project: CNA/Shelby
Pace Project No.: 92289456

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

C9	Common Laboratory Contaminant.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
ED	Due to the extract's physical characteristics, the analysis was performed at dilution.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: CNA/Shelby
Pace Project No.: 92289456

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92289456001	**V-23-030816**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456002	**K-28-030816**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456003	**DD-58R-030816**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456004	**IT-5-030816**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456005	**AA-54-030816**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456006	**IT-6-030816**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456007	**TI-2-030816**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456008	**IT-7-030816**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456009	**IT-10-030916**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456010	**IT-11-030916**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456011	**IT-12-030916**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456021	**IT-9-030916**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456022	**IT-8R-030916**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456023	**K-58-030916**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456027	**G-50-030816**	EPA 8015 Alcohol-Glycol	GCSV/18874		
92289456028	**PEW-1-030916**	EPA 8015 Alcohol-Glycol	GCSV/18875		
92289456026	**PEW-4-030816**	EPA 3510	OEXT/41292	EPA 8270	MSSV/11988
92289456028	**PEW-1-030916**	EPA 3510	OEXT/41292	EPA 8270	MSSV/11988
92289456001	**V-23-030816**	EPA 8260	MSV/35913		
92289456002	**K-28-030816**	EPA 8260	MSV/35959		
92289456003	**DD-58R-030816**	EPA 8260	MSV/35913		
92289456004	**IT-5-030816**	EPA 8260	MSV/35974		
92289456005	**AA-54-030816**	EPA 8260	MSV/35913		
92289456006	**IT-6-030816**	EPA 8260	MSV/35939		
92289456007	**TI-2-030816**	EPA 8260	MSV/35913		
92289456008	**IT-7-030816**	EPA 8260	MSV/35913		
92289456009	**IT-10-030916**	EPA 8260	MSV/35940		
92289456010	**IT-11-030916**	EPA 8260	MSV/35913		
92289456011	**IT-12-030916**	EPA 8260	MSV/35940		
92289456012	**SW-7-030816**	EPA 8260	MSV/35913		
92289456013	**SW-99-030816**	EPA 8260	MSV/35913		
92289456014	**SW-4-030816**	EPA 8260	MSV/35913		
92289456015	**SW-98-030816**	EPA 8260	MSV/35942		
92289456016	**C-49-030816**	EPA 8260	MSV/35919		
92289456017	**TD-3-030816**	EPA 8260	MSV/35921		
92289456018	**TD-4-030816**	EPA 8260	MSV/35974		
92289456019	**QQ-110-030816**	EPA 8260	MSV/35940		
92289456020	**TD-2-030816**	EPA 8260	MSV/35921		
92289456026	**PEW-4-030816**	EPA 8260	MSV/35921		

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Pace Analytical Services, Inc.
816 Durst Avenue East
Greenwood, SC 29649
(864)229-4413

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: CNA/Shelby
Pace Project No.: 92289456

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92289456027	**G-50-030816**	EPA 8260	MSV/35919		
92289456028	**PEW-1-030916**	EPA 8260	MSV/35921		
92289456029	**Trip Blank-01-030816**	EPA 8260	MSV/35902		
92289456030	**Trip Blank-02-030816**	EPA 8260	MSV/35902		
92289456032	**Water Blank-030816**	EPA 8260	MSV/35902		
92289456033	**EQ-01-030816**	EPA 8260	MSV/35902		
92289456034	**FB-01-030816**	EPA 8260	MSV/35902		
92289456001	**V-23-030816**	EPA 8260B Mod.	MSV/35949		
92289456002	**K-28-030816**	EPA 8260B Mod.	MSV/35917		
92289456003	**DD-58R-030816**	EPA 8260B Mod.	MSV/35917		
92289456004	**IT-5-030816**	EPA 8260B Mod.	MSV/35917		
92289456005	**AA-54-030816**	EPA 8260B Mod.	MSV/35917		
92289456006	**IT-6-030816**	EPA 8260B Mod.	MSV/35917		
92289456007	**TI-2-030816**	EPA 8260B Mod.	MSV/35949		
92289456008	**IT-7-030816**	EPA 8260B Mod.	MSV/35917		
92289456009	**IT-10-030916**	EPA 8260B Mod.	MSV/35917		
92289456010	**IT-11-030916**	EPA 8260B Mod.	MSV/35917		
92289456011	**IT-12-030916**	EPA 8260B Mod.	MSV/35917		
92289456012	**SW-7-030816**	EPA 8260B Mod.	MSV/35918		
92289456013	**SW-99-030816**	EPA 8260B Mod.	MSV/35918		
92289456014	**SW-4-030816**	EPA 8260B Mod.	MSV/35918		
92289456015	**SW-98-030816**	EPA 8260B Mod.	MSV/35949		
92289456016	**C-49-030816**	EPA 8260B Mod.	MSV/35949		
92289456017	**TD-3-030816**	EPA 8260B Mod.	MSV/35949		
92289456018	**TD-4-030816**	EPA 8260B Mod.	MSV/35949		
92289456019	**QQ-110-030816**	EPA 8260B Mod.	MSV/35949		
92289456020	**TD-2-030816**	EPA 8260B Mod.	MSV/35949		
92289456021	**IT-9-030916**	EPA 8260B Mod.	MSV/35949		
92289456022	**IT-8R-030916**	EPA 8260B Mod.	MSV/35949		
92289456023	**K-58-030916**	EPA 8260B Mod.	MSV/35949		
92289456024	**HH-48-030816**	EPA 8260B Mod.	MSV/35949		
92289456025	**HH-77-030816**	EPA 8260B Mod.	MSV/35949		
92289456026	**PEW-4-030816**	EPA 8260B Mod.	MSV/35949		
92289456027	**G-50-030816**	EPA 8260B Mod.	MSV/35917		
92289456028	**PEW-1-030916**	EPA 8260B Mod.	MSV/35949		

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Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: 1st FEB2016 Page 1 of 2
Document No.: F-CHR-CS-003-rev.18	Issuing Authority: Pace Huntersville Quality Office

Page 2 of 2 for Internal Use ONLY

FEB2016

ffice

Project #: WO# : 92289456

92289456

☐USPS ☐Client
☐Other:____

intact? ☐Yes ☐No

Date/Initials Person Examining Contents: AP 3-9-16

☐Bubble Bags ☐None ☐Other:____

Type of Ice: ☐Wet ☐Blue ☐None ☐Samples on ice, cooling process has begun

emp Corrected (°C): 3.0

Biological Tissue Frozen? ☐Yes ☐No ☐N/A

6°C

A, water sample)

quarantine zone within the United States: CA, NY, or SC (check maps)?

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐Yes ☐No

				COMMENTS:
ustody Present?	☐Yes	☐No	☐N/A	1.
in of Custody Filled Out?	☐Yes	☐No	☐N/A	2.
Chain of Custody Relinquished?	☐Yes	☐No	☐N/A	3.
Sampler Name and/or Signature on COC?	☐Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time?	☐Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72 hr.)?	☐Yes	☐No	☐N/A	6.
Rush Turn Around Time Requested?	☐Yes	☐No	☐N/A	7.
Sufficient Volume?	☐Yes	☐No	☐N/A	8.
Correct Containers Used?	☐Yes	☐No	☐N/A	9.
-Pace Containers Used?	☐Yes	☐No	☐N/A	
Containers Intact?	☐Yes	☐No	☐N/A	10.
Filtered Volume Received for Dissolved Tests?	☐Yes	☐No	☐N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☐Yes	☐No	☐N/A	12. Extra samples not on COC
All containers needing acid/base preservation have been checked?	☐Yes	☐No	☐N/A	13. ~~- OO-110-030816 3-8-16 1450~~ AG 3/10/16
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐Yes	☐No	☐N/A	- water blank 3-8-16 1115 - EO-01 030816 3-8-16 1108
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	☐Yes	☐No	☐N/A	- PB-01 030816 3-8-16 11:00
Samples checked for dechlorination	☐Yes	☐No	☐N/A	14.
Headspace in VOA Vials (>5-6mm)?	☐Yes	☐No	☐N/A	15.
Trip Blank Present?	☐Yes	☐No	☐N/A	16.
Trip Blank Custody Seals Present?	☐Yes	☐No	☐N/A	
Pace Trip Blank Lot # (if purchased):____				

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐Yes ☐No

Person Contacted: Aaron Hill Date/Time: 3/10/16

Comments/Resolution: PM informed of extra samples. Aaron instructed to proceed with analysis of these samples.

Project Manager SCURF Review: JY **Date:** 3/9/16

Project Manager SRF Review: JY **Date:** 3/10/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 1 of 3

2055419

Section A Required Client Information:

Company: Aecom
Address: 400 Northpark Town Center 1000 Abernathy Rd NE STE 900 Atlanta, GA 30328
Email To:
Phone: 678-808-8960 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover, PE
Copy To:
Purchase Order No.:
Project Name: CVA/ Shelby
Project Number:

Section C Invoice Information:

Attention: Same
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): 92289456

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/GRAB DATE	COLLECTED Composite End/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): VOCs 8260 (Y)	DDE 8270 (N)	Ethylene Glycol (N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	SW-7-030816	W	G			3/8/16	0908	1	6				6					3	3		N	012
2	SW-99-030816	W	G			3/8/16	0856	1	6				6					3	3		N	013
3	Trip Blank-01	W	G			3/8/16	—	1	2				2					2			N	029
4	SW-4-030816	W	G			3/8/16	0930	1	6				6					3	3		N	014
5	SW-98-030816	W	G			3/8/16	0937	1	6				6					3	3		N	015
6	C-49-030816	W	G			3/8/16	1035	1	6				6					3	3		N	016
7	TD-3-030816	W	G			3/8/16	1247	1	6				6					3	3		N	017
8	V-23-030816	W	G			3/8/16	1300	1	9	3			6					3	3	3	N	061
9	HH-48-030816	W	G			3/8/16	1300	1	3				3						3		N	024
10	K-28-030816	W	G			3/8/16	1345	1	9	3			6					3	3	3	N	062
11	HH-47-030816	W	G			3/8/16	1347	1	3				3						3		N	025
12	TD-4-030816	W	G			3/8/16	1348	1	6				6					3	3		N	018

- 1,4-Dioxane SIM w/ 0.0002 mg/l Report limit
- SVOC to include diphenyl ether
- VOCs to include THF

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature] / EFM	3/9/16	1659	[signature] / pace	3-9-16	1659				
	[signature] / pace	3-9-16	1359	[signature]	3-9-16	1359	7.6	✓	✓	✓

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron Hill

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/9/16

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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Page: 2 of 3

2055420

Section A Required Client Information:

Company: Aecom
Address: 400 Northpark Town Center 1000 Abernathy ST SE STE 900 Atlanta, GA 30328
Email To:
Phone: 678-808-8960 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover, PE
Copy To:
Purchase Order No.:
Project Name: CNA/Shelby
Project Number:

Section C Invoice Information:

Attention: Jayne
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): VOCs 8260 (N), DDE 8260 (N), Ethylene Glycol (N), Dow Thurm A 8270 (N)

92289456

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	VOCs 8260	DDE 8260	Ethylene Glycol	Dow Thurm A 8270	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	DD-5BR-030816	W	G			3/8/16	1440	–	9	3			6					3	3	3		N	003
2	IT-5-030816	W	G			3/8/16	1445	–	9	3			6					3	3	3		N	004
3	QG-110-030816	W	G			3/8/16	1450	–	6				6					3	3			N	014
4	AA-54-030816	W	G			3/8/16	1545	–	9	3			6					3	3	3		N	005
5	IT-6-030816	W	G			3/8/16	1550	–	9	3			6					3	3	3		N	006
6	PEW-4-030816	W	G			3/8/16	1604	–	8	2			6					3	3		2	N	016
7	TI-2-030816	W	G			3/8/16	1640	–	9	3			6					3	3	3		N	007
8	IT-7-030816	W	G			3/8/16	1645	–	9	3			6					3	3	3		N	008
9	G-50-030816	W	G			3/8/16	1704	–	27	9			18					9	9	9		N	MS/MSD collected 007
10	TD-2-030816	W	G			3/8/16	1730	–	6				6					3	3			N	010
11	Trip Blank-02	W	G			3/9/16	—	–	2				2					2				N	030
12	IT-10-030816	W	G			3/9/16	0720	–	9	3			6					3	3	3		N	009

Residual Chlorine (Y/N): 1,4-Dioxane SM1 w/ 0.0002 mg/l report limit; SVOCs to include dimethyl ether; VOCs to include THF

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	[signature] KRM	3/9/16	1059	[signature] pace	3-9-16	1059	
	[signature] pace	3-9-16	1359	[signature]	3-9-16	1359	3.6 ✓ ✓ ✓

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron Hill

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/9/16

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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Page: 3 of 3

2055421

Section A Required Client Information:

Company: Aecom
Address: 400 Northpark Town Center 1000 Abernathy Rd. SE Ste 900 Atlanta GA 30328
Email To:
Phone: 678-808-8960 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover, PE
Copy To:
Purchase Order No.:
Project Name: CNA/Shelby
Project Number:

Section C Invoice Information:

Attention: Same
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N): 92789456

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): VOCs 8260	PDE 8260	Ethylene Glycol	DioxanA 8270	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	IT-11-030916	W	G			3/9/16	0730	–	9	3			6					3	3	3		N	010
2	IT-12-030916	W	G			3/9/16	0740	–	9	3			6					3	3	3		N	011
3	IT-9-030916	W	G			3/9/16	0805	–	6	3			3						3	3		N	021
4	IT-8R-030916	W	G			3/9/16	0920	–	6	3			3						3	3		N	022
5	PEW-1-030916	W	G			3/9/16	0955	–	24	6			18					9	9	9	6	N	MS/MSD Taken 028
6	K-58-030916	W	G			3/9/16	1020	–	6	3			3						3	3		N	023
7																							
8																							
9																							
10																							
11																							
12																							

- 1,4-Dioxane SIM w/ 0.0002 mg/l Report limit
- SVOCs to include diphenyl ether
- VOCs to include THF

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Aaron Hill / EFM	3/9/16	1059	[illegible] Pace	3-9-16	1059				
	[illegible] Pace	3-9-16	1359	[illegible] Pace	3-9-16	1359	3.5	✓	✓	✓

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Aaron Hill

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/9/16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, Inc.
816 Durst Avenue East
Greenwood, SC 29649
(864)229-4413

June 03, 2016

Everett Glover
AECOM
1360 Peachtree Street NE
Suite 500
Atlanta, GA 30309

RE: Project: TICONA - SHELBY
Pace Project No.: 92299052

Dear Everett Glover:
Enclosed are the analytical results for sample(s) received by the laboratory on May 25, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Godwin
kevin.godwin@pacelabs.com
Project Manager

Enclosures

cc: Bryon Dahlgren, AECOM
Robert Davis, AECOM

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
816 Durst Avenue East
Greenwood, SC 29649
(864)229-4413

CERTIFICATIONS

Project: TICONA - SHELBY
Pace Project No.: 92299052

Indiana Certification IDs
7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 0042
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2014-148
Texas Certification #: T104704355-15-9
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-10-00128

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

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Pace Analytical Services, Inc.
816 Durst Avenue East
Greenwood, SC 29649
(864)229-4413

SAMPLE SUMMARY

Project: TICONA - SHELBY
Pace Project No.: 92299052

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92299052001	**IT-10**	Water	05/24/16 09:00	05/25/16 15:15
92299052002	**IT-11**	Water	05/24/16 09:08	05/25/16 15:15
92299052003	**IT-12**	Water	05/24/16 09:15	05/25/16 15:15

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SAMPLE ANALYTE COUNT

Project: TICONA - SHELBY
Pace Project No.: 92299052

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92299052001	**IT-10**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C
92299052002	**IT-11**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C
92299052003	**IT-12**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C

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PROJECT NARRATIVE

Project: TICONA - SHELBY
Pace Project No.: 92299052

Method: **EPA 8015 Alcohol-Glycol**
Description: 8015M Glycols in water
Client: CNA Holdings, LLC
Date: June 03, 2016

General Information:
3 samples were analyzed for EPA 8015 Alcohol-Glycol. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: TICONA - SHELBY
Pace Project No.: 92299052

Method: **EPA 8260B Mod.**
Description: 8260 MSV SIM
Client: CNA Holdings, LLC
Date: June 03, 2016

General Information:
9 samples were analyzed for EPA 8260B Mod.. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: TICONA - SHELBY
Pace Project No.: 92299052

Sample: IT-10 **Lab ID: 92299052001** Collected: 05/24/16 09:00 Received: 05/25/16 15:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		06/01/16 17:32	107-21-1	ED
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**601**	ug/L	20.0	19.0	10		05/31/16 16:53	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	114	%	50-150		10		05/31/16 16:53	17060-07-0	
Toluene-d8 (S)	121	%	50-150		10		05/31/16 16:53	2037-26-5	

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ANALYTICAL RESULTS

Project: TICONA - SHELBY
Pace Project No.: 92299052

Sample: IT-11 **Lab ID: 92299052002** Collected: 05/24/16 09:08 Received: 05/25/16 15:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		06/01/16 17:41	107-21-1	ED
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**813**	ug/L	20.0	19.0	10		05/31/16 17:12	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	125	%	50-150		10		05/31/16 17:12	17060-07-0	
Toluene-d8 (S)	124	%	50-150		10		05/31/16 17:12	2037-26-5	

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ANALYTICAL RESULTS

Project: TICONA - SHELBY
Pace Project No.: 92299052

Sample: IT-12 **Lab ID: 92299052003** Collected: 05/24/16 09:15 Received: 05/25/16 15:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	ND	mg/L	50.0	25.0	10		06/01/16 17:51	107-21-1	ED
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**741**	ug/L	20.0	19.0	10		05/31/16 17:30	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	120	%	50-150		10		05/31/16 17:30	17060-07-0	
Toluene-d8 (S)	121	%	50-150		10		05/31/16 17:30	2037-26-5	

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QUALITY CONTROL DATA

Project: TICONA - SHELBY
Pace Project No.: 92299052

QC Batch: GCSV/19921 Analysis Method: EPA 8015 Alcohol-Glycol
QC Batch Method: EPA 8015 Alcohol-Glycol Analysis Description: EPA 8015 Modified
Associated Lab Samples: 92299052001, 92299052002, 92299052003

METHOD BLANK: 1551231 Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Ethylene glycol	mg/L	ND	5.0	2.5	06/01/16 14:24	

LABORATORY CONTROL SAMPLE: 1551232

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylene glycol	mg/L	25	23.2	93	60-129	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: TICONA - SHELBY
Pace Project No.: 92299052

QC Batch: MSV/37054 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92299052004, 92299052005, 92299052009

METHOD BLANK: 1744699 Matrix: Water
Associated Lab Samples: 92299052004, 92299052005, 92299052009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	1.9	05/29/16 12:49	
1,2-Dichloroethane-d4 (S)	%	105	50-150		05/29/16 12:49	
Toluene-d8 (S)	%	109	50-150		05/29/16 12:49	

LABORATORY CONTROL SAMPLE: 1744700

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	17.9	89	71-125	
1,2-Dichloroethane-d4 (S)	%			105	50-150	
Toluene-d8 (S)	%			108	50-150	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: TICONA - SHELBY
Pace Project No.: 92299052

QC Batch: MSV/37071 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92299052001, 92299052002, 92299052003, 92299052006, 92299052007, 92299052008

METHOD BLANK: 1745208 Matrix: Water
Associated Lab Samples: 92299052001, 92299052002, 92299052003, 92299052006, 92299052007, 92299052008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	1.9	05/31/16 12:13	
1,2-Dichloroethane-d4 (S)	%	111	50-150		05/31/16 12:13	
Toluene-d8 (S)	%	116	50-150		05/31/16 12:13	

LABORATORY CONTROL SAMPLE: 1745209

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	18.0	90	71-125	
1,2-Dichloroethane-d4 (S)	%			109	50-150	
Toluene-d8 (S)	%			116	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1745210 1745211

Parameter	Units	50145885001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	19.0	20.3	89	95	50-150	7	30	
1,2-Dichloroethane-d4 (S)	%						116	118	50-150		150	
Toluene-d8 (S)	%						122	120	50-150		150	

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QUALIFIERS

Project: TICONA - SHELBY
Pace Project No.: 92299052

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

ED	Due to the extract's physical characteristics, the analysis was performed at dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TICONA - SHELBY
Pace Project No.: 92299052

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92299052001	**IT-10**	EPA 8015 Alcohol-Glycol	GCSV/19921		
92299052002	**IT-11**	EPA 8015 Alcohol-Glycol	GCSV/19921		
92299052003	**IT-12**	EPA 8015 Alcohol-Glycol	GCSV/19921		
92299052001	**IT-10**	EPA 8260B Mod.	MSV/37071		
92299052002	**IT-11**	EPA 8260B Mod.	MSV/37071		
92299052003	**IT-12**	EPA 8260B Mod.	MSV/37071		

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Page 2 of 2 for Internal Use ONLY

Sample Condition Upon Receipt

Client Name: AECOM

Project # WO# : 92299052

92299052

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace ☐ Other:_____

Custody Seal Present? ☐ Yes ☒ No **Seals Intact?** ☐ Yes ☒ No

Date/Initials Person Examining Contents: RPS/25/16

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other:_____

Thermometer: T1505 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Correction Factor: 0.0°C **Cooler Temp Corrected (°C):** 3.7°C **Biological Tissue Frozen?** ☐ Yes ☒ No ☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☒ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☒ No

				Comments/Discrepancy:
Chain of Custody Present?	☒ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☒ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☒ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☒ No	☐ N/A	4.
Sufficient Volume?	☒ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☒ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☒ Yes	☐ No	☐ N/A	
Containers Intact?	☒ Yes	☐ No	☐ N/A	7.
Samples Field Filtered?	☐ Yes	☒ No	☐ N/A	8. Note if sediment is visible in the dissolved container
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: Water	☒ Yes	☐ No	☐ N/A	9.
All containers needing acid/base preservation have been checked?	☐ Yes	☒ No	☐ N/A	10. HNC3 pH<2
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☒ No	☐ N/A	HCl pH<2 H2SO4 pH<2 NaOH pH>12
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	☐ Yes	☒ No	☐ N/A	NaOH/ZnOAc pH>9
Samples checked for dechlorination?	☐ Yes	☒ No	☐ N/A	11.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☒ No	☐ N/A	12.
Trip Blank Present?	☐ Yes	☒ No	☐ N/A	13.
Trip Blank Custody Seals Present?	☐ Yes	☒ No	☐ N/A	
Pace Trip Blank Lot # (if purchased):_____				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Sample Discrepancy: _____

Project Manager SCURF Review: JY **Date:** 5/26/16

Project Manager SRF Review: JY **Date:** 5/26/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1697704

Section A Required Client Information:

Company: Aecom
Address: 400 North Park Town Center 1000 Abernathy Rd-NE Ste 900 Atlanta GA 30328
Email To:
Phone: 678-808-8960 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover, Jr PE
Copy To:
Purchase Order No.:
Project Name: Ticona/Shelby
Project Number:

Section C Invoice Information:

Attention: Sayne
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #: 16605-1

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): 1,4 Dioxane (Y); Ethylene Glycol (N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	1,4 Dioxane	Ethylene Glycol	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	IT-10	WT	G			5/24/16	0900	–	6	2			3					3	2	–	0922091052
2	IT-11	WT	G			5/24/16	0908	–	6	2			3					3	2	–	001
3	IT-12	WT	G			5/24/16	0915	–	6	2			3					3	2	–	002
4	PP-C-EFF	WT	G			5/24/16	1000	–	3				3					3		–	003
5	PP-B-EFF	WT	G			5/24/16	1015	–	3				3					3		–	004
6	PP-A-EFF	WT	G			5/24/16	1019	–	3				3					3		–	005
7	Clarifier EFF	WT	G			5/24/16	1025	–	3				3					3		–	006
8	Headworks	WT	G			5/24/16	1033	–	3				3					3		–	007
9	Dupe	WT	G			5/24/16	—	–	3				3					3		–	008
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature] / AFM	5/25/16	09:07	[signature] Pace	5/25/16	09:07				
	[signature] Pace	5/25/16	15:15	RP Pace HVL	5/25/16	15:15	3.7	Y	N	Y

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Aaron Hill					
SIGNATURE of SAMPLER:	[signature]	DATE Signed (MM/DD/YY): 5/24/16				

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, Inc.
816 Durst Avenue East
Greenwood, SC 29649
(864)229-4413

July 12, 2016

Everett Glover
AECOM
1360 Peachtree Street NE
Suite 500
Atlanta, GA 30309

RE: Project: TICONA SHELBY
Pace Project No.: 92303151

Dear Everett Glover:
Enclosed are the analytical results for sample(s) received by the laboratory on June 28, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Godwin
kevin.godwin@pacelabs.com
Project Manager

Enclosures

cc: Bryon Dahlgren, AECOM
Robert Davis, AECOM

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: TICONA SHELBY
Pace Project No.: 92303151

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 0042
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2014-148
Texas Certification #: T104704355-15-9
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-10-00128

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

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SAMPLE SUMMARY

Project: TICONA SHELBY
Pace Project No.: 92303151

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92303151001	**IT-10**	Water	06/27/16 08:30	06/28/16 10:55
92303151002	**IT-11**	Water	06/27/16 08:40	06/28/16 10:55
92303151003	**IT-12**	Water	06/27/16 08:50	06/28/16 10:55

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SAMPLE ANALYTE COUNT

Project: TICONA SHELBY
Pace Project No.: 92303151

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92303151001	**IT-10**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C
92303151002	**IT-11**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C
92303151003	**IT-12**	EPA 8015 Alcohol-Glycol	BJW	1	PASI-I
		EPA 8260B Mod.	DLK	3	PASI-C

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PROJECT NARRATIVE

Project: TICONA SHELBY
Pace Project No.: 92303151

Method: **EPA 8015 Alcohol-Glycol**
Description: 8015M Glycols in water
Client: CNA Holdings, LLC
Date: July 12, 2016

General Information:
3 samples were analyzed for EPA 8015 Alcohol-Glycol. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: TICONA SHELBY
Pace Project No.: 92303151

Method: **EPA 8260B Mod.**
Description: 8260 MSV SIM
Client: CNA Holdings, LLC
Date: July 12, 2016

General Information:
9 samples were analyzed for EPA 8260B Mod.. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 319413

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 1769982)
  - 1,4-Dioxane (p-Dioxane)
- MSD (Lab ID: 1769983)
  - 1,4-Dioxane (p-Dioxane)

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: TICONA SHELBY
Pace Project No.: 92303151

Sample: IT-10 **Lab ID: 92303151001** Collected: 06/27/16 08:30 Received: 06/28/16 10:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**82.2**	mg/L	50.0	25.0	10		07/06/16 19:04	107-21-1	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**683**	ug/L	20.0	19.0	10		06/30/16 16:45	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	116	%	50-150		10		06/30/16 16:45	17060-07-0	
Toluene-d8 (S)	109	%	50-150		10		06/30/16 16:45	2037-26-5	

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ANALYTICAL RESULTS

Project: TICONA SHELBY
Pace Project No.: 92303151

Sample: IT-11 **Lab ID: 92303151002** Collected: 06/27/16 08:40 Received: 06/28/16 10:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**1590**	mg/L	250	125	50		07/07/16 18:25	107-21-1	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**755**	ug/L	40.0	38.0	20		06/30/16 17:04	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	109	%	50-150		20		06/30/16 17:04	17060-07-0	
Toluene-d8 (S)	108	%	50-150		20		06/30/16 17:04	2037-26-5	

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ANALYTICAL RESULTS

Project: TICONA SHELBY
Pace Project No.: 92303151

Sample: IT-12 **Lab ID: 92303151003** Collected: 06/27/16 08:50 Received: 06/28/16 10:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015M Glycols in water	Analytical Method: EPA 8015 Alcohol-Glycol								
Ethylene glycol	**116**	mg/L	50.0	25.0	10		07/06/16 19:23	107-21-1	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.								
1,4-Dioxane (p-Dioxane)	**752**	ug/L	20.0	19.0	10		06/30/16 17:23	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	107	%	50-150		10		06/30/16 17:23	17060-07-0	
Toluene-d8 (S)	106	%	50-150		10		06/30/16 17:23	2037-26-5	

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QUALITY CONTROL DATA

Project: TICONA SHELBY
Pace Project No.: 92303151

QC Batch: 340469 Analysis Method: EPA 8015 Alcohol-Glycol
QC Batch Method: EPA 8015 Alcohol-Glycol Analysis Description: EPA 8015 Modified
Associated Lab Samples: 92303151001, 92303151002, 92303151003

METHOD BLANK: 1578238 Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Ethylene glycol	mg/L	ND	5.0	2.5	07/06/16 15:15	

LABORATORY CONTROL SAMPLE: 1578239

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylene glycol	mg/L	25	22.2	89	60-129	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1578240 1578241

Parameter	Units	92303253001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethylene glycol	mg/L	ND	25	25	19.4	22.7	78	91	23-157	16	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: TICONA SHELBY
Pace Project No.: 92303151

QC Batch: 319412 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92303151001, 92303151002, 92303151003, 92303151004, 92303151005, 92303151006, 92303151007

METHOD BLANK: 1769977 Matrix: Water
Associated Lab Samples: 92303151001, 92303151002, 92303151003, 92303151004, 92303151005, 92303151006, 92303151007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	1.9	06/30/16 12:04	
1,2-Dichloroethane-d4 (S)	%	102	50-150		06/30/16 12:04	
Toluene-d8 (S)	%	103	50-150		06/30/16 12:04	

LABORATORY CONTROL SAMPLE: 1769978

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	19.9	99	71-125	
1,2-Dichloroethane-d4 (S)	%			102	50-150	
Toluene-d8 (S)	%			104	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1769985 1769986

Parameter	Units	92303135014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	89.3	50	50	137	137	96	95	50-150	0	30	
1,2-Dichloroethane-d4 (S)	%						108	104	50-150		150	
Toluene-d8 (S)	%						106	106	50-150		150	

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QUALITY CONTROL DATA

Project: TICONA SHELBY
Pace Project No.: 92303151

QC Batch: 319413 | Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. | Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92303151008, 92303151009

METHOD BLANK: 1769980 | Matrix: Water
Associated Lab Samples: 92303151008, 92303151009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	1.9	06/30/16 11:45	
1,2-Dichloroethane-d4 (S)	%	104	50-150		06/30/16 11:45	
Toluene-d8 (S)	%	102	50-150		06/30/16 11:45	

LABORATORY CONTROL SAMPLE: 1769981

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	20.1	101	71-125	
1,2-Dichloroethane-d4 (S)	%			102	50-150	
Toluene-d8 (S)	%			103	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1769982 1769983

Parameter	Units	92303135016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	83.9	20	20	106	107	110	117	50-150	1	30	E
1,2-Dichloroethane-d4 (S)	%						110	110	50-150		150	
Toluene-d8 (S)	%						108	107	50-150		150	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: TICONA SHELBY
Pace Project No.: 92303151

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte
PASI-I	Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TICONA SHELBY
Pace Project No.: 92303151

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92303151001	**IT-10**	EPA 8015 Alcohol-Glycol	340469		
92303151002	**IT-11**	EPA 8015 Alcohol-Glycol	340469		
92303151003	**IT-12**	EPA 8015 Alcohol-Glycol	340469		
92303151001	**IT-10**	EPA 8260B Mod.	319412		
92303151002	**IT-11**	EPA 8260B Mod.	319412		
92303151003	**IT-12**	EPA 8260B Mod.	319412		

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Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: May 24, 2016 Page 1 of 2
	Document No.: F-ASV-CS-003-Rev.20	Issuing Authority: Pace Asheville Quality Office

Sample Condition Upon Receipt

Client Name: Accom

Project #:

WO#: 92303151

92303151

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace ☐ Other:____

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☑ No

Date/Initials Person Examining Contents: 6/28/16

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other:_____

Thermometer:
☐ IR Gun #5 SN:15527198 Type of Ice: ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Correction Factor: 0.0°C Cooler Temp Corrected (°C): 3.4 Biological Tissue Frozen? ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	10. HNO3 pH<2
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	HCl pH<2
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	☑ Yes	☐ No	☐ N/A	H2SO4 pH<2
				NaOH pH>12
				NaOH/ZnOAc pH>9
Samples checked for dechlorination?	☐ Yes	☐ No	☑ N/A	11.
Headspace in VOA Vials (>5-6mm)?	☑ Yes	☐ No	☐ N/A	12.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	13.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):_____				

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Sample Discrepancy: _____

Project Manager SCURF Review: JY Date: 6/28/16

Project Manager SRF Review: JY Date: 6/29/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1697705

Section A Required Client Information:

Company: Aecom
Address: 400 Northpark Town Center Ste 600, 1000 Abernathy Rd - NE Atlanta GA 30328
Email To:
Phone: 678-808-8960 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Everett Glover, Jr PE
Copy To:
Purchase Order No.:
Project Name: Tiona Shelby
Project Number:

Section C Invoice Information:

Attention: Same
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): 8240 1,4-Dioxane (Y), Ethylene Glycol (Y)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	8240	1,4-Dioxane	Ethylene Glycol	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. (9230351)
1	IT-10	WT	G			6/27/16	0830	-	4	1			3					3	1		N	001
2	IT-11						0840	-	4	1			3					3	1			002
3	IT-12						0850	-	4	1			3					3	1			003
4	PP-C-EFF						0905	-	3				3					3				004
5	Dupe						—	-					3					3				005
6	PP-B-EFF						0917	-					3					3				006
7	PP-A-EFF						0924	-					3					3				007
8	Clarifier EFF						0930	-					3					3				008
9	Headworks						0940	-					3					3				009
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	[signature]	6/28/16	1055	[signature]	6-28-16	1055	
	[signature] / UPS	6-28-16	1220	[signature]	6/28/16	12:20	3.8 Y 2 Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Aaron Hill
SIGNATURE of SAMPLER: [signature]
DATE Signed (MM/DD/YY): 6/27/16

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Appendix C

Groundwater Analytical Results – March 2016

Appendix C-1
Groundwater Analytical Results (VOCs and Ethylene Glycol)
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	AA-54 3/8/2016 AA-54-030816	C-49 3/8/2016 C-49-030816	CC-33 3/9/2016 CC-33-030916	CC-64 3/9/2016 CC-64-030916	DD-58R 3/8/2016 DD-58R-030816	F-55 3/9/2016 F-55-030916	F-55 DUP 3/9/2016 F-99-030916
Method SW846 8015M										
Ethylene Glycol	mg/L	10	--	<50.0	--	--	<50.0	<50.0	**715 ***	**749 ***
Method SW8260 SIM										
1,4-Dioxane	mg/L	0.003	--	**0.186 ***	<0.0020	**0.119 ***	**0.218 ***	**0.0828 ***	**0.333 ***	**0.347 ***
Method SW8260										
1,1,1-Trichloroethane	mg/L	0.2	0.2	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
1,1,2,2-Tetrachloroethane	mg/L	0.0002	--	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
1,1,2-Trichloroethane	mg/L	--	0.005	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
1,1-Dichloroethane	mg/L	0.006	--	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
1,1-Dichloroethene	mg/L	--	0.007	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
1,2-Dichloropropane	mg/L	0.0006	0.005	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
2-Butanone	mg/L	4	--	<0.0050	<0.0050	<0.0050	--	<0.0050	**0.282**	**0.284**
2-Hexanone	mg/L	--	--	<0.0050	<0.0050	<0.0050	--	<0.0050	<0.0050	<0.0100
4-Methyl-2-Pentanone	mg/L	--	--	<0.0050	<0.0050	<0.0050	--	<0.0050	<0.0050	<0.0100
Acetone	mg/L	6	--	<0.0250	<0.0250	<0.0250	--	<0.0250	**0.367**	**0.411**
Benzene	mg/L	0.001	0.005	<0.0010	<0.0010	**0.0010**	--	<0.0010	**0.0333 * ****	**0.0304 * ****
Bromodichloromethane	mg/L	0.0006	0.08	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
Bromoform	mg/L	0.004	0.08	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
Bromomethane	mg/L	--	--	<0.0020	<0.0020	<0.0020	--	<0.0020	<0.0020	<0.0040
Carbon Disulfide	mg/L	0.7	--	<0.0020	<0.0020	<0.0020	--	<0.0020	**0.0022**	<0.0040
Carbon Tetrachloride	mg/L	0.0003	0.005	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
Chloroethane	mg/L	3	--	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
Chloroform	mg/L	0.07	0.08	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
Chloromethane	mg/L	0.003	--	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	<0.0010	**0.0263**	--	**0.0019**	<0.0010	<0.0020
cis-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
Dibromochloromethane	mg/L	0.0004	0.08	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
Ethylbenzene	mg/L	0.6	0.7	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
m,p-Xylene	mg/L	0.5	--	<0.0020	<0.0020	<0.0020	--	<0.0020	<0.0020	<0.0040
o-Xylene	mg/L	0.5	--	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
Methylene chloride	mg/L	0.005	0.005	<0.0020	<0.0020	<0.0020	--	<0.0020	<0.0020	<0.0040
Styrene	mg/L	0.07	0.1	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ	--	<0.0010 UJ	<0.0010 UJ	<0.0020 UJ
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
Tetrahydrofuran	mg/L	--	--	<0.0100	<0.0100	<0.0100	--	<0.0100	**0.245**	**0.238**
Toluene	mg/L	0.6	1	<0.0010	<0.0010	<0.0010	--	<0.0010	**0.0228**	**0.0203**
Trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0010	**0.0015**	--	<0.0010	<0.0010	<0.0020
Trans-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010	<0.0020
Trichloroethene	mg/L	0.003	0.005	<0.0010	<0.0010	**0.0254**	--	<0.0010	**0.0022**	**0.0021**
Vinyl acetate	mg/L	--	--	<0.0020	<0.0020	<0.0020	--	<0.0020	<0.0020	<0.0040
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0010 UJ	**0.0035 J * ****	--	<0.0010 UJ	<0.0010 UJ	<0.0020 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approximated and may be inaccurate or imprecise.

Appendix C-1
Groundwater Analytical Results (VOCs and Ethylene Glycol)
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	G-50 3/8/2016 G-50-030816	G-88 3/9/2016 G-88-030916	GG-61 3/9/2016 GG-61-030916	HH-48 3/8/2016 HH-48-030816	HH-77 3/8/2016 HH-77-030816	I-57 3/9/2016 I-57-030916	II-112 3/9/2016 II-112-030916
Method SW846 8015M										
Ethylene Glycol	mg/L	10	--	<50.0	--	--	--	--	<50.0	--
Method SW8260 SIM										
1,4-Dioxane	mg/L	0.003	--	**0.0193 ***	**0.0152 ***	**0.0350 ***	<0.0020	<0.0020	**0.598 ***	**0.0979 ***
Method SW8260										
1,1,1-Trichloroethane	mg/L	0.2	0.2	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
1,1,2,2-Tetrachloroethane	mg/L	0.0002	--	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
1,1,2-Trichloroethane	mg/L	--	0.005	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
1,1-Dichloroethane	mg/L	0.006	--	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
1,1-Dichloroethene	mg/L	--	0.007	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
1,2-Dichloropropane	mg/L	0.0006	0.005	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
2-Butanone	mg/L	4	--	<0.0050	<0.0050	<0.0050	--	--	<0.0050	<0.0050
2-Hexanone	mg/L	--	--	<0.0050	<0.0050	<0.0050	--	--	<0.0050	<0.0050
4-Methyl-2-Pentanone	mg/L	--	--	<0.0050	<0.0050	<0.0050	--	--	<0.0050	<0.0050
Acetone	mg/L	6	--	<0.0250	<0.0250	<0.0250	--	--	<0.0250	<0.0250
Benzene	mg/L	0.001	0.005	<0.0010	**0.0102 * ****	<0.0010	--	--	<0.0010	<0.0010
Bromodichloromethane	mg/L	0.0006	0.08	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Bromoform	mg/L	0.004	0.08	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Bromomethane	mg/L	--	--	<0.0020	<0.0020	<0.0020	--	--	<0.0020	<0.0020
Carbon Disulfide	mg/L	0.7	--	<0.0020	<0.0020	<0.0020	--	--	<0.0020	<0.0020
Carbon Tetrachloride	mg/L	0.0003	0.005	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Chloroethane	mg/L	3	--	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	<0.0010	**0.0039**	<0.0010	--	--	**0.0264**	<0.0010
Chloromethane	mg/L	0.003	--	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	**0.0018**	<0.0010	--	--	<0.0010	<0.0010
cis-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Dibromochloromethane	mg/L	0.0004	0.08	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Ethylbenzene	mg/L	0.6	0.7	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0020	<0.0020	<0.0020	--	--	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Methylene chloride	mg/L	0.005	0.005	<0.0020	<0.0020	<0.0020	--	--	<0.0020	<0.0020
Styrene	mg/L	0.07	0.1	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ	--	--	<0.0010 UJ	<0.0010 UJ
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	<0.0100	<0.0100	<0.0100	--	--	<0.0100	<0.0100
Toluene	mg/L	0.6	1	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Trans-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0010	<0.0010	--	--	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	**0.0017**	**0.0904 * ****	<0.0010	--	--	<0.0010	<0.0010
Vinyl acetate	mg/L	--	--	<0.0020	<0.0020	<0.0020	--	--	<0.0020	<0.0020
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ	--	--	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approximated and may be inaccurat

Appendix C-1
Groundwater Analytical Results (VOCs and Ethylene Glycol)
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	II-65 3/9/2016 II-65-030916	IT-5 3/8/2016 IT-5-030816	IT-6 3/8/2016 IT-6-030816	IT-7 3/8/2016 IT-7-030816	IT-8R 3/9/2016 IT-8R-030916	IT-9 3/9/2016 IT-9-030916	IT-10 3/9/2016 IT-10-030916
Method SW846 8015M										
Ethylene Glycol	mg/L	10	--	<50.0	**1940 ***	**1900 ***	**314 ***	**845 ***	**93.3 ***	**384 ***
Method SW8260 SIM										
1,4-Dioxane	mg/L	0.003	--	**0.105 ***	**1.7 ***	**2.87 ***	**0.442 ***	**1.29 ***	**0.288 ***	**0.665 ***
Method SW8260										
1,1,1-Trichloroethane	mg/L	0.2	0.2	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
1,1,2,2-Tetrachloroethane	mg/L	0.0002	--	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
1,1,2-Trichloroethane	mg/L	--	0.005	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
1,1-Dichloroethane	mg/L	0.006	--	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
1,1-Dichloroethene	mg/L	--	0.007	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
1,2-Dichloropropane	mg/L	0.0006	0.005	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
2-Butanone	mg/L	4	--	<0.0050	**0.221**	**0.485**	**0.0817**	--	--	**0.0497**
2-Hexanone	mg/L	--	--	<0.0050	<0.0200	**0.371**	<0.0050	--	--	<0.0125
4-Methyl-2-Pentanone	mg/L	--	--	<0.0050	<0.0200	<0.0100	<0.0050	--	--	<0.0125
Acetone	mg/L	6	--	<0.0250	**0.665**	**0.553**	**0.312**	--	--	**0.234**
Benzene	mg/L	0.001	0.005	<0.0010	**0.0082 * ****	**0.0139 * ****	**0.0658 * ****	--	--	**0.0050 ***
Bromodichloromethane	mg/L	0.0006	0.08	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Bromoform	mg/L	0.004	0.08	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Bromomethane	mg/L	--	--	<0.0020	<0.0080	<0.0040	<0.0020	--	--	<0.0050
Carbon Disulfide	mg/L	0.7	--	<0.0020	<0.0080	<0.0040	<0.0020	--	--	<0.0050
Carbon Tetrachloride	mg/L	0.0003	0.005	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0040	<0.0020	**0.0437**	--	--	<0.0025
Chloroethane	mg/L	3	--	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Chloroform	mg/L	0.07	0.08	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Chloromethane	mg/L	0.003	--	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
cis-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Dibromochloromethane	mg/L	0.0004	0.08	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Ethylbenzene	mg/L	0.6	0.7	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
m,p-Xylene	mg/L	0.5	--	<0.0020	<0.0080	<0.0040	**0.0027**	--	--	<0.0050
o-Xylene	mg/L	0.5	--	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Methylene chloride	mg/L	0.005	0.005	<0.0020	<0.0080	<0.0040	<0.0020	--	--	<0.0050
Styrene	mg/L	0.07	0.1	<0.0010 UJ	<0.0040 UJ	<0.0020 UJ	<0.0010 UJ	--	--	<0.0025 UJ
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Tetrahydrofuran	mg/L	--	--	<0.0100	**7.24**	**3.28**	**0.944**	--	--	**1.9**
Toluene	mg/L	0.6	1	<0.0010	**0.0115**	**0.0209**	**0.0158**	--	--	<0.0025
Trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Trans-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Trichloroethene	mg/L	0.003	0.005	<0.0010	<0.0040	<0.0020	<0.0010	--	--	<0.0025
Vinyl acetate	mg/L	--	--	<0.0020	<0.0080	<0.0040	<0.0020	--	--	<0.0050
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0040 UJ	<0.0020 UJ	<0.0010 UJ	--	--	<0.0025 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approximated and may be inaccurat

Appendix C-1
Groundwater Analytical Results (VOCs and Ethylene Glycol)
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	IT-11 3/9/2016 IT-11-030916	IT-12 3/9/2016 IT-12-030916	K-28 3/8/2016 K-28-030816	K-58 3/9/2016 K-58-030916	KK-55 3/9/2016 KK-55-030916	OT-2R 3/9/2016 OT-2R-030916	OT-2R DUP 3/9/2016 OT-99-030916
Method SW846 8015M										
Ethylene Glycol	mg/L	10	--	**2870 ***	**484 ***	<50.0	**50.7 ***	<50.0	<50.0	<50.0
Method SW8260 SIM										
1,4-Dioxane	mg/L	0.003	--	**0.983 ***	**0.859 ***	**0.875 ***	**0.629 ***	**0.185**	**0.0946 ***	**0.0932 ***
Method SW8260										
1,1,1-Trichloroethane	mg/L	0.2	0.2	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
1,1,2,2-Tetrachloroethane	mg/L	0.0002	--	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
1,1,2-Trichloroethane	mg/L	--	0.005	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
1,1-Dichloroethane	mg/L	0.006	--	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
1,1-Dichloroethene	mg/L	--	0.007	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
1,2-Dichloropropane	mg/L	0.0006	0.005	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
2-Butanone	mg/L	4	--	**0.13**	**0.337**	**0.0419**	--	<0.0050	<0.0050	<0.0050
2-Hexanone	mg/L	--	--	**0.0068**	<0.0100	<0.0050	--	<0.0050	<0.0050	<0.0050
4-Methyl-2-Pentanone	mg/L	--	--	<0.0050	<0.0100	<0.0050	--	<0.0050	<0.0050	<0.0050
Acetone	mg/L	6	--	**0.121**	**0.419**	**0.0566**	--	<0.0250	<0.0250	<0.0250
Benzene	mg/L	0.001	0.005	**0.0084 * ****	**0.0038 ***	**0.0045 ***	--	<0.0010	<0.0010	<0.0010
Bromodichloromethane	mg/L	0.0006	0.08	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Bromoform	mg/L	0.004	0.08	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Bromomethane	mg/L	--	--	<0.0020	<0.0040	<0.0020	--	<0.0020	<0.0020	<0.0020
Carbon Disulfide	mg/L	0.7	--	**0.0176**	<0.0040	<0.0020	--	<0.0020	<0.0020	<0.0020
Carbon Tetrachloride	mg/L	0.0003	0.005	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Chloroethane	mg/L	3	--	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Chloromethane	mg/L	0.003	--	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
cis-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Dibromochloromethane	mg/L	0.0004	0.08	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.6	0.7	**0.0012**	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	**0.0033**	<0.0040	<0.0020	--	<0.0020	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	**0.0015**	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Methylene chloride	mg/L	0.005	0.005	<0.0020	<0.0040	<0.0020	--	<0.0020	<0.0020	<0.0020
Styrene	mg/L	0.07	0.1	<0.0010 UJ	<0.0020 UJ	<0.0010 UJ	--	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	**1.4**	**2.7**	**0.867**	--	<0.0100	<0.0100	<0.0100
Toluene	mg/L	0.6	1	**0.0033**	**0.0031**	**0.0050**	--	<0.0010	<0.0010	<0.0010
Trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Trans-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	<0.0010	<0.0020	<0.0010	--	<0.0010	<0.0010	<0.0010
Vinyl acetate	mg/L	--	--	<0.0020	<0.0040	<0.0020	--	<0.0020	<0.0020	<0.0020
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0020 UJ	<0.0010 UJ	--	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approximated and may be inaccurat

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Groundwater Analytical Results (VOCs and Ethylene Glycol)
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	PEW-1 3/9/2016 PEW-1-030916	PEW-3 3/9/2016 PEW-3-030916	PEW-4 3/8/2016 PEW-4-030816	QQ-110 3/8/2016 QQ-110-030816	RR-131 3/9/2016 RR-131-030916	T-35 3/9/2016 T-35-030916	TD-2 3/8/2016 TD-2-030816
Method SW846 8015M										
Ethylene Glycol	mg/L	10	--	<50.0	--	--	--	--	--	--
Method SW8260 SIM										
1,4-Dioxane	mg/L	0.003	--	**0.0418 ***	<0.0020	**0.0626 ***	**0.0043 ***	**0.0124 ***	**0.169 ***	**0.0020**
Method SW8260										
1,1,1-Trichloroethane	mg/L	0.2	0.2	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
1,1,2,2-Tetrachloroethane	mg/L	0.0002	--	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
1,1,2-Trichloroethane	mg/L	--	0.005	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
1,1-Dichloroethane	mg/L	0.006	--	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
1,1-Dichloroethene	mg/L	--	0.007	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0010	<0.0010	<0.4	**0.0017**	<0.0010	<0.0010
1,2-Dichloropropane	mg/L	0.0006	0.005	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
2-Butanone	mg/L	4	--	<0.0050	<0.0050	<0.0050	<2	<0.0050	<0.0050	<0.0050
2-Hexanone	mg/L	--	--	<0.0050	<0.0050	<0.0050	<2	<0.0050	<0.0050	<0.0050
4-Methyl-2-Pentanone	mg/L	--	--	<0.0050	<0.0050	<0.0050	<2	<0.0050	<0.0050	<0.0050
Acetone	mg/L	6	--	<0.0250	<0.0250	<0.0250	<10	<0.0250	<0.0250	<0.0250
Benzene	mg/L	0.001	0.005	**0.0022 ***	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Bromodichloromethane	mg/L	0.0006	0.08	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Bromoform	mg/L	0.004	0.08	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Bromomethane	mg/L	--	--	<0.0020	<0.0020	<0.0020	<0.8	<0.0020	<0.0020	<0.0020
Carbon Disulfide	mg/L	0.7	--	<0.0020	<0.0020	<0.0020	<0.8	<0.0020	<0.0020	<0.0020
Carbon Tetrachloride	mg/L	0.0003	0.005	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Chloroethane	mg/L	3	--	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	<0.0010	<0.0010	<0.0010	<0.4	**0.0012**	<0.0010	<0.0010
Chloromethane	mg/L	0.003	--	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	**0.0097**	<0.0010	<0.0010	<0.4	**0.0062**	<0.0010	<0.0010
cis-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Dibromochloromethane	mg/L	0.0004	0.08	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.6	0.7	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0020	<0.0020	<0.0020	<0.8	<0.0020	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Methylene chloride	mg/L	0.005	0.005	<0.0020	<0.0020	<0.0020	<0.8	<0.0020	<0.0020	<0.0020
Styrene	mg/L	0.07	0.1	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ	<0.4 UJ	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	**0.0141**	<0.0100	<0.0100	<4	<0.0100	<0.0100	<0.0100
Toluene	mg/L	0.6	1	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Trans-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0010	<0.0010	<0.4	<0.0010	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	**0.0303 * ****	**0.0017**	**0.0035 ***	**41.2 * ****	**0.0494 * ****	<0.0010	<0.0010
Vinyl acetate	mg/L	--	--	<0.0020	<0.0020	<0.0020	<0.8	<0.0020	<0.0020	<0.0020
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ	<0.4 UJ	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approximated and may be inaccurat

Appendix C-1
Groundwater Analytical Results (VOCs and Ethylene Glycol)
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	TD-3 3/8/2016 TD-3-030816	TD-4 3/8/2016 TD-4-030816	TI-2 3/8/2016 TI-2-030816	V-23 3/8/2016 V-23-030816	V-65 3/9/2016 V-65-030916	V-65 DUP 3/9/2016 V-99-030916
Method SW846 8015M									
Ethylene Glycol	mg/L	10	--	--	--	<50.0	<50.0	**54.0 ***	<50.0
Method SW8260 SIM									
1,4-Dioxane	mg/L	0.003	--	**0.0095 ***	<0.0020	**0.0054 ***	**0.0771 ***	**1.07 ***	**1.02 ***
Method SW8260									
1,1,1-Trichloroethane	mg/L	0.2	0.2	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
1,1,2,2-Tetrachloroethane	mg/L	0.0002	--	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
1,1,2-Trichloroethane	mg/L	--	0.005	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethane	mg/L	0.006	--	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethene	mg/L	--	0.007	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane	mg/L	0.0004	0.005	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloropropane	mg/L	0.0006	0.005	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
2-Butanone	mg/L	4	--	<0.0050	<0.2	<0.0050	<0.0050	**0.0545**	**0.0471**
2-Hexanone	mg/L	--	--	<0.0050	<0.2	<0.0050	<0.0050	<0.0050	<0.0050
4-Methyl-2-Pentanone	mg/L	--	--	<0.0050	<0.2	<0.0050	<0.0050	<0.0050	<0.0050
Acetone	mg/L	6	--	<0.0250	<1	<0.0250	<0.0250	**0.0956**	**0.0894**
Benzene	mg/L	0.001	0.005	<0.0010	<0.0400	<0.0010	**0.0022 ***	**0.0039 ***	**0.0041 ***
Bromodichloromethane	mg/L	0.0006	0.08	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
Bromoform	mg/L	0.004	0.08	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
Bromomethane	mg/L	--	--	<0.0020	<0.0800	<0.0020	<0.0020	<0.0020	<0.0020
Carbon Disulfide	mg/L	0.7	--	<0.0020	<0.0800	<0.0020	<0.0020	<0.0020	<0.0020
Carbon Tetrachloride	mg/L	0.0003	0.005	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
Chlorobenzene	mg/L	0.05	0.1	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
Chloroethane	mg/L	3	--	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
Chloroform	mg/L	0.07	0.08	**0.0011**	<0.0400	**0.0060**	<0.0010	<0.0010	<0.0010
Chloromethane	mg/L	0.003	--	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	0.07	0.07	<0.0010	<0.0400	**0.0012**	<0.0010	<0.0010	<0.0010
cis-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
Dibromochloromethane	mg/L	0.0004	0.08	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.6	0.7	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
m,p-Xylene	mg/L	0.5	--	<0.0020	<0.0800	<0.0020	<0.0020	<0.0020	<0.0020
o-Xylene	mg/L	0.5	--	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
Methylene chloride	mg/L	0.005	0.005	<0.0020	<0.0800	<0.0020	<0.0020	<0.0020	<0.0020
Styrene	mg/L	0.07	0.1	<0.0010 UJ	<0.0400 UJ	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ
Tetrachloroethene	mg/L	0.0007	0.005	<0.0010	<0.0400	**0.0056 * ****	<0.0010	<0.0010	<0.0010
Tetrahydrofuran	mg/L	--	--	<0.0100	<0.4	<0.0100	**0.0502**	**1.59**	**1.54**
Toluene	mg/L	0.6	1	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
Trans-1,2-Dichloroethene	mg/L	0.1	0.1	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
Trans-1,3-Dichloropropene	mg/L	0.0004	--	<0.0010	<0.0400	<0.0010	<0.0010	<0.0010	<0.0010
Trichloroethene	mg/L	0.003	0.005	**0.0165 * ****	**4.92 * ****	**0.0081 * ****	<0.0010	<0.0010	<0.0010
Vinyl acetate	mg/L	--	--	<0.0020	<0.0800	<0.0020	<0.0020	<0.0020	<0.0020
Vinyl chloride	mg/L	3E-05	0.002	<0.0010 UJ	<0.0400 UJ	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ

Notes:
Bold: Parameter was detected by the laboratory
* Bold and shaded: Parameter exceeded the NC 2L standard
** Bold and shaded: Parameter exceeded the MCL standard
mg/L – milligrams per liter
J – estimated concentration
UJ – The analyte was not detected; however, the reported quantitation limit is approximated and may be inaccurat

Appendix C-2
Groundwater Analytical Results (SVOCs)
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Parameter	Unit	NC_2L_2013	MCL	F-55 3/9/2016 F-55-030916	F-55 DUP 3/9/2016 F-99-030916	PEW-1 3/9/2016 PEW-1-030916	PEW-3 3/9/2016 PEW-3-030916	PEW-4 3/8/2016 PEW-4-030816	RR-131 3/9/2016 RR-131-030916
Method SW8270									
1,1'-Biphenyl	mg/L	0.4	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
1,2,4,5-TETRACHLOROBENZENE	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
2,2'-oxybis(1-chloropropane)	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
2,4,5-Trichlorophenol	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
2,4,6-Trichlorophenol	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
2,4-Dichlorophenol	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
2,4-Dimethylphenol	mg/L	0.1	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
2,4-Dinitrophenol	mg/L	--	--	<0.5	<0.5	<0.0500	<0.0500	<0.0500	<0.0500
2,4-Dinitrotoluene	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
2,6-Dinitrotoluene	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
2-Chloronaphthalene	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
2-Chlorophenol	mg/L	0.0004	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
2-Methylnaphthalene	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
2-Nitroaniline	mg/L	--	--	<0.5	<0.5	<0.0500	<0.0500	<0.0500	<0.0500
2-Nitrophenol	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
3&4-METHYLPHENOL	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
3,3-Dichlorobenzidine	mg/L	--	--	<0.2	<0.2	<0.0200	<0.0200	<0.0200	<0.0200
3-Nitroaniline	mg/L	--	--	<0.5	<0.5	<0.0500	<0.0500	<0.0500	<0.0500
4,6-dinitro-2-methylphenol	mg/L	--	--	<0.2	<0.2	<0.0200	<0.0200	<0.0200	<0.0200
4-Bromophenyl phenyl ether	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
4-chloro-3-methylphenol	mg/L	--	--	<0.2	<0.2	<0.0200	<0.0200	<0.0200	<0.0200
4-Chloroaniline	mg/L	--	--	<0.2	<0.2	<0.0200	<0.0200	<0.0200	<0.0200
4-Chlorophenyl phenyl ether	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
4-Nitroaniline	mg/L	--	--	<0.2	<0.2	<0.0200	<0.0200	<0.0200	<0.0200
4-Nitrophenol	mg/L	--	--	<0.5	<0.5	<0.0500	<0.0500	<0.0500	<0.0500
Acenaphthene	mg/L	0.08	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Acenaphthylene	mg/L	0.2	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Anthracene	mg/L	2	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Atrazine	mg/L	--	0.003	<0.2	<0.2	<0.0200	<0.0200	<0.0200	<0.0200
Benzaldehyde	mg/L	--	--	<0.2	<0.2	<0.0200	<0.0200	<0.0200	<0.0200
Benzo(a)anthracene	mg/L	5E-05	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Benzo(a)pyrene	mg/L	5E-06	0.0002	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Benzo(b)fluoranthene	mg/L	5E-05	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Benzo(g,h,i)perylene	mg/L	0.2	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Benzo(k)fluoranthene	mg/L	0.0005	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
bis(2-chloroethoxy)methane	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
bis(2-chloroethyl)ether	mg/L	3E-05	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
bis(2-ethylhexyl)phthalate	mg/L	0.003	0.006	<0.0600	<0.0600	<0.0060	<0.0060	<0.0060	<0.0060
butyl Benzyl phthalate	mg/L	1	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Caprolactum	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Carbazole	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Chrysene	mg/L	0.005	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Dibenzo(a,h)anthracene	mg/L	5E-06	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Dibenzofuran	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Diethyl phthalate	mg/L	6	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Dimethyl phthalate	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
di-n-butyl phthalate	mg/L	0.7	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
di-n-octyl phthalate	mg/L	0.1	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Diphenyl ether	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100

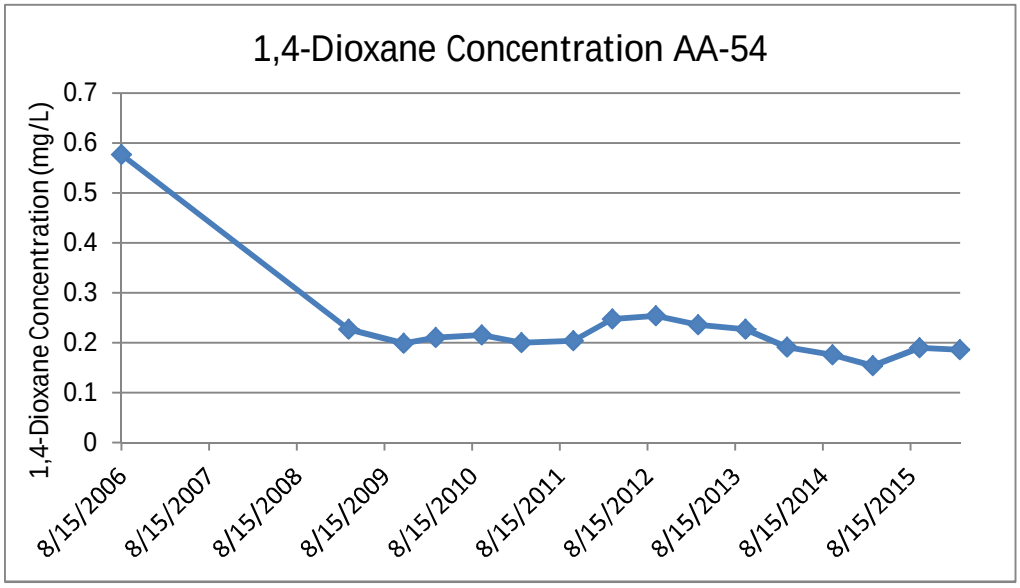
Appendix C-2
Groundwater Analytical Results (SVOCs)
Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

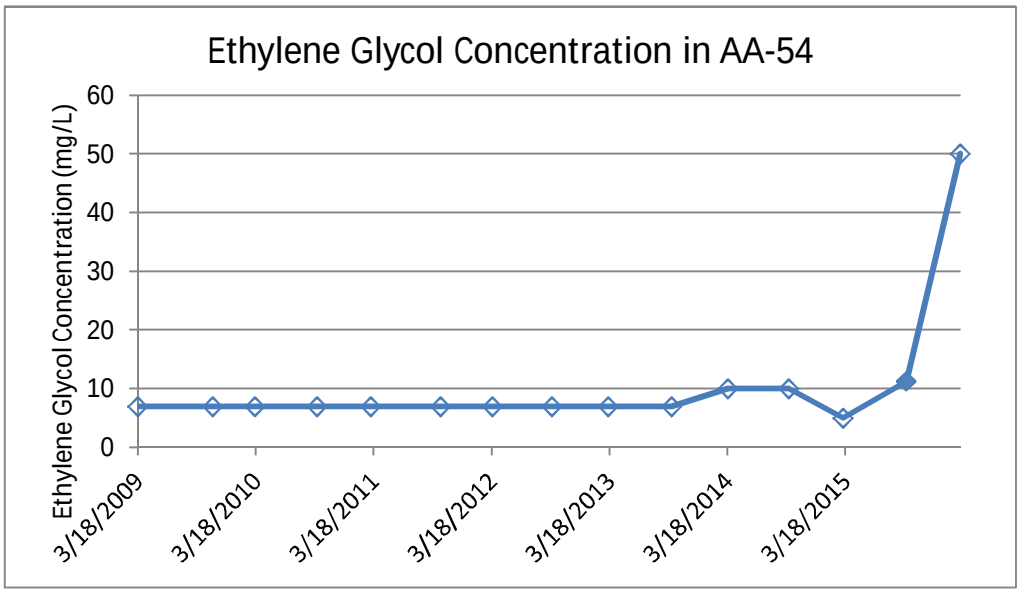
Parameter	Unit	NC_2L_2013	MCL	F-55 3/9/2016 F-55-030916	F-55 DUP 3/9/2016 F-99-030916	PEW-1 3/9/2016 PEW-1-030916	PEW-3 3/9/2016 PEW-3-030916	PEW-4 3/8/2016 PEW-4-030816	RR-131 3/9/2016 RR-131-030916
Method SW8270									
Fluoranthene	mg/L	0.3	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Fluorene	mg/L	0.3	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Hexachlorobenzene	mg/L	2E-05	0.001	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Hexachlorobutadiene	mg/L	0.0004	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Hexachlorocyclopentadiene	mg/L	--	0.05	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Hexachloroethane	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Indeno(1,2,3-cd)pyrene	mg/L	5E-05	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Isophorone	mg/L	0.04	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Naphthalene	mg/L	0.006	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Nitrobenzene	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
n-Nitrosodi-n-propylamine	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
n-Nitrosodiphenylamine	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
o-Cresol	mg/L	--	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Pentachlorophenol	mg/L	0.0003	0.001	<0.25	<0.25	<0.0250	<0.0250	<0.0250	<0.0250
Phenanthrene	mg/L	0.2	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Phenol	mg/L	0.03	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100
Pyrene	mg/L	0.2	--	<0.1	<0.1	<0.0100	<0.0100	<0.0100	<0.0100

Notes:
mg/L – milligrams per liter

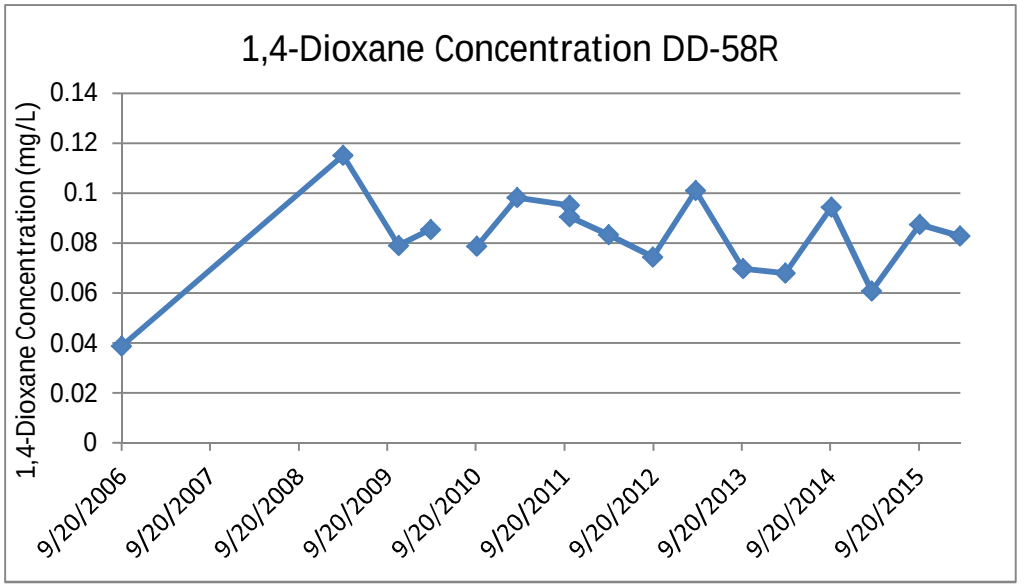
Appendix D

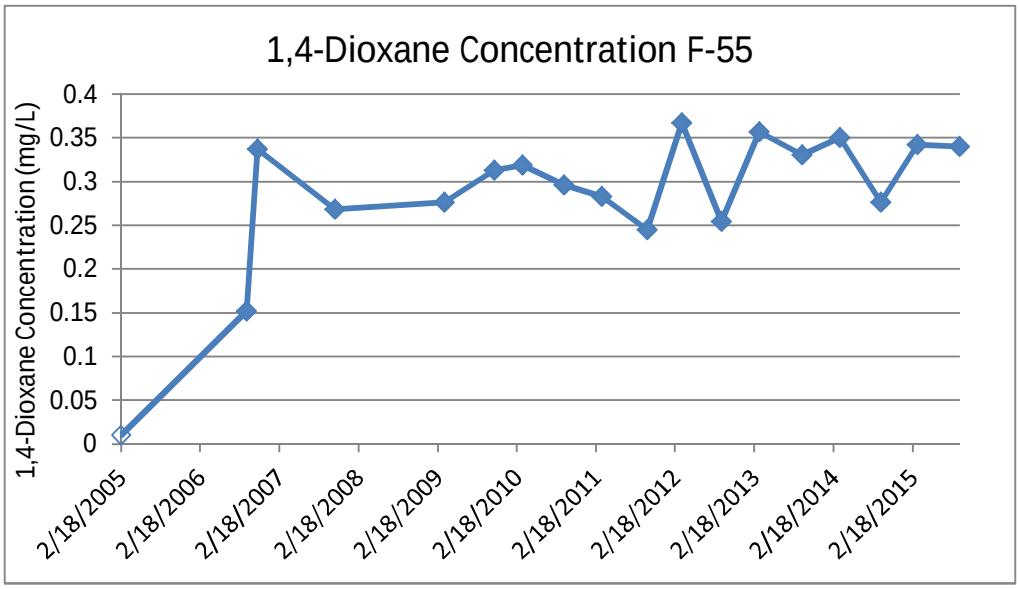
Concentration vs. Time Plots for Select Monitoring Wells

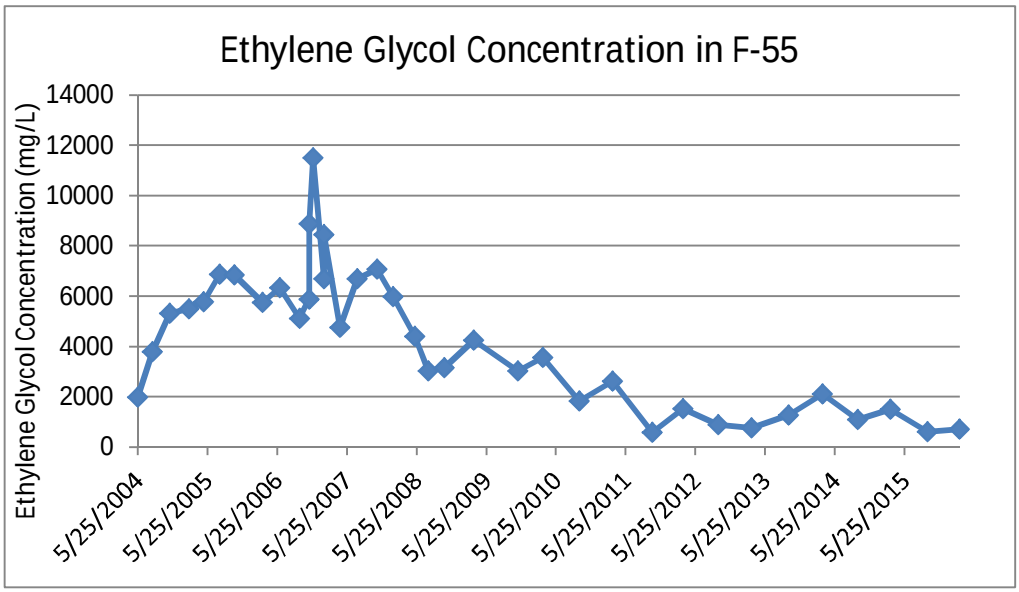




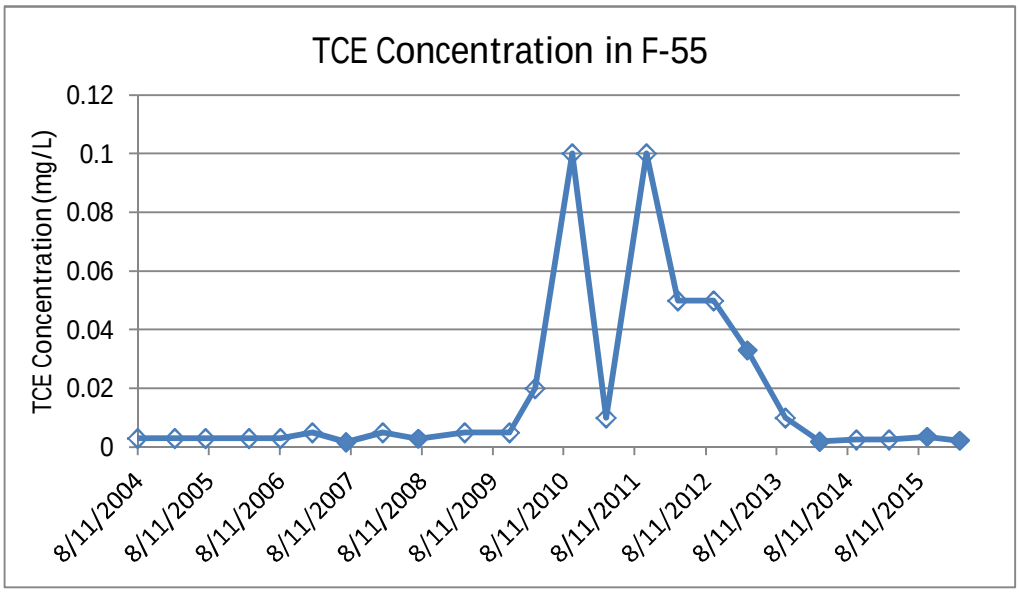
Note: Hollow symbol represents non-detect value.

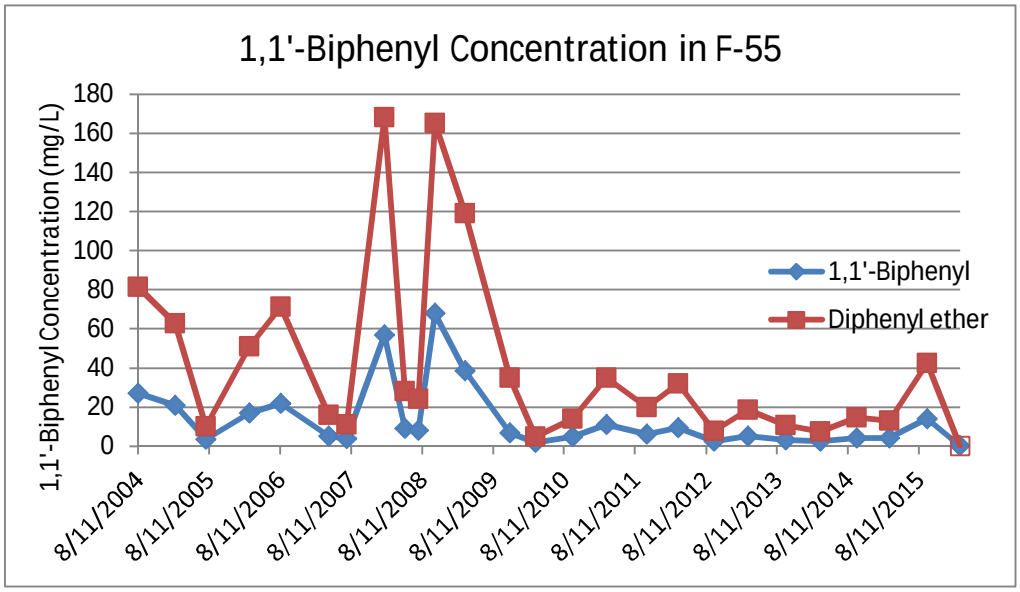




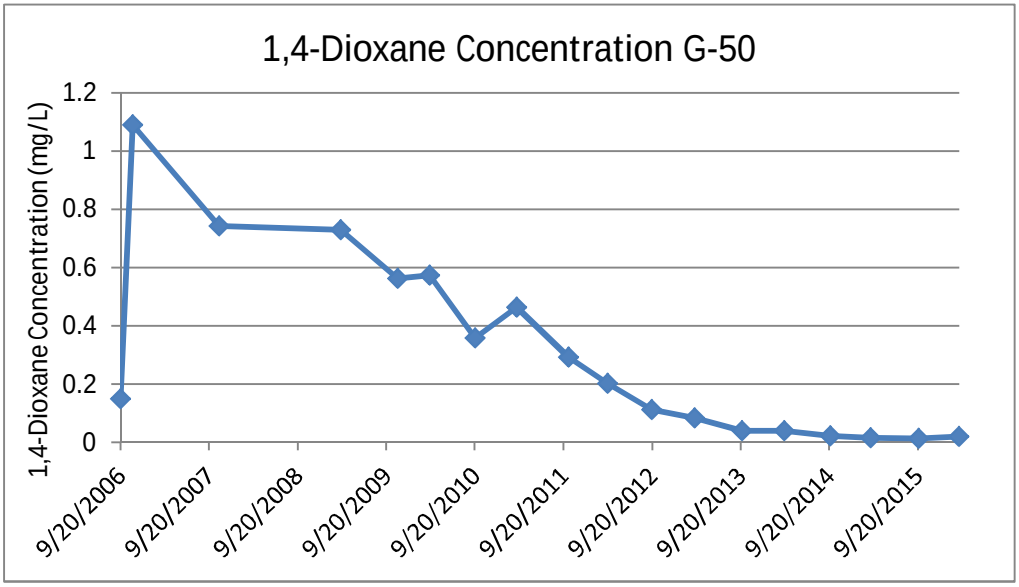


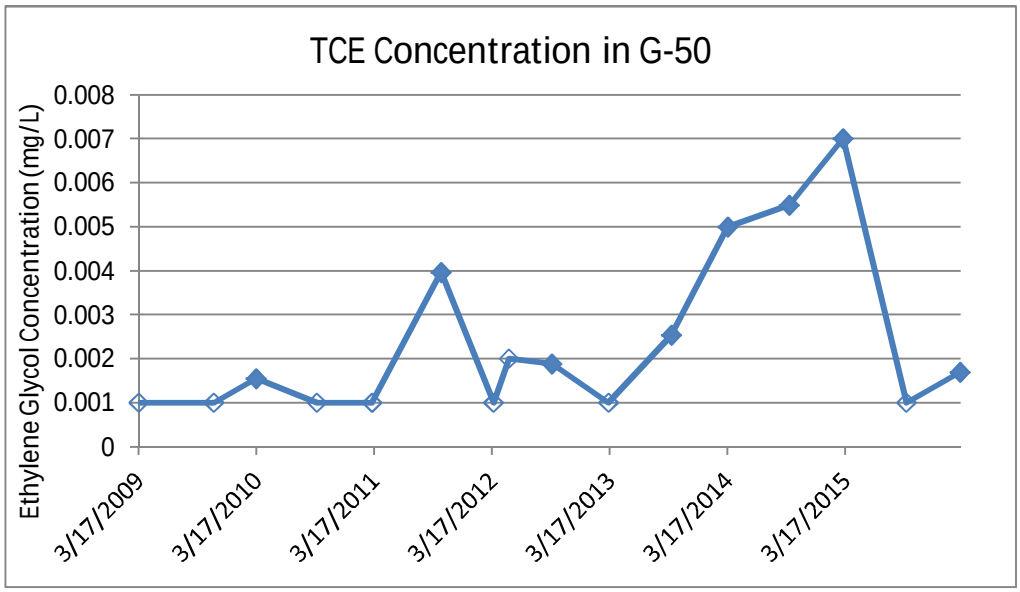
Note: Hollow symbol represents non-detect value.



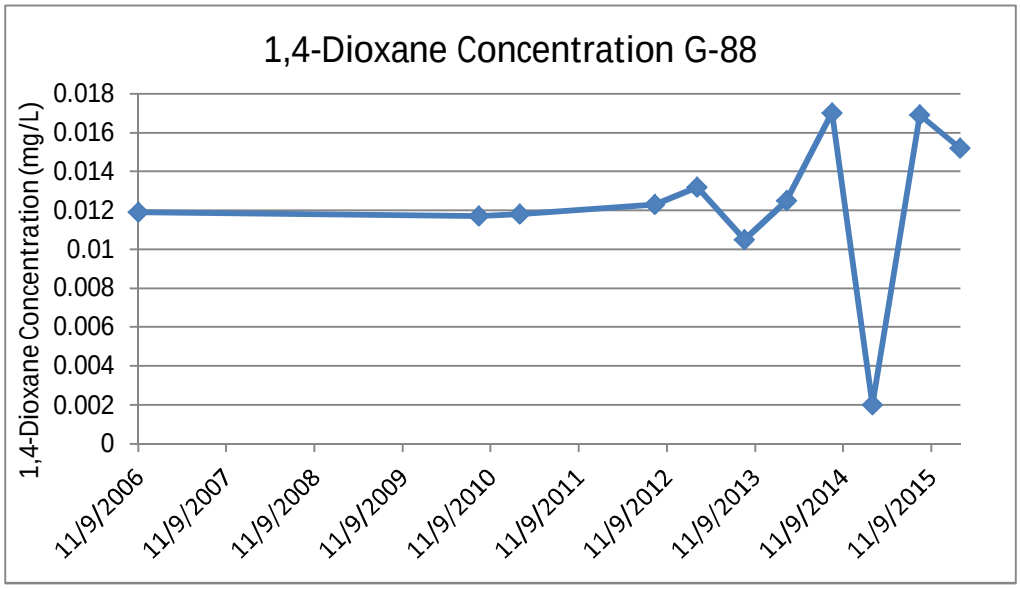


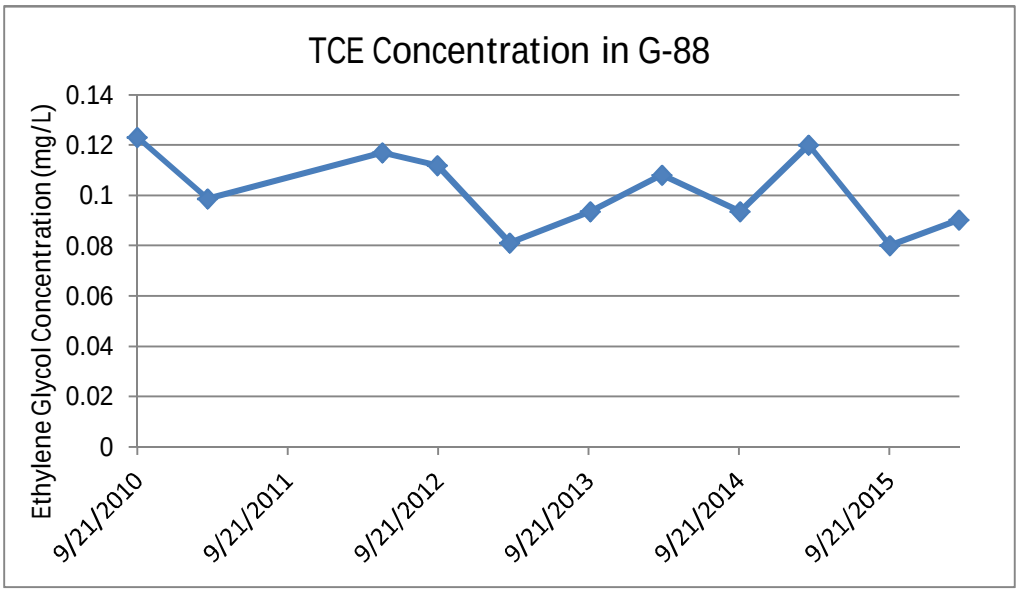
Note: Hollow symbol represents non-detect value.



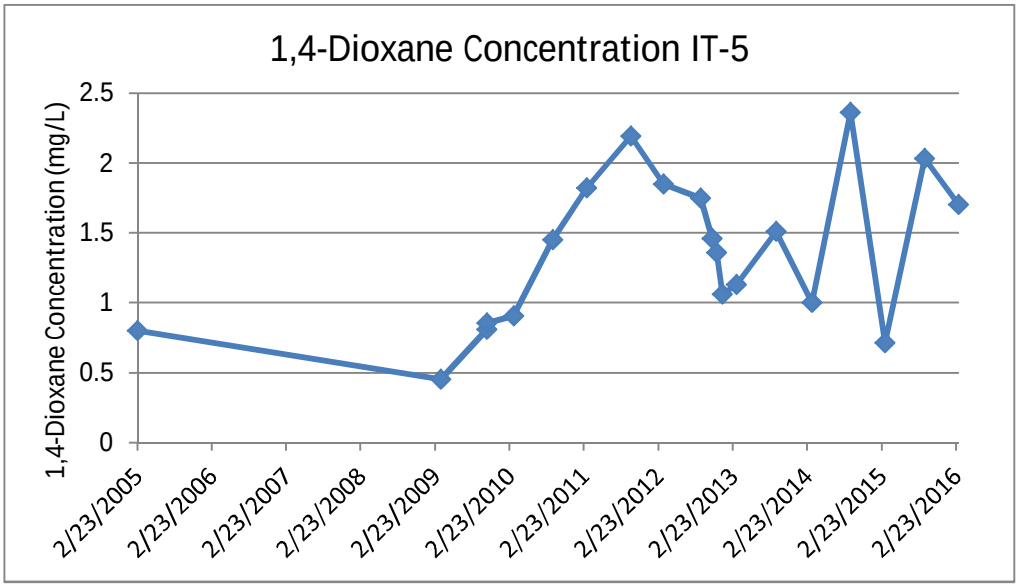


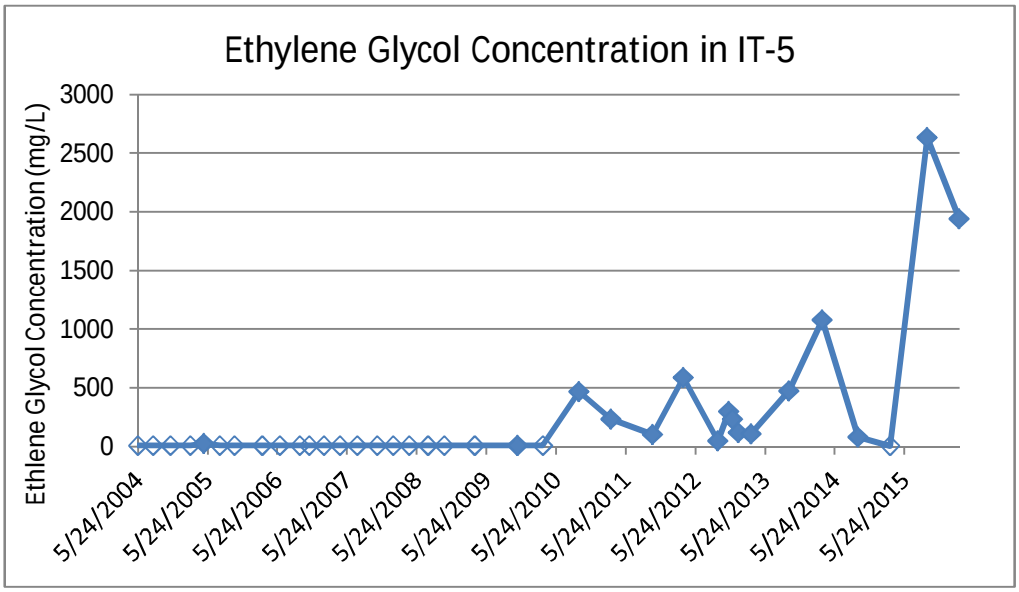
Note: Hollow symbol represents non-detect value.



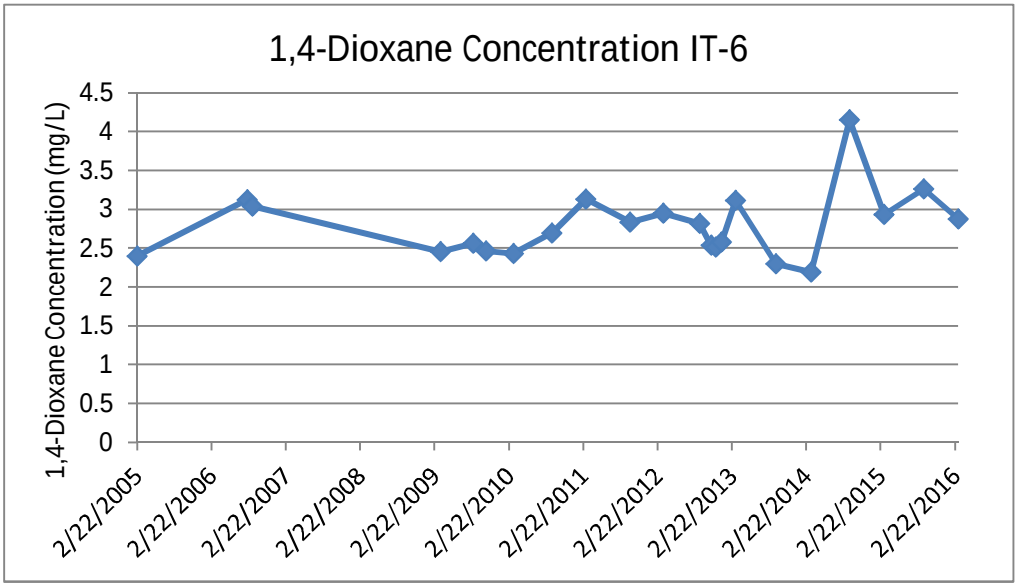


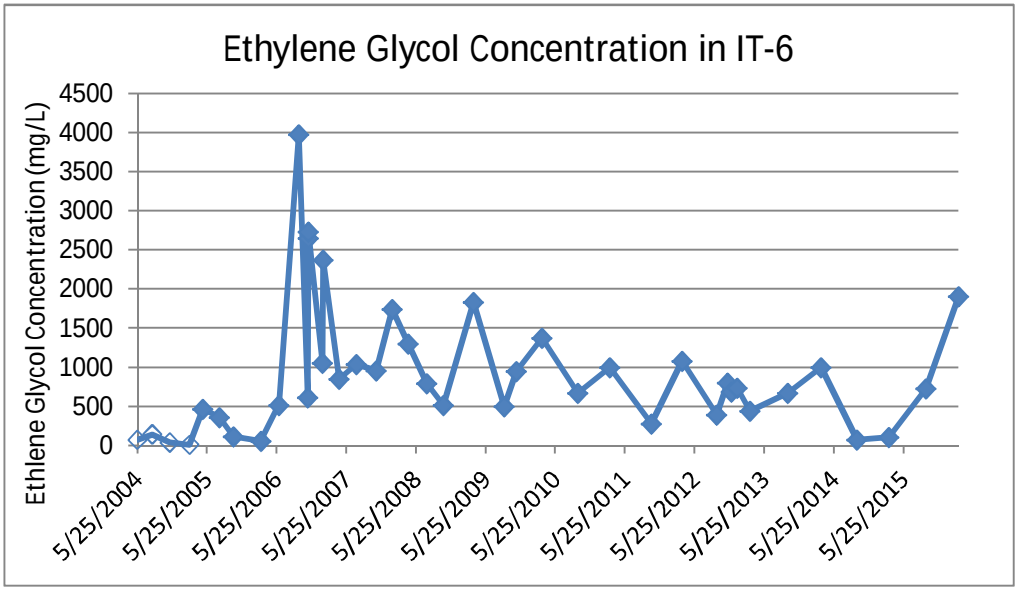
Note: Hollow symbol represents non-detect value.



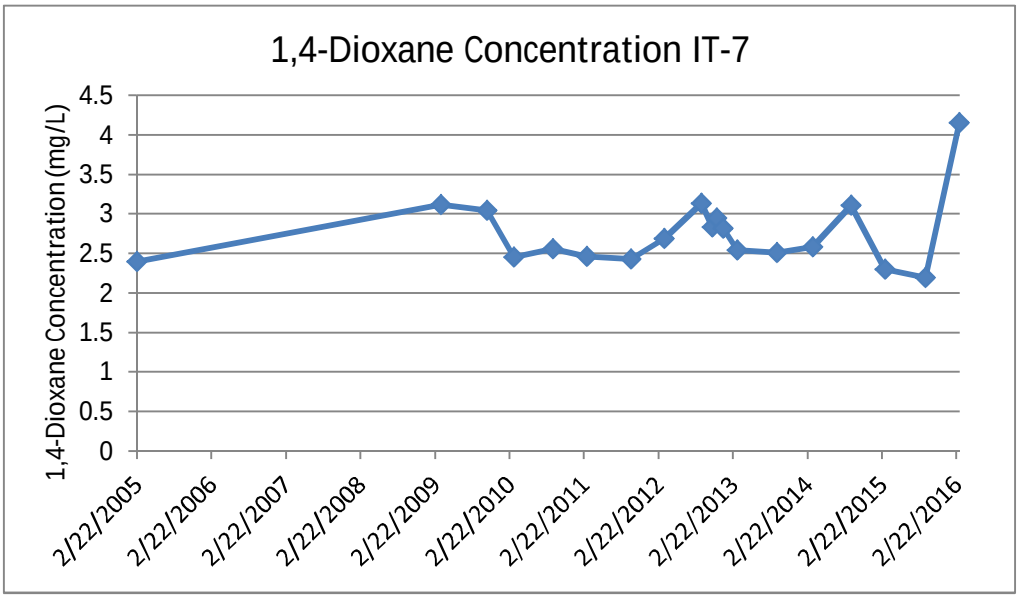


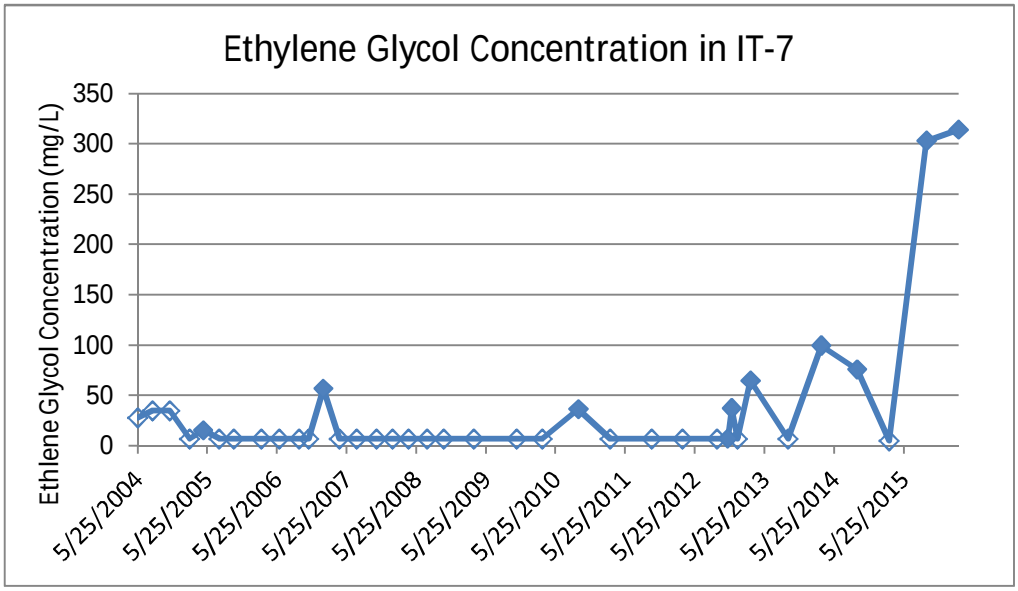
Note: Hollow symbol represents non-detect value.



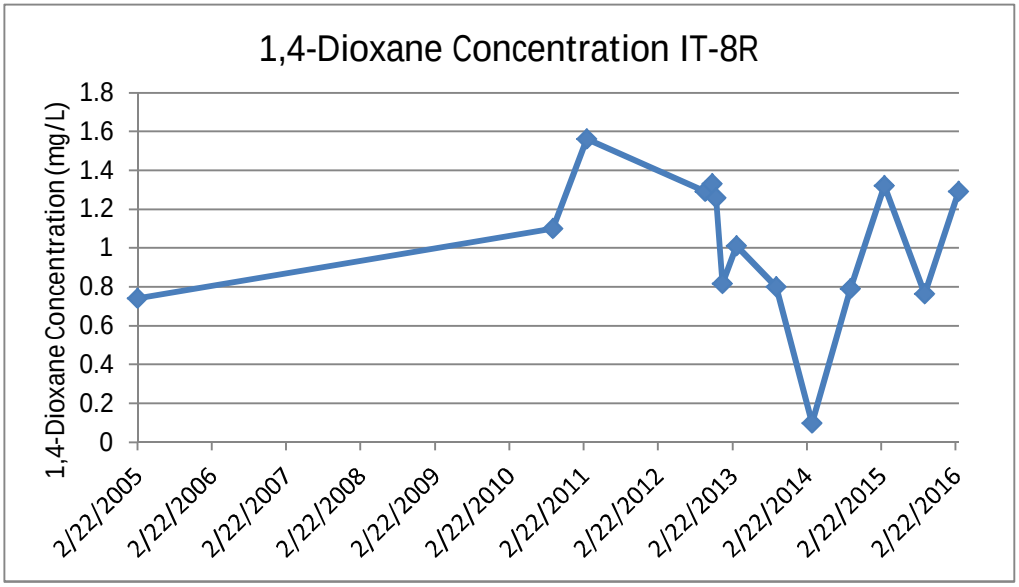


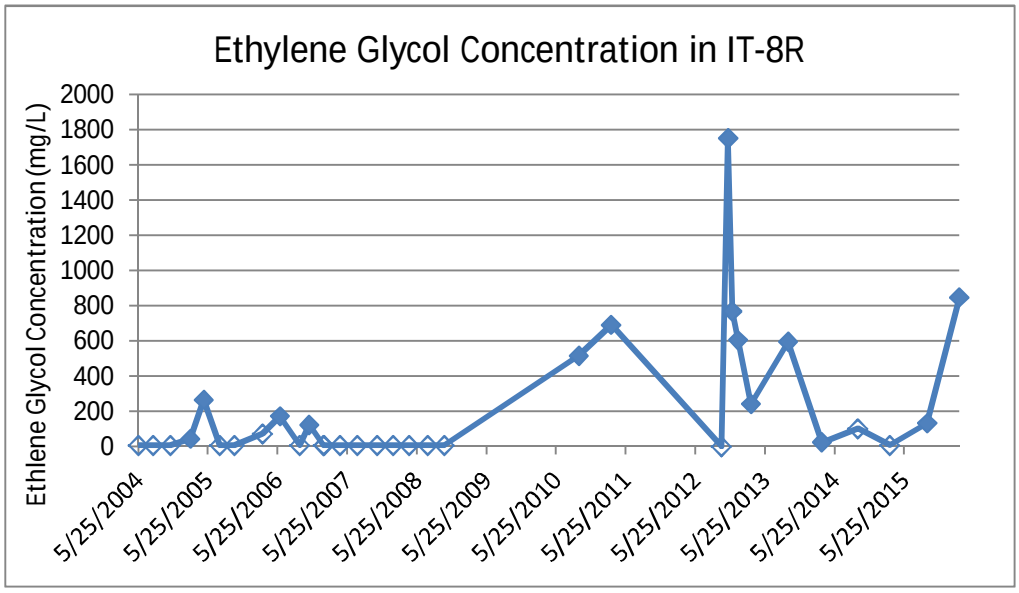
Note: Hollow symbol represents non-detect value.



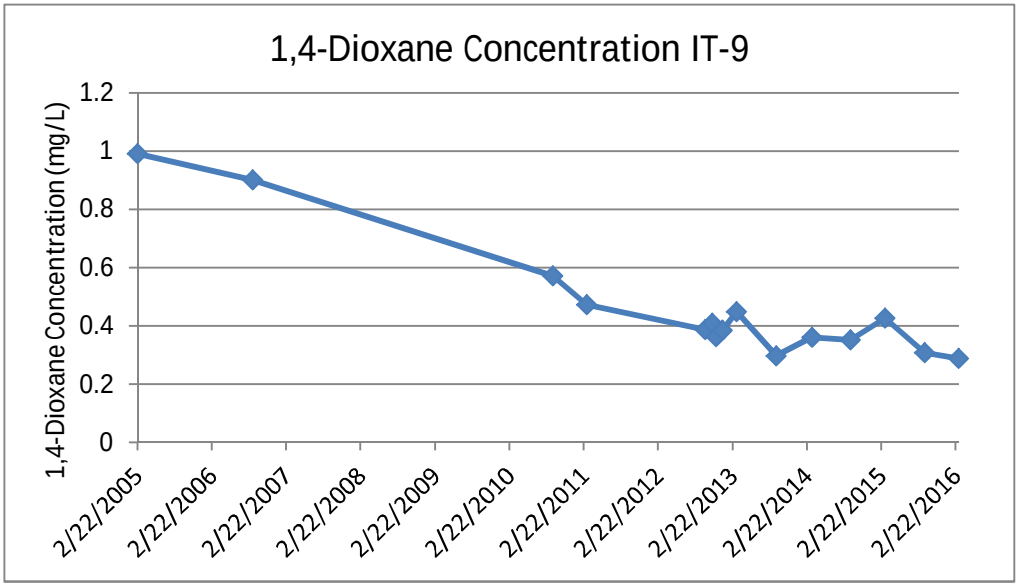


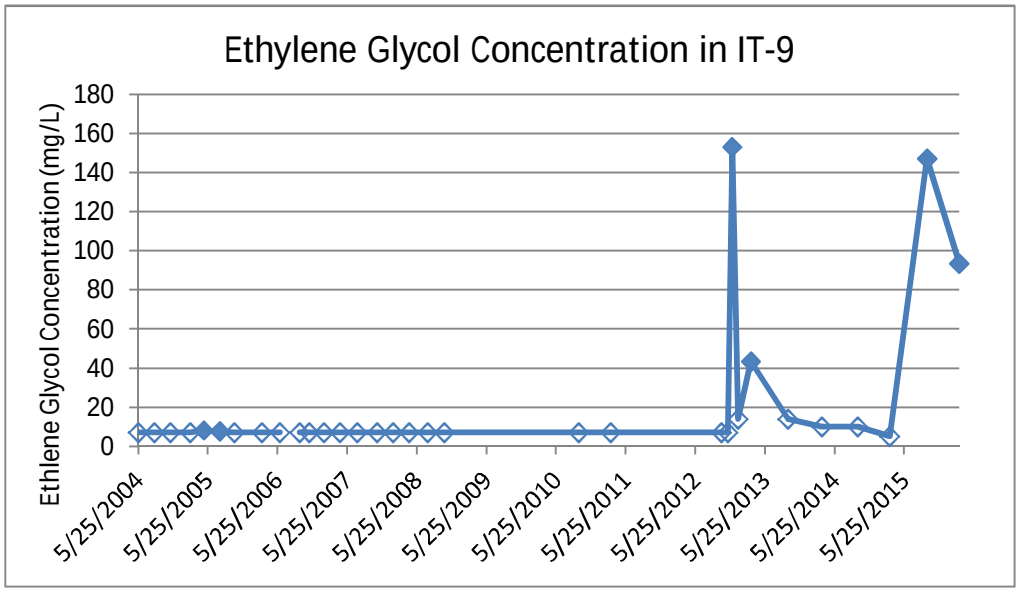
Note: Hollow symbol represents non-detect value.



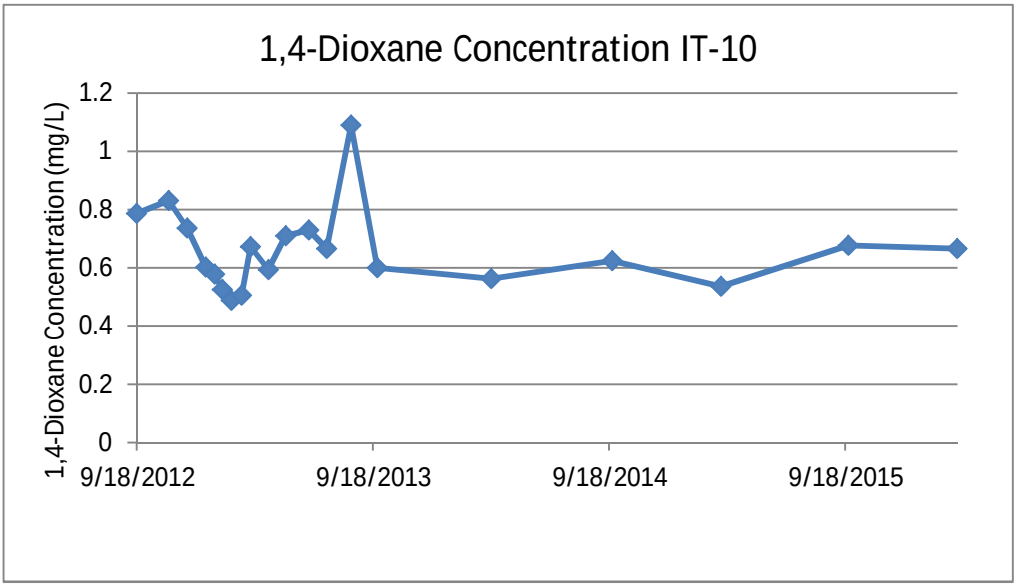


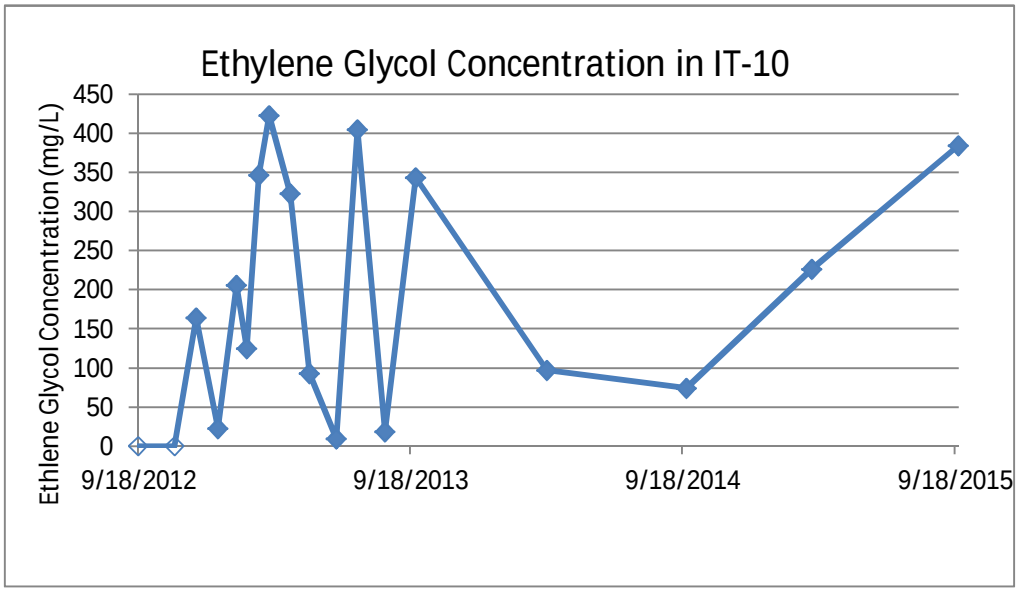
Note: Hollow symbol represents non-detect value.



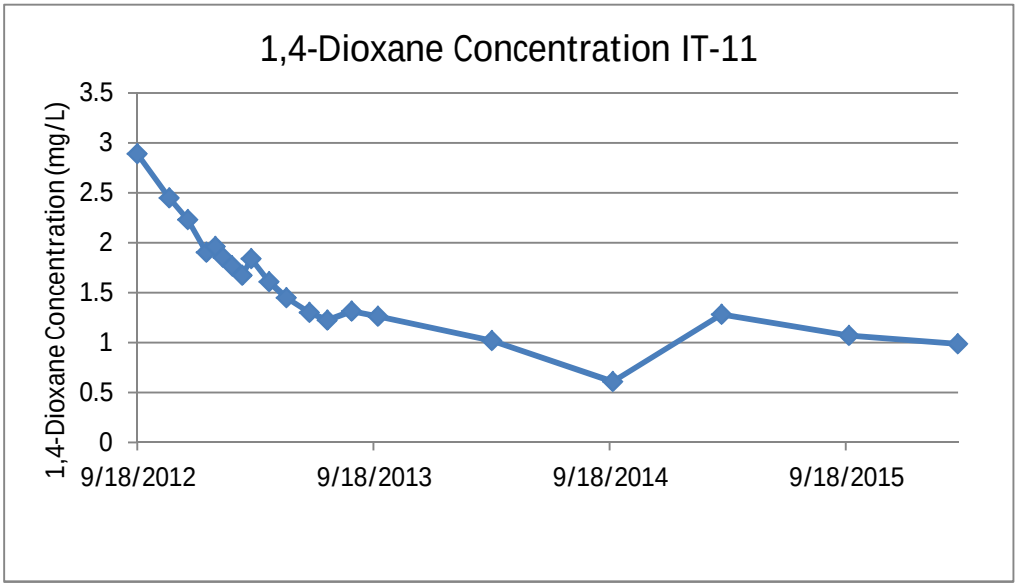


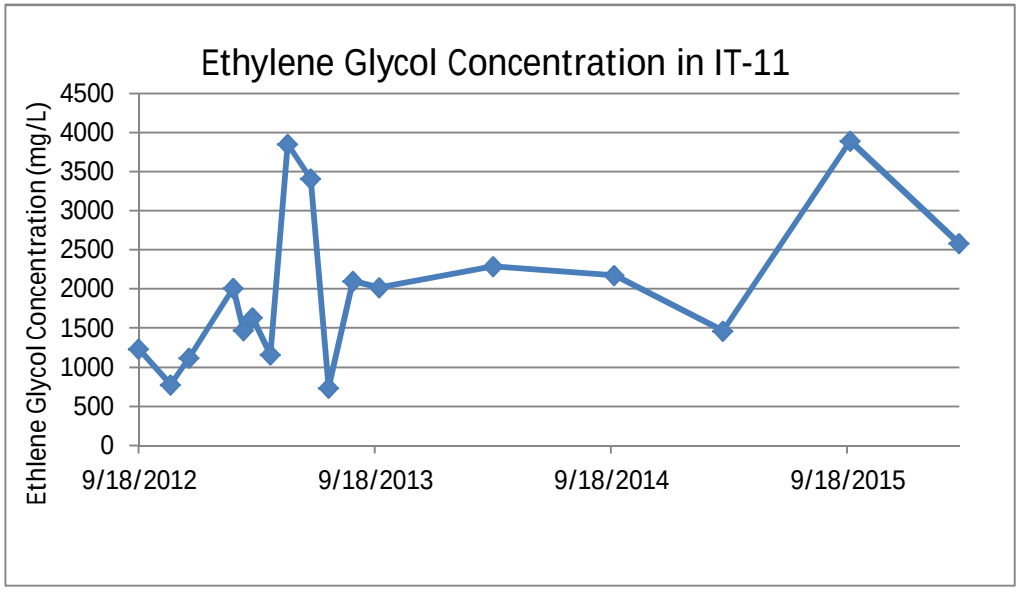
Note: Hollow symbol represents non-detect value.



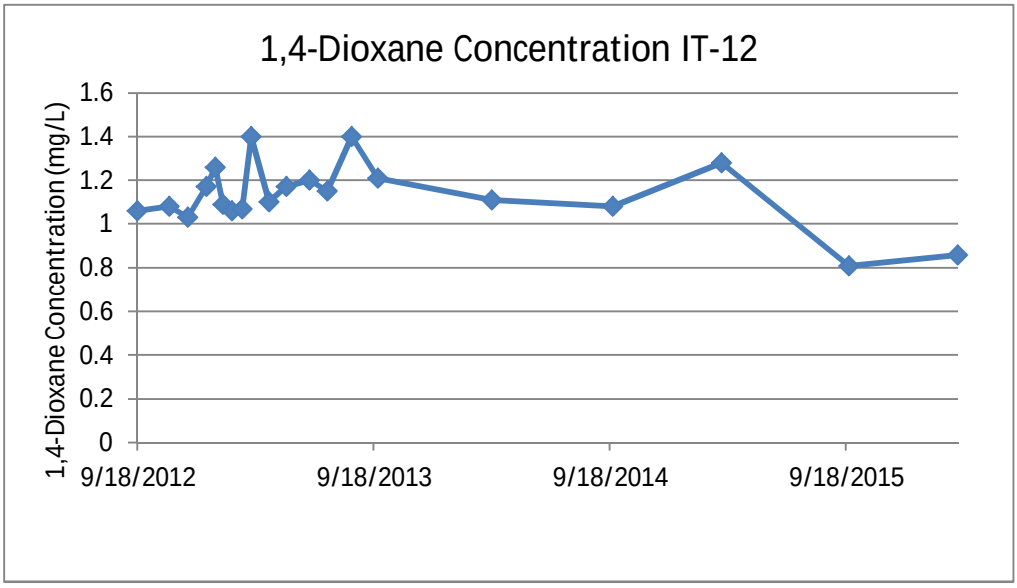


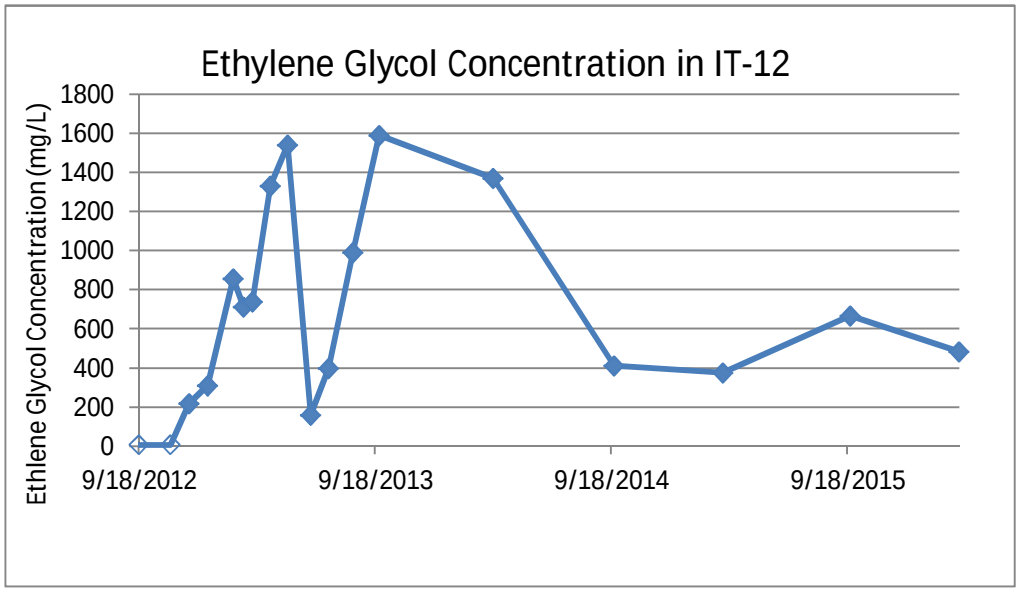
Note: Hollow symbol represents non-detect value.



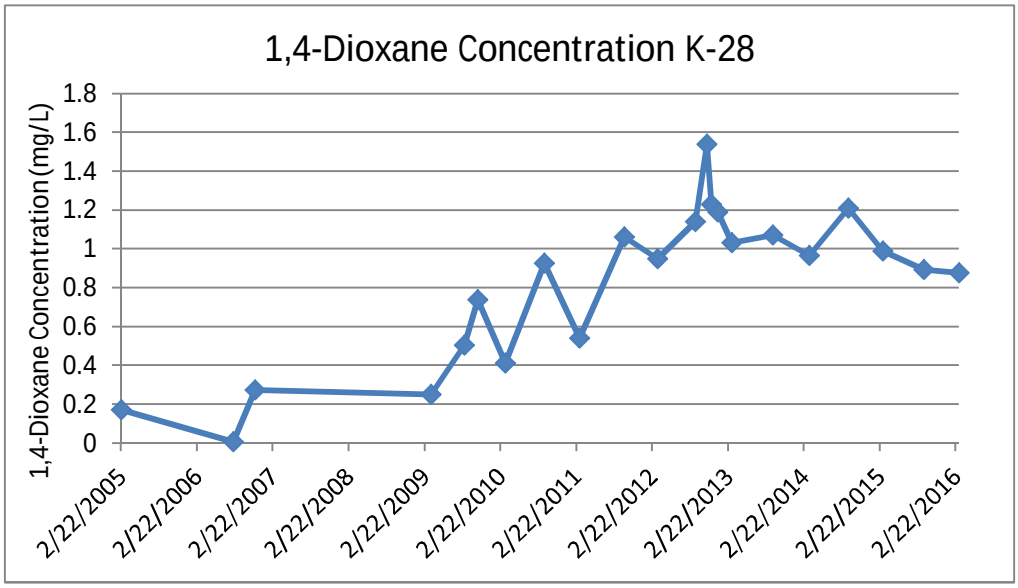


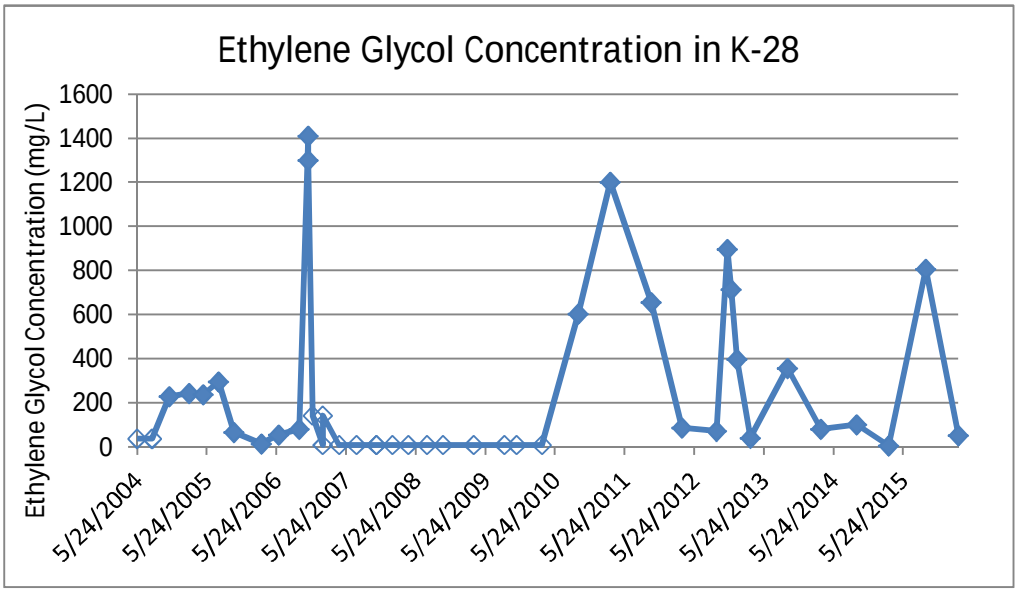
Note: Hollow symbol represents non-detect value.



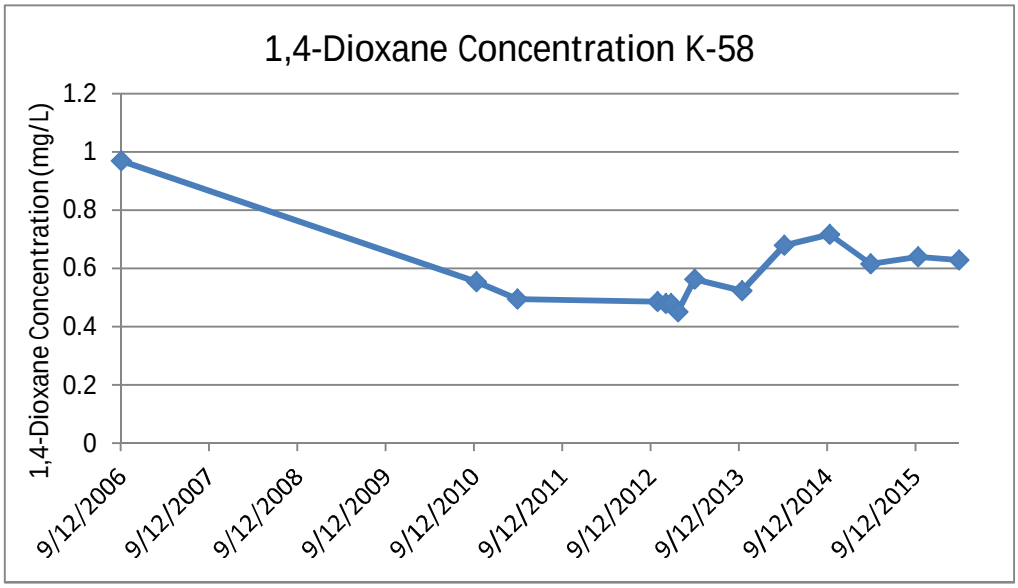


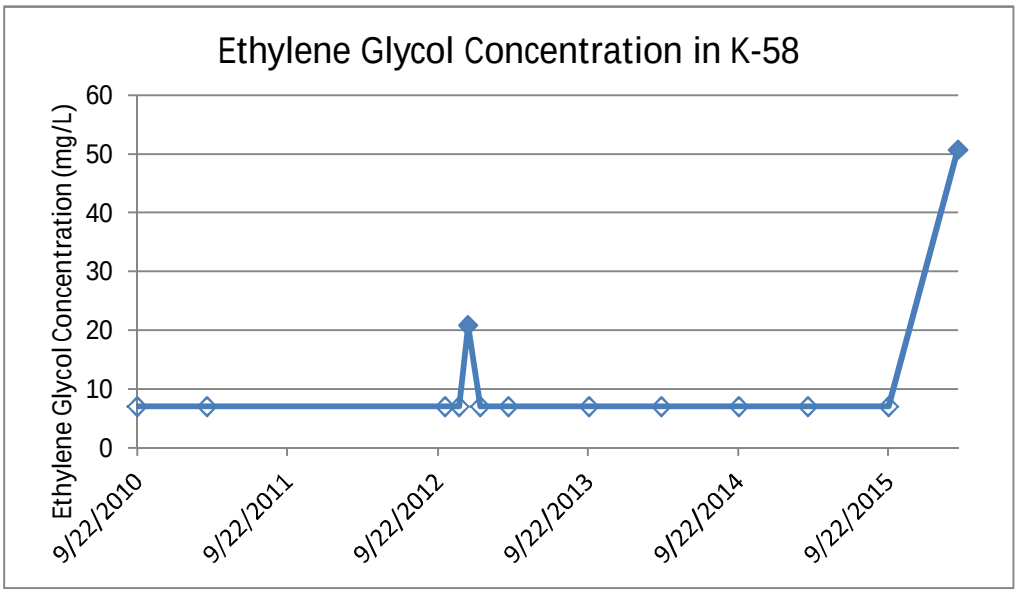
Note: Hollow symbol represents non-detect value.



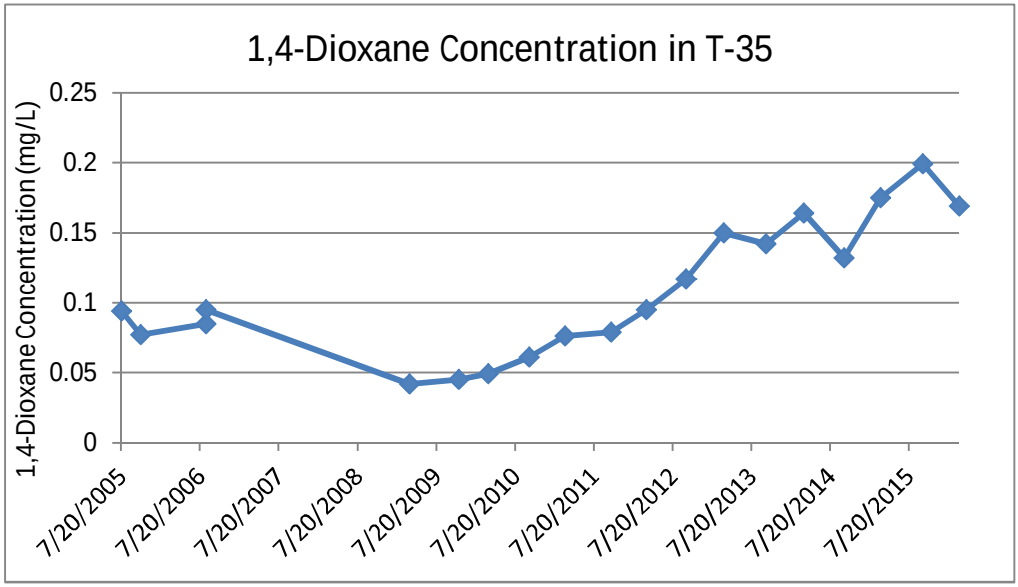


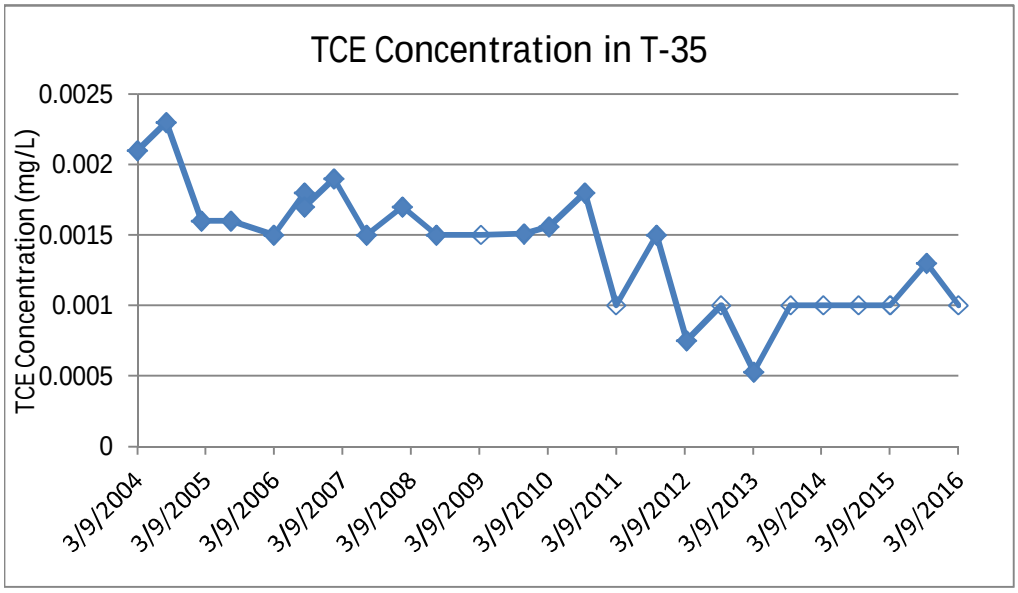
Note: Hollow symbol represents non-detect value.



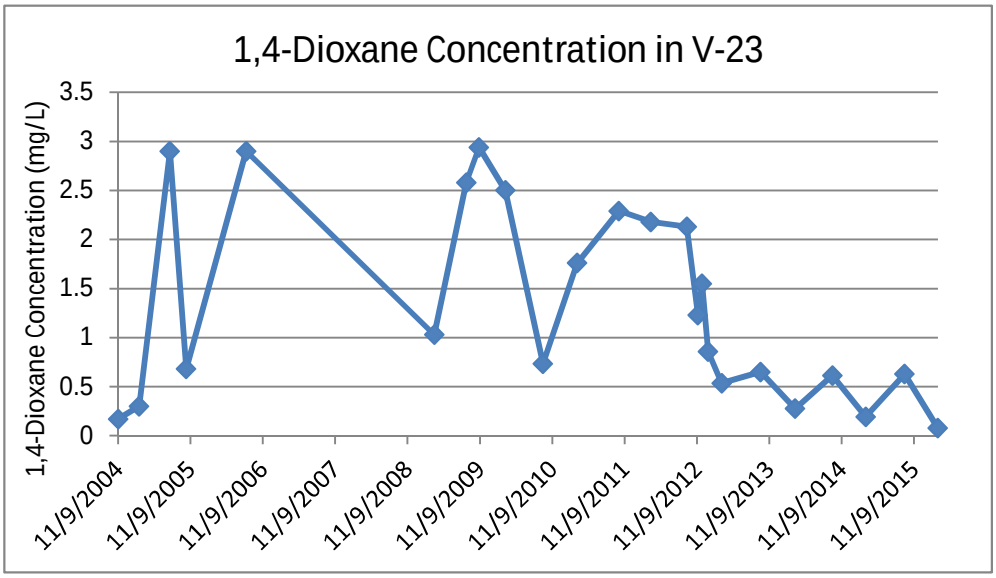


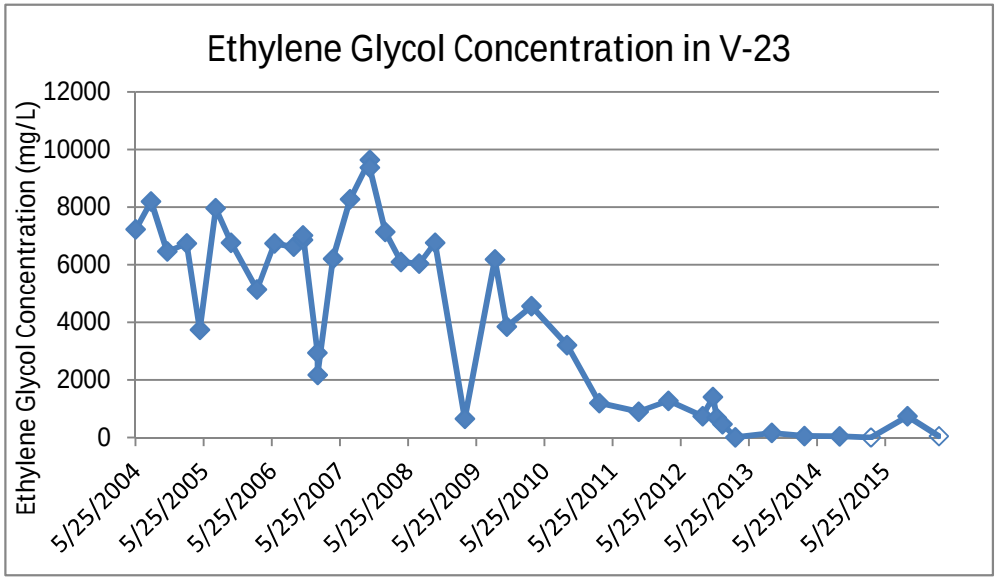
Note: Hollow symbol represents non-detect value.



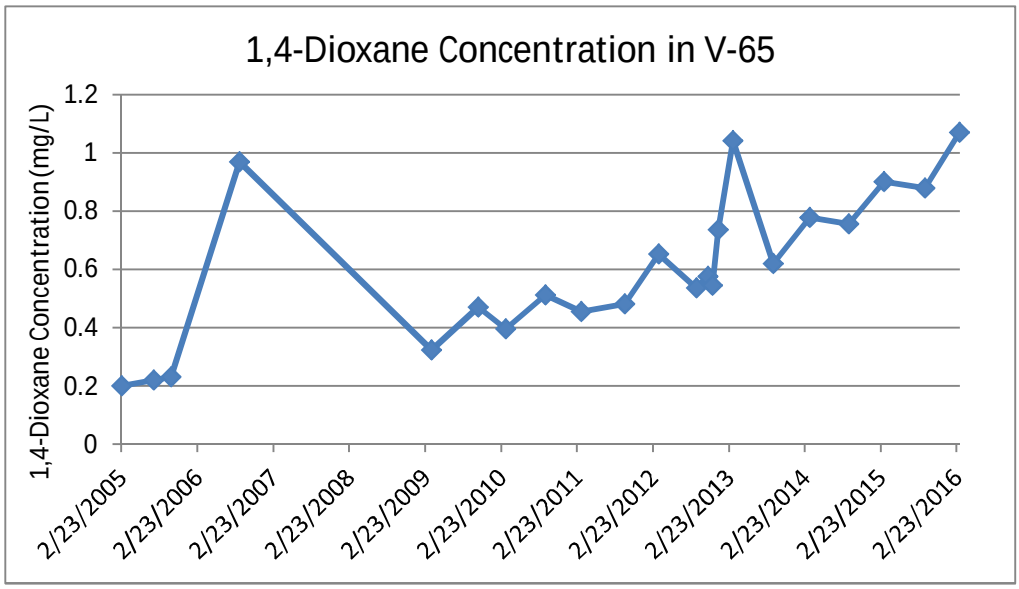


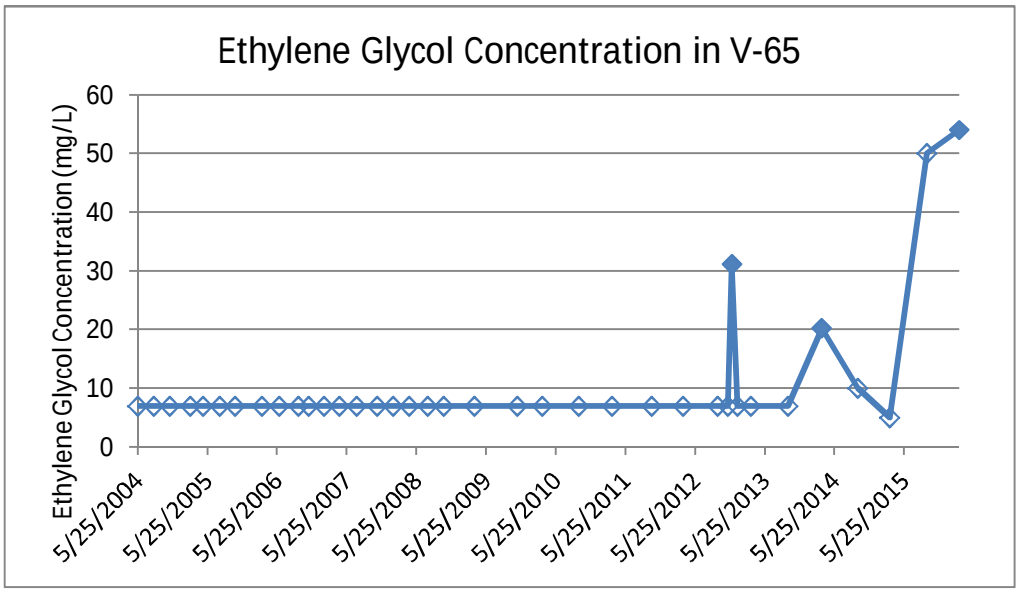
Note: Hollow symbol represents non-detect value.



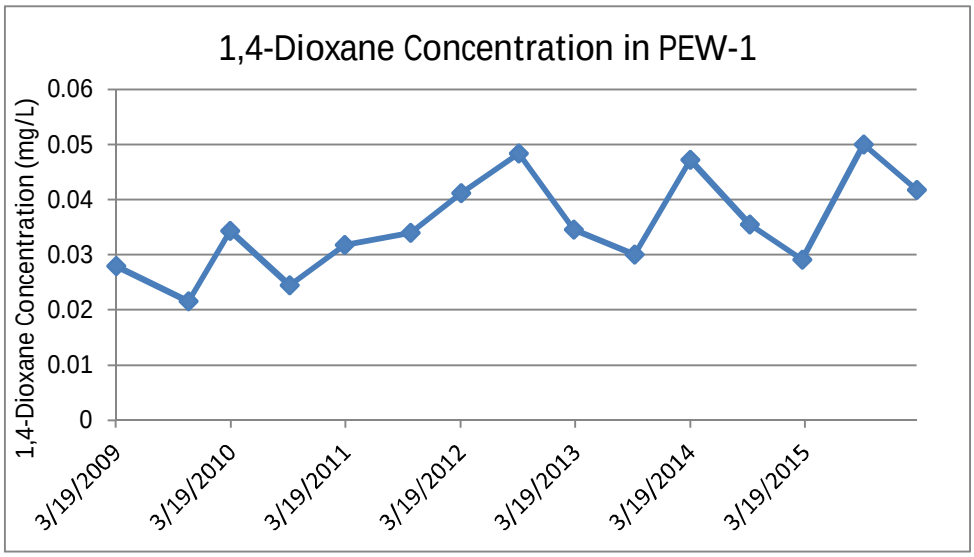


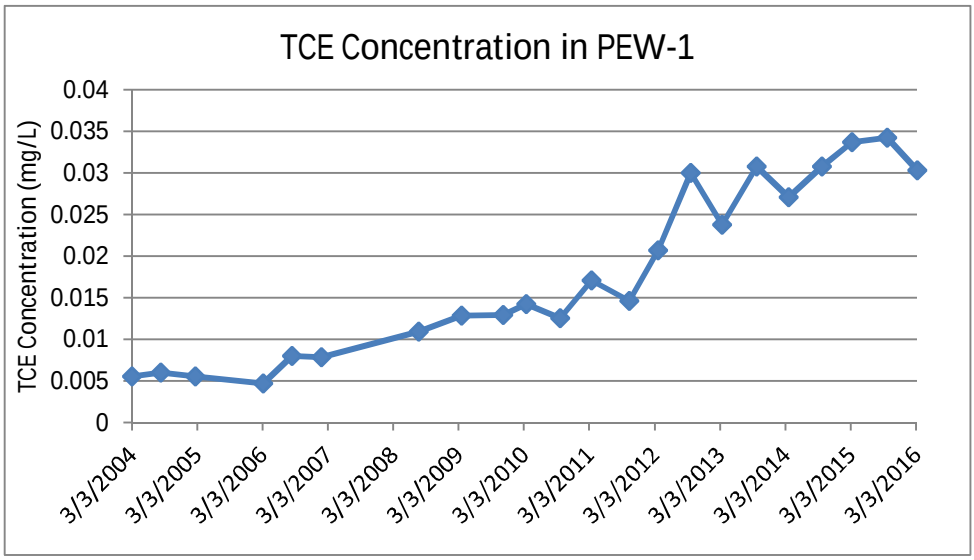
Note: Hollow symbol represents non-detect value.

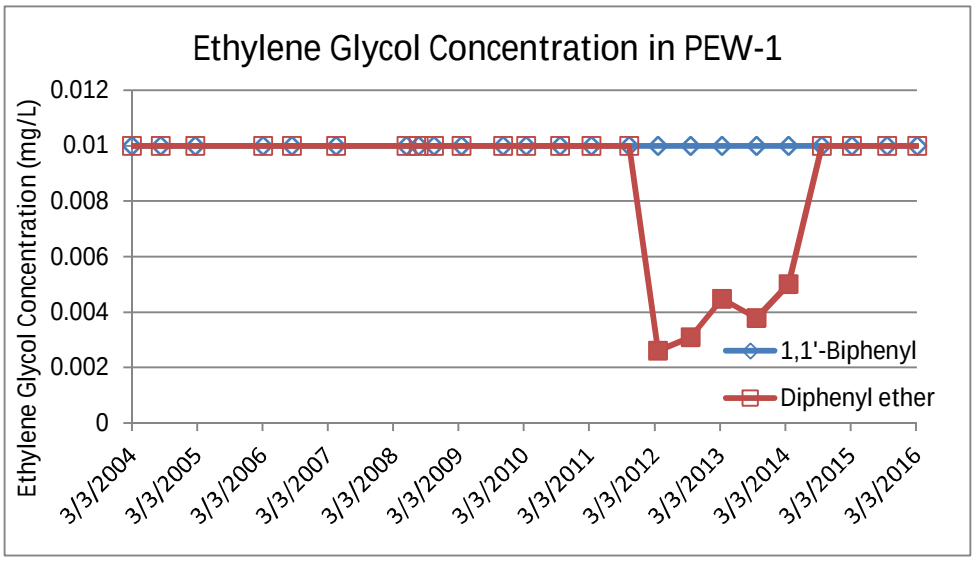




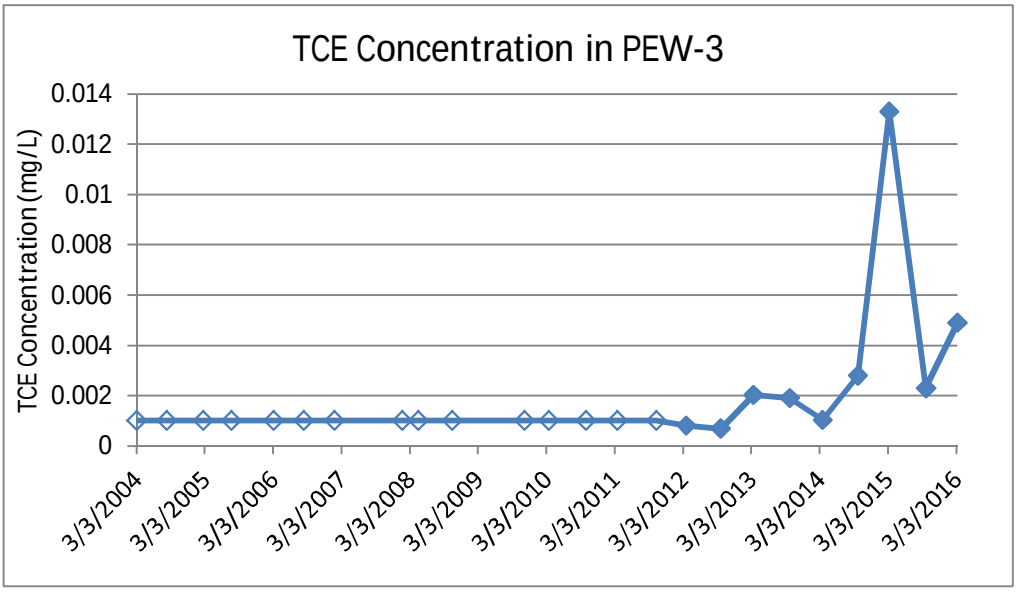
Note: Hollow symbol represents non-detect value.

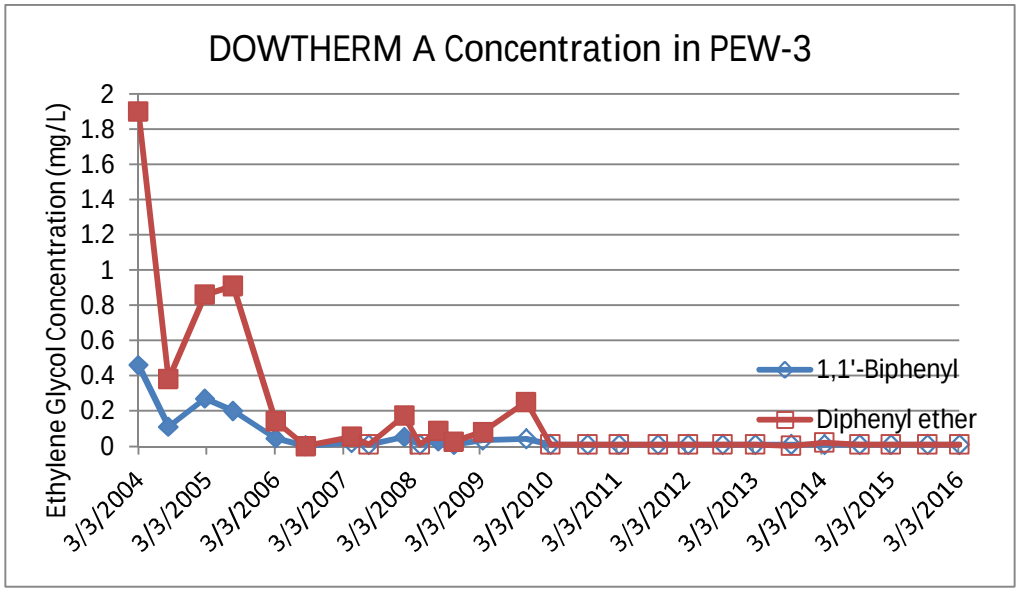




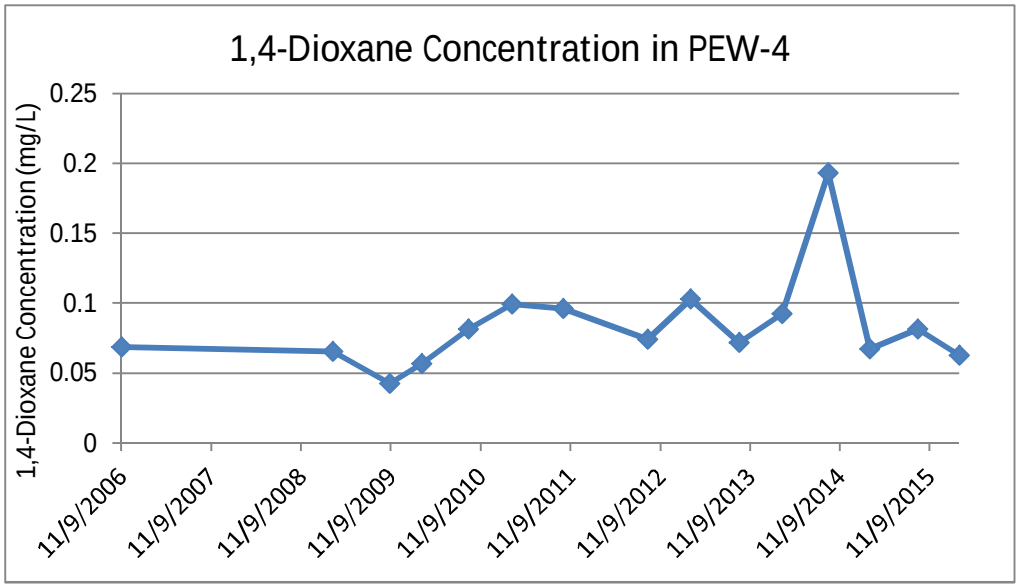


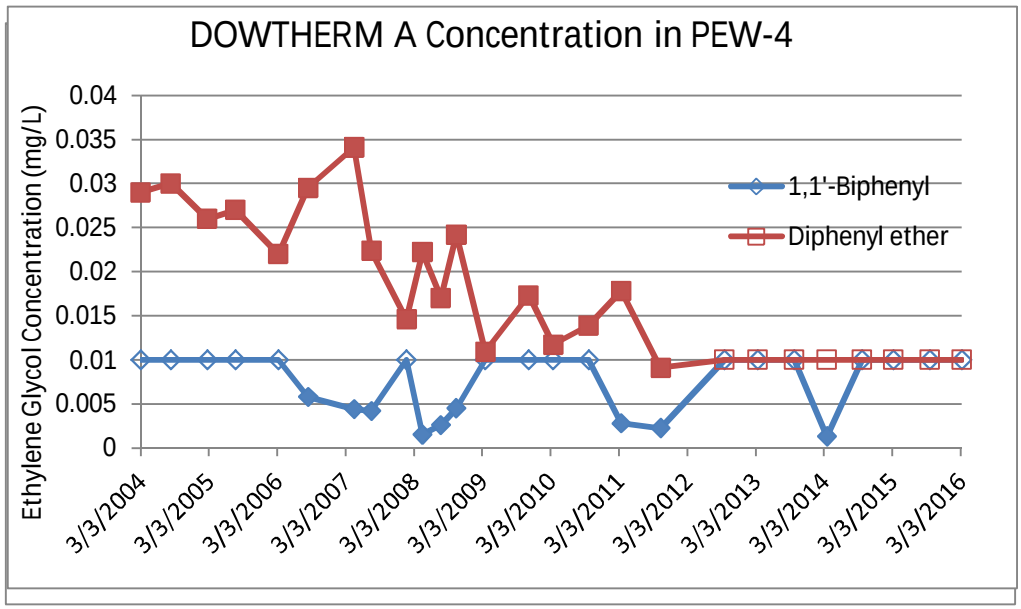
Note: Hollow symbol represents non-detect value.



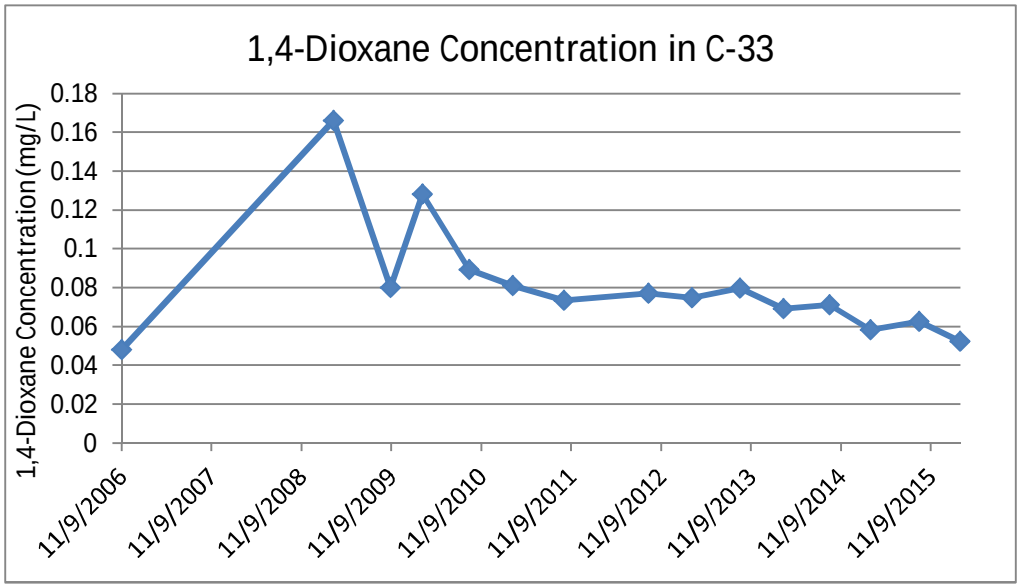


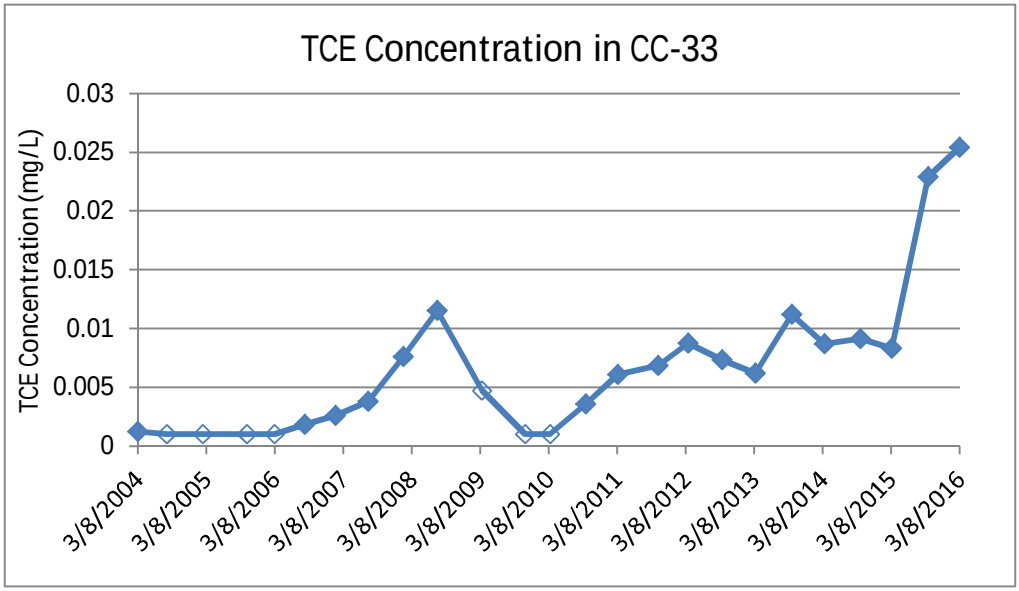
Note: Hollow symbol represents non-detect value.



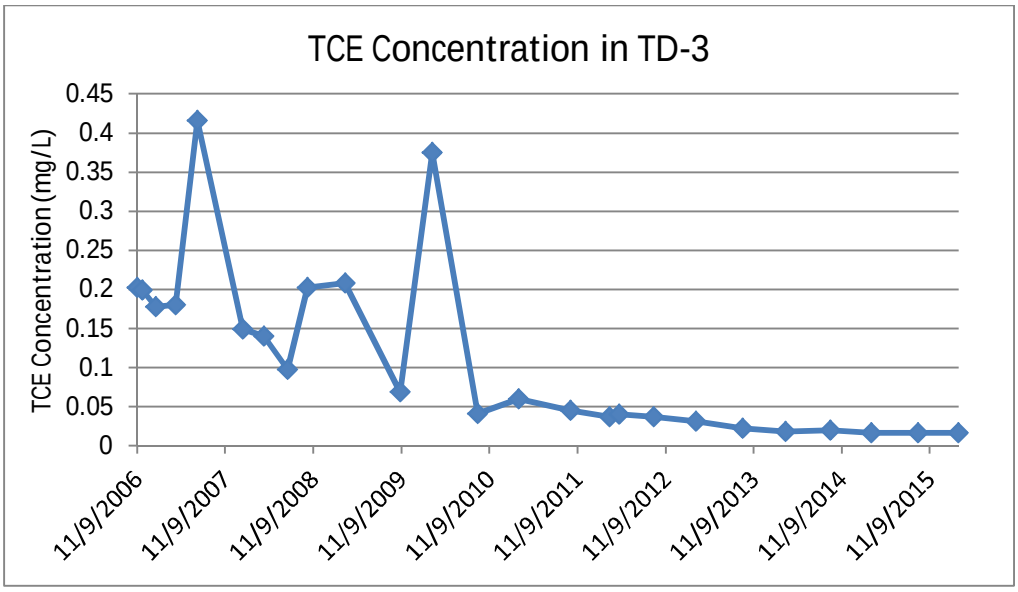


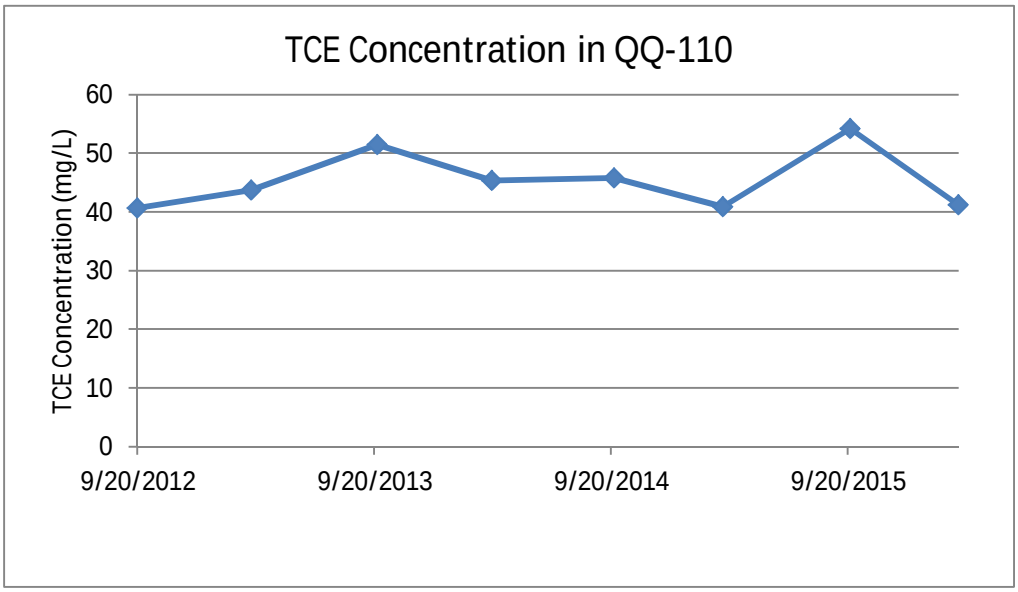
Note: Hollow symbol represents non-detect value.

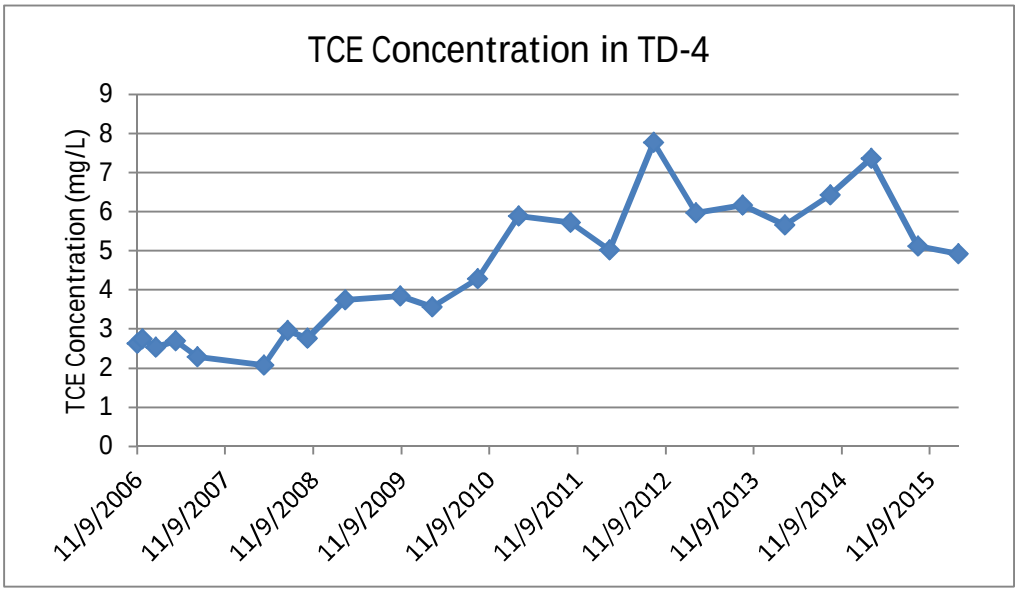


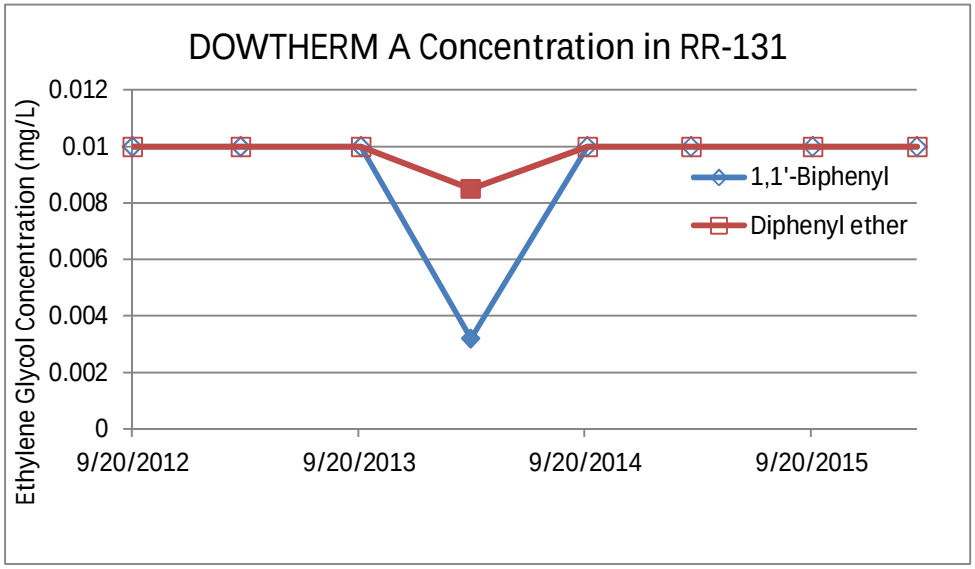


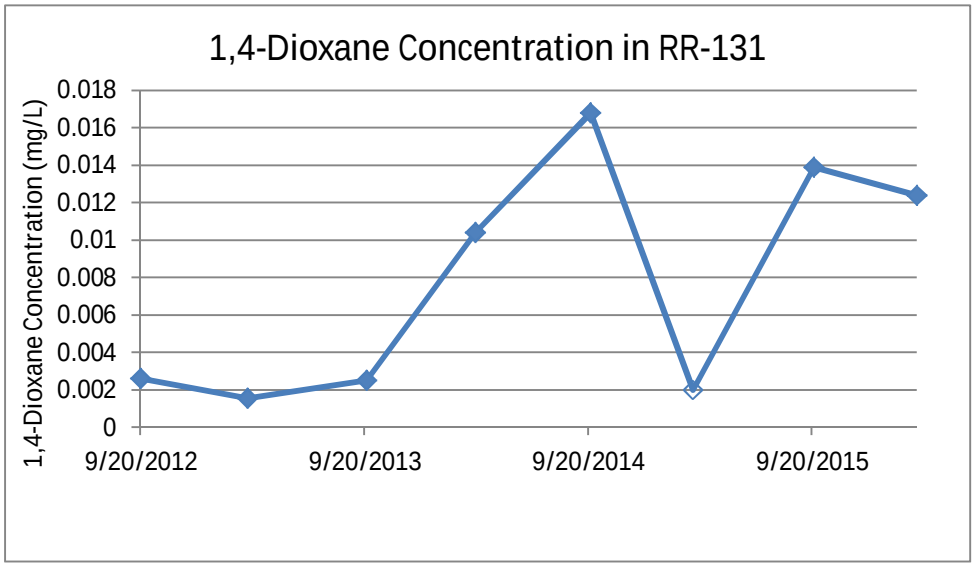
Note: Hollow symbol represents non-detect value.

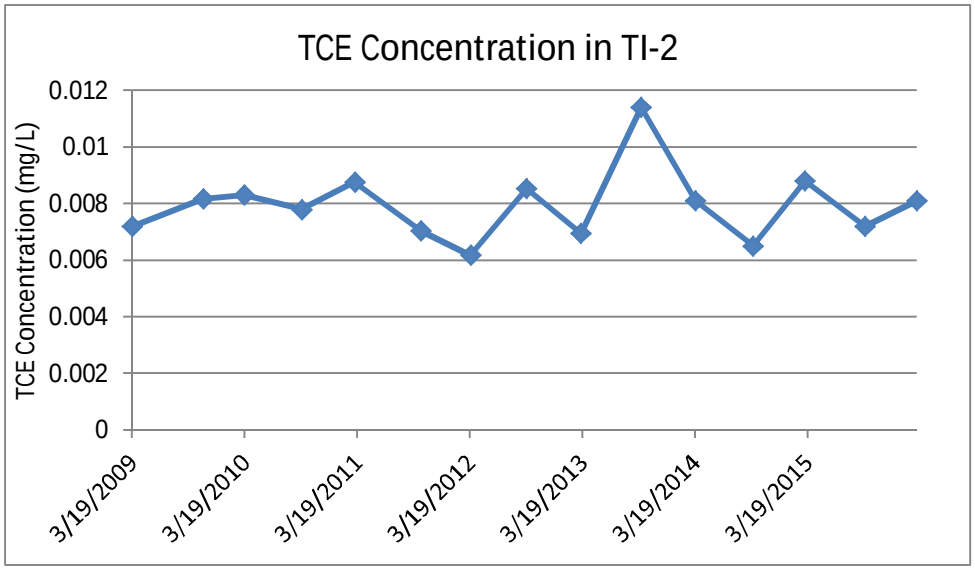

TCE Concentration in TD-3
TCE Concentration (mg/L)
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
11/9/2006
11/9/2007
11/9/2008
11/9/2009
11/9/2010
11/9/2011
11/9/2012
11/9/2013
11/9/2014
11/9/2015


TCE Concentration in QQ-110
TCE Concentration (mg/L)
60
50
40
30
20
10
0
9/20/2012
9/20/2013
9/20/2014
9/20/2015

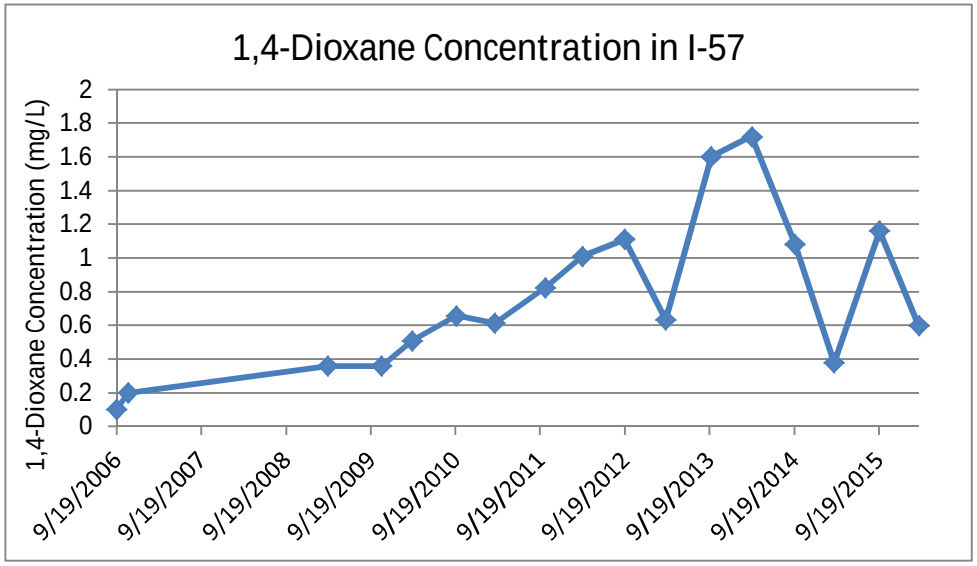

TCE Concentration in TD-4
TCE Concentration (mg/L)
9
8
7
6
5
4
3
2
1
0
11/9/2006
11/9/2007
11/9/2008
11/9/2009
11/9/2010
11/9/2011
11/9/2012
11/9/2013
11/9/2014
11/9/2015

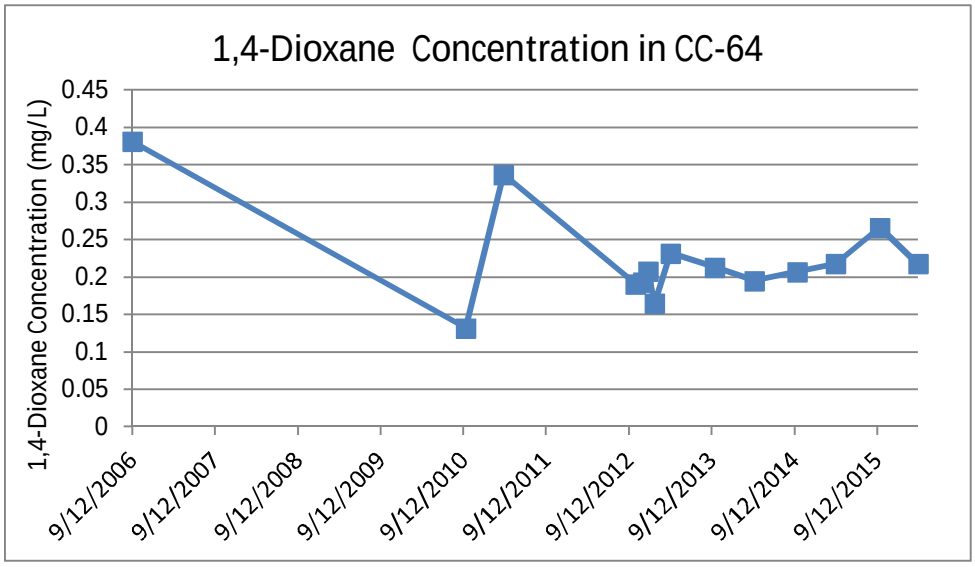


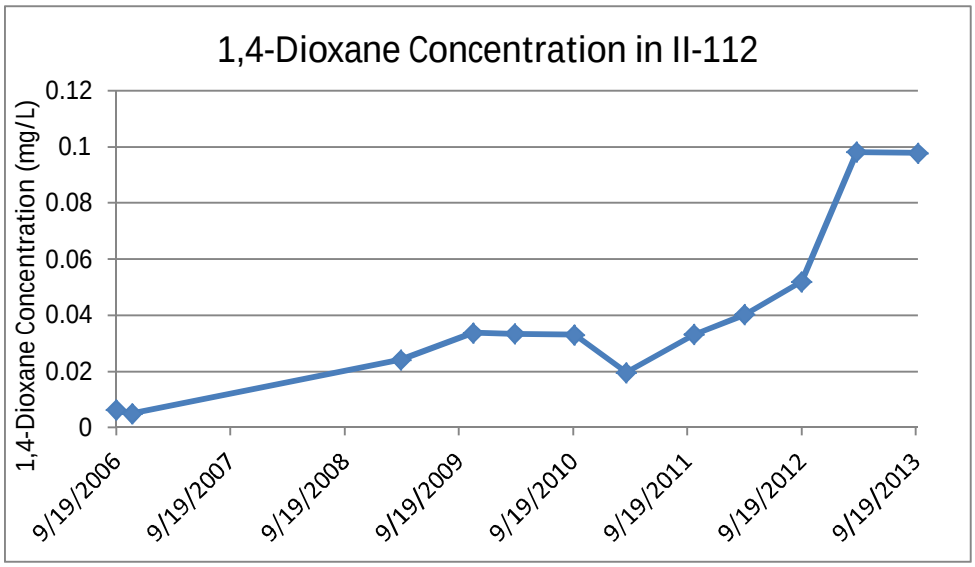


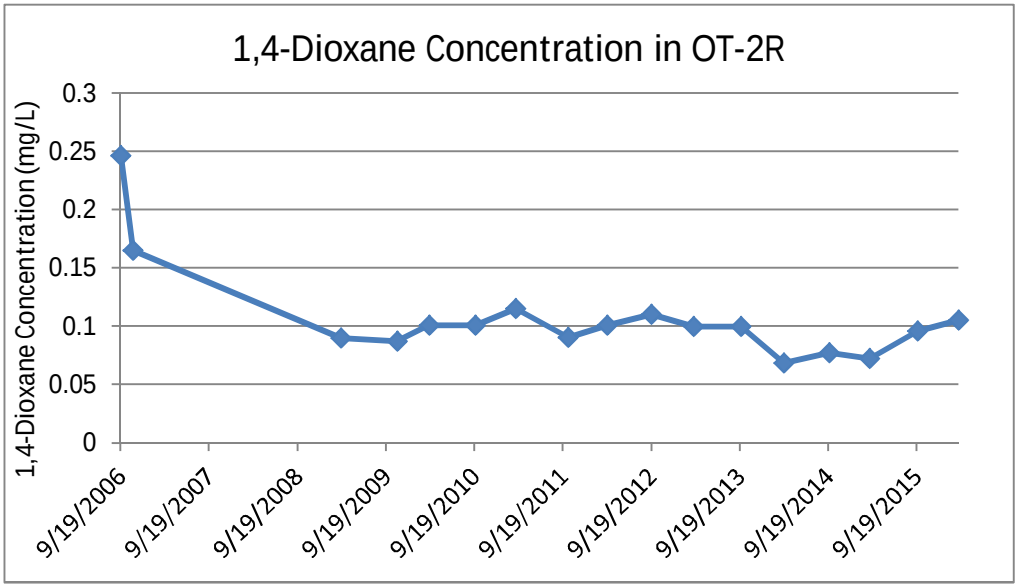


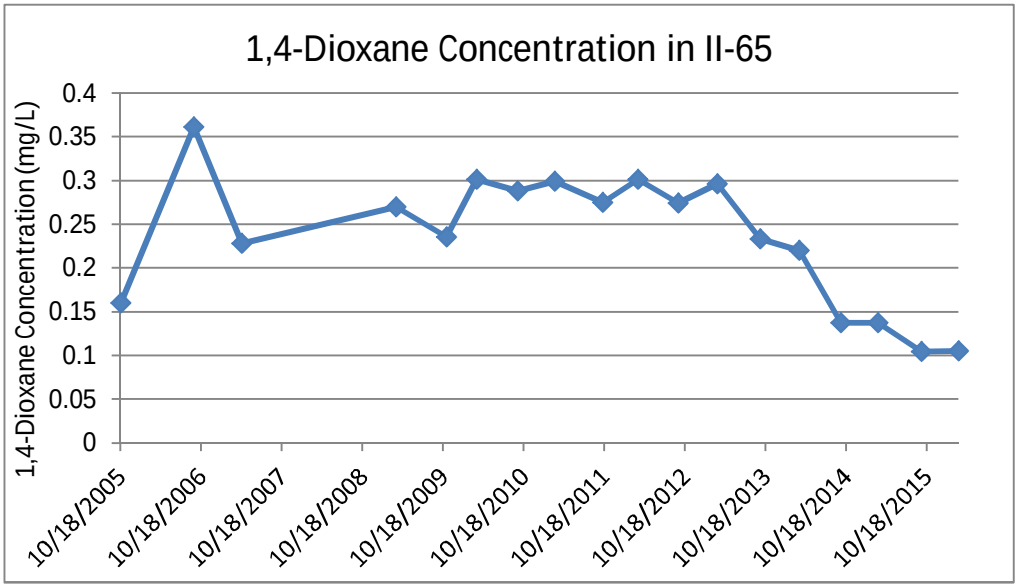
Note: Hollow symbol represents non-detect value.


1,4-Dioxane Concentration in I-57
1,4-Dioxane Concentration (mg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
9/19/2006
9/19/2007
9/19/2008
9/19/2009
9/19/2010
9/19/2011
9/19/2012
9/19/2013
9/19/2014
9/19/2015


1,4-Dioxane Concentration in CC-64
1,4-Dioxane Concentration (mg/L)
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
9/12/2006
9/12/2007
9/12/2008
9/12/2009
9/12/2010
9/12/2011
9/12/2012
9/12/2013
9/12/2014
9/12/2015


1,4-Dioxane Concentration in II-112
1,4-Dioxane Concentration (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
9/19/2006
9/19/2007
9/19/2008
9/19/2009
9/19/2010
9/19/2011
9/19/2012
9/19/2013


1,4-Dioxane Concentration in OT-2R
1,4-Dioxane Concentration (mg/L)
0.3
0.25
0.2
0.15
0.1
0.05
0
9/19/2006
9/19/2007
9/19/2008
9/19/2009
9/19/2010
9/19/2011
9/19/2012
9/19/2013
9/19/2014
9/19/2015


1,4-Dioxane Concentration in II-65
1,4-Dioxane Concentration (mg/L)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
10/18/2005
10/18/2006
10/18/2007
10/18/2008
10/18/2009
10/18/2010
10/18/2011
10/18/2012
10/18/2013
10/18/2014
10/18/2015

Appendix E

GRUB GWRS Performance Monitoring Information

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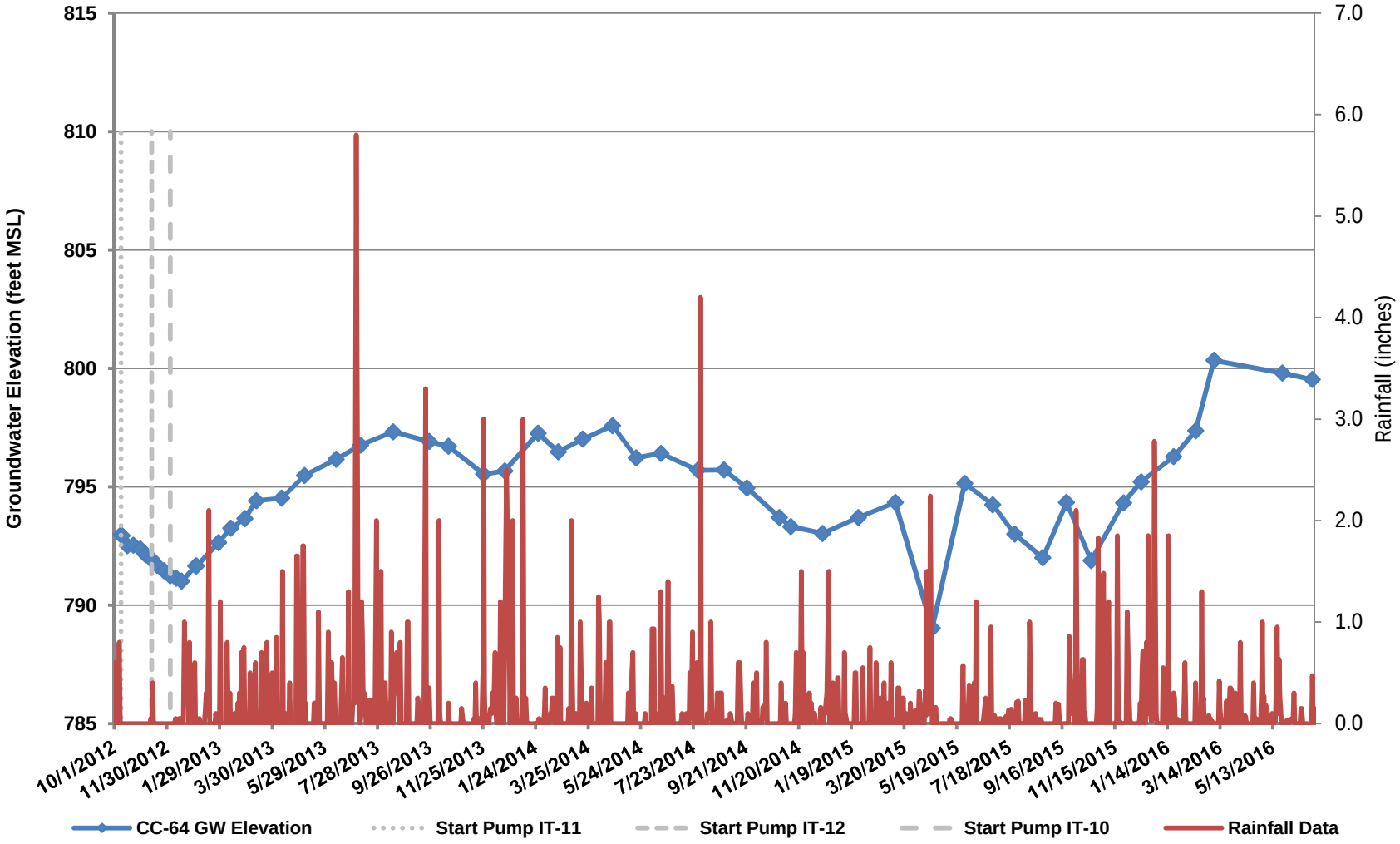
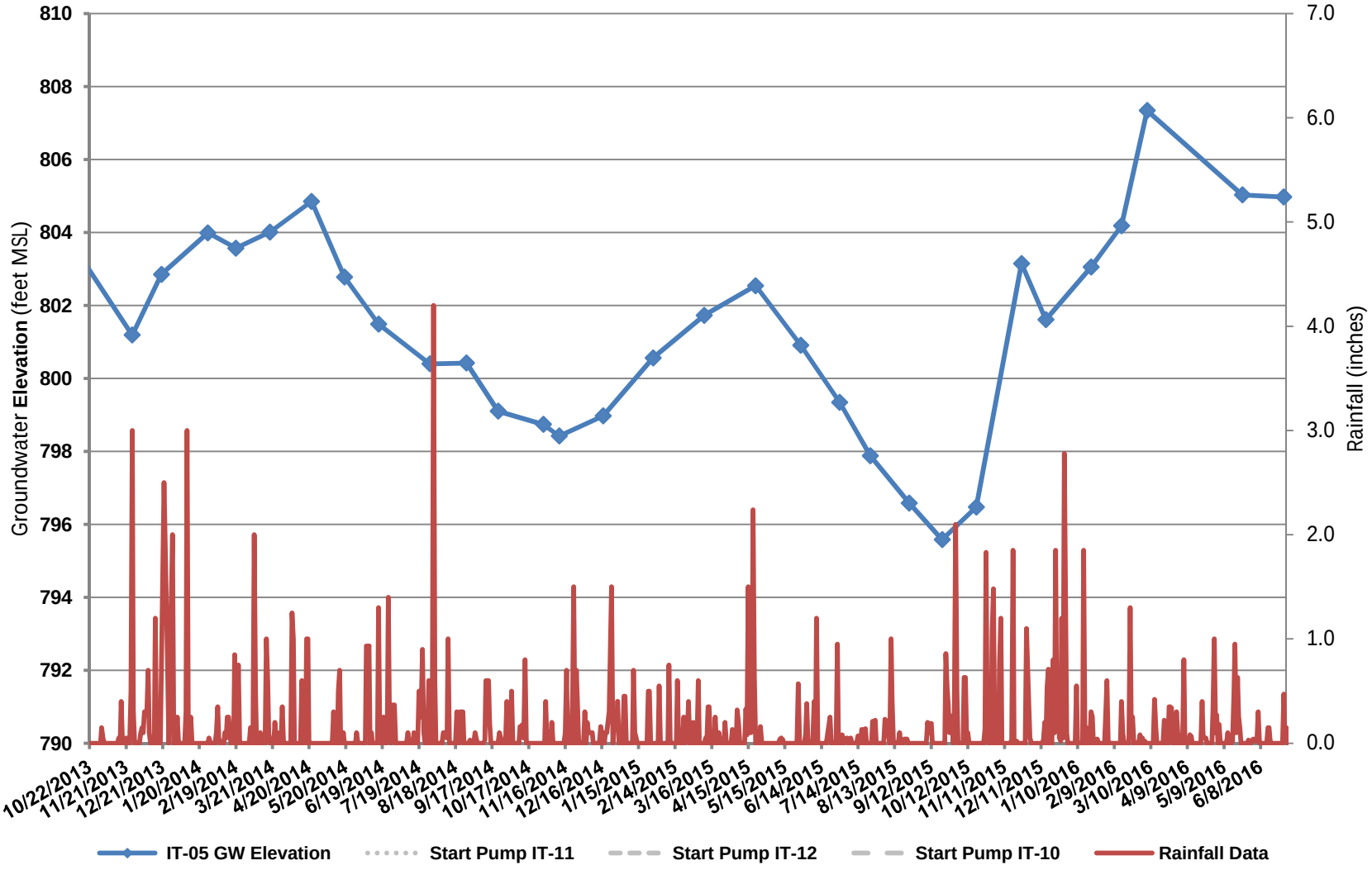
Chart E-1 Hydrograph CC-64
GRUB Recovery System Post-Startup Monitoring



Celanese Fibers Operations Site, Shelby, North Carolina
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Chart E-2 Hydrograph IT-05
GRUB GW Recovery System Post-Startup Monitoring



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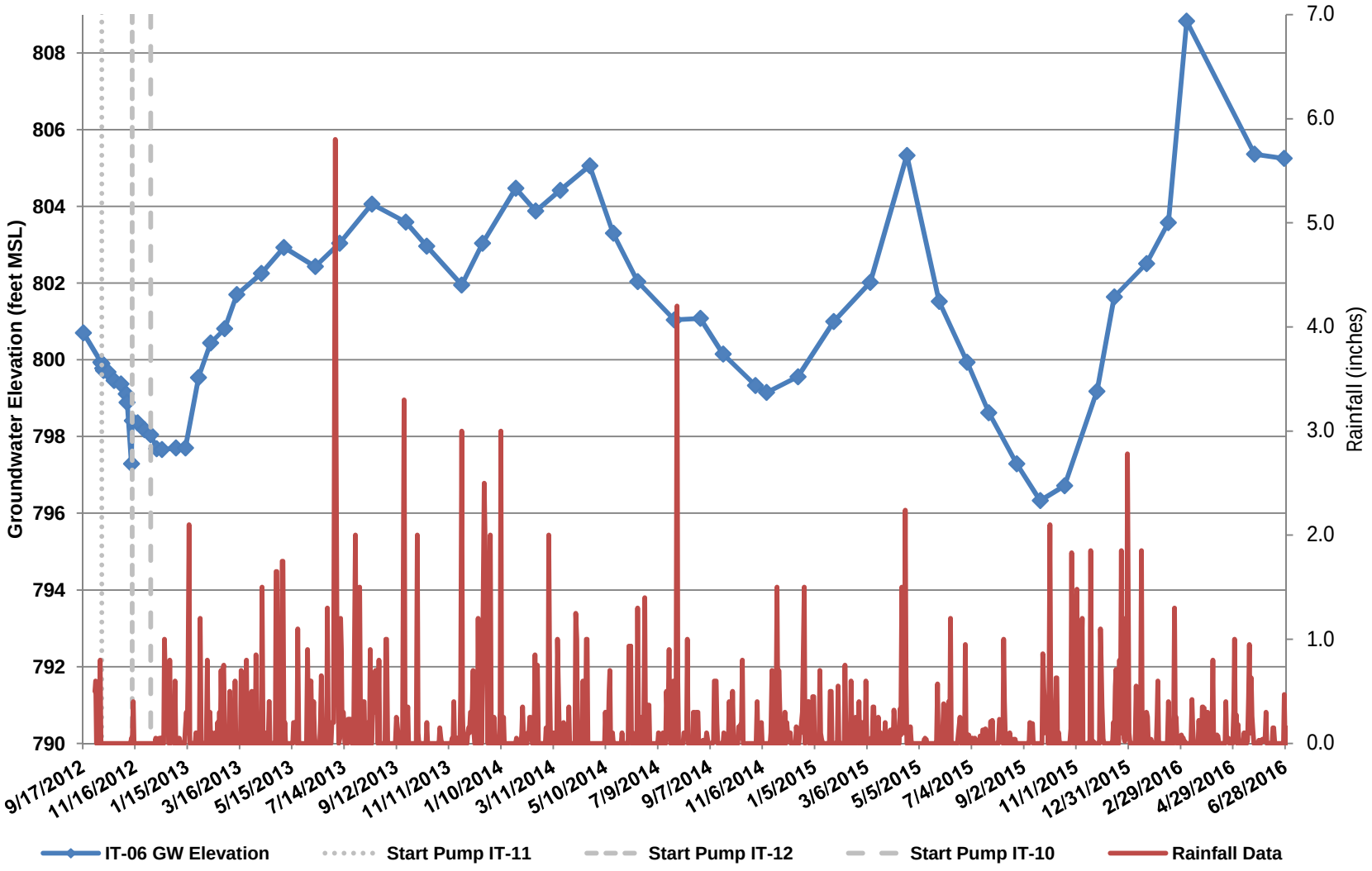
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Chart E-3 Hydrograph IT-06
GRUB GW Recovery System Post-Startup Monitoring



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AECOM Project Number 60301530
Document Control No. 026SB-337

Chart E-4 Hydrograph IT-07
GRUB GW Recovery System Post-Startup Monitoring

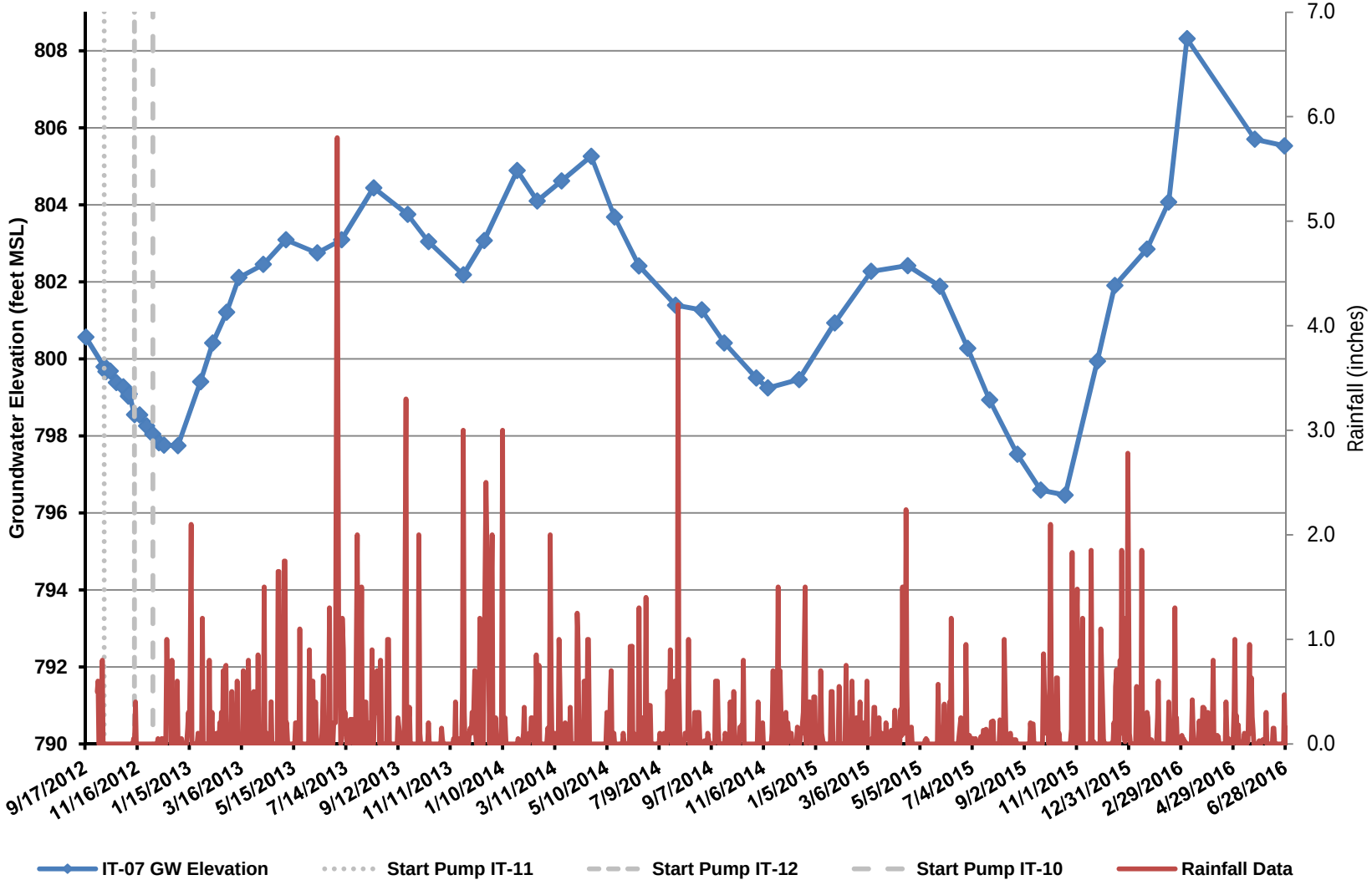

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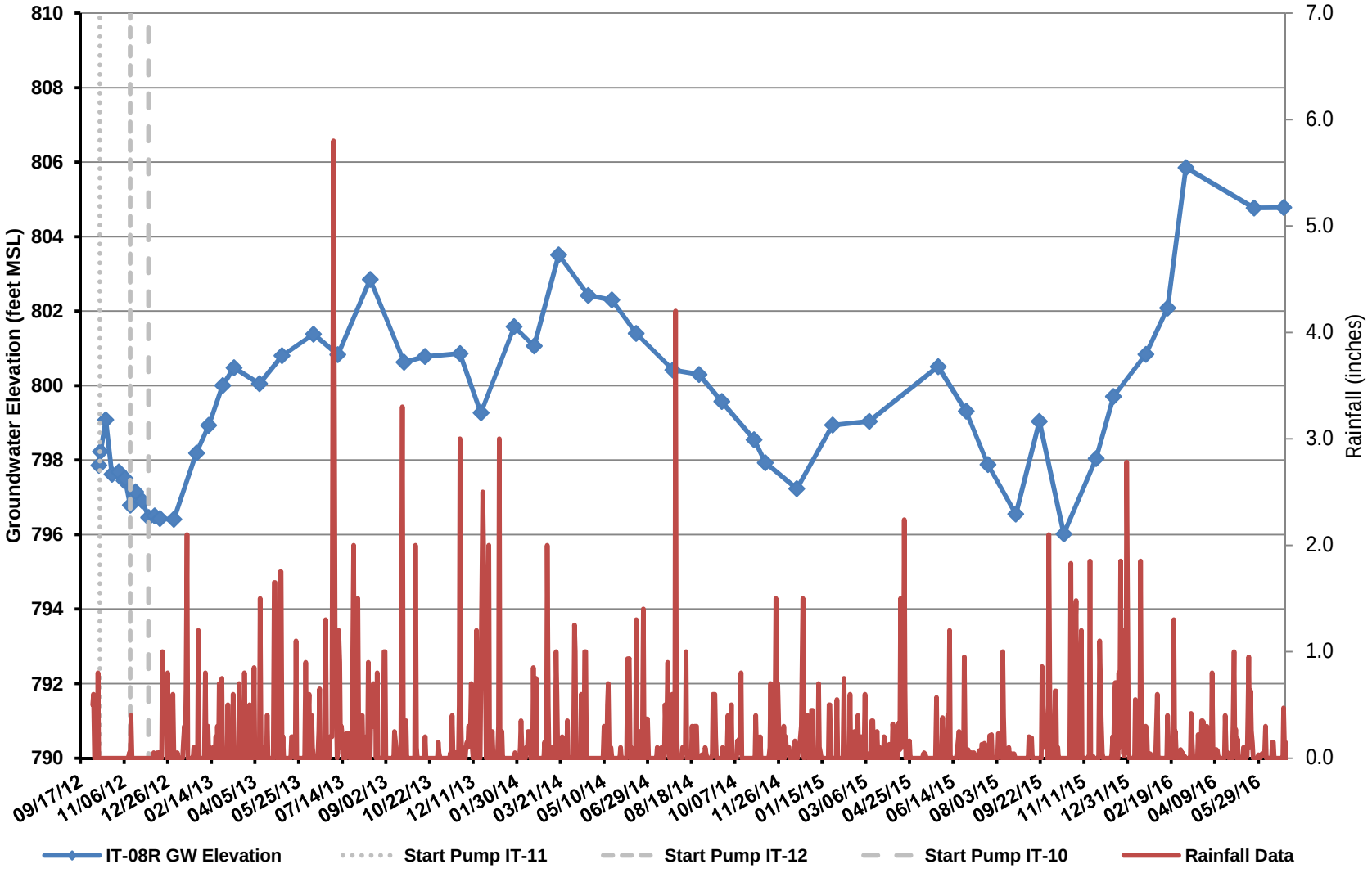
Chart E-5 Hydrograph IT-8R
GRUB GW Recovery System Post-Startup Monitoring



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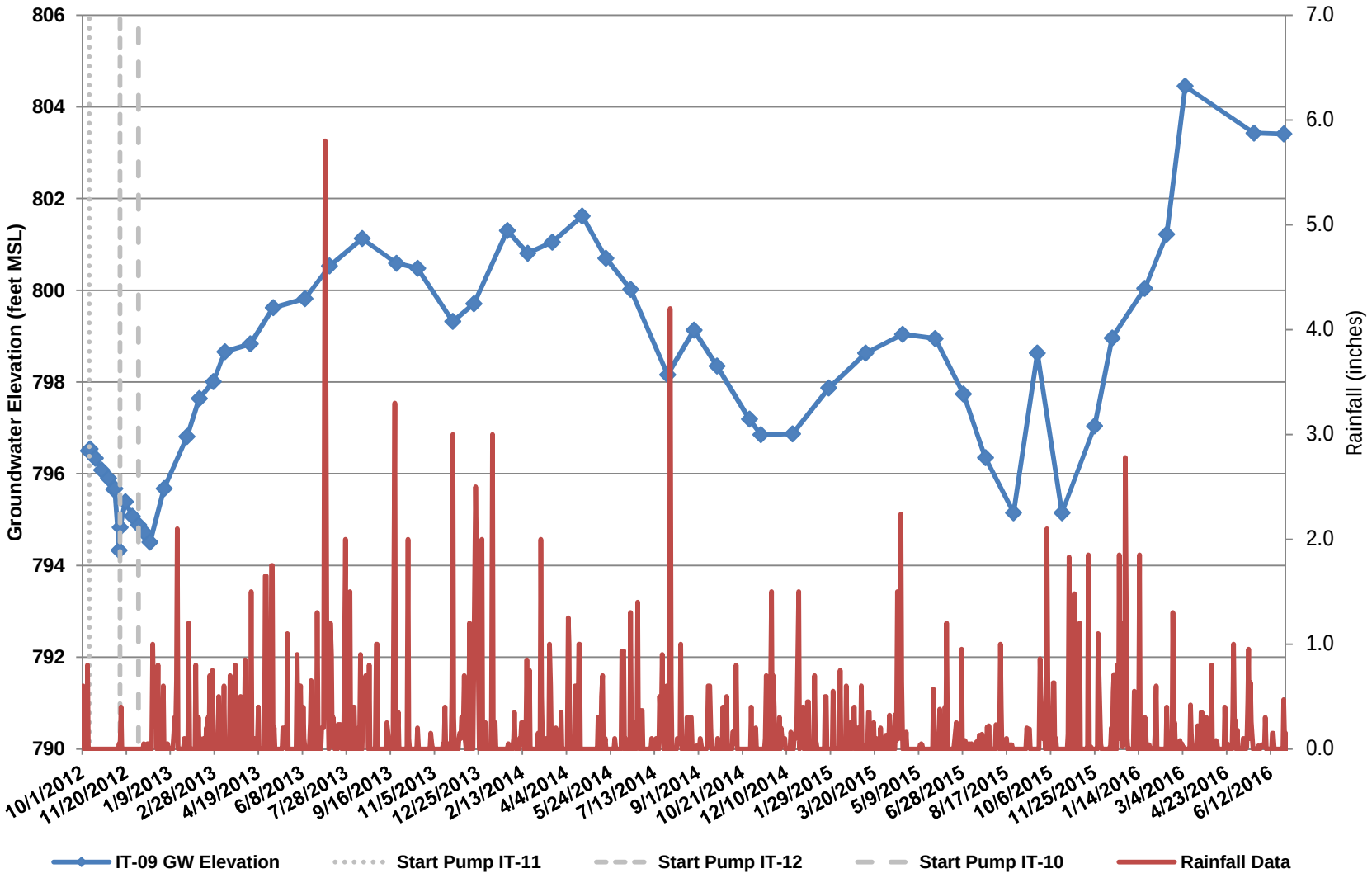
Document Control No. 026SB-337

Chart E-6 Hydrograph IT-09
GRUB GW Recovery System Post-Startup Monitoring



Celanese Fibers Operations Site, Shelby, North Carolina
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Chart E-6 Hydrograph IT-09
GRUB GW Recovery System Post-Startup Monitoring

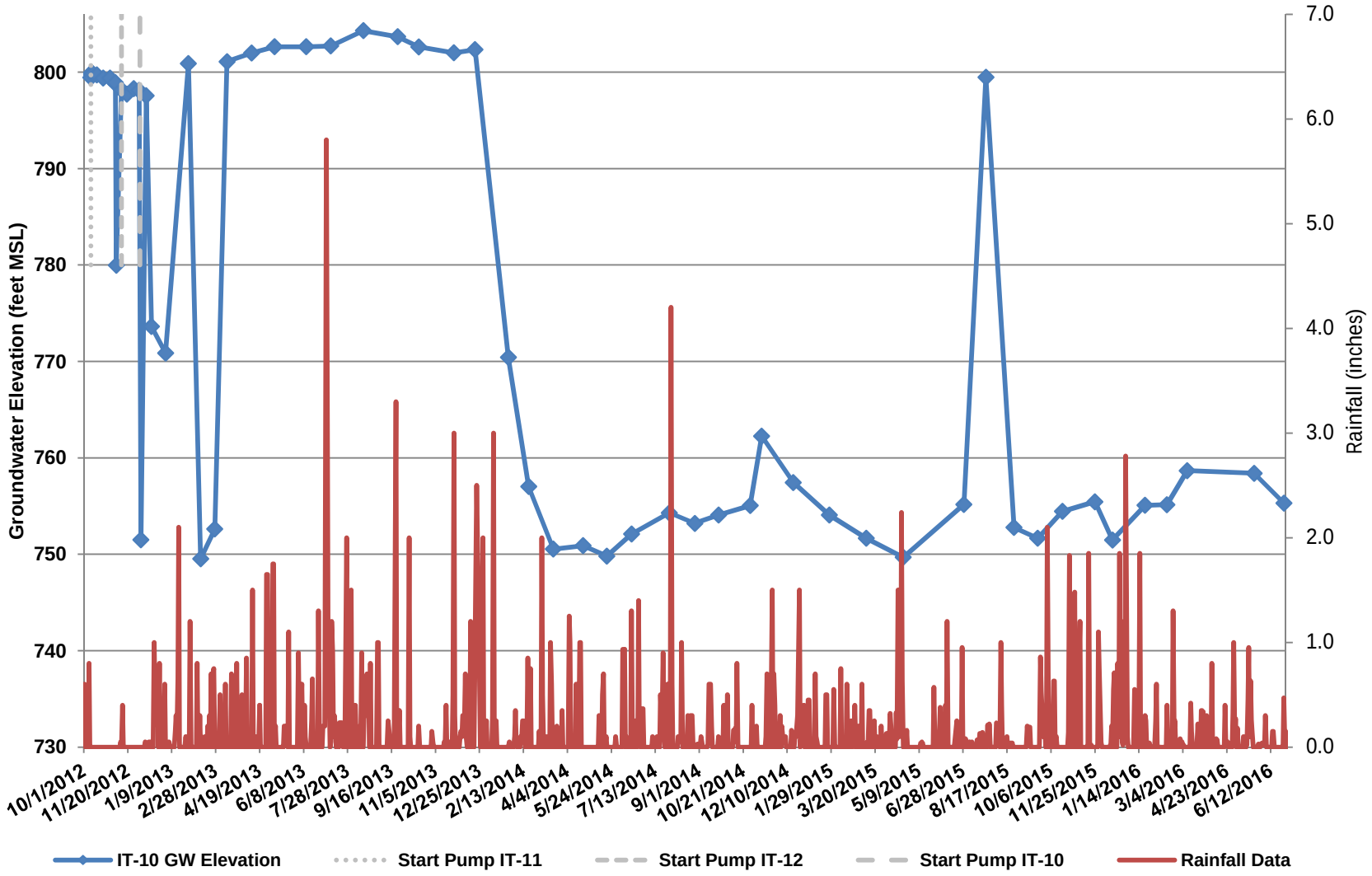

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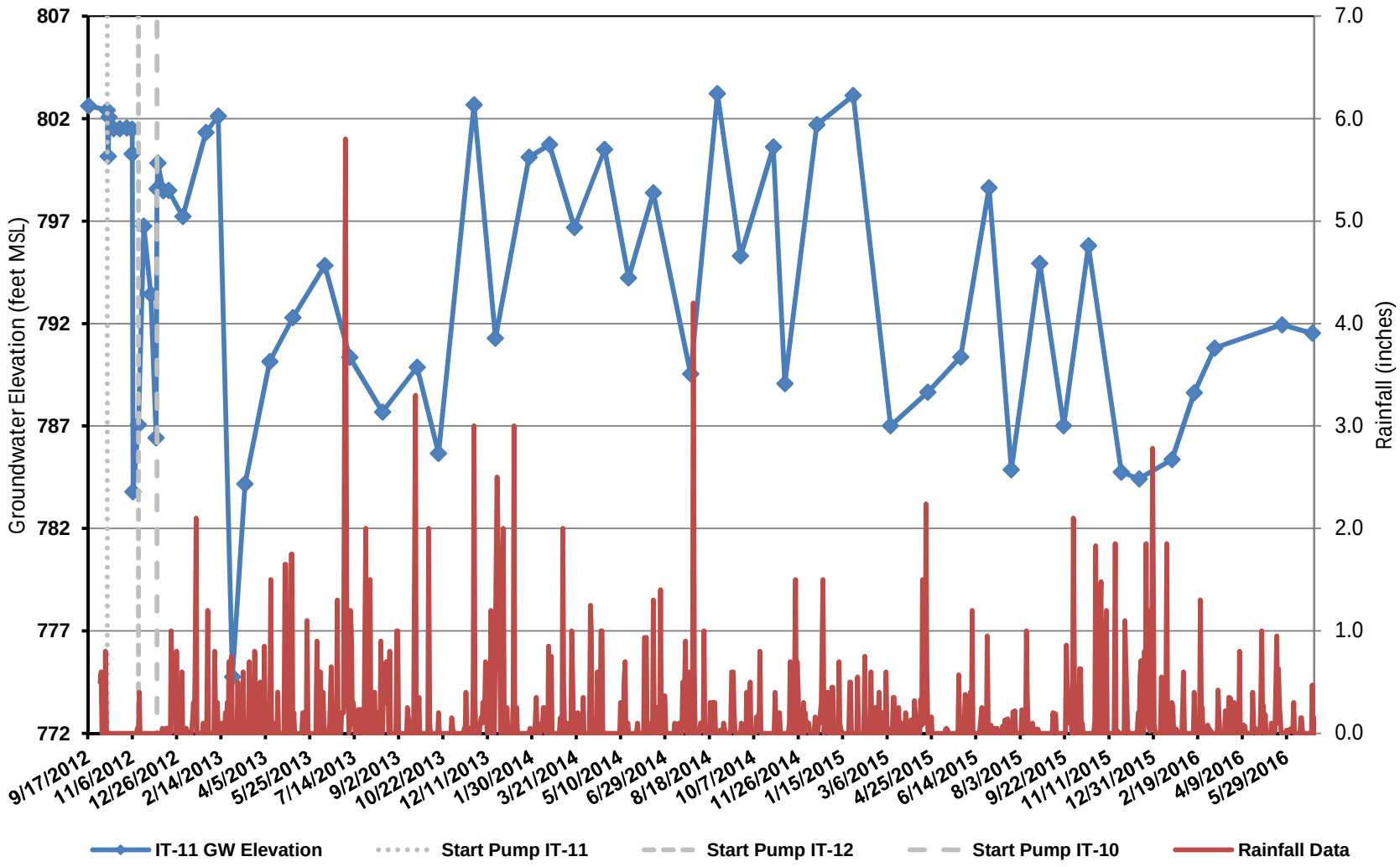
Chart E-8 Hydrograph IT-11
GRUB GW Recovery System Post-Startup Monitoring



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Document Control No. 026SB-337

Chart E-9 Hydrograph IT-12
GRUB GW Recovery System Post-Startup Monitoring

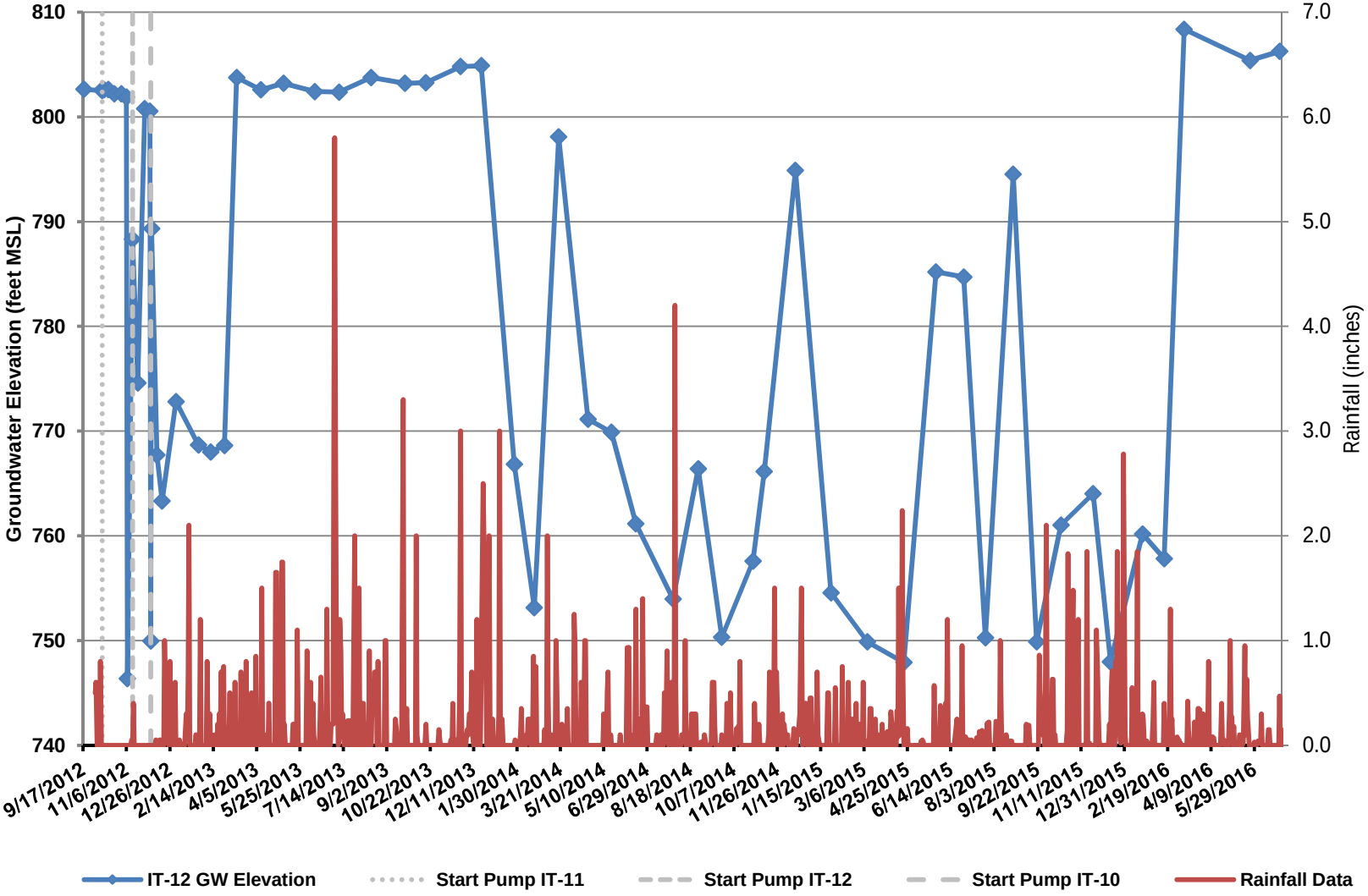

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Chart E-10 Hydrograph K-28
GRUB GW Recovery System Post-Startup Monitoring

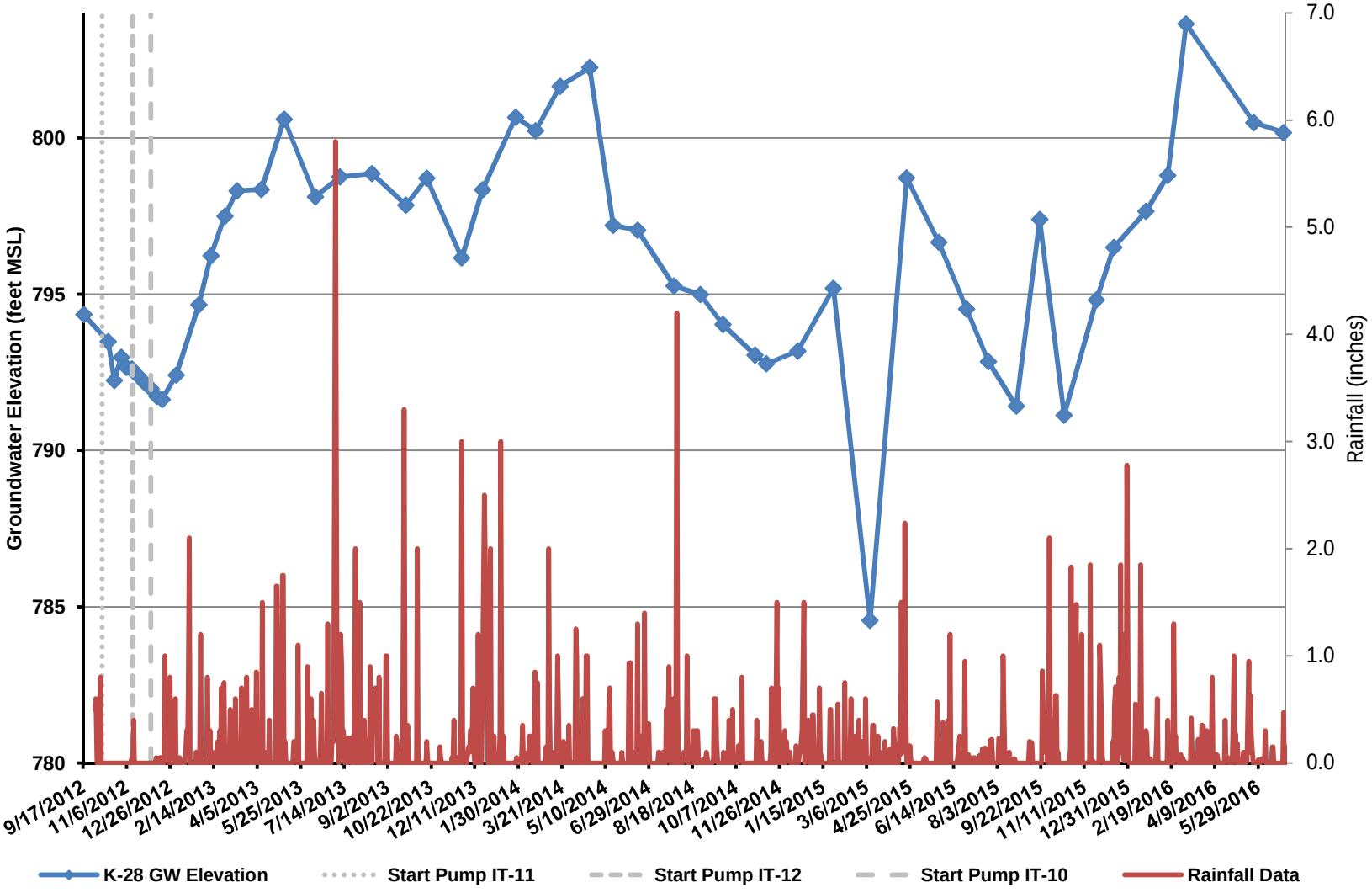

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Chart E-11 Hydrograph K-58
GRUB GW Recovery System Post-Startup Monitoring

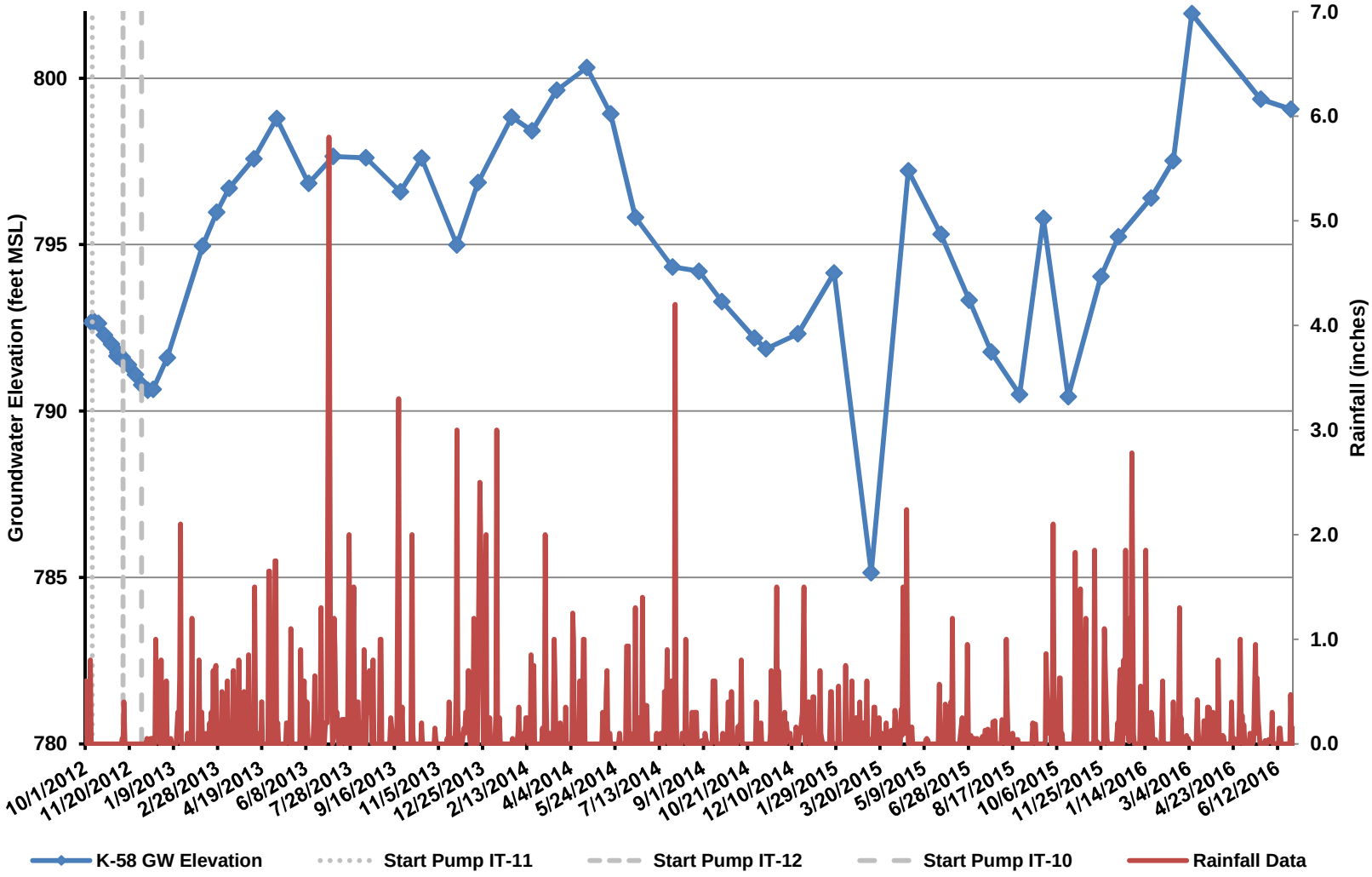

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Chart E-12 Hydrograph V-23
GRUB GW Recovery System Post-Startup Monitoring

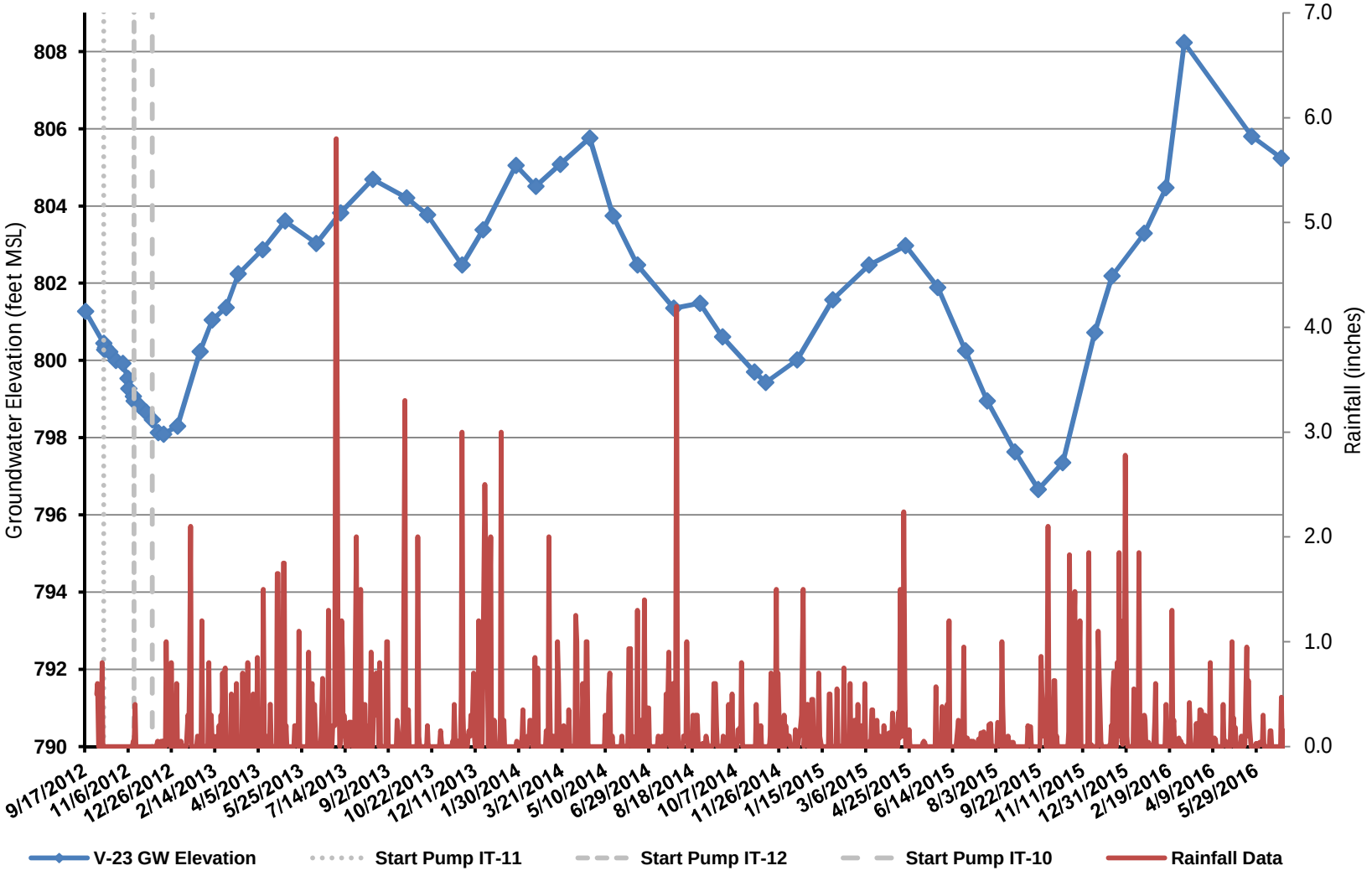

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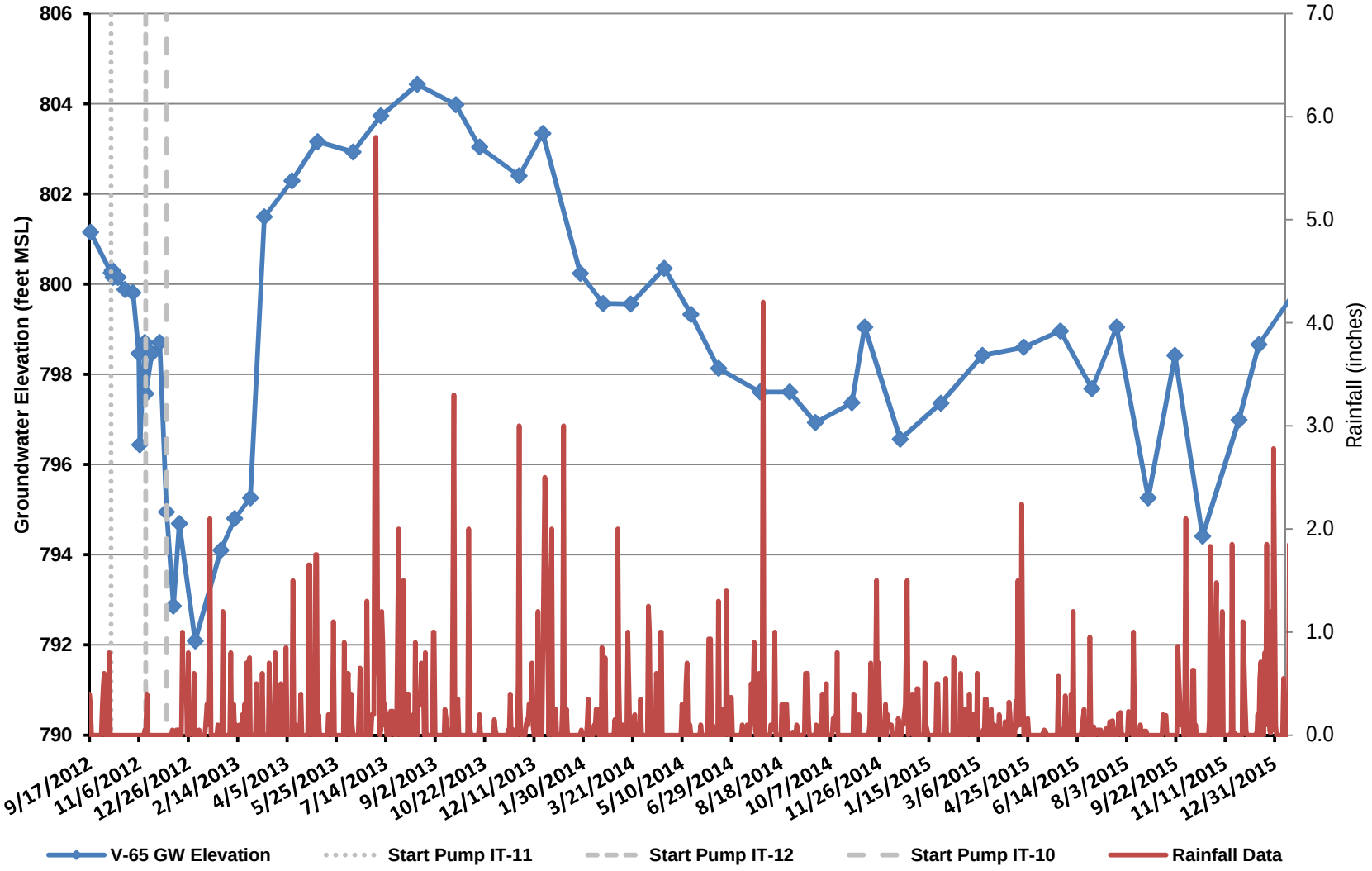
Chart E-13 Hydrograph V-65
GRUB GW Recovery System Post-Startup Monitoring



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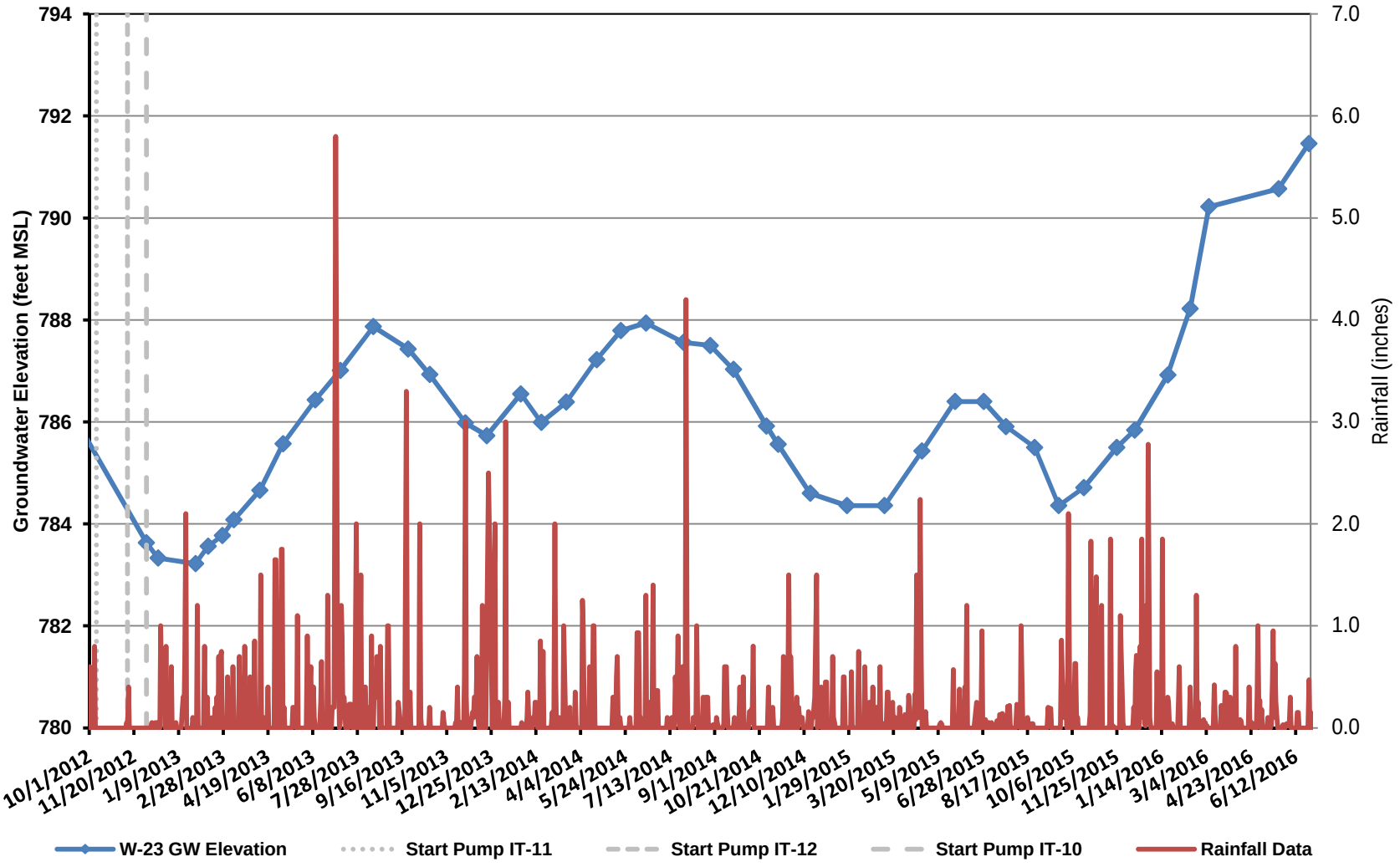
CNA Holdings LLC
AECOM Project Number 60301530
Document Control No. 026SB-337

Chart E-14 Hydrograph W-23
GRUB GW Recovery System Post-Startup Monitoring



Celanese Fibers Operations Site, Shelby, North Carolina
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Chart E-15 Chemical Oxidation Demand vs Time - Extraction Wells
GRUB Groundwater Recovery System Post-Startup Monitoring

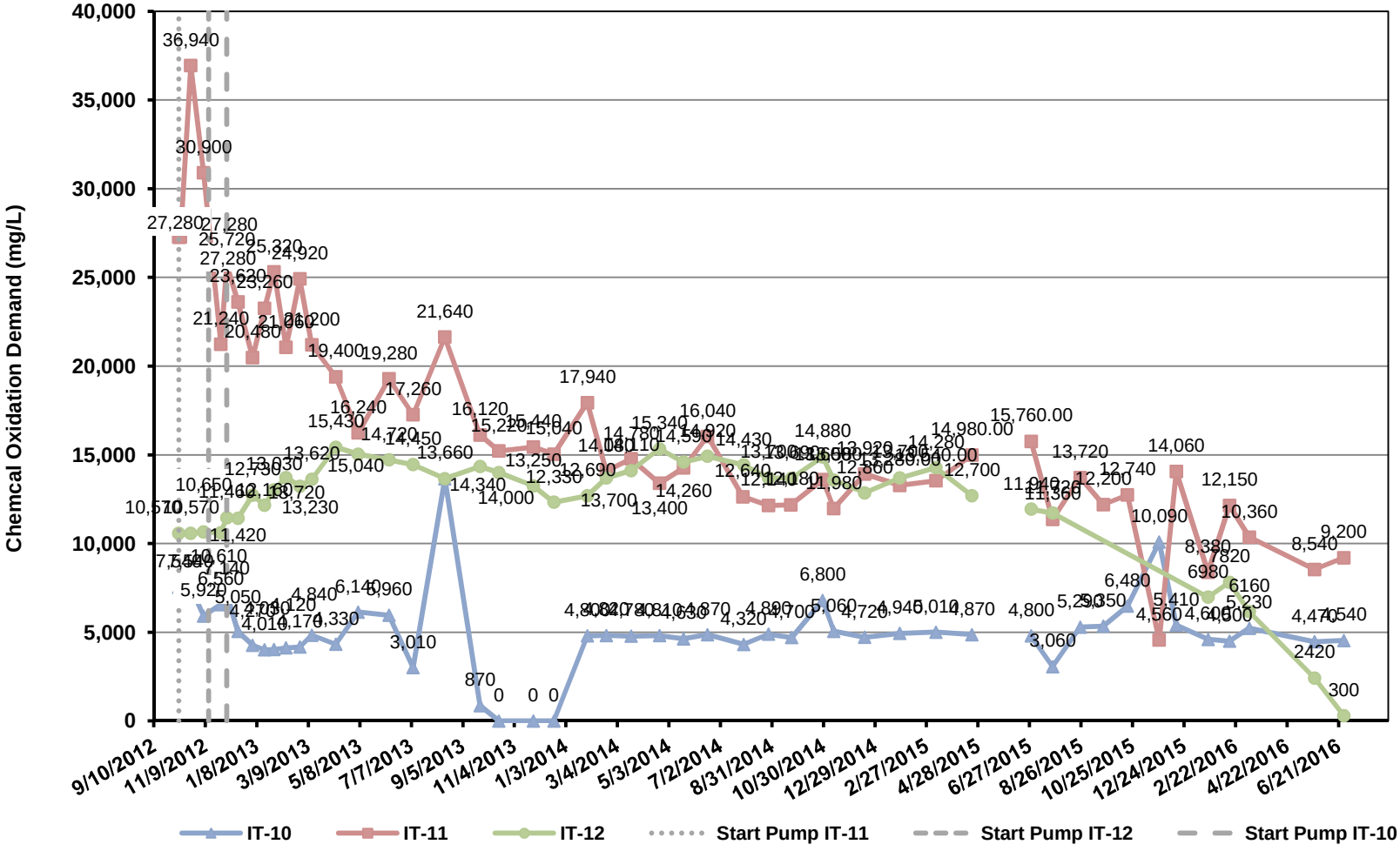

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Chart E-16 EG Concentrations vs Time - Extraction Wells
GRUB Groundwater Recovery System Post-Startup Monitoring

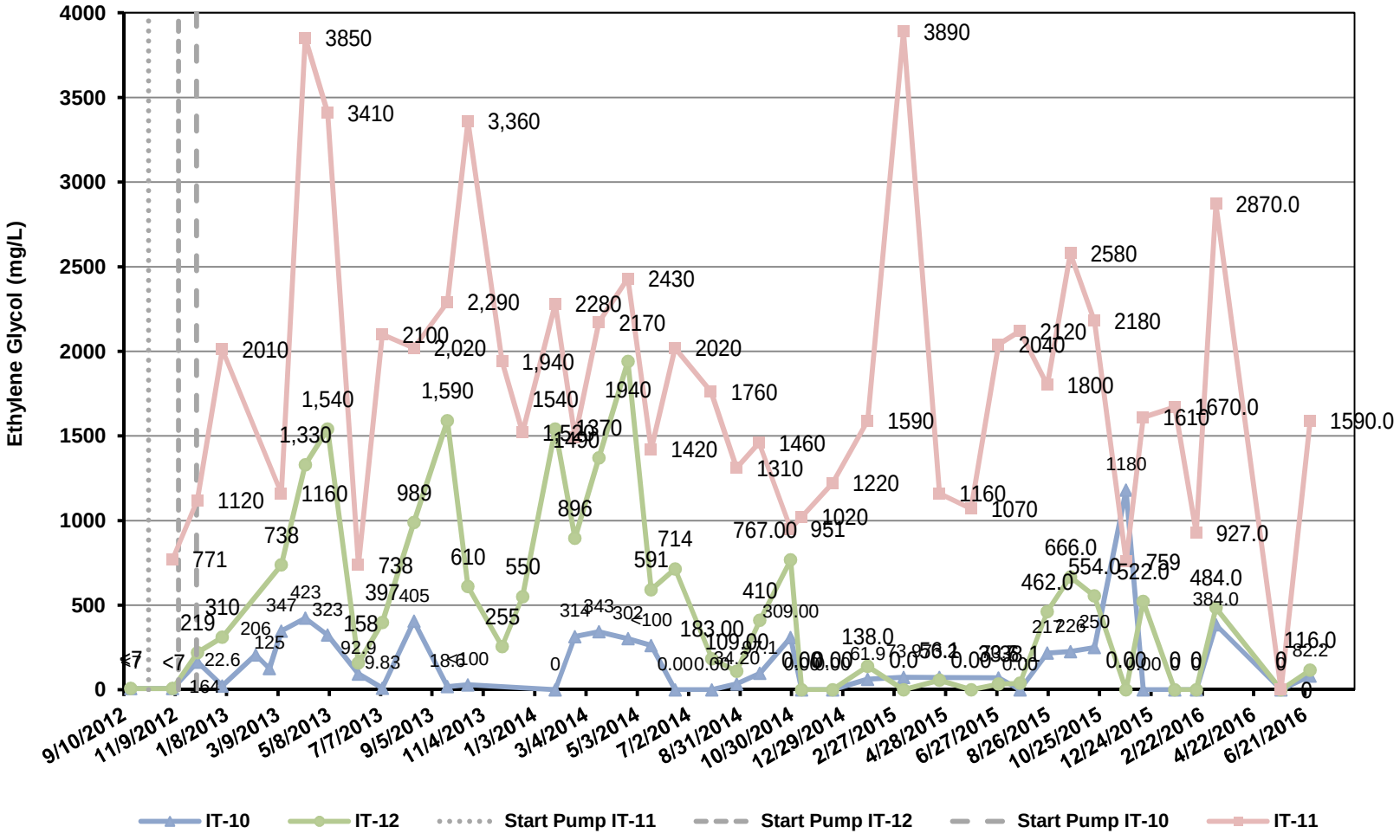

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Chart E-17 EG Concentrations vs Time - Monitoring Wells
GRUB Groundwater Recovery System Post-Startup Monitoring

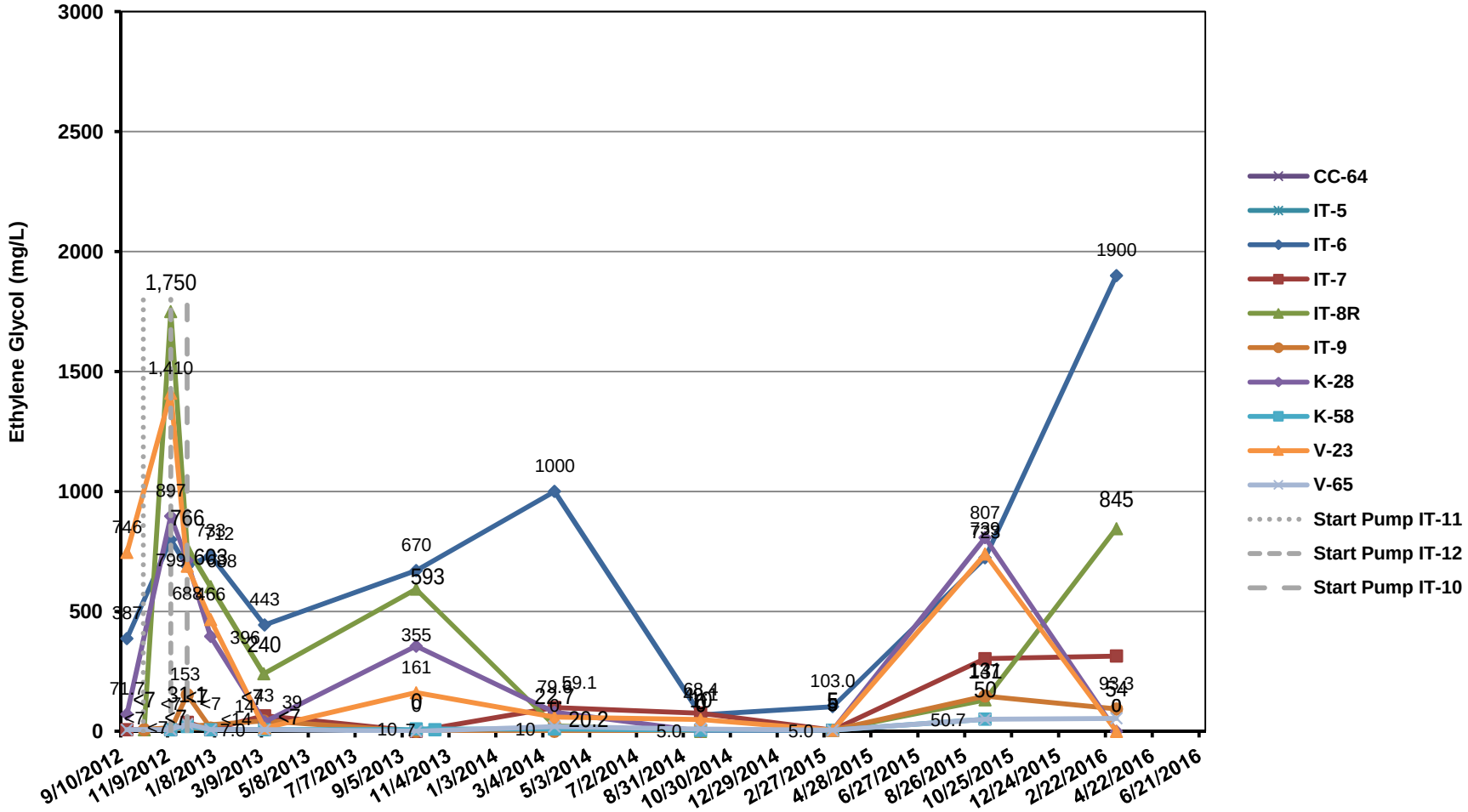

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Chart E-18 1,4-Dioxane Concentrations vs Time - Extraction Wells
GRUB Groundwater Recovery System Post-Startup Monitoring

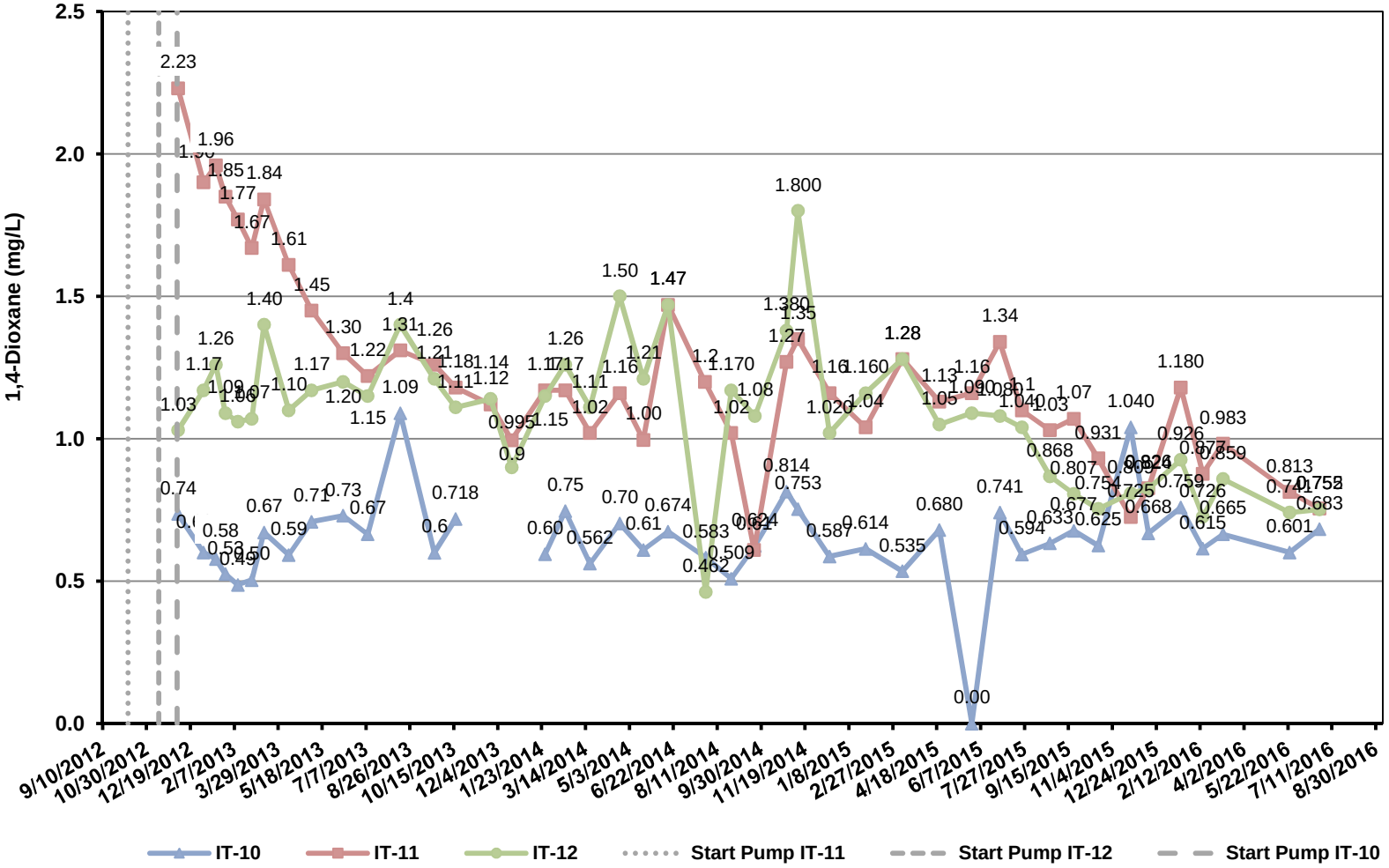

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Chart E-19 1,4-Dioxane Concentrations vs Time - Monitoring Wells
GRUB Groundwater Recovery System Post-Startup Monitoring

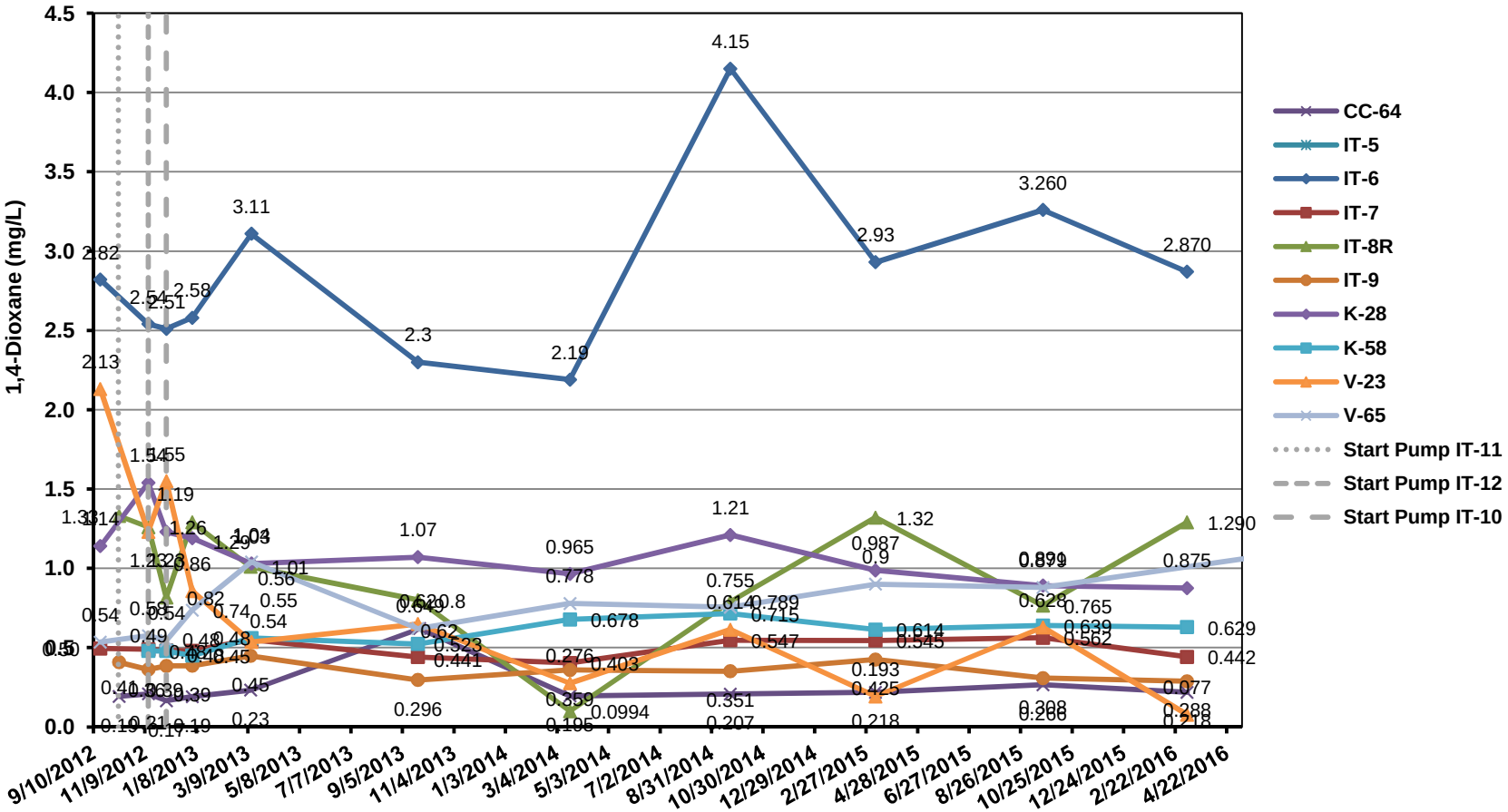

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Chart E-20 1,4-Dioxane Graph - IT-10
GRUB Groundwater Recovery System Post-Startup Monitoring

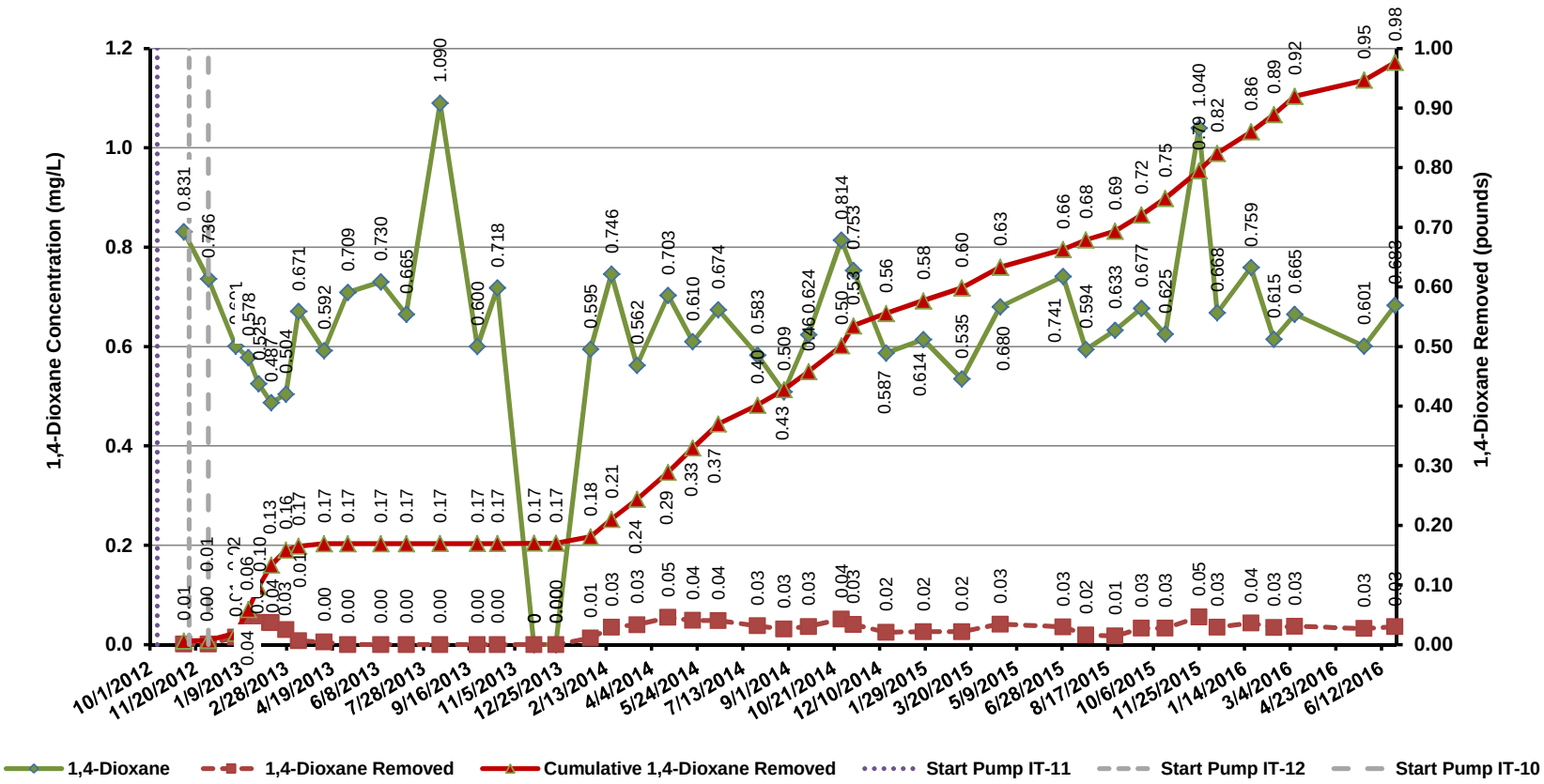

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Chart E-21 1,4-Dioxane Graph - IT-11
GRUB Groundwater Recovery System Post-Startup Monitoring

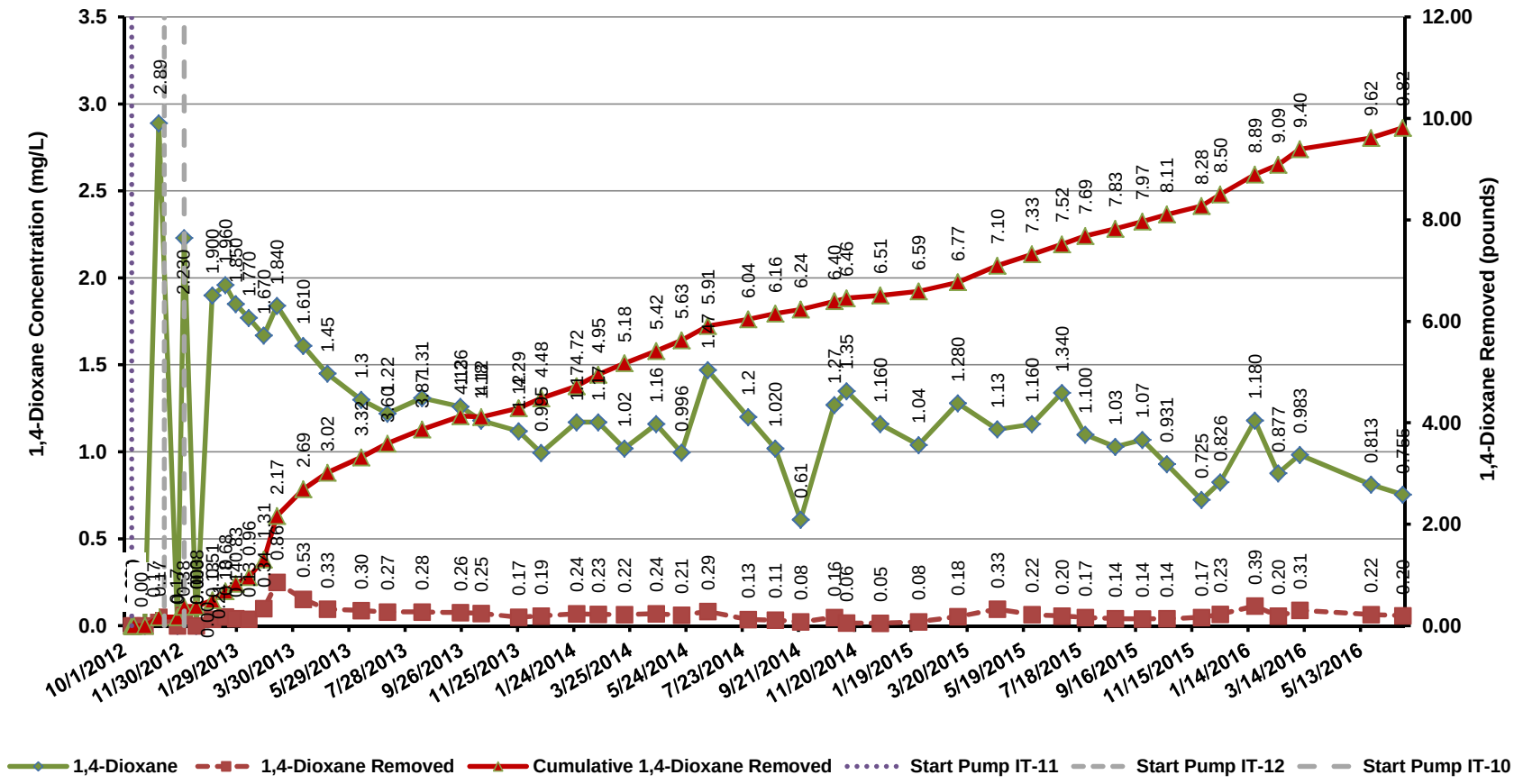

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Chart E-22 1,4-Dioxane Graph - IT-12
GRUB Groundwater Recovery System Post-Startup Monitoring

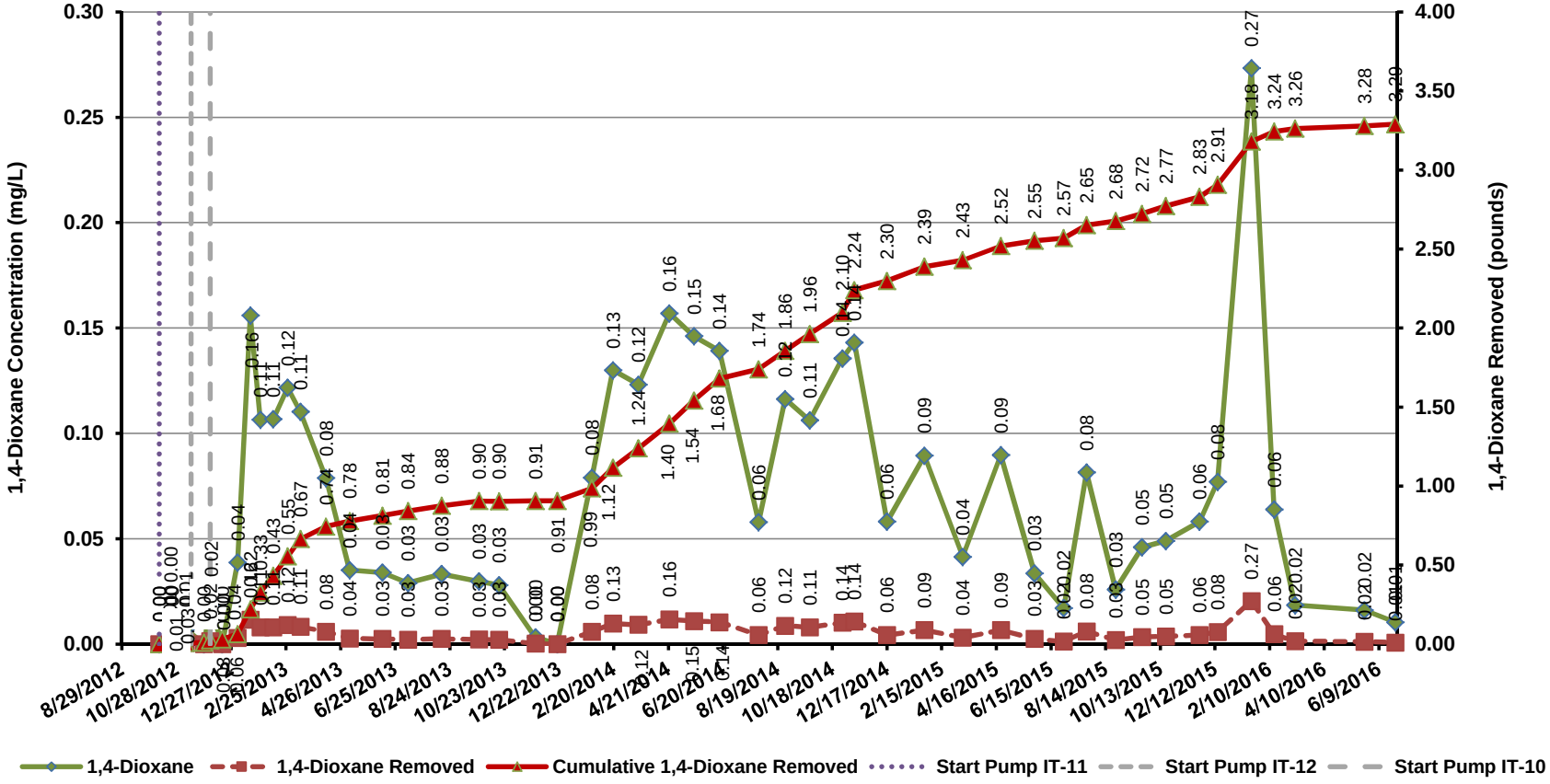

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Chart E-23 Ethylene Glycol Graph - IT-10
GRUB Groundwater Recovery System Post-Startup Monitoring

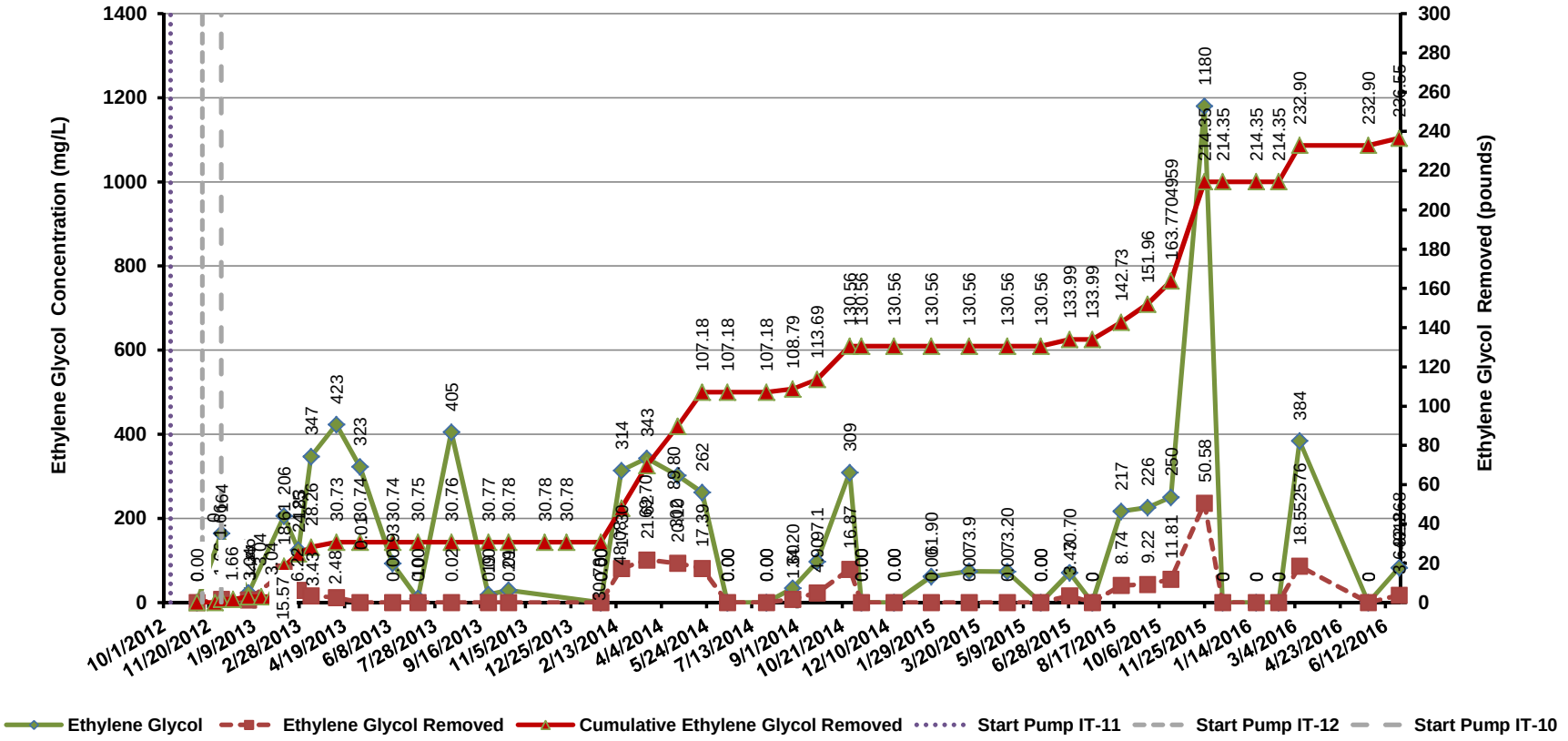

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Chart E-24 Ethylene Glycol Graph - IT-11
GRUB Groundwater Recovery System Post-Startup Monitoring

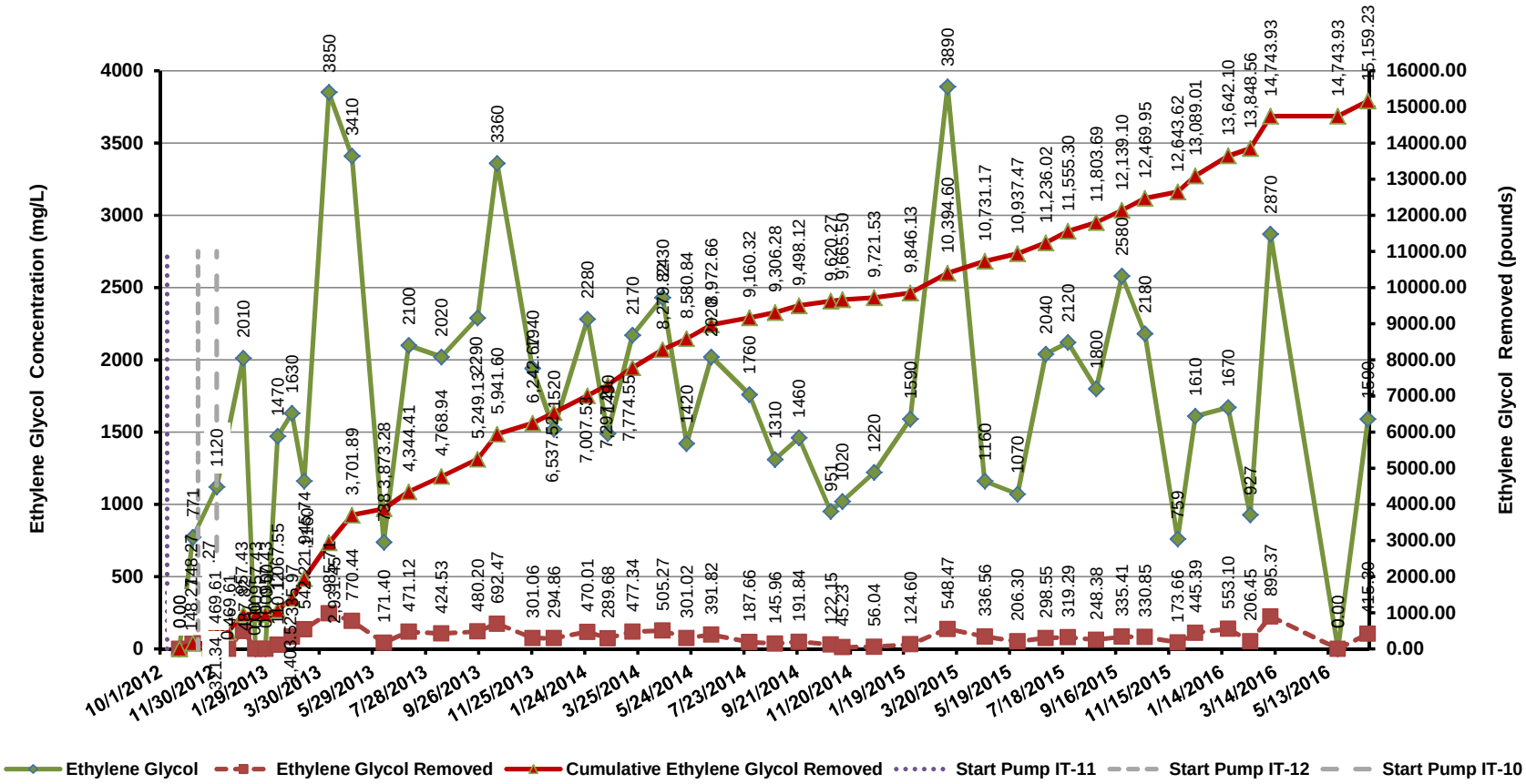

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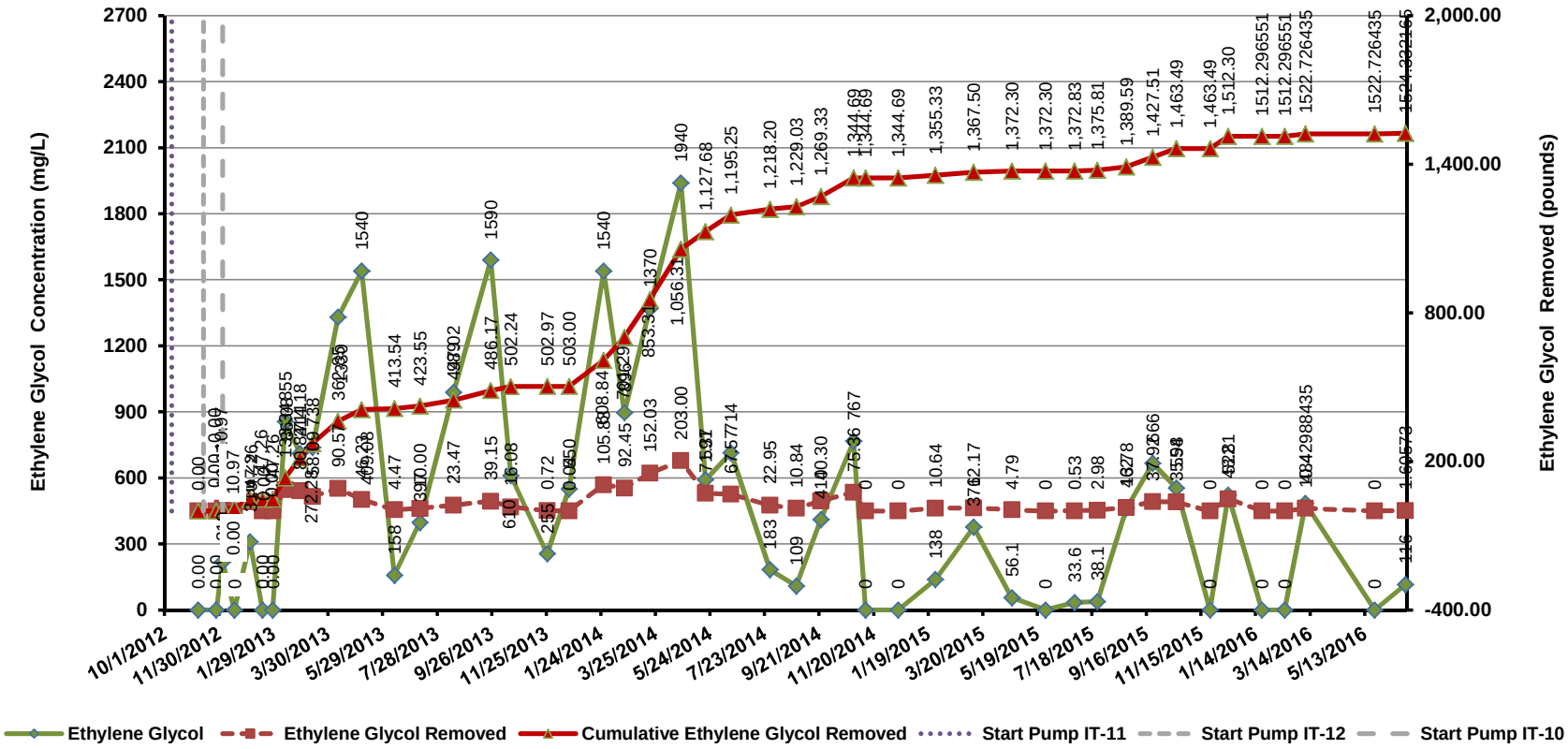
Chart E-25 Ethylene Glycol Graph - IT-12
GRUB Groundwater Recovery System Post-Startup Monitoring



Ethylene Glycol | Ethylene Glycol Removed | Cumulative Ethylene Glycol Removed | Start Pump IT-11 | Start Pump IT-12 | Start Pump IT-10

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Chart E-26 COD Graph - IT-10
GRUB Groundwater Recovery System Post-Startup Monitoring

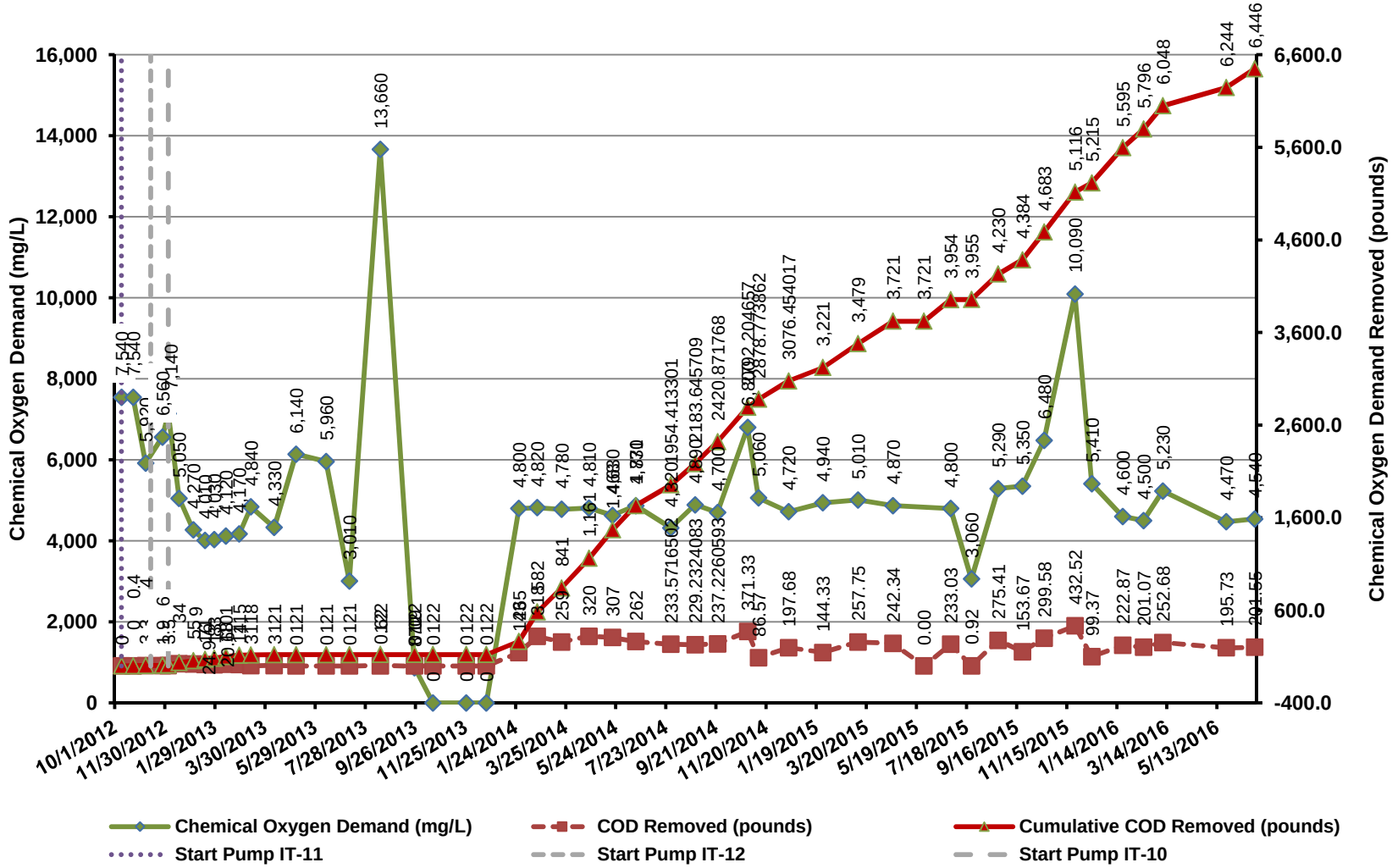

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Chart E-27 COD Graph - IT-11
GRUB GW Recovery System Post-Startup Monitoring

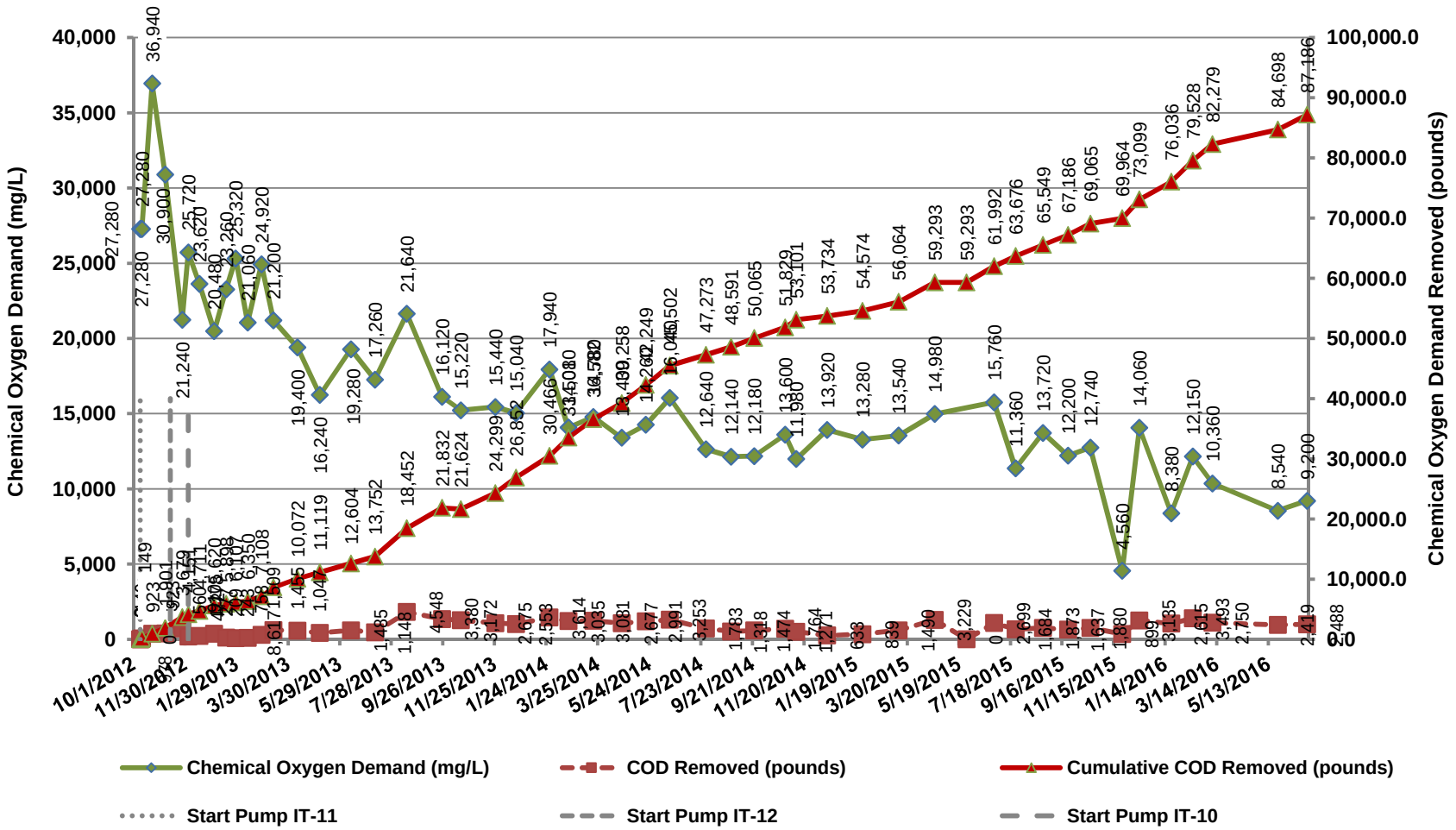

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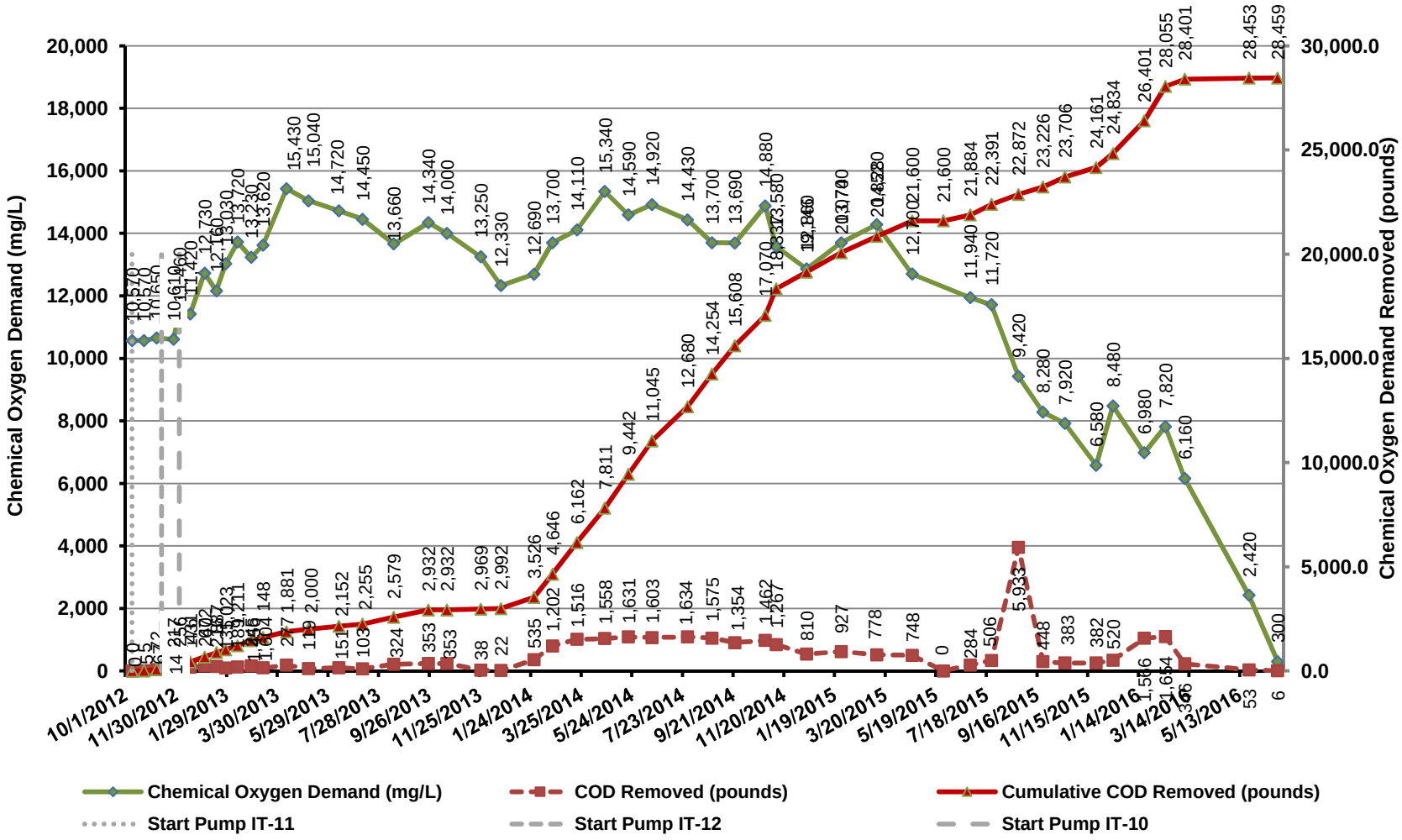
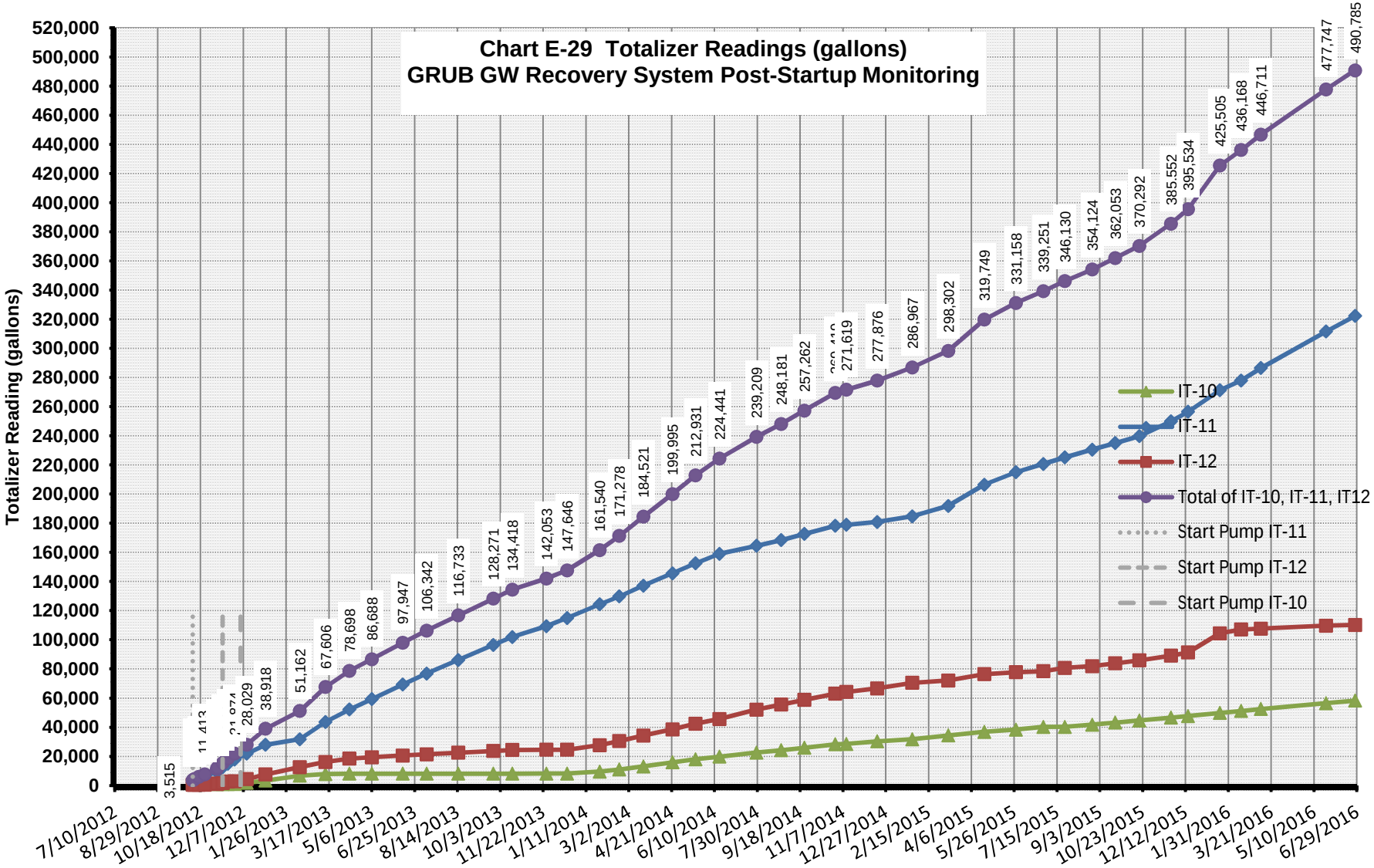
Chart E-28 COD Graph - IT-12
GRUB GW Recovery System Post-Startup Monitoring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Document Control No. 026SB-337